

## **PREFACE**

About 98% of enterprises in Turkey are small and medium enterprises (SME). Therefore, the SME financial situation directly affects the Turkish economical structure. The SME financial situation is related to bank credits and other financial funds. In the first quarter of 2009, new credit risk assessments, known as Basel-II standards, will apply in Turkey. Basel II standards will affect the SME financial structure and bank capital requirements directly. These new standards will bring new approaches to risk assessment methods, capital adequacy issues, lucid financial structure, management systems, SME definition, etc. This thesis is about the SME in Turkey and the possible affects of Basel-II on the SME. I would like to thank Assoc. Prof. Dr. iğdem elik for her support during my study.

Hakan Mert

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## **1.INTRODUCTION**

Like all developed and underdeveloped countries, Small and Medium Enterprises, or SME, are key parts of the economy in Turkey. SME financial issues are very important for Turkey during its adaptation to the EU and international competition. The latest standards regarding Basel-II, affect the financial funds of SME directly as they are making radical changes in the relationship between banks and companies.

In the first quarter of 2009, Basel-II standards will start to be applied in Turkey. Due to the organic relation between real economy and the finance sector, a strong understanding of Basel-II standards is crucial for long term success; therefore, banks and real economy should take action and make preparations for Basel-II standards. These standards change the risk management structure of banks, which will affect customer's credit prices. After Basel-II, credit will no longer be defined as bad or good but as low risk and high risk. A risk focused approach will not only affect SME credit prices but also its terms either positively or negatively.

This study is about the importance of SME in Turkey and the effects of Basel II standards, its advantages and disadvantages on SME in Turkey. Part one discusses SME; this includes a definition of SME, the role of SME in Turkey's economy, and the advantages and disadvantages of SME. Part two focuses on Basel standards; this includes the Basel Committee history, Basel-I and Basel-II, and detailed information about Basel-II standards. Part three includes survey results made by Hakan Mert and his comments about it, and the last part is about the affects of Basel-II standard on the SME in Turkey.

## **2.SMALL AND MEDIUM ENTERPRISES (SME)**

Small and medium enterprises are one of the most important aspects of developed and underdeveloped countries. For some countries, SME represent the backbone of the economies, constituting an important contribution to their GDP and to the sustainability of their employment levels. This importance doubles for the countries like Turkey, which are often faced with economic crisis. With its flexible structure and contribution characteristics in increasing competition, SME are the key parts of the world's economy.

### **2.1. SME Definition**

An enterprise is considered to be any entity engaged in an economic activity, irrespective of its legal form. This includes, in particular, self-employed people and family businesses engaged in craft or other activities, and partnerships or associations regularly engaged in an economic activity (Official Journal of the European Union. 2003). This is the EU definition of enterprises; the same journal defines SME with these words;

1. The category of micro, small and medium-sized enterprises (SME) are enterprises which employ fewer than 250 people and which have an annual turnover not exceeding EUR 50 million, and/or an annual balance sheet total not exceeding EUR 43 million.

2. Within the SME category, a small enterprise is defined as an enterprise which employs fewer than 50 persons and whose annual turnover and/or annual balance sheet total does not exceed EUR 10 million.

3. Within the SME category, a micro enterprise is defined as an enterprise which employs fewer than 10 persons and whose annual turnover and/or annual balance sheet total does not exceed EUR 2 million (Official Journal of the European Union. 2003).

In Turkey, SME definition is quite new according to a new law implemented by the Turkish government in 2005 (Annex-1). According to this law, SME is the enterprise which employs less than 250 people and has an annual balance of less than 25 million YTL.

## **2.2. Advantages and Disadvantages of SME**

SME have many advantages compared to other big companies. The main advantages of SME are:

- SME can be established with little equity. This also gives SME a chance to widen their product range.
- SME can be established with fewer investments than big companies.
- Big companies are not directly related to economic environments, so SME can resist economical crisis better than big companies due to its organic relationship with the economic structure.
- Big companies can not interfere with employees as much as SME.
- SME can invest in businesses which have little amount of demand.
- SME can adapt new technologies with little amounts of investments.

Among these advantages, SME also have some disadvantages:

- Due to low investment budgets, SME usually use older technologies.
- SME can not observe the changes within the country and worldwide; because of this, they usually can not hire well educated employees.
- Generally because of low profits, SME works off record.
- Due to unorganized balance sheets, usually the management is faced with problems.
- Balance sheets are not designed according to the international standards, affect financial funds such as bank credits.
- SME can not compete with international companies because of production capacities.

(OECD, 2004; Akgemci, 2001; Yılmaz 2003)



### **2.3. SME in Turkish Economy**

Within the range of the law, about 98.8% of enterprises are SME in Turkey. About 40% of the companies which have public shares can also be defined as SME.

According to İstanbul Sanayi Odası (İSO), about 440 enterprises have more than a 50 million euro balance of the first 1000 enterprises on the list defined as SME. Another research by TCMB shows that 702 companies have more than a 40 million balance out of 7507 enterprises (Alovsat MUSLUMOV, 2002).

Despite all this data, if we look at the real contribution of SME to the Turkish economy, our position is not that good. In Turkey, as said before, 98.8% of enterprises are SME. However, the SME contribution to the real economy is different. Contributions are as follows:

- Employment is only 45.6%
- Investment is 6.5%
- Import is 37.7%
- Production is only 8%

	USA	Germany	India	Japan	England	South Korea	France	Italy	Turkey
<b>% of SME in total enterprises</b>	97,2	99,8	98,6	99,4	96	97,8	99,9	97	98,9
<b>% of SME employment in total</b>	50,4	64	63,2	81,4	36	61,9	49,4	56	45,6
<b>% of SME part in investments</b>	38	44	27,8	40	29,5	35,7	45	36,9	6,5
<b>% of SME part in production</b>	36,2	49	50	52	25,1	34,5	54	53	37,7
<b>% of SME in total export</b>	32	31,1	40	38	22,2	20,2	23	-	8
<b>% SME Credit Usage</b>	43	35	15	50	26	47	30	-	5-10

Table 1: SME in the Global Economy (KOBİNET)

Beside all of these rates, the ratio of credit usage of SME is only 5-10%. Within this frame, we have to admit that SME contribution to the economy is very low. There are many samples of high efficient SME contributions, regarding developed countries. However in Turkey, the reasons for these low ratios are low efficiency production methods and lack of financial funds. In developed countries, SME constitute 50% of bank credits, but in Turkey it's less than 10%. Table 2.3 shows the ratio of SME in Turkey and other countries.

As we can see from Table 2.3, SME is a key part of the world economy. We could summarize the contribution of SME to the economy in five main topics which are;

1. SME create new work areas and increase employment

2. With flexible constructions, SME can easily and quickly adapt new environments.
3. SME increase enterprising motive.
4. Wide range of end products are available.
5. Basic goods are supplied for big companies

Due to these main reasons and many others, SME affects the global economy directly.

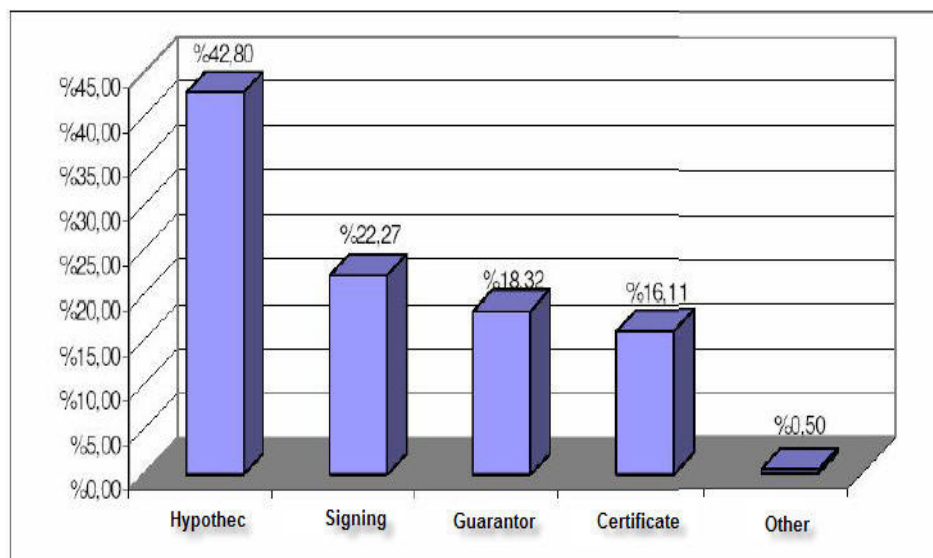
#### 2.4. SME Financing Resources

We could list the main financial resources of SME in five main topics:

1. Funds such as bank credits, special finance firm credits, etc.
2. Commercial debts
3. Equity owner debts
4. Government funds and government loans
5. Equity capital

Due to the lack of trust in the SME, commercial debts and equity owner debts are not effective finance resources. In Turkey's case, the best financial resource for the SME is bank credits. The main problem is to provide the assurance to get bank credit. Table 2.4 shows survey results of the ratio of assurance types SME chose.

Table 2.4 SME Assurance for bank credits



(KOSGEB, 2004)

In Turkey, bank credits are becoming the main source of financial funds due to inefficient usage of alternative finance resources. The problem with financial resources does not only relate to the SME structure but also to the banking system and economic situation of country.

#### **SME Based Financing Problems**

- Off record business activities
- Lack of know-how
- No disclosure standards pertinent to balance sheets
- Lack of capital

#### **Banking System Based Financing Problems**

- High credit costs
- Inflexible standards for guarantee and legal issues
- Unwilling approach to utilize SME credits

#### **Turkish Economical Situation Based Financing Problems**

- Economic crises
- High rate of interest
- Unstable foreign exchange rates
- Legal issues
- Lack of alternative financial resources, like an active SME stock market, SME finance firms etc.

Due to such and many different difficulties, most of the SME try to keep up with their own capital; however, it's not an efficient method for many SME. The main resource of SME is bank credits, but as stated before, because of high guarantee standards and disorganized balance sheets, there are many obstacles.

To solve these problems:

- Financial funds can be obtained by equity capital guarantees.
- SME stock markets and risk assessment firms can be utilized more efficiently.
- Leasing, factoring, forfeiting methods can be put into practices.
- SME based finance problems such as disorganized balance sheets can be organized.

### **3. BASEL CRITERIAS**

#### **3.1. The Bank for International Settlements (BIS)**

BIS is one of the oldest financial associations, being founded on May 17, 1930. Its main purpose is to regulate international financial procedures and guide international central banks. The main aims of BIS are:

1. Establishing a forum for central banks
2. Researching international financial market and preparing suggestions
3. Performing basic banking operations for central bank customers and international organizations

The BIS board has 17 members, including 6 main members, 6 elected members by 6 main members, and 5 other elected members. Below, the reader can find ordered BIS publications.:

- July 1988, Basel-I
- December 1996, joint of market risk assessment
- January 1997, interest risk assessment principles
- April 1997, main principles of banking system observation and supervisions
- September 1997, interest risk assessment principles (last version)
- September 1997, Regulation of 1988 Basel-I
- September 1997, main principles of banking system observation and supervisions (update)
- January 1998, Report of banking observation and supervisions principles
- March 1998, electronic banking and electronic fund transfers risk assessment management regulations.
- April 1998, Report of 1988 Basel-I
- September 1998, Self observation and control principles
- September 1998, banking system transparency principles
- September 1998, Operational risk assessment principles
- October 1998, Basel committee credit risk assessment report
- November 1998, Support to governments banking transparency
- April 1999, Credit risk modeling
- June 1999, New capital adequacy principles (first draft)
- July 1999, Credit risk management principles
- January 2000, New capital adequacy structure
- July 2000, Banks self supervision and connection with independent supervisors
- September 2000, publication about credit risk management
- October 2000, publication about external debt and capital management
- January 2001, Basel-II (second draft)
- February 2001, banking supervisors duty regulation with new international standards
- June 2001, Update of Basel-II
- August 2001, Publications about banks self observation
- December 2001, Workshop for update of Basel-II

- January 2002, Publication about banking supervisors duty
- July 2002, Update of Basel-II
- April 2003, Basel-II (third draft)
- June 2004, Basel-II (last version)

### **3.2. Basel Committee**

The Basel Committee on Banking Supervision was established by G-10 countries, central banks, and international banks in 1974 in Basel, Sweden. The committee does not aim to prepare detailed guides for member countries but to establish base standards for international bank systems. In this frame, one of the most important duties of the committee is to fill the international supervision system.

