ESSAYS ON CONSUMER CREDITS AND BANK CHOICE

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Essays on a Two-Sided Market: Credit Card Market in Turkey

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Thesis Abstract

Caner Gerek, “Essays on Consumer Credits and Bank Choice”

This thesis consists of two essays. In the first essay, I investigate the relationship between credit card borrowing and using consumer credit using a very recent survey data set. Formal borrowing is a new concept for Turkish households; however, borrowing through credit cards became very prevalent in 2000s. I investigate whether credit card borrowing paves the way for consumer credit usage by looking at the effects of being a revolver credit card user as well as other personal characteristics on taking consumer credit. The results indicate that being a revolver credit card user increases the likelihood of using consumer credit, since credit card borrowing creates a formal borrowing habit.

In the second essay, I empirically analyze individuals’ bank selection in Turkey using the same data set. After the 2001 crisis, regulations in the banking sector, and improvements in the macroeconomic performance of Turkey started a new period for both customers and banks. Thus, the motivation of this chapter is the investigation of the factors affecting individuals’ bank selection after these regulations and macroeconomic improvements. Results indicate that public banks are preferred mainly due to people’s wages being deposited at these banks. Having a branch and ATM density preference increases the probability of choosing large private banks. Furthermore, individuals who are concerned about the ease of obtaining credit choose small private banks. Interest rates for deposits and credits are not important in bank selection any longer and that is a critical change that differentiates the new period from the previous one.

Tez Özeti

Caner Gerek, "Tüketici Kredileri Ve Banka Tercihi Üzerine Makaleler"

Bu tez iki bölümden oluşmaktadır. Birinci bölümde, kredi kartı borçlanması ile tüketici kredisi kullanımı arasındaki ilişkiyi çok yeni bir anket verisi kullanarak araştırdım. Resmi borçlanma Türk hane halkı için yeni bir kavram olmakla birlikte, 2000'li yıllarda kredi kartına borçlanma yaygınlaşmıştır. Kredi kartı ekstresinin tamamını ödemeyerek borçlanan bir kullanıcı olmanın tüketici kredisi kullanmaya bir geçiş yolu oluşturup oluşturmadığını diğer birey karakteristiklerini kontrol ederek test ettim. Sonuçlara göre kredi kartına borçlanan bir kullanıcı olmak tüketici kredisi kullanma ihtimalini artırmaktadır, çünkü kredi kartına borçlanmak resmi borçlanma alışkanlığı oluşturmaktadır.

İkinci bölümde, Türkiye'de bireylerin banka tercihini aynı veriyi kullanarak analiz ettim. 2001 krizi sonrası bankacılık sektöründe yaşanan regülasyonlar ve Türkiye'nin makroekonomik performansındaki ilerlemeler, banka müşterileri ve bankalar için yeni bir dönemin başlamasına yol açtı. Bu bölümün amacı, bu regülasyonlar ve makroekonomik ilerlemeler sonrasında bireylerin banka tercihi üzerindeki etkili olan faktörleri araştırmaktır. Sonuçlara göre kamu bankaları temel olarak maaşın bu bankalara yatması nedeniyle tercih edilmektedir. Şube ve ATM yaygınlığına önem vermek, büyük özel bankaları tercih etmeye yol açmaktadır. Bankanın kolay kredi vermesini önemseyen bireyler küçük özel bankaları seçmektedir. Mevduat ve kredilere uygulanan faizlerin banka tercihinde önemli olmaması yeni dönemi önceki dönemden farklılaştıran önemli bir değişimdir.

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CONTENTS

TABLES

CHAPTER 1

DO CREDIT CARDS REVOLVERS USE MORE CONSUMER CREDIT?

Introduction and Literature Review

The last few decades have witnessed increased capital flows from developed countries to emerging economies in line with the liberalization trend of the era. Turkey, however, did not get a proportionate share of this capital until recently. After the 2001 crisis, macroeconomic improvements in Turkey and the increase in global liquidity attracted more foreign capital to Turkey. Foreign banks in particular started to respond to the improvements in the economy and the banking sector. Foreign banks' share in the assets of the Turkish banking sector reached 24.3 percent from 2.8 percent in last nine years. An important attraction of the Turkish banking sector is the extremely low indebtedness of Turkish households. Borrowing from financial institutions is a relatively new concept for Turkish consumers and there is a large market to be exploited. Credit card usage became very prevalent in the 2000s and borrowing on credit cards has been the first type of institutional loan that Turkish consumers became generally accustomed to. Consumer credits, though on the rise, have not shown the same outstanding increase, but it is not very unlikely to suppose that credit card borrowing will pave the way towards widespread usage of these, as well.

This chapter analyzes the consumer credit behavior of revolver credit card users using a recent nationwide survey conducted on credit card users by the authors. Revolver credit card users are credit card users who roll over the monthly credit card bills rather than the paying full amount, as opposed to convenience credit card users who pay the full amount of monthly credit card bills. Revolver credit card users have formed the habit of borrowing from financial institutions and this inclination may

affect their attitude towards consumer credit. This chapter thus investigates the effect of being a revolver credit card user as well as of other personal characteristics on taking consumer credit.

Before the 1980s, Turkey followed a planned development strategy. There were many restrictions in the financial system. In the 1980s, some financial liberalization policies were introduced and financial controls were relaxed. In 1989, international capital flows were fully liberalized. During this process, there were capital surpluses in developed countries and capital shortages in the emerging markets. Lower returns in developed countries led banks to seek the higher returns in emerging economies. This condition caused capital flows from developed countries to emerging economies; however, the amount of capital inflows to Turkey was below expectations. The main reasons behind the low capital inflows were the recurring economic crises and the lack of confidence in the Turkish economy.

After the 2001 economic crisis, Turkey regulated the banking sector and improved the macroeconomic conditions. Turkey experienced with high growth rates, relatively low inflation and public deficit levels, and a high foreign trade volume. Improvements in macroeconomic indicators and continued upward trend in global liquidity attracted foreign investors to the Turkey market with a special interest in the banking sector. In Table 1, the banking sector assets according to equity ownership is presented. The share of the foreign banks based on paid capital shows an upward trend. Especially in 2006, the share of foreign banks increased enormously from 12.4 percent to 22.4 percent. The rise in the share of foreign banks continued until 2009. The share of foreign banks was 25.3 percent in March 2009, excluding the share of foreign banks in publicly held shares. If the publicly held shares of foreign banks are added, then their aggregate share becomes 41.3 percent.

Table 1: Banking sector assets according to equity ownership (percent)

	2005	2006	2007	2008	March 2009
State Bank	31.0	28.0	25.6	25.9	26.3
Private Bank	36.5	31.0	28.9	28.9	28.6
Foreign Bank	12.4	22.4	24.8	25.6	25.3
Publicly Held	20.1	18.6	20.7	19.6	19.8

Source: CBRT Financial Stability Report, May 2009; CBRT

The main reason behind the interest of the foreign banks is the low indebtedness of the households in Turkey. The relative household indebtednesses of different countries can be seen in Table 2. Household debt to GDP ratio is five times lower in Turkey than in the EU 27 countries. Countries with similar indebtedness rations to Turkey are the relatively less developed East European countries. This potential of Turkish households attracts foreign banks to Turkey. Moreover, the idea of covering consumption expenditures by retail loans is now being explored by the households in Turkey. The ratio of household consumption expenditures financed by retail loans has increased from 7.9 percent to 12.7 percent in between years 2005 and 2008 (CBRT Financial Stability Report, May 2009). The rise in this ratio shows the metamorphosis in financing consumption expenditures. It is reasonable to expect that the ratio of retail loans to household consumption will continue to increase in the following years.

Restructuring of the banking sector after the 2001 crisis also led domestic banks and other settled foreign banks to turn their attention to retail credit markets. One of the main problems in the financial structure of the banking sector until the 2000s was that the operations concentrated on deficit-financing through government

securities rather than banking activities. Higher interest rates offered by the government to finance the public debt led private banks to acquire portfolios of

Table 2 - Ratio of total household debt to GDP in selected EU countries and Turkey

	2005	2006	2007
Lithuania	13.2	19.3	25.9
Czech Republic	14.3	17.3	21.4
Hungary	16.9	21.1	23.2
Latvia	27.1	38.3	43.3
Poland	15.1	18.2	23.7
Italy	27.6	29.2	30.3
Greece	36.2	41.0	400.9
Portugal	67.3	74.3	78.6
Spain	68.6	76.8	80.4
EU 27	54.6	56.4	55.8
Turkey	7.9	10.1	12.3

Source: CBRT Financial Stability Report. November. 2008. May 2009

government securities and these portfolios were financed by foreign currency denominated loans or overnight repo transactions. After 2001, banks started to interest themselves in retail and corporate loans rather than the low profit government securities. Therefore, there is a huge potential in the supply side of retail credit market, especially in consumer credit market in Turkey (Akin *et al,* 2008).

Expecting a sudden boom in the consumer credit market is not very realistic, because the culture of using many banking services like consumer credit is still not prevalent in Turkey. Households borrow from close friends, family or recently credit cards. Loans on credit cards are different from borrowing from acquaintances since these are a kind of institutional loan. Many of the households in Turkey explored and experienced institutional loans through credit cards, and the number of people using the credit option of credit cards is increasing. Being responsible (or irresponsible) to an incorporated body rather than a real person by paying less than the full amount of

monthly credit card bills is an idea which attracts individuals and leads indebtedness to the credit cards. This kind of behavior creates an institutional loan culture and individuals get familiar with different types of credits like consumer credit. Thus, credit card borrowing is the stage before taking consumer credit in banks' mind. Foreign banks which participated to the Turkish banking sector are aware of this situation and they invested aggressively on the credit card market.

On the other hand, the problem in indebtedness to credit cards is the high interest rates. Credit card rates are very high relatively to other type of credit. Since revolving the credit card debt for a long time with these rates is irrational, consumers are expected to pass on to consumer credits in time. Hence, revolving the credit card debt creates a culture of institutional indebtedness and leads to different types of institutional indebtedness like using consumer credit, and also high amounts of credit card debt necessarily lead revolvers to use consumer credit with lower interest rates. This chapter therefore attempts to analyze the relationship between credit card usage behavior and using consumer credit. This study also analyzes the impact of consumer characteristics on using consumer credit.

There exists a vast literature about the supply side of consumer credits, especially concerning discrimination in lending. Black, Schweitzer and Mandell (1978), Black and Schweitzer (1980), Wiginton (1980), Peterson (1981), and Hawley and Fujii (1991) test for the presence of discrimination in obtaining consumer credit. Results are mixed. For example, Black, Schweitzer and Mandell (1978) find empirical evidence for racial discrimination, but Peterson (1981) finds "no systematic pattern of prejudicial sex discrimination"; however, Hawley and Fujii (1991) find that women and minorities have lower probabilities of success in obtaining credit. Hawley and Fujii also find that the probability of credit denial is

negatively related with monthly income, number of vehicles owned, home ownership, and single parent families but positively related with existing loan and credit card obligations.

Karlan and Zinman (2005) analyze the price elasticity of demand for credit. They find a downward–sloping but relatively flat demand with respect to price. Also they find that price sensitivity increases with income. They also find that maturity sensitivity is not significant for higher level of income. Both price and maturity sensitivities are consistent with liquidity constraint increasing with lower levels of income.

Getter (2006) examines consumer participation in credit markets. Getter finds that if a bad credit history causes credit denial or higher loan prices and good credit history borrower face payment problem mostly due to unanticipated shocks, then credit markets are functioning appropriately.

The data used in the present study comes from a survey targeting all credit card users in Turkey. The sample size is 2576. To explain consumer credit usage, the probit regression model was used by the help of econometric program STATA. According to the results, using consumer credit seems to have been positively influenced by being a revolver credit card user, by the number of credit cards one holds, a past history of delinquency or credit card rejection and the share of credit card expenditures in total expenditures. Consumer characteristics like household income, marital status, the level of education and occupation also have an effect on using consumer credit. The probability of using consumer credit for both revolvers paying less than the minimum amount of their credit card bill and revolvers paying at least the minimum amount is higher than convenience users.

