THE IMPACT OF CONSUMER LOANS ON CONSUMPTION IN TURKEY

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THE IMPACT OF CONSUMER LOANS ON CONSUMPTION IN TURKEY

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ABSTRACT

THE IMPACT OF CONSUMER LOANS ON CONSUMPTION IN TURKEY

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Turkey experiences a rapid cultural change. Modern consumer culture adapted to the local cultures by being interpreted within the cultural context. A pervasive condition of human existence that results because society has unlimited wants and needs, but limited resources used for their satisfaction. In contrast, households are in an effort to confront their present needs and tried to increase the level of welfare with the income they hope to achive in the future.

Consumption has become the individual's reason for existence. Turkey maintains the consumption attitudes by getting into debt, despite imbalances in

income distribution and gradually declining standard of life. The determinants effecting consumer behavior is often investigated under two different headings including the individual (psychological: learning, motivation, perception, personality, lifestyle, attidues) and social-cultural (sychological: family, age, gender, income, education, settlement)

In this study, theories of consumer loans are explained, a literature review is presented the impact of vehicle, housing, general purpose and other loans on consumption is investigated. Data to examine these relationships are obtained from the Central Bank of the Republic of Turkey over the period of the 2001Q4- 2014Q3. In the analysis dependent variable is consumption while independent variables are consumer loans (housing loan, vehicle loan, general purpose loan and the other loans) extended. In addition, the exchange rate, interest rate and the gross domestic product index are used as control variables. The information acquired from the results are analyzed and interpreted by the computer packet programs (E-VIEWS). For this purpose, Unit Root Test, ADF (Augmented Dickey- Fuller), PP (Phillips-Peron) and Dickey- Fuller GLS (ERS), Regression Analysiss and Cointegration Analysis (Engle- Granger Cointegration Test and Johansen Cointegration Test) are performed. Implications for vehicle, housing, general purpose and other loans on consumption are discussed in detailed. Statistical analysis showed that there is a significant influence between vehicle, housing, general purpose and other loans and the consumption.

Keywords: Consumer loans, Consumption, Consumption function, Mortgage, Turkey.

ÖZET

TÜRKİYE'DE TÜKETİCİ KREDİLERİNİN TÜKETİME ETKİSİ

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Türkiye hızlı bir kültürel değişimden geçmektedir. Modern tüketim kültürü ulaştığı coğrafyalarda birebir kullanılmamaktadır. İnsan tabiatının bir sonucu olarak toplumun daima sınırsız istