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# The Effects of Financial Liberalization and New Bank Entry on Market Structure and Competition in Turkey

*Cevdet Deniz*

Promoting competition in Turkey's newly liberalized financial market requires striking a balance between potentially conflicting objectives and the risk entailed in financial deregulation. Banking must be regulated and well-supervised, but Turkey's banking system also needs to become far more competitive.



## Summary findings

Until 1980, Turkey's financial system was shaped to support state-oriented development. After the 1960s, the financial system, dominated by commercial banks, became an instrument of planned industrialization. Turkey had an uncompetitive financial market and an inefficient banking system. Controlled interest rates, directed credit, high reserve requirements and other restrictions on financial intermediation, and restricted entry of new banks — plus the exit of many banks between 1960 and 1980 — created a concentrated market dominated by banks owned by industrial groups with oversized branch networks and high overhead costs.

Turkey since 1980 has seen a trend toward liberalization of its financial market. Reforms eliminated interest rate controls, eased the entry of new financial institutions, and allowed new types of instruments. Regulatory barriers were relaxed, attracting many banks (both Turkish and foreign) into the system, and Turkey's banking system became integrated with world markets.

Denizer examines how reform has changed the system, focusing on Turkey's commercial retail banking market. He finds that:

- Although reform reduced concentration in the industry, leading banks are still able to coordinate their pricing decisions overtly. High profitability appears to have resulted from the banks' uncompetitive pricing

rather than their efficiency. Deregulation and liberalization should be continued and strengthened.

- The entry of small-scale firms alone is not enough to increase competition, so new banks should probably not be expected to alter the market structure.

- To promote competition will require addressing barriers to both entry and mobility. The main barrier to mobility seems to be the size of the large banks, which exerts a significant negative effect on competition.

- Interbank rivalry among the leading banks can't be facilitated without creating new banks of a certain size with a reasonable number of branches. Breaking up public banks (which hold 30 percent of sectoral assets, excluding the Agricultural Bank and three development banks) could help create 15 to 20 new banks with 40 to 50 branches. This would reduce concentration and improve mobility in retail banking.

- Breaking up the public banks before privatization would probably also improve their governance structures and efficiency.

- Promoting the entry of nonbanks and local banks would also increase the number of institutions competing for deposits. Turkey lacks a healthy variety of credit institutions and should consider developing a mortgage market and creating institutions for housing finance.

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# **The Effects of Financial Liberalization and New Bank Entry on Market Structure and Competition in Turkey**

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# THE EFFECTS OF FINANCIAL LIBERALIZATION AND NEW BANK ENTRY ON MARKET STRUCTURE AND COMPETITION IN TURKEY

## I. INTRODUCTION

Until 1980, the Turkish financial system developed under an umbrella of monetary and regulatory policies aimed at supporting the state orchestrated development strategy. Particularly after the early 1960s, the commercial bank dominated financial system became an instrument of planned industrialization policies and operated under a framework characterized by controlled interest rates, directed credit programs, high reserve requirements, and other restrictions on financial intermediation, as well as restricted entry. While these financial and regulatory policies were not exclusive to Turkey and contributed to its industrialization, they had their costs on the banking system's competitiveness and efficiency.<sup>1</sup> Interest rate controls led to non-price competition in the form of branch network building by banks already in the system. This situation and restrictive entry policies, coupled with the exit of significant number of banks between 1960-80, gave rise to concentrated market dominated by public and private banks owned by industrial groups with excessively large branch networks and high overhead costs. In retrospect, it is generally thought that the combination of these factors created an uncompetitive market structure and an inefficient banking system.

In contrast, the years since 1980 have seen a major trend toward the liberalization of financial markets in Turkey. Starting in June 1980, as part of a far reaching stabilization and structural adjustment program, the Government implemented financial liberalization and deregulation measures aimed at

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<sup>1</sup> As pointed out by Vives (1991), and Mayer and Vives (1993) until the advent of global financial deregulation in the 1970s most countries, both developed and developing, followed restrictive financial and regulatory policies. See also OECD (1992). However, it is worthwhile noting that financial restriction did not turn into financial repression in industrialized countries while it did in industrializing ones.

developing an efficient and competitive financial system that would support and facilitate the functioning of a liberal economy. To that end, reforms eliminated interest rate controls, eased the entry of new financial institutions, both bank and non-bank, and allowed new types of instruments. There were also policy measures to develop equity and bond markets. Although there were occasional setbacks and policy reversals in terms of interest rate controls, and a banking crisis in 1982, reforms have led to major changes in the sector. Relaxation of regulatory barriers has attracted a significant number of banks into the system, both Turkish and foreign. Reforms were also successful in halting the decline in financial intermediation observed prior to 1980 and contributed to financial deepening and a revitalization of the stock market. At the same time product variety increased and quality of financial services improved. Moreover, the Turkish banking system became more integrated with the external financial world and improved its financial technology and human capital.

The objective of this paper is to examine several aspects of the banking market in Turkey to assess the nature of its structure and the state of competition. What kind of market structure exists in banking after the reforms? Was the entry of new banks sufficient to transform the market structure into a competitive one or did the distortions resulting from earlier financial and regulatory policies built endogenous constraints into the system thwarting competition regardless of new entry? Now that regulatory entry barriers are gone, are there mobility barriers in the system? These are some of the questions this study attempts to provide answers by drawing on market structure studies found in industrial organization literature and applying them to the Turkish banking market. The focus is on the commercial retail banking market since it is primarily through this channel that resources are mobilized and allocated. However, it must be noted at the outset that although recent developments in theory have improved our understanding of financial intermediation, there is still no

fully developed theoretical model of banking competition and that the quantitative results of this study must be interpreted with caution.<sup>2</sup>

The paper is organized as follows. Section II briefly examines the evolution of the banking market in Turkey and identifies the set of factors which shaped its structure since the establishment of the Republic in 1923 until the late 1970s. These issues are not just of historical interest. They are reviewed to understand the relationship between overall development and financial policies, and more precisely, the cumulative impact of these policies on bank market structure and competition. Section III reviews the 1980 financial sector reforms and analyzes the developments in banking market structure, including a review of data on exit, entry, various measures of market concentration, and bank profitability. Section IV presents the methods used and hypotheses tested in this study as well as their underlying rationale(s) as well as the data. Results are discussed in section V. Finally section VI assesses the impact of reforms in light of results obtained, raises some fundamental issues and problems and discusses policy options to facilitate competition in the system. In the process, some international comparisons are also made.

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<sup>2</sup>For a recent discussion of the theory of the banking firm and competition as well as the issues involved in assessing the benefits of increased competition in banking from a theoretical point of view, see Mayer and Vives (1993) and the articles therein.

## II. DEVELOPMENT POLICIES AND THE FINANCIAL SYSTEM IN RETROSPECT

### II. 1. The 1923-50 Period

At the time modern Turkey was established in 1923, the formal financial system comprised of 35 banks, of which 22 were Turkish owned and 13 were foreign with a total of 439 branches.<sup>3</sup> Most of the foreign banks dealt with foreign trade and foreign companies operating in Turkey and their involvement with Turkish firms was limited. On the other hand, Turkish-owned banks were mostly small local banks and were too weak to support the newly emerging industry and commerce. During the first Economics Congress held in Izmir in 1923, it was emphasized that the country suffered from scarcity of capital, and that without establishing a national banking system the country would not industrialize (Akguc 1987). It was also argued that the banks should take the initiative in financing large industrial enterprises and the State should provide capital for new banks since the private sector was too weak to provide it or simply did not have capital.

The conference had a significant impact on economic issues in general, and on banking and credit in particular, and influenced government policies in the following years. During 1923-32, in parallel to its broad strategy of industrialization via private sector encouragement, the Government's regulatory approach to banking and finance was quite liberal and aimed at developing a national banking system. While the Government provided the initial capital for 4 public banks which still exist today and lead development efforts, it allowed and actively encouraged the formation of private banks. As a result, about 29 new private banks, mostly single branch and local were established. There were practically no restrictions for entry. By

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<sup>3</sup>For a more detailed account of the evolution of banking in Turkey which this section draws upon heavily, see Akguc (1987).

1932, the number of banks reached to 60, of which 45 were national, up from 13 in 1923, and 15 were foreign. However, the most important event of this period was the foundation of the Central Bank in 1930.

These liberal economic policies did not last long however. In the early 1930s, partly due to worldwide depression and partly due to the realization that the private sector was too weak to be the engine of growth, the government adopted a new strategy. This new strategy, generally labelled as "etatist", emphasized state led development and assigned a secondary role for the private sector. In order to accelerate industrialization, the government established state enterprises in key industries during the 1932-45 period which are still in operation. The important aspect of this period for banking was the creation of new public banks to provide support for the new state enterprises. Although there was no significant change in the Government's regulatory policy in the aforementioned period, there was no entry into the system. In fact, this period was characterized by the exit of most small private local banks due to the economic slowdown in Turkey resulting from the global economic crisis and the advent of the Second World War. In turn, these developments reduced the number of banks in the system and increased the dominance of public banks in the sector. The number of banks fell to 40 in 1945. During the same period the number of branches also fell to 411 from 483.

## II. 2. The 1950-80 Period

The years following World War II to the 1950s on the other hand reflect attempts to reduce the role of the state in the economy and the expansion of the private sector. On the banking side, the period between 1944-1960 was characterized by the entry of 27 private banks and 3 public banks, including Akbank, Yapi ve Kredi Bankasi, Garanti Bankasi, and T. Sinai Kalkinma Bankasi. By 1958 there were 62 banks in the

system, a number which was not surpassed until 1989. The number of bank branches increased by about fourfold and reached to 1,759 by 1959 and the process of nationwide branching was well underway. However, most of the newly established banks did not stay in the system long and 10 small Turkish-owned banks, and 4 foreign banks were liquidated between 1945-59. With a net entry of 16 banks between 1944-60 and a small number of mergers among the existing banks, the total number of banks in the system at the end of 1960 was 59. The slowdown in economic activity towards the end of the 1950s, the 1958 recession, and the Government's stabilization program led to further failures. Between 1960-64, 15 more small banks ended their operations, some were liquidated and some were merged with others which brought the number of banks to 49 and the number of branches to 1909 by the end of 1964.

The start of a planned development strategy in 1963, and to a lesser degree concerns over the failure of a large number of banks during the early 1960s, brought significant changes to banking and finance policy. In order to attain plan targets, the public sector increasingly assumed a larger role in the allocation and mobilization of resources through directed credit programs, subsidized lending to priority sectors and other constraints on financial intermediation. Cumulatively, these measures turned the financial system into an instrument of industrialization policy. While the efficiency of this arrangement in terms of directing credit according to plan targets was questioned by Akyuz (1984) it remained in effect until late 1980. There were no changes in interest rate policy however. Like before, interest rates were administratively set by the government and this policy was not specific to the planned era. Since 1940s deposit interest were controlled by the government and they were changed only 5 or 6 times between 1940 and 1978.<sup>5</sup> In general, however, the impact of these policies was to increase the role of the State in financial markets. According to Hanson and Neal (1986), around only a quarter of total credit was free from government control as late as 1983.

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<sup>5</sup>See the tables presented at the end of Fry's 1979 book entitled Money and Banking in Turkey.

Unsurprisingly, the adoption of planned development strategy in 1963 also brought significant changes to the regulatory policies which has been a major determinant of market structure prior to the 1980 reforms. Development plans in effect shaped regulatory policies of successive governments' and they became more conservative over time - reinforcing the larger role assigned to the plans by restricting entry which in turn made State control of financial resources easier. A common theme running in all the three plans Turkey implemented during the aforementioned period was that the country had enough commercial banks and that the smaller banks in the sector should be merged to reduce overheads so that stronger institutions could be created (Akguc 1987). Given this line of reasoning, the plans argued that the need and benefits for new commercial banks should be clearly demonstrated if they were to be established at all. Instead, the plans argued for the establishment of development and specialized service banks, mostly to support industry.<sup>6</sup> In line with the recommendations of the plan the government permitted the establishment of 4 new development and specialized banks between 1962-75 period which were not authorized to collect deposits. During the 1962-80 period only 3 new commercial banks were established which demonstrate the existence of strong regulatory entry barriers. On the other hand, as noted before 23 banks were either liquidated or merged during the 1960-80 period which reduced the number of banks to 43 by 1980 from 59 at the end of 1959.

Another characteristic of the 1963-80 period, particularly after early 1970s, has been the emergence of private banks owned by industrial groups which Akguc (1987) refers as the beginning of holding banking. The reasons for this are straightforward. During the 1963 -1974 period Turkey followed a strongly growth oriented strategy led by both public and private sector investments, mostly in import competing sectors, infrastructure, and heavy industries. The public sector investments were financed by monetizing budget deficits, issuing low yield bonds mostly purchased by public pension funds and bank deposits. At the same time, after the mid 1960s and during the 1970s, the private sector, encouraged and supported by the

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<sup>6</sup>See the discussion of banking and finance policy in 5 yearly plans in Akguc (1987) pp. 48-58.

government through high protection rates and a complicated incentive scheme for investments, was also expanding through a holding company structure and was in need of financing. While the government had access to capital for its large investments, the private sector did not. In the absence of capital markets they had to rely on bank loans to finance their investments (Fry 1988). Since the public banks were primarily financing public investments, the private sector had all the incentives to establish or acquire banks to finance their investments. Consequently, with restricted entry, major groups began to acquire banks established earlier and by the early 1970s almost all major private banks belonged to holding groups (Akguc 1987).

The period between 1963-80 also saw a rapid expansion of branches of banks already in the system. Under interest rate controls, the only mode of competition to collect deposits was non-price competition in the form of establishing branch network throughout the country. Rising inflation during the late 1960s and throughout the 1970s also provided another strong incentive banks to expand their branch networks. With interest rates becoming increasingly negative in real terms, opening new branches to collect deposits and investing them into real assets was highly profitable. In fact, as deposit rates became increasingly negative in real terms, the number of branches of both public and private banks increased. However, it must be noted that as long as deposit rates were controlled by the Government and inflation was rising, this made sense and was consistent with profit maximization.<sup>7</sup> Due to these factors the number of branches jumped to 5769 in 1980 from 1720 in 1960 despite the fact that there was a significant reduction in the number of banks. The important thing to note about this process is that it resulted in excessive investment in bank branches and contributed to bank sizes that are larger than they would be if the price of capital was not distorted. At the same it significantly contributed to concentration in the sector since there was very little entry which meant that the expanding banks were the same old ones.

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<sup>7</sup> As long as the marginal cost of deposits, equal to the interest rate on deposits plus the cost of buildings and equipment was less than the inflation rate banks would expand their network to collect deposits. Hence, as the spread between the deposits rates and the inflation rate widened profit maximization would require more investment into bank branches, which is actually what happened in Turkey.

Cumulatively, the combination of mutually reinforcing financially and regulatory restrictive policies, coupled with the exit of 23 banks over the 1960-1980 have led to highly concentrated market structure, and an overbranched, inefficient banking system. By 1980, the top 5 banks controlled about 70 percent of deposits, 64 percent of assets and owned 60 percent of all branches, as well as controlled more than 70 percent of the number of deposit accounts (see table 1). Overhead costs in the sector reached to around 7 percent of total assets, almost triple the OECD average by 1980. Hence, although the development strategy and its related financially and regulatory restrictive policies contributed to the industrialization of Turkey, they may have introduced distortions that are difficult to eliminate with respect to the systems' efficiency and competitiveness. Fry (1979) for example noted that even if all interest rate restrictions were abolished, "a minimum deposit rate might be needed to force Turkey's cartelized and oligopolistic banking system to achieve the competitive ideal solution".

### III. FINANCIAL REFORMS

#### III. 1. Financial Liberalization

In June 1980, simultaneously with the structural adjustment and broad liberalization policies that put an end to the import substitution era, the Government launched financial reforms.<sup>8</sup> The goal was to develop a competitive and efficient financial system that would support a more liberal economy. This was to be achieved through deregulation and promoting entry into the system. Reforms eliminated interest rate restrictions on deposits and loans, and eased entry into the market and permitted new types of financial instruments and institutions. The initial phase of deregulation saw sharp increases in interest rates and attempts by the larger banks to hold them low through the so-called "gentlemen's agreement" which in essence was open collusion. However, this proved unsustainable. Faced with higher rates offered by the unregulated brokerage houses, larger banks increased their rates which resulted in fierce competition and extremely high real interest rates. This situation, combined with financial distress in real sectors led to the collapse of six banks during 1983 and 1984. These developments in turn has led to partial reversal of reforms and the Central Bank began to reregulate deposit interest rates, though at much higher levels relative to pre-1980 situation. However, as much as this was to restore financial stability it was also a measure to deal with collusive practices of banks.

The Central Bank continued with the regulation of deposit rates until 1988 occasionally adjusting them to maintain positive real rates of return. In late 1988, deposit rates were again liberalized and this policy was maintained since then although there were a number of temporary interventions. Therefore, the

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<sup>8</sup>For a more detailed review of financial liberalization experience of Turkey, see OECD (1988), Onis and Ozmucur (1988), Akyuz (1990), Atiyas (1990), Akkurt et.al (1992), and Atiyas and Ersel (1994).

switch to price competition was not complete until late 1988 although the reform process started in 1980. Nevertheless, despite occasional setbacks, higher levels of interest rates resulted in substantial growth of the financial system and contributed to financial deepening. By the end of 1990, the stock of financial assets reached 47.7 percent of GDP from around 28 percent in 1980 while the M2/GDP ratio rose to 25.6 percent from about 21 percent in 1980 (table 2). In line with financial liberalization policies, most directed credit programs and preferential rates were eliminated contributing to more efficient allocation of resources during the past decade. Although reserve requirements were lowered, liquidity ratios were increased which in turn put a wedge between deposit and loan rates.

### III.2. Changes in Market Structure and Performance of Commercial Banks

Reforms were successful in attracting entry into the banking system, one of the key objectives. As a result of easing of entry restrictions, the number of banks increased from 43 to 66 between 1980-90. Out of the 43 banks in 1980, 8 banks were either liquidated or merged with other institutions. Hence, there were 31 de novo entries into the system, of which 19 were foreign and 11 national during the 1980-90 period. However, almost all of the new entrants specialized in trade finance and wholesale corporate banking. None of the new banks, foreign and Turkish, established offices beyond the three largest cities, and by and large they eschewed the retail banking market despite the fact that there are no restrictions on the scope of their operations. At the end of 1990, they accounted for less than half of 1 percent of savings and commercial deposits. Hence, the new financial institutions filled certain profitable niches which in itself is a positive development. Their impact on the retail banking market level, however, have been quite limited. Nevertheless, as pointed out by Akkurt et al. (1992), the entry of new banks, particularly the foreign ones, has been instrumental in improving the quality of human capital and financial technology of the sector.

As expected, reforms reduced concentration in the sector. Table 1 presents 3, 5, 8, and 10 firm concentration ratios in terms of deposits, savings deposits, loans, assets, and number of savings accounts. The declines were most pronounced in the 3 and 5 firm concentration ratios. This result has been mainly due to the top 5 banks, except one, losing their market shares, especially in total deposits. In fact, with the exception of the largest bank (Ziraat Bank), banks who ranked among the top 3 and 5 in deposits in 1980 all saw their market shares decline in varying magnitudes. The decline in share of second largest bank in total deposits has been particularly significant as its share fell from 20 percent in 1980 to around 12 percent in at the end of 1991. While the top 3 and 5 banks have lost market shares the second tier banks that existed before the 1980 reforms have increased theirs. It appears that they were the ones who benefited from deregulation of interest rates to increase their market shares and probably came closer to their optimal scale in terms of their operations.

While the quantitative declines in some measures of concentration have been large it has been small in some others considering the number of entries. For example, the 3 firm concentration ratio in terms of total deposits declined from 53 percent in 1980 to 40 percent in 1990 while the 5 firm concentration ratio fell from 69 percent to 55 percent, also in the same period. However, when 8 and 10 firm concentration ratios are analyzed the declines are much less pronounced. The top 10 banks accounted for 88 percent of total deposits in 1980 and 82 percent in 1990, a decline of 6 percentage points compared to a decline of 13 percentage points in the 3 firm concentration ratio. Likewise, 10 firm asset and loan concentration ratios registered smaller declines as shown in table 1. This indicates that while there were changes in the market shares of banks following the reforms reflecting some interbank rivalry, these have been mostly among the top 10 or top 15 banks which were in the system before the 1980 reforms. This may suggest that a critical number of branches is needed to be an effective competitor in the retail banking market.

Savings deposits are particularly important for the analysis of competition in retail banking since it is one of the main outputs of retail banks and it is the most basic financial asset people hold.<sup>9</sup> At the end of 1991, of the 45.6 million bank accounts in Turkey, 36.7 million were savings accounts representing for more than half of the volume of total deposits in the system. During the first half of 1980s, there was a marked increase in concentration ratios for savings deposits as shown in table 1 and by 1986, the 3 firm concentration ratio reached to 63 percent and 10 firm concentration ratio reached to 92 percent. The process was reversed in 1987 and at the end of 1991, 3 and 10 firm concentration ratios stood at 42 percent and 83 percent respectively. As before, the decline in the magnitude of the 10 firm concentration ratio for savings deposits was less than the decline in the 3 or 5 firm concentration ratio.

Another interesting statistic to evaluate is the number of savings accounts. During the 1980-91 period, the number of savings accounts increased from 26 million to 36.7 million. At the same time there was a marked increase in the number of accounts opened with the large banks. As shown in table 1, the 3 firm concentration ratio of number of accounts increased from 55 percent in 1980 to 62 percent in 1991 while the 10 firm concentration ratio increased from 89 percent to 94 percent, in the same period. While in volume terms the percentage of savings deposits placed with the leading banks declined as explained above, the increase in the number of deposit accounts by the large banks probably implies that large banks attracted mostly small depositors while the sophisticated depositors moved their funds to other banks or to exploit other profitable investments. This would however, suggest that the power of top 10 banks did not decrease with respect to the most basic item of retail banking, small savings accounts.

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<sup>9</sup>Although there is disagreement over what banks produce, it seems reasonable and technically acceptable to view major deposit and loan categories as bank outputs. See Berger and Humprey (1992b).

Performance of the banking sector in terms of profitability following the reforms have improved despite declining concentration ratios and new entry. As shown in table 3, and pointed out by Atiyas and Ersel (1994) profits in the banking sector increased substantially, particularly after the mid 1980s, and reached to levels about 5 times the OECD average by the end of 1990. At the same time, the declining trend in operating costs following the initial reform years were reversed in 1988 and since then these rose sharply and reached to more than double the OECD average (see table 3). This would imply that deregulation has not yet led to rationalization of the use of capital and labor and hence to improvements in productive efficiency as expected. The ability of banks to increase and maintain high profit rates under these circumstances would seem to suggest that the source of profits was market power or some other market imperfection rather than productive efficiency. Furthermore, as pointed out by Rhoades (1993) it would also mean that additional resources are not entering the market, implying the existence of non-regulatory entry barriers.

#### IV. METHODOLOGICAL APPROACH

The review of developments in the banking system suggests that market structure continues to have a significant impact on the conduct and performance of banks, and implicitly on competition. However, observations by themselves are not sufficient to establish a causal link between these parameters, which requires an empirical investigation. In order to do this, this study presents and tests a number of hypotheses by drawing upon the methods of industrial organization. The analysis is in two parts. The first part attempts to determine if there is a relationship between market structure and performance of banks using the structure-conduct-performance (SCP) paradigm as a framework of analysis. The study examines the two main hypotheses, namely the "traditional" and "efficient structure" hypotheses found in the general literature for the explanation of market structure-performance relationship. The second part focuses more directly on

competition in the retail banking market. In particular, it analyzes the impact of new bank entry and sunk investments in the system that resulted from pre-1980 interest rate and regulatory policies on competition.

#### IV.1. Market Structure

The first hypothesis tested in this paper, the traditional SCP idea, emphasizes the market or industry structure when analyzing the pricing and output decisions of market participants. In this context, market structure refers to the number and size distribution of firms. The market is treated as the unit of analysis. If it is concentrated, say in assets, sales, deposits or some other measure of economic activity, then we are likely to observe non-competitive, collusive behavior and, in that case, equilibrium industry profitability will depend upon the degree and stability of collusion among firms. Therefore, the higher the share of the market controlled by a small number of large firms, or the higher the market concentration, the greater the possibility that market participants will agree to collude, either tacitly or overtly, and raise prices above costs, therefore earning supranormal profits. Hence, the existence of a positive relationship between some measure of concentration, proxying market structure, and profits, proxying performance, would imply that market structure is not competitive and market participants enjoy profits primarily because of their market power.

The second and more recent hypothesis is known as the efficient structure hypothesis. It maintains that firm-specific efficiencies arising from superior management, use of new technology, etc., enable some firms to increase their market share at the expense of other relatively inefficient firms, leading to market concentration. The implicit assumption is that the differing efficiencies among firms lead to unequal market shares and high levels of concentration, and are causally due to factors that reduce costs. The leading firms will earn above-average profits even if they charge prices at the level of secondary firms. Therefore, we observe a positive relationship between market concentration and profits, but it is not due to collusion and

does not necessarily imply a causation between structure and performance. The efficient structure hypothesis implies that the causal link will be between market share, a measure of firm efficiency, and profits, but there will be no causal relationship between market concentration and profitability. Therefore, the positive relationship between concentration and profits found in some industry studies is spurious and simply reflects the correlation between market share and concentration.

It is worthwhile noting that both hypotheses point to an observationally equivalent relationship between market structure and profits while differing as to the causal factors generating it. While it is possible that both hypotheses might be operative simultaneously it is nevertheless important to distinguish between the two as they have different public policy implications. If profitability is due to market structure, then a regulatory policy to reduce concentration and consolidation in the sector may be justified. On the other hand if performance is due to efficiency then such a regulatory policy may be welfare reducing. Weiss (1974) suggested that by estimating a profit function that takes both market share and concentration measure into account at the same time it may be possible to ascertain whether profitability is due to the efficiency of or to market structure, and hence the validity of the two hypotheses, in explaining the structure-performance relationship. Tests of this nature have been undertaken by Smirlock (1985) and Evanoff and Fortier (1988), Molyneaux (1992) and it is the approach adopted in this study.<sup>10</sup>

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<sup>10</sup>There is a considerable disagreement in the literature as to which of the two hypotheses best explain the correlation between market concentration and profits. For a review of the literature see Evanoff and Fortier (1988), and Berger (1993). Most recent studies, Berger and Hannan (1989), Neuberger and Zimmerman (1991), Saunders and Udell (1991), Hannan (1991), and Neumark and Sharpe (1992) use deposit rates or loan rates instead of profits as the dependent variable and provide a much more direct test of the SCP hypothesis in a manner that excludes as an alternative explanation the form of efficient structure hypothesis that is used to explain the positive relationship between profits and concentration. The weight of the evidence these studies provide support the SPC hypothesis.

## IV.2. Entry and Competition

A number of earlier studies, Heggestad and Rhoades (1976), Rhoades (1980), and Rhoades and Rutz (1981), and Bodenhorn (1990), studied competition in banking markets in the USA by analyzing the degree of stability in interfirm relationships. Their approach proxies interfirm rivalry, or competition, among firms by mobility and turnover and analyzes the impact of a number of important variables that are expected to influence competition, such as entry, and size of the pre-existing firms. In this context, mobility indicates churning about the rank position of leading firms. Turnover, on the other hand captures the movement into the leading bank group by banks formerly outside of that group, reflecting aggressive behavior. It is also thought that such measures reflect a certain market structure. In other words, changes in the rank and possibly output shares of firms in the market do not result in certain kind of conduct (competitive or uncompetitive) but rather they reflect conduct that arises from certain market structure; in uncompetitive markets successful cooperation (collusion) among firms will not lead to changes in firm rankings or in market shares. However, in competitive markets the opposite is expected to be observed. This study follows the aforementioned earlier studies in methodology but modifies them slightly to assess the impact of entry, size of the leading banks, and market structure on competition in the banking market following the reforms.

## V. MODEL SPECIFICATIONS AND DATA

### V.1. Market Structure Model

Earlier studies analyzing the relationship between market structure and profitability used linear regression techniques, regressing some measure of profits on a market concentration variable--proxying market structure--and other control variables. Following Weiss (1974) and Smirlock (1985), Evanoff and Fortier (1988), and Molyneaux (1992), a cross-sectional profit equation including both firm-specific market share, proxying for firm efficiency, and concentration variables is specified:

$$\begin{aligned} \text{ROA}_{it} = & \quad b + b_1\text{CR}_t + b_2\text{MS}_{it} + b_3\text{CA}_{it} + b_4\text{TA}_{it} + b_5\text{LA}_{it} \\ & + b_7\text{DT}_{it} + b_8\text{OEA}_{it} + b_9\text{MDGR}_t + b_{10}\text{D1} \end{aligned} \quad (1)$$

where:

- ROA = bank i's profits measured as the return on assets
- CR = market structure variable, 5 (10) firm deposit (asset) concentration ratio
- MS = market share measure, bank i's deposits as a percentage of total market deposits
- CA = bank i's capital-to-asset ratio
- TA = bank i's total assets
- LA = bank i's loans-to-assets ratio
- DT = bank i's demand deposits-to-total deposits ratio

OEA = bank i's operating expenses-to-total assets ratio

MDGR = market deposits growth rate

D1 = 1 for private, 0 for public banks

A finding of  $b_1 > 0$  and  $b_2 = 0$  supports the traditional S-C-P hypothesis. On the other hand, if  $b_1 = 0$  and  $b_2 > 0$ , then the efficient structure is supported. It is, of course, possible that both  $b_1$  and  $b_2$  maybe positive and significant, indicating that both factors are operative simultaneously. The effects of market concentration and market share on profits will be given by partial derivatives equal to the coefficients  $b_1$  and  $b_2$  respectively.

The performance measure, the dependent variable, is bank profits measured as the return on assets (ROA), i.e., net income divided by total assets. Other possible performance measures are return on equity (ROE) and bank stock prices. The use of ROE may not be the best measure because banks can divide capital between debt and equity, making the comparison of equity values across banks difficult. The banks in Turkey are closely-held by various industrial groups, individuals, and the government, and their stocks are not traded. Hence, we are unable to observe and use bank stock prices. ROA is the most widely used bank performance measure and, as suggested by Evanoff and Fortier (1988), dividing net income by total assets, which is ROA, makes it a more comparable measure across banks because "bank assets are a more common denomination." Therefore, ROA is the dependent variable.<sup>11</sup>

The independent variables include both firm and market specific variables, and they are similar to those utilized in previous studies. Following previous studies, we proxy market structure, with the share of 5 leading banks in total deposits. Hence, concentration ratio is defined as the sum of shares of the leading 5

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<sup>11</sup>Business Week (April 9, 1984), p. 83, and Business Week (April 8, 1985), p. 106, also suggest that ROA is the single best performance measure for banks, as cited in Rhoades (1987).

banks in total deposits, CR5.<sup>12</sup> It must be noted, though, that what constitutes an appropriate market structure measure is not easy to answer. Theory provides little guide on the selection of an appropriate market structure variable.<sup>13</sup> As noted by Evanoff and Fortier (1988), "the theory offers no information on the absolute number or size distribution of firms necessary to exercise market power. The questions concerning what number of firms is too large to permit collusion, and what amount of output control for price setting, are empirical issues." However, theory suggests that there is a relationship between the level of output controlled by a small number of large firms, and performance, and probably because of this reason an overwhelming number of researchers have used concentration ratio despite its limitations.<sup>14</sup>

The market share (MS) variable is assumed to be a proxy for firm-specific effects, and is defined as bank deposits divided by total market deposits. There are also a number of control variables similar to those that can be found in earlier SCP studies. They are included in order to take into account factors like risk, costs and demand that influence profitability. Given the fact that ROA is not risk adjusted, a capital-asset ratio (CA) is included to account for the unequal risk levels between banks, with low ratios indicating relatively risky positions. Banks with low capital ratios may be more aggressive and take risks expecting

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<sup>12</sup>This study differs in one important respect from the other studies in that the 5 bank concentration ratio is for the entire retail banking market in Turkey while others use concentration ratios for local banking markets. In that sense, the study is not conventional. However, theoretical models establishing a relationship between market concentration and profits does not specify local market concentration as the appropriate variable, Hannan (1991). Second, in the data used in this study, the concentration variable changes from quarter to quarter and it is not constant and hence does not create problems for estimating the equations. Third, the fact that banks at various times entered into gentlemen's agreements would strongly suggest that some measure of market structure be utilized in assessing the performance of banks.

