

THE MAJOR EFFECTS OF BASEL II TO SMALL AND MID-SIZED ENTERPRISES: AN EMPIRICAL WORK ON COMPANIES QUOTED TO KOSGEB

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ABSTRACT

The major aim of this work is to analyze the effects of BASEL II regulations on the small and mid-sized enterprises (SME) in Turkey. It is accepted that there are still various shortcomings of BASEL II implementation regarding the corporate governance (CG) and regulations in Turkish economy. The companies which are classified as SME and quoted to KOSGEB, i.e. a governmental organization supporting SMEs, are used in the empirical work. The empirical findings are discussed and compared with the major findings from other countries in the literature and also recommendations are made regarding BASEL II implementation and its effects on corporate governance and economic growth in Turkey.

Key Words: BASEL II, SME, Corporate Governance, Operational Risk Management, Logit Model, JEL: G1, G32, E44

BASEL II'NİN KOBİ'LERE ETKİLERİ: KOSGEB ÜYESİ FİRMALAR ÜZERİNE BİR UYGULAMA

ÖZET

Bu çalışmada amaç, BASEL II düzenlemelerinin kurumsal yönetim bağlamında Türkiye ekonomisi üzerinde ortaya çıkaracağı iktisadi etkileri Küçük ve Orta Boy İşletmeler (KOBİ) açısından ortaya koymaktır. Türkiye'de BASEL II düzenlemeleriyle ilgili olarak yapılan yasal düzenleme ve kurumsal yönetimle ilgili politikalarından kaynaklanan eksikliklerin ve yeni uygulamaların iktisadi etkilerinin analizi yapılmıştır. Bu çalışmada ampi-

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rik uygulama için, Küçük ve Orta Ölçekli Sanayi Geliştirme ve Destekleme İdaresi Başkanlığı (KOSGEB) üyesi olan ve KOBİ tanımlaması kapsamında seçilen firmaların verileri kullanılmıştır. KOBİ'lerin Türkiye'deki konumu ve BASEL II düzenlemelerinin etkilerini araştırmak üzere oluşturulan modelin bulguları tartışılarak literatürdeki diğer ülke uygulamaları ile karşılaştırması yapılmıştır. Bulgular çerçevesinde, BASEL II düzenlemelerinin KOBİ'ler bağlamında, Türkiye açısından kurumsal yönetim ve ekonomik büyüme üzerindeki etkilerinin sonuçları üzerine önerilerde bulunulmuştur.

Anahtar Kelimeler: BASEL II, KOBİ, Kurumsal Yönetim, Operasyonel Risk Yönetimi, Logit Model JEL: G1, G32, E44

1. INTRODUCTION

Despite recently publicized delays of BASEL II implementation in Turkey, BASEL II is almost completed in 13 Basel Committee Member Countries by the end of 2006 after replacing the 1988 BASEL I agreement. In addition, the European Banks are required to assess the credit risks of their portfolio with the new Accord, i.e. BASEL II. The new regulatory framework has introduced fundamental changes to the existing regulation and is rapidly becoming a standard worldwide with all the major non-EU economies and most emerging markets planning to commence it within the next few years.

In this paper we focus on the potential changes in the lending conditions for SMEs in Turkey based on the BASEL II implementations of banking in the near future. Especially we analyze to what extent such new practices may affect the lending strategies of SMEs in Turkey since it is expected that there will be an increase in the capital costs for these companies.

This paper is organized as follows: After the brief review of literature on BASEL II, we introduce the methodology and the data of empirical work. Our empirical analysis is based on the SME data which are quoted at the KOSGEB. We initially

3. The members of the Basel Committee for Banking Supervision (BCBS), responsible for the development of Basel II, come from the Central Banks of 13 countries: Belgium, Canada, France, Germany, Italy, Japan, Luxembourg, the Netherlands, Spain, Sweden, Switzerland, United Kingdom and the United States.

implement a logit model to observe the SMEs performances and profitability. Depending on the empirical evidences of the model, we report summary statistics and results. Finally, we provide concluding remarks on the potential implications of the analysis within the specific context of the Turkish economy.

2. THE LITERATURE REVIEW ON BASEL II, CORPORATE GOVERNANCE AND THE SMES

The Basel Committee have performed numerous “quantitative impact studies” to test the outcome of the new rules on banks’ regulatory capital. However, the main focus of such studies was to evaluate the new and the old regulation and to determine whether the new regulation would give way significantly lower capital requirements. The works of Altman and Saunders (2001), Sironi and Zazzara (2003), Resti and Sironi (2007), Linnell (2001), Perli and Nayda (2004), Calem and La-Cour-Little (2004) can be given as the examples of such studies.