The outline of this chapter is as follows. The next section describes the data and variables used in this study. After that, section 1.3 focuses on estimation results. The last section includes the conclusion.

Data and Variables

The Survey Sampling

This study utilizes data from a very recent survey prepared by the authors. The survey was conducted on a random sample of 2576 credit card users across Turkey.

In the survey, credit card users were the target population. The usage of the credit card in rural areas is very limited due to the low numbers of point of sale (POS) machines. POS machines are technological devices and many of the rural area shops have not started to use them, making credit card payment opportunities in rural areas are very limited. Thus, the survey was carried out among the urban population over the age of 18. The urban population numbers were proxied by the registered urban voter counts of the 2007 local elections.

Turkey is divided into 26 main regions by a regional statistical unit system called Nomenclature of Territorial Units for Statistics (NUTS). There are three NUTS levels for Turkey. NUTS1 is a division into 12 main regions; however, NUTS2 analyses Turkey under 26 main regions. NUTS3 is the most detailed one, which divides Turkey into 81 regions. In this study, NUTS2 was used for sampling.

There are over 40 million credit cards in Turkey and the number of credit card users is guessed to be around 20 million; however, there is not enough information about the regional distribution of credit card users. To estimate the NUTS2 distribution of credit card users, the share of bank branches and the share of

POS machines in each region were used as proxies. It is expected that the number of POS machines is positively correlated with the number of credit card users. The problem about using POS machines as a proxy is the possible upward bias in touristic areas like Mugla, Antalya and Izmir. It is expected that there is a positive correlation between the number of credit cards and bank branches, as well. Using the number of bank branches as the only proxy may also be problematic since in some provinces the number of bank branches may be more than the economic activity necessitates because of state banks. Some state banks are opened due to the non-profit reasons. Therefore, using the average of the share of the number of bank branches and the share of POS machines is expected to mitigate these regional biases. These averages were used in calculating the weights of each of the 26 regions and each weight was multiplied by 2500 to determine the optimum number of surveys required for each region. To prevent inefficiency, provinces that received less than 30 surveys were eliminated and these surveys were reassigned to the other provinces within the same NUTS1 level. After provinces whose weights were less than 25 percent in each region were eliminated to prevent choosing unrepresentative provinces, one province was randomly selected from each NUTS2 region.

The survey was conducted if the interviewee had a credit card and made the decisions concerning the choice of their credit card and the payment of the credit card bills themselves. The response rate among those who passed the filter was 65 percent.

Variables

Dependent Variable

Individuals were categorized into two groups and the dependent variable was formed: individuals who have used consumer credit had a value of 1 for this variable

and individuals who have never used consumer credit had 0. Therefore the positive coefficient of an explanatory variable means that variable affects taking consumer credit positively.

Table 3 – Frequency of credit usage

	Number of individuals	Percent
Consumer credit	943	36.61
Vehicle credit	298	11.57
Housing credit	219	8.50
Commercial credit	81	3.14
Consumer credit + vehicle credit	159	6.17
Consumer credit + housing credit	113	4.39
Consumer credit + commercial credit	59	2.29
Used all type of credits	12	0.47

45.40 percent of the sample used some type of credit including consumer, automobile, housing and commercial credits. The distribution of credit usage is presented in Table 3. It is seen that the most widely used credit type is consumer credit. 36.61 percent of the sample used consumer credit. Vehicle credit and housing credit follow consumer credit by 11.57 and 8.50 percent, respectively. Commercial credit is the least commonly used credit type. 943 households used consumer credit and 682 of these did not use other types of credit. On the other hand, Turkish Bank Association's Consolidated Report on consumer loans reveals that the shares of the housing, vehicle and other loans in total loans are 23.6 percent, 9.5 percent and 66.9 percent respectively.

Explanatory Variables

Explanatory variables are classified into two categories: characteristics of credit card users and variables related with the individuals' credit card behaviors.

Characteristics of credit card users that were controlled for in the estimations include gender, marital status, age, household income, education, occupation, wealth and being a sophisticated user. Also, the region in which the card user lives and whether the user lives in a town (as opposed to a province center) were used as regressors.

The variable *Female* takes the value of 1 if the card user is a woman, and takes the value of 0 if he is a man. 71.47 percent of the sample is male as seen in Table 4. The variable *Married* takes the value of 1 if the user is married, and takes the value of 0 if the user is unmarried, widowed, divorced or separated. It is expected that using consumer credit is positively affected by being married due to the extra costs of family life.

Five dummy variables control for age. These correspond to ages between 18-25, 26-35, 36-50, 51-65 and ages over 65. Between the ages of 18-25 corresponds to being young and maybe still having an education. Generally important decisions related with personal career and social life are made between the ages of 26-35, and the ages of 36-50 correspond to the maturity period. Other periods are the retired period and pre-retired periods that individuals prepare them to the retired period. *Household income* includes the total income of the household members and it is a continuous variable. 0.99 percent of the sample who answered the household income question have a monthly household income lower than 500 TL, 18.94 percent have a household income between 500 TL and 1000 TL, 43.01 percent have an income between 1000 TL and 2000 TL, 20.64 percent have an income between 2000 TL and 3000 TL and 16.91 percent of the sample have the household income higher than 3000 TL. Thus, more than half of the sample has an income between 1000 TL and 3000 TL.

Table 4 – Summary statistics on consumer characteristics

	Frequency	Percent		Frequency	Percent
Gender			Education		
Female	735	28.53	Primary school graduate	565	21.93
Male	1841	71.47	Secondary school graduate	284	11,02
Age			High school graduate	923	35.83
Age 18 – 25	378	14.67	University graduate or higher	804	31.21
Age 26 – 35	896	34.78	Occupation		
Age 36 – 50	861	33.42	Civil servant	488	18.97
Age 51 – 65	380	14.75	Private sector employee	998	38.79
Age 65+	56	2.17	Self employed	414	16.09
Region			Self employed2	87	3.38
Coast	1762	68.40	Unemployed	89	3.46
Black Sea	220	8.54	Out of labor force	497	19.32
East	193	7.49	Type of urban area		
Middle Anatolia	401	15.57	Lives in town	271	10.53
Retired	500	19.41	Lives in province center	2305	89.58
Student	125	4.85	Owns a home	993	40.25
Married	748	29.04	Owns a car	858	34.32
			Religiosity	67	2.60

Education level is captured with four dummy variables. *Primary school* is 1 for people who have finished primary school or did not get any schooling. *Secondary school* is 1 for card users who finished secondary school. *High school* is 1 for interviewees who finished high school. *University* is 1 for people with a university degree or with higher levels of education. 31.21 percent of the sample has university graduate or higher.

Occupation is comprised of five dummy variables: *Civil servant*, *Self employed, Farmers and irregular workers, Private sector, Unemployed and Out of labor force*. Civil servant includes managers, specialists, civil servants and workers in the public sector. Big traders, industrialists, small traders, craftsmen, and highly educated self employed people are classified under self employed. Farmers and irregular or seasonal workers are classified as *Farmers and irregular workers*.

Managers, specialists, and office workers in the private sector are classified under Private sector. Unemployed includes long-term and short-term unemployed people whereas *Out of labor force* indicates people who are not in the labor force. The interesting point in occupation is the unemployment rate. Only 3 percent of the total sample defined themselves as unemployed. The main reason behind this result is the individuals' defining themselves as out of labor force. This means they are not working and they are not looking for a job. Thus 22.78 percent of the total sample is not working.

Two indicators of the extent of wealth are included since the more direct questions about personal or household wealth tend to get misleading answers in surveys: *Owns a car* and *Owns a home*. These are two dummy variables showing car ownership and home ownership.

Town is a dummy variable which takes on the value 1 if the interviewee lives in a town and 0 if they live in a province center. Towns have less economic activity and smaller numbers of bank branches than province centers, therefore borrowing options of the individuals who live in these urban areas are limited. We a priori expect that living in a town reduces the probability of using consumer credit.

Regions are represented with four dummy variables: *Coast*, *Black Sea*, *Middle Anatolia*, and *East*. *Coast* includes the Aegean, Mediterranean, East Marmara and West Marmara NUTS2 regions. *Black Sea* is made up of the East and West Black Sea regions. West Anatolia and Middle Anatolia regions comprise *Middle Anatolia*. North East Anatolia, Middle East Anatolia and South East Anatolia form the variable *East*.

Nine questions of the survey capture the level of sophistication of the bank users in terms of using high technology bank services. Five of these questions are

whether the card user has a liquid deposit account, makes investment transactions from her/his bank, has a private pension account, uses automatic payment orders in banking, and makes tax or insurance payments from his/her bank. The next four questions ask how often (on a scale of 1 to 5) the card user uses internet banking, uses telephone banking, uses ATM's or makes money transfers. The answers to the first five questions were transformed to the 1 to 5 point likert type scale by multiplying the answer by 5. Then the *Sophisticated user* variable was formed by adding the answers to all. Higher values of this variable indicate usage of more sophisticated banking services.

Religiosity is a dummy variable which takes value 1 if the interviewee 's main bank is a participation bank, and 0 otherwise. The selection of a participation bank which does interest-free banking in accordance with religious rules is used as a proxy for religious sensitivity.

Variables related to credit card behavior are being a revolver credit card user (*Revolver*), *Number of cards*, credit card share in total monthly expenditures (*Credit card share-exp*), *Delinquency*, maximum credit card debt (*Max. credit card debt*) and *Cash advance*.

Being a revolver (*Revolver*) is a critical explanatory variable for the purpose of this chapter. *Revolver* takes the value 1 if the credit card user made a payment less than the minimum amount of the monthly bill within the last twelve months, if the user made a payment above the minimum amount but less than the total within the last twelve months, if the user indicated the highest amount owed on their credit card within the last twelve months to be non-zero or if the user stated that they did not pay the full amount of last month's credit card bill. The percentage of revolvers is 30.36 percent and the share of convenience users is 69.64 percent in the sample.

Number of cards is the total number of cards a consumer has, and it is important as it controls for an alternative to consumer credit. A card holder who has many credit cards gives the signal of being indebted. Some credit card holders increase the number of credit cards to diversify their debts to the different cards. This behavior may cause using consumer credit to pay all credit card debts. Thus, increasing the number of credit card can be seen as the preparatory stage for using consumer credit. On the other hand, using more credit cards means also having a higher total credit card limit and having a high total limit may be an alternative to using consumer credit. Therefore, high number of credit cards and consequently a high total credit limit may have the potential of reducing consumer credit usage. The sign of the number of credit card coefficient shows which effect dominates the other. The average number of credit cards owned in the sample is 1.78 and the maximum number of credit cards owned by an individual is 10.

Credit card share-exp shows the share of credit card expenditures in total monthly expenditures. It measures the dependency of the card holder to credit cards in making expenditures. 48.92 percent of total expenditures are paid through credit cards.

Delinquency is a dummy variable which takes on the value 1 if the card holder has ever had legitimate proceedings started against them due to unpaid credit card debt. Since it affects the credit history of the individual, it may also affect the usage of consumer credit. 5.43 percent of the sample had legitimate proceedings started against them at some point.

Max. credit card debt is the maximum amount of credit card debt which an individual had in the last twelve months. We a priori expect that there is a positive relationship between the maximum credit card debt a person had and whether or not

they took consumer credit. For a person with a large amount of credit card debt, using consumer credit to pay off this credit card debt is the rational behavior since the interest rate of consumer credit is lower than the credit card rates; however, for a low amount of unpaid credit card debt, using consumer credit may be more expensive due to the fees of consumer credit.

Cash advance is a dummy variable which takes on the value 1 if the card holder used the credit card's cash withdrawal option within the last year. For small amounts, individuals may prefer using the credit card's cash advance option rather than using consumer credit. Cash advance option does not seem to be considered as a loan option by all individuals: only 20.85 percent of the sample used the cash advance option. This type of individual may be one who considers different loan alternatives.

Estimation Results

The econometric methodology used in this study is the standard probit model. The probit model applies the maximum likelihood estimation method rather than OLS. The probit model does not require a linear relationship between the explanatory variables and the dependent variable. The regression uses the cumulative normal distribution (Varbeek 2004).