<sup>13</sup>See Rhoades (1993) for a discussion on the appropriateness of the CR and HHI.

<sup>14</sup> Alternatively, some researchers have used the Herfindahl-Hirschmann index (HHI), but the use of HHI in place of CR3 does not change any empirical results. HHI is also criticized on the grounds that it is mainly concerned with the dispersion of sellers, but the theory is more concerned with concentration and therefore a concentration measure should be used. For all the above reasons the various CR measures in terms of deposits are used as a market structure proxy. See Rhoades (1993) for a recent discussion of the issue.

high returns. On the other hand, highly capitalized banks might play it safe and hold less risky assets (loans) and remain profitable. Therefore, the expected sign of CA is indeterminate.

Another control variable coming from the liability side of the balance sheet is the amount of demand deposits relative to total deposits (DT). This ratio gives a bank's relative cost of funds and should be positively related to profitability given the fact that demand deposits are relatively cheap source of funds. If this ratio is high, then banks do not need to make use of purchased funds, which are expensive. From the asset side of the balance sheet we have the ratio of total loans to total assets (LA). This ratio is of particular interest because loans usually represent the major category of income earning asset, generating more income than the main alternative assets, government securities, in addition to providing some idea about bank's risks. A high ratio may reflect aggressive loan marketing which could increase profits. On the other hand, large loan portfolios may be costly to manage and could result in substantial loan losses, which decrease profits. Therefore, the coefficient on this portfolio variable could be positive or negative.

In order to control for bank size, total assets (TA) of each bank is included in the sample. In this way the possibility of scale economies that could arise from size, and the possibility that larger banks have greater loan and product diversification potential is taken into account. As pointed out by Smirlock (1983) and Evanoff and Fortier (1988), diversification reduces risks and therefore the required rate of return. Hence, the sign on this coefficient is indeterminant. Operating expenses (OEA) should exert a negative impact on bank profits and it is included in the analysis as a proportion of total assets. We account for market demand by including the market deposits growth rate (MDGR). Markets with high growth rates are likely to increase bank's deposit base but the contribution of deposits to profits will depend upon a number of factors. First, it will depend on the bank's ability to convert deposit liabilities into income earning assets, which are related to macroeconomic factors such as the GNP growth rate, the level of interest rates, etc. In addition, high growth

rates attract additional competitors who reduce profits for all market participants. Therefore, the sign of MDGR is also indeterminant. In order to account for different types of ownership a dummy variable is included. D1 equals one for private banks and 0 for public banks.

## V.2. Competition Model

Following Rhoades (1980), and Bodenhorn (1990) the following model is estimated:

$$R_t = b_0 + b_1ENT_t + b_2AVG_t + b_3MDGR_t + b_4CR5_t$$

where:

R = rivalry

R<sub>1</sub> = mobility among top 10 banks

R<sub>2</sub> = mobility among all banks

ENT = number of entries

CR = 5 firm deposit concentration ratio

AVG = average fixed asset size of top 10 banks

MDGR = market deposit growth rate

The dependent variable in the analysis takes two forms and takes into account both the price and non-price dimensions of competition. However, it is slightly different than the earlier studies which proxy competition by mobility and turnover among the top three and five firms. The first mobility measure used in this study, on the other hand, focuses on top 10 banks in terms of deposits because of their similarity to each other. They operate large branch networks nationwide and hence they may be expected to display similar operational characteristics. The reason for focusing on the leading firms is methodological. As pointed out

by Heggstad and Rhoades (1976), size differences between firms among the leading firms is often significant but differences among firms, both in relative and absolute terms, is observed to decline rapidly once one moves down in size from industry leaders. Hence, a rank change among industry leaders is probably due to some significant event that influence structural interfirm relationships while rank changes among smaller firms is more likely to be due to chance or to another factor that unrelated to structural characteristics of the market. Another important reason is that leading firms in a given industry are well known names and have capacity in terms of their size and establishness to enforce desired strategies which inturn may create a pattern of conduct for the entire market. For these reasons, the first mobility measure is defined as the sum of rank changes among the top 10 banks for each of the quarters during the 1986-1992 period.

While the first measure is designed to capture structural changes in interfirm rivalry, its focus on the leaders may not capture the aggressive behavior of fringe firms. Earlier studies attempted to overcome this problem by the turnover measure which accounts for the changes in the identity of leading firms. In other words, turnover measures the number of times firms below the top 5 or top 10 move into the ranks of top 5 or top 10. However, in the Turkish context turnover measure may not be appropriate and is not used in this study. The size differences between the leading and fringe firms are too large in Turkey for fringe firms to make into the leading group, and only counting the number of times the smaller banks move into the leading group of banks competition at the level of fringe firms may be understated. Hence, the second mobility measure takes into account the rank changes for all banks in the market. It is defined as the sum of rank changes for all banks for each of the quarters during the 1989-1992 period.

Among the independent variables in this study, the entry variable is of particular interest. Since the financial reforms aimed at increasing competition by promoting entry and this analysis is concerned with the impact of entry on competition, entry measure is proxied by the number of gross bank entry into the system

during the 1986-1992 period. However, considering the fact that most entries into the system took place during the first part of the 1980s, and that 4 year time period may be relatively short time for new entrants, mostly on a small scale as discussed already, to have an impact on market rivalry, this variable is lagged up to 5 years. This variable is expected to have a positive sign since it increases the number of banks in the market which should alter the competitive stance of existing banks toward their rivals. As pointed out by Rhoades (1980) entry will reduce concentration and " will tend to increase uncertainty among the firms in the market with respect to their views of the actions of their rivals as well as to their views of the action of the new entrant". Hence, entry is expected to weaken the established relationships among old firms and contribute to competition.

Competitive structure of the market is captured by a concentration variable. As noted already this variable is expected to influence the conduct of market participants by making cooperation among market participants easier which in turn would keep firm rankings stable. As pointed out by Heggestad and Rhoades (1976) such stability may also be due to " vigorous but stalemated competition, as all competitors strain and succeed equally". However, such a an outcome would be improbable in the sense that not all competitors would perform equally well at all times. Hence, the greater the stability which is expected to be facilitated by concentration, the higher the chances that overt or tacit cooperation exists. Consequently, this variable is expected to exert a negative influence on interfirm rivalry.

Two other independent variables are included to take into account other market factors expected to influence competition. The average fixed asset size of ten largest banks which is mostly made from their branches and equipment is introduced to capture the possibility that large firms are perceived as intimidating to other rivals or potential entrants. It proxies investments made in fixed assets and should be a good measure in determining the impact of such sunk investments on competition. Size may also have an

important reputation component. However, under either case, this variable should negatively affect mobility. Finally, a market growth variable is included for two reasons. First, growing markets makes entry more attractive and easier. Second, rapid growth should increase uncertainty in interfirm relationships and makes tacit and/or overt cooperation more difficult and hence should increase mobility. It is defined as the quarterly growth rate of deposits over the 1986-1992 (1st quarter) period.

### V.3. Data

The data used in this study is the Central Bank's General Directorate of Banking and covers the period between 1986 (I) and 1992 (I) and includes all deposit money banks. The sample contains ratios and a number of levels of variables from income statements and balance sheets with 1302 observations. For the analysis, the data has been pooled (cross-section and time series).