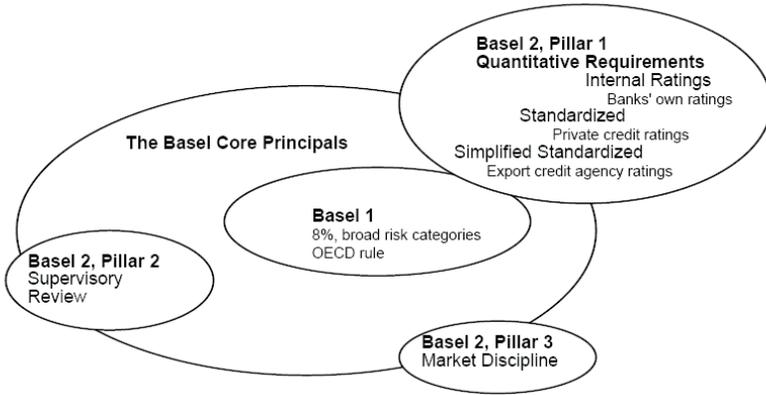
The new Accord consists of 3 Pillars: (1) Minimum Capital Requirements, (2) Supervisory Review Process and (3) Market Discipline . Nevertheless, the Capital Accords need to be placed the context of the Basel Core Principles (BCPs) for Effective Banking Supervision to understand what’s new about BASEL II. The simple graphical representation is shown at Figure 1. Most of the innovation in BASEL II lies in the first pillar, i.e. Quantitative Requirements for minimum capital; but the second pillar is relatively not new so that it is inconsiderable in nature compared to BASEL I principles. Third pillar, i.e. the market discipline is also new and important in various respects.

The general perspective of BASEL II is mainly related to the consolidated supervision approach and the general status of BASEL II implementation indicates that most of the countries fail on this issue. IMF and World Bank emphasized the importance of this failure in their recent reports (Powell 2004). There is no hesitation that if all the countries achieve the consolidated

4. For further information on market discipline pls refer to: <http://www.bis.org/publ/bcb107.htm>

supervision by fully adopting BCPs, the quality of banking supervision will be higher and more secure across the globe. The third pillar, i.e. market discipline should also be discussed from the general perspective of BASEL II since it is important for applying effective monitoring and enforcement systems for the developing countries' financial sectors. In order to achieve a significantly enhanced market discipline in developing countries, there is a need for a change of traditional supervision approach by introducing more appropriate policies in financial sectors.

Figure 1- Representation of BASEL II Standards



Source: (Powell 2004, 9) and (Cesare and Ingves 2002, 23)

Since 1997, financial sector crises in various countries, i.e. Argentina, Ecuador, Indonesia, Korea, Russia, Thailand, and Turkey, have drawn attention to the relationship between financial sector crises and weak macroeconomic policies, while also confirming the adverse effects of poor lending practices, weak corporate governance, inadequate loan provisioning, accounting and auditing practices, and insufficient supervisory independence.

According to the World Bank and IMF reports (2002), there are some key preconditions for effective banking supervision, which include sound and sustainable macroeconomic po-

licies, a well-developed public infrastructure, effective market discipline, procedures for effective bank resolution, and systemic protection or a safety net. Since the introduction of the BCPs, these principles have been regarded as the global standard for the quality of countries' banking supervision systems.

The initially developed BASEL I principles in 1988 included only credit risk that may take place from the failure of the counterparties to fulfill their obligations. Afterwards, it was modified in 1996 to meet the market risk arising from the interest and currency rate changes and has become more risk sensitive. The major force for the adjustments made in 1996 is the Mexican crisis experienced in 1994 and the problems and risks arising from this crisis in the global financial system.

Compared to the BASEL I, the new BASEL II principles bring more qualitative standards, amend the definition of credit risk and market risk and commence a new type of risk, namely "operational risk", that may arise from unlawful transactions or information system failures into the financial sector. As a result of these adjustments, the banks are now required to have 8 % capital against all the risks that they are exposed to.

BASEL II principles bring new rules for the companies, especially for the SMEs that would require credits from the banks. There are two major points that these companies may suffer from the effects of these rules.

The first one is related to the access to the credit resources for financing their operations. The second rule is about the costs of credit. This means that, from now on all firms could not get credits with the same cost. In addition the banks would require more and less risky collateral from the SMEs, while giving credits to them. In these circumstances, the credit rating figures given to the firms will be important.

In reality, the most important change introduced by the BASEL II Standardized Approach is the application of risk weights depending upon the credit ratings given by the independent rating agencies to the countries, banks and companies. Depending on their credit rating figures as shown at Table 1, the compa-

nies that receive high credit rating could use low-cost credits compared to those that get low-credit rating in the market. This is because the bank in charge will have lower capital requirement, lower risk and also be able to use its resources for credits.

Table 1: Rating and Risk Weights According to BASEL II

Ratings	Risk Weights (Retail)	Risk Weight (Other Firms)
AAA to AA-		%20
A+ to A-		%50
BBB+ to BB-		%100
Lower than BB-		%150
No rating		%100

Source: BIS, www.bis.org

In this way, the concept of good credit versus bad credit would leave its place to credits with lower risk versus higher risk. Banks would prefer the companies that have more transparent financial statements and strong corporate background while giving credits.

Another disadvantage for the firms would take place when they decide to get credits from abroad. BASEL II state that the companies operating in that country would apply the country credit rating for the credits used from abroad. Regarding this new rule, Yilmaz and Kucukcolak (Yilmaz and Kucukcolak, 2007) argue that by being an OECD member, Turkey that has a 0% risk weight will no longer carry out this advantage and the Turkish companies could not get a credit rating over the country rating from the independent rating agencies in the market. This would lead to a situation where their costs in foreign trade financing and in credit usage abroad would inevitably increase. There is a significant point to be discussed here. As the rating agencies may get the information about the countries' financial indicators with a certain time lack, their ratings most often follow the market, rather than guide it.