Our model in this study is presented below:

$$Z = b_0 + b_i X_i \quad (1)$$

In the model, Z is the standard normal score, b terms are the parameter estimates and X terms are the independent variables in explaining consumer credit. It is possible to transform the Z score to the probability by using a table of standard

normal distribution. Since the probit model is nonlinear in probabilities, probabilities are generally calculated with respect to sample mean values (Varbeek 2004).

The estimation results are given in Table 5. All personal characteristic and *Revolver* are controlled for in each regression, and the other credit card behavior variables are used in different specifications. Significances of explanatory variables do not change across specifications and the differences in the coefficients of regressions 1 to 5 are negligible. Therefore, numerical probabilities for common explanatory variable are used from regression 1.

Estimations show that a rise in household income is not significant in using consumer credit. Having a high or low income is not important after having controlled for other characteristics of the consumer. Gender is not a factor that distinguishes the individuals in using consumer credit, either. The negative coefficient of *Female* is not statistically significant.

The results for marital status indicate that being married increases the likelihood of using consumer credit by about 10 percent. Compared to individuals who are unmarried, widowed, divorced or separated, married people have different types of costs such as family cars or costs of children.

The probability of using consumer credit seems to have been positively influenced by being older relative to the young 18-25 age group: 26-35 age group increases the probability by 15.9 percent, 36-50 age group by 23.4 percent, 51-65 age group increases by 32.5 percent and being over 65 increases the probability by 29.5 percent. However, since the question addressed to the interviewees was whether they used consumer creditor in any part of their lives, it is possible that older people had a longer time and hence more opportunity to use consumer credit. It is likely that

individuals aged between 18 and 25 use less consumer credit because of low banking score.

Being a primary school graduate or being uneducated does not have a significant impact on using consumer credit relative to having a university education or above. Individuals who finished secondary school or high school use more consumer credit relative to the individuals who graduated from university or got higher degrees. Both being a secondary school graduate or a high school graduate increase the likelihood of using consumer credit by 7.1 percent. This means that individuals with university degrees need use consumer credit than the others. The studies of Bank Association of Turkey also confirm the result that consumer loans are used by individuals who have education below the university level. Their analysis also indicates that university education reduces using consumer credit but increases the amount of loans used.

The variables *Private sector*, *Self employed* and *Unemployed* do not affect the probability of using consumer credit. *Farmers and irregular workers* turns out to be significant. There are 14 farmers and 73 irregular or seasonal workers in the *Farmers and irregular workers* category. Thus it is dominated by irregular or seasonal workers. Results show that *Farmers and irregular workers* reduces the probability of using consumer credits by 10.3 percent, probably due to the irregular wages of these workers and the negative reaction of banks to their irregular wages. The expected result is related with the civil servants. Being a civil servant, as is 18.7 percent of the sample , increases the likelihood of using consumer credit relative to being out of the labor force by 11.1 percent. These types of individuals have regular income and the risk of becoming unemployed is very low, therefore they can easily make their future plans and use consumer credit more confidently.

Table 5 - Estimation Results for different specifications

	Regression1		Regression 2		Regression 3	
	Mrg eff	Std err	Mrg eff	Std err	Mrg eff	Std err
Household income	0.000	0..000	0.000	0..000	0.000	0.000
Female	0.000	0.025	-0.006	0.025	-0.008	0.025
Married	0.100***	0.027	0.105***	0.027	0.103***	0.027
Age 26 – 35	0.159***	0.041	0.171***	0.041	0.174***	0.040
Age 36 – 50	0.234***	0.044	0.246***	0.044	0.251***	0.043
Age 51 – 65	0.325***	0.053	0.341***	0.052	0.343***	0..051
Age 65 +	0.295***	0.088	0.315***	0.085	0.309***	0..085
Primary school	0.007	0.034	0.014	0.035	0.011	0.035
Secondary school	0.071*	0.042	0.083**	0.042	0.086**	0.042
High school	0.071**	0.029	0.079***	0.028	0.080***	0.028
Civil servant	0.111***	0.042	0.111***	0.041	0.108***	0.041
Self employed	0.076	0.068	0.073	0.068	0.09	0.068
Farmers and irregular work	-0.103*	0.059	-0.096	0.060	-0.109*	0.058
Private sector	-0.023	0.037	-0.019	0.037	-0.021	0.037
Unemployed	-0.042	0.060	-0.041	0.060	-0.049	0.059
Coast	0.171***	0.040	0.181***	0.04	0.174***	0.039
Black Sea	0.134**	0.058	0.134**	0.058	0.128**	0.058
Middle Anatolia	0.071	0.051	0.069	0.051	0.068	0.051
Owns a home	-0.027	0.024	-0.029	0.024	-0.023	0.024
Owns a car	-0.012	0.025	-0.006	0.025	-0.003	0.025
Town	-0.027	0.034	-0.031	0.034	-0.028	0.034
Sophisticated user	0.010***	0.002	0.011***	0.002	0.012***	0.002
Revolver	0.216***	0.024	0.227***	0.023	0.218***	0.024
Number of cards	0.060***	0.011				
Credit card share-exp			0.001***	0.000		
Delinquency					0.127***	0.050
Max. credit card debt						
Cash Advance						
Religiosity						
	No of obs=2291		No of obs=2285		No of obs=2291	
	Wald $chi^2(24)$ = 324.86		Wald $chi^2(24)$ = 314.71		Wald $chi^2(24)$ = 311.00	
	Prob >chi^2 = 0.000		Prob >chi^2 = 0.000		Prob >chi^2 = 0.000	

Regressions 1, 2 and 3 have different specifications with the dependent variable being whether or not one has used consumer credit. The first columns present the marginal effects and standard errors are in second columns. *, ** and *** denote the coefficients' significance level at 10 percent, 5 percent and 1 percent, respectively.

The coefficients of the regional dummy variables show that the probability of using consumer credit increases in the *Black Sea* and *Coast* regions relative to the *East* region. Living in the *Coast* region increases the likelihood of using consumer

Table 5 (continued)- Estimation Results for different specifications

	Regression 4		Regression 5		Regression 6	
	Prob	Std err	Prob	Std err	Prob	Std err
Household income	0.000	0.000	0.000	0.000	0.000	0.000
Female	-0.011	0.025	-0.001	0.025	-0.013	0.024
Married	0.099***	0.028	0.102***	0.027	0.107***	0.027
Age 26 – 35	0.175***	0.041	0.180***	0.041	0.174***	0.040
Age 36 – 50	0.257***	0.044	0.262***	0.044	0.252***	0.043
Age 51 – 65	0.359***	0.051	0.349***	0.052	0.344***	0.051
Age 65 +	0.300***	0.086	0.339***	0.083	0.316***	0.085
Primary school	0.019	0.035	-0.003	0.034	0.007	0.035
Secondary school	0.093**	0.043	0.074*	0.042	0.086**	0.042
High school	0.084***	0.029	0.077***	0.028	0.078***	0.028
Civil servant	0.110***	0.042	0.114***	0.041	0.109***	0.041
Self employed	0.071	0.068	0.100	0.069	0.081	0.068
Farmers and irregular workers	-0.099	0.060	-0.112*	0.058	-0.097	0.059
Private sector	-0.013	0.037	-0.021	0.037	-0.015	0.037
Unemployed	-0.062	0.059	-0.038	0.060	-0.039	0.059
Coast	0.180***	0.040	0.167***	0.039	0.174***	0.039
Black Sea	0.132**	0.059	0.115**	0.058	0.130**	0.058
Middle Anatolia	0.076	0.052	0.065	0.050	0.070	0.051
Owns a home	-0.027	0.024	-0.022	0.024	-0.028	0.024
Owns a car	-0.01	0.025	0.007	0.025	-0.002	0.025
Town	-0.023	0.035	-0.021	0.034	-0.033	0.034
Sophisticated user	0.012***	0.002	0.011***	0.002	0.012***	0.002
Revolver	0.173***	0.029	0.192***	0.024	0.230***	0.023
Number of cards						
Credit card share-exp						
Delinquency						
Max. credit card debt	0.000***	0.000				
Cash Advance			0.163***	0.028		
Religiosity					-0.201***	0.051
	No of obs=2233		No of obs=2291		No ob obs=2288	
	Wald $chi^2(24) = 304.88$		Wald $chi^2(24) = 329.26$		Wald $chi^2(24) = 320.92$	
	Prob >$chi^2 = 0.000$		Prob >$chi^2 = 0.000$		Prob >$chi^2 = 0.000$	

Regressions 4, 5 and 6 have different specifications with the dependent variable being whether or not one has used consumer credit. The first columns present the marginal effects and standard errors are in second columns. *, ** and *** denote the coefficients' significance level at 10 percent, 5 percent and 1 percent, respectively.

credit by 17.1 percent, while living in the *Black Sea* region increases it by 13.4 percent. The *Middle Anatolia* coefficient is not statistically significant. The reasons

behind the positive effects of the *Black Sea* and *Coast* variables are probably the high trade activity and individuals having a credit usage culture owing to trade. Bank branch density may be another explanation. The number of bank branches positively affects consumer credit usage because branches frequently offer consumer credits to the customers they know. Also, consumers have the opportunity of applying to different banks for credit.

Owning a car or a home are not significant determinants of using consumer credit. The *Town* dummy variable which measures the effect of living in a town is also statistically insignificant.

Relative to users of basic bank services, users of sophisticated bank services are more likely to use consumer credit. Being familiar with a variety of services, this kind of individual is expected to consider different borrowing alternatives. Probably basic bank users consider a more limited range of borrowing alternatives: from family and friends or credit card. Moreover, banks may have the chance of obtaining detailed information about the sophisticated users accumulated through the other banking services used.

Explanatory variables relating to credit card usage behavior are included across the different specifications in Table 5. Aside from *Revolver* which was included in all regressions, *Number of credit cards*, *Delinquency*, *Credit card share-exp, Maximum credit card debt and Cash advance* were controlled in regressions 1, 2, 3, 4 and 5 respectively. Some combinations of these explanatory variables were used together in regressions 7, 8 and 9 in Table13. The results are vey comparable to the results in Table 5.

Being a revolver credit card user relative to being a convenience user seems to increase the probability of using consumer credit by 21 percent in regression 1 in Table 5. This probability is very high and this may be the most important factor in explaining consumer credit usage if the age category is ignored. The main reason behind this result is revolvers' positive attitude towards institutional loans. Revolver credit card users have a familiarity with institutional lending through their credit cards. Since they experienced institutional borrowing through unpaid credit card debts, using consumer credit may be a relatively easier decision for them. Convenience users, on the other hand, are generally unfamiliar to these loans and may have an aversion to being indebted to a financial institution. Table14 shows the regressions related with vehicle and housing credits. In these regressions, the same explanatory variables were used as in regression 1. The main difference between these regression results and the previous ones show up in the coefficients of the variables defining the credit card payment behavior of individuals. *Revolver* and *Number of cards* are statistically insignificant in explaining housing credits. Also, vehicle credit usage cannot be explained by *Revolver*. These results indicate that being a revolver or a convenience user is important for consumer credits and not for housing or vehicle credits. Acquiring credit card debt is prepares some individuals to use consumer credit, but not vehicle or housing credit. .

The number of credit cards owned by a person increases the likelihood of his/her using consumer credit by 6 percent. Having a high number of credit cards may be done with the desire to increase total credit limit. This type of behavior is likely to cause payment trouble and leads to using consumer credit. Even if increasing the number of credit cards seems to be an alternative to using consumer

credits, it may actually be the precursor for using consumer credit, because rolling over the payments of high credit card bills is very difficult above a threshold.

Credit card share in total expenditures increases the likelihood of using consumer credit. Increasing the share of credit cards in total monthly expenditures likely to cause credit card payment problem and leads to the using consumer credit.

Results of the survey also show that individuals faced with delinquency trouble in the past also more likely to use consumer credit. This result is one of the most interesting results in analysis. A priori we expect past delinquency to affect the probability of using consumer credit negatively because delinquency trouble reduces the credit scoring of individuals. Maybe this result is caused by the time inconsistency between using consumer credit and delinquency. Many of the individuals may have used consumer credit before the delinquency problem.

Max credit card debt increases the probability of using consumer credit, even though its positive effect is very limited. The reason of this increase may be credit card bills' reaching non payable amounts and the card holder's resorting to consumer credit.