Regarding this aim, the committee sets two principles:

1. No bank should avoid supervision
2. Efficient supervision

Since 1975, the committee has published several documents regarding these two principles. Capital adequacy is the main topic lately.

We could arrange the Basel committee purposes into three topics:

1. Regulation of legislation and banking supervision between countries.
2. Improvement of the international banking supervision system.
3. Setting up base standards for banking supervision and regulation issues.

Basel standards are not more than recommendations for banking systems, but countries which do not follow these recommendations will be sidelined and risk negative ratio changes. The main reason behind the power of Basel is the acts of member countries and the EU. Basel advices became legislations immediately in those countries. “Base Principles for Effective Banking Supervision” is one of the publishments of the Basel committee, published in 1997. It is now the main resource for international banking standards.

The Basel committee published 25 principles for efficient banking supervision system.

These principles could be arranged into the following topics:

- I. Principles for a robust banking system

- II. Principles for legal authorization of supervision authority
- III. Principles for efficient banking supervision and regulation
- IV. Principles for information requirements and public knowledge
- V. Principles for banking licensure
- VI. Principles for banking activities abroad

Basel committee believes that if all member countries follow these principles, it will establish the base for further developments.

The 25 principles are:

(Basel Bankacılık Denetim Komitesi, Etkin Bankacılık Denetimi İçin Temel İlkeler, Bankacılar Dergisi, Sayı 59, 2006, s: 127-130)

**1. Principle: Group risks:** Supervision authority has to have sufficient tools to prevent conflicts between bank and related groups and bank risk from groups and related individuals.

**2. Principle: Aims, Independency, Power, Transparency and Co-operation:** In an efficient banking supervision system, all authorities which are operated by banks have apparent responsibilities and aims, so that each authority could have transparency, independency, co-operation and power to accomplish goals. An ideal legal framework for banking licensure has to include legal protection for who has the right to supervision and regulation of banks. It also has to regulate co-operation between supervision authorities.

**3. Principle: Risk Management:** Supervision authority has to get satisfactory information from banks and bank groups about definition, revision and control mechanisms, risk components, detailed risk profiles, detailed capital adequacy and risk management methods. This process should be related to the size of the enterprise.

**4. Principle: Permissible Activities:** All permissible activities for bank license owners should be clarified and use of bank words should be monitored as much as possible.

**5. Principle: Significant Share Transfer:** Supervision authority should investigate significant share transfers and has to have a power to reduce them.

**6. Principle: License Criteria:** Licensure authority has to have the power to deny license applications that do not qualify. License procedures should at least include ownership, banks or group management evaluation, board members and managers' respectability, strategic plans, internal control mechanisms and risk management issues. If a license application comes from abroad, the license authority should ask for the main country's license authority report.



**7. Principle: Problematic Assets, Unsecured and Reserves:** Supervision authority has to get satisfactory information about methods used for problematic assets, unsecured assets and reserves.

**8. Principle: Capital Adequacy:** Supervision authority should state the minimum capital adequacy for banks with regain loses capacity and clarify it with capital components. This should not be less than the Basel requirements for international banks.

**9. Principle: Credit Risk:** Supervision authority has to get satisfactory information about a bank's policy, credit risk methods, revision gauging mechanisms and risk profiles. This includes credit usage, investments, and credit quality.

**10. Principle: Wide Risk Limits:** Supervision authority has to get satisfactory information about bank portfolio focus, management methods and policy. Supervision authority could apply risk limits for banks and groups.

**11. Principle: Country and Transfer Risks:** Supervision authority has to get satisfactory information about country risks, transfer risks, monitoring and controlling mechanisms, back up methods and policy for international credits.

**12. Principle: Market Risk:** Supervision authority has to get satisfactory information from banks about efficient market risk monitoring, controlling policies and methods. Supervision authority has to have a power to oblige capital adequacy for market risk.

**13. Principle: Free Asset Risks:** Supervision authority has to get satisfactory information about free asset risks of banks and enterprises which includes monitoring and controlling mechanisms and bank policy and methods. Supervision authority should ask for plans for free asset risks from banks.

**14. Principle: Interest Ratio Risk:** Supervision authority has to get satisfactory information about approved strategies made by bank institutions and managers for interest ratio risk, methods and controlling mechanisms.

**15. Principle: Operational Risk:** Supervision authority has to get satisfactory information about operational risk management, monitoring and controlling mechanism of banks.

**16. Principle: Supervision Approach:** An efficient bank supervision system has to focus on banks and groups area of interests to supervising bank mechanism regarding whole angles.

**17. Principle: Internal Control and Supervision:** Supervision authority has to get satisfactory information about banks internal control and supervision mechanisms. These internal control mechanisms have to have clear job descriptions.

**18. Principle: Misusage of Financial Services:** Supervision authority has to get satisfactory feedback about banks financial services usage, its ethical standards and customer descriptions.

**19. Principle: Reporting Supervision:** Supervision authority has to have sufficient tools for reporting banks' statistical data and supervision data.

**20. Principle: Headquarter – Householder Relationship:** International consolidated supervision includes both headquarter and householder co-operation. Supervision authorities have to apply the same standards for international banks and local banks.

**21. Principle: Consolidated Supervision:** Supervision authority has to supervise bank activities around the world on a consolidated basis.

**22. Principle: Accounting and Description:** Supervision authority has to get satisfactory information about bank's account systems and its own financial condition reports credibility.

**23. Principle: Supervision Authorities Corrective and Curative Effect Capabilities:** Supervision authority has to have sufficient tools for corrective and curative effect capabilities, which include the cancellation of bank licenses.

**24. Principle: Supervision Techniques:** An efficient supervision system has to include on-site and distant view mechanisms.

**25. Principle: Major Buying:** Supervision authority has to have a power to investigate risky investments and operations abroad with foreign partners.

### 3.3. Basel I

#### 3.3.1 Arise of Basel-I

At the beginning of the 1980s, G-10 countries central banks asked for banking system standards from the Basel committee due to international banks decreasing capital adequacy because of dense debt from some countries and their increasing risk ratios. The committee believes that these standards establish stability and remove competitive inequality in an international bank system.

Due to the 1970 and 1974 global crisis and liberal economy politics, banks became much more valuable; therefore, in 1988 the Basel committee published Basel-I to make them more stable.

Basel-I is based on the relationship between banks risk and capital adequacy.

Since 1992, capital adequacy standard ratio applies at 8% after the transaction period in 1988-1992.

In this transaction period, international banks capital adequacy improved positively. Basel-I was applied to more than 100 countries, including G-10 countries.

#### 3.3.2. Basel I Criteria

For the convergence of international capital and better capital management, the Bank for International Settlements published Basel-I at the hand of the Basel committee in 1988. Basel-I aimed to cut down losses after possible bankruptcy; therefore, it focused on capital adequacy. First capital adequacy set by the Basel committee aims to remove competitive inequality. In this framework, international banks have to keep 8% of their capital.

Capital adequacy ratio calculated by this equation is also known as “Cooke Ratio.”

$$\text{CAR} = \frac{\text{Equity Capital}}{\text{Credit Risk}} = 8\%$$

After few years of using this application, the committee saw some failures regarding interest ratios and the rate of exchange changes. Therefore, in 1996 the Basel committee changed CAR equation:

$$\text{CAR} = \frac{\text{Equity Capital}}{\text{Credit Risk} + \text{Market Risk}} = \%8$$

Equity capital calculated with this formula:

Equity capital = Equity share capital + Tier-II capital + Third generation capital – Capital cuts

**Table 3 Capital Adequacy Ratio Calculation Equity Capital Details**

<p><b>Equity Share Capital</b> Paid in capital Legal reserves Optional reserves Profit of the period after tax provision and total retained earnings Loss of the period and total accumulated losses</p> <p><b>Tier-II Capital</b> General credit provision Bank fixed asset accounting fund Bank fixed assets and bank enterprises Regulation 4. topic 4. article revaluation fund of investments Revaluation fund of investments Value increase fund Probable risks refund</p> <p><b>Third generation Capital</b> On condition below equity share capital credit risk and market risk amounts to 250% without capital adequacy ratio Only market risk equity capital insert Without any insurance, all paid to bank, at least a 2 year term</p>
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<p><b>Capital cut downs</b> Equity share capital activities, money and capital markets and insurance funds Special costs, cash payments The difference between balance and associations capitals Tier-II capitals Betterment costs and capatilized costs</p>
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Equity share capital represents cash capital components. Tier-II capital represents non-cash equity components and equity-like funds. Sundry supervision funds, untied credits, capital like credits are represented by Tier-II capital.

Part of the exceeding amount of Tier-II capital to equity share capital is not included in the calculation. Part of the 50% exceeding part of Tier-II capital, capital like credits, is not included in the calculation.

Capital like credits are:

- I. At least a 5 years term and no back payment during this period.
- II. Agreed to pay back all debts in case of bank settlement.
- III. Lump payment credits.

Third generation capital does not exceed 250% of the equity share capital credit risk fund. It is only used in the capital adequacy calculation as a market risk equity component.

### **3.3.3. Criticism about Basel-I**

In Basel-I, credit risk is calculated by multiplication of different risk groups with 0%, 10%, 20%, 50% and 100%. Basel-I includes only 5 risk weights; for this reason, Basel-I risk sensitivity is low. It also uses the same calculation for all areas of interest. This one-size-fits-all approach is one of the weak sides of Basel-I. The OECD club rule gives 0% risk weight for OECD countries and 20% risk weight for OECD country banks. However, non OECD member countries use 100% risk weight under the same circumstances. This is also considered as a weak link of Basel-I. The Financial Stability Forum still consider Basel-I as a successful financial standard to go by. Above 100 countries and 10 OECD countries use this standard for banks already. With an 8% minimum capital adequacy standard, Basel-I establishes stability in a global economy and developing member countries. Regardless of its positive sides, Basel-I is criticized by financial circles.

These are:

1. Capital adequacy risk ratio is not risk-based but capital-based.
2. Other sides of credit assessment are not considered
3. With the consideration of banks market activities, capital risks and operational risks based on only credit risk calculation of capital adequacy decrease capital adequacy measuring efficiency.
4. Using only 5 risk weights and OECD club rules lower credit risk measurement sensibility. This affects banks investments negatively and does not include bank credit risk management efficiency such as portfolio diversification.
5. Basel-I includes only one method for all banks.
6. To reach capital adequacy ratio, banks increase capital and area of interest without enough consideration.
7. High evaluation of immovable properties to increase capital adequacy ratio causes great losses for banks in case of immovable property sales on real prices.

8. Basel-I loses the connection between equity and assets. Basel-I accepts an 8% ratio of assets and 12,5 multiplication equity for capital adequacy. However, due to some 0% risk weighted equities, the connection between equity and assets is broken.

Other than the reasons mentioned above, the simplicity of Basel-I is criticized on the academic arena.

### **3.4 Basel II**

#### **3.4.1 Arise of Basel-II**

Criticism about Basel-I and rapid change in the financial markets pushed the committee to prepare new standards. In 1996, the committee removed OECD club rules and changed the calculation of capital adequacy by Basel-I. However, these changes do not satisfy financial circles, thus triggering the creation of the new Basel-II standard. The main reason for this change is the credit risk-based nature of Basel-I standards.