Therefore, the credit users may experience difficulties in this process. Griffith-Jones and Spratt explain that af-

ter the international banks start on using BASEL II principles, the bank credits extended to the emerging markets will decline and the costs of international borrowing will increase significantly (Griffith-Jones and Spratt, 2001).

The new definition of SMEs is also important in BASEL II principles. According to this definition, SMEs are defined as the companies that have an annual total net sales volume of lower than 50 Million Euro. This definition is a critical measure for benefiting from the advantages of BASEL II principles.

BASEL II differentiates the credits that will be given to these companies as corporate credits and retail credits. This can be explained as follows: if the credit amount either cash or non-cash credits used by a SME from a single bank exceeds 1 Million Euro, the SME is classified within the Corporate Portfolio, if the credit amount is lower than 1 Million Euro, and it is included within the Retail Portfolio. For each case, different risk weights are applied in the market and the details are shown at the Table 2.

Table 2: Classification of Companies According to BASEL II

Credit Amount	Net Sales (Annual)	Risk Weight	Classification
Credit > 1.000.000 Euro	Sales > 50.000.000 Euro	%100	Corporate
Credit > 1.000.000 Euro	Sales < 50.000.000 Euro	If no rating, %100	Corporate SME
Credit < 1.000.000 Euro	Sales > 50.000.000 Euro	%100	Corporate
Credit < 1.000.000 Euro	Sales < 50.000.000 Euro	Standard, %75	Retail SME

Source: BIS, www.bis.org

Retail credits are given 75 % risk weight in Standardized Approach. For corporate credits used by the SMEs, the ratings

given by the independent institutions are taken into consideration and risk weights are assigned consequently.

On the other hand, the SMEs that have not received a rating are given 100 % risk weight. The point to note is that while the companies that have a rating lower than (B-) in Standardized Approach receives 150 % risk weight; the companies with no rating are given 100 % risk weight. This situation would give hope to risky companies not to receive a rating in the marketplace. As to the Internal-Rating-based Approach, the parameters used by the banks would be diagnostic in the risk weights assigned to the firms.

Within this framework, companies are required to adjust their organizational and corporate structure to adopt BASEL II principles. The main strategies to be followed by the companies and especially for SMEs is that applying corporate governance culture wide spread starting from all executive managers to all employees.

The Cadbury Committee defines corporate governance as the system by which companies are directed and controlled (Cadbury 1992, 15). Corporate governance defines and advises how companies ought to be managed directed and controlled. It is also described by Keasey et al to consist of the structures, processes, cultures and systems that produce the successful operation of the organizations (Keasey 1997, 1-17).

Corporate governance is also related to those who direct and control the business. It is also the same approach for SMEs that is about relevant roles of the shareholders as owners and the managers. In various countries, SMEs do not certainly obey such codes but it has often been discussed that such codes should also be relevant to these SMEs.

The compliance with codes of corporate governance has become the standard for listed companies all over the globe. The issue of corporate governance has been a growing part of management study especially among big and listed companies. Conversely, less consideration has been given to it with respect to SMEs.

Prior studies on corporate governance such as (Friend and Lang, 1988); (Berger et al, 1997); (Wen et al, 2002); (Abor, 2007) have focused essentially on large and listed companies. Mostly, SMEs tend to have a less pronounced division of ow-

nership and management than larger firms. This may be because SMEs have few employees who are usually relatives of the owner and thus no separation of ownership and control, there is any need for corporate governance in their operations. Also, the question of liability by SMEs to the public is missing since they do not depend on public funds. Nearly all, especially the sole proprietorship businesses do not necessarily need to comply with any disclosure. Since there is no agency problem and minimizing cost are the common intend of the members.

The current literature identified the major feature of corporate governance such that including board size, board composition, CEO duality, residence of the CEO and CEO compensation. Corporate governance has been identified in earlier works of (Berger et al, 1997); (Friend and Lang, 1988); (Wen et al, 2002); (Abor, 2007).

However, empirical results on the relationship between corporate governance and capital structure appear to be varied and indecisive. (Pfeffer and Salancick 1978) and, (Lipton and Lorsch 1992) argue in their works that there is a significant link between board size and capital structure. (Berger et al 1997) discover that companies with larger board membership usually have low leverage or debt ratio. They discuss that larger board size turn into strong compel from the corporate board to make managers practice lower leverage to enhance company performance (Berger et al 1997).

Nevertheless, (Jensen 1986) argues that companies with high leverage or debt ratio rather have larger boards. The end results of (Wen et al 2002) and (Abor 2007) also demonstrate a positive relation between board size and financial leverage. Their major findings advise that large boards, which are more entrenched due to superior monitoring by regulatory bodies, pursue higher leverage to raise company value.