Lastly, cash advance increases the likelihood of using consumer credit by around 13 percent. Cash advance is not a widely used loan option and only a small part of the sample used this option. This small group may be made up of those who are open to different institutional loan alternatives. Consumer credit is a more rational option that cash advance for high amounts.

Conclusion

The world economy experienced a liquidity surplus especially since 1980s; however, political and economical instabilities discouraged foreign banks from investing in Turkey. Capital flowed to other emerging economies rather than Turkey.

After the 2001 crisis, Turkey improved its macroeconomic conditions and restructured the banking sector. These improvements and continued favorable global liquidity conditions combined with the low household indebtedness of Turkish people and attracted foreign banks to the Turkish market.

Despite the fact that low household indebtedness was a major reason for foreign banks' entry into the Turkish market, changing the credit usage behavior of households is difficult. At this point, both foreign banks and domestic banks invested on credit cards aggressively. The main aim of this investment is initiating households to institutional loans through credit card borrowing. There is a likelihood that households may pass from credit cards to consumer loans both because of these two being substitutes and the opportunity of paying credit card debts by consumer credits.

This chapter analyzes the effects of variables describing credit card usage behavior and other consumer characteristics on consumer credit usage by utilizing a nationwide survey. Results indicate that being a revolver credit card user positively affects consumer credit usage. Revolver credit card users develop a culture of institutional borrowing through unpaid credit card debts. Their positive attitude towards institutional loans enables them to use consumer credit more easily than those who have never borrowed from a financial institution. Also, there is a high interest rate on unpaid credit card debts and revolving the credit card bill with high interest rates is irrational behavior, encouraging using consumer credit.

CHAPTER 2
INDIVIDUALS' BANK SELECTION:

SURVEY EVIDENCE FROM AN EMERGING MARKET ECONOMY

Introduction and Literature Review

The unregulated banking sector of the 1990s emphasized price competition. Full deposit guarantee for bank accounts constituted a moral hazard problem, enabling small private banks to offer high interest rates close to triple digits. Huge public sector deficits were financed by the private banks which concentrated on riskless government securities rather than fulfilling their intermediation role. Bank selection in this period was based on interest rates. After the 2001 crisis, regulations in the banking sector and the improved macroeconomic performance of Turkey started a new period for both customers and banks.

The motivation of this chapter is to investigate the factors affecting individuals' bank selection after the regulations and macroeconomic improvements in Turkey. The data was obtained from a 2009 credit card survey prepared by the authors. 2576 credit card users were interviewed and asked about the factors affecting their selection of the bank they work with. This study studies banks under four categories: Public banks that were established for specific purposes rather than profit maximization, large private banks that recently dominate the banking sector with their wide range of services and products, small private banks that focus on specific banking products and services convenient to their relatively low level of assets, and participation banks which supply an interest-free banking system for individuals with Islamic sensitivities. Thus, this chapter analyzes the effects of consumer characteristics, banking habits and service usage on individuals' bank type selection.

In 1990s, Turkey experienced a bad macroeconomic performance marked with economic crises. In that period, the populist policies of the governments resulted in high public deficits as seen in Table 6. Public sector borrowing requirements (PSBR) to GDP ratio was very high. Average PSBR/GDP ratio was 6.81 percent in 1990s and reached 12.10 percent in 2001 which is the highest ratio since 1975. High public deficits led private banks to gather deposits from the public and invest in government securities. The government was the main customer of the private banks. Retail banking did not have an important role in the system.

Table 6: PSBR/GDP

Year	PSBR/GDP	Year	PSBR/GDP	Year	PSBR/GDP
1990	5.50	1997	5.80	2004	3.60
1991	7.60	1998	7.10	2005	-0.30
1992	7.90	1999	11.70	2006	-2.00
1993	7.70	2000	8.90	2007	0.10
1994	4.60	2001	12.10	2008	0.80
1995	3.70	2002	10.00		
1996	6.50	2003	7.30		

Source: CBRT

To attract deposits, private banks offered high interest rates to the customers. Small private banks offered relatively high interest rate to compete with other banks. The interest rate range between the small private banks and other banks attracted customers to small banks. The existence of full deposit insurance in that period made caution unnecessary for consumers. Without searching the banks' quality, individuals deposited their income and wealth to the bank which offered high interest rate.

The banking sector started to be regulated and macroeconomic indicators improved in the period following the 2001 crisis. Limits were brought on the risk-taking behavior of banks and the 2001 crisis became a good lesson for the banking sector. Full deposit insurance was also replaced with a 50,000 TL insurance for each account at each bank. Moreover, public sector borrowing requirements decreased

gradually and PSBR/GDP became negative in 2005 and 2006. Also the interest rates hit historically low levels and price differentiation among banks decreased.

In the new period, the government stopped being the main customer of the private banks. The banking sector regulations brought limits to risk-taking behavior. Private banks started to show more interest in retail banking and make improvements in this direction. They focused on retail credits and product differentiation.

Thus, this chapter analyzes the effects of the new regulations and macroeconomic stability following the 2001 crisis on the bank choice of individuals. The results contribute to observing the reflection of these reforms and the positive macroeconomic performance on the banking sector, signal to the regulators whether reforms are sufficient or not, and also contribute to the banks' understanding of the needs of customers on services and products.

The literature on bank selection concentrates on the supply side of the banking sector and there is a limited research that differentiates banks in terms of their facilities and objectives. Although there are studies on different countries, the majority of the literature is on the Middle East countries. There is no bank selection criterion that is dominant in all countries. Important criteria change from geography to geography, even from country to country.

Anderson *et al*. (1976) analyze the main bank selection criteria of the bank customers by using determinant attribute analysis. They design a survey to understand the relative importance of factors that may influence the preferences of bank customers. Fifteen potential bank selection criteria that may affect the consumer's choice are determined. The results of the survey carried out among the graduate students of the University of Western Ontario indicate that bank selection is

based primarily on five criteria: recommendation of friends, reputation, the availability of credit, friendliness, and service charges on checking accounts.

Zineldin (1997) aims to identify the major attributes which are important in bank selection in Sweden using a mail survey. Respondents are asked to rate the importance of nineteen potential factors. Zineldin finds that friendliness and helpfulness of personnel, accuracy in transaction management and efficiency in correcting mistakes are important attributes in Sweden. The factor of convenient location which is rated as an important factor by consumers of many countries is not considered to be important in Sweden. The results also imply that functional quality is more important than traditional marketing activities. Price and advertising had minor effects in bank selection, like convenience of location. Apart from the others,

Apart from the others, Metwally (1997) uses the structural differences between the financial characteristics of conventional banks and participation banks in logit, probit and discriminant analysis. 15 conventional and 15 participation banks provide the information for the purpose of Metwally's study. Findings reveal that both participation banks and conventional banks offer their depositors similar returns but participation banks face more difficulties in attracting deposits than traditional banks.

Kaynak *et al.* (1991) analyze the urban Turkish consumers' bank choice by using multivariate analysis of the variance model. This model is used to test the effect of the bank customers' characteristics, frequency of bank usage, plans to change the bank or not, and banks' being private or public on bank selection. The sample includes 250 households from ten districts of a middle class city, Eskisehir. Findings reveal that there are significant differences between male and female customers. Also findings show that there is a significant difference in the preferences

of frequent bank customers and infrequent bank customers as well as different age groups.

Devlin and Gerard (2004) analyze the choice criteria in retail banking and how these criteria have changed over time. Since there is a limited literature for bank choice criteria for countries and time series data is usually not available, analyzing a trend for countries is impossible. Also, for countries where multiple-period studies related with bank selection criteria are available, there are sampling problems. Sample composition and the number of attributes of the studies change over time. Devlin and Gerard (2004) use survey data collected throughout Britain in 2000 to analyze selection criteria in which they ask questions pertaining to different periods. Respondents are classified as short tenure if their bank account has been opened less than one year ago, medium tenure if the period was between one and five years, and long tenure for five years of more. Results indicate that selection criteria in retail banking have changed over time, because bank choice criteria of short, medium and long tenure are different. This study shows that the importance of recommendation, offering of incentives, having a wide product range, interest rate paid and fees has increased over time; however, the importance of choosing a bank close to home has decreased while image and reputation have not changed in importance.

Kaynak and Harcar (2005) compare local and national bank customers by using geodemographic segmentation. A survey was designed to get information about consumers' bank selection criteria. The *t*-test was used to test for significant differences between local and national bank customers. Results indicate that there are significant differences between local and national bank customers.

Safakli (2007) tested the bank selection criteria of customers residing in different cities of Northern Cyprus. 35 attributes were asked to respondents and used

ANOVA test and factor analysis. Findings show that confidence in bank management, fast and efficient services and quality and variability of service offered are the most important factors in bank selection.

Safakli (2007) examine the bank selection criteria of customers residing in different cities of Northern Cyprus. 35 attributes are asked to respondents and the answers were analyzed using ANOVA and factor analysis. Findings show that confidence in bank management, fast and efficient services, and the quality and variability of the services offered are the most important factors in bank selection.

Ardic and Yuzereroglu's (2009) study demonstrates that individuals' selection criteria change with respect to different bank categories. Banks are categorized as public banks, small private banks and large private banks. Categorization is based on the bank's asset share in the industry total. Ardic and Yuzereroglu use survey data collected throughout Turkey in 2002 in multinomial probit analysis. Results of the study show that higher interest rates are an important criterion for the selection of small private banks; being older, retired and receiving salary increase the likelihood of choosing public banks.

The results of this chapter indicate that being retired, having income deposited at the bank in question, and the availability of services for farmers and tradesmen increase the probability of choosing public banks. Being a civil servant, working in the private sector, being unemployed, and branch and ATM density increase the likelihood of choosing large private banks while being retired reduces this probability. Contrary to expectations and the finding of previous studies, those who care about the trustworthiness and soundness of a bank choose large private banks less often compared to small private banks are important in small private bank selection. Having information about the state's deposit guarantee up to an amount

and the ease of obtaining credit also raise the probability of choosing a small bank. The advantage small private banks used to obtain by offering high interest rates seem to have disappeared, probably due to the reduction in interest rates. Participation banks supply their products for a specific group of customers.

The outline of this study is as follows. The next section describes the data and variables. Section 2.3 discusses estimation results. The last section concludes.

Data and Variables

The data used in this study was obtained from a survey of consumer behavior in the credit card market implemented in April and May, 2009 (Akin et al. 2009). The targeted population was all credit card users. Since all credit card users have to have a bank account, all observations are used, though the sample limits bank selection analysis only to credit card users. The survey was distributed to 26 regions of Turkey based on the Nomenclature of Territorial Units for Statistics (NUTS) level 2 categorization. The entire sample is composed of 2576 credit card users, though some missing observations decrease the number of observations in the regressions.

Variables

The Dependent Variable

The dependent variable in this analysis is bank types. There are four types of banks engaged in retail banking in the Turkish banking sector: public banks, large private banks, small private banks and participation banks. Since comparing large private banks with other types of banks is more meaningful, large private banks are determined as the reference bank type in the regressions.

Turkish private banks can be divided into two categories in terms of their assets. Large private banks are private banks whose share of bank assets in the industry total assets is higher than 6 percent, and the remaining private banks are

categorized as small private banks. Even though both public banks and large private banks have more than 6 percent of total industry asset share, they are differentiated by their aims and facilities. Public banks have advantage of being the intermediary between the state and public in their interactions; nevertheless, public banks suffer from the inert structure and the bureaucracy of the state. Moreover, in some situations public interest comes first rather than being profitable. Thus, the distinction between public banks and large private banks makes our results more strong.

Participation banks have interest-free operations and they supply differentiated products mostly for a specific group of customer. They are favored by the more religious customers who consider interest earnings to be illicit. The total asset share of each participation bank in the sector is lower than 6 percent; however, categorizing participation banks as small private banks would make our results meaningless for the questions pertaining to interest. Therefore, to identify the properties of small private banks related with the interest and the factors that differentiate participation banks from others, small private banks and participation banks are categorized as different groups.