Basel-II aims to add banks' operational risks to risk assessment tools for efficient risk management. In 1999, the committee published some suggestions about a new capital adequacy approach, which was also considered as the Basel-II start. After gathering suggestions from country supervision, in January 2001 second draft was published, in April 2003 a third draft, and in June 2004, the final draft of Basel-II was published.

Beside the revolutionary suggestions about capital adequacy calculation, Basel-II needs special efforts from banks and supervision authorities due to changes in supervision mechanism and market discipline issues. Basel-II basically aims to reach more stable global finance with enforced risk management, supervision mechanism and market discipline. In this framework, new Basel-II does not only put financial standards in place, but also it makes bank authorities look at financial systems more closely. In 1997, the committee published "Basel Core Principles for Effective Banking Supervision," which was also considered as a reference paper for the new Basel-II standards. In other words, harmony with BCPs brings easy transaction to Basel-II.

#### **3.4.2 Basel-II Criteria**

Basel-II is based on the effective risk management system. Risk focused credit pricing is effecting all enterprises, especially SME. In Basel-II, credit demand assessments are based on credit risk and the credit risk is based on the company credit note, which is calculated with company financial data among the other business activities. The bank side risk is calculated with credit guarantee, credit date, currency etc. Basel-II risk assessment includes both credit risks and company risks, and this affects credit pricing directly.

In other words, company activities and capital and financial situations affect its credit usage standards. The high risked company credits also increase bank risk ratio. Due to this, the bank has to keep enough capital to afford its credit risks. And this directly affects credit prices for the company.

With Basel-II standards, credit pricing became more objective and homogenous. By using Basel-II, banks can estimate both operational risks and credit risks; with these new risk assessment standards, banking systems will be more effective and secure.

Basel-II basically builds on three pillars:

1. Minimum capital requirements
2. Supervisory review process
3. Market discipline

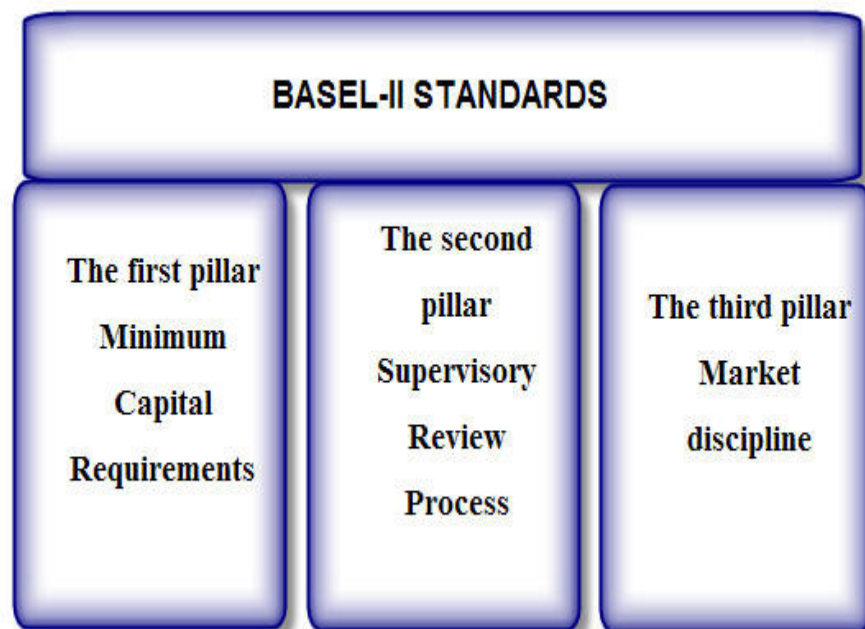


Figure.1Basel II Structure

### 3.4.2.1. The First Pillar: Minimum Capital Requirements

The first pillar defines the minimum capital requirements. This new calculation adds the operational risks to the equation.

$$\text{Risk - Based Capital Ratio} = \frac{\text{Capital}}{\text{Credit Risk} + \text{Market Risk} + \text{Operational Risk}}$$

The first pillar also defines the credit risk calculation more comprehensively. Credit risk defines the risk of unpaid credits, market risk defines the negative effects of interest ratios, currency changes and stock market changes, and the operational risk defines the inefficient work flow and possible losses due to human factors and malfunctions.

Basel-II suggests three approaches for the calculation of credit risk:

1. Standardized Approach
2. Simplified Standardized Approach
3. Internal Ratings based Approach

Table 4 Risk Assessment Approaches

RISK ASSESSMENT APPROACHES			
<b>Credit Risk</b>	Standardized Approach	Internal Ratings Based Approach	
		Standard Approach	Advanced Approach
<b>Market Risk</b>	Standardized Approach	Internal Models Approach	
<b>Operational Risk</b>	Basic Indicator Approach	Standardized Approach	Internal Measure Approach

### 3.4.2.2. Standardized Approach and Simplified Standardized Approach

Earlier we mentioned that Basel-II defines SME in two main topics: retail SME and institutional SME. Risk weights for these two SME kinds are defined as below:



Table 5 SME Risk Weights

Class	Endorsement	Credit Amount	Risk Weight
<b>Retail SME</b>	<50 million Euros	<1 million Euros	75% Standard
<b>institutional SME</b>	>50 million Euros	>1 million Euros	with credit note

(<http://www.sekerbank.com.tr>, 2005)

In Basel-I, credit prices are based on traditional methods and guarantees. Basel-II changes this and use standardized approaches and risk weights to define credit prices.

#### Standardized Approaches Pricing

Standard Method: (Credit Amount – Guarantees) \* Risk Weight

Table 6 SME Risk Weights by SME Type

<b>Institutional Credits</b>					
Credit Note	AAA / AA-	A+ / A-	BBB+ / BB-	Below BB-	None
<b>Risk Weight</b>	20%	50%	100%	150%	100%
<b>Retail Credits</b>					
<b>Risk Weight</b>	75%				

Table 3.3 shows company ratings versus risk weights. Decreasing company ratings increases the risk weights. This directly affects the credit prices for the low-credit noted companies. However, most of the SME in Turkey do not have any credit notes; in this case they use 100% risk-weighted credits, and for this reason, banks have to keep more capital for risk management.

Basel-II will apply in 2009 in Turkey. Advantages of retail SME credits are better than advantages of institutional SME credits. Retail SME get one million Euros credit from the bank with a 75% risk weight, and this increases bank risk capital by 750,000 Euros. However, an institutional

SME which takes one million Euros credit increases bank risk capital by one million Euros. In this case, we could expect that banks prefer to give credits to retail SME.

Table 7 Guarantee Types and Risk Weights

<b>Guarantee Type</b>	<b>Basel-I Risk Weight %</b>	<b>Basel-II Risk Weight %</b>
<b>Cash, deposit</b>	0	
<b>Gold</b>	0	
<b>Bonds</b>	100	According to firm note
<b>Stock market share</b>	100	According to firm note
<b>Investment funds</b>	100	According to fund type
<b>Other market shares</b>	100	According to note
<b>Other market funds</b>	100	According to fund type
<b>Real Asset</b>	50	Residence 35% commercial %100
<b>Equity owner company (A- and above)</b>	100	According to note

(BIS)

Basel-II made significant changes with guarantees. Equity owner guarantees, Group Company guarantees and customers checks are not affected by risk decrease tools anymore and can not be used as a guarantee for credit demand. Basel-II uses 100% risk weight in case of none credit guarantee issues. Retail asset risk weight became 35% if it used for retail issues; if it uses for business issues the risk weight becomes 100%. However, in some cases this may decrease to 50%.

Another significant change that came about due to Basel-II is the end of the club rule. With an end to this rule, the OECD members may use credits weighted with 100% risk and non OECD countries may use 0% risk weighted credits.

Table 8 Risk weights by Credit note

<b>Assets</b>	<b>Options</b>	<b>AAA / AA-</b>	<b>A+ / A-</b>	<b>BBB+ / BBB-</b>	<b>BB+ / B-</b>	<b>Below B-</b>	<b>None</b>
<b>Treasury and Central Bank Credits</b>	<b>ECAI Note</b>	0%	20%	50%	100%	150%	100%
<b>Other Public Enterprise Credits</b>	<b>Treasury</b>	0%	20%	50%	100%	150%	100%
	<b>Option-1</b>	20%	50%	100%	100%	150%	100%
	<b>Option-1</b>	20%	50%	50%	100%	150%	20%
<b>Bank Credits</b>	<b>Option-2</b>	20%	50%	100%	100%	150%	100%
	<b>Option-2</b>	20%	50%	50%	100%	150%	50%
	<b>Option-2 (Short Term)</b>	20%	20%	20%	50%	150%	20%
<b>Assets</b>		<b>AAA / AA-</b>	<b>A+ / A-</b>	<b>BBB+ / BBB-</b>	<b>BB+ / B-</b>		<b>None</b>
<b>Company Credits</b>		20%	50%	100%	150%		100%
<b>Assets</b>				<b>Risk Weights</b>			
<b>Retail Credits</b>				75%			
<b>Residential Credits</b>				35%			
<b>Receivables</b>				50% or 100% or 150%			

Standardized approaches use this table to calculate the risk weights but also uses the credit guarantee conditions to calculate risk weights.

For instance:

### **A Company**

Endorsement: 850,000 YTL

Company Credit Note: None

Credit Demand from X Bank: 250,000 YTL

Credit Guarantee: Commercial Mortgage

Company endorsement is below the 50 million Euros and the credit demand from X bank is below one million Euros. In this frame, a company may be classified as a retail SME and its credit risk weight is 75%. However, due to the low credit demand, risk weight is decreased to 50%.

The amount that X bank has to keep as risk capital is  
 $250,000 * 0,50 * 0,08 = 10,000$  YTL

### **B Company**

Endorsement: 7,000,000 YTL

Company credit Note: None

Credit Demand from X Bank: 250,000 YTL

Credit Guarantee: Equity owner guarantee

Company endorsement is below 50 million Euros and credit demand amount is less than one million Euros, so the firm is considered as a retail SME. Standard risk weight is 75%, and as there is no decreasing affect, the final risk weight is 75%.

The amount that bank has to keep for credit risk is

$250,000 * 0,75 * 0,08 = 15,000$  YTL

### **3.4.2.3. Internal Ratings based Approaches**

Banks could use their own credit notes with internal ratings based approaches. Because of its nature with internal ratings based approaches, banks may improve their risk management abilities. With this approach, banks can be more flexible; however, this also gives banks more responsibilities. The main responsibility of the bank is to build internal rating methods.

The catch point of an internal rating approach is that it has to apply to banks capital and other businesses.

The internal ratings based approach uses credit date, credit amount, loss credit amount, and loss credit possibilities as risk assessment tools. These approaches have much more efficient risk assessment ability. The credit customer operational risk and credit risks are calculated separately and risk assessment is made in this frame.

The institutional SME credits have more advantages than big company credits. The internal rating based approaches uses SME net sales endorsement to calculate risk capital. Low net sales also decreases risk capital requirement.

### **3.4.2.4 The Second Pillar: Supervisory review process**

The second pillar includes the inspection period of bank risk management. This includes bank capital adequacy, minimum capital requirements and the other cautions in case the risk weight increases. This also aims to improve bank internal inspection mechanisms, control systems, and management structures. The new principles that came with Basel-II are:

#### **The first principle:**

Banks have to adequately define their own strategies and risk profiles. This principle expects that bank manager's participation in the inspection and assessment processes, and whole processes have to be reviewed and reported.

**The second principle:**

The second principle is about the external inspection mechanism, which includes the internal capital adequacy assessments and capital ratio assessment. The external authority duties include an inspection in place, distance control and assessment, interviewing bank management, and independent reporting about capital adequacy and report checks.