These conflicts arising from larger board size have the inclination of weakening corporate governance resulting in high leverage. (Anderson et al 2004) also illustrate that the cost of debt is lower for larger boards, apparently because creditors treats these companies as having more effective monitors of their financial accounting procedures and processes. (Pfeffer 1973) and (Pfeffer and Salancick 1978) argue that external directors develop the ability of a company to defend itself against the external envi-

ronment, decrease uncertainty, or co-opt resources that boost the company's ability to increase funds or enhance its status and recognition. This can be interpreted as the higher the proportion of outside directors, the higher will be leverage position of the company.

(Wen et al 2002) argue that there is a significantly negative relationship between number of outside directors on the board and leverage. They note that outside directors tend to monitor managers more actively, causing these managers to adopt lower leverage for getting improved performance results. Also, companies with higher proportion of outside directors tend to practice low financial leverage with a high market value of equity. Conversely, (Abor 2007), (Jensen 1986), and (Berger et al 1997) discuss that companies with higher leverage rather have relatively more outside directors, while companies with low percentage of outside directors experience lower leverage.

CEO duality also influences the funding decision of the company. A two-tier leadership composition is one in which the chair of the board of directors and the CEO position are not held by the same person. This is firstly suggested by Fama and Jensen. The rationale of Fama and Jensen try to identify two key factors as decision management and decision control mechanisms in a company. Decision management is defined as the right to initiate and implement new proposals for the expenditure of the company's resources and decision control is defined as the right to authorize and monitor those proposals. In their approach, the decision management and decision control authorities should be separated (Fama and Jensen 1983).

Hence, by not allowing an insider to have both decision management and decision control authority over the same proposals, a series of tests and balances are imposed that make it more complicated and difficult for managerial insiders to engage in any kind of unethical behavior. At the highest levels, this implies that the person with the senior decision management authority (the CEO) should not be allowed to implement the senior decision control authority as well. Since the board of directors is the peak level decision control formation in the company, this

5. Duality means that the CEO is also the chairman of the board.

requires that the board must not be under the control of the CEO.

Since the chairman has the supreme influence over the actions of the board, the partition of decision management and decision control is compromised when the chairman of the board is also the CEO of the company. Hence, requiring the chair and CEO positions to be held by different people, i.e. a two-tier leadership structure, will more successfully control the agency problems associated with the partition of ownership and control typical in the modern companies.

According to Fosberg, companies with a two-tier leadership structure should be more likely to utilize the optimal amount of debt in their capital structures than companies in which the CEO is also the board chair (a unitary leadership structure or CEO duality). He notes that, companies with a two-tier leadership structure have higher debt/equity ratios. However, the relationship is not statistically significant (Fosberg 2004).

3. THE ROLE OF SMES IN THE TURKISH ECONOMY

It is a fact that the SMEs play a vital role in both developed and emerging economies. They contribute to the economic growth in various areas such as providing employment opportunities; being flexible and conformity to the changing environmental conditions; encourage entrepreneurship in an economy; leading to differentiation in product type by the help of boutique production and last but not the least, providing semi-finished products to the large companies.

In Turkey, about 98 % of the companies are in the form of SMEs and almost all of them operate in the manufacturing industry. According to the study of Aras, about 40% of the publicly traded companies in Turkey can be classified as SMEs (Aras (2002). The definition of SME was not clear until recently in Turkey. The Commercial and Trade Ministry introduced a new definition by the end of 2005 in Turkey. From now on the SMEs are defined as the companies that employ less than 250 workers and have a net sales volume and/or balance sheet total of less than 25 Million YTL. In European Union (EU), on the other

hand, the SMEs are defined as the companies that employ up to 250 workers and have a net sales volume of less than 50 Million Euro or a balance sheet total of less than 43 Million Euro.

It is expected that the BCPs would be applied in Turkey by the beginning of 2009. This might lead to some additional burden to the Turkish SMEs. The major findings of the Banking Regulation and Supervision Authority (BDDK 2003) demonstrate that there would be an increase (from 5.3 % to 6.7 %) in the capital requirements of banks for the credits extended to the SMEs (BDDK 2004). This may imply a certain level of cost increase in using credits from the banks for these enterprises. In these circumstances, the Turkish SMEs should take some necessary precautions to prevent their financial burden.

One of the key aspects for preventing financial burden may be adopting corporate governance and enterprise risk management. The Turkish SMEs are required to prepare themselves to the newly adapted changes more cautiously, if they want to carry out their business in such a competitive environment. However, it would take time for the SMEs to develop their corporate organization to the latest surroundings.

4. THE METHODOLOGY

Logistic regression analysis is a popular method of reporting social research results based on the analysis of data with a dichotomous dependent variable. The reasons why logistic regression models are preferred rather than using simple linear regression (OLS) analysis is explained in the literature by various authors such as (Aldrich and Nelson 1984); (Hanushek and Jackson 1977); (Maddala 1983). Regarding the OLS analysis, there are some major difficulties noted by DeMaris . The first one is the use of a linear function, with the assumption of independence between the predictors and the error term, and error heteroskedasticity, or non-constant variance of the errors across combinations of predictor values. In brief, applying a linear function is challenging because it leads to predicted probabilities outside the choice of 0 to 1 (DeMaris 1995).

Basically, the normal and logistic distributions are suitably alike in shape that the choice of distribution is not in fact important. Hence, the substantive conclusions reached by using logistic regression should be identical. On the other hand, the logistic distribution is advantageous in practice due to its mathematical tractability and interpretability. The mathematical advantage of the logit formulation is apparent in the ability to express the probability that $Y = 1$ as a closed-form expression:

$$P(Y = 1) = \pi = \frac{\exp(\alpha + \sum \beta_k X_k)}{1 + \exp(\alpha + \sum \beta_k X_k)}$$

In that the exponential function (exp) always results in a number between 0 and infinity, it is obvious that the right-hand side of Equation 1 above is always bounded between 0 and 1. To write the right-hand side of Equation 1 as an additive function of the predictors, we use a logit transformation on the probability. The logit transformation is $\log[\pi/(1-\pi)]$, where log refers to the natural logarithm. The term $\pi/(1-\pi)$ is called the odds, and is a ratio of probabilities. The log odds can be any number between minus and plus infinity. It can therefore be modeled as a linear function of our predictor set. In this way, the logistic regression model can be written as follows:

$$\log\left(\frac{\pi}{1-\pi}\right) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_k X_k$$

DeMaris notes that the maximum likelihood estimates have desirable properties, one of which is that, in large samples, the regression coefficients are approximately normally distributed. This makes it possible to test each coefficient for significance using a z test (DeMaris 1995).

5. THE DATA AND DESCRIPTIVE STATISTICS

The data is taken from Small and Medium Enterprise Network (KOBİ-Net) which is a part of KOSGEB, i.e. a governmental organization supporting SMEs in Turkey. Regarding the Turkish SMEs

data we calculate the descriptive statistics as shown on the Table 3.

The establishment year for SMEs in Turkey is mostly concentrated in the period of 1990-1999 with %43 and then the period 2000-2007 follows with % 29.

The %52 of SMEs are established as limited companies in Turkey. Also, %30 of SMEs are belongs to real persons in Turkey.

The education level of almost all (%99,97) SMEs managers are graduated from primary or secondary school. Similarly, almost all SMEs are managed by the owners and only %00.2 of SMEs is managed by the professionals.

The amount of capital SMEs have is mostly concentrated (%99,97) within the range of 50 million YTL and below. The majority (%91,82) of labor force of Turkish SMEs is classified as 49 people or below. The % 38 of SMEs have a corporate web page.

In addition the credit usages of SMEs are about % 35 and %75 of SMEs have new investment decisions on their agenda. SMEs use credit mostly because of lack of working capital. There are only %23 of SMEs are able to export what they produce. The quality certificates are not that common among SMEs in Turkey. There are only %13,67 of them have TSE, %7,55 of them have ISO9000 and %1,97 CE respectively.

Based on the above findings of Turkish SMEs, it takes time to establish corporate governance structure and difficult to change the habits of owners. There is a duality between holding companies, which have a small share in the economy but being the largest suppliers of inputs in the Turkish economy, and SMEs which have the largest share in the economy but being unaware of the importance of corporate governance and BASEL II principles at all.

Furthermore, the implementation of IFRS (international financial reporting standards) for SMEs will be costly and time-consuming in Turkey. Since the majority of managers are graduated from primary or secondary school, there is an urgent need for education and awareness campaigns supported by the regulatory authorities in Turkey.

THE MAJOR EFFECTS OF BASEL II TO SMALL AND MID-SIZED
ENTERPRISES:
AN EMPIRICAL WORK ON COMPANIES QUOTED TO KOSGEB

Table 3: Descriptive Statistics of SMEs in Turkey

establishment year	average	standard deviation	education	average	standard deviation
2000-2007 (YEAR1)	29%	0.500	primary and secondary	99.97%	0.01031
1990-1999 (YEAR2)	43%	0.495	high school	0.01%	0.01219
1980-1989 (YEAR3)	15%	0.356	university	0.01%	0.01597
1970-1979 (YEAR4)	3%	0.165	Capital (million)	average	standard deviation
1969 and before (YEAR5)	10%	0.305	301 YTL and above (CAP 1)	0.02%	0.01304
legal status	average	standard deviation	151-300 YTL (CAP 2)	0.01%	0.01219
corporation	14%	0.342	51-150 YTL (CAP 3)	0.02%	0.01304
limited	52%	0.500	50 and below (CAP 4)	99.95%	0.02210
real person	30%	0.457	labor force	average	standard deviation
other	5%	0.208	250 and above (LAB 1)	0.01%	0.01129
management	average	standard deviation	150-249 (LAB 2)	0.10%	0.00100
professional	0.02%	0.015	50-149 (LAB 3)	8.14%	0.27342
owner	99.97%	0.017	49 and below (LAB 4)	91.82%	0.27407
other	0.01%	0.008	credit usage	averag	standard deviation
web page	average	standard deviation	yes	35%	0.475
yes	38%	0.486	no	65%	0.525
no	62%	0.514	type of credit	average	standard deviation
export	average	standard deviation	working capital credit	25.90%	0.438
yes	23%	0.419	investment credit	7.66%	v 0.266
no	77%	0.581	export credit	4.37%	0.204
quality certificates	average	standard deviation	collateral credit	18.64%	0.389
ISO9000	7.55%	0.264	guarantee credit	7.99%	0.271
ISO14000	0.35%	0.059	credit guarantee fund	0.27%	0.052
HACCP	0.93%	0.096	open credit	10.22%	0.303
TSE	13.67%	0.344			
CE	1.97%	0.139	new investment	average	standard deviation
ISO1649	0.27%	0.052	yes	75%	0.431
			no	25%	0.569

