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THE EFFECT OF SCALE AND MODE OF OWNERSHIP ON THE TURKISH BANKING SECTOR FINANCIAL PERFORMANCE

Muhammet MERCAN & Reha YOLALAN*

Abstract

In this study, a financial performance index is calculated for the 1989-1998 period in order to analyze the profit generating capability of Turkish commercial banks, observe the effect of scale and mode of ownership on bank behavior and therefore bank performance. Another purpose of the study is to compare the financial performance over time. In order to construct a composite performance index, five fundamental financial ratios are selected. Assuming that these ratios are indicative of the financial performance of a bank, the Data Envelopment Analysis (DEA) which is a linear programming based technique for measuring the relative performance of organizational units is used. Since DEA method assesses the relative performance, DEA based performance index is calculated from a pool of ten years data to be able to do a meaningful comparison between years. After the DEA scores are obtained, yearly averages for all banks in the sample, yearly averages according to their mode of ownership and according to scale are calculated. Then, the average scores are compared for the considered time period.

I. Introduction

In this study, the financial performance of the Turkish banking system during the period 1989-1998 is analyzed by taking into consideration the

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ownership structure and asset size. Before attempting to investigate the financial performance of banks for the period covered, the following summary information is given regarding the macro and micro factors that affect the financial statements of banks.

Financial liberalization substantially altered the intermediary function of the Turkish banking system. After completion of the necessary infrastructure related to the operation of financial markets, the inflow of foreign exchange by allowing capital movements forced banks to become more sensitive on risk management. In this context, foreign exchange (FX) risk management gained considerable importance for banks. In the face of high level inflation, furthermore, banks became more attentive to closely monitor the interest rate risk due to both high level and volatility of real interest rates. In addition to these banking risks, the financial crisis of 1994 in the system also increased the importance of capital adequacy and liquidity risk concepts. The credit risk of banks became more apparent when 1998 financial crisis in Russia started to affect the Turkish economy.

During the period of analysis, economic growth showed severe ups and downs while the ten-year rate of inflation averaged around 70% recording substantial changes year by year. These drastic changes in macroeconomic environment naturally affected the borrowing and lend-

Table 1: Developments in the Consolidated Balance Sheet of the Turkish Banking System in the Course of Time

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Asset Size (billion USD)	47	58	58	65	73	53	67	83	95	118
Assets/GDP	0.46	0.42	0.46	0.50	0.52	0.52	0.53	0.61	0.67	0.71
Loans/Assets	0.42	0.47	0.44	0.42	0.42	0.39	0.43	0.43	0.45	0.38
Securities/Assets	0.12	0.10	0.12	0.11	0.11	0.11	0.11	0.15	0.13	0.14
Deposits/Assets	0.58	0.56	0.56	0.55	0.51	0.63	0.65	0.69	0.65	0.66
Foreign Exchange (FX) Deposits/Assets	0.15	0.15	0.19	0.22	0.25	0.34	0.36	0.35	0.34	0.33
Borrowed Funds/Assets	0.11	0.12	0.12	0.16	0.19	0.11	0.10	0.11	0.13	0.12
Borrowed Funds from Abroad/Assets	0.04	0.06	0.07	0.09	0.12	0.05	0.05	0.06	0.08	0.07
(Deposits+Borrowed Funds)/Shareholders' Equity	10.2	9.7	10.5	12.8	11.5	13.0	12.9	13.7	12.6	14.0
Shareholders' Equity/Assets	0.07	0.08	0.07	0.06	0.07	0.06	0.06	0.06	0.06	0.06
Net Profit/Assets	0.02	0.03	0.03	0.03	0.04	0.02	0.03	0.04	0.03	0.03
Net Profit/ Shareholders' Equity	0.24	0.30	0.29	0.35	0.40	0.26	0.42	0.47	0.39	0.36
Open Position (FX Assets-FX Liabilities)/Assets	0.01	-0.03	-0.03	-0.05	-0.06	-0.01	-0.04	-0.03	-0.05	-0.07

ing behavior of banks, and were consequently reflected in their consolidated balance sheets.

As can be observed from Table 1, asset size of the Turkish banking sector and its share in gross domestic product (GDP) follow a rising trend in the course of time. In the two crisis years, 1994 and 1998, on the other hand, substantial fall in the share of total bank loans to total assets was registered. In contrast, however, there was an increase in the share of securities portfolio in the sector's balance sheet as from 1996 onwards.

Deposits, on the other hand, are observed to have a very important share in the liability side of the balance sheets. The foreign exchange (FX) deposits started to take a share of around 50% in total deposits starting from 1993. Borrowed funds substantially declined with the outburst of the 1994 crisis, and are reflected in the balance sheets of banks to represent country risk. With the exception of a few years, the share of capital to assets remained almost unchanged in general at around 6%, while the asset profitability of the sector remained at around 3% in most of the years of the period covered. The banking system started to experience exchange rate risk by holding short position after 1990. The banks which closed their short position in 1994 crisis started to increase it again in the following years.

Table 2: Developments in the Market Structure of the Turkish Banking System in the Course of Time

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Number of Banks	51	55	59	66	67	67	68	69	72	75
Asset Share of the Public Commercial Banks	0.43	0.43	0.40	0.42	0.39	0.40	0.38	0.38	0.35	0.35
Asset Share of the Private Commercial Banks	0.45	0.46	0.48	0.48	0.51	0.50	0.52	0.53	0.55	0.56
Asset Share of the Foreign Commercial Banks	0.02	0.03	0.03	0.03	0.03	0.02	0.03	0.03	0.05	0.04
Asset Share of the Largest 5 Banks	0.54	0.53	0.50	0.49	0.48	0.50	0.48	0.46	0.44	0.44
Asset Share of the Largest 10 Banks	0.75	0.74	0.72	0.71	0.69	0.73	0.71	0.69	0.67	0.68
Asset Share of the Largest 20 Banks	0.92	0.91	0.89	0.88	0.86	0.89	0.86	0.85	0.83	0.83

The number of banks in the Turkish banking system increased from 51 to 75 between 1989 and 1998, including both commercial and investment banks. In the course of time, and as a result of privatization practices, the number of state-owned (public) banks decreased and their share in total assets declined to 35% in 1998. As Table 2 clearly shows, although the

market concentration decreases, the share of biggest ten banks decreased only to 68% from 75% in the ten-year period, showing that concentration is still considerably high.

With due consideration of what have been mentioned above, the main factors which affect bank balance sheets during the ten-year period and under the prevailing economic conditions may be summarized as follows: (i) - Despite the rise in the share of foreign currency in the balance sheets between 1989 and 1994, the share of foreign currency in assets and liabilities remained relatively stable with the effect of the share of foreign credits secured after 1994, (ii) - With the effect of the rise in domestic borrowing, the level of securities portfolio in the balance sheets as well as the level of repo transactions in the off-balance sheet items increased, (iii) - Banks exchange rate risk augmented with the effect of expanded open position holdings, (iv) -Maturity horizon has shortened, (v) - No expansion in the spectrum of financial instruments is observed and (vi) - High concentration in the sector continued. All those factors mentioned above call for more emphasis to be put on the issues of "financial performance evaluation" and "risk-return trade-off".

II. Literature Survey for Financial Performance Measurement in the Turkish Banking System

The main purpose of this research is to examine the impact of ownership mode and scale differences on the financial performance of banks between 1989-1998. When the literature on measurement of financial performance of the Turkish banking sector is examined, a limited number of studies can be found related to the impact of ownership and scale differences on the behavior and performance of banks. Yet, there are significant differences among those studies with respect to their approaches to modeling the performance concept and their findings. The crucial reason that leads to those differences, is the lack of a generally accepted framework for measuring the performance of a bank that has a multi-input/multi-output production process.

Thus, it is possible to end up with different results based on the differences in criteria selection. The literature indicates that there are two mainstream approaches in the measurement of bank performance or bank efficiency: Production approach vs. intermediation approach (Yeh (1996), Berger and Humprey (1997)). The former approach stands on physical magnitudes that reflect operational efficiency (number of branches, personnel, accounts, transactions, etc.) while the latter examines monetary

magnitudes that reflect financial intermediation function of banks (deposits, loans, securities portfolio, interest income and expenses, etc). In line with the second approach, the financial performance of banks is generally measured by the internationally accepted ratio-based CAMEL approach. In CAMEL approach, the ratios related to Capital adequacy, Asset quality, Management, Earnings, Liquidity that are obtained from the banks' financial statements are considered in measuring performance. For every financial dimension, numerous financial ratios can be derived. Additionally, the dimensions such as the composition of off-balance sheet items, the types of the risks taken, the growth of the balance sheet and the intermediation function can be examined in this framework as well. The question of how to derive a single financial performance index reflecting a multitude of ratios is a hot topic for contemporary researchers. To this end, in the literature, in addition to the uni-dimensional ratio analysis, there are studies utilizing factor analysis that helps to group ratios into factors, discriminant and cluster analyses as well. In addition, in order to examine both technical and scale efficiencies, parametric and non-parametric measurement methods are also utilised.

In the following section, research on the performance measurement of the Turkish banking system is examined.

2.1. Studies Regarding Ratio Analysis and Multi-Variate Approaches Based on Ratio Analysis

Aydoğan and Çapoğlu (1989) compared the efficiency and productivity of banking systems among countries by using cluster and factor analyses. First, the financial systems of the 20 OECD countries were taken individually and examined what their basic characteristics were. Then, countries were rated and ranked with respect to their functional and allocative efficiencies. According to groups formed via cluster analysis, Turkish, Spanish and Italian banks are found to be less productive with respect to branch and personnel, but more productive with respect to profitability. These countries are also at lower ranks with respect to the efficiency of their financial systems.

Aydoğan (1992) examined the impact of the financial liberalization on the Turkish banking system by using financial ratios for the 1980-1990 period. The paper concludes that financial savings have increased as a result of positive real interest, but by reason of macroeconomic instability and under-competition in the sector, the interest margin has not declined, thus due to high loan rates, the contribution of financial liberal-

ization on economic growth has remained under potential.

Pekkaya (1994) investigated whether the relations among ratios computed from financial statements for the 1989-1992 period exhibited an internal consistency by using factor analysis and tried to evaluate the Turkish banking system. As a result of the research, it is concluded that the system gained a characteristics of financing public sector borrowing by using foreign resources, while moving away from its classical function of collecting deposits and extending loans to finance the private sector. In addition, the existence of a strong relation between capital adequacy and profitability is detected.

Altunbaş and Molyneux (1995) examined the Turkish financial sector in comparison to the European banking system and analyzed the similarities, differences and competition prospects. It is concluded that profitability ratios are higher in the Turkish banking sector, while scale and efficiency are lower than the European counterparts. Moreover, it is concluded that for Turkish banks, in comparison to their European counterparts, efficiency and productivity are lower in production of services and consumption of resources, and they have more labor-intensive characteristics in production of services.

Dağlı (1995) studied the relation between ownership mode and the following financial ratios for the 1989-1993 period: return on assets, return on equity, net interest income/assets, net profit per employee, deposits per branch, deposits per employee, loans per branch, loans per employee, assets per branch, assets per employee, deposits/equity and share of non-performing loans in total loans. According to the study, half of the ratios (return on equity, net profit per employee, deposits per branch, loans per branch, loans per employee and share of non-performing loans in total loans) exhibited no clear relation with ownership style, while the others did. Private banks were found to be more successful than state owned banks for all the ratios, except for deposits/equity.

Emir (1999), in addition to the ratios that were considered in Dağlı, examined net profit per branch and loans/deposits ratios as well, hence used 14 criteria, for the 1988-1996 period in order to evaluate the performance of state-owned, private and foreign banks. As a result of the study, he detected that there is a statistical relation between ownership styles and performance measured by 3 financial ratios, namely, return on assets, net interest income/assets and equity/deposits. He also concluded that banks in Turkey are ranked as foreign, private, and state-owned banks as regards to the performance, in their order.

Karamustafa (1999), by using factor analysis, tried to determine the financial characteristics of banks operating in Turkey for each year in the 1990-1997 period. He concluded that for that period the most important financial characteristic is related with the capital adequacy. He also argued that, especially for 1994-1995, profitability has been an important financial dimension in addition to capital adequacy.

2.2. Studies Utilizing Parametric Approaches

Çilli (1993), analyzed the multi-product cost function for the Turkish banking sector and concluded that large scale banks do not have any cost advantage in comparison to the small ones. By using the 1989, 1990 and 1991 data, (i) - deposits, (ii) - funds borrowed from abroad and (iii) - labor force are taken as inputs, while (i) - loans and (ii) - securities portfolio are taken as outputs. In addition, it is concluded that financial liberalization process had an impact of increasing competition. Also, in terms of scope economies, there is a cost-decreasing effect of joint production.

Fields, Murphy and Tırtıroğlu (1993), by using translog cost function, investigated the existence of scale economies in the Turkish banking sector, using the 1986 and 1987 data. However, they could not reach a statistically significant finding. They concluded that, the hypothesis derived from the analyses based on developed countries' banking sectors stating that it is not necessary to be a large bank to have competitive power in terms of costs, is also valid for Turkish banks. Nevertheless, it is emphasized that due to limited number of observations and to limited periodic coverage of two years as regards the data, the results should be interpreted cautiously.

Aydoğan and Çapoğlu (1993), by using the data of the 1970-1988 period, searched for the factors that determine the efficiency of financial intermediation and the interest margin in the Turkish banking system. As a result of the study, it is concluded that banks react to the nominal changes in the required reserves and disponibility ratios, though the effective changes reflect real cost. In addition, it is found out that the required reserve ratio has a negative impact on the interest margin. Also, it is shown that the increase in inflation widens the spread between loan and deposit rates.

Aydoğan and Booth (1996) analyzed the interest rate risks of commercial banks in Turkey for 1986-1990 period, taking into consideration the differences between private and state-owned banks, with due consideration to the relationship between the interest rate margin and the term structure of bank assets and liabilities. It is concluded that banks with long

positions operate with low interest margin and that after the financial reforms of 1988, margins started to contract. In addition, it is also concluded that, state-owned banks have lower interest margin and longer term structure (with respect to private banks), due to some constraints in asset management and managerial differences.

Özkan-Günay (1996) studied the impact of the liberalization program in Turkey on scale and scope economies of commercial banks for two distinct periods, namely 1981-1985 and 1989-1993. The research was carried out by employing Generalized Least Squares method in which banks were modeled as multi-product organizations with three inputs, (labor force, equity and deposits) and two outputs (short-term loans and other loans). It is observed that there is scale economies in the banking sector and scope economies in the items selected as outputs.

Özkan-Günay (1997) measured the efficiency of the Turkish banking sector for the 1989-1993 period, by making use of stochastic cost frontier approach in the framework of panel data model. The existence of scale and scope economies in the Turkish banking sector is observed in this study as well, and scope economies was found out to be the highest for foreign banks and the lowest for state-owned banks.

Özkan-Günay (1998) studied on the 1981-1985 and the 1989-1993 periods by use of Maximum Likelihood method with three-inputs and two-outputs, and observed the existence of scale and scope economies in the banking sector for both periods.

2.3. Studies Utilizing Non-Parametric Approaches

In the literature, in addition to the parametric methods (like translog cost function) that assume the existence of a certain analytical form and estimate coefficients, there are non-parametric and linear programming based methods that measure the distance to the efficiency frontier. Among these methods, the most widespread one is Data Envelopment Analysis (DEA). DEA was first developed by Charnes, Cooper and Rhodes (1978) to assess the relative efficiencies of decision making units which are similar in terms of goods and services they produce. The novelty of this method is that it can realize measurement, in production types where multi-input are used to produce multi-output, without assuming the existence of a priori formal analytical function.

Followings are the researches related to the Turkish banking sector, in which non-parametric approach is utilized:

In a series of research on the economic efficiency of commercial bank-

ing, Zaim (1993, 1994) and Ertuğrul and Zaim (1996) used the non-parametric approach in an intermediary approach framework. The inputs used are (i) - number of employees, (ii) - interest expenditures, (iii) - depreciation expenditures, and (iv) - operational expenses; while the outputs are (i) - time deposits, (ii) - demand deposits, (iii) - short-term loans, and (iv) - long term loans (in terms of dollars). In the studies, in which the years 1981 and 1990 are determined as pre- and post- periods of liberalization policies respectively, it is concluded that financial reforms have increased the technical and allocative efficiencies of banks, and surprisingly, where state-owned banks were more efficient.

In the DEA-related literature, there are very few studies which also consider financial ratios and compare the ratios with DEA scores. One of the earlier examples in this field is the paper of Yeh (1996). The ratio-based study for the Turkish banking system is performed by Yolalan (1996). In the study, the relative financial performance of the Turkish banking system was examined for the 1988-1995 period. In the study, two ratios (non-performing loans/total assets, non-interest expenses/total assets) were used as inputs, and three ratios (equity+net profit/total assets, net fees and commissions earned/total assets, liquid assets/total assets) were used as outputs. The paper concludes that foreign banks have the highest performance followed by private banks. On the other hand, state-owned banks have lower performance than these two groups.

Jackson, Fethi and İnal (1998) measured efficiency and productivity growth in the Turkish banking sector by using the DEA and DEA-based Malmquist Index for the 1992-1996 period looking at the change in efficiency and productivity on a bank-by-bank basis. In modeling bank efficiency, value-added approach is utilized, and the resources a bank uses and outputs it produces are determined. In the research, the inputs are (i) - number of employees and (ii) - operational expenses excluding labor force, plus direct expenses for buildings plus depreciation expense; while (i) - loans, (ii) - time deposits and (iii) - demand deposits are taken as outputs. It is concluded that for the period covered (excluding 1993-1994), efficiency has increased more in private and foreign banks than in state-owned banks, due to the increase in competition and technological development.

Yıldırım (1999) examined the performance of commercial banks in Turkey between 1988-1996 by using the DEA technique. In the study, four inputs (total demand deposits, total time deposits, interest expenses and non-interest expenses) and three outputs (total loans, interest income and non-interest income) are used. The conclusion is that efficient banks are

more profitable and the magnitude of bank balance sheet has a relation with technical and scale efficiencies. Another finding is that state-owned banks have higher efficiency than other banks, though their profitability is lower.

As can easily be seen from the studies above, same variables (e.g. time and demand deposits) can be used as inputs in some studies and as outputs in some others. This situation results in differences among findings. Hence, the relative performance of state-owned banks can be found higher in some studies and lower in some others.

III. Application of Non-parametric Approach to the Financial Performance Measurement of the Turkish Banking Sector

In this study, DEA, which uses financial ratios as inputs and outputs is employed in order to assess the relative financial performance of the Turkish banking sector in the last ten years. The steps in the application of the method and the results obtained are presented below.

3.1. The Method: Above, it is pointed out that financial ratios which extensively used in performance analysis show only one dimension related to the operational success of a firm. In addition, the most criticized aspect of uni-dimensional ratio analysis is that some ratios may indicate a successful firm performance whereas others may show extremely poor performance. Therefore, especially in multi-input/multi-output firms, derivation of only one performance index giving meaningful weights to various ratios is needed. In this study, DEA, which is a non-parametric method allowing the consideration of different ratios, is used. Relative performance measurement of DEA about which a detailed information is given in Appendix-1 is two-staged: (i) - determination of best performing Decision Making Units (DMUs) that produce the largest output by using the least input or that position on the efficient frontier and (ii) -with reference to the efficient frontier "DEA performance index values" measure the distance of inefficient units to the frontier; in other words efficiency level of inefficient units. For any DMU, if DEA performance index value is 1 (100% in this study), this DMU is one of the best practice units positioned on the efficient frontier. On the other hand, an index value less than 1 indicates the distance of DMU to the efficient frontier. In that case, the DMU should use less inputs given the output level or produce more output for a specific level of inputs, to become an efficient one.