**The third principle:**

The external authority can demand capital increase, even if it's not below the minimum capital adequacy.

**The fourth principle:**

The fourth principle is about the precautions of minimum capital adequacy issues. To do this, the external authority can inspect banks more closely than normal or make restrictions on interest ratios. If it's necessary, the external authority can expect immediate or planned capital raise from the bank (Münir Yayla, Yasemin Türker Kaya, 2005).

**3.4.2.5. The Third Pillar: Market Discipline**

The market discipline is more likely a companion piece to the first and second pillars. To get accurate information about banks' risk profiles, current capital and capital adequacy and to make correct comparison, there have to be lucid standards. Market players can research that information and can take positions according to the data. The third pillar of Basel-II provides that lucid environment for markets.

The pillar defines how the banks have to announce their financial situations and how to report that to the authorities. In this frame, banks have to give capital structure, portfolio structure, capital adequacy, credit risk, credit risk decreasing methods, and market risks information.

### **3.4.2.6 Basel-II Main Purposes**

The main purposes of Basel-II are to:

- Establish efficient risk management system for banks
- Widen general public information about capital adequacy
- Establish flexible approaches for the banks
- Provide efficient risk assessment
- Establish practical credit management methods
- Provide realistic credit risk calculation methods
- Regulate and enhance external authority investigations.

(<http://www.bis.org>, 2008)

### **3.4.3. Differences Between Basel-I And Basel-II**

#### **3.4.3.1. The Club Rule**

Basel-II ends the OECD members risk weight privilege. After that change, OECD members may use credits with 100% risk weight, and non OECD countries may use 0% risk weighted credits.

#### **3.4.3.2. Guarantees**

Basel-II regulates guarantee values and some guarantees used in Basel-I are removed. Also, some risk weight decreasing guarantees are removed. The most significant change is the removal of equity owner guarantee, group firm guarantee and customer checks for risk weight decreasing abilities. Another significant change is the risk weight of real assets becomes 35%.

#### **3.4.3.3. Credit Note**

Basel II credit risk assessment is based on the credit note of the credit user. Some Basel II methods use independent assessment firm's credit notes, and some advanced Basel II methods use the bank's own credit notes. After Basel-II, according to the standardized approach, an external risk assessment firm has to give a note for a credit user. With this credit note, a firm's risk weight and credit price is set. A high credit note means cheap credit for the companies; with this regulation, companies focused on getting high credit notes follow the necessary regulations.

#### **3.4.3.4. Prices**

Basel-II credit assessment based on risk assessment and credit risk directly affects credit price. Risk-price balance is the main part of Basel-II standards. The Basel-II credit price mechanism looks at credit user company risks and banks capital risks. Basel-I uses guarantees for the credit pricing differently than Basel-II, which uses risk weights to determine credit price.

#### **3.4.3.5. Financial Records**

Financial reports and well organized balance-sheets are required factors of Basel-II standards. Lack of performance concerning financial records directly affects credit prices and credit notes. We know that the SME in Turkey are using off-record financial funds. With Basel-II, in the short term there might be increase of using off record financial funds. However, mid-term Basel-II standards decrease off record businesses.

#### **3.4.3.6. Customer History**

Experience and performance of a company have more effect with Basel-II standards. Basel-II not only uses financial charts to determine credit notes but also uses other indicators.

For instance, SME management quality, performance, institutional management directly affect credit notes. These indicators are used with external assessment firm notes, bank credit notes and other financial charts.



#### **3.4.3.7. Retail SME and Institutional SME**

Basel-II brings a new SME definition. According to Basel-II, an enterprise which has an endorsement below 50 million Euros and employs fewer than 250 people is defined as SME. Also, group companies which include SME and have an endorsement of less than 50 million Euros define as SME. If it's not possible to determine the endorsement and employee values, an assessment firm can use active equity.

Basel-II divides SME into two sizes, retail SME and institutional SME. If SME has an endorsement below 50 million Euros and the total bank risk is below one million Euros, Basel-II defines this SME as a retail SME. If the SME has an endorsement below 50 million Euros but has a bank risk of more than one million Euros, it is defined as institutional SME. The difference between a retail SME and an institutional SME is the difference between risk weights. A retail SME uses credit with a 75% risk weight, even though it does not have any credit note. However, under the same conditions, an institutional SME uses 100% risk weighted credit.

#### **3.4.3.8. Risk Assessment**

Basel-II uses different approaches to determine risks. These are standardized approaches and internal rating base approaches. Standardized approaches use external-risk assessment-firm credit notes to determine risk weight. An internal rating-based approach uses banks own credit notes. These approaches bring new standards to capital requirements and credit risk calculations. Due to this regulation, firms try to improve their credit notes and this will improve firm quality and financial structure.

#### **3.4.3.9. Lucid Financial Structure**

With Basel II, banks have to publish detailed information about Basel II regulations to the public. Basel-I standards do not include such regulations. With this information, credit users can choose banks to get credit more easily.

#### **4. SURVEY WITH SME ABOUT BASEL-II**

This survey includes 60 SME customer of Garanti Banks Soğanlı Agency portfolio, which includes 750 SME. The survey was conducted between 2008 January and 2008 March.

Sectoral distribution of the SMEs :

22 enterprises are in housing Sector (builds and sell contractor, commitment contractor, building material seller)

13 enterprises are in Durable Goods: (White good dealers, carpet sellers, furniture producers, furniture sellers)

12 enterprises are in Textile Sector (Textile Producers)

9 enterprises are in Food Sector (Food producers, supermarket etc.)

3 enterprises are in Automotive Sector

1 enterprise is in Metal Sector

In our bank office, we are serving a total of 750 customers, but 600 of them are using our branch as a main bank office. These 600 customers represent the SME and have a wide range area of interest, and they are not chosen by any given criteria. I used 10% of this portfolio as survey data.

All companies have a 10 million YTL turnover or more are included directly within the survey. The rest of them were picked randomly.

According to end of 2007:

Table 9 Survey Participators

Endorsement (Million YTL)	SME Number
50 -100	1
25 - 50	3
10 - 25	8
5 -10	12
1 - 5	14
0.5 - 1	22
<b>TOTAL</b>	<b>60</b>

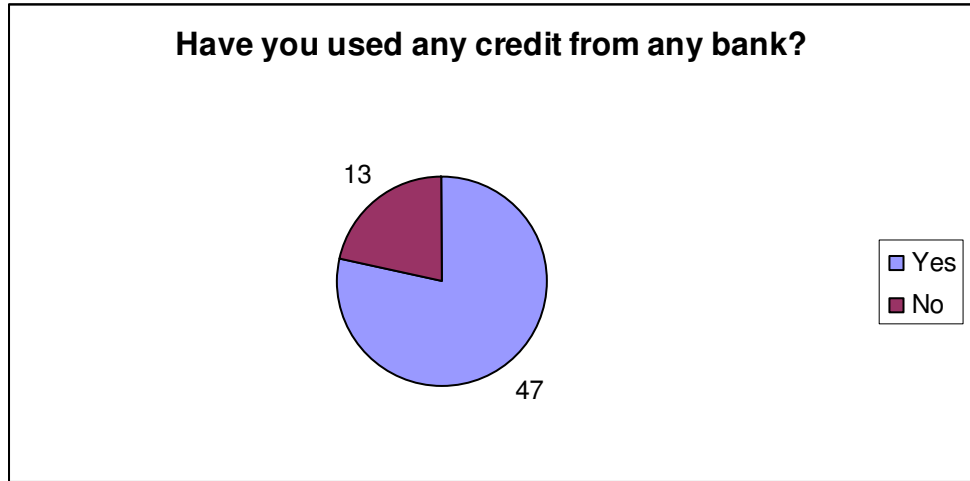
Customers answer questions with only a yes or no.

### Questions

1. Have you used any credit from any bank?
2. Have you ever heard of Basel-II?
3. Do you know when Basel-II standards start to apply?
4. Do you know how your company is defined according to Basel-II?
5. Do you know the effects of Basel-II on credit-user companies?
6. Have you ever heard of company credit ratings?
7. Do you know what will affect company credit notes?
8. Have you ever used grants given by Kosgeb or support credits?
9. Have you ever used other financial funds such as leasing, factoring, etc?
10. Do you keep your company balance-sheets well organized?

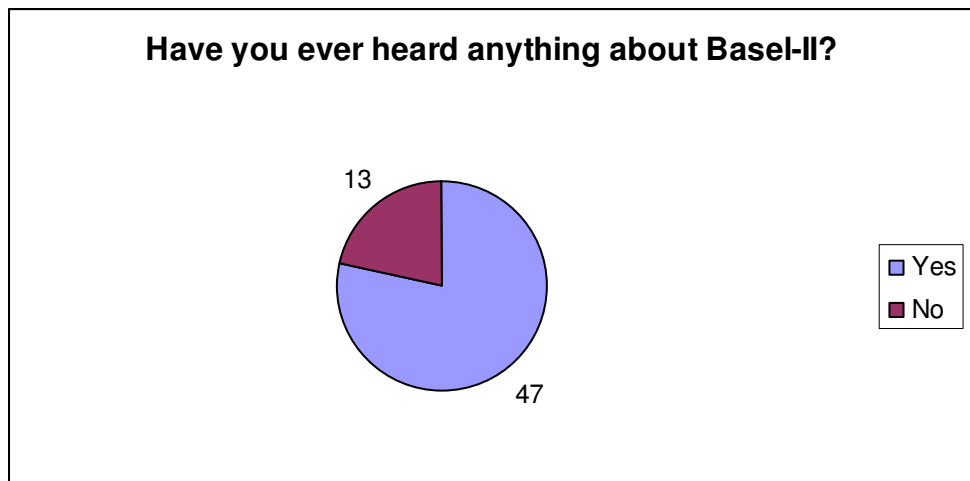
#### 4.1. Survey Results

1.)



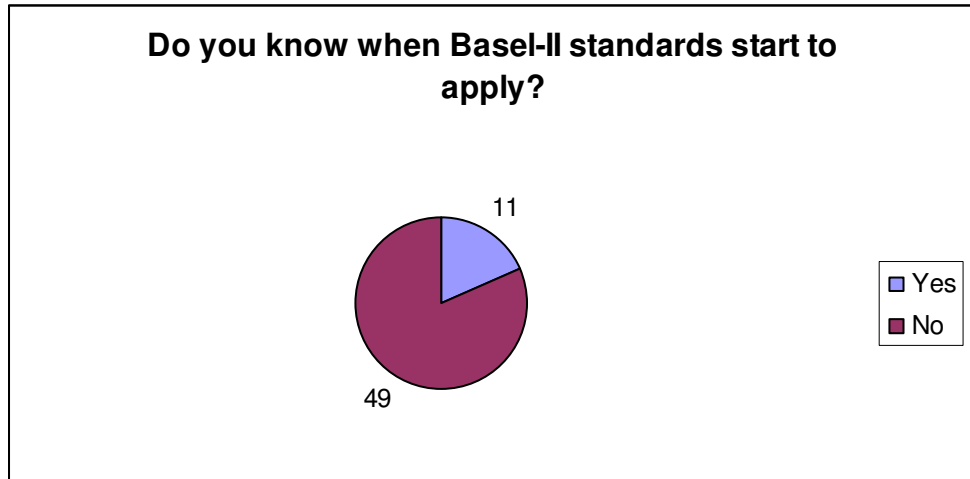
Graph.1 Have you used any credit from any bank?

2.)