Table 7: Distribution of bank types in the sample

Bank types	No of individuals	percent
Public banks	375	14.58
Large private banks	1726	67.11
Small private banks	404	15.71
Participation banks	67	2.60
Total	2572	100

As seen in Table 7, large private banks dominate the retail banking sector in the sample. Two out of three people choose large private banks, and the number of people choosing public banks is lower than the number of people choosing small private banks. Participation banks are seen as marginal banks in bank selection.

Explanatory Variables

Explanatory variables are categorized in four main categories and fifteen sub-categories including the supply and demand sides of the bank selection.

Individual Characteristics

The individual characteristics used to explain bank selection are household income, gender, marital status, age, education, occupation, region of residence, living in a town or a province center and wealth.

Household income is a continuous variable attained from the survey. The average household income of our sample is 2231 TL, between the range of 0 and 34000 TL. The *Female* dummy variable takes the value 1 if the individual is a woman. Gender is not expected to be significant in explaining bank selection. Marital status checks whether being married or unmarried is significant in explaining bank selection. If the individual is married, the *Married* dummy variable takes the value 1, and if individual is unmarried, widowed, divorced or separated it takes the value 0.

Five age categories are used to explain bank selection: individuals between the ages of 18 and 25, 26 and 35, 36 and 51, 51 and 65, and over 65. The first age category includes the young age group. The second category includes individuals who generally finished their education periods and are making decisions about their social life and professional career if they are working. Individuals between the ages of 51 and 65 are expected to be more conservative in their communication with banks. Individuals over 65 are the oldest age group who are probably out of the labor force and have limited bank interaction.

Education level is represented with four dummy variables: *Primary school* (primary school graduate or less), *Secondary school* (secondary school graduate),

High school (high school graduate) and *University* (university degree or higher education).Six dummy variables capturing occupation are used: *Civil servant*, *Self employed*, *Farmers and irregular workers*, *Private sector*, *Unemployed* and *Out of labor force*. Civil servants are working in the public sector, but we have no a priori expectation for civil servants, because the wages of some civil servants are deposited at private banks. Self employed people are divided into two categories. The dummy variable *Self employed* denotes big traders, industrialists, small traders, craftsmen and highly educated self-employed individuals. *Farmers and irregular workers* indicates farmers and seasonal or irregular workers. The *Private sector* dummy variable is equal to 1 for managers, specialists, and office workers in the private sector. Other categories denote people who are unemployed and who are out of the labor force, respectively. Individuals who are unemployed and are not looking for a job are captured in *Out of labor force*. As seen in Table 8, individuals working in the private sector dominate our sample. Another interesting point is the unemployment rate. Unemployment rate in our sample is only 3.46 percent. Retirement is also controlled in our regression with the variable *Retired*. We a priori expect that being retired increases the likelihood of choosing public banks, since retirement pensions are deposited at public banks.

Four dummy variables control for the region of residence. *Coast* region includes the Mediterranean, Aegean, and Marmara. *Black Sea* region includes East and West Black Sea. 68.40 percent of our sample is living in the *Coast* region. *Middle Anatolia* includes Middle Anatolia and West Anatolia and lastly *East* includes North, South and Middle East Anatolia.

Table 8: Summary statistics on individual characteristics

	No of Indiv.	Percent		No of Indiv.	Percent
Gender			Occupation		
Male	1841	71.47	Civil servant	488	18.97
Female	735	28.53	Private	998	38.79
Education			Self employed	414	16.09
Primary school	565	21.93	Farmers and irregular workers	87	3.38
Secondary school	284	11.02	Unemployed	89	3.46
High school	923	35.83	Out of labor force	497	19.32
University	804	31.21	Retired	500	19.41
Marital Status			Region		
Married	748	70.96	Coast	1762	68.40
Unmarried	1828	29.04	Black Sea	220	8.54
Age			East	193	7.49
Age 18-25	378	14.7	Middle Anatolia	401	15.57
Age 26-35	896	34.85	Wealth		
Age 36-50	861	33.49	Owns a car	993	40.25
Age 51 - 65	380	14.78	Owns a home	858	34.32
Over 65	56	2.17			
Town/Province					
Town	271	10.52			
Province	2305	89.48			

Town is a dummy variable which takes on the value 1 for people living in towns, and 0 for people living in province centers. Living in a town may be important due to the lower branch density of the banks in these smaller urban areas. We may expect dominance of public banks in towns.

The last individual characteristic is wealth. Wealth is proxied by two dummy variables: *Owns a car* and *Owns a home*. The value of a car or house is not considered because of these were self-assessed and are subjective. If one owns a home or car then these dummies take the value 1 and 0 otherwise.

Bank Service Usage

In the regressions we controlled for the banking services used by individuals. Statistics for bank service usage can be seen in Table 9. These banking services are divided into four categories. The first one is saving services, composed of four

dummy variables: *Time deposit*, *Liquid account, Investment account and Pension fund.* If the interviewee has the account in question, the variable takes on the value 1. The credit services category is made up of four dummy variables: *Vehicle credit, Housing credit, Consumer credit* and *Commercial credit*. Again, if the interviewee uses the credit in question, the variable takes on the value 1. The next category is technological services. These are services related with the individual's familiarity with banking technology. These banking services are *Automatic payment* and tax or insurance payments via the bank (*Tax insurance payment*). If the interviewee uses the service in question, the variable takes on the value 1.

Table 9: Banking service usage

Banking service usage	Mean	Min	Max	Std. Dev.
Saving Services				
Time deposit	0.23	0	1	0.42
Liquid account	0.23	0	1	0.42
Investment account	0.11	0	1	0.32
Pension fund	0.09	0	1	0.28
Credit Services				
Vehicle credit	0.12	0	1	0.32
Housing credit	0.09	0	1	0.28
Consumer credit	0.37	0	1	0.48
Commercial credit	0.03	0	1	0.17
Technology Services				
Automatic payment	0.33	0	1	0.46
Tax insurance payment	0.11	0	1	0.32
Commercial banking	1.16	1	5	0.61

The last banking service different from other categories is *Commercial banking*. Consumers were asked to rate the frequency of commercial banking usage, and they answered on a Likert type scale of 1 to 5.

Individuals' Banking Habits

Individuals' banking habits which have potential in explaining bank selection were also asked in the survey. The first of these, *Multiple banks* is a dummy variable

which takes the value 1 if the individual works with more than one bank and 0 otherwise.

The age of the bank account may be significant in that having an older account may have the potential of creating loyalty for that individual. *Account age* is a continuous variable which measures this age. We a priori expect that individuals working with state banks have older accounts relative to individuals working with other banks. The main reason behind this expectation is the dominance of the state banks in the 1980s and 1990s. This dominancy of public banks may create a habit for individuals and changing the main bank may be difficult for them. The average age of bank account is 6.39, as it is seen in 10.

Table 10: Bank Habits

Bank habits	Mean	Min	Max	Std. Dev.
Multiple banks	0.67	0	1	0.46
Account age	6.39	0.5	40	5.40
Being first bank	2.24	1	5	1.48

A bank's being the first bank of an individual is the last banking habit variable for individuals. This variable, *Being first bank,* is drawn from the questions about the reasons for one's bank selection. Consumers were asked to rate the importance of a bank's being their first bank was for choosing their main bank, and they answered on a Likert type scale of 1 to 5. Like the account age variable, one may form a loyalty for one's first bank.

Bank Characteristics

In the survey, individuals rated the bank characteristics that affect their main bank selection on a Likert type scale of 1 to 5. Some of these answers were included in the bank selection analysis, as they showed the bank selection criteria for these people. They are listed in Table 11.

Factors related with bank prices constitute four variables: *High interest-deposit*, *Low interest-credit*, *Low account fee* and *Low transfer fee*. These are, respectively, the ratings of the importance of high interest rates on deposits, low interest rates for credits, low deposit account fees and low transfer fees. Facilities of small private banks are insufficient relative to large private banks. Thus to compete with large private banks, small private banks may use the interest rate instrument and we a priori expect that small private banks are preferred due to the convenient interest rates.

Bank network variables are related with easy access to the bank. The first one is *Close branch*, representing the closeness of the bank branch. *Branch density* and *ATM density* rate the importance of these densities in choosing one's bank. Public banks and large banks have large networks, so it is expected that giving importance to these increases the probability of choosing public banks and large private banks.

Good service variables account for the importance given to the quality of services. These are general service quality (*Service quality*) and the quality of internet and telephone banking (*Good internet banking* and *Good telephone banking*).

The perception variables indicate whether the perception of banks by individuals affects bank selection or not. These perceptions are captured in the importance given to high security in transactions (*High security*), to having prestige or a good name (*Prestige*) and to the bank being trustworthy and sound (*Trust & sound*).

Specialized banking services test whether supplying specialized products affect the bank choice of customer groups or not. Specialization variables include *Services for tradesmen and farmers*, *Ease of foreign transactions* and C*ustomized*

services. Interviewees were asked to rate how important these services were in their bank choice. We a priori expect that tradesmen and farmers choose public banks as their main banks due to the facilities of public banks for these occupation groups.

Patronage effect tests the effect of acquaintances on bank selection. These factors are whether acquaintances' recommendations were effective in bank selection (*Recommendation of acquaintances)* and if one's bank selection is affected by people that an individual is in touch with using that bank (*People in touch use this bank*).

A bank's being the *Income deposit bank* is another potential explanatory variable. Having income deposited at a bank may be an important factor in choosing it as the main bank. Receiving wages via a bank account rather than by hand has become widespread in all areas in the last decades. Since using the income deposit bank is easier and saves time, individuals may tend to choose income deposited bank as the main bank.

Bank types, implying identity, also affect bank selection. These identities are captured in the importance given to a bank's being a state bank (*State bank*), a bank's being a Turkish bank (*Turkish bank*) and a bank's being a participation bank (*Participation bank*). These are answered on a Likert type scale of 1 to 5.

Other factors affecting bank selection constitute three variables: *Ease of using credit*, availability of a wide range of services (*Wide range of services*) and deposit insurance guarantee information (*Deposit guarantee info*). *Ease of using credit* indicates the relatively low probability of denial in credit applications. Ease of obtaining credit may increase the probability of choosing small private banks. The main reason behind this expectation is that providing credit without difficulty has been the policy of small private banks in early 2000's. *Wide range of services* is intended to capture the bank selection effect of supplying various banking services to

Table 11 – Bank characteristics

Bank characteristics	Mean	Std. Dev.	Min	Max
Bank price				
High interest rates – deposits	1.76	1.21	1	5
Lower interest – credits	2.11	1.34	1	5
Lower account fee	2.08	1.33	1	5
Low transfer fee	1.82	1.21	1	5
Bank network				
Close branch	2.88	1.46	1	5
Branch density	3.12	1.47	1	5
ATM density	3.15	1.44	1	5
Service quality				
Service quality	3.12	1.42	1	5
Good internet banking	1.98	1.34	1	5
Good telephone banking	1.88	1.25	1	5
Specialized services				
Services for tradesman and farmers	1.72	1.18	1	5
Ease of foreign transactions	1.58	1.09	1	5
Customized services	2.69	1.46	1	5
Perception				
Prestige	3.00	0.15	1	5
Trust & sound	3.42	1.44	1	5
High security in transactions	3.00	1.46	1	5
Patronage				
People in touch use this bank	2.37	1.43	1	5
Recommendations of acquaintances	2.01	1.31	1	5
Income deposit bank	2.64	1.64	1	5
Other factors				
Ease of using credit	2.25	1.41	1	5
Wide range of services	2.76	1.44	1	5
Bank types				
State bank	2.37	1.52	1	5
Turkish bank	2.84	1.58	1	5
Participation bank	1.78	1.21	1	5

provide all bank necessities of customers. A wide range of services is generally supplied by large private banks due to their facilities and we expect that it increases the likelihood of choosing large private banks. *Deposit guarantee info* clarifies the effect of having information on bank selection. Individuals are asked whether they know the amount of bank deposits guaranteed by the state or not. The deposit

guarantee information takes value 1 if individuals declare a positive amount of guarantee for bank deposits and 0 otherwise. Thus individuals are classified into two groups; individuals who are aware of the existence of the deposit guarantee and individuals who are not. Result of this question reveals that only 15 % of the sample knows the true amount, which is 50,000 TL for each bank. 21 % of the sample declares an amount for deposit guarantee.