6. THE MODEL AND EMPIRICAL FINDINGS

The logistic model is used to analyze the factors affecting the credit usage of SMEs in Turkey. This issue is important to understand the needs and expectations of SMEs and also crucial for BASEL II implementation in Turkey.

Depending on the KOSGEB data of SMEs all over Turkey, the key variables affecting the decision of credit usage in the Model 1 is as follows;

1. the establishment year (YEAR 1, 2, 3, 4, 5) ,
2. the legal status of SMEs (CORPORATION, REAL, LIMITED, OTHER),
3. the management style of SMEs (PROFESSIONAL, OWNER, OTHERMAN)
4. the education level of SME managers (PRIMARY AND SECONDARY, UNIVERSITY, HIGH SCHOOL),
5. the amount of working capital SMEs (CAP 1, 2, 3, 4) have and
6. the labor force (LAB 1, 2, 3, 4).

Model 1: The Credit Usage of SMEs

Binary Logit - Estimation by Newton-Raphson
Convergence in 5 Iterations. Final criterion was
0.0000000 < 0.0000100

Dependent Variable CREDIT USAGE

Usable Observations 47063 Degrees of Freedom 47047
Log Likelihood -28966.189093
Average Likelihood 0.5403831
Pseudo-R**2 0.0574579
Log Likelihood(Base) -30327.175376
LR Test of Coefficients(15) 2721.9726
Significance Level of LR 0.0000000

Variable	Coeff	Std Error	T-Stat	Signif
1. YEAR1	-0.350960852	0.023198556	-15.12856	0.00000000(*)
2. YEAR3	0.101266059	0.029756809	3.40312	0.00066620(*)
3. YEAR4	-0.002497659	0.062428135	-0.04001	0.96808632
4. YEAR5	0.123496924	0.036210614	3.41052	0.00064840(*)
5. CORPORATION	0.482939369	0.029002647	16.65156	0.00000000(*)
6. REAL	-0.917021875	0.025456978	-36.02242	0.00000000(*)
7. OTHER	-0.165527011	0.052748799	-3.13802	0.00170091(*)
8. PROFESSIONAL	0.969089363	0.654239330	1.48125	0.13854104
9. OTHERMAN	1.400316046	1.344420342	1.04158	0.29760827
10. UNIVIRSIITY	-0.384441443	0.016249635	-23.65847	0.00000000(*)
11. CAP1	0.939318227	0.745702116	1.25964	0.20779828
12. CAP2	0.721826266	0.817040993	0.88346	0.37698565
13. CAP3	1.297596853	0.766712579	1.69242	0.09056663(*)
14. LAB1	1.026255376	0.872715104	1.17593	0.23962124
15. LAB2	0.000000000	0.000000000	0.00000	0.00000000(*)
16. LAB3	0.019813759	0.036274240	0.54622	0.58491389

(*) statistically significant at %95 confidence interval.

Base category: YEAR2, OWNER, LIMITED, PRIMARY AND SECONDARY, CAP4, LAB 4.

The second model with the key variables affecting the decision of credit usage in the is as follows;

1. the establishment year (YEAR 1, 2, 3, 4, 5),
2. the legal status of SMEs (CORPORATION, REAL, LIMITED, OTHER),
3. the management style of SMEs (PROFESSIONAL, OWNER, OTHERMAN)
4. the education level of SME managers (PRIMARY AND SECONDARY, UNIVERSITY, HIGH SCHOOL),
5. the amount of working capital SMEs (CAP 1, 2, 3, 4) have
6. the labor force (LAB 1, 2, 3, 4)
7. the quality certificates the SMEs have (ISO9000, ISO14000, TSE, CE, HACCP)

Binary Logit - Estimation by Newton-Raphson

Convergence in 5 Iterations. Final criterion was
0.0000000 < 0.0000100

Dependent Variable CREDIT USAGE

Usable Observations 47063 Degrees of Freedom
47043

Log Likelihood (-28753.353758)

Average Likelihood (0.5428325)

Pseudo-R**2 (0.0663740)

Log Likelihood(Base) (-30327.175376)