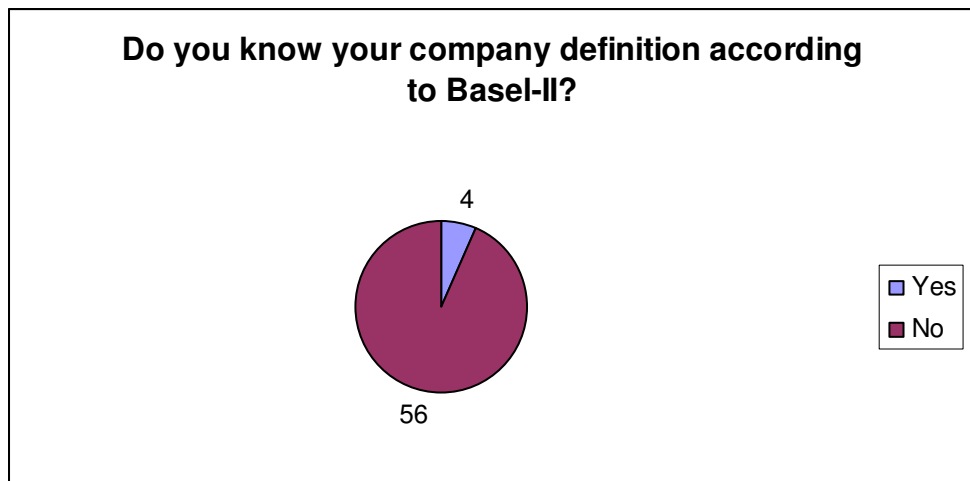
Graph.2. Have you ever heard of Basel-II?

3.)



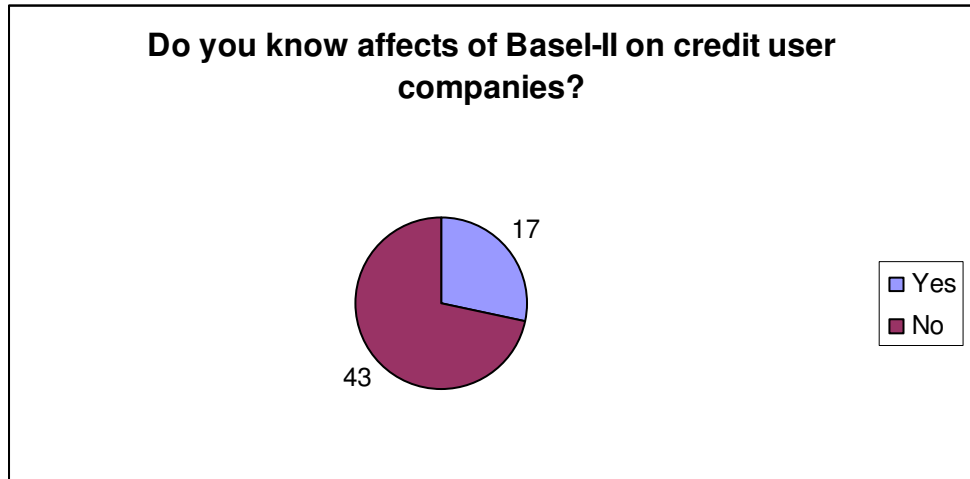
Graph.3. Have you ever heard of Basel-II?

4.)



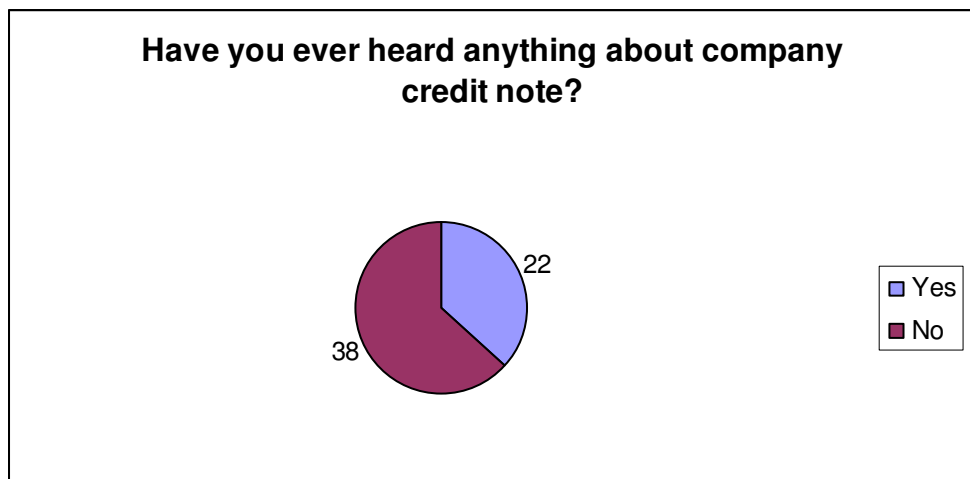
Graph.4. Do you know your company definition according to Basel-II?

5.)



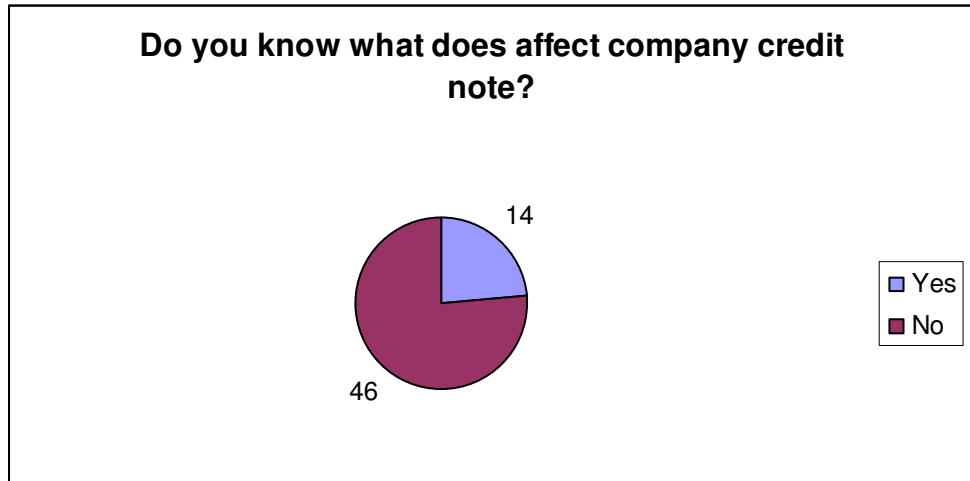
Graph.5. Do you know the effects of Basel-II on credit user companies?

6.)



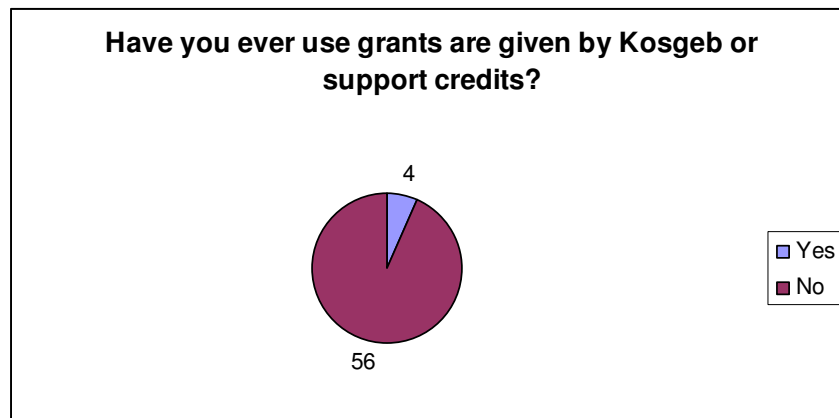
Graph.6. Have you ever heard anything about company credit ratings?

7.)



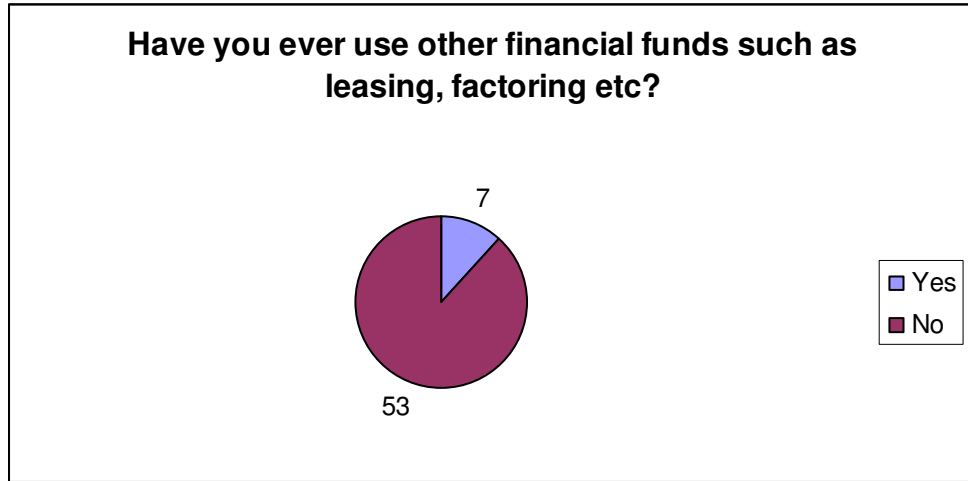
Graph.7. Do you know what will affect company credit ratings?

8.)



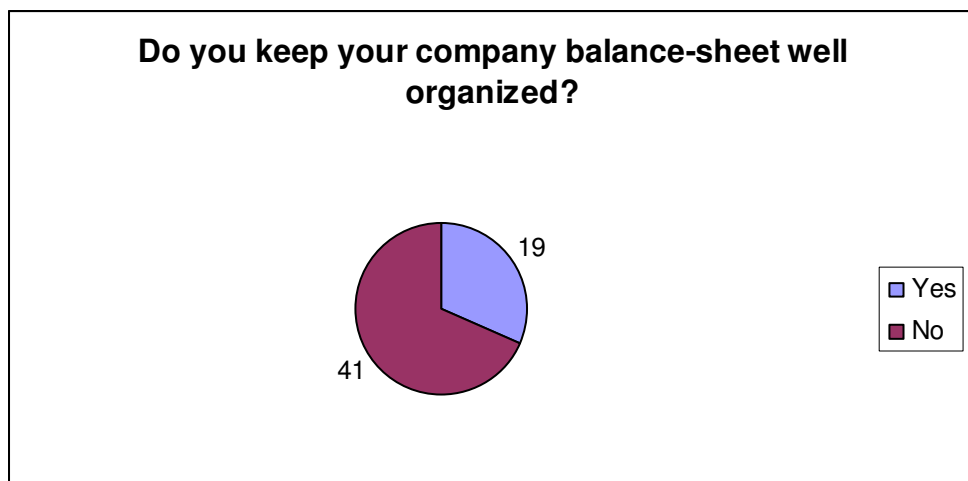
Graph.8. Have you ever used grants which are given by Kosgeb or support credit?

9.)



Graph.9. Have you ever used other financial funds such as leasing, factoring, etc?

10.)



Graph.10. Do you keep your company balance-sheets well organized?



During my survey work, I did not use statistical model; the main purpose of the survey was to see SME ideas about Basel-II standards. According to my experience, despite the non-statistical sampling, survey results reflect country wide SME thoughts about Basel-II. According to this survey and my experiences, I believe most of the SME will get low credit notes because of their off-record business activities. All survey participants can use credit from banks with their financial condition; however, their real financial situation and business activities are different than financial record data.

A more interesting feedback is their ideas about Basel-II standards. Most of the SME believe that they could get credits much more easily after Basel-II. I believe it's because of the dense interest of banks on the SME. This survey shows that the SME does not have enough knowledge about Basel-II standards and its affects on the SME.

## 5- SAMPLE CASE ABOUT BANK CAPITAL ADEQUACY AND CREDIT PRICING BEFORE AND AFTER BASEL-II

ABC is an incorporated company which was established in 1933. Today , three brothers are running the family business in Istanbul, and the company is producing candy goods in 2 factories, and they are working with over 400 wholesalers. In 2007, they opened the candy store to reach end customers.