3.2. Selection of Observation Set: In the selection of observation set, the financial data of all commercial banks released by the Banks Association of Turkey between 1989 and 1998 were used. The observation set must be homogeneous due to the relative efficiency measurement characteristic of DEA. For that reason, DEA scores were calculated from a pool of 10 years banking data instead of DEA calculations for each year to be able to compare the effect of scale and type of ownership on bank performance among years meaningfully. In the set there are 485 observations, each of which represents the selected variables for any year in the considered time period.

3.3. Selection of Variable Set: In the application of DEA, the decision on the selection of variables to measure the financial performance, in other words, defining properly the financial performance is extremely important. It is possible to derive different measures depending on the variables used in a measurement model. For example, in some banks' balance sheets, the share of loans and deposits is high, or the share of foreign currency in the balance sheet is high, or some banks rely heavily on funds borrowed from abroad, or there are some banks whose relative security stock in total assets is high compared to the others in the sector. Clustering commercial banks according to their structural similarities, Aleskerov, Ersel and Yolalan (1997) reached the same results and concluded that the Turkish banking system was heterogeneous, consisting of structurally different groups of banks. Therefore, in order to assess the financial performance properly in such a diverse banking system, it is necessary to define the most appropriate variables to measure the relative performance of all banks in the observation set by avoiding from bank specific structural characteristics. In this context, the variables representing dimensions in extensively used bank performance measurement model (CAMEL) was considered.

Since a ten-year period between 1989 and 1998 is taken into consideration, in selecting variables it was assumed that developments in the macroeconomic environment affected all banks in the same way. In addition, in order to clarify the distortionary effect of inflation on variables, financial ratios were used in performance measurement. According to DEA, some variables should be minimized whereas some others should be maximized[1].

The variables to be minimized are:

(i) *Personnel Expenses/Total Assets:* This ratio shows the amount that a bank spends for its personnel (the most important non-financial input item of a bank) in order to create a unit of asset. It gives a general information about the management success dimension in the CAMEL approach.

(ii) *Total Expenses/Total Income:* It is indicative of efficiency of a bank in the profit generation process. In the CAMEL approach, it is used to evaluate management success.

The variables to be maximized are:

(i) *Portfolio/Total Assets:* It shows the share of income generating assets defined as portfolio[2] of a bank in total assets. This variable is considered to evaluate the asset quality and liquidity dimensions in CAMEL approach.

(ii) *(Shareholders' Equity + Net Profit)/Total Liabilities:* This ratio is used to analyze the capital adequacy and profitability in the CAMEL framework and shows the amount of a bank's own resources in total resources used in the profit generation process.

(iii) *Average Return on Equity (Net Profit/Average Shareholders' Equity):* It is considered in evaluating the success of a bank in profit generation. It is a representative of income creation dimension in CAMEL approach.

As pointed out above, in order to obtain reliable results from DEA, which is developed to measure the comparative efficiency of similar DMUs, observations deviating significantly from the sample average, namely outliers, must be determined and be excluded from the observation set. After the above variables were determined, the distribution of each variable was analyzed and observations located in the tails of the distribution were discarded[3]. The number of observations in the data set was reduced to 467 following the exclusion of the 18 outliers.

[1] With the maximization, it is meant that the higher the ratio, the better it is, while with the minimization, the reverse is valid.

[2] Portfolio, in this study, is defined as the sum of liquid assets including securities and loans extended.

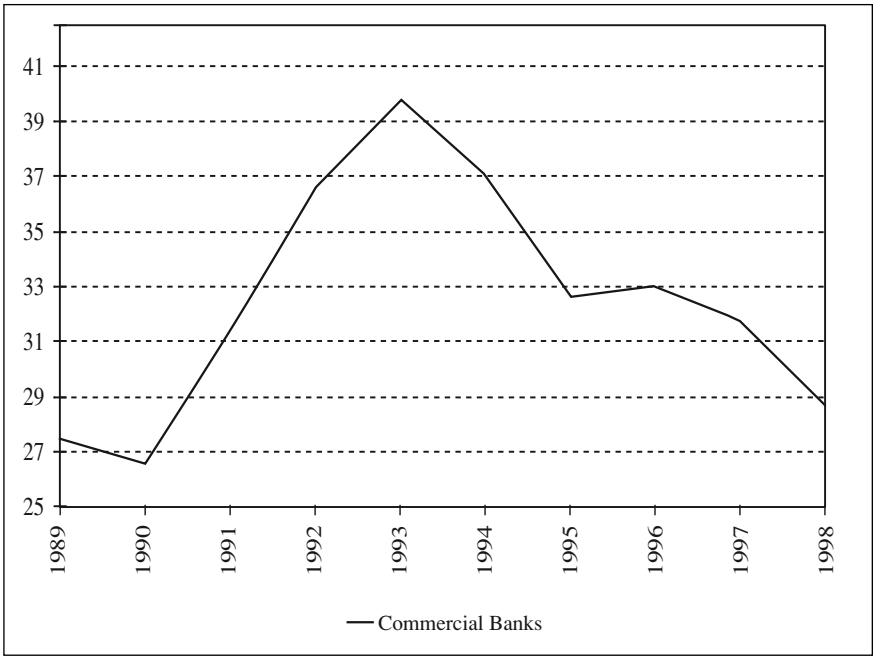
[3] According to descriptive statistics of each variable, the observations whose values were away from the average by two standard deviations were excluded from the sample.

3.4. Main Findings

Although the outliers were excluded from the sample, as a result of the dominance of the best practice units to inefficient observations, these observations were located quite away from the efficient frontier. Therefore, the average DEA performance index values of 467 observations for each year was between 25%-40%, showing a relatively low performance level. It is possible to increase the level of average DEA performance index by excluding best practice units from the sample. Even in such a treatment, the order of performance index values among years and among banks did not change significantly. However, depending on constructing a new efficient frontier for a reduced set of data, observations' index values increased, and thus the average performance level became better.

3.4.1. Remark 1: In order to analyze the general performance of the banking sector, simple average of DEA performance index values were calculated and their behavior was examined over time. According to the averages, it was found out that 1990 and 1994 were the years that extremely influenced the performance of the sector. Following the liberalization of the capital movements in 1989, an increasing trend started and continued until 1993. But the economic crisis in 1994 reversed the trend back. The average of performance index values declined continuously between 1994 and 1998, except for a stability period in 1996, a level very close to the average of 1989. From the analysis of the figure below, it is easy to conclude that the effect of the 1994 crisis on the financial performance of the banking sector was severe.

Figure 1: Yearly Average of DEA Performance Index Values for All Commercial Banks

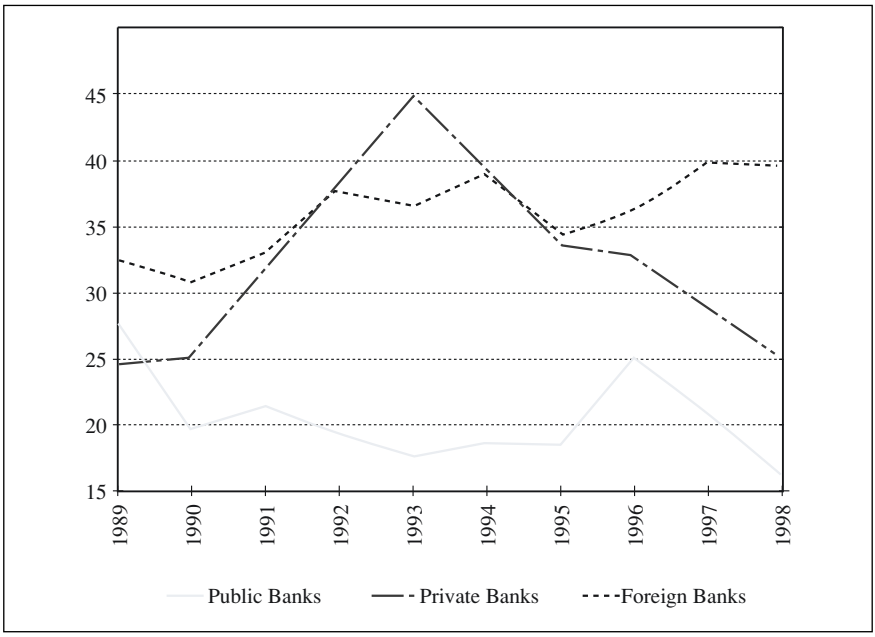


3.4.2. Remark 2: In order to evaluate the banking performance according to mode of ownership, banks were classified as state-owned (public), private and foreign banks and average of the DEA performance index values for each group was analyzed over time. From the averages, it was found out that state-owned banks, which have the lowest performance in that period, behaved quite differently compared to the other two groups especially in the 1994 crisis. It was observed that the liberalization of capital movements in 1989 and the financial crisis in 1994 did not affect the DEA index values of public banks dramatically. The reason behind the success of state-owned banks in the 1994 crisis might be their lower open position, and thus, lower foreign currency risk. However after 1996, a decreasing trend started. The performance of the state-owned banks declined continuously and reached the lowest level of the time period covered, in the last two years.

Since private banks constitute the largest group in the sector, its performance over time is very similar to that of the Turkish commercial

banking sector evaluated above. Foreign banks, on the other hand, which were very successful in profit generation after 1990 were also affected by the crisis in 1994, however their performance did not worsen as much as that of private banks. Following the year 1995, their financial performance recovered and reached a level of 40% in the last two years, the highest in the time period considered.

Figure 2: Yearly Average of DEA Performance Index Values According to Mode of Ownership



3.4.3.1. Remark 3: 467 observations in the data set ranked from the highest to lowest asset share[4] were divided into four equal size quartiles (in the last quartile there are 116 observations) and the average of DEA performance index for each quartile was calculated in order to measure the effect of scale on financial performance.

[4] It shows the asset share of banks in the total asset of commercial banks in each year.

Table 3: Comparison of DEA Financial Performance Index Values of Banks Divided into Quartiles According to Asset Shares

	Number of Observ.	Average Asset Share (%)	Average DEA Performance Index Values	Standard Deviation of DEA Index	Test of Difference Between Quartile Averages (t-statistics[5] values)			
					First Quartile	Second Quartile	Third Quartile	Fourth Quartile
First Quartile	117	6.7	24.4	10.4	*			
Second Quartile	117	1.1	31.1	13.7	-4.2	*		
Third Quartile	117	0.3	38.5	19.3	-6.9	-3.3	*	
Fourth Quartile	116	0.1	37.0	17.9	-6.6	-2.8	0.6	*

As observed from the t-statistics given in the last four columns of Table 3, it can be concluded that the financial performance of banks improves in line with the decrease in their asset share, although the average difference between third and fourth quartiles is not significant.

Table 4: Comparison of Banks Divided into Quartiles According to DEA Financial Performance Index Values

	Number of Observ.	Average DEA Performance Index Values	Standard Deviation of DEA Index	Test of Difference Between Quartile Averages (t-statistics values)			
				First Quartile	Second Quartile	Third Quartile	Fourth Quartile
First Quartile	117	55.5	17.7	*			
Second Quartile	117	32.0	3.1	14.2	*		
Third Quartile	117	24.5	1.5	18.9	23.9	*	
Fourth Quartile	116	19.0	2.3	22.2	36.4	21.5	*

In Table 4, the average DEA performance index values of quartiles obtained by dividing the observation set which was ranked from the high-

[5] In this and the following Tables, t-statistics was used to measure the difference between groups which have different number of observations and standart deviations at the 0.05 significance level. If the calculated t-value was greater than 1.96 or smaller than -1.96, it was concluded that two sample averages were significantly different.

est DEA value to the lowest, into four equal groups (quartiles). As observed from the Table 4, there is a concrete evidence from the t-statistics that banks' performance in each quartile is significantly different from that of others in another quartile.

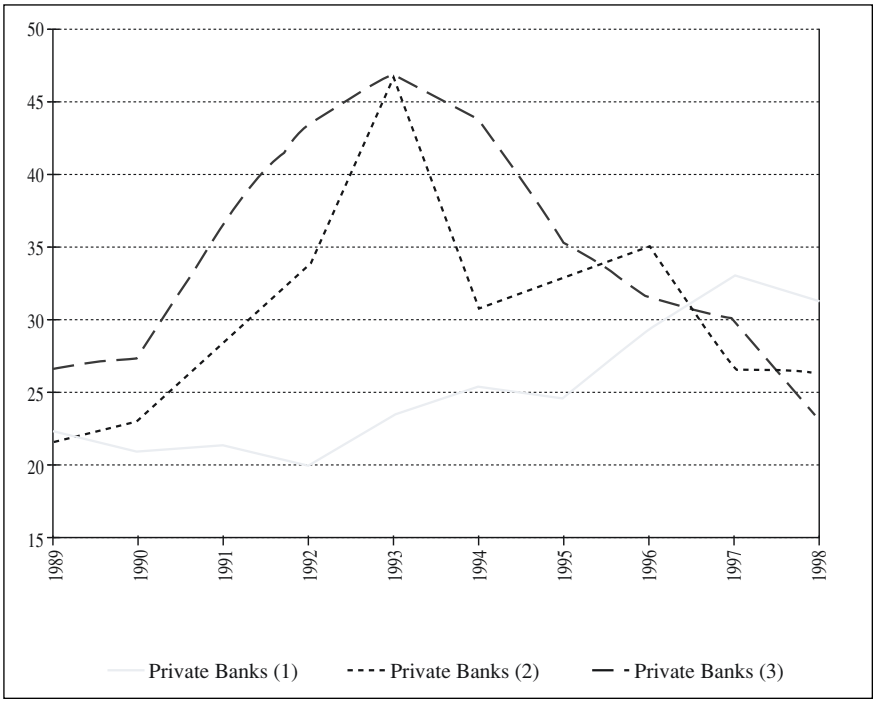
Table 5: Mode of Ownership Comparison of Banks Divided into Quartiles According to DEA Financial Performance Index Values

	Number of Observ.	State-Owned Banks	Private Banks	Group P1	Group P2	Group P3	Foreign Banks
First Quartile	117	2	68	2	18	48	47
Second Quartile	117	2	72	9	24	39	43
Third Quartile	117	6	82	9	36	37	29
Fourth Quartile	116	31	68	13	18	37	17
Total	467	41	290	33	96	161	136

As observed from Table 5, state-owned banks are concentrated mainly in the fourth quartile as a result of their comparative large scale. In the study, private banks were divided into three groups according to their asset sizes. Private banks whose asset share is higher than 5%, between 1%-5% and less than 1% in each year were classified as P1, P2 and P3, respectively. According to Table 5, large size banks in group P1 have lower DEA performance index values and they concentrate on the fourth quartile similar to state-owned public banks, whereas distribution of medium scale banks to the quartiles does not have a specific characteristic. In addition, from small size banks' distribution, a decline in the number of banks starting from the first quartile can be detected, although it is not obvious. Lastly, the number of foreign banks decreases from the first quartile to the last one, as supported by the evidence from Figure 2.

3.4.3.2. Remark 4: A close analysis of DEA performance index values distribution of private banks reveals that efficiency index of large scale banks (P1) is quite different from that of others in the ten-year period. The financial crisis in 1994 did not alter the average performance of group P1 and the increasing trend starting from 1992 continued until 1997 except for a stability in 1995. On the other hand, groups P2 and P3 were significantly affected from the liberalization of capital movements and the crisis in 1994. The performance level of both groups, which decreased especially after 1994, was below that of large scale banks in 1997 and 1998.

Figure 3: Yearly Average of Private Banks' DEA Financial Performance Index Values According to their Scale



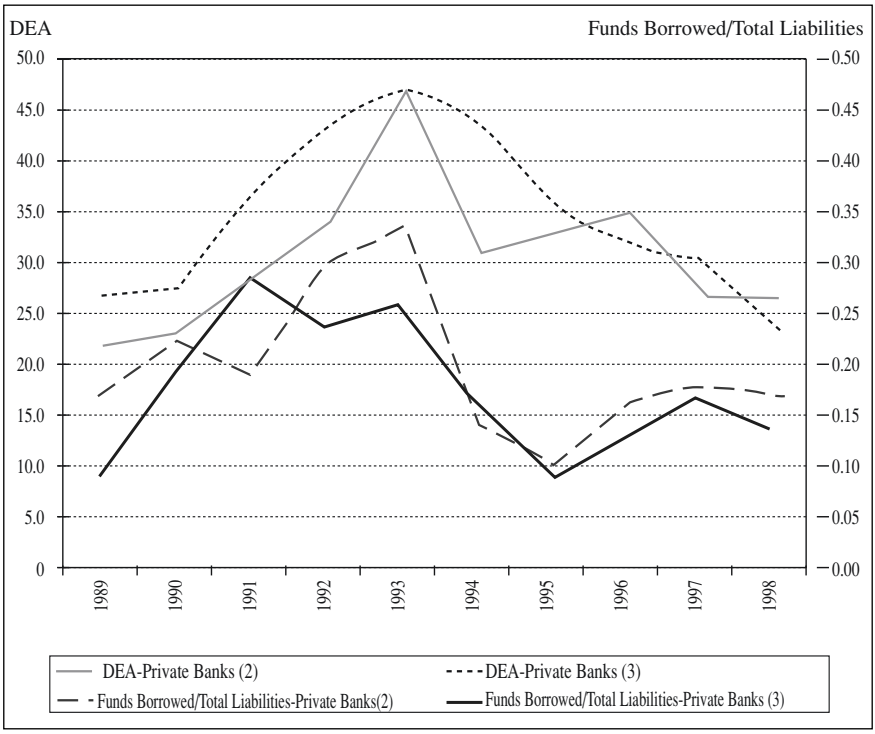
However, Table 6 shows that in the ten-year period, there is no statistically significant performance difference in general between the average DEA index values of banks in group P2 and P3.

Table 6: Comparison of DEA Financial Performance Index Values of Private Banks Grouped According to Asset Size

	Number of Observations	Average DEA Index Values	Standard Deviation of DEA Index Values	Test of Difference Between DEA Performance Index Averages of Private Bank Groups (t-statistics)		
				P1	P2	P3
P1	33	25.6	7.7	*		
P2	96	31.3	15.1	-2.8	*	
P3	161	35.3	19.6	-4.7	-1.8	*

In addition, as observed in the above Table 6, the performance of groups P2 and P3 differs significantly from that of group P1, in 1989-1998 period. The differences in financial performance between sub-groups of private banks could be attributed to the dissimilarity in their funding decisions. Small and medium size banks which do not have branch networks as large as the banks in group P1 had an access to funds from abroad between 1989-1994, after the liberalization of capital movements. This development positively affected their performance. However, following the crisis in 1994, reluctance of foreign investors to lend Turkish banks and to take Turkey's country risk and movements of households' deposits to large banks which were thought to be safer, were the main reasons for the funding problems of small scale banks, and deepened the effect of the crisis on these groups of banks. As a result of the severe effect of the crisis, the deterioration in their performance continued until 1998.

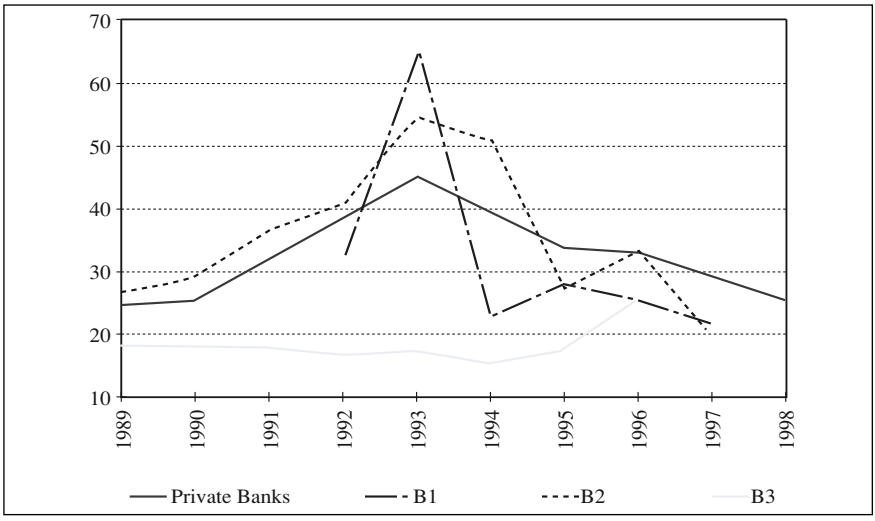
Figure 4: Average of DEA Performance Index Values of Medium (P2) and Small (P3) Size Private Banks and Their Funds Borrowed/Total Liabilities Ratio Averages



In Figure 4, the relationship between the yearly average of DEA performance index values and the share of borrowed funds in total liabilities for groups P2 and P3 can be observed. Here, it should also be pointed out that the share of borrowed funds from abroad, which is an item in total borrowed funds, is considerably higher in small and medium size banks than the share in public and large scale private banks.

3.4.4. Remark 5: In order to test the success of the variables selected in this study and the DEA performance index values obtained, the relative position of the banks taken over by the Savings Deposits Insurance Fund (SDIF)[6] in line with the decision of the regulatory authority in the period following 1994 was examined in the observation set. Some observations of three banks[7] which were taken over by SDIF in 1999 and before were considered as outliers as a result of their extremely deteriorating financial variables and were excluded from the observation set. Therefore, DEA performance index of B1 and B2 for 1998 and of B3 for 1997 and 1998 could not be calculated. However, as observed in Figure 5, their financial

Figure 5: Comparison of the DEA Performance Index Values of the First Group of Private Banks Taken Over (at the Beginning of 1999 and Before) by SDIF with respect to that of the Average of Private Banks



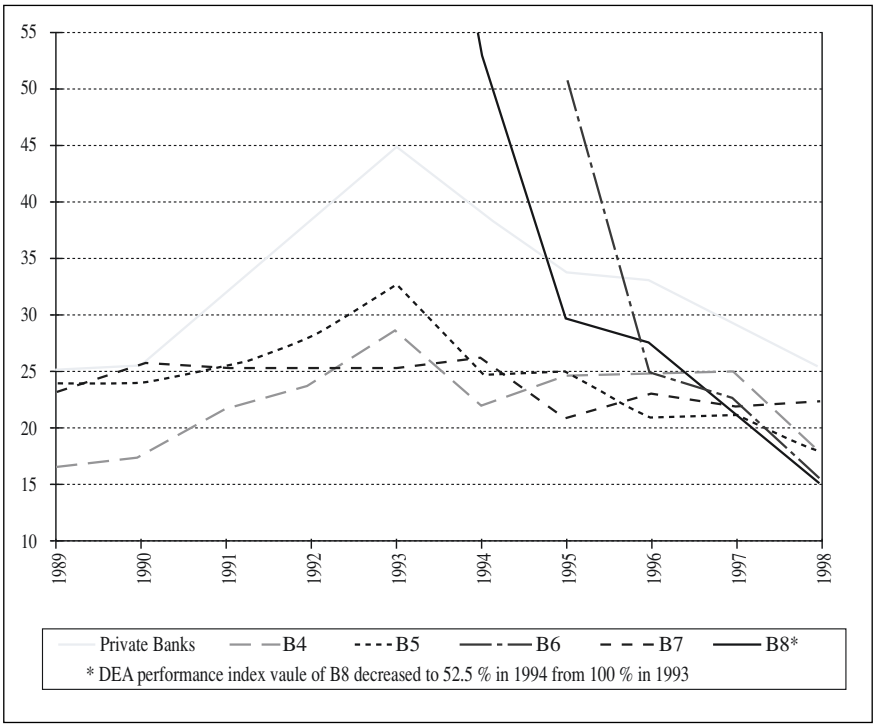
[6] Three banks (Marmara Bank, TYT Bank, Impex Bank) closed down after the crisis in 1994 could not be analysed due to lack of available data.

[7] Denoted by B1, B2 and B3

performance was well below than their competitors for the periods in which they had DEA index values.

On the other hand, it was observed from the DEA performance index values that the other five banks[8] taken over by SDIF at the end of 1999, gave signals of deterioration in their financial structure. According to the study, these five banks' DEA values were less than 25% out of 100% and all banks except B7 positioned at the bottom of the observation set.

Figure 6: Comparison of the DEA Performance Index Values of the Second Group of Private Banks Taken Over (at the End of 1999) by SDIF with respect to that of the Average of Private Banks



IV. Conclusion

In this study, by means of DEA and the variables selected according to the CAMEL approach, the relative financial performance of Turkish commercial banks was analyzed for the period 1989-1998. Within this period,

[8] Denoted by B4, B5, B6, B7 and B8.

it was revealed that mainly the liberalization of capital movements in 1989 and the financial crisis in 1994 influenced Turkish banks' performance. In addition, it was observed that the average financial performance index for all commercial banks, that has an increasing trend until 1993, started to decrease after this year. When the performance index values were analyzed closely, it was found out that foreign and privately owned commercial banks performed better than their state-owned competitors in the banking sector. It was noted that the deterioration in the financial structure of the state-owned banks was obvious in 1997 and 1998. Besides, while the performance of small and medium scale banks deteriorated considerably after 1994, the relative performance of the large banks was better. Lastly, a close analysis of the performance of banks taken over by Saving and Deposit Insurance Funds both at the end of 1999 and before, indicated that these banks were among the worst performers in the observation set.

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Appendix-1: Data Envelopment Analysis (DEA)

DEA is a method to evaluate the relative efficiency of DMUs, which produce the same outputs by using the same inputs. It compares organizations' observed outputs and inputs, identifies the relatively "best practice" units to define the "efficient frontier" and then measures the degree of inefficiency of the other units relative to the efficient frontier thus defined. The simple mathematical formulation of the model is:

Objective function :

$$(1) \quad S_F = \text{Max} \left(\sum_{r=1}^{p} u_r Y_{rF} \right) / \left(\sum_{i=1}^{m} v_i X_{iF} \right) \quad r = 1,...,p \ ; \ i = 1,...,m$$

Subject to:

$$(2) \quad \left(\sum_{r=1}^{p} u_r Y_{rj} \right) / \left(\sum_{i=1}^{m} v_i X_{ij} \right) \leqq 1 \qquad r = 1,...,p \ ; \ i = 1,...,m \ ; \ j = 1,...,n$$

$$(3) \quad u_r \geqq 0, \qquad r = 1,...,p \qquad v_i \geqq 0, \qquad i = 1,...,m$$

In this model;

S_F = Relative DEA performance index value of DMU F in the observation set
u_r = The weight of r^{th} output assigned by DMU F
v_i = The weight of i^{th} input assigned by DMU F
Y_{rj} = The r^{th} output produced by jth DMU
X_{ij} = The i^{th} input produced by jth DMU
Y_{rF} = r^{th} output produced by DMU F
X_{iF} = i^{th} input produced by DMU F

In the objective function (1) of this fractional programming model, the ratio of the weighted outputs to the weighted inputs of the DMU F in the observation set is maximized under the constraint (2) that the ratio of all observations can not be greater than "1". According to the optimal weights (u_r ; v_i), if the index value (S_F) of a DMU reaches to "1", this DMU is treated as the reference observation and placed on the efficient

frontier. The index values of the other DMUs are determined with respect to their distance to the efficient frontier. By means of a specific transformation, the above model is transformed to a linear one, and for each observation, the solution set (S_F; u_r; v_i) is obtained. A detailed information about the method can be found in Charnes, Cooper and Rhodes (1978), Oral and Yolalan (1990) or Yolalan (1993).

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THE ROLE OF VENTURE CAPITALISTS AS FINANCIAL INTERMEDIARIES IN CAPITAL MARKETS

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Abstract

This study focuses on the role of venture capitalists in the creation of public companies. The two issues have encouraged this study: First, the success of venture capitalists in the creation of public companies has recently attracted considerable attention in the US. Second, recently Turkey has been trying to develop not only capital markets but also venture capital industry. This study is a summary of the works focused on whether the capital markets recognize the certification role of venture capitalists in initial public offerings. In those works it was aimed to explain that how the capital markets recognize the certification role of venture capitalists by comparing the venture capital-backed initial public offerings with a control sample of non-venture capital-backed initial public offerings regarding relevant features of venture capital industry.

I. Introduction

The success of venture capitalists in the creation of public companies has recently attracted considerable attention among academics and practitioners. It is believed that examining the works on how venture capitalists have been so successful in initial public offerings is important for Turkey, which has been trying to both improve capital markets and develop venture capital industry.

Intermediation is important in venture capital industry because selecting, structuring, and managing venture capital investment requires considerable expertise. Gaining such expertise requires a critical mass of investment activity that most institutional investors cannot attain on their own. Managers of venture capital intermediaries are able to acquire such expertise through exposure to and participation in a large number of investment opportunities. They refine their skills through specialization

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focusing on companies in specific industries and at specific stages of business development. Although institutional investors could also specialize in this way, they would lose the benefits of diversification (Fenn and others, 1977; Sahlman, 1990).

By investing through intermediary which is venture capital fund rather than directly in issuing firms, investors delegate to the general partners of the fund the responsibilities of selecting, structuring, managing, and eventually liquidating venture capital investment.

Venture capitalists are similar to leveraged-buyout (LBO) specialists, who appear to contribute to substantial improvements in performance in corporations that go private. Like LBO specialists, venture-capital providers are active in financing and monitoring their portfolio companies. LBO specialist and venture capitalists invest in different kinds of firms, however: LBO promoters usually invest in mature companies with predictable cash flows, whereas venture capitalists focus on young and high-risk entrepreneurial ventures (Megginson and Weiss, 1991).

Venture capitalists invest in privately held companies that are not visible to the public (Megginson and Weiss, 1991). Venture capitalists evaluate a small fraction of deals they screen and consequently invest in only a small number of deals they evaluate (Wells, 1974). Since venture capitalists fund only a small fraction of firms they evaluate, presumably they have developed an effective investment decision-making process to allocate resources properly to superior future performers (Jain and Kini, 1995). There is a substantial amount of works on the venture capitalists investment decision-making process (Bruno and Tyebjee, 1984; Fried and Hisrich, 1994; Hall and Hofer, 1993; Hustedde and Pulver, 1992; Wells, 1974).

Thus, when a venture capitalist-backed firm decides to go public, it generally has been adequately screened and financed, has a carefully selected management team and board of directors in place, is endowed with a promising product in a well-defined market, and has the benefit of vendor and market contacts. If the above activities/benefits of venture capitalists participation provides value additivity, it would be expected that venture capital-backed initial public offering (IPO) firms to outperform similar non-venture capital-backed firms not only in the IPO period but also in the post-IPO period (Muscarella and others, 1990; Jain and Kini, 1995).

Corporate insiders have an incentive to conceal adverse information because doing so will allow them to sell securities at a higher price. While

disclosure regulation will surely discourage flagrant lying and material omissions, it is unlikely to be completely effective in forcing disclosure of all relevant information. Rationale outside ivestors understand this and will only offer a low average price for the securities offered unless they can be credibly assured that the offering price already reflects all relevant private information. The third-party certification is important when securities issued by relatively unknown firms in capital markets that are characterized by asymmetric information between corporate insiders and public investors. Both greater information asymmetry and uncertainty are more likely to be associated with new entrepreneurial firms than with older, more established companies. Therefore, the third-party certification function should be most attractive to relatively young, rapidly growing, research and development-intensive companies (Megginson and Weiss, 1991).

The quality of issuing is assured with the presence of venture capitalists in the issuing firm since venture capitalists have reputational capital at stake which would be forfeited by certifying as fairly priced an issue which was actually over-valued. In addition to venture capitalists investment in reputation capital, they are also large shareholders in the issuing firm. One way in which they might profit false certification and take advantage of the high price is to sell shares in the IPO. Retention by venture capitalists of their holdings after the offer, therefore, can act as a bonding mechanism for credible certification (Megginson and Weiss, 1991).

The aim of this study is to point out the role of venture capitalist in the development of capital markets by analyzing whether the presence of venture capitalists in the issuing firm contribute substantial improvements to both IPO performance and post-issue operating performance. The second part of the study touches on relevant features of venture capital in the creation of public companies. These features of venture capital market are factors which not only affect investors' decisions towards venture capital-backed IPO firms but also distinguish venture capital-backed firms from non-venture capital-backed firms before, during and after the IPO. Considering the fact that venture capital industry is in quite pre-development stage in Turkey, this part was particularly included.

The third section of the study focuses on venture capital firms' intermediary contributions to the development of capital markets as informed agents in a market with imperfect information. Whether the presence of venture capitalists, as investors in a firm going public, can certify that the

offering price of the issue reflects all available and relevant information is investigated. The role of venture capitalist in the creation of public companies is put down by examining the effects of the presence of venture capitalist on the cost of going public, the pricing of IPO, and post-issue performance. This section also deals with how the market recognizes and reflects venture capital participation as financial intermediary in the issuing firm.

This study points out the importance of evidences found in relevant works emphasizing the role of venture capitalist in the capital markets for Turkey.

II. The Relevant Features of the Venture Capital Industry for the Capital Market Investors

Venture capital became institutionalized first in the US. However, there has been a remarkable growth in venture capital activity throughout much of the developed world. Many countries, in mostly developed and a few developing, have tried to follow the United States' lead and develop their own venture capital industry. Each country has different socio-economic structure from the US, so there are some obstacles to develop American type venture capital activity. There was a period of trial-and-error applications until venture capital market became institutionalized in the US. The venture capital markets outside the US are so newly emerged that there will be some difficulties in the development of venture capital industries in those countries. However, considering the evolution of the US venture capital industry, those difficulties associated with the venture capital industries can be regarded as a usual way towards the development.

To understand what kind of factors affect the capital markets recognition of the presence of venture capitalists in the firm going public, this study, in this section, emphasizes the relevant features of venture capital industry which distinguish venture capital-backed from non-venture capital-backed initial public offering firm.

Venture capital consists of three parts: Entrepreneurs, venture capital firms, and investors. An entrepreneur who could be able to get venture financing should have a new product/product idea and a new method/method idea which carries growth potential with his/her new/small venture (Fettahoğlu, 1992). A variety of groups invest in venture capital: Pension funds, endowments and foundations, bank holding companies, wealthy individuals, insurance companies, nonfinancial cor-

porations, and foreign investors. Investors, except nonfinancial corporations, invest in venture capital for strictly financial reasons, specifically because they expect the risk-adjusted returns on venture capital to be higher than the risk-adjusted returns on other investments. Venture capital firms are mostly partnerships consisting several partners who come together in order to raise money from investors and invest it in new rapidly growing companies. Nearly 80 % of venture capital firms in the US is in partnership (Robbie and Wright, 1998). The emergence of the partnership as the dominant form of intermediary is a result of the extreme information asymmetries and potential incentive problems that arise in venture capital market. The specific advantages of the partnerships are rooted in the way in which they address these problems. The development of the partnerships also arose from the need for greater institutional participation in venture capital (Fenn and others, 1997).

Funds flow in venture capital financing goes from investors to venture capitalists and then from venture capitalists to entrepreneurs. The venture capital investing process begins with the conception of a target investment opportunity or class of opportunities which lead to a written proposal or prospectus to raise a venture capital fund. Once the money is raised, the value creation process moves from generating deals to crafting and executing harvest strategies and back to another fund (Bygrave and Timmons, 1992).

The general partners of the partnership act as organizers of the fund, shouldering the challenge of raising capital, accepting full responsibility and legal liability for fund management and participating in any gains their investments produce. They typically contribute 1% of the capital in return for 15% to 25% of the realized capital gains as named "carried interest" which is simply that portion of any gains realized by the fund to which the general partners are entitled, and receive an annual fee 2% to 3% of the total capital commitment.

The limited partners of the partnership who are the suppliers of capital play a passive role, enjoy "limited" liability for the activities of the fund, and stand at arm's length from day-to-day fund management. They cannot become directly involved in the management and investing decisions of the venture capital fund in which they have placed money. Typically, they contribute 99 % of the capital in return for 75 % to 85 % of the capital gains realized from the investments made by the general partners (Bygrave and Timmons, 1992).

2.1. The Agency Problem in Venture Capital Industry

The venture capital process is characterized by multiple principal-agent relationship which is between investors and venture capitalists and between venture capitalists and entrepreneurs. These multiple agency relationships can play an important role in determining the success of venture capital investing (Barry, 1994).

Incentive theory generally focuses on tasks that are too complicated or too costly to do oneself. Thus, the "principal" is obliged to hire an "agent" with specialized skills or knowledge to perform the task in question. The central concern is how the principal can best motivate the agent to perform as the principal would prefer, taking into account the difficulties in monitoring the agent's activities. Key incentive problems arise both in the simplest of agency relationships and in more complex organizations like corporations and governments (Sappington, 1991).

One side of agency risk in the venture capital process is the degree of uncertainty either the entrepreneur or the venture capitalist will pursue his or her own interest rather than comply with the requirements of the contract for venture capital (Fiet, 1995). The other side of the agency risk is similarly the degree of uncertainty that venture capitalists will pursue their interests rather than comply with the requirements of the partnership agreement.

A conflict aries between venture capitalists and entrepreneurs because entrepreneurs have information unavailable to venture capitalists and they make choices that are not fully known by venture capitalists. Using other people's money and having limited liability, entrepreneurs may want to continue to invest even after a project ceases to be viable. Entrepreneurs have expectations that are incompletely known to the venture capitalists and, in the process of selling venture, the entrepreneurs may overstate its likely outcomes (Barry, 1994).

Venture capitalists act as agents for the limited partners as principals, who choose to invest in entrepreneurial ventures through an intermediary rather than directly. In such situations, conflicts arise between the agent and the principal. There is inevitably a high degree of information asymmetry between venture capitalists, who play on active role in the portfolio companies, and the limited partners, who cannot monitor the prospects of each individual investment as closely (Sahlman, 1990).

In the venture capital industry, the agency problem is likely to be particularly difficult. The effectiveness of intermediation in venture capital market is related to dealing with such conflicts between investors and venture capitalists and between venture capitalists and entrepreneurs.

2.2. The Economic Analysis of the Relationship Between Venture Capitalists and the Investors

Venture capitalists act as agents for the limited partners, who choose to invest in entrepreneurial ventures through an intermediary rather than directly. In such situations, conflicts arise between the agent and the principal, which must be addressed in the contracts and other mechanism that govern their relationships (Sahlman, 1990).

Venture capitalists have many opportunities to take advantage of the people who invest with them. To a degree, agency problem is exacerbated by the legal structure of limited partnerships, which prevents limited partners from playing a role in the management of the venture capital partnership (Sahlman, 1990). The general partners' need to establish a favorable track record with investors and their advisers mitigates, but does not eliminate, potential conflicts between the limited and general partners (Fenn and others, 1997).

Venture capital partnership contracts are designed with several key provisions to protect the limited partners from the possibility that the venture capitalists will make decisions against their interest (Sahlman, 1990). There are two broad mechanism used in the partnership agreement to align general partners' interests with those of the limited partners; those that relate to performance incentives and those that relate to direct means of control (Fenn and others, 1997).

Performance Incentives: Performance incentives are the more important means aligning general partners' interest with those of the limited partners: they include the terms of the general partners' compensation structure-such as their share of the profits-and also important details on how management fees and profit shares are calculated. Such details can significantly affect the general partners' incentive to engage in behavior that does not maximize value of investors (Fenn and others, 1997).

General partners earn a management fee and a share of a partnership's profits, the latter referred to as carried interest. For a partnership that yields average return, carried interest may be several times larger than the management fees. This arrangement -providing limited compensation for making and managing investments and significant compensation in the form of profit sharing-lies at the heart of the partnership's incentive structure. In setting annual management fees, the general and limited partners must agree on both the fee percentage and the base on which the fees are assessed. Management fees are frequently set at a fixed percentage of committed capital and remain at that level over the partnership's life. Fee

percentages range from 1% to 3%. The majority of venture funds charge 2% to 2.5%. Carried interest is most often set at 20% of the partnership's net return (Fenn and others, 1997).

In addition, one contractual response to the excessive investments in high-risk ventures is to force the general partner to invest more in the fund than the customary small amounts. Then the venture capitalists bear a greater share of the costs of investing in ventures that perform poorly (Sahlman, 1990).

Direct Control Mechanism: Direct control mechanism in the partnership agreement include covenants that restrict the general partners from engaging in certain activities and provide the limited partners with limited oversight over the general partners (Fenn and others, 1997).

One form of control that is the life of a venture capital fund is limited; the venture capitalists cannot keep the money forever. Implicitly, the investors also preserve the right not to invest in any later fund managed by the same venture capitalists (Sahlman, 1990). Another form of control is that sometimes available to investors is the ability to vote on such matters as removing a general partner or ending the partnership before its termination date (Fenn and others, 1997; Sahlman, 1990)

2.2.1. The Sorting Problem in Choosing Venture Capital Firms for Investors

One of the important dimensions of the economic analysis of the relationship between the limited partners and the venture capitalists is an examination of how limited partners decide which venture capitalists to back (Sahlman, 1997). Because partnerships have finite lives, venture capitalists who serve as general partners must regularly raise new funds in order to stay in business (Fenn and others, 1997).

The raising of partnerships is very time consuming and costly depending on the general partners' reputation and experience. A favorable track record is important because it conveys some information about ability and suggests that venture capitalists will take extra care to protect their reputation, and because experience itself is regarded as an asset. To minimize their expenses, venture capitalists generally turn first to those that invested in their previous partnerships-assuming that their previous relationships were satisfactory (Fenn and others, 1997).

Because of the difficulties of raising partnerships, general partners are not in different to the type of investors that invest with them; they prefer investors that have a long-term commitment to venture capital investing. Because past investors are most familiar with a general partner's ability,

general partners face greater difficulties when experienced investors withdraw from the venture capital market (Fenn and others, 1997).

For abvious reasons, filtering out the "good" from the "bad" venture capitalists is extremely important. "Good" venture capitalists have the skill and intention to generate high risk-adjusted rates of return for the limited partners. Before committing capital, the investors in venture capital firms spend resources on due diligence. They read offering memoranda prepared by the venture capitalists in accordance with SEC regulations, and they often check the venture capitalists' credentials. This investigation acts as preliminary screen on potential investments (Sahlman, 1990).

The governance structure of the partnership also helps potential investors distinguish between good venture capitalists and weak ones. The basic argument is simple: good venture capitalists to accept a finite life for each new partnership and a compensation system heavily dependent on investment returns. By doing so, they agree explicitly to have their performance reviewed at least every few years: if they engage in opportunistic acts are incompetent, they will be denied access to funds. In addition, most of their expected compensation comes from a share in the fund's profits. If they perform well, they will participate handsomely in the fund's success. They will also be rewarded by being able to raise additional capital (Sahlman, 1990).

Because reputation plays such a critical role in venture capital market, reliable methods for measuring the past performance of venture capitalists are essential. Investors in venture capital market use a variety of quantitative and qualitative methods to measure performance (Fenn and others, 1997).

Choosing a venture capital firm, investors in venture capital should take following criterias into account (Schröder, 1990):

- specific creativity of venture capitalists
- its relationships within the venture capital community
- past performance
- nature of the venture capitalist's know-how
- continuity and depth of the venture capital partnership
- specific operating strategies and investment criteria

2.2.2. The Economic Analysis of the Continuity of Venture Capital Firms

Pioneering study with respect to the continuity of venture capital firms was primarily emphasized by Sahlman (1990) as follows:

With respect to operating cots, scale economies, scope economies, and

learning-curve effects are often very significant to a venture-capital management company that manages one or more funds. Scale economies exist if the unit cost of production and distribution of a product or service declines as volume increases. In the venture-capital organization, production and distortion encompass raising capital, finding and structuring deals, monitoring the investments, and distributing the proceeds. Scope economies exist if unit costs decline if multiple products or services are produced simultaneously (for example, if more than one fund is managed at a time). Learning-curve effects exist if the unit cost of a process declines over time with accumulated volume.

With respect to scale economies it seems likely that unit costs decline with the absolute size of the venture-capital pool under management because there are a number of fixed (or near-fixed) costs, including items in the overhead budget such as rent, information acquisition, accounting, and certain legal costs. Economies of scope are also likely because the cost of managing multiple pools of capital does not rise linearly with the number of such pools.

Finally, with respect to learning-curve effects, venture-capital firms become repositories of useful institutional knowledge. Venture capitalists and their support staffs benefit from learning-curve effects as they become adept in dealing with each other and with other resource suppliers, such as law firms, accounting firms, investment bankers, and management recruiting firms. They cultivate a deal flow based on networks of contacts and relationships. The venture-capital organization develops a reputation that has economic value. The ultimate effect is to make the firm more efficient as time passes and experience accumulates.

The possibility that the interests of the general and limited partners will diverge over time is addressed directly by limiting the lifespan of the venture-capital partnership. If the venture capitalists make decisions that aren't in the best interests of the limited partners, they can be denied access to capital. Any learning, scale, or scope economies will then go to waste. The ability to withdraw funding support is the ultimate tool for aligning the interests of the agent and principal in this organizational form, and is reinforced by the existence of the scale or scope economies and learning-curve effects.

2.3. Dimensions of Venture Capitalist Monitoring

One of the main features which distinguishes venture capital from other source of financing is venture capitalist monitoring. Prior research sug-

gests that venture capitalists are actively involved in the management of the ventures they fund, becoming members of the board of directors and retaining important economic rights (Sahlman, 1990). Venture capitalists provide value-added services to ventures. The value creation of venture capitalists, thus the monitoring, is related to the variables of stages, innovation and strategy of the venture, environmental uncertainty, goal congruence of the entrepreneur and the venture capitalist, venture capitalist's experience and the entrepreneur's new venture experience (Sapienza, 1992). Venture capitalists also use monitoring as a risk avoidance strategy for their investments. Venture capitalist monitoring is affected by the following strategies.

Specialization as a Venture Capital Investment Strategy: The knowledge base of venture capitalists include technological, market, and product expertise, as well as networks comprising experts and investors with similar interest. Venture capitalists seek to manage operating and technical risks by gaining access, by means of their reputation in their specialization, to information flows and deal flows in networks (Bygrave, 1989). According to specialization strategy, venture capitalists will only focus in deals where their specialized knowledge is such that it will likely add value to the investment. Therefore, venture capitalists who use specialization as an investment strategy have a more narrow industry, technology, and venture stage focus. Learning-curve effects exist for venture capitalists as a result of specialization. Thus, venture capitalists monitoring quality increases.

The Staging of Venture Capital: Sahlman (1990) stated that most important mechanism for controlling the venture is staging the infusion of capital. The staging of venture capital whereby funding commitments are earmarked for achievement of key developmental "bencmarks" in the sequential development of a new venture. Specifying agreed-upon developmental objectives for a specific round of funding can provide objective measures for subsequent evaluation of investee performance, and helps to focus maximum investee effort on critical objectives that must be achieved before the venture can move forward. Staging of funding also permits venture capitalists to cut it losses if key benchmarks are not able to be achieved.

A portfolio-level strategy, which is related to incremental funding, is "parlaying of funding", whereby portfolio funds reserved for follow-on funding are allocated as heavier bets on only those ventures identified as "winners" after earlier rounds of funding. Parlaying helps to "average-up"

the amount of total portfolio funding invested in successful ventures (Ruhnka and Young, 1991). The staging of capital infusion also helps to solve agency problems between venture capitalist and the entrepreneur (Gompers, 1995).

The Syndication of Venture Capital Investment: In many instances the amount of funding required in a venture capital investment is of such magnitude that a single investor would have majority control of the business-if debt gearing is not to become excessive. This is a rarely acceptable to the entrepreneur and to most venture capitalists. It is usual in such a transaction for there to be more than one investor, each with a minority shareholding (Lorenz, 1989).

There is also mutual benefit in a syndicated investment, arising from the combined experiences of the partners. This is relevant both to evaluation of the business pre-investment and to post-investment aftercare, where it is in all investors' interest to ensure maximum success of the investment's performance (Lorenz, 1989). Thus, the monitoring quality of venture capitalists will increase.

Venture Capitalists' Value Addition: Venture capital financing differs from more traditional financing in that the venture capital plays a role in the management of the companies receiving investment. Venture capitalists have a significant impact on the firms in which they invest. Venture capitalists add value beyond the money supplied to ventures (Sapienza, 1992). In addition to providing funding, venture capitalists can add a variety of other inputs, such as operating services, networks, and moral support. The venture capitalist's inputs have an effect on firm performance. The main inputs the venture capitalist has to offer are: money, operating services, networks, image, moral support, general business knowledge, and discipline. The value of these inputs varies from company to company, with venture capitalist inputs being used to fill the gaps between the resources needed and those already available to the company (Fried and Hisrich, 1995). Venture capitalists providing a high level of assistance should be willing to assume a higher level of business risk, because they can better control this risk due to their close contact with the business (Elango and others, 1995). Thus, venture capitalist monitoring quality is associated with the ability of value-addition of venture capitalist.

III. Venture Capital Firms as Financial Intermediaries in Capital Markets

Managers can attempt to window-dress the company prior to going public in the hope of securing higher than justified valuations. For instance, managers can attempt to pump up pre-IPO performance measures by deferring expenses, borrowing income from future periods, or cutting back on discretionary expenditures. Alternatively, managers could time their offering to coincide with market peaks to achieve inflated valuations (Jain and Kini, 1995).

When all investors are uninformed in a market, the entrepreneurs are induced to undertake inferior projects. In a market where all investors have positive information costs, or there are no zero-cost investors, the entrepreneurs will undertake only these projects offering low returns and investors will avoid the market and put their funds in other low return investments resulting in an undesirable allocation of resources. The presence of zero-cost or perfectly informed investors in the market induces entrepreneurs to select projects with higher investor returns (Chan, 1983).

The intermediaries serve as information production agents about the qualities of firms going public. The financial intermediaries lead the investors to a higher welfare state. The intermediary distinguishes good firms from the bad, and as a result the firms' true values are reflected in the market, whereas without information production all firms are priced at their average value. The intermediaries, as information production agents, push the entrepreneurs for selecting projects with higher investor returns in a market with imperfect information (Chan, 1983).

3.1. Venture Capitalist Certification in Initial Public Offerings

Megginson and Weiss (1991) examined whether the presence of venture capitalists, as investors in a firm going public, can certify that the offering price of the issue reflects all available and relevant information. They hypothesized that venture capitalists can perform this function; that it will be an economically valuable function; and that the certification provided by venture capitalists will be both a partial substitute for and a complement to the certification provided by prestigious auditors and investment bankers. In order to test the certification role of in the IPO market, they matched a sample of 320 venture capital-backed firms with 320 non- venture capital-backed firms in the same industry a closely as possible by offering size from 1983 through 1987. Their arguments and empirical results are summarized below.

Insiders have everything to gain and very little to lose from signaling

falsely at the time of an IPO. Corporate insiders have an incentive to conceal adverse information because doing so will allow them sell securities at a higher price. They sell securities only infrequently and thus would only be "punished" far in the future if at all. Their gain, however, would be immediate and possibly quite large. While disclosure regulation will surely discourage flagrant lying and material omissions, it is unlikely to be completely effective in forcing disclosure of all relevant information. Rational outside investors understand these incentives and will only offer a low average price for the securities offered unless they can be credibly assured that the offering price already reflects all relevant private information. Therefore in the absence of effective signaling mechanism in IPOs, outside investors are likely to be convinced that accurate information disclosure has occurred only if a third party, with reputational capital at stake, has asserted such and will be adversely and materially affected if that assertion proves false. Specifically for third-party certification to be believable for outside investors, three tests must be met.

The certifying agent must have reputational capital. There are strong a priori reasons to believe that venture capitalists have reputational capital at stake which would be forfeited by certifying as fairly priced an issue which was actually over-valued and the certification venture capitalist provide will have value in an IPO. Many of the more established venture capitalists bring companies in their portfolio to market on an ongoing basis as well as participating, over time, in a stream of direct equity investments in entrepreneurial firms. Venture capitalists, therefore, have a very strong incentive to establish a trustworthy reputation in order to retain access to the IPO market on favorable terms. Furthermore, the greater a venture capital fund's perceived access to the IPO market the more attractive it will be to entrepreneurs, thus assuring a continuing deal flow. Finally, a reputation for competence and honesty will allow venture capitalists to establish enduring relationships with pension fund managers and other institutional investors who are vitally important as investors in venture capital funds and as purchasers of shares in IPOs.

The value of the certifying agent's reputational capital must be greater than the largest possible one-time wealth transfer or side payment which could be obtained by certifying falsely. There are strong a priori reasons to believe that this test is met by venture capitalists. Support for this criterion is reinforced by the existence of the scale or scope economies and learning-curve effects (see 2.2.2). The investment in reputational capital by venture capitalists allows them to remain competitive in the venture

capital industry as well as the capital markets. An additional bonding mechanism that ensures that venture capitalists' certification is credible is the level of their capital investment in the firm both before and after the offer. Venture capitalists who retain significant holdings in the firm give up the opportunity to profit from false certification.

It must be costly for the issuing firm to purchase the services of the certifying agent. This criterion for third-party certification to be successful or economically valuable is that the services of the certifying agent must be costly for the issuing firm to obtain. Venture capitalists certainly appear to meet this test since the bundle of services they provide -including financial capital, managerial and technical expertise, enhanced access to other financial specialists as well as certification when the firm ultimately goes public- is both very costly and very difficult to obtain. For example, venture capitalists expect to earn a compound annual return of from 25% to over 50% depending upon the stage of the investment on their investments in private companies. Therefore, entrepreneurs typically hand over large holdings of equity in exchange for relatively small cash infusions.

This is not the only cost of venture capital investment for entrepreneurs. In additon to very high required rates of return, venture capitalists invariably structure their investments in a such way that most of the business and financial risk is shifted to the entrepreneur.

The cost and stringency of venture capital investment, as well as the sheer difficulty in obtaining it, implies that only those firms which would benefit most from the services venture capitalists provide will be willing and able to accept such participation. While the role of venture capitalists in the firms is obviously not limited to their activity at the IPO, one of the services that entrepreneurial firms purchase with the venture capital funding is easier access to capital markets and the ability of venture capitalists to reduce asymmetrical information in the offering process. Logic suggests that growth options which are characterized by both greater information asymmetry and uncertainty are more likely to be associated with new entrepreneurial firms than with older, more established companies. Therefore, the certification function of venture capitalists should be most attractive to relatively young, rapidly growing, research and development intensive companies.

3.2. The Effects of Venture Capitalist Participation on the Process of the Initial Public Offering

The model of venture capitalist certification in the IPO developed by

Megginson and Weiss (1995) yields three testable hypotheses. Two of them are below:

Venture capital-backed IPOs should have higher quality underwriters and auditors as well as a larger institutional following than comparable non-venture capital-backed firms. As a firm approaches the public offering for the first time, it has the task of hiring underwriters and auditors to manage the issue as well as to certify the information in the prospectus. After the preliminary prospectus is filed with the SEC, the management of the firm travels with the underwriter on a "road show" to provide information as well as to generate interest with institutional investors for the IPO. In general, searching for underwriters and auditors is both costly and time-consuming for firms wishing to go public. For the venture capital-backed firms, however, it is likely that the venture capitalist has been involved with other IPOs in the past and will have built relationship with underwriters, auditors, and institutional shareholders. Furthermore, each of these participants can infer information concerning the IPO from their prior experience with the venture capitalist. Because venture capitalists have reputational capital at stake in both their ability to maintain access to the public capital markets and to attract entrepreneurial firms for investment in the future, they have an incentive to reveal information truthfully about the new issue. This being the case, venture capital-backed firms should attract higher quality underwriters and auditors since it both lowers these participants' cost of due diligence and protects their own reputational capital. The venture capitalists' association with high quality underwriters, in turn, will increase their ability to place the issue with institutional managers.

In summary, their results indicate that venture capital-backed firms have higher quality underwriters and auditors as well as a larger institutional following than do non- venture capital-backed offers. They attribute these findings to the ability of venture capitalists to certify the quality of the firm by their historical investment in reputational capital, as well as to their capacity to build and maintain relatonships with underwriters, auditors, and institutional managers through their ongoing involvement in other IPOs.

The level of the expenses associated with the offering are less for venture capital-backed than for non-venture capital-backed offers. The ability of venture capitalists to reduce the information asymmetry associated with a firm involved in the offering process should result in a reduction of both the underpricing associated with the issue as well as the costs of

underwriter, legal, auditor, and other miscellaneous expenses. Venture capitalists convey credible information about the firm, the compensation to investors, underwriters, and auditors will be reduced since their cost of acquiring information about the company will be lowered.

The presence of venture capitalists lowers the underwriter compensation, for example, by lowering the underwriters' cost of due diligence. The process of acquiring information about the firm as part of the due diligence process will be easier if the venture capitalist has a reputation for having fairly represented information to the underwriter about firms in prior IPOs. Furthermore, venture capitalists may be more efficient in disseminating information than owners in a non-venture capital-backed firm because unlike other firms issuing equity for the first time, they have prior experience in going public. As hypothesized, the compensation paid to the underwriter as a percentage of the offer price found is significantly lower for venture capital-backed firms than for non- venture capital-backed IPOs .

The percentage of miscellaneous offering expenses paid as auditor, legal, printing, and registration fees is related to the level of underwriter compensation in venture capital and non-venture capital-backed firms. Using a similar argument as that for underwriter compensation, it is expected that continuing relationships on venture capitalists with other participants such as auditors and attorneys will also lower the expenses of obtaining legal counsel, auditing services, and printing. As expected, the average of miscellaneous expenses as a percentage of the offer price found is significantly lower for venture capital-backed firms than non-venture capital-backed firms.

Given that the level of initial returns and the expenses associated with the offering are less for venture capital-backed than for non-venture capital-backed offers, the implication is that the net proceeds to the firm should be higher for firms with venture capital participation. In other words, the total costs of going public should be lower for venture capital-backed issues than for their non- venture capital-backed counterparts.

3.3. The Quality of Venture Capitalist Monitorig and the Pricing of the IPO

Barry and others (1990) examined whether monitoring quality of venture capitalists whose companies are going public is associated with the degree of underpricing of the IPO by comparing 433 IPOs with venture capital backing and 1123 IPOs without such backing over the period from 1978 through 1987.

The capital markets recognize variations in the quality of the venture capitalist whose companies are going public. It was examined in their study that whether monitoring quality is associated with the degree of underpricing of the IPO. Venture capitalists tend to develop expertise in a relatively narrow set of industries. Their specialized industry knowledge, combined with their privileged position as corporate insiders, facilitate their monitoring role. Association with skilled venture capitalists may benefit the issuing firm. Because outsiders lack reliable information about the issuer's assets and investment opportunities, differences in the abilities of venture capitalists can provide information to the capital markets. Venture capitalists, with their large equity stake, have incentives to bring IPOs to market at high values. All else being equal, investors may be willing to pay more for companies brought to market by venture capitalists who are better able to oversee and guide new enterprises.

Barry and others (1990) examined the relation between underpricing and several proxies for the venture capitalist's skills in guiding its portfolio companies:

The Number of Venture Capitalists with Equity Positions in the Company Before IPO: The presence of multiple venture capitalists indicates that the issuer has persuaded a larger number of sophisticated investors that the firm has favorable prospects, and that it is willing to open itself up for scrutiny and guidance. Furthermore, the lead venture capitalist has increased incentives to monitor carefully because it has increased the risk to its reputation by soliciting the participation of other venture capitalists. Hence, a larger value for the number of venture capitalists should be associated with more intense monitoring, less uncertainty, and, therefore, less underpricing.

The Length of Time that a Member of the Lead Venture Capitalist has Served on the Board of Directors of the Issuer: The longer the lead venture capitalist has served on the board, the greater its opportunity to observe, oversee, and exercise beneficial influence. However, extended board service could instead indicate that the issuer was a marginal company that required a long time to get to the IPO stage. Nevertheless, given the fact of a public offering, a lengthier working relationship between the venture capitalist and the issuer can reduce underwriters and investors uncertainty and, hence, underpricing.

The Age of the Lead Venture Capitalist: The longer the lead venture capitalist has been in business, the more experience it should have in monitoring the executives of a startup company and steering the firm onto a

healthy course. It is expected that the variable the age of the lead venture capitalist to be negatively associated with uncertainty and with underpricing.

The Number of Prior IPOs: Since experience with other ventures can be evidence of successful monitoring and guidance, it is expected that less underpricing for IPOs whose lead venture capitalist has already brought a relatively large number of companies to market.

The Funds Under Management of the Venture Capitalist: To attract resources, venture capitalists must convince investors of their expertise and their ability to discover and monitor investment opportunities. Accordingly, the amount of resources a venture capitalist controls may serve as a proxy for expertise as perceived by investors in venture capital funds. Therefore, it is expected that less underpricing in IPOs in which large venture capitalists participate.

The Fraction of the Issuing Firm's Shares Owned by the Venture Capitalists: The larger the venture capitalists' share of ownership, the stronger their incentives to monitor and participate in management. Further, the degree of control the venture capitalists possess is related to their equity ownership. Thus, it is expected that larger holdings by venture capitalists to be associated with less underpricing.

The results found in their work are consistent with the joint hypothesis that the quality of the venture capitalists' monitoring skills reduces investor uncertainty and that lower uncertainty is associated with less IPO underpricing. Coupled with their earlier evidence that venture capital-backed IPOs are brought to market by higher-quality underwriters, these results show that the quality of the venture capitalists provides incremental information not signaled by the underwriter alone. Monitoring skills and concentrated equity appear to matter to the capital market.

3.4. Venture Capital Participation and the Post-Issue Operating Performance of IPO Firms

Jain and Kini (1995) examined the relation between venture capitalist monitoring quality and post-issue operating performance instead of underpricing as a more appropriate and direct test of the value of venture capitalist participation in the IPO market comparing a sample of venture capital-backed IPO firms with a closely matched sample of non-venture capital-backed IPO firms. In addition to comparing the post-issue operating performance of these two groups of IPO issuers, they examined whether the market recognizes the value-added potential of venture capi-

talist participation and monitoring. Finally, they examined whether proxies for quality of venture capitalist monitoring are related to post-issue operating performance. Their study is summarized below.

Although it is a clear that venture capitalists in their own self-interest would closely monitor the company when it is still private, the rationale for post- IPO monitoring is less obvious. Since the IPO provides a convenient exit strategy, venture capitalists have incentives to work intensely to ensure growth as well as window-dress the company prior to the issue. Alternatively, they could time their offering to coincide with market peaks to achieve inflated valuations. At the IPO, they could divest their holdings and redeploy their skills in other private firms in early stages where their marginal productivity is higher. However, there are several reasons why venture capitalists are unlikely to the window-dress/time their issues and exit at the IPO. First, the market recognizes the incentives for venture capitalists to window-dress and exit at the IPO and accounts for it in the offering price particularly if significant venture capitalist equity is put up for sale at the IPO. Second, venture capitalists in their own best interests usually continue to maintain significant equity positions in the post-IPO firm. Contrary to the widely held belief that venture capitalists realize the bulk of their gains in the IPO of the portfolio company, they in fact achieve most of their profits by holding positions in the aftermarket. Venture capitalists realize that emerging companies will generally experience their major growth subsequent to going public. The experienced venture capitalist will maintain a stock position through the rapid growth phase, taking profits over time or in a seasoned offering. The existing empirical evidence is consistent with venture capitalists continuing to hold significant ownership and board positions in the post-IPO firm.

Another important contributory factor for continued post-IPO monitoring by venture capitalists is their reputation capital at stake. Venture capitalists often have to bring other partners on board and form syndicates to participate in certain deals. It was pointed out that the venture capital industry is a small tight-knit community where individual performance is closely monitored. Successful fund-managers are able to establish profitable follow up funds more easily. Further, venture capitalists deal in several IPOs and need to frequently collaborate with investment bankers and auditors who are also extremely conscious of their reputation capital at stake. They find a small number of venture capitalists frequently reappear in their sample. Venture capitalists, by virtue of their success in taking companies public, become well known among issuers, underwriters, and

investors in the IPO market. Their past success becomes strong selling point as they negotiate venture capital contracts with issuers or raise funds from investors. Thus, the long-term continual involvement in the IPO market provides venture capitalists with incentives to maintain their reputation by carefully screening their investments and subsequently monitoring their performance in the aftermarket. Venture capitalists who deviate by managing issues which consistently fail in the aftermarket will find it difficult to find investors to form syndicates or reputable investment bankers/auditors willing to take their company public.

Jain and Kini (1995) examined the relation between post-issue operating performance and three proxies for the quality of VC monitoring:

The Number of Venture Capitalists with Equity Positions in the Firm Before the IPO: The presence of larger number of venture capitalists suggests that the issuer has convinced several informed investors that its future prospects are good. Further, the lead venture capitalist has greater incentives to monitor the firm carefully since its reputation capital is at stake and failure could mean diminished ability to establish subsequent deals. Hence, a positive relation is expected between post-issue operating performance and the number of venture capitalists.

The Length of Time Between Induction of the First Venture Capitalist on the Board of Directors and the IPO: The longer the service on the board of directors the greater the ability to monitor and influence actions taken by the firm. Consequently, a positive relation between operating performance and length of service on the board is expected.

The Number of Venture Capitalists on the Board of Directors at the Time of the IPO: Large numbers of venture capitalist board members imply enhanced ability to control and execute their agenda. Hence, a positive relation is expected.

The results found in their study show that larger numbers of venture capitalists with pre-IPO equity position increase effectiveness of monitoring leading to improved performance. The relation between operating performance measures and the number of venture capitalist board members is positive as expected. The results about the relation between operating performance and duration of board service suggest that there is no relation. This result is not unexpected as longer duration of board service may indicate greater ability to monitor but also indicate that the issuer is a marginal company.

It was found in their study that venture capital-backed IPOs exhibit relatively superior post-issue operating performance compared to a control

sample of non-venture capital-backed IPOs matched as closely as possible to industry and offering size. Evidence found to suggest that the capital markets recognize the value-added potential of venture capitalist monitoring. The venture capital-backed issuers initially have significantly higher levels of market-to-book ratio and price/earnings ratio compared to the non-venture capital-backed issuers. Subsequently, the difference between the two groups of IPO issuers disappears. One explanation for this result is that the monitoring services of the venture capitalist, are most valuable during the early stages of the issuers transition to a public corporation. Subsequently, as the venture capitalists exit and market monitoring takes over, the incremental value-added potential of the venture capitalist monitoring declines.

IV. Conclusion

This study, considering Turkey which has recently been trying to develop not only capital markets but also venture capital industry, analyzed the works focused on the role of venture capitalists in the creation public companies in the US. In those works, the investor attitudes towards venture capital-backed and non-venture capital-backed initial public offerings were mainly associated with the relevant features of venture capital industry.

Third party certification which asserts accurate information disclosure for outside investors is important due to existence of a greater information asymmetry associated with new entrepreneurial firms. Venture capitalists can perform this function which is an economically valuable function assuring the quality of offering due to venture capitalists' reputational capital at stake.

Venture capital-backed firms have higher quality underwriters and auditors as well as a larger institutional following compare to non-venture capital-backed issuers. These are attributed to venture capitalists' monitoring quality, reputational capital at stake and ongoing relationships with underwriters, auditors and institutional managers.

The ability of venture capitalists to convey credible information about a firm going public results in a reduction of the costs of acquiring information of underwriters, auditors and investors. Therefore, with the ability of venture capitalists to reduce information asymmetry associated with the firm going public, there will be a reduction in both underpricing and the costs in the offering process. Compare to non-venture capital-backed issues, the total costs of going public is lower and the net proceeds of

going public is higher for venture capital-backed issues.

Evidences found in the mentioned works in this study suggest that the capital markets recognize venture capitalists monitoring quality as reflected in their investment decisions at the time of initial public offerings of venture capital-backed issuers.

The summary results of the mentioned works on the role of venture capital firms as financial intermediaries suggest some lessons for the country of Turkey which has been trying to develop capital markets. Considering the difficulties in providing investors confidence on accurate information disclosure in the emerging markets, it would be more difficult to convince investors towards the New Companies Market of the ISE established as a capital market vehicle to finance small and medium enterprises. This study points out important implications to convince investors about accurate information disclosure towards the New Market of the ISE. Considering these implications and lessons, venture capital would be one of the most important tools for the development of the New Market of ISE. Thus, the development of venture capital sector will support the development of the capital markets in Turkey.

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AN INQUIRY ON THE FACTORS CONTRIBUTING TO THE ECONOMIC CRISES IN TURKEY

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Abstract

The aim of this paper is to perform a crises analysis for Turkey based on the ISE index values. To this aim, a probit analysis is adopted. For yields lower than a threshold a "negative crisis" situation is stipulated while for yields higher than a threshold in the positive yield distribution area a "positive crisis" is defined considering bubbles in the securities market, as well, increasing the possibility of an economy-wide crisis as experienced in the latest Asian Crisis. Hence, two different sets of estimation results related to the two different crises conditions are obtained. The results of the two models show that capital flows and international choice of investment are the factors adding to the possibility of crisis condition in Turkey. In addition, inflation and real sector activities affect the possibility of crisis condition. Lastly, the level of interbank rates, a policy tool of the Central Bank, affect the possibility of a crisis condition in Turkey.

I. Introduction

After the Mexican Crisis which could be accepted as the culmination point of various chaotic situations within the decade preceding 1994 the attention of researchers was turned to currency crisis. However, this focus was more enhanced following the global crisis which started in East Asia in mid-1997 and which imposed its effects on both the developing and developed countries. Hence, the concern of the researchers shifted to assessing the early indicators of the crises, to explore the reasons underlying crises, to analyze the contagious characteristics of the crises among economies and even to formulating a new system for a safer capital flow network.

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The latest global crisis caused the agents become aware of new risks related with international investments, question the existing structure of international capital flow framework with all its institutions as well as pricing of securities due to bubbles and attempt to devise means of predicting currency crises. Among all those discussions currency crises, speculative attacks and devising leading indicators for such situations have constituted the core of the economics literature debate.

The traditional approach to balance of payments crises stems from a study of 1979 by Paul Krugman[1]. In this model Krugman places government budget deficits into the center of the analysis. In a fixed peg environment, the expansionary stance of budget deficit which is financed by domestic credit expansion would lead absorption exceed production which, in turn, enhances a portfolio shift from domestic assets to foreign denominated assets. This movement, causing a depletion in the international reserves, leads the way to a speculative attack, which then causes abandoning the fixed exchange rate system.

In spite of the international reserve decline reason for triggering crises in the traditional model recent theoretical developments have associated the crises with a number of aggregates[2], such as wages, stock of public debt, presence of banking sector problems or increase in foreign interest rates and/or crisis in other countries both of which are likely to have repercussions on domestic interest rates or pressures on domestic currency.

As is easily seen empirical studies on crises deals with currency crises. In these studies a crisis is -implicitly or explicitly- defined as "a situation in which attack on the currency leads to a sharp depreciation of the currency, a large decline in international reserves, or a combination of the two"[3]. Defining the "crisis" thus the literature seeks leading indicators helping as a warning signal for crises by spotting if the indicator variables deviate beyond a predetermined threshold value edging the "normal" band.

For a review of the leading indicators a list might be found in the appendix of Kaminsky et al. (1998). Though it is not needed to mention all those indicators here a short list of general headings for those indicators might be listed. Indicators such as international reserves, capital flows etc. might be classified as "capital account" indicators while real

[1] Eichengreen, B. et al. (1995), p. 256.
[2] Kaminsky,G. et al. (1998), p.5.
[3] ibid, p. 15.

exchange rate, current account balance, exports etc. might be termed as "current account" indicators. Also, variables such as public foreign debt, total foreign debt etc. might be taken to represent "debt profile" as fiscal deficit, public domestic debt etc. might be classified under "fiscal variables". In addition, real gdp growth, wages, stock prices, employment figures etc. might reflect "real sector" variables while foreign real gdp growth, world prices or foreign interest rates might serve as "international variables". In addition to those variables credit growth, real domestic interest rates etc. might be taken as "financial liberalization" variables while m2/international reserves ratio, money growth, central bank credit to banks etc. might be classified as "other financial variables". Last but not least, dummy variables for elections, government changes, degree of financial stability etc. might be taken as "political variables" as dummy variables for banking crises, former exchange market crises or exchange controls might be used as "institutional/structural variables".

As is easily seen the literature on crises has over-focused on currency crises and predicting such crises. Also, the phenomenon of banking crises which might or might not be the result of currency crises has been an additional concern. Models predicting those crises are common. Stock exchange has been listed as an explanatory variable for such models due to its sensitive character. Price and volume developments in the equities market contain invaluable information as regards to both the investor behavior which assigns much weight on stability and the rapidity of information transmission.

Hence, stock prices might be used to proxy the stability or the tension in the economy which might herald a normality/crisis condition. As it is observed just before the Asian Crisis a number of stock exchanges which later fell prey to the crisis reflected bubbles. So, it might well be argued that bubbles as well as low equity prices serve to reflect a crisis condition. In a dynamic picture where large swings in the equity prices are observed might show a violation of stability in the economy which might lead to a crisis condition.

Hence, in a global environment where perceived risks are magnified and where everybody is much risk averse a "crisis condition" might be defined as volatility in the securities' return exceeding a certain volatility threshold. While "risk" is defined as "the variance of the estimated distribution of expected returns or the square root of the variance"[4], risk analysis is to be based on the distribution of returns and a dispersion measure

of returns around the expected return value.

Hence, In the new global environment where the volatility of returns over a certain limit is being perceived as the violation of stability and which adds to the riskiness of the country this study aims at defining a crisis index for Turkey. The proposed index is, in fact, reflects the conditions where large swings are observed in the yield of equity market on the grounds that such swings proxy the increased risks beyond a threshold of normality in the economy which might serve as to reflect a threat to economic stability and a situation possible to lead an economy to a "crisis". In this perspective, this study takes the distribution of the monthly returns of Istanbul Stock Exchange and reclassifies them as "crisis" and "no-crisis" observations in regard to their dispersion around the mean. In this process, observations reflecting negative yields beyond this sub-group's threshold are defined as "negative crises" situation while symmetric observations on the positive area are defined as "positive crises" due to the possibility of reflecting price bubbles.

II. Econometric Methodology

In parallel to the reasoning outlined above monthly yields of Istanbul Stock Exchange are taken within the sample period of January.1986 - December.1998. Analyzing the dispersion of the monthly yields, which reflect a pattern of normal distribution, around the mean for different standard deviation levels we found that outliers of the threshold of 1.1 standard deviation reflect not only magnified unstability conditions in the economy but also points of crisis in the Turkish economy. Hence at this point, observations which fall beyond that threshold on both side of the distribution are assigned numeral "1" while others are categorized as "0".

So, the model used in the analysis could be put forward as:

$$Y_t = ß_0 + ß_i X_{i,t} + u_{i,t}$$

where

$y_t = 1$ for crisis condition
$= 0$ otherwise.

while $ß_i (X)_{i,t}$ stands for the information set of a number of contempora-

[4] Reilly, F., p.9.

neous and/or lagged control regressors which are proposed as the crisis indicators in the literature such as industrial production index, real interest rates, inflation, credit growth, foreign exchange basket of 1USD+1.5DEM, M2/International Reserves ratio, growth of domestic debt stock of the Treasury etc. On the other hand, $u_{i,t}$, stands for the normally distributed disturbance term which represents the omitted influences that affect the probability of a crisis in Turkey.

In this setting the model to be used would be a "binary dependent variable" one. However, due to its shortcomings of non-normality in the error term, heteroscedasticity of disturbances and possibility of the estimated probability lying outside the 0-1 interval a Linear Probability Model is not preferred here. Rather, a Probit Model (=Normit) is chosen due to the normal distribution of the monthly yields and to the assumption that the error terms are distributed normally. On the other hand, since it is also argued by Amemiya[5] that the estimated coefficients obtained by Logit or Probit Models might be converted to each other by a factor it is only a matter of choice between the two standart models while working with dummy dependent variables.

Procedure for estimating the parameters in probit models might be given as the following:

In a general model which is set as

$$y = ß\ x + u \qquad (1)$$

y is observed only if $y > 0$.

So $y = ß\ x + u$ if $\beta x + u > 0$ or $u > -ßx$

$= 0$ otherwise

In this setting not only the observations satisfying the condition of $y > 0$ could be used to estimate the regression equation by OLS method since in this case only the $u > - ßx$ type residuals are considered but also usage of this condition helps to violate the basic assumption of $E(u) = 0$. In this regard we can use ML method (Maximum Likelihood Estimation) by making some specific assumptions while estimating the parameters. So if we assume that disturbance term, u, is distributed normally we can show this as:

[5] Gujarati, D.N., p.569.

$$(2)..... \int \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{1}{2\sigma^2}(y-\beta x_i)^2}$$

simplifying the normal distribution expression as F(ß'X) the rule might be rewritten as

$$(3a).....If .... \Pr obY = 1...then... \int_0^{\beta' x} F(\beta' x)dx$$

$$(3b)....If .... \Pr obY = 0...then... \int_{-\infty}^{0} 1 - F(\beta' x)dx$$

Using MLE method we can write the sum of the observations falling in either category as:

$$(4)..... L = \prod_1 F(\beta' x_i)^{y_i} \prod_0 [1-F(\beta' x_i)]^{1-y_i}$$

taking the logarithm of each side and then taking the derivative of the resultant double-log expression with respect to the estimator vector ß the procedure of maximization requires equating this derivative to zero.

Applying the above maximization procedure to the model we have chosen for the explanatory variable set of economic indicators vector, X, we determine a list of variables. A detailed list of such variables and results obtained by the selected variables are given in the following section. At this point, it should be stated that the series used in this study are individually I(0) series as they are yields or first differences of the level variables which they are associated with. Also, it is worth to mention that as the optimization technique of the probit model, "quadratic hill climbing" method is used.

III. Application and the Results of the Model

As was explained in the first section, this study aims to define a crisis condition. According to this, a crisis condition is defined either as a positive case or a negative case in reference to specified thresholds on the two

sides of the tails of the yield distribution. Hence, this might reflect both situations of overpricing and underpricing in the securities market. Since, overpricing mechanism might lead to price bubbles and bursting of those bubbles, as was experienced in the exchanges of Far Eastern Countries in 1997, which stems from over-influx of short term capital those observations which reflect higher than ordinary yields and thus recorded as the crisis condition are justified. On the other hand, developments which affect the real sector adversely are seen in the prices of the securities, and also in the yields of the stock exchange. Thus, observations which takes large swings toward the area of the falling yields as the crisis condition are justified on this ground.

Having the crisis condition set such a number of variables mentioned

Category of Variables	Name of Variables*
Financial Liberalization	Domestic Credit Growth (m, y, c) Real Interest Rates (interbank, deposit) Interest Rate Spreads (interbank-TLdeposit)
Other Financial Variables	M2 Money Growth (m,y,c) M2Y Money Growth (m, y, c) Currency Issued Growth (m, y, c) Currency in Circulation Growth (m, y, c) Central Bank Money Growth (m, y, c) Domestic Inflation (m, y, c) M2/International Reserves
Current Account	Current Account Balance Growth (m, y, c) Real Exchange Rate Index Real Depreciation Rate of the Basket (m, y, c) Growth in Exports (m, y, c)
Fiscal Variables	Growth in the Domestic Debt Stock of Budget (m, y, c)
Real Sector	Change in the Industrial Production Index (m, y, c)
International Variables	Yield in the London Stock Exchange (m, y)
Capital Account	International Reserves Capital Flows Short Run Capital Flows Change in Capital Flows (m,y) Interest Rate Differential (interbank-fx deposits, TL deposits-fx deposits
Political Variables	Dummy Variable for Government change dates Interest Rate Dummy

* m- monthly growth, y- yearly growth, c- change in growth rate (i.e. second derivative of the variable)

as crisis indicators in the literature were tested within a probit model. While the general categories of indicators mentioned in the literature are given in the first section the ones tried in this study are listed below. All the variables tested, except a few, are tried in their monthly and yearly growth rates while their, except for the interest rate data, second differences are also tested in running the probit model.

In the analysis, it turns out to be that variables representing financial liberalization, monetary growth, fiscal variables or political variables do not affect the defined "crisis" condition in Turkey. It is interesting that a widely used crisis indicator in the literature, the M2/International Reserves ratio, does not affect the crisis condition in Turkey. Another important point to note interest rate spreads do not affect such a condition. On the other hand, political dummy variables such as the mismanagement in 1994 or government changes do not explain the "crisis" condition in Turkey within the estimation technique applied. In addition to those results, fiscal variables such as growth in the domestic debt stock do not seem to add to the explanatory power of the equations.

Among the variables enlisted above the ones related with capital account seem to add most to the crises condition in Turkey. Also, depreciation rate, interbank interest rates, developments in the industrial production index are the other factors which explains the conditions defined. In addition to those factors, yields of the London Stock Exchange, aiming to search for the effects of the world stock exchanges on the matter, are added to the analysis.

Two different models are tested in order to discriminate between the "negative crises" and "positive crises" which comprise lower than the negative threshold yields and higher than the positive threshold yields observed in the ISE market, respectively. Hence, the test results of the two models are listed below as CRISISNEG (representing "negative crises"), and CRISISPOS (representing "positive crises").

$CRISISNEG_t = ß_0 + ß_1\ CAPFLW_{t-1} + ß_2\ BSKTREALDFF_t + ß_3\ LUKDFF_{t-4} + ß_4\ EXPIMPOR + ß_5\ LON_t + ß_6\ INFYR_{t-1}$
$CRISISPOS_t = ß_0 + ß_1 CAPFLW_t + ß_2\ LUKDFF_{t-3} + ß_3\ LIPIDFF_t + ß_4\ LON_t + ß_5\ INF_{t-2}$

Where

CAPFLW - Capital flows,
BSKTREALDFF- Real depreciation of the exchange rate basket of 1USD+1.5DEM over WPI
LUKDFF - Monthly yield obtained by FTSE-100 Index
LIPIDFF - Monthly growth in the industrial production index
LON - Overnight rates in the interbank market
INF - Monthly change in the WPI
INFYR - Yearly change in the WPI
EXPIMPOR - Export/Import ratio

The estimation results of the models are given below

Table 1: Calculation Results in the Negative Crisis Condition

CRISISNEG	Coefficient	z-stat	p-value		
$ß_0$	-22.5280	-2.0289	0.0425	Total obs.	140
$ß_1$	-0.0008	-2.4029	0.0163	Obs. Dep=0	124
$ß_2$	20.9922	1.9522	0.0509	Obs. Dep=1	16
$ß_3$	-6.6904	-1.9982	0.0457	AIC	0.6256
$ß_4$	-2.7756	-1.5744	0.1154	LR-Stat.	25.92
$ß_5$	0.8168	1.8360	0.0664	McFaddenR^2	0.2605
$ß_6$	-2.8090	-1.7430	0.0813	H-L Statistic	0.97

Estimated Equation	
% Correct	90.00
% Incorrect	10.00
Total Gain	1.43
Percent Gain	12.50

As can be followed in the above-table a possibility in the negative crisis condition is reduced as capital inflow increases. On the other hand, a real depreciation of the basket increases the possibility of a negative crisis condition. A positive atmosphere international investments reduces the negative crisis possibility i.e. a rise in the yields of the London Stock Exchange reduces the crisis possibility in the ISE within a period of 4 months. Though developments in the industrial production index do not seem to have concrete effects on a negative crisis production might be said to affect crisis condition through foreign trade channel; hence an

increase in the export/import ratio turns out to be decreasing a negative crisis condition. As regards to Central Bank's actions, an increase in the interbank rates increases the negative crisis possibility.

As to the positive crisis condition the results might be followed from Table-2 below. Here it is evident that capital flows increase the possibility of positive crisis conditions. However, a growth in the production index decreases this likelihood. Combining the two results, we could say that in case of capital flows toward the ISE without being supported by a production increase a positive crisis is likely. On the other hand, regarding the effects of yields in international stock exchanges, an increase of the FTSE-100 index of the London Stock Exchange decreases the possibility of a positive crisis condition and this effect works with 3-month lag. As to inflation, an increase in monthly WPI-inflation increases a positive crisis condition within 2 months. Hence, it could be inferred that a program which aims to decline inflationary trend serves to eliminate any possibility of a positive crisis. Lastly, it seems that the way the Central Bank uses its policy tool of the interbank rates has an effect on a crisis condition originating in the ISE; as Central Bank aims to reduce overnight rates it increases the possibility of a positive crisis condition. In other words, a possibility of a positive crisis condition might be reversed by the Central Bank through the interest rate channel.

Table 2 : Calculation Results in the Positive Crisis Condition

CRISISPOS	Coefficient	z-stat	p-value		
$ß_0$	5.2540	2.5606	0.0104	Total obs.	152
$ß_1$	0.0006	2.2339	0.0255	Obs. Dep=0	133
$ß_2$	-5.0806	-1.9391	0.0525	Obs. Dep=1	19
$ß_3$	-3.0525	-1.6629	0.1046	AIC	0.6839
$ß_4$	-1.7587	-3.2452	0.012	LR-Stat.	22.583
$ß_5$	10.0066	2.0184	0.0436	McFaddenR^2	0.1971
				H-L Statistic	0.41

Estimated Equation	
% Correct	88.82
% Incorrect	11.18
Total Gain	1.32
Percent Gain	10.53

From the results of the two symmetric crisis definition we can say that capital flows have direct effect on the possibility of the crises conditions. In addition, inflation affects both crises definitions in different ways; an increase in monthly inflation rates increases a positive crisis possibility with 2 month-lag while a decrease in yearly inflation rate increases a negative crisis condition within 1-month. As to the real sector variables, positive crises are offset by the increases in industrial production while negative crises are linked to the real sector to the extent that demand for foreign goods creates foreign reserves through exporting i.e. export/import ratio. In both cases, yields in the London Stock Exchange affect the situation in Turkey, though with different lags. Real depreciation of the exchange rate basket contributes to negative crisis while positive crises conditions are not driven by the real depreciation of the basket. Lastly, Central Bank policies have effect on crises; an increase in the interbank rates decreases the positive crisis possibility while such a move increases the likelihood of negative crises. Hence, at the time where bubbles are formed in the securities market Central Bank is suggested to increase the overnight rates while at the time of shrunk yields in the securities market such a move should be handled carefully and gradually. All in all, it should be stated that thus defined crises conditions in Turkey is driven by capital flows and related variables.

IV. Conclusion

A "crisis condition" might be defined as volatility in the securities' return exceeding a certain volatility threshold. Hence, by determining those threshold values referring the standard deviations on both sides of the distribution of yields in the ISE we can define crisis condition for the values falling beyond those threshold values. Due to price bubbles which might be considered as a prelude to economic crisis in a country if not burst and drastic fall in the equities market yields crisis condition might be classified into "positive" and "negative" crises. Hence, a double analysis might be performed in questing the determinants of the thus defined conditions of crises.

A probit model is applied in searching the determinants of the crises in Turkey since we assign numeral "1" for the observations exceeding the thresholds on the two side of the distribution and "0" for the observations placed within the threshold values. By applying this methodology, two models named "crisisneg" and "crisispos" reflecting the negative crises conditions and positive crisis conditions, respectively are analyzed.

The analyses show capital flows have direct effect on the possibility of the crises conditions while inflation affects both crises definitions in different ways. Yield developments in the other exchanges reduce the crisis risk in Turkey due to the links between capital markets of the world. As to the real sector variables, positive crises are eliminated by the increases in industrial production while negative crises are linked to the real sector through foreign exchange creating channels. Lastly, the steps taken by the Central Bank implementing the monetary policies have effect on crises.

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GLOBAL CAPITAL MARKETS

During the third quarter of 2000, volatility continued in the international financial markets. The global economic expansion has continued to gain strength, with global output growth now projected at 4.7 % in 2000. Growth is projected to increase in all major regions of the world, due to the continued strength of the U.S. economy; the upswing in Europe; the recovery in Asia; and a rebound from last year's slowdowns in emerging markets in Latin America, and the Middle East and Africa. Among the advanced countries, the continued strong expansion in the United States played a critical role in supporting global activity at the height of the crisis, and policies to strengthen growth in both Europe, and Japan also supported the recovery. Among most crisis countries, the determined adjustment efforts pursued by policymakers contributed to an early restoration of macroeconomic stability and a steady improvement in external confidence.

Although the overall outlook is positive, a number of economic and financial imbalances continue to exist in the global economy. These include the uneven pattern of GDP and demand growth among the three major currency areas, and the associated imbalances in their external current accounts, including a record deficit in the United States, and surpluses in Japan and in some other major countries; the evident unbalances among major currencies, particularly the euro and the U.S. dollar; and the still high level of equity market valuations in the U.S. and some other countries. Higher oil prices also had a direct impact on global activity and inflation. Output in many developing countries would also be adversely affected, particularly in Asia, which is relatively dependent on imported oil. The amount of monetary tightening that may be needed to control inflationary pressures in the United States and some other countries remains unclear, especially in the recent increase in oil prices is sustained.

The imbalances described above combined with recent reductions in the depth and liquidity in financial markets-could generate further volatility in mature financial markets which could in turn spill over to emerging markets, notwithstanding their generally strengthening economic fundamentals.

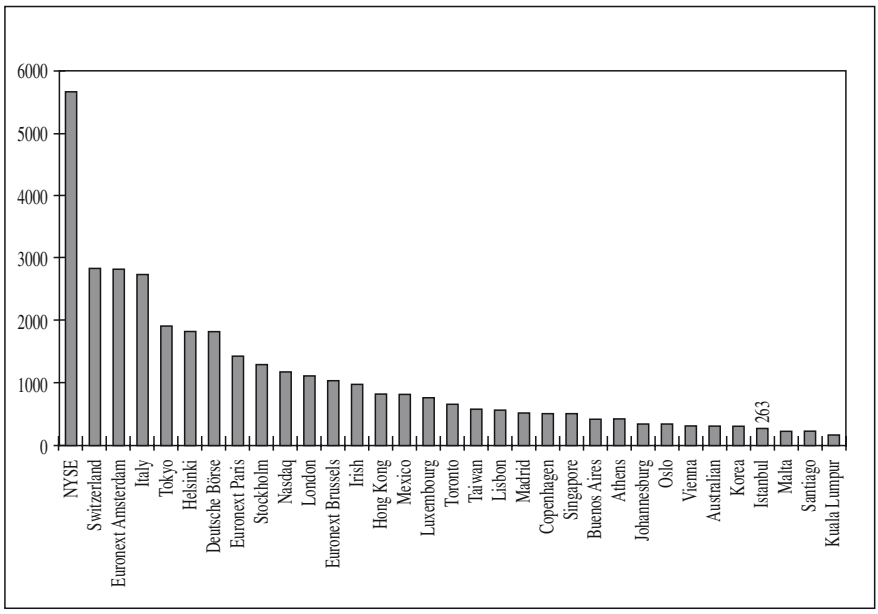
The performances of some developed stock markets with respect to indices indicated that Nikkei-225 and FTSE-100 decreased by - 9.56% and by -0.29%, respectively, while DJI increased by 1.94% on September 27 as of June 30. When US$ based nine month returns of some emerging markets are compared, China is the best performer with 39.6%, Russia, Venezuela and Israel follow with 19.8%, 16.7% and 15.7%, respectively. In the same period Indonesia, Egypt and Thailand are the worst performers that caused their investors lose -50.5%, -50.3% and -50.3% respectively. The three other low performing markets are Philippines, South Korea and Greece with -44.5%, -41.1% and -38.6% returns, respectively. In this period Istanbul Stock Exchange's performance is -37.7% return. The performances of emerging markets with respect to P/E ratios as of end-September indicated that the highest rates were obtained in Argentina (92.9) Malaysia (87.6), S. Korea (78.7) and Chile (34.1) and the lowest rates in Czech Republic (-196), Thailand (-6.1) and Indonesia (-5.5).

Market Capitalization (USD Million, 1986-1999)

	Global	Developed Markets	Emerging Markets	ISE
1986	6,514,199	6,275,582	238,617	938
1987	7,830,778	7,511,072	319,706	3,125
1988	9,728,493	9,245,358	483,135	1,128
1989	11,712,673	10,967,395	745,278	6,756
1990	9,398,391	8,784,770	613,621	18,737
1991	11,342,089	10,434,218	907,871	15,564
1992	10,923,343	9,923,024	1,000,319	9,922
1993	14,016,023	12,327,242	1,688,781	37,824
1994	15,124,051	13,210,778	1,913,273	21,785
1995	17,788,071	15,859,021	1,929,050	20,782
1996	20,412,135	17,982,088	2,272,184	30,797
1997	23,087,006	20,923,911	2,163,095	61,348
1998	26,964,463	25,065,373	1,899,090	33,473
1999	36,030,810	32,956,939	3,073,871	112,276

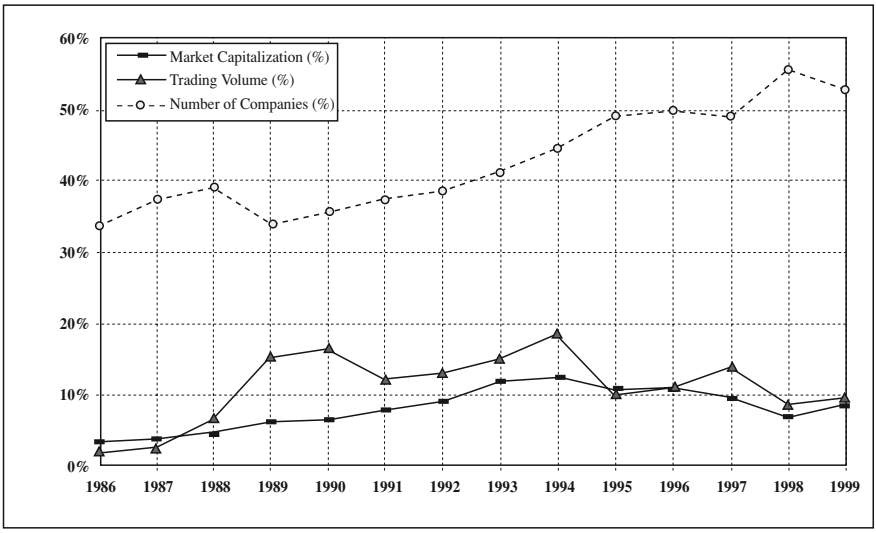
Source: IFC Factbook 2000.

Comparison of Average Market Capitalization (USD Million, September 2000)



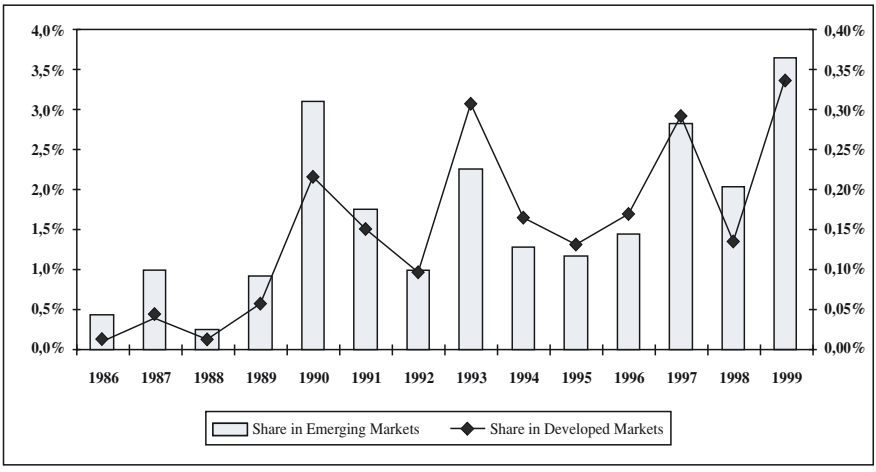
Source: FIBV, Monthly Statistics, September 2000.

Worldwide Share of Emerging Capital Markets (1986-1999)



Source: IFC Factbook, 2000.