LR Test of Coefficients(19) 3147.6432
Significance Level of LR 0.0000000

Variable	Coeff	Std Error	T-Stat	Signif
1. YEAR1	-0.328772863	0.023331716	-14.09124	0.00000000(*)
2. YEAR3	0.079129417	0.029963961	2.64082	0.00827057(*)
3. YEAR4	-0.052973381	0.063115881	-0.83930	0.40129901
4. YEAR5	0.077983581	0.036600389	2.13068	0.03311582(*)
5. CORPORATION	0.391245814	0.029580910	13.22629	0.00000000(*)
6. REAL	-0.847231446	0.025738913	-32.91637	0.00000000(*)
7. OTHER	-0.149336486	0.053069303	-2.813 99	0.00489308(*)
8. PROFESSIONAL	0.985535816	0.650476402	1.51510	0.12974746
9. OTHERMAN	1.426157074	1.342601134	1.06223	0.28812930
10. UNIVERSITY	-0.475738668	0.017076240	-27.85968	0.00000000(*)
11. CAP1	0.998486971	0.744518678	1.34112	0.17988233
12. CAP2	0.755370320	0.816796427	0.92480	0.35507187
13. CAP3	1.326999042	0.766465556	1.73132	0.08339427
14. LAB1	0.997493294	0.885674848	1.12625	0.26005876(*)
15. LAB2	0.000000000	0.000000000	0.00000	0.00000000(*)
16. LAB3	0.010344301	0.036497797	0.28342	0.77685289
17. ISO9000	0.578044963	0.038287668	15.09742	0.00000000(*)
18. ISO14000	0.169706288	0.163739919	1.03644	0.29999781
19. TSE	0.276867897	0.029280933	9.45557	0.00000000(*)
20. CE	0.057582663	0.070526116	0.81647	0.41422971

Base category: YEAR2, OWNER, LIMITED, PRIMARY AND SECONDARY, CAP4, LAB 4.

Model 1 and Model 2 are similar in nature. So, we rather choose to explain one of the models and the other model could be explained in the same way. Since the Model 2 is extended version, we interpret this model as flows:

The variables, namely establishment year, legal status, education level of managers, labor force and TSE quality certificate have

statistically significant results in the Model 2. This means that regarding the establishment year variable; the older the company, the less will be the need for credit usage. This situation has an exception for relatively new established SMEs since the variable has a negative sign in the model 2. The reason behind this difference may be due to severe economic crises in this period (YEAR 1= 2000-2007). SMEs do not prefer to use credits from banking sector.

The level of governance affects the usage of credit amounts from banking sector since most of the banks in Turkey require BASEL II principles implicitly. For this reason, although the sign of corporation is positive, the others (real person and other) have the negative sign, indicating an inverse relationship between credit usage and level of corporate governance. In addition, the educational level of managers affects the credit usage decision for SMEs in Turkey.

If there is a growth potential for a SME, there is a need for credit usage for them. This can be monitored via the labor force they have. The more labor they have, the more need for credit usage. This is a natural outcome of economies of scale in general.

The quality certificates such as ISO 9000 and TSE are the certificates used widespread in Turkey. This is reflected in the Model 2 as having statistically significant parameters found. The quality certificates can be treated as the good sign of corporate governance and improved work flows and enhanced internal control mechanisms. These are important for the implementation of both corporate governance and BASEL II principles as a whole.

7. CONCLUDING REMARKS

The level of corporate governance is low for SMEs in Turkey. This situation will lead to a financial pressure on the SMEs. With the implementation of BASEL II in Turkey, the credit usage facilities for the companies will be limited and also the rating system will lead to an increase in the cost of capital.

Depending on empirical findings mentioned above, there is a positive relationship between the corporate governance and credit usage. BASEL II principles bring mandatory regulations

on the credit allocation system and this will directly affect the Turkish SMEs performance. For this reason, the necessary precautions should be taken before BASEL II principles fully adopted in Turkey to protect SMEs from hostile threats and global crisis.

Although it was not the intention of this working paper to analyze in detail, one of the critical points of BASEL II principles is that composition of the collaterals for credits will be changing. Regarding the collateral composition of SMEs in Turkey, this major change may lead to liquidity risk and increase the cost of funds available for SMEs.

In conclusion, the Turkish SMEs are not ready to apply BASEL II principles and they need support and technical assistance to improve working conditions and corporate governance structure in their daily operations which are crucial for them to be competitive in such a global economy.

8. REFERENCES

- Abor, J. 2007. Corporate Governance and Financing Decisions of Ghanaian Listed Firms, *Corporate Governance: International Journal of Business in Society*, 7.
- Altman E. I. A.Saunders, 2001. An analysis and critique of the BIS proposal on capital adequacy and ratings, *Journal of Banking and Finance* 25: 25-46.
- Anderson R., S.Mansi, and D. Reeb. 2004. Board Characteristics, Accounting Report Integrity and the Cost of Debt, *Journal of Accounting and Economics*, 37, 315-342.
- Andrew,P. 2004. Basel II and Developing Countries: Sailing through the Sea of Standards, Universidad Torcuato Di Tella and The World Bank, World Bank Policy Research Working Paper, No. 3387, September 2004.
- Aldrich, J. H. and F. D. Nelson. 1984. Linear probability, logit, and probit models, Thousand Oaks, CA: Sage.
- Begg, C.
- BDDK, 2004. Basel-II Quantitative Study (QIS-TR) Evaluation Report.