ABC Company is working with 4 different banks, 3 of them are private and one of them is a state bank. Company ratings are based on area of interest, company growth rate, bad loans in sector, managerial experience, company history, company payment history, complications about company and partners, company financial situation and many other factors like these.

Banks internal ratings for ABC Company are listed below:

	Credit Note	Credit Rate	Credit Risk
A Private Bank	7,0-7,99	A	Low Risk
B Private Bank	6,00-6,99	BBB	Normal Risk
C State Bank	7,0-7,99	BBB	Normal Risk

Company rating is taken as B Normal.

### 5.1 Capital Adequacy for Standard Approach

ABC is an incorporated company; in other words, it's a retail SME and therefore its credit weight is taken as 75%. The company rating note is A. If the ABC Company buys 100.000 TL credit from a private bank, with a standard approach and a zero guarantee, the bank's capital adequacy calculation for this credit is shown below:

*Capital Adequacy = Credit Amount x Risk Weight x 0, 08 (Minimum capital amount)*

*Capital Adequacy = 100.000 TL x 0, 75 x 0, 08 = 6.000 TL*

Due to a zero guarantee, retail portfolio risk weight is taken at 75%. The reasons for the 75% risk weight for retail portfolio were shown in Table 3.3 in previous chapters. In this calculation, capital adequacy is calculated on the whole 100.000 TL credit amount.

Under non-zero guarantee circumstances, capital adequacy calculation will change. If used guarantees are accepted by Basel-II, credit risk will decrease. If used guarantees are not accepted by Basel-II, capital adequacy will be calculated on zero guarantee circumstances. Banks who accepted

guarantees will not affect risk weight, but according to Basel-II standards, it does not change banks' capital adequacy.

### **5.1.1. Common Guarantee Types in Turkey**

Actual owner cash items and customers notes are widely used guarantees in Turkey. However, this type of guarantee is not accepted as a risk decreasing guarantee in Basel-II. Consequently, if the ABC Company uses actual owner cash items and customers' notes as a guarantee, private banks still have to keep 6.000 TL capitals for the ABC company credit. Actual owner cash items and customers notes also do not have a decreasing effect in Basel-I. The same 100.000 TL credit capital adequacy calculations for Basel-I are:

$$\text{Capital Adequacy} = 100.000 \text{ TL} \times 0.08 = 8.000 \text{ TL}$$

In other words, if a private bank gives ABC credit in Basel-II standards, its capital weight for the bank will be less than the Basel-I calculation.

If the ABC Company uses a cash guarantee that has a 0% risk weight, the private bank's capital adequacy will change. In these cases, the bank's capital adequacy for the ABC Company cash guaranteed credit is:

$$\text{Capital Adequacy} = 100.000 \text{ TL} \times 0.00 \times 0.08 = 0 \text{ TL}$$

A cash guarantee also has a 0% risk weight in the Basel-I standards.

If the ABC Company uses hypothec for residential retail as a credit guarantee, its risk weight is taken at 35%, according to the Basel-II standards. In this frame, retail SME ABC company risk weight is not taken at 75% but at 35% due to its accepted guarantee risk weight. According to this, the ABC Company credit capital adequacy becomes:

$$\text{Capital Adequacy} = 100.000 \text{ TL} \times 0,35 \times 0,08 = 2.800 \text{ TL}$$

In the same circumstances, if the ABC company uses the same credit under the Basel-I standards, its credit risk is taken at 50% and the capital adequacy becomes:

$$\text{Capital Adequacy} = 100.000 \text{ TL} \times 0,50 \times 0,08 = 4.000 \text{ TL}$$

If hypothec makes for commercial retail, its risk weight changes to 50% according to the Basel-II standards. In this case, the ABC credit capital adequacy becomes:

$$\text{Capital Adequacy} = 100.000 \text{ TL} \times 0,50 \times 0,08 = 4.000 \text{ TL}$$

Commercial retail risk weight is also taken at 50% in Basel-I, so the capital adequacy calculation for ABC credit is:

$$\text{Capital Adequacy} = 100.000 \text{ TL} \times 0,50 \times 0,08 = 4.000 \text{ TL}$$

Corporate accessory contracts, vehicle liens, and company liens are not accepted as risk decreasing guarantees in both Basel-I and Basel-II. Actually, real person and corporate accessory contracts are accepted in Basel-II for A- and over A- rated companies. However in Turkey, there are no such firms, so we could say that real person and corporate accessory contracts are not accepted as risk decreasing guarantees in Basel-I and Basel-II for Turkey.

If the ABC Company uses real person or corporate accessory contracts, vehicle liens, or company liens for credit in Basel-II, its capital adequacy is calculated as zero guaranteed credit:

$$\text{Capital Adequacy} = 100.000 \text{ TL} \times 0,75 \times 0,08 = 6.000 \text{ TL}$$

Basel-I calculation for same circumstances:

$$\text{Capital Adequacy} = 100.000 \text{ TL} \times 0,08 = 8.000 \text{ TL}$$

Readers can compare much more easily the differences between Basel-I and Basel-II guarantee risk weight calculations using the table below. All calculations made for the ABC company use 100.000 TL credit, in the standard approach for Basel-II and Basel-I.

Guarantee	Basel-I		Basel-II	
	Risk Weight	Capital Adequacy	Risk Weight	Capital Adequacy
Retail hypothec	%50	4000 TL	%35	2800 TL
Commercial hypothec	%50	4000 TL	%50	4000 TL
Customer Cash Item	%100	8000 TL	%100	6000 TL
Non decreasing guarantees	%100	8000 TL	%100	6000 TL

## 5.2. Capital Adequacy According to Internal Rating

The internal rating approach calculations for the ABC Company credit capital adequacy are much more complicated than the standard approach. Non-decreasing guarantees are used in this calculation.

To calculate the capital adequacy, first we have to find “R,” which is a coefficient. After that, we will calculate the K capital obligation with R as the coefficient. After that, with the K value we will calculate the RWA (risk weighted assets), and finally, we will calculate the capital adequacy. During this calculation, we will use the bank’s internal rating data to ratio values;

however, right now we don't have enough data for this. We will therefore use The Banks Association of Turkey Basel-II workshop reports.

*PD: Probability of default*

*EAD: Exposure at default*

*LGD: Loss given default*

***PD, EAD, LGD Calculations According to Rating Class***

RATING	AAA	AA	A	BBB	BB	B	CCC	CC	C	D
PD	0,0003	0,01	0,03	0,04	0,05	0,06	0,07	0,09	0,13	1
EAD	0,01	0,03	0,05	0,07	0,09	0,11	0,13	0,15	0,17	0,30
LGD	0,21	0,25	0,28	0,35	0,38	0,40	0,45	0,50	0,55	

***LGD Percentage According to Guarantees***

TEMİNAT	Nakit	Menkul Kıymet	Konut G.menkul	Ticari G.menkul	Gerçek Müşteri Çek/Senet
LGD	0,05	0,29	0,38	0,42	0,40

To calculate the capital adequacy, first we have to calculate the R coefficient. The formula is:

$$(R) = 0,03 \times \frac{(1 - \text{EXP}(-35 \times \text{PD}))}{(1 - \text{EXP}(-35))} + 0,16 \times \left( 1 - \frac{(1 - \text{EXP}(-35 \times \text{PD}))}{(1 - \text{EXP}(-35))} \right)$$

*Note: EXP means exponential eg.  $e^x$*

If we calculate the R coefficient with the ABC Company data  $R=0,06206$

The ABC company EAD ratio is 0.07 due to its BBB rating note. Default risk balance is calculated by EAD ratio for BBB rating note. If we multiply 100.000 TL credit amount with  $(1+EAD)$ , we will find the EAD amount. The EAD amount for the ABC Company is,

$$EAD = 100.000 \times 10.07 = 107.000 \text{ TL}$$

We are using the EAD amount to calculate the K capital obligation. The formula for the retail SME K value is below,

$$(K) = LGD \times N \left[ (1 - R)^{-0,5} \times G(PD) + \left( \frac{R}{1 - R} \right)^{0,5} \times G(0,999) \right] - PD \times LGD$$

*Here:*

*LGD: Loss given default*

*PD: Probability of default*

*R: Coefficient*

*G (z): Inverse Cumulative dispersion function*

*N (x): Cumulative dispersion function*

*Resource: TBB, "Basel II Çalışma Raporları", a.g.m., p.61.*

After using the ABC company data, we find that  $K = 0.04045$

With this  $K$  value, now we can calculate the RWA. To do this, we can use this formula,

$$RWA = EAD \times K \times 12,5 = 107.000 \times 0,04045 \times 12,5 = 54.105,03$$

After calculation of the RWA, now we can calculate the capital adequacy. With a calculation of the  $R$  coefficient capital obligation, we find the RWA. The capital adequacy is 8% of the RWA. In the ABC company case, for 100.000 TL credit, the bank capital adequacy calculation is,

$$RWA \times 0,08 = 54.105,03 \times 0,08 = 4.328,40 \text{ TL}$$

Non-Guaranteed 100.000 TL credit's capital adequacy for the standard approach is 6.000 TL. If we use the internal rating approach, it becomes 4.328,40 TL. The same credit capital adequacy in Basel-I standards is 8.000 TL.

To summarize all of these, we could say that the different approaches and methods are changing bank capital adequacy amounts in Basel-II and Basel-I.

### **5.3 Credit Pricing**

According to the ABC Company ratings and bank capital adequacy amounts, banks will calculate credit prices for 100.000 TL ABC company credits. Credit price change is inversely proportional with company rating. If company note increases, credit price will decrease. This is due to less capital adequacy amounts for high credit noted firms. This affects credit price directly. According to Basel-II, credit price is based on the sum of fund costs, expected loss ratio, capital adequacy costs, capital costs, and interest ratio.

Reference interest ratio is calculated by a bank's own interest ratio, other banks interest ratio, and fixed costs. Expected loss is multiplied by default possibility and default loss amount.

$$EL = PD \times LGD$$

If the LGD ratio is used, it becomes

$$EL = PD \times LGD \times EAD$$

*Resource: M.AYHAN ALTINTAŞ. S:447*

Another factor affecting credit price is capital cost. Capital cost is the amount of interest coming (DIBS) from the capital adequacy amount for customer credit. To summarize, all of the above sample credit price calculations for ABC Company are below.

Capital adequacy cost interest ratio (DIBS): 19%

Share of profit: 3%

Reference interest ratio: 17%

The ABC Company credit price for Basel-II standard approach:

$$\text{Credit Price} : ((6000 \times 0,19) / 100000) \times 100 + 20 = \%21,14$$

ABC Company credit price calculation for Basel-I

$$\text{Credit Price} : (((8.000 \times 0,19) / 100000) \times 100) + 20 = \%21,52$$

ABC Company credit price for Basel-II internal rating approach

$$\text{Credit price} : (((4.325,40 \times 0,19) / 100000) \times 100) + 20 = \%20,82$$

The internal rating approach requires less capital adequacy than Basel-I and Basel-II standard approaches; for this reason, credit price is less than others.

The reader could see the conclusion of all scenarios for the ABC company 100.000 TL credit table below.

	Approach	Capital Adequacy	Credit Price (%)
Basel-II	Internal Rating	4328,40	20,82
	Standard	6000	21,14
Basel-I		8000	21,52

## **6. EFFECTS OF BASEL-II ON SME and TO-DO LIST FOR SME**

Strong capital adequacy always is an advantage to borrow credit with low prices; with Basel-II standards, this becomes much more important. Companies which have strong capital adequacy have a significant advantage with Basel-II standards. However, SME in Turkey struggle with capital deficiency. Because of this, few SME can use strong capital adequacy to their advantage in Turkey. In the short term, the SME should find new equity owners or join corporations for better capital structure. However, many of the SME in Turkey are not managed professionally and still use old school methods. Because of this, corporate combination and equity owner solutions do not seem practical (Türkiye Bankalar Birliği Publish No: 228, 2004).