Share of ISE's Market Capitalization in World Markets (1986-1999)



Source: IFC Factbook, 2000.

Main Indicators of Capital Markets (September 2000)

Market	Turnover Velocity	Market	Value of Share Trading (millions USD $) Up to Year Total (2000/1 -2000/9)	Market	Market Cap. of Share of Domestic Companies (millions USD $)
NASDAQ	344.5%	NASDAQ	15,236,248.7	NYSE	11,675,252.3
Taiwan	276.1%	NYSE	8,251,751.	NASDAQ	5,104,035.6
Korea	271.6%	London	3,543,574.7	Tokyo	3,776,843.1
Madrid	218.2%	Euronext Paris	3,076,905.7	London	2,626,614.8
Istanbul	172.8%	Tokyo	1,892,832.3	Euronext Paris	1,432,393.2
Euronext Brussels	135.1%	Deutsche Börse	1,690,515.2	Deutsche Börse	1,301,734.0
Deutsche Börse	127.8%	Italy	1,554,533.4	Toronto	896,394.7
Italy	125.6%	Chicago	915,797.0	Italy	725,100.6
Oslo	101.5%	Taiwan	850,299.4	Switzerland	699,145.1
Stockholm	93.3%	Italy	800,024.5	Euronext Amsterdam	632,001.4
Euronext Amsterdam	89.8%	Euronext Paris	796,669.0	Hong Kong	615,751.8
NYSE	84.9%	Madrid	757,905.9	Madrid (Spain)	484,006.4
Switzerland	83.9%	Amex	693,503.7	Australian	372,237.1
Lisbon	83.7%	Euronext Amsterdam	500,244.2	Stockholm	369,745.3
Athens	83.4%	Toronto	489,127.6	Taiwan	294,737.6
Copenhagen	77.1%	Switzerland	473,568.3	Helsinki	274,104.9
Barcelona	71.8%	Korea	468,052.7	Johannesburg	215,619.2
Bilbao	70.4%	Stockholm	368,467.5	Korea	200,222.8
Toronto	70.0%	Hong Kong	314,923.6	Euronext Brussels	164,012.6
Euronext Paris	68.9%	Osaka	280,162.6	Singapore	156,002.9
London	65.8%	Bermuda	219,185.3	Mexico	139,937.5
Hong Kong	64.7%	Bilbao	217,880.0	Kuala Lumpur	124,033.6
Tokyo	60.9%	Barcelona	208,541.3	Athens	122,833.4
Helsinki	60.6%	Australian	177,055.0	Copenhagen	110,441.6
Singapore	57.1%	Euronext Brussels	165,013.8	Amex	91,408.8
Australian	56.6%	Helsinki	157,017.7	Istanbul	82,083.3
CDNX	55.4%	Istanbul	141,754.2	Tel-Aviv	77,293.0
Thailand	52.9%	Athens	83,429.7	Irish	75,444.8
Sao Paulo	48.2%	Sao Paulo	82,774.9	Lisbon	66,379.3
Warsaw	48.1%	Copenhagen	75,749.5	Oslo	63,693.2
New Zealand	44.9%	Singapore	73,132.2	Santiago	61,381.9
Tel-Aviv	42.8%	Johannesburg	60,189.5	Buenos Aires	50,415.3
Jakarta	41.1%	Oslo	52,618.2	Luxembourg	40,687.8
Kuala Lumpur	34.9%	Kuala Lumpur	47,607.6	Jakarta	31,959.5
Johannesburg	34.9%	Lisbon	45,201.9	Thailand	30,117.9
Vienna	33.9%	Barcelona	34,883.6	Vienna	27,988.0
Mexico	30.3%	Mexico	34,546.8	Philippine	26,786.2
Philippine	28.3%	Euronext Brussels	33,057.4	Warsaw	26,089.5
Euronext Brussels	25.0%	Tel-Aviv	22,828.3	Tehran	23,957.1
Ljubljana	24.8%	Thailand	16,779.0	New Zealand	17,871.2
Lima	22.7%	Jakarta	12,938.5	CDNX	12,217.2
Irish	22.1%	Warsaw	12,215.0	Lima	10,149.3
Buenos Aires	18.5%	Irish	10,258.9	Ljubljana	2,598.6
Tehran	18.4%	CDNX	9,931.2	Malta	1,983.1
Osaka	11.8%	New Zealand	9,461.4	Bermuda	1,766.0
Colombo	10.7%	Buenos Aires	7,878.7	Colombo	1,307.6
Santiago	7.1%	Vienna	7,548.4	Montreal	1,052.9
Bermuda	5.3%	Philippine	7,126.7	Chicago	236.0

Source: FIBV. Monthly Statistics. September 2000.

Trading Volume (USD millions, 1986-1999)

	Global	Developed	Emerging	ISE	Emerging/ Global (%)	ISE/ Emerging (%)
1986	3,573,570	3,490,718	82,852	13	2.32	0.02
1987	5,846,864	5,682,143	164,721	118	2.82	0.07
1988	5,997,321	5,588,694	408,627	115	6.81	0.03
1989	7,467,997	6,298,778	1,169,219	773	15.66	0.07
1990	5,514,706	4,614,786	899,920	5,854	16.32	0.65
1991	5,019,596	4,403,631	615,965	8,502	12.27	1.38
1992	4,782,850	4,151,662	631,188	8,567	13.20	1.36
1993	7,194,675	6,090,929	1,103,746	21,770	15.34	1.97
1994	8,821,845	7,156,704	1,665,141	23,203	18.88	1.39
1995	10,218,748	9,176,451	1,042,297	52,357	10.20	5.02
1996	13,616,070	12,105,541	1,510,529	37,737	11.09	2.50
1997	19,484,814	16,818,167	2,666,647	59,105	13.69	2.18
1998	22,874,320	20,917,462	1,909,510	68,646	8.55	3.60
1999	31,021,065	28,154,198	2,866,867	81,277	9.24	2.86

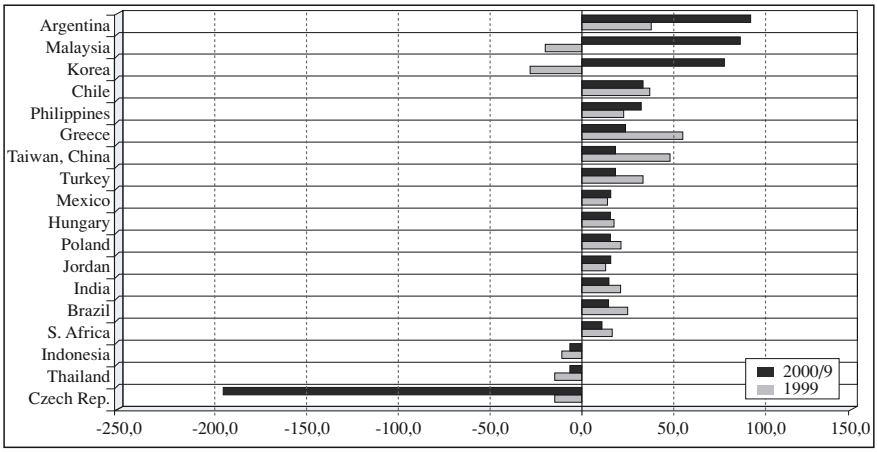
Source: IFC Factbook 2000.

Number of Trading Companies (1986-1999)

	Global	Developed	Emerging	ISE	Emerging/ Global (%)	ISE/ Emerging (%)
1986	28,173	18,555	9,618	80	34.14	0.83
1987	29,278	18,265	11,013	82	37.62	0.74
1988	29,270	17,805	11,465	79	39.17	0.69
1989	25,925	17,216	8,709	76	33.59	0.87
1990	25,424	16,323	9,101	110	35.80	1.21
1991	26,093	16,239	9,854	134	37.76	1.36
1992	27,706	16,976	10,730	145	38.73	1.35
1993	28,895	17,012	11,883	160	41.12	1.35
1994	33,473	18,505	14,968	176	44.72	1.18
1995	36,602	18,648	17,954	205	49.05	1.14
1996	40,191	20,242	19,949	228	49.64	1.14
1997	40,880	20,805	20,075	258	49.11	1.29
1998	47,465	21,111	26,354	277	55.52	1.05
1999	49,640	23,326	26,314	285	53,01	1.08

Source: IFC Factbook 2000.

Comparison of P/E Ratios Performances (1999/12 - 2000/9)



Source : IFC, Factbook 1999. IFC. Monthly Review. Sempember 2000.

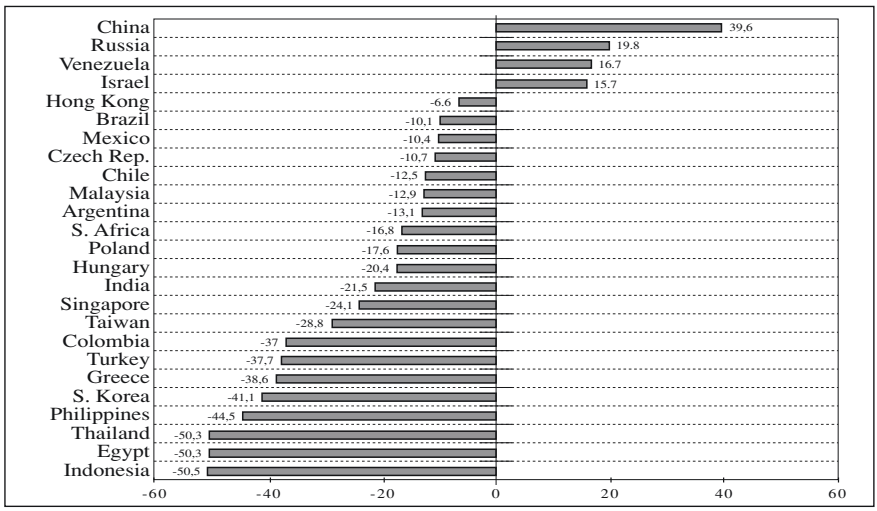
Price-Earnings Ratios in Emerging Markets (1993-2000/9)

	1993	1994	1995	1996	1997	1998	1999	2000/9
Argentina	41.9	17.7	15.0	38.2	17.1	13.4	39.0	92.9
Malaysia	43.5	29.0	25.1	27.1	13.5	21.1	-19.1	87.6
Korea	25.1	34.5	19.8	11.7	11.6	-47.1	-27.7	78.7
Chile	20.0	21.4	17.1	27.8	15.9	15.1	37.7	34.1
Philippines	38.8	30.8	19.0	20.0	12.5	15.0	24.0	33.2
Greece	10.2	10.4	10.5	10.5	13.1	33.7	55.6	24.4
Taiwan. China	34.7	36.8	21.4	28.2	32.4	21.7	49.2	19.3
Turkey	36.3	31.0	8.4	10.7	18.9	7.8	33.8	18.9
Mexico	19.4	17.1	28.4	16.8	22.2	23.9	14.1	16.2
Hungary	52.4	-55.3	12.0	17.5	25.2	17.0	18.2	16.1
Poland	31.5	12.9	7.0	14.3	10.3	10.7	22.0	16.0
Jordan	17.9	20.8	18.2	16.9	12.8	15.9	13.6	15.8
Brazil	12.6	13.1	36.3	14.5	15.4	7.0	25.1	15.5
India	39.7	26.7	14.2	12.3	16.8	13.5	22.0	15.5
S.Africa	17.3	21.3	18.8	16.3	12.1	10.1	17.4	11.2
Indonesia	28.9	20.2	19.8	21.6	11.2	-106.2	-10.5	-5.5
Thailand	27.5	21.2	21.7	13.1	4.8	-3.7	-14.5	-6.1
Czech Rep.	18.8	16.3	11.2	17.6	8.8	-11.3	-14.8	-196.0

Source: IFC Factbook. 1999; IFC. Monthly Review. September 2000.

Note: Figures are taken from IFC Global Index Profile.

Comparison of Market Returns In USD
(31/12/99 - 27/9/2000)



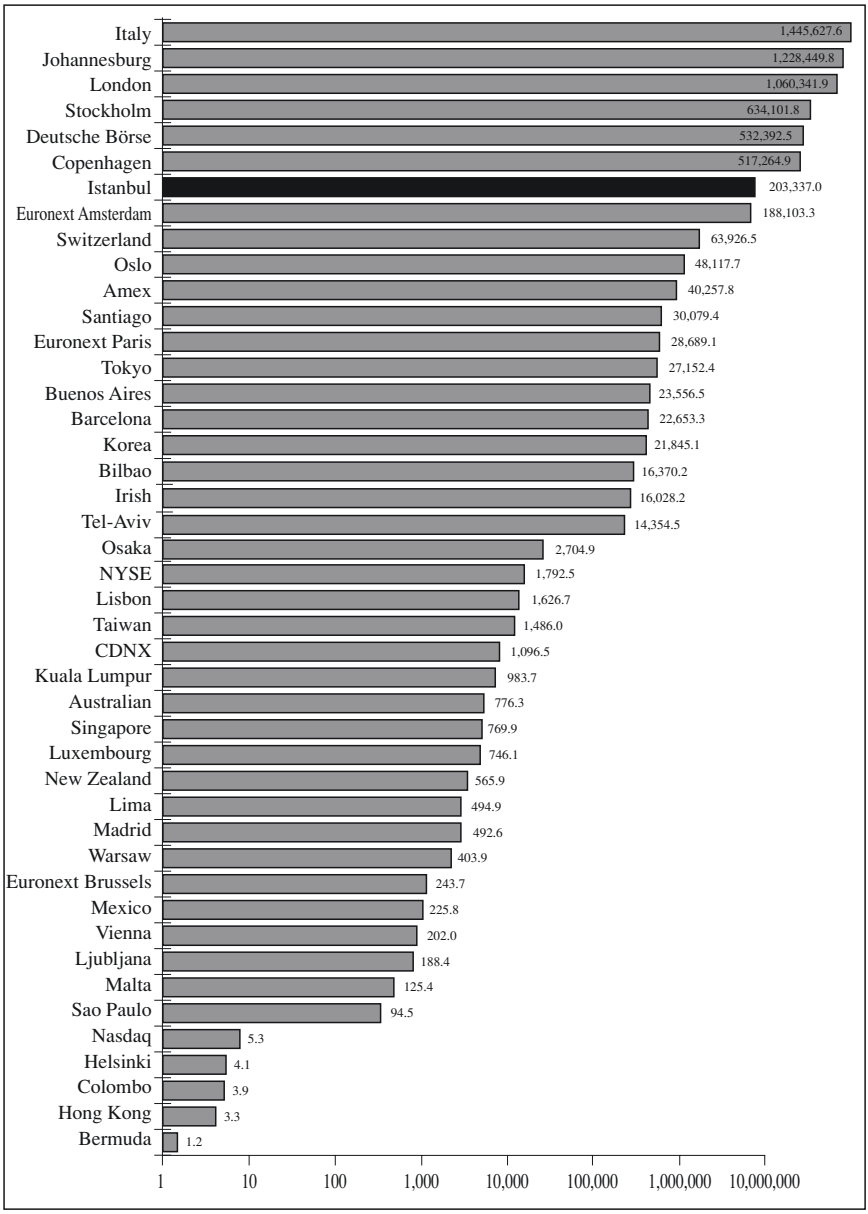
Source: The Economist. September 2000.

Market Vaule/Book Vaule Ratios (1993-2000/9)

	1993	1994	1995	1996	1997	1998	1999	2000/9
Greece	1.9	1.9	1.8	2.0	2.9	4.9	9.4	5.2
Turkey	7.2	6.3	2.7	4.0	9.2	2.7	8.8	4.0
Hungary	1.6	1.7	1.2	2.0	3.7	3.2	3.6	2.7
India	4.9	4.2	2.3	2.1	2.7	1.9	3.1	2.5
Taiwan, China	3.9	4.4	2.7	3.3	3.8	2.6	3.3	2.2
S.Africa	1.8	2.6	2.5	2.3	1.9	1.5	2.7	2.1
Mexico	2.6	2.2	1.7	1.7	2.5	1.4	2.2	2.0
Poland	5.7	2.3	1.3	2.6	1.6	1.5	2.0	1.8
Chile	2.1	2.5	2.1	1.6	1.6	1.1	1.8	1.7
Malaysia	5.4	3.8	3.3	3.8	1.8	1.3	1.9	1.7
Indonesia	3.1	2.4	2.3	2.7	1.5	1.6	2.9	1.6
Brazil	0.5	0.6	0.5	0.7	1.1	0.6	1.6	1.4
Thailand	4.7	3.7	3.3	1.8	0.8	1.2	2.6	1.4
Czech Rep.	1.3	1.0	0.9	0.9	0.8	0.7	1.2	1.2
Argentina	1.9	1.4	1.3	1.6	1.8	1.3	1.5	1.1
Jordan	2.0	1.7	1.9	1.7	1.6	1.8	1.5	1.1
Philippines	5.2	4.5	3.2	3.1	1.7	1.3	1.5	1.0
Korea	1.4	1.6	1.3	0.8	0.6	0.9	2.0	0.9

Source: : IFC Factbook. 1996-1999; IFC Monthly Review. September 2000.

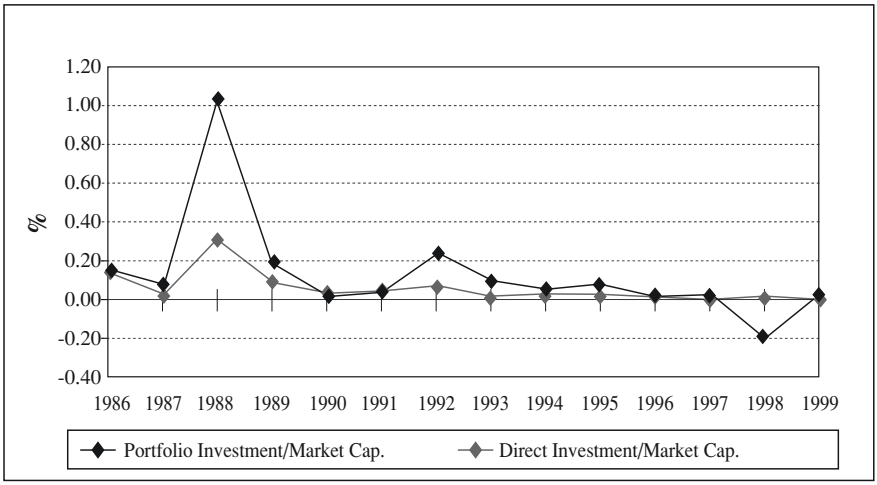
Value of Bond Trading
(Million USD $, January 2000-September 2000)



Source: FIBV, Monthly Statistics, September 2000.

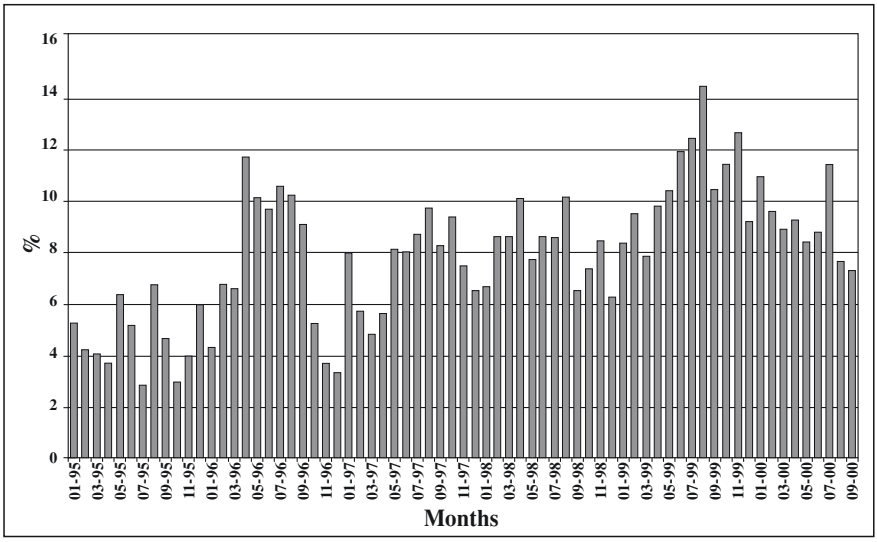
Note: The value of bonds trading pertain to Trading System View figures. For those countries which do not have Trading System View figures, the Regulated Environment figures are used.

Foreign Investments as a Percentage of Market Capitalization in Turkey (1986-1999)



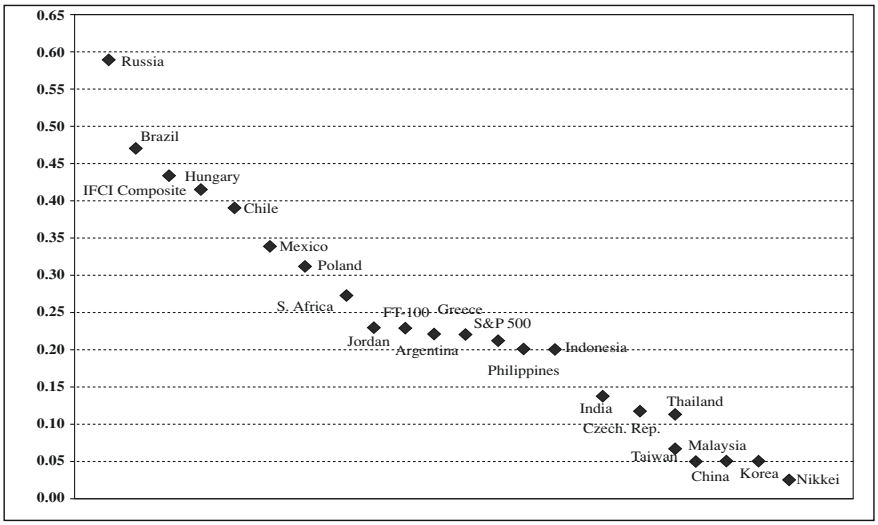
Source: ISE Data. CBTR Databank

Foreigners' Share in the Trading Volume of the ISE (Jan. 95-September 2000)



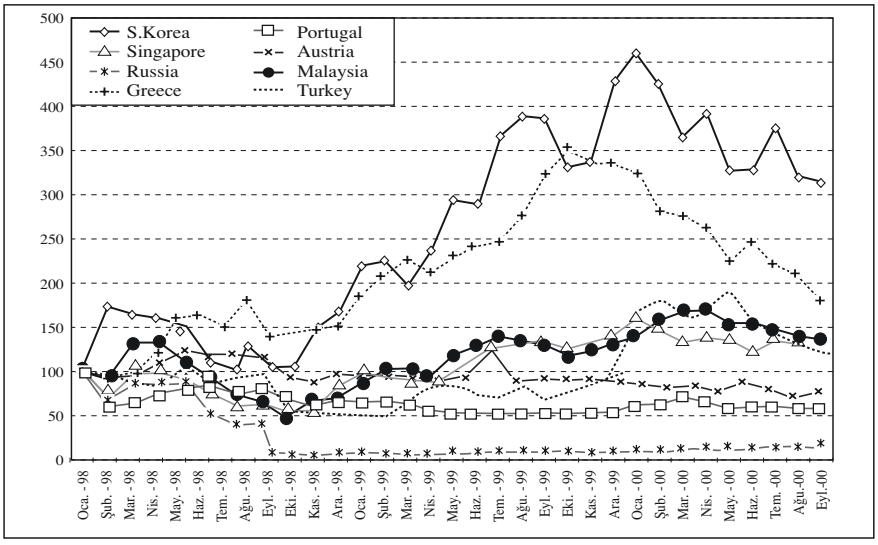
Source: ISE Data.

Price Correlations of the ISE (September 1995 - September 2000)



Source : IFC Monthly Review, September 2000.
Notes : The correlation coefficient is between -1 and +1. If it is zero. for the given period. it is implied that there is no relation between two serious of returns. For monthly return index correlations (IFCI) see. IFC. Monthly Review. Oct. 1999.

Comparison of Market Indices (Dec 1997=100)



Source : Reuters
Note : Comparisons are in US $.

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ISE
Market Indicators

STOCK MARKET

	Number of Companies	Total Value				Market Value		Dividend Yield	P/E Ratios		
		Total		Daily Average							
		(TL Billion)	(US$ Million)	(TL Billion)	(US$ Million)	(TL Billion)	(US$ Million)	(%)	TL(1)	TL(2)	US $
1986	80	9	13	—	—	709	938	9.15	5.07	—	—
1987	82	105	118	—	—	3,182	3,125	2.82	15.86	—	—
1988	79	149	115	1	—	2,048	1,128	10.48	4.97	—	—
1989	76	1,736	773	7	3	15,553	6,756	3.44	15.74	—	—
1990	110	15,313	5,854	62	24	55,238	18,737	2.62	23.97	—	—
1991	134	35,487	8,502	144	34	78,907	15,564	3.95	15.88	—	—
1992	145	56,339	8,567	224	34	84,809	9,922	6.43	11.39	—	—
1993	160	255,222	21,770	1,037	89	546,316	37,824	1.65	25.75	20.72	14.86
1994	176	650,864	23,203	2,573	92	836,118	21,785	2.78	24.83	16.70	10.97
1995	205	2,374,055	52,357	9,458	209	1,264,998	20,782	3.56	9.23	7.67	5.48
1996	228	3,031,185	37,737	12,272	153	3,275,038	30,797	2.87	12.15	10.86	7.72
1997	258	9,048,721	58,104	35,908	231	12,654,308	61,879	1.56	24.39	19.45	13.28
1998	277	18,029,967	70,396	72,701	284	10,611,820	33,975	3.37	8.84	8.11	6.36
1999	285	36,877,335	84,034	156,260	356	61,137,073	114,271	0.72	37.52	34.08	24.95
2000	312	85,835,977	144,587	461,484	777	54,628,507	82,400	1.10	19.79	19.90	16.21
2000/Q1	298	35,003,411	62,647	603,507	1,080	64,197,681	109,197	0.91	30.27	29.92	22.59
2000/Q2	308	30,807,647	50,881	481,369	795	58,216,149	94,117	1.01	26.92	23.54	18.89
2000/Q3	312	20,024,919	31,058	312,889	485	54,628,507	82,400	1.10	19.79	19.90	16.21

Q: Quarter

Note:

- Between 1986-1992, the price earnings ratios were calculated on the basis of the companies' previous year-end net profits. As from 1993,
  TL(1) = Total Market Capitalization / Sum of Last two six-month profits
  TL(2) = Total Market Capitalization / Sum of Last four three-month profits.
  US$ = US$ based Total Market Capitilization / Sum of Last four US$ based three-month profits.

Closing Values of the ISE Price Indices

	TL Based			
	NATIONAL-100 (Jan. 1986=1)	NATIONAL-INDUSTRIALS (Dec. 31, 90=33)	NATIONAL-SERVICES (Dec. 27, 96=1046)	NATIONAL-FINANCIALS (Dec. 31, 90=33)
1986	1,71	—-	—-	—-
1987	6,73	—-	—-	—-
1988	3,74	—-	—-	—-
1989	22,18	—-	—-	—-
1990	32,56	32,56	—-	32,56
1991	43,69	49,63	—-	33,55
1992	40,04	49,15	—-	24,34
1993	206,83	222,88	—-	191,90
1994	272,57	304,74	—-	229,64
1995	400,25	462,47	—-	300,04
1996	975,89	1.045,91	1.045,91	914,47
1997	3.451,26	2.660,—	3.593,—	4.522,—
1998	2.597,91	1.943,67	3.697,10	3.269,58
1999	15.208,78	9.945,75	13.194,40	21.180,77
2000	11.350,30	8.913,77	8.620,02	15.332,61
2000/Q1	15.920,10	11.183,62	13.690,36	21.813,72
2000/Q2	14.466,12	10.749,21	12.929,68	19.348,60
2000/Q3*	11.350,30	8.913,77	8.620,02	15.332,61

	US $ Based				EURO Based
	NATIONAL-100 (Jan. 1986=100)	NATIONAL-INDUSTRIALS (Dec. 31, 90=643)	NATIONAL-SERVICES (Dec. 27, 96=572)	NATIONAL-FINANCIALS (Dec. 31, 90=643)	NATIONAL-100 (Dec. 31, 98=484)
1986	131,53	—-	—-	—-	
1987	384,57	—-	—-	—-	
1988	119,82	—-	—-	—-	
1989	560,57	—-	—-	—-	
1990	642,63	642,63	—-	642,63	
1991	501,50	569,63	—-	385,14	
1992	272,61	334,59	—-	165,68	
1993	833,28	897,96	—-	773,13	
1994	413,27	462,03	—-	348,18	
1995	382,62	442,11	—-	286,83	
1996	534,01	572,33	572,00	500,40	
1997	982,—	757,—	1.022,—	1.287,—	
1998	484,01	362,12	688,79	609,14	484,01
1999	1.654,17	1.081,74	1.435,08	2.303,71	1.912,46
2000	996,25	782,39	756,61	1.345,79	1.319,59
2000/Q1	1.575,77	1.106,96	1.355,07	2.159,12	1.936,52
2000/Q2	1.360,92	1.011,24	1.216,37	1.820,24	1.673,00
2000/Q3*	996,25	782,39	756,61	1.345,79	1.319,59

Q : Quarter

(*) : The third quarter figures are as of September 29, 2000

BONDS AND BILLS MARKET

Traded Value

Outright Purchases and Sales Market

	Total		Daily Average	
	(TL Billion)	(US$ Million)	(TL Billion)	(US$ Million)
1991	1.476	312	11	2
1992	17.977	2.406	72	10
1993	122.858	10.728	499	44
1994	269.992	8.832	1.067	35
1995	739.942	16.509	2.936	66
1996	2.710.973	32.737	10.758	130
1997	5.503.632	35.472	21.840	141
1998	17.995.993	68.399	71.984	274
1999	35.430.078	83.842	142.863	338
2000	127.642.135	205.927	675.355	1.090
2000/Q1	16.908.559	29.769	277.189	488
2000/Q2	47.404,847	77.770	740.701	1.215
2000/Q3	63.328.729	98.388	989.511	1.537

Repo-Reverse Repo Market

	Total		Daily Average	
	(TL Billion)	(US$ Million)	(TL Billion)	(US$ Million)
1993	59.009	4.794	276	22
1994	756.683	23.704	2.991	94
1995	5.781.776	123.254	22.944	489
1996	18.340.459	221.405	72.780	879
1997	58.192.071	374.384	230.921	1.486
1998	97.278.476	372.201	389.114	1.489
1999	250.723.656	589.267	1.010.982	2.376
2000	397.957.328	656.596	2.105.594	3.474
2000/Q1	120.833.056	214.855	1.980.870	3.522
2000/Q2	133.805.878	219.777	2.090.717	3.434
2000/Q3	143.318.394	221.964	2.239.350	3.468

Q : Quarter

ISE GDS Price Indices (December 25-29, 1995=100)

	TL Based			
	30 Days	**91 Days**	**182 Days**	**General**
1996	103,41	110,73	121,71	110,52
1997	102,68	108,76	118,48	110,77
1998	103,57	110,54	119,64	110,26
1999	107,70	123,26	144,12	125,47
2000	106,86	122,93	151,35	136,34
2000/Q1	106,05	120,72	147,92	117,39
2000/Q2	107,70	125,29	155,16	107,70
2000/Q3*	106,86	122,93	151,35	136,34

ISE GDS Performance Indices (December 25-29, 1995=100)

	TL Based		
	30 Days	**91 Days**	**182 Days**
1996	222,52	240,92	262,20
1997	441,25	474,75	525,17
1998	812,81	897,19	983,16
1999	1.372,71	1.576,80	1.928,63
2000	1.667,99	1.902,48	2.289,84
2000/Ç1	1.457,73	1.673,39	2.113,26
2000/Ç2	1.577,08	1.817,72	2.295,52
2000/Ç3*	1.667,99	1.902,48	2.289,84
	US $ Based		
1996	122,84	132,99	144,74
1997	127,67	137,36	151,95
1998	153,97	169,96	186,24
1999	151,02	173,47	212,18
2000	148,86	169,79	213,28
2000/Ç1	146,71	168,41	212,68
2000/Ç2	150.86	173.87	219.58
2000/Ç3*	148.86	169.79	213.28

Q : Quarter

(*) : The third quarter figures are as of September 29, 2000

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Book Reviews

The Venture Capital Cycle, Paul Gompers & Josh Lerner, The MIT Press, Massachusetts, pp. ix+375.

By defining the venture capital funds as those primarily, devoted to equity or equity -linked investments in young growth-oriented firms, the authors aim to gather their research effort into a more accessible volume than the various finance and economics journals in which they originally appeared. More conceptually, they need to explain what the venture capital is and is not, and how it works, after the experience of dramatic growth in the venture capital industry for the recent decades.

This book includes three main parts covering fifteen chapters following the introduction. In addition a glossary related to "venture capital" would be very helpful for the readers.

In the introduction, stressing the importance of the concepts in the venture capital industry, they give the nature and the history of venture capital by providing some statistics. According to their data, the venture capitalists play a second role in the review of proposed investments, and the oversight of those that are selected for investment.

In the first part, venture capital fundraising is studied by answering three questions. For the first, they explore the use of covenants and restrictions in long-term contracts governing venture funds. This third chapter of the book gives the findings according to 140 U.S. based independent private partnerships primarily engaged in venture capital investments in equity or equity-linked securities of private firms with active participation by the fund managers in the management of oversight of the firms.

The fourth chapter touches onto the basic facts concerning the compensation in the different funds raised by a venture organization. They find here that compensation for older and larger venture capital organizations is more sensitive to performance and more variable than the compensation of other venture groups.

Chapter five focuses on the structure of private equity organizations by comparing investments made by traditional venture capital organizations with those of venture funds sponsored by corporations. At the end, the authors are of the opinion that the presence of a strong strategic focus may

be critical for achieving a sustainable program.

The second part consisting of four chapters examines the inter-relatedness of each aspect of the venture capital process. The four critical factors that may limit access to capital for some of the most potentially profitable and exciting firms are explored in the sixth chapter. These factors or difficulties are uncertainty, asymmetric information, the nature of firm assets, and the conditions in the relevant financial and product markets.

Regarding the control mechanism a venture capital can employ, chapter seven discusses staged capital infusions. This chapter analyzes a random sample of 794 venture capital-financed companies to provide evidence about the relationship between investment and liquidity in the venture market.

Chapter eight addresses the venture capitalists' role on the boards of directors. Then, chapter nine empirically examines the syndication of venture capital investment in privately held firms. Syndication is commonplace even in the first-round investments.

Part three of the book with seven chapters examines the process through which private equity investors exit their investments. Successful exits are critical to ensuring attractive returns for investors and, in turn, to raising additional capital. This part also covers a detailed investigation of the relationship between venture capital and IPO process.

Chapter eleven of part three concentrates on the ability of venture capitalists to time initial public offerings (IPOs) by going public when equity values are high and using private financing when values are lower. According to the specific sample the authors considers that the biotechnology firms remain in an R&D phase until well after going public. These firms mature slowly and do not incur large up-front costs in building manufacturing facilities. For IPOs in other industries, the demand for capital and the changing need for oversight by active investors may be more important to the decision to go public than market conditions.

Chapter twelve focuses on the venture capital organizations to provide new evidence about the relation between performance and capital raising and its implications for fund managers' enticements. The findings here show that the effect of recent performance in the IPO market on the amount of capital raised is stronger for young venture capital firms, providing them with greater incentive to bring companies public earlier.

In chapter thirteen, as an enduring issue in the corporate finance, the insider trading on securities prices are examined in the context of venture

investment. Thus, the chapter attempts to address the problem by investigating the stock price reaction to a set of transactions by informed parties that are not affected by certain legal constraints.

Addressing the underperformance of new issues, chapter fourteen provides initial evidence on the source of under-performance. The authors find that returns of IPO firms are highly correlated in calendar time, even if the firms go public in different years. In other words, underperformance is not exclusively an IPO effect. Underperformance is a characteristic of small, low book-to-market firms regardless of whether they are IPO firms or not.

In the fifteenth chapter titled "the Future of the Venture Capital Cycle," the authors assume that two dramatic changes will be related to the extent of technological innovations and the development of regional agglomerations. These changes appear to have been at least partially prompted by the role by these financial intermediaries. Following this chapter, chapter sixteen explains the data sources of venture capital.

"Key Financial Instruments," Warren Edwardes, Financial Times, Prentice hall, Pearson Education Limited 2000, Great Britain, pp. xv-275.

Part I provides an introduction to the world of financial instruments and derivatives. While chapter 2 gives some thoughts on how to capture new ideas, chapter 3 concentrates on what drives financial instrument innovation. In the financial market, the barriers to product development are very low. Unlike in the industrial world, a manufacturer of a financial product such as fixed-rate mortgage or an inflation-linked deposit product does not have to create the product and stock shelves. The costs of producing a retail product are limited to the costs of stationary, staff training and computer systems. This part covers an ingenious mortgage product developed in South Africa in 1993. It was only launched in the UK with great fanfare in 1998.

Part II looks at some key financial instruments seen in the development of the financial markets derivatives. Chapter 4 examines the main eco-

nomic and business risks facing an organization which require immunization. This part is not designed to be exhaustive as dozens of books have covered the same ground, but provides a sufficient background to the following parts of the book. It covers the key financial instruments of forwards, futures, swaps and options as applied to the management of risk in interest rates, currencies, equity commodities and inflation and looks at the construction of hybrid products using building blocks. This part also provides a brief look at capital market products and an in-depth analysis of derivatives for the retail client. Product development must be a customer-driven approach, and the financial markets must be tweaked to fulfil the needs of a retail client. A few interesting and revealing stories are covered in this part.

Part III presents two case studies on the break forward and perpetual swaps and financial products the writer developed in 1980s. The entire innovation process is described from concepts to creativity to communication and closing. Both cases refer to products that were initially tailormade solutions to actual customer problems. The solutions were then turned into products for customers with similar problems. Both were also partly driven by the inconsistent taxation treatment of financial products.

Part IV, on risk management includes hedge choice and performance management, legal risk management and taxation aspects of derivatives and risk management. Legal risk breaks down into the risks of a particular type of transaction, the risks of the proposed transaction, documentation risk, and certain less obvious risks, the most notable of which is corporate culture risk. The legal risks which arise out of OTC derivatives trading can be captured by employing the legal risk matrix which divides the legal issues into four inter-related sections: counterparty risk, product risk, documentation risk, and other risks such as litigation risks, regulatory risks and corporate culture risk.

Part V explores current developments and trends, featuring the new developments of credit derivatives and insurance derivatives. Chapter 13 titled “Dangers and Disasters; Profits and Principles” concentrates on financial market ethical issues.

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