- Berger , P. G., E. Ofek, and D. L. Yermack. 1997. Managerial Entrenchment and Capital Structure Decisions, *Journal of Finance*, 52(4), 1411-1438.
- Cadbury, A. 1992. Report of the Committee on the Financial Aspects of Corporate Governance, Gee Publishing, London
- Calem P. S., M.LaCour-Little, 2004. Risk-based capital requirements for mortgage loans, *Journal of Banking and Finance* 28, 647–672.
- Cesare C. and S.Ingves 2002. Implementation of the Basel Core Principles for Effective Banking Supervision, Experiences, Influences and Perspectives, World Bank and IMF, Sept 23 2002.
- DeMaris, A. 1995. A Tutorial in Logistic Regression, *Journal of Marriage and the Family*, Vol. 57, No. 4, (Nov., 1995), pp. 956-968.
- Fama, E., and M. Jensen, 1983. Separation of Ownership and Control, *Journal of Law and Economics*, 26(2), 301-325.
- Fisher, E. and R. Reuber, 2000. Industrial Clusters and SME Promotion in Developing Countries, Commonwealth Trade and Enterprise Paper, No.3, Commonwealth Secretariat.
- Fosberg , R.H. 2004. Agency Problems and Debt Financing: Leadership Structure Effects, *Corporate Governance: International Journal of Business in Society*, 4(1), 31-38.
- Friend , I. and J. Hasbrouck. 1988. Determinants of Capital Structure, *Research in Finance*, 7(1), 1-19.
- Friend , I. and L.H.P. Lang. 1988. An Empirical Test of the Impact of Managerial Self interest on Corporate Capital Structure, *Journal of Finance*, 47, 271-281.
- Griffith-Jones , S.,and S. Spratt. 2001. “Will the Proposed New Basel Accord have a Net Negative Effect on Developing Countries?”, Institute of Development

Studies, University of Sussex.

Güler, A. 2002. Türk KOBİ'lerinin Küreselleşme Sürecinde Yeni Roller ve Sorunları, Friedrich Ebert Vakfı, İstanbul.

Harris, M. and A. Raviv. 1988. Corporate Control Contests and Capital Structure, *Journal of Financial Economics*, 20, 55-86.

Hanushek, E. A., and J. E. Jackson. 1977. *Statistical methods for social scientists*, New York: Academic Press.

Jensen , M. C. 1986. Agency Costs of Free Cash Flow, *Corporate Finance and Takeovers*, *American Economic Review*, 76, 323-329.

Jensen , M.C. and W.H. Meckling. 1976. Theory of the Firm: Managerial Behaviour, Agency Costs and Capital Structures, *Journal of Financial Economics*, 3, 305-360.

Keasey , K., S.Thompson, and M.Wright. 1997. Introduction: The Corporate Governance Problem - Competing Diagnoses and Solutions, in K. Keasey, S. Thompson. and M. Wright (Eds.), *Corporate Governance: Economic and Financial Issues*, 1997, Oxford University Press: Oxford, p. 1-17.

Leland , H. and D.Pyle. 1977. Information Asymmetries, *Financial Structure and Financial Intermediation*, *Journal of Finance*, 44, 771-787.

Linnell I. 2001. A critical review of the new capital adequacy framework paper issued by the Basle Committee on Banking Supervision and its implications for the rating agency industry, *Journal of Banking and Finance* 25: 187-196.

Lipton , M. and J.W. Lorsch. 1992. A Modest Proposal for Improved Corporate Governance?', *Business Lawyer*, 48, 59-77.

Maddala, G. S. 1983. *Limited dependent and qualitative variables in econometrics*, Cambridge, England: Camb-

ridge University Press.

Perli R., W. I. Nayda. 2004. Economic and regulatory capital allocation for revolving retail exposures, *Journal of Banking and Finance* 28, 789–809.

Pfeffer , J. and G.R. Salancick. 1978. *The External Control of Organisations: A Resource-dependence Perspective*. Harper & Row, New York.

Pfeffer, J. 1973. Size, Composition and Function of Corporate Boards of Directors: the Organisation-environment linkage, *Administrative Science Quarterly*, 18, 349-364.

Powell, A. 2004. *Basel II and Developing Countries: Sailing through the Sea of Standards*, Universidad Torcuato Di Tella and The World Bank, World Bank Policy Research Working Paper, No. 3387, September 2004

Resti A., A. Sironi. 2007. The risk weights in the New Basel Capital Accord: Lessons from bond spreads based on a simple structural model, *Journal of Financial Intermediation* 16: 6490.

Sironi A., C.Zazzara. 2003. The Basel Committee proposals for a new capital accord: implications for Italian banks, *Review of Financial Economics* 12: 99–126.

Stulz , R. 1988. Managerial Control of Voting Rights: Financing Policies and the Market for Corporate Control, *Journal of Financial Economics*, 20, 25-54.

Wen, Y., K. Rwegasira, and J. Bilderbeek. 2002. Corporate Governance and Capital Structure Decisions of Chinese Listed Firms, *Corporate Governance: An International Review*, 10, 2, 75-83.

Yilmaz, M.K. and A.Kucukcolak. 2007. Effects of BASEL-II Standards on Small-Medium Size Enterprises: Evidence from the Istanbul Stock Exchange, Available at SSRN: <http://ssrn.com/abstract=996915>

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