SME risk management applications will improve SME risk management abilities; this also causes institutional structure to get high credit notes. However, the SME do not know how to improve risk management abilities and establish an institutional structure. The SME should realize its importance and start to establish institutional structure. To do this, the SME should encourage education regarding these issues.

Basel-II wants a lucid reporting system and well organized balance-sheets from companies. To obtain accurate credit risk weights, all business activities should be reported. However, to dodge this, tax firms prefer off-record businesses. In this case, companies will compare the gain from Basel-II credit risk weight affect and dodge tax income. To avoid this, the SME should be educated regarding the advantages of low credit risk weight (Konya Ticaret Odasi Issue: 2005-41/08, 2005).

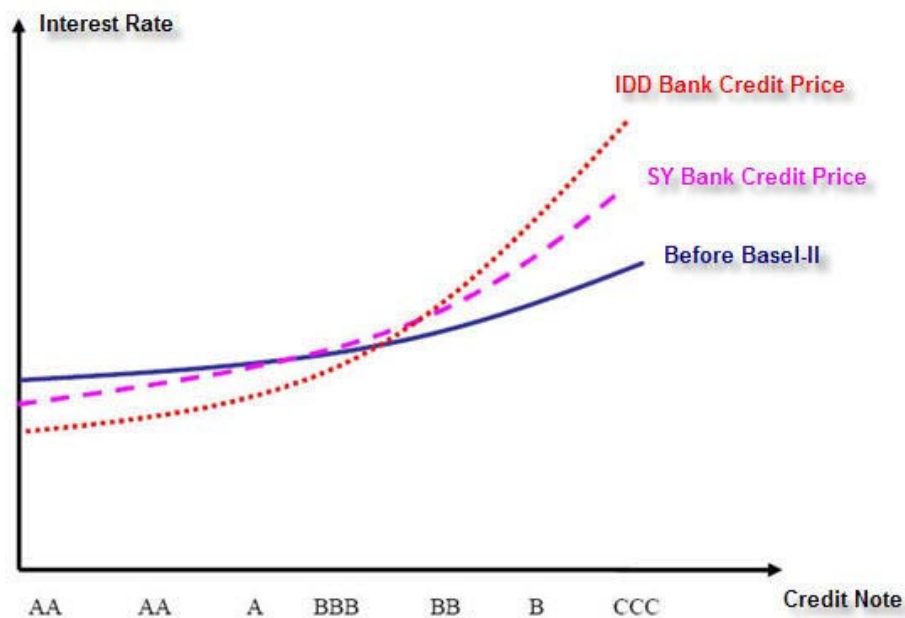
Due to Basel-II risk based credit pricing, guarantees becomes important as decreasing tool for companies. This fact forces the SME to learn guarantee issues for low price credits. For a credit guarantee fund, credit assurance might use other mechanisms for the SME. Equity owner debts and customer check guarantees are removed with Basel-II.



Another guarantee widely used in Turkey is a mortgage, and Basel-II accepts that guarantee as a risk weight decreasing tool. This will affect the transition period positively. However, an existent credit guarantee system has to improve for better transitions to Basel-II standards.

Due to the direct affect of a balance-sheet, financial reports, experience, management quality etc. on standardized approaches and internal rating based approach credit notes, the SME should develop its management structure and employee quality (Jaime Caruana, 2003).

In this framework, investments on well educated employees are also important. As it is easily predicted, Basel-II transactions will not be easy for both the SME and banks. Standardized approach usage will minimize this affect at first, but the SME should be prepared for internal rating-based approach standards to use low price credits. The graph below shows the difference between credit prices before and after Basel-II. After Basel-II, credit prices increase.



Graph. 1. Interest Rate – Credit Note

After Basel-II, alternative financial funds such as leasing, factoring, and equity owner firms go public, strategic partnerships etc. become more attractive for companies. In Turkey, leasing and factoring are already in use. After Basel-II, equity owner companies may go public which, may become a new financial fund for the SME. However, due to its structure, going public does not seem practical for the SME. In this frame, leasing and factoring firms should develop their financial structure and be ready to transition to Basel-II.

After Basel-II, banks will prefer to give credits to high credit note owner companies. The SME should develop its management structure and financial issues to be ready for Basel-II transition in order to get high credit notes and therefore get low price credits.

## **7. CONCLUSION**

Basel II is aiming to be the fundamental tool in assessing credit ratings in the financial markets. Although Basel-II seems to regulate banks, it directly affects real economy. After Basel-II, low credit notes are going to become more important for low price credit. In this frame, companies should be prepared for Basel-II in order to survive as a company. Institutionalization especially becomes much more important with Basel-II standards. Real economy should adapt to this new environment as soon as possible. We can list to-do's for these main topics. Firms should;

- do business in their own field of activity
- provide standardized balance-sheets and financial reports
- provide well organized risk management, which includes other financial tools
- be prepared to supply collaterals and covenants in the forms required by Basel II
- have strong capital adequacy and capital structure
- have professional financial management
- have a well-educated employee profile

- have a good understanding of Basel-II standards

Companies should take action and start to revise their management and to develop a more institutional structure. Financial management systems should revise and avoid off-record business activities. Firms should reconsider their field of activity and use capital on chosen field activities. Companies should develop alternative strategies to improve capital adequacy and structure.

There are many alternative external financial funds except banks credits; firms should consider these options as alternative financial funds. Company managers should join Basel-II workshops provided by banks to get accurate information about Basel-II standards.

In conclusion, Basel-II is going to affect both real economy and banks, and companies and banks should take action to be ready for these new financial standards.

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## ANNEX

### Kanun

#### *Sanayi ve Ticaret Bakanlığının Teşkilât ve Görevleri Hakkında Kanuna Bir Ek Madde Eklenmesine İlişkin Kanun*

##### **Kanun No. 5331**

**MADDE 1.** — 8.1.1985 tarihli ve 3143 sayılı Sanayi ve Ticaret Bakanlığının Teşkilât ve Görevleri Hakkında Kanuna aşağıdaki ek madde eklenmiştir.

**EK MADDE 1.** — Küçük ve orta büyüklükteki işletmelerin tanımlanmasına, niteliklerine, sınıflandırılmasına ve uygulamalarına ilişkin esaslar; net satış hasılatları, malî bilanço tutarları ve çalışan sayıları dikkate alınarak Bakanlıkça hazırlanan ve Bakanlar Kurulunca yürürlüğe konulan yönetmelikle belirlenir. Küçük ve orta büyüklükteki işletmeler kısaca "KOBİ" olarak adlandırılır.

Kurum ve kuruluşların KOBİ'lere ilişkin uygulamalarında birinci fıkra uyarınca yürürlüğe konulan yönetmelik hükümleri esas alınır.

**MADDE 2.** — Bu Kanun yayımı tarihinde yürürlüğe girer.

**MADDE 3.** — Bu Kanun hükümlerini Bakanlar Kurulu yürütür.

15 Mart 2005

## Yönetmelik

### Karar Sayısı : 2005/9617

Ekli "Küçük ve Orta Büyüklükteki İşletmelerin Tanımı, Nitelikleri ve Sınıflandırılması Hakkında Yönetmelik" in yürürlüğe konulması; Sanayi ve Ticaret Bakanlığı'nın 28/7/2005 tarihli ve 5674 sayılı yazısı üzerine, 3143 sayılı Sanayi ve Ticaret Bakanlığının Teşkilat ve Görevleri Hakkında Kanunun ek 1 inci maddesine göre, Bakanlar Kurulu'nca 19/10/2005 tarihinde kararlaştırılmıştır.

### **KÜÇÜK VE ORTA BÜYÜKLÜKTEKİ İŞLETMELERİN TANIMI, NİTELİKLERİ VE SINIFLANDIRILMASI HAKKINDA YÖNETMELİK**

#### **Amaç**

**Madde 1 -** Bu Yönetmeliğin amacı; küçük ve orta büyüklükteki işletmelerin tanımına, niteliklerine ve sınıflandırılmasına ilişkin esasların belirlenmesi ve bu tanım ve esasların tüm kurum ve kuruluşların uygulamalarında esas alınmasını sağlamaktır.

#### **Kapsam**

**Madde 2 -** Bu Yönetmelik; küçük ve orta büyüklükteki işletmeler ile bu işletmelerin tanımlarına, niteliklerine ve sınıflandırılmasına ilişkin uygulama usul ve esaslarının belirlenmesini kapsar.

Küçük ve orta büyüklükteki işletmeleri ilgilendiren mevzuatın uygulanmasında bu Yönetmelik hükümleri esas alınır. Ancak; KOBİ'lere yönelik destek sağlayan kuruluşlar, bu Yönetmelikte belirtilen sınırları aşmamak kaydıyla, kendi sektör ve büyüklük önceliklerini belirleyebilirler. Devlet yardımları dışındaki uygulamalar için sadece çalışan sayıları dikkate alınabilir.

#### **Dayanak**

**Madde 3 -** Bu Yönetmelik; 8/1/1985 tarihli ve 3143 sayılı Sanayi ve Ticaret Bakanlığının Teşkilat ve Görevleri Hakkında Kanunun ek 1 inci maddesine dayanılarak hazırlanmıştır.

#### **Tanımlar**

**Madde 4 -** Bu Yönetmeliğin uygulanmasında;

a) a) İşletme: Yasal statüsü ne olursa olsun, bir veya birden çok gerçek veya tüzel kişiye ait olup, bir ekonomik faaliyette bulunan birimleri,

b) b) Küçük ve orta büyüklükte işletme (KOBİ): İkiyüzelli kişiden az yıllık çalışan istihdam eden ve yıllık net satış hasılatı ya da mali bilançosu yirmibeş milyon Yeni Türk Lirasını aşmayan ve bu Yönetmelikte mikro işletme, küçük işletme ve orta büyüklükteki işletme olarak sınıflandırılan ve kısaca "KOBİ" olarak adlandırılan ekonomik birimleri,

c) c) Mali bilanço: Bir işletmenin belirli bir tarihte sahip olduğu varlıklar ile bu varlıkların sağlandığı kaynakları gösteren mali tabloyu,

d) d) Net satış hasılatı: Bir işletmenin brüt satışlarından satış iskontoları ve iadeleri ile diğer indirimlerin düşülmesi sonucu bulunan tutarı,

e) e) Yıllık iş birimi (YİB): Bir yıl boyunca tam zamanlı olarak işletmede veya işletme adına çalışan bir kişiyi,

f) f) Yakın piyasa: İlgili piyasanın akış zincirinin başlangıç veya bitiminde yer alan ürün veya hizmet piyasasını, ifade eder.

**Küçük ve orta  
büyüklükteki**



### **işletmelerin**

#### **sınıflandırılması**

#### **Madde 5 - KOBİ'ler**

aşağıdaki şekilde

sınıflandırılmıştır.

a) a) Mikro işletme: On kişiden az yıllık çalışan istihdam eden ve yıllık net satış hasılatı ya da mali bilançosu bir milyon Yeni Türk Lirasını aşmayan çok küçük ölçekli işletmeler,

b) b) Küçük işletme: Elli kişiden az yıllık çalışan istihdam eden ve yıllık net satış hasılatı ya da mali bilançosu beş milyon Yeni Türk Lirasını aşmayan işletmeler,

c) Orta büyüklükteki işletme: İkiyüzelli kişiden az yıllık çalışan istihdam eden ve yıllık net satış hasılatı ya da mali bilançosu yirmibeş milyon Yeni Türk Lirasını aşmayan işletmeler.

#### **Sınıf değiştirme ve vafsin kaybı**

**Madde 6 -** Hesaplarının kapanış tarihinde, işletme sınıfları ve KOBİ vasfı belirlenirken dikkate alınan kriterlerden herhangi birini, birbirini takip eden iki hesap döneminde de kaybeden veya aşan işletmeler sınıf değiştirir veya KOBİ vasfını kaybeder.

#### **İşletme türleri**

**Madde 7 -** KOBİ'ler, çalışan sayıları veya mali bilgilerinin tespitine yönelik olarak; diğer işletmeler ile olan sermaye veya oy hakkı ilişkilerine göre bağımsız işletmeler, ortak işletmeler ve bağlı işletmeler olmak üzere üçe ayrılır.

#### **Bağımsız işletme**

**Madde 8 -** Gerçek veya tüzel kişilerin sahip olduğu ve bu Yönetmeliğe göre ortak veya bağlı işletme sayılmayan bir işletme;

a) a) Başka bir işletmenin % 25 veya daha fazlasına sahip değilse,

b) b) Herhangi bir tüzel kişi veya kamu kurum ve kuruluşu veya birkaç bağlı işletme tek başına veya müştereken bu işletmenin % 25 veya daha fazla hissesine sahip değilse,

c) Konsolide edilmiş hesaplar düzenlemiyorsa ve konsolide hesaplar düzenleyen başka bir işletmenin hesaplarında yer almıyorsa ve bu nedenle bağlı bir işletme değilse, bağımsız işletme kabul edilir.

#### **Ortak işletme**

**Madde 9 -** Bir işletmenin tek başına veya bağlı işletmeleriyle birlikte hakim etki yaratmayacak şekilde, başka bir işletmenin oy hakları veya sermayesinin % 25'inden fazlasına ve % 50'sinden azına sahip olması, yahut kendisinin oy hakları veya sermayesinin % 25'inden fazlasına ve % 50'sinden azına başka bir işletmenin hakim etki yaratmayacak şekilde sahip olması durumunda bunlar ortak işletme sayılır. Sermaye ve oy hakları payından yüksek olan esas alınır.

Birinci fıkrada belirtilen % 25 oranı;

a) a) Kamu yatırım şirketleri, girişim sermayesi yatırım ortaklıkları ve bir işletmedeki toplam yatırımları iki milyon YTL'yi aşmamak şartıyla kendi fonlarını borsaya kote edilmemiş işletmelere yatan ve düzenli olarak risk sermayesi yatırımlarında bulunan gerçek kişiler veya kişi grupları,

b) b) Üniversiteler, üniversitelerin kurduğu vakıflar ve kâr amacı gütmeyen araştırma merkezleri,

c) c) Bölgesel kalkınma fonları da dahil kurumsal yatırımcılar,

d) d) Yıllık bütçesi onsekiz milyon YTL'den az olan veya nüfusu beşbinden az olan yerlerdeki; belde belediyeleri dahil belediyeler ve köy tüzel kişilikleri,

tarafından asılsa bile bu işletme bağlı işletme ilişkilerine sahip olmaması şartıyla bağımsız işletme sayılır.

#### **Bağlı işletme**

**Madde 10 -** Bir işletme;

a) a) Başka bir işletmenin sermaye veya oy haklarının çoğunluğuna sahip olma,

b) b) Başka bir işletmenin yönetim, yürütme veya

denetim kurulu üyelerinin çoğunluğunu atama veya azletme yetkisine sahip olma,

c) Başka bir işletmenin hissedarı veya ortağı olup, bu işletmenin diğer hissedarları veya ortaklarıyla yaptığı anlaşma ile bunların oy haklarının çoğunluğunu tek başına kontrol etme hakkına sahip olma, şartlarından en az birini taşıması halinde bağlı işletme sayılır.

9 uncu maddenin ikinci fıkrasında sayılan yatırımcıların; hissedarlık hakları saklı kalmak kaydıyla, söz konusu şirketlerin yönetiminde doğrudan veya dolaylı olarak yer almaması halinde, hiçbir hakim etkinin olmadığı kabul edilir ve bu işletmeler bağımsız işletme sayılır. Ancak söz konusu yatırımcıların bir veya birden fazla işletme ile bağlı işletme ilişkilerinden herhangi birine sahip olması durumunda bunlar bağlı işletme sayılır.

Müşterek hareket eden gerçek kişi veya gerçek kişi grupları yoluyla bağlı işletme ilişkilerinden bir veya birkaçına sahip olan işletmeler, faaliyetlerinin bir kısmını veya tamamını aynı piyasa veya yakın piyasalarda gerçekleştiriyorlarsa bağlı işletme sayılırlar.

#### **Kamu kontrolündeki işletmeler**

**Madde 11** - Bir işletmenin, sermayesinin veya oy haklarının % 25'inden fazlasının doğrudan veya dolaylı olarak, müştereken veya tek başına, 9 uncu maddenin ikinci fıkrasında sayılan yatırımcılar dışında bir veya birden fazla kamu kurum veya kuruluşunun kontrolünde olması halinde bu işletme KOBİ sayılmaz.

#### **İşletme türünün beyanı**

**Madde 12** - Herhangi bir destek programına başvuran işletmeler, bağımsız işletme, ortak işletme ve bağlı işletme olarak 5 inci maddede belirtilen eşik değerlerle ilgili verileri içeren statü beyanında bulunabilirler (Ek 1).

Sermayenin kime ait olduğunun tam olarak belirlenemeyecek şekilde dağılmış olduğu ve bu işletmede, bir işletme veya birbirine bağlı işletmeler tarafından müştereken % 25 veya daha fazla sermaye hissesine sahip olunmadığının beyan edilebildiği durumlarda, işletme statü beyanında bulunabilir.

Bu beyanlar, kanunların izin verdiği kontrol ve incelemeler saklı kalmak kaydıyla ilgili kuruma yapılır.

#### **Çalışan sayısı, finansman tutarı ve referans dönemi için kullanılan veriler**

**Madde 13** - 5 inci maddeye göre işletmelerin mali durumları ve çalışan sayılarının belirlenmesinde yıllık olarak hesaplanan en son veriler esas alınır.

Yeni kurulan ve ilk yıl hesapları henüz onaylanmamış işletmelerde sadece çalışan sayısı dikkate alınır.

#### **Çalışan sayısı ve yıllık iş birimleri**

**Madde 14** - Bir işletmede çalışanların toplam sayısı, o işletmedeki yıllık iş birimlerinin toplam sayısına göre belirlenir. Hangi süre ile olursa olsun, yılın veya günün belirli bölümlerinde veya mevsimlik işlerde çalışan kişiler yıllık iş biriminin kesirlerini oluştururlar. Doğum izni ve birinci dereceden yakınların ölümü veya hastalık sebebiyle kullanılan izinler hesaba katılmaz.

Bu Yönetmeliğin uygulanmasında;

a) a) İlgili işletmede çalışan işçi, işveren vekilleri ve işverenler ile işletme sahipleri,

b) b) İşletmede düzenli olarak bir iş gören ve bunun karşılığında bir ücret alan ortaklar, çalışan olarak dikkate alınırlar.

Çıraklık ve mesleki eğitim sözleşmesi kapsamında işletmede mesleki eğitim gören çıraklar ve staj yapan öğrenciler çalışan sayısına dahil edilmez.

#### **İşletme verilerinin bulunması**

**Madde 15** - Bağımsız işletmelerin çalışan sayılarını da kapsayan verileri, sadece o işletmenin hesaplarına göre belirlenir.

Bağlı veya ortak işletme ilişkisine sahip bir işletmenin başvurusunda kullanılacağı veriler; işletmenin hesapları ve varsa

işletmenin konsolide hesapları veya işletmenin konsolidasyon yoluyla dahil olduğu başka konsolide hesaplar ile ek-2'de belirtilen diğer verilere göre belirlenir.

İkinci fıkrada belirtilen verilere, varsa ilgili işletmenin ürettiği ürün veya hizmet piyasasının akış zincirinin başında veya sonunda yer alan herhangi bir ortak işletmesinin verisi eklenir. Eklenecek oran oy hakkı veya sermayedeki hisselerin (hangisi büyükse) oranıdır. İki veya daha çok şirketin karşılıklı katılma durumlarında her birinin yapacağı başvuruda büyük olan katılma oranı uygulanır.

Bağlı veya ortak işletme ilişkisine sahip bir işletme ile doğrudan veya dolaylı olarak bağlı olan herhangi bir başka işletmenin verilerinin tamamı, bu verilerin daha önce konsolidasyon yoluyla hesaplara dahil edilmediği durumlarda ikinci ve üçüncü fıkrada atıf yapılan veriye eklenir.

Bu madde kapsamında hesaplamalar yapılırken, başvuran işletmelerin bağlı veya ortak işletmelerinin başka işletmelerle sahip olduğu bağlılık veya ortaklık ilişkileri de göz önüne alınır.

Başvuran işletmenin ortak işletmelerine bağlı olan işletmelerin verileri, konsolidasyon yoluyla daha önceden dahil edilmemişse, ortak işletmenin verilerine % 100 olarak eklenir. Başvuran işletmenin ortak işletmelerine ortak olan işletmelerin verileri, eğer bu işletmeler başvuran işletmenin piyasa akış zincirinin hemen önünde veya arkasında yer alıyorsa ve konsolidasyon yoluyla daha önceden dahil edilmemişse ortak işletmenin verilerine büyük olan ortaklık yüzdesi ile eklenir.

Başvuran işletmenin bağlı işletmelerine ortak olan işletmelerin verileri, eğer bu işletmeler başvuran işletmenin piyasa akış zincirinin hemen önünde veya arkasında yer alıyorsa ve konsolidasyon yoluyla daha önceden dahil edilmemişse bağlı işletmenin verilerine büyük olan ortaklık yüzdesi ile eklenir. Başvuran işletmenin bağlı işletmelerine bağlı olan işletmelerin verileri, eğer konsolidasyon yoluyla daha önceden dahil edilmemişse bağlı işletmelerin verilerine % 100 olarak eklenir.

Bir işletmenin konsolide hesaplarında çalışanlara ilişkin verilerin bulunmadığı durumlarda çalışan sayıları; ortak işletmelerin çalışan sayıları ortaklık oranında, bağlı işletmelerin çalışan sayıları % 100 olarak eklenerek hesaplanır.

#### **İstatistik çalışmaları**

**Madde 16 -** Devlet İstatistik Enstitüsü, işletmelerde yıllık çalışan sayılarının belirlenmesinde aşağıda belirtilen gruplandırma ve sayıları esas alır.

- a) a) Yıllık çalışan sayısı 0'dan büyük -1 kişi,
- b) b) Yıllık çalışan sayısı 2-9 kişi,
- c) c) Yıllık çalışan sayısı 10-19 kişi,
- d) d) Yıllık çalışan sayısı 20-49 kişi,
- e) e) Yıllık çalışan sayısı 50- 249 kişi,
- f) f) Yıllık çalışan sayısı 249'dan fazla.

#### **Beyan**

**Madde 17 -** Bu Yönetmelik ekinde yer alan formlar ilgili işletme tarafından beyan esasına göre doldurulur. Bu Yönetmelik kapsamında yapılacak işlemlerde esas alınan belge ve formların içerdiği her türlü bilgiden başvuran işletme sorumludur. Yanlış ve yanıltıcı bilgilere ve belgelere dayanılarak yapılan işlemlerle elde edilen menfaatler kazanılmış hak sayılmaz.

#### **Yetki**

**Madde 18 -** Sanayi ve Ticaret Bakanlığı, bu Yönetmeliğin uygulanmasına ilişkin esasları belirlemeye ve tebliğ çıkarmaya yetkilidir.

#### **Yürürlük**

**Madde 19 -** Bu Yönetmelik yayımı tarihinden altı ay soma yürürlüğe girer.

#### **Yürütme**

**Madde 20 -** Bu Yönetmelik hükümlerini Bakanlar Kurulu yürütür.