Estimation Results

The multinomial probit model is used in this study. The multinomial probit model makes use of maximum likelihood estimation. It model can be applied for less than five alternatives, because of computational problems in multiple integrals. Our model in this study is

$$y_{ij} = x_i \beta j + \varepsilon_{ij} \quad (2)$$

where ε_i terms follow a multivariate normal distribution and are correlated across choice. j terms corresponds to the alternatives (Varbeek 2004). These are the bank types in our study: j=1 corresponds to public banks, j=2, j=3 and j=4 corresponds to large private banks, small private banks and participation banks, respectively. The categorization is unordered categorization.

The estimation results for bank selection are presented in Table 12. The left sides of the columns show the marginal effects, which are calculated at the sample averages for continuous variables including *Household income* and *Bank age* and at 0 for dummy variables. Also, the estimation coefficients with respect to large private banks are presented in Table 15-17 in the Appendix. Large private banks were determined as the base outcome, since comparing large private banks with public banks and small private banks is more meaningful and simple rather than comparing public banks and small private banks.

The results show that *Household income* is not statistically significant for public banks and participation banks; however, having a higher household income increases the probability of choosing large private banks and small private banks.

Female and *married* are not important in bank selection; however, some age categories turn out to be so. Individuals in all age categories except those over 65 are less likely to choose public banks relative to the 18-25 age category. This may be because individuals start out with using banking services of well known public banks and then pass to the other types of banks.

Education is also statistically insignificant, except the *Primary school* variable. People with only a primary school education or less choose public banks more relative to people with university degrees or higher education. These individuals are also less likely to choose large private banks. It is possible that their banking necessities are met by public banks and interaction with large private banks is unnecessary for the people in this category.

Civil servants are more likely to choose large private banks and less likely to choose small private banks. Many of the civil servants' wages are now deposited at large private banks. At this point small private banks do not attract the public sector to be income deposit banks. The interesting result is related with public banks. Despite the wages of the some civil servants being deposited at public banks, they do not seem to have a preference for public banks. It is seen that large private banks are preferred by civil servants. Because small private banks do not supply deposit services for civil servants' wages, they are less likely to be chosen by civil servants. *Self employed* and *Farmers and irregular workers* are not statistically significant variables in bank selection; however, working in the private sector unsurprisingly leads individuals to prefer large private banks over public and small private banks.

The same approach is seen in unemployed people. *Unemployed* leads individuals to prefer large private banks over public and small private banks. *Retired* increases the likelihood of choosing public banks by 14.9 percent and reduces the probability of choosing large private banks by 10.7 percent, probably due to pension payments' being deposited at public banks. In Table 12, it is seen that being older than 65 is not important in bank selection; however, retirement is important in choosing public banks. We may say that being older than 65 but being not retired is not important in bank selection.

Region dummies show that bank selection is independent from the region of residence. We a priori expected that individuals living in the East region would be more likely to choose public banks because of public banks' dominance in this region, but this did not turn out to be the case. *Town, Owns a car* and *Owns a house* are also not statistically significant factors in bank selection.

Customers who use liquid accounts, investment accounts and pension fund accounts are not inclined to use specific type of banks; however, using time deposits makes it more likely to patronize large private banks.

People using housing credit have fewer tendencies to choose participation banks. The structure and aim of participation banks are not convenient for customers interested in housing credits. Individuals who use consumer credit are more likely to choose small private banks and less likely to choose large private banks, because small private banks focus on credits and they give credits relatively easy. The variables *Vehicle credit* and *Commercial credit* are not significant in bank selection.

The usage of automatic payment service is statistically significant for public and large private banks. Using this service increases the probability of choosing large private banks by 5.1 percent and reduces the probability of choosing public banks by

4.8 percent. The main reason behind this result is the technological infrastructure of public and large private banks. Public banks do not invest in technology while large private banks do so aggressively. Thus, the differences between the investments on technology lead technology-oriented customers to large private banks.

Individuals who make tax or insurance payments through banks do not have a preference for bank types. Using commercial banking is not statistically significant for any type of banks.

Multiple banks is not an important variable in bank selection; however, *Account age* is important. If years of working with the same bank increase, individuals are more likely to be with public banks or large private banks less with small private banks and participation banks. This is an important result, because these results show that working with public banks or large private banks create a bank habit for customers and they are resistant to changing banks. On the other hand, the negative coefficient of small private banks and participation banks show that the customers of these banks are new. This means, customers of the small private banks and participation banks are not working with these banks for long years. *Being first banks* reduces the probability of choosing public banks by 1 percent. Thus, increase in working with the same bank leads individuals to the public banks but reason of this is not the being first bank.

Bank price variables including *High interest-deposit, Low interest-credit, Low account fee* and *Low transfer fee* are generally unimportant factors in bank selection of customers. Insignificance of bank prices is one of the most important results of this study. Former studies point out that small private banks are preferred due to the high interest rates they offer; however, our results indicate that high interest rates for deposits are not important for bank selection, even for small private

banks but low interest rate for credits reduces the probability of choosing small private banks by 1.6 percent. Table 18 in the Appendix presents the mean ranking analysis of reasons of bank selection. It can be seen that factors related with interest rates are not in the top of the list and that the mean ranking of interest rate for deposits is lower than the interest rates for credits which imply that customers give more attention to interest rate for credits rather than for deposits. The main reason behind low rankings of the interest prices is the reduction in interest rates in Turkey. Ardic and Yuzereroglu (2009) find that high interest rate is important in small bank selection. Interest rates were very high in 1990s and early 2000s and data gathered by Ardic and Yuzereroglu in 2002. In the recent years, especially in 2009, the gap between the interest rates of small private banks and other banks disappeared. Therefore explaining the choice of small private banks with their offering high interest rates was meaningful in those years, but today conditions changed.

In Tables 18 and 19 in the Appendix, bank characteristics and grouped bank characteristics are categorized by mean ranking analysis. The mean effectiveness of each bank characteristics in bank selection according to the survey results is displayed, and it is seen that the mean ranking of bank prices is the lowest in all categories, confirming the results above.

Close branch, as a part of bank network, is not a statistically significant variable in explaining bank selection but *ATM density* increases the probability of choosing large private banks by 2 percent and reduces small private banks by 1.5 percent. A key element of the quality of a bank network is branch density. Individuals who take into consideration *Branch density* are less likely to use public banks, and more likely to use large private banks. We a priori expected that branch density would increase the probability of choosing public banks and large private

banks, but it affected public banks negatively relative to large private banks. The branch density of large private banks seems to be perceived as being superior to public banks in general. We should also consider the distribution of public banks patronized by the people in the sample. The share of the Halkbank and Vakifbank is more than half of total public bank users. These banks are insufficient in branch density and are not expected to be preferred due to their branch density.

Service quality and *Good internet banking* opportunities of banks are not important in bank selection. Also individuals do not consider *Good telephone banking* in their bank selection except public banks. Considering good telephone banking to be an important factor in bank selection reduces the probability of choosing public banks by 1.6 percent presumably due to the deficiencies in the technological infrastructure of public banks.

Customer specific product and service variables including *Ease of foreign transactions* and *Customized services* are not statistically significant in bank selection; nevertheless, choosing a bank for the services provided to farmers and tradesmen increases the likelihood of choosing public banks in line with our expectations. Since only public banks serve farmer and tradesmen specific products, individuals related with these kinds of products choose public banks. In Table 18, it is seen that specialized services are at the bottom of the mean rankings in bank characteristics.

Bank perceptions of individuals reflected in the variables *Prestige* and *High security* are not statistically significant; however, choosing a bank for being trustworthy and sound (*Trust & sound*) reduces the probability of choosing large private banks. This is another different result from the former studies. In the former studies, it was found that the trust factor affects small private bank selection

negatively, but in our study it is seen that large private banks are faced with the trust problem. Small private banks are preferred to the large private banks by people who care about the bank being trustworthy and sound. On the other hand, the reason of choosing small private banks relative to the large private banks (Table 16) may be that foreign banks are included among small private banks. After some small private banks were transferred to the Saving Deposit Insurance Fund (SDIF), some individuals may have tended to choose small private banks which are foreign based. Foreign banks may have been thought of as being more trustworthy relative to the large private banks in that period. On the other hand, in Tables 18 and 19, it is seen that individuals' perception of banks is important in bank selection. All perception variables take high ratings as important factors in bank selection and this is reflected to the rankings in Table 18. *Prestige, High security* and *Trust & sound,* are ranked first, fifth and sixth, respectively. Despite *Prestige* and *High security* being statistically insignificant in bank selection, they are important because subjects give high ratings to these factors in bank selection. As the definition of prestige and high security changes with respect to individuals they give prefer different types of banks.

People in touch use this bank, as a patronage variable, is not considered in bank selection. Also, *Recommendation of acquaintances* is not regarded in bank selection except for small private banks. Small private banks seem to be recommended by the customers' acquaintances. This means that individuals who take notice of their acquaintances' recommendations choose small banks.

Another critical explanatory variable in bank selection is the bank's being the income deposit bank (*Income deposit bank*). In that point, being the bank at which one's income is deposited increases the selection of public banks by 3.4 percent and reduces the probability of choosing small private banks and large private banks as

Table 12 – Public banks and large private banks estimation results: marginal effects

	Public banks		Large private banks	
	Mrg. effect	Std. err.	Mrg. effect	Std. err.
Household income	0.000	0.000	0.000**	0.000
Female	-0.023	0.015	0.022	0.021
Married	-0.028	0.021	0.021	0.026
Age 26-35	-0.064***	0.021	0.025	0.031
Age 36-50	-0.051**	0.024	-0.011	0.037
Age 51_65	-0.050**	0.025	-0.026	0.053
Age 65	0.008	0.047	0.000	0.091
Primary school	0.075***	0.028	-0.056*	0.033
Secondary school	0.011	0.029	0.023	0.034
High school	0.029	0.019	-0.021	0.025
Civil servant	0.030	0.033	0.092**	0.038
Self employed	-0.004	0.043	0.055	0.051
Farmers and irregular workers	-0.038	0.036	0.054	0.053
Private sector	-0.059**	0.025	0.120***	0.037
Unemployed	-0.055**	0.027	0.109***	0.041
Retired	0.149***	0.046	-0.107**	0.051
Coast	0.015	0.028	0.026	0.037
Black Sea	0.010	0.035	-0.022	0.048
Middle Anatolia	0.057	0.036	-0.014	0.042
Town	0.007	0.023	-0.006	0.032
Owns a car	0,010	0,015	0,023	0,022
Owns a house	0,014	0,016	0,009	0,021
Time deposit	-0,020	0,016	0,044*	0,022
Liquid account	-0,001	0,017	-0,010	0,023
Investment account	0,016	0,026	-0,011	0,033
Pension fund	-0,024	0,023	-0,006	0,036
Vehicle credit	-0,032	0,021	0,049	0,030
Housing credit	0,007	0,025	-0,018	0,036
Consumer credit	0,006	0,015	-0,038*	0,021
Commercial credit	0,039	0,053	-0,005	0,061
Auto payment	-0,048***	0,014	0,051**	0,021
Tax insurance. Payment	0,020	0,027	-0,053	0,035
Commercial banking	0.016	0.012	-0.009	0.016
Multiple banks	-0.019	0.016	0.010	0.021
Account age	0.004***	0.001	0.012***	0.002
Being first bank	-0.010*	0.006	0.011	0.008
High interest-deposit	-0.011	0.008	0.007	0.011
Low interest-credit	0.010	0.008	0.006	0.011
Low account fee	0.002	0.007	-0.004	0.010
Low transfer fee	0.003	0.008	-0.007	0.011
Close branch	-0.007	0.007	0.003	0.009
Branch density	-0.018**	0.008	0.026**	0.011
ATM density	-0.004	0.007	0.020**	0.010
Service quality	-0.003	0.007	0.003	0.010
Good internet banking	-0.001	0.008	0.005	0.010
Good telephone banking	-0.016*	0.009	0.007	0.012
Service - farmers-tradesmen	0.017**	0.008	-0.015	0.011
Ease of foreign transactions	-0,005	0,008	-0,007	0,011
Customized services	0,005	0,008	-0,011	0,011

Prestige	-0,007	0,007	0,011	0,010
Trust & sound	0,010	0,007	-0,021**	0,010
High security	-0,004	0,008	0,001	0,010
People in touch use this bank	0,007	0,006	0,001	0,008
Recommendation of acquaintances	-0,010	0,007	-0,002	0,009
Income deposit bank	0,034***	0,004	-0,012*	0,006
Ease of using credit	-0,014*	0,007	-0,018*	0,010
Wide service	-0,017**	0,008	0,017	0,011
Dep. guarantee info	-0,020	0,016	-0,027	0,025
State bank	0,048***	0,006	-0,021**	0,009
Turkish bank	0.017***	0.007	0.034***	0.009
Participation bank	-0.006	0.008	0.002	0.011
		Pr =.097		Pr =.774

First columns are the marginal effects and standard errors are in the second columns. *, ** and *** denote the coefficients' significance level at 10 %, 5 % and 1 %, respectively.

Table 12 (continued) – Small private banks and participation banks' estimation results: marginal effects

	Small private banks		Participation bank	
	Mrg. effect	Std. err.	Mrg. effect	Std. err.
Household income	0,000**	0,000	0,000	0,000
Female	0.000	0.018	0.000	0.001
Married	0.007	0.020	0.001	0.001
Age 26-35	0.033	0.026	0.006	0.004
Age 36-50	0.059*	0.031	0.003	0.003
Age 51_65	0.070	0.050	0.006	0.009
Age 65	0.002	0.088	0.005	0.020
Primary	-0.019	0.023	0.000	0.001
Secondary	-0.036	0.025	0.002	0.003
High school	-0.009	0.020	0.001	0.001
Civil servant	-0.122***	0.021	0.001	0.003
Self employed	-0.054	0.034	0.003	0.005
Farmers and irregular workers	-0.017	0.043	0.001	0.005
Private sector	-0.064**	0.030	0.003	0.004
Unemployed	-0.060**	0.030	0.005	0.011
Retired	-0.043	0.031	0.001	0.003
Coast	-0.009	0.030	-0.002	0.002
Black Sea	0.012	0.039	0.000	0.002
Middle Anatolia	-0.042	0.028	-0.001	0.001
Town	0.000	0.025	-0.001	0.001
Owns a car	-0.012	0.018	0.000	0.001
Owns a house	-0.021	0.017	-0.001	0.001
Time deposit	-0.023	0.018	-0.001	0.001
Liquid account	0.011	0.019	0.001	0.001
Investment account	-0.004	0.026	-0.001	0.001
Pension fund	0.031	0.032	0.000	0.002
Vehicle credit	-0.021	0.025	0.003	0.004
Housing credit	0.014	0.030	-0.002*	0.001
Consumer credit	0.034*	0.018	-0.002	0.001
Commercial credit	-0.033	0.042	-0.001	0.002

Auto payment	-0.004	0.018	0.001	0.001
Tax insurance. Payment	0.033	0.029	0.000	0.002
Commercial banking	-0.008	0.014	0.001	0.001
Multiple banks	0.008	0.017	0.000	0.001
Account age	-0.016***	0.002	-0.001**	0.000
Being first bank	-0.001	0.007	0.000	0.000
High interest-deposit	0.004	0.009	-0.001	0.001
Low interest-credit	-0.016*	0.009	0.001	0.001
Low account fee	0.002	0.009	0.001	0.001
Low transfer fee	0.005	0.009	0.000	0.001
Close branch	0.004	0.007	0.000	0.000
Branch density	-0.008	0.009	0.000	0.000
ATM density	-0.015*	0.008	0.000	0.001
Service quality	0.000	0.008	0.000	0.000
Good internet banking	-0.005	0.008	0.000	0.000
Good telephone banking	0.010	0.009	0.000	0.001
Service - farmers-tradesmen	-0.001	0.009	0.000	0.000
Ease of foreign transactions	0.012	0.009	0.000	0.001
Customized services	0.006	0.009	0.000	0.001
Prestige	-0.004	0.008	0.000	0.000
Trust & sound	0.011	0.008	0.001	0.001
High security	0.003	0.008	0.000	0.000
People in touch use this bank	-0.008	0.006	0.000	0.000
Recommendation of acquaintances	0.013*	0.007	0.000	0.000
Income deposit bank	-0.022***	0.005	0.000	0.000
Ease of using credit	0.033***	0.008	-0.001	0.000
Wide service	0.000	0.010	-0.001	0.001
Deposit guarantee info	0.044**	0.022	0.003	0.003
State bank	-0.026***	0.008	-0.001*	0.001
Turkish bank	-0.051***	0.007	0.000	0.000
Participation bank	0.001	0.010	0.003*	0.002
		Pr =.126		Pr=.001

First columns are the marginal effects and standard errors are in the second columns. *, ** and *** denote the coefficients' significance level at 10 %, 5 % and 1 %, respectively.

main bank by 2.2 percent and 1.2 percent, respectively. Small private banks have no say in being an income deposit bank. We should also emphasize that in recent years, banks compete at being the income deposit bank of institutions and present attractive offers to them, because customers have the potential of using other banking products of that bank by their deposited income.

The *Ease of using credit* variable increases the likelihood of choosing small private banks and reduces the likelihood of choosing public banks and large private banks. Before the low interest rate period, small private banks competed by offering

high interest rates for deposits and giving easy credit to the customers; however, now small banks cannot compete by high interest rate due to falling interest rates. Thus, they only compete with ease of credit in credit market. The credit policy of small private bank seems to be differentiated by the ease of using credit, accompanied by low interest rate for deposits. Public banks and large private use caution in giving credit. Participation banks do not provide such a service.

Wide range of services reduces the probability of choosing public banks by 1.7 percent. Large private banks are preferred to public banks because of their wide range of services (Table 15). Large private banks attract customers by offering numerous services while public banks concentrate on a limited number of them. Thus, customers who attach importance to the wide range of services tend to choose large private banks rather than public banks.

Individuals who are aware of the the existence of deposit insurance (*Deposit guarantee info*) incline to small private banks. Ardic and Yuzereroglu (2009) find that the trust factor leads individuals to choose large private banks and negatively affects public and small private bank selection. Individuals who know of the existence of deposit guarantee prefer small private banks rather than large private banks as seen in Table 16.

Choosing a bank due to its being a state bank (*State bank*) increases the probability of choosing public banks and reduces the probability of choosing all other bank types. Considering a bank's being a Turkish bank in bank selection (*Turkish bank)* increases the probability of choosing public banks and large private banks by 1.7 percent and 3.4 percent, respectively but reduces the probability of choosing small private banks 5.1 percent. This must be because of the foreign banks in the small private bank category. Considering a bank's being a participation bank

when choosing a bank (*Participation bank)* increases the probability of choosing only participation banks as expected. This variable must be capturing some properties about participation banks not covered by the other variables, like religiosity.

To summarize the results of the estimation, the choice of public banks is affected positively by being a retired person, by the bank being the income deposit bank, and by using services for farmers and tradesmen. It is seen that public banks are preferred due to compulsory reasons. Having a preference for branch density and technological services like good telephone banking and automatic payment reduces the likelihood of choosing public banks. *Civil servant*, *Unemployed* and P*rivate sector*, as well as B*ranch density and ATM density* increase the probability of choosing large private banks; however, *Trust & sound* is the factor that affects choice of large private banks negatively relative to small private banks. *Trust & sound, Deposit guarantee info* and *Ease of using credit* leads individual to choose small private banks. I*ncome deposit bank* and *Turkish bank* are not the factors to attract individuals to the small private banks. Considering bank's being participation bank increases the likelihood of choosing participation bank. *Housing credits* and *Bank age* affect choice of participation banks, negatively. Since their customers are specific customer groups that are averse to interest earnings, the main reason of choosing participation banks seems to be religiosity.

Conclusion

Turkish banking system experienced problems which required regulations during the 1990s and these problems continued until early 2000s. The system of gathering deposits from individuals and using deposits to finance the budget deficits of the government failed. Also full deposit insurance led individuals to the high

interest rate offered banks without regard to the financial structure of that bank; however, after the 2001 crisis the banking sector was regulated and a limit was brought on deposit insurance. Public deficits shrank and became negative in 2005 and 2006, and banks turned to other banking activities from financing the government. In the new period, banks invest on product diversification and retail credits. Thus bank selection of individuals became a different process in the new period.

This chapter analyzes the factors affecting bank choice in the new period. Results indicate that public banks are preferred mainly due to people's wages being deposited at these banks. Branch and ATM density increase the probability of choosing large private banks. Furthermore, ease of getting credit leads individuals to choose small private banks. Interest rates for deposits and credits are not important in bank selection any longer and that is a critical change that differentiates the new period from the previous period. Also the trust factor becomes important for choosing small private banks rather than only large private banks, and an important reason may be the foreign banks among small private banks.

These results would be helpful to regulators to understand the present situation and to develop new policies. Bank could also benefit by getting clues about people's criteria in bank selection and using them to formulate new techniques to attract customers to and to get rid of some inefficient former techniques which are no longer considered as important in bank selection.

Appendices

A: Tables for Credits

Table 13 - Results for different specifications

	Regression 7		Regression 8		Regression 9	
	Prob	std	prob	Std err	Prob	Std err
Household income	0.000	0.000	0.000	0.000	0.000	0.000
Female	0.001	0.025	0.009	0.025	-0.003	0.025
Married	0.094***	0.028	0.097***	0.027	0.103***	0.027
Age 26 – 35	0.165***	0.042	0.169***	0.042	0.173***	0.041
Age 36 – 50	0.240***	0.045	0.243***	0.045	0.244***	0.044
Age 51 – 65	0.339***	0.053	0.331***	0.053	0.339***	0.052
Age 65 +	0.277***	0.089	0.315***	0.086	0.311***	0.085
Primary school	0.017	0.035	-0.002	0.035	0.016	0.035
Secondary school	0.079*	0.043	0.064	0.042	0.083**	0.042
High school	0.076***	0.029	0.070**	0.029	0.078***	0.028
Civil servant	0.109***	0.042	0.114***	0.042	0.109***	0.042
Self employed	0.074	0.069	0.097	0.069	0.081	0.068
Farmers and irregular workers	-0.109*	0.059	-0.118*	0.058	-0.105*	0.059
Private sector	-0.021	0.038	-0.025	0.037	-0.021	0.037
Unemployed	-0.073	0.059	-0.048	0.060	-0.051	0.059
Coast	0.175***	0.041	0.164***	0.040	0.179***	0.040
Black Sea	0.134**	0.060	0.120**	0.058	0.133**	0.058
Middle Anatolia	0.072	0.052	0.063	0.051	0.066	0.051
Owns a home	-0.024	0.024	-0.021	0.024	-0.026	0.024
Owns a car	-0.018	0.025	-0.003	0.025	-0.006	0.025
Town	-0.018	0.035	-0.018	0.034	-0.029	0.034
Sophisticated user	0.011***	0.002	0.010***	0.002	0.011***	0.002
Revolver	0.163***	0.028	0.176***	0.025	0.215***	0.024
Number of cards	0.054***	0.011	0.052***	0.011		
Credit card share-exp					0.001***	0.000
Delinquency	0.090*	0.051	0.082*	0.051	0.124**	0.050
Maximum credit card debt	0.000**	0.000				
Cash Advance			0.135***	0.028		
Religiosity						
	No of obs=2233		No of obs=2291		No of obs=2285	
	Wald $chi^2(24)$=323.80		Wald chi^2 (24)=344.14		Wald $chi^2(24)$=320.92	
	Prob>chi^2=0.000		Prob>chi^2=0.000		Prob>chi^2=0.000	

The first columns present the marginal effects and standard errors are in second columns. *, ** and *** denote the coefficients' significance level at 10 percent, 5 percent and 1 percent, respectively.

Table 14 - Results for housing and vehicle credits

	Vehicle credit		Housing credit	
	Prob	Std Err	Prob	Std Err
Household income	0.000***	0.000	0.000**	0.000
Female	-0.0360***	0.011	-0.007	0.011
Married	0.059***	0.011	0.014	0.013
Age 26 – 35	0.024	0.023	0.053**	0.026
Age 36 – 50	0.029	0.025	0.099***	0.031
Age 51 – 65	-0.002	0.027	0.123***	0.049
Age 65 +	0.044	0.061	0.066	0.070
Primary school	-0.022	0.015	-0.018	0.014
Secondary school	0.009	0.021	-0.021	0.015
High school	0.024*	0.014	-0.004	0.012
Civil servant	0.010	0.021	0.025	0.020
Self employed	0.155**	0.081	0.017	0.039
Farmers and irregular workers	-0.065**	0.023	-0.035	0.025
Private sector	-0.043**	0.018	-0.030*	0.016
Unemployed	-0.066**	0.010	-0.045*	0.015
Coast	0.087***	0.019	0.037*	0.019
Black Sea	0.120***	0.059	0.033	0.037
Middle Anatolia	0.090**	0.047	0.054*	0.035
Owns a home	0.026**	0.012		
Owns a car			0.000	0.010
Town	-0.026	0.014	-0.010	0.015
Sophisticated user	0.004	0.001	0.004***	0.001
Revolver	0.012	0.011	-0.001	0.011
Number of cards	0.009	0.005	0.004	0.004
Credit card share-exp				
Delinquency				
Maximum credit card debt				
Cash Advance				
	No of obs=2307		No of obs=2338	
	Wald $chi^2(24) = 231.08$		Wald $chi^2(24) = 157.40$	
	Prob >$chi^2 = 0.000$		Prob >$chi^2 = 0.000$	

Multinomial probit model regression results in table show the result for the dependent variable being whether or not one has used vehicle credit and housing credit, respectively. The first columns present the marginal effects and standard errors are in second columns. *, ** and *** denote the coefficients' significance level at 10 percent, 5 percent and 1 percent, respectively.

B: Tables for Bank Choice

Table 15 – Multinomial probit regression results: Public banks versus large private banks

	Public banks	
	Coefficient	Std. error
Household income	.0000582	.0000381
Female	-.1872077	.1278300
Married	-.2063124	.1503163
Age 26 – 35	-.4937867***	.1916621
Age 36 – 50	-.3408751	.2145266
Age51 – 65	-.3528882	.2725689
Age 65 +	-.0511034	.3889304
Primary school	.5002051***	.1744238
Secondary school	.0354512	.2119249
High school	.2118791	.1420213
Civil servant	.0455735	.2386992
Self employed	-.1036323	.3492731
Farmers and irregular workers	-.3562323	.3456779
Private sector	-.5857664***	.2204094
Unemployed	-.6481566*	.3764608
Retired	.8785976***	.2351609
Coast	-.1362713	.2128872
Black sea	.0976098	.2632639
Middle Anatolia	.3393386	.2291691
Town	.0556603	.1785046
Owns a car	-.1048745	.12685
Owns a house	.0744943	.121829
Time deposit	-.2059531	.1398537
Liquid account	.0073000	.133178
Investment account	.1134644	.186082
Pension fund	-.1665285	.2175579
Vehicle credit	-.3051114	.207298
House credit	.0685623	.1914186
Consumer credit	.0923059	.120463
Commercial credit	.2285464	.3375473
Automatic payment	-.4125146***	.1262027
Tax insurance. Payment	.200052	.1879098
Commercial banking	.115874	.090383
Multiple banks	-.1345566	.119083
Account Age	.006687	.0108372
First bank	-.0786484*	.0456929
High interest – deposit	-.0837539	.0636514
Low interest – credit	.0548899	.0634026
Low account fee	.0170701	.0584124
Low transfer fee	.0268625	.0654023
Close branch	-.0500332	.0542227
Branch density	-.1552477**	.0629133
ATM density	-.0567267	.0585670
Service quality	-.023238	.0567077
Good internet banking	-.0149791	.0624341
Good telephone banking	-.1157448	.0706709
Services for tradesmen and farmers	.1320198**	.0602258
Ease of foreign transaction	-.0196177	.0660112
Customized services	.0461551	.0640198

Prestige	-.0636266	.055483
Trust & sound	.0953091	.0579233
High security	-.0295145	.0593653
People in touch use this bank	.0448626	.0436242
Recommendation of acquaintances	-.0653321	.0549906
Income deposit bank	.23668***	.0351278
Ease of using credit	-.0649745	.0573572
Wide range of services	-.1336307**	.0650632
Deposit guarantee info	-.0939682	.1388130
State bank	.3474379***	.0482180
Turkish bank	.06207	.0527704
Participation bank	-.0401622	.0630027
Constant	-1.279.722***	.3733822
	No of obs= 2261	
	Prob>chi2=0.0000	
	Waldchi2(183)=693,22	

Multinomial probit regression results: First columns are the coefficients and standard errors are in the second columns.
*, ** and *** denote the coefficients' significance level at 10 %, % and 1 %, respectively

Table 16 – Multinomial probit regression results: Small private banks versus large private banks

	Small private banks	
	Coefficient	Std.error
Household income	.0000675**	.0000285
Female	-.0331416	.1174816
Married	.0059633	.1342075
Age 26 – 35	.1329071	.1655613
Age 36 – 50	.3096513	.1893189
Age51 – 65	.3555854	.2664273
Age 65 +	.0112955	.5698996
Primary school	-.0210192	.1636936
Secondary school	-.2409638	.1911777
High school	-.0142712	.1317231
Civil servant	-1.024.505***	.2493795
Self employed	-.4014852	.2840016
Farmers and irregular workers	-.17229	.3076463
Private sector	-.5303092**	.2143556
Unemployed	-.5578095*	.3060596
Retired	-.0917372	.2449706
Coast	-.0873796	.1962292
Black sea	.0905021	.2449574
Middle Anatolia	-.221621	.2211171
Town	.0073302	.1683135
Owns a car	-.0969215	.1195081
Owns a house	-.1263215	.1127992
Time deposit	-.1891859	.1300568
Liquid account	.0694312	.1236136
Investment account	-.0062027	.1755079
Pension fund	.1571325	.1855971
Vehicle credit	-.185935	.1811299

House credit	.0951193	.1879846
Consumer credit	.2295776**	.1128974
Commercial credit	-.1844843	.3353254
Automatic payment	-.0982284	.1215087
Tax insurance. Payment	.237954	.1698111
Commercial banking	-.0256332	.0905055
Multiple banks	.0261504	.1132915
Account age	-.1002449***	.014405
First bank	-.0203345	.0430799
High interest – deposit	.0116019	.0584817
Low interest – credit	-.0918102	.0609181
Low account fee	.015942	.0558955
Low transfer fee	.0361228	.0622719
Close branch	.0170146	.0488623
Branch density	-.0781889	.0567993
ATM density	-.1072623**	.0539035
Service quality	-.005578	.052329
Good int. banking	-.0310169	.0552019
Good tel. banking	.0419841	.0601602
Services for tradesmen and farmers	.0154483	.060654
Ease of foreign transaction	.0748893	.0611303
Customized services	.0467488	.0597348
Prestige	-.0340363	.0545201
Trust & sound	.0865743*	.0521736
High security	.0165334	.0548326
People in touch use this bank	-.0415882	.0420396
Recommendation of acquaintances	.0703834	.0489755
Income deposit bank	-.0960589***	.0347860
Ease of using credit	.1983494***	.0536984
Wide range of services	-.0277209	.0625499
Deposit guarantee info	.2527078**	.1279681
State bank	-.1045002**	.0513990
Turkish bank	-.3174628***	.0466265
Participation bank	.0052314	.0637400
Constant	.6086658*	.3510451
	No of obs= 2261	
	Prob>chi2=0.0000	
	Waldchi2(183)=693,22	

Multinomial probit regression results: First columns are the coefficients and standard errors are in the second columns.
*, ** and *** denote the coefficients' significance level at 10 %, % and 1 %, respectively.

Table 17 – Multinomial probit regression results
Participation banks versus large private banks

	Participation banks	
	Coefficient	Std. error
Household income	.0000921	.0000654
Female	-.0172797	.2608844
Married	.3012297	.2946574
Age 26 – 35	.878786**	.3962966
Age 36 – 50	.5941821	.4525195
Age51 – 65	.7955824	.6428244
Age 65 +	.6533703	1.383.403
Primary school	.112641	.3515550
Secondary school	.3468584	.3696160
High school	.3206994	.2909979
Civil servant	-.0035829	.6983522
Self employed	.3630543	.6685918
Farmers and irregular workers	.2016057	.8210809
Private sector	.5004657	.6315884
Unemployed	.4554912	.8381639
Retired	.3492518	.6590208
Coast	-.4696502	.3556955
Black sea	-.0332364	.4807333
Middle Anatolia	-.5064445	.4264224
Town	-.5868266	.4640146
Owns a car	.035168	.261766
Owns a house	-.2476049	.2550973
Time deposit	-.267441	.2930873
Liquid account	.2609547	.2474543
Investment account	-.1915392	.3875449
Pension fund	-.0563787	.4729957
Vehicle credit	.4332047	.3656162
House credit	-1.329.585*	.7365857
Consumer credit	-.6497712**	.2761050
Commercial credit	-.2423135	.8307807
Automatic payment	.0432871	.2685577
Tax insurance. Payment	.2142617	.3731246
Commercial banking	.2734522*	.1535317
Multiple banks	.1061013	.2403026
Account age	-.1935163***	.0444128
First bank	-.0109277	.1017424
High interest – deposit	-.1764867	.122001
Low interest – credit	.1568883	.1215256
Low account fee	.2293264**	.1019205
Low transfer fee	-.0656096	.1304202
Close branch	-.1110238	.1051479
Branch density	-.1211887	.1206758
ATM density	-.1603148	.1239325
Service quality	-.0336618	.1152995
Good int. banking	.1241987	.1158805
Good tel. banking	-.1472671	.140086
Services for tradesmen and farmers	-.0271998	.127691
Ease of foreign transaction	-.1069732	.1473529
Customized services	.0085255	.1403558
Prestige	.0367058	.1175971

Trust and sound	.175173	.1148809
High security	-.0672779	.1236725
People in touch use this bank	.0493341	.0848014
Recommendation of acquaintances	-.1209759	.1191188
Income deposit bank	.0754536	.0733348
Ease of using credit	-.2407857*	.1331781
Wide range of services	-.1684808	.1430633
Deposit guarantee info	.5876085**	.2676262
State bank	-.3128302***	.112115
Turkish bank	-.0602157	.1033281
Participation bank	.8601421***	.1160906
Constant	-2.710.923***	.861826
	No of obs= 2261	
	Prob>chi2=0.0000	
	Waldchi2(183)=693,22	

Multinomial probit regression results: First columns are the coefficients and standard errors are in the second columns.
*, ** and *** denote the coefficients' significance level at 10 %, % and 1 %, respectively.

Table 18 - Mean ranking of bank characteristics

Bank characteristics	Mean	Std. Dev.
Trust & sound	3,41	1,44
ATM density	3,14	1,43
Branch density	3,12	1,47
Service quality	3,11	1,42
High security	2,99	1,46
Prestige	2,99	1,46
Close branch	2,87	1,46
Turkish bank	2,83	1,58
Wide range of services	2,76	1,44
Customized services	2,68	1,45
Income deposited bank	2,64	1,64
State bank	2,37	1,51
People in touch use this bank	2,37	1,42
Its being first bank	2,24	1,48
Ease of using credit	2,22	1,40
Low interest rate – credit	2,10	1,33
Low account fee	2,07	1,33
Recommendation of acquaintances	2,01	1,31
Good internet banking	1,97	1,33
Good telephone banking	1,88	1,25
Low transfer fee	1,81	1,21
Participation bank	1,78	1,20
High interest rate – deposits	1,75	1,20
Services for tradesmen and farmers	1,71	1,18
Ease of foreign transactions	1,57	1,09

Table 19 - Mean ranking of bank characteristic group

Variable	Mean	Std. Dev.
Perception	3,13	1,26
Bank network	3,04	1,26
Income deposit bank	2,64	2,64
Other factors	2,50	1,17
Service quality	2,32	1,05
Bank type	2,32	1,15
Patronage	2,19	1,13
Specialized services	1,99	0,94
Bank price	1,94	1,05

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