## VI. EMPIRICAL RESULTS

### VI.1. Market Structure Equations

Regression results for the market structure model are reported in tables 4, 5, and 6. All of the equations are estimated using OLS.<sup>15</sup> The presence of heteroskedasticity was tested by the White (1980) test and the results indicated the absence of such problem in the data set. In general, the explanatory power of the regressions are good, given the cross-sectional nature of the sample. Three equations are estimated. The first equation as reported in table 4 tests the traditional SCP hypothesis. This is performed by estimating equation (1) without the market share (MS) variable, but with the market structure measure CR5. The coefficient on the market structure variable is of particular interest. As table 4 shows, the results support the hypothesis that market structure is related to the rate of profits. The coefficient on the market structure variable is positive and statistically significant at the 1% level. Therefore, using an approach found in earlier studies, it is found that market structure is an important factor in explaining bank profitability in the Turkish banking market.

In the next step, equation (1) is estimated with both market share and market structure variables. By doing so the validity of the two competing hypothesis in explaining bank profitability is tested. According to the efficient structure hypothesis there should be a direct relationship between market share, arising from firm-specific efficiencies, and profits. Therefore, if  $b_2 > 0$  and  $b_1 = 0$ , then it is possible to infer that bank profitability is directly linked to market share, proxying efficiency, and banks controlling large portions of

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<sup>15</sup>Since the data is pooled, equations were also estimated using fixed effects (least squares dummy variables) and random effects (variance components) techniques and there were no change in the results. They are available from the author upon request.

deposits are more efficient than others and earn rents due to their efficiency. Such a finding will also imply that market concentration does not enable banks to earn supranormal (monopoly) profits. On the other hand, if  $b_1 > 0$  and  $b_2 = 0$  will mean, as put nicely by Smirlock (1985), "market share does not affect firm rents and that rents reflected in higher profitability are monopoly rents that result from market concentration."

However, as indicated earlier, the results might yield other possible combinations of  $b_1$  and  $b_2$  and both forces can be operative simultaneously. The purpose of this exercise is to determine the impact of MS on CR5 and profits. In Evanoff and Fortier (1988) and Smirlock (1985), the inclusion of market share in their initial model, with the market structure variable, changes the overall relationship: market share enters with a strong positive influence and market concentration becomes insignificant. In this study, however, such effect is not found as results presented in table 5 show. They do not support the efficient structure hypothesis; the coefficient of the market share is not even marginally significant. On the other hand, the market structure variable is still significant at the 1% level with a positive sign.

The possible effect of market share on bank profitability was tested by estimating equation (1) with the market share variable and excluding the market structure variable. Both hypotheses interpret market share variable differently. Researchers who support the efficient structure hypothesis would argue that a high market share is an indication of superior efficiency. On the other hand, traditional structure-performance school would regard market share as proxying market power, due to product differentiation or some other factor, which will give leading banks the ability to collude and thereby earn higher than average profits. Table 6 shows the results. The coefficient on the market share variable is positive but is not significant. Such a finding does not support the argument that market share is a source of power by itself, nor it supports the hypothesis that firm-specific effects resulting in high market shares exist. This result can be interpreted as additional evidence for the validity of SCP hypothesis for the Turkish banking market since the market

structure, by itself, is significant as well as with the market share variable while the market share is never by itself nor with the market structure variable.

The robustness of these results which support the SCP hypothesis is further tested by dropping the top 5 firms from the data set and estimating the same equations with the same concentration ratio. This is done to determine whether some influential observations are driving the results and to assess the influence of market structure on the behavior of smaller (fringe) firms following Demsetz (1973). If both large and small firms enjoy profits, then collusion is present and the SCP is supported. If, on the other hand, leading firms achieve rents, the efficient structure hypothesis cannot be rejected because small firms do not benefit from concentration.

There is another aspect of the possible correlation between market concentration and fringe firms' profits. A positive and significant relationship may indicate the existence of a "collusive price leadership," Markham (1951). Hay and Morris (1979) note that in markets with relatively small numbers of firms and slightly differentiated products with similar costs, behavior of the leading or price-setting firms could mirror the conditions facing each firm and is likely to be accepted by other firms. As pointed out by Smirlock and Brown (1986), "the collusion lies in their acceptance of the price leader's actions so that all firms can earn monopoly rents." Given that banking markets are usually made up of a relatively small number of firms producing only slightly differentiated products, they may be characterized by collusive price leadership (Smirlock and Brown 1986). In this case, secondary bank profits should be correlated with market concentration. If there is no collusion, the coefficient on CR5 should not be greater than zero. If smaller banks are profitable because of their efficiency, then MS variable must be positive and significant. Finally, to determine the relative importance of MS and CR5 for smaller banks, both variables are utilized in the same equation simultaneously. As before, a finding of  $CR5 > 0$  and  $MS < 0$  would indicate the presence of collusive

price leadership and support the SCP hypothesis. On the other hand, if  $CR5 < 0$  and  $MS > 0$ , then the efficient structure hypothesis cannot be rejected.

The results are presented in tables 7, and 8. As before, the market structure variable by itself is highly significant and its coefficient is substantially larger than before. This implies that smaller banks also benefit from concentration. In fact, these findings suggest that they benefit more than the largest banks. Next we estimate the same equation with the market share. As table 7 shows, MS is not significant while CR5 is significant at the 1% level. However, the magnitude of MS increases compared to its magnitude in equation in table 5. The results demonstrate the robustness of our findings with respect to the validity of the SCP hypothesis, and suggest the existence of a collusive price leadership type of arrangement in the Turkish banking market. This finding also indicates that influential observations do not drive the results.

Results for control variables in the study will be summarized briefly. The coefficient of the capital-asset ratio is highly significant, entering with a positive sign. It is probably the case that well capitalized banks behave much more cautiously, earn relatively low returns, but remain profitable. Results with the total asset (size) variable are somewhat inconsistent. In all but one equations it has a positive sign, and it is always insignificant. However, such results are also found in other studies.<sup>16</sup> The loan-asset ratio is highly significant in all equations and enters with a negative sign. This indicates that banks with large loan portfolios relative to assets absorb high administrative costs and incur substantial loan losses. Relatively cheaper sources of funds as given by the demand deposits-total deposits ratio (DT) contribute to profits and is statistically significant at the 5% level. Operating expenses-total asset ratio is significant in all equations

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<sup>16</sup>Shepherd (1972), finds a negative relationship between size and profitability in his study of the market share-rate of return relationship, and he attributes this to X inefficiency. Newman, et al (1979), report similar results in their analysis of market concentration-profitability relationship in Germany. Like Shepherd (1972), they attribute such a finding to X inefficiency. More recently, Evanoff and Fortier (1988) find a negative relationship between size and profitability in their re-evaluation of structure-performance relationship.

and has the expected sign, which is consistent with our expectations. Market deposit growth rate (MDGR), turned out to be insignificant with a positive sign suggesting that MDGR does not impact profits significantly. The coefficient for the ownership variable is significant suggesting that privately owned banks are more profitable than the public banks.

## VI.2. Competition Model Equations

The competition model was estimated by tobit regression on the pooled cross section - time series data set. Table 9 presents regression results. Two equations are estimated. The first one uses mobility among the top 10 banks while the second uses mobility among all banks in the market as the dependent variable. In both equations, most variables have the expected sign and are significant at the 1 percent level, except the entry variable. The entry variable, in its lagged and unlagged form, enters with a negative sign in the first equation and is not significant. This is inconsistent with our expectations on the basis of theory although similar results were obtained by Rhoades (1980). When mobility among all firms is used the sign of entry variable changes but it still remains insignificant. While these results would imply that the entry of some 30 banks during the last decade or so did not have a significant procompetitive effect on rivalry and have not been sufficient to alter the interfirm relationships among banks in the market, they may be due to a number of reasons.

First, it may be that more time is needed before the new entrants can have an impact on market relationships and 5 year lag allowed in the model might not be enough to capture the expected adjustments in interfirm relationships. Second, the entry of new banks have been on a small scale which reduces the likelihood that they will change the nature of established relationships. In other words, a minimum entry size may be needed in order to penetrate into the market and compete with the established banks effectively.

Third, as noted before, the new entrants chose to focus on trade finance and other specialized services although they are authorized to collect deposits. This in effect left the pre-existing large banks unchallenged in the retail market. Fourth, as discussed already the decline in concentration ratios have been primarily due to top 5 banks losing deposits to the ones below the top 5 which were in the system prior to 1980 and they already had reasonably large branch networks although the magnitude of their losses have not been sufficient to alter the rankings. Given these considerations, it is not surprising that entry did not positively influence competition in the equations estimated. Hence, results obtained does not mean entry does not matter. Rather, it highlights the importance of conditions under which entry will be more effective, i.e., when the type and size of the entrants are close to the existing firms in the industry, Hannah and Kay (1977), Kheamani and Shapiro (1988).

The results for the concentration variable are consistent with expectations - market concentration is a determinant of competition in the retail banking market and is correlated with a low level of interfirm rivalry. Such a finding is in line with Heggstad and Rhoades's proposition that mobility is an element of " industry structure but rather reflect conduct that the theory would predict to arise from certain market structures". This result also corroborates the earlier result that found a positive relationship between and concentration and profits. The average fixed asset size of the top 5 banks also has a strong negative impact on competition. This result suggests that the branch network and equipment owned by the top 5 banks are negatively affecting competition in the market and probably deter new comers to enter into the retail banking market.<sup>17</sup> It may also be an indication of reputation effects which are thought to be significant in banking. As expected market growth is strongly related to competition which is line with most other competition studies.

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<sup>17</sup>Bodenhorn (1990) also finds similar results.

## VII. POLICY IMPLICATIONS AND CONCLUSIONS

The results of this study have a number of policy implications. The first is that although reforms reduced concentration and this would lead one to expect that the cooperative attitude and tradition of understanding among the banks is now much weaker, both the casual observations and the results of this study suggest otherwise. Leading banks are still able to coordinate their pricing decisions overtly. For example, as recent as March 1993, the general manager of a large public bank commented that they lowered interest rates in agreement with the leading large banks.<sup>18</sup> Another noteworthy example is that in October 1992, the public banks have been directed to raise their deposit rates when large banks set their rates below the smaller banks and below the inflation rate, which reflects the recognition of collusive pricing by the authorities and their attempts to deal with it.<sup>19</sup> These developments clearly suggest that the high profitability in the sector - while operating costs were rising - have been primarily due to the uncompetitive pricing of banks and not their efficiency, which are captured by the equations estimated. Hence, the deregulation and liberalization process that started in 1980 should be continued and enhanced.

Second, and related to the first one is that the size and type of the entrants is as important as the entry itself and that future policies should take this factor into account. The findings of this study indicate that entry at small scale has not been sufficient to alter interfirm relationships in the market. While it may be argued that reforming the financial system should be regarded as a process and entry will increase competition overtime, it is not clear that entry at small scale will deliver that result. Atiyas and Ersel (1993) report from their survey finding that small banks were not planning to increase their customer base and that

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<sup>18</sup>Reported in a major daily newspaper's economics page in a short article entitled "there is no state intervention on interest rates" dated March 1, 1993.

<sup>19</sup>It is probably the case that the authorities viewed cuts in deposit rates as too excessive. Otherwise, they would not have intervened as they tolerated collusion among banks in the past.

they would continue to work with large firms. This implies that new banks, at least for now, are not planning to challenge institutions in retail banking business and in line with this strategy they did not establish offices beyond the three large cities. This means that new banks will not be a factor of competition in the retail banking market and hence they could not be expected to influence the market structure.

The unwillingness of new financial institutions to enter into the retail banking market also demonstrates the existence of non-regulatory barriers. These may be due to distortions caused by the earlier interest rate and regulatory policies which led to excessive bank branches and emphasis on size by the banks. As noted already, between 1960-1980 with the distorted price of capital and rising inflation it was very profitable to collect deposits by opening new branches. However, with the deregulation of interest rates in 1980 this situation changed and capital became expensive and eliminated rents that could be earned by collecting deposits and simply investing them into real assets or other profitable activities. In the two competition equations estimated, the size of the large banks exerted negative and significant impact on competition which may indicate that the size of the banks has now become a mobility barrier in the system.<sup>20</sup> Such a proposition seems to be in line with Caves and Porter's (1977) contribution which generalized Bain's original theory of entry barriers to include mobility barriers which makes the point that competition not only depends on new entry but "structural restraints on firms' abilities to change their market shares" or mobility within an industry as well. Hence, both the entry and mobility barriers need to be taken into account in promoting competition in the system.

Given these considerations, a procompetitive policy would need to facilitate inter-bank rivalry among the leading banks which continue to dominate the system. This in turn requires the entry or creation of new

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<sup>20</sup>Switching costs may also be a barrier to mobility. As discussed before, the number of savings accounts controlled by the large banks after the reforms actually increased which seems to indicate that proximity to bank offices was an important factor in consumers' choice. See Dermine (1993), Giovannini and Mayer (1991) and Klemperer (1987).

banks with a reasonable number of branches. In other words, what is needed is entry at a certain size. In the short term this could be achieved by breaking up and privatizing public banks, except the Agricultural Bank due its special position in the system. Breaking up public banks is not likely to lead to welfare losses because there seems to be no scale economies in banking in general and in the banking sector in Turkey as most recently demonstrated by Cilli (1993). Hence, breaking up public banks, currently representing 30 percent of sectoral assets (excluding the Agricultural Bank and 3 development banks), can easily result in the creation of some 15-20 new banks with 40-50 branches which will reduce concentration and facilitate mobility in the retail banking market.

Such a strategy is also likely to improve efficiency in the sector. Recent studies by Bauer et.al (1993), Berger(1993), Berger et.al (1993), Berger and Humprey (1991, 1992a,b) indicate that there are significant amount of -X- inefficiencies in banking. In other words, differences in managerial ability to minimize costs and maximize profits seem to be larger than the cost effects of the choice of scale and scope of the output level. If so, creating banks with 40-50 branches by breaking up public banks prior to privatization is likely to improve their governance structures and their productive efficiency. The implication for the Turkish banking market is that banks with relatively large branch networks should not be permitted to merge. Rhoades (1993) for example, finds that banks involved in horizontal mergers in the US during the 1981-1986 period did not realize efficiency gains. The recent mergers between Denizbank and Emlak Bankasi and Ogretmenler Bankasi and Halkbank are not likely to contribute to sectoral efficiency gains, but are bound to increase concentration and should be avoided in the future.

Promoting the entry of non-banks and local banks would also be desirable and there is a need to increase the number of institutions that competes for deposits. Contrary to views expressed by some bankers and policymakers the market is not overbanked. In most OECD countries savings and loan associations,

building societies and cooperative banks actively compete and are numerous (table 3). In Germany for example, there are some 280 commercial banks, about 558 savings banks, and about 2800 co-operative banks. In Spain, the number of commercial banks is 160 while the number of savings and cooperative banks is close to 175.<sup>21</sup> In Turkey, such a variety of institutions is not available to depositors and their establishment should be actively encouraged. The first step to fill this gap might be the creation of institutions for housing finance and the development of a mortgage market and entry of new institutions should not be restricted.

Finally, it is worthwhile noting that the experience of both the developed and developing countries which implemented financial deregulation and liberalization policies during the 1980s suggest promoting competition involves striking a balance between a number of potentially conflicting objectives and the risk financial deregulation brings.<sup>22</sup> In most countries public policy objective has been to maintain financial market stability and investor protection while achieving productive and allocative efficiency through deregulation. However, as pointed out by Mayer and Vives (1993) that " Competition in banking is not like competition in sausage production. There are risks and distortions associated with bank competition that make the welfare effects of increased competition uncertain" particularly when there is deposit insurance. In a number of papers and most recently Stiglitz (1993) also pointed out that financial markets are incomplete and market failures are a reality which implies that there would always be a case for government intervention.

What these arguments imply is that owing to the conflicting objectives banking will need to be regulated and be different from other industries which in turn will limit the intensity of competition. However, this does not mean that present low level of competition in banking in Turkey might be or should

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<sup>21</sup>For more details about the structure of banking market in OECD countries see Canals (1993) and OECD (1993).

<sup>22</sup>For a review of the experience of developing countries with financial liberalization and deregulation see Caprio et al (1993), for developed countries see Mayer and Vives (1993), Giovannini (1993), OECD (1992), and Khoury (1990).

be acceptable. Even if the best of conditions are created for a competitive system, owing to the conflicting objectives and regulations imposed on the financial sector profitability will be higher than other industries. For example, Neven (1993) and Vives (1991) do not consider European banking sector(s) to be perfectly competitive although sectoral profitability is far below than in the Turkish one. Hence, there is ample room for competition in the Turkish market although it is not to be expected that increased competition will approximate ideal conditions. A corollary to these arguments is that the regulatory framework and supervisory capacity of the authorities will be crucial factors in striking a balance between competition, system stability and efficiency and with increased globalization of financial markets this task will not become easier.

**Table 1. Number of Commercial Banks and Measures of Concentration**

	1980	1983	1986	1989	1991
Number of Banks (Excluding development and investment banks)	36	39	49	53	55
-State Owned	8	9	8	8	8
-Private	24	19	24	24	26
-Foreign	4	11	17	21	21
Number of Branches	5894	6221	6337	6579	6460
<b>Concentration Measures (in percent)</b>					
CR3D	53	57	57	45	40
CR5D	69	71	68	61	55
CR8D	82	83	86	85	82
CR10D	88	88	86	85	82
CR3L	56	53	55	49	44
CR5L	70	65	69	60	56
CR8L	82	78	81	74	71
CR10L	87	83	85	80	78
CR3A	50	51	48	45	40
CR5A	64	63	62	58	54
CR8A	76	76	76	73	69
CR10A	83	81	81	79	77
CR3SD	55	61	63	50	42
CR5SD	72	74	76	66	58
CR8SD	83	84	86	81	75
CR10SD	90	90	92	89	83
CR3NSD	55	60	68	65	62
CR5NSD	70	72	79	75	74
CR8NSD	84	85	92	87	87
CR10NSD	89	90	98	93	94

Sources: The Banks' Association of Turkey, The Central Bank and own calculations.

Variables: CRD = Deposit Concentration (3, 5, 8, 10 banks), CRL = Loan Concentration (3, 5, 8, 10 banks); CRA = Asset Concentration (3, 5, 8, 10 banks); CRSD = Savings Deposit Level Concentration (3, 5, 8, 10 banks); CRNSD = Savings Deposit Number Concentration (3, 5, 8, 10 banks).

**Table 2. Measures of Financial Deepening and Stocks of Financial Assets**

Year	SFA	M1 (T.L. Billion)	M2	SFA/GDP	M1/GDP (percent)	M2/GDP
1980	1,224	738	924	28.3	17.1	21.4
1981	2,148	1,019	1,710	33.5	15.9	26.7
1982	3,335	1,407	2,679	38.8	16.4	31.1
1983	4,339	2,084	3,477	37.6	18.1	30.2
1984	7,304	2,448	5,493	40.1	13.4	30.2
1985	12,059	3,420	8,540	43.8	12.4	31.0
1986	18,356	5,357	8,682	46.7	13.6	31.3
1987	30,519	8,682	17,702	52.4	14.9	30.4
1988	49,086	11,311	27,195	48.7	11.2	27.0
1989	86,631	19,560	47,142	51.6	11.7	28.1
1990	133,379	31,399	71,571	47.7	11.2	25.6

**Variables:**

SFA: Stock of Financial Assets including currency in circulation, deposits, special finance house participation accounts, corporate bonds, treasury bills, mutual fund participation shares.

M1 = Currency in circulation + Sight Deposits

M2 = M1 + Time Deposits

Source: Akkurt et.al. (1992).

**Table 3. Bank Profitability**

		GEM	OC	NEM	PBT	Number of
		As % of Total Assets				Banks
Turkey	1983	5.0	3.6	1.3	1.0	39
	1984	5.7	3.3	2.4	1.9	41
	1985	3.8	2.9	0.9	0.6	44
	1986	5.4	2.8	2.6	1.9	49
	1987	7.3	2.8	4.5	3.0	50
	1988	8.5	3.3	5.2	3.5	52
	1989	7.4	3.8	3.6	2.4	53
	1990	12.3	5.1	7.2	3.6	56
Spain	1990	5.1	3.0	2.1	1.5	160
Australia	1990	2.5	1.6	0.9	0.4	1165
Italy	1990	4.1	2.7	1.4	0.8	188
Holland	1990	1.2	0.4	0.8	0.2	173
Belgium	1990	1.7	1.2	0.5	0.3	91
Denmark	1990	2.9	2.0	0.9	-0.2	119
Germany	1990	3.1	2.0	1.1	0.6	281
OECD	1990	3.2	2.0	1.2	0.7	--

Sources: Bank Profitability (OECD, 1992), the Banks Association of Turkey.

Variables:

GEM: Gross Economic Margin = Interest Received - Interest Paid + Other Income (net).

OC: Operating Costs.

NEM: Net Economic Margin = GEM - OC.

PBT: Profit Before Taxes = NEM - Other Expenses(net) equal to ROA.

Total Assets: Arithmetic averages of the end of year values.

**Table 4**  
**(Dependent Variable is Return on Assets, ROA)**  
**OLS Results**

<b>Variable</b>	<b>Coefficient</b>	<b>T-Statistics</b>
C	-0.10407	-2.15
CA	0.13340	6.87
TA	5.498E-10	1.27
LA	-0.02217	-6.00
DT	0.006066	2.30
OEA	-0.174486	-3.20
MDGR	0.00013	0.05
CR5	0.172756	2.98
D1	0.91478	2.57
R-Squared		0.54
F-Statistic		21.84

**Table 5**  
**(Dependent Variable is Return on Assets, ROA)**  
**OLS Results**

<b>Variable</b>	<b>Coefficient</b>	<b>T-Statistics</b>
C	-0.097	-1.97
MSHARE	0.0137	0.548
CA	0.135833	5.47
TA	6.294E-10	0.656
LA	-0.02261	5.97
DT	0.00653	2.34
OEA	-0.172673	-3.15
MDGR	0.000190	0.076
CR5	0.160317	2.576
D1	0.90890	2.47
R-Squared		0.53
F-Statistic		19.40

**Table 6**  
**(Dependent Variable is Return on Assets, ROA)**  
**OLS Results**

<b>Variable</b>	<b>Coefficient</b>	<b>T-Statistics</b>
C	-0.00454	1.26
MSHARE	0.037221	1.56
CA	0.123172	6.17
TA	-6.318E-10	0.54
LA	-0.02046	5.44
DT	0.007065	2.52
OEA	-0.177827	-3.19
MDGR	0.001463	0.59
CR5		
D1	0.89376	2.29
R-Squared		0.51
F-Statistic		20.98

**Table 7**  
**(Dependent Variable is Return on Assets, ROA)**  
**OLS Results**

<b>Variable</b>	<b>Coefficient</b>	<b>T-Statistics</b>
C	-0.14677	-2.06
CA	0.125419	5.47
TA	6.1214E10	1.13
LA	-0.02071	-4.60
DT	0.008158	2.86
OEA	-0.213746	-3.80
MDGR	0.000863	0.30
CR5	0.239629	3.44
D1	0.90378	2.44
R-Squared		0.56
F-Statistic		21.44

**Table 8**  
**(Dependent Variable is Return on Assets, ROA)**  
**OLS Results**

<b>Variable</b>	<b>Coefficient</b>	<b>T-Statistics</b>
C	-0.12324	-1.54
MSHARE	0.096954	1.54
CA	0.148375	5.44
TA	6.412E10	0.85
LA	-0.02495	-4.95
DT	0.010267	3.26
OEA	-0.191380	-3.29
MDGR	0.001398	0.50
CR5	0.198141	2.66
D1	0.87596	2.34
R-Squared		0.56
F-Statistic		22.04

**Table 9**  
**(Dependent Variable is R1: Mobility Among the Top 10 Banks)**  
**Tobit Results**

Variable	Coefficient	T-Statistics
C	8.1069	2.2610
ENT (-5)	-.1274	-1.8081
CR5	-13.4431	-2.4905
AVG	-0.2088E-06	-4.2828
MDGR	.0349	4.1027

**(Dependent Variable is R2: Mobility Among All Banks)**  
**Tobit Results**

Variable	Coefficient	T-Statistics
C	2.5356	2.98
ENT (-5)	1.6780	1.23
CR5	-6.8759	-3.76
AVG	-1.6884	-2.95
MDGR	.1349	3.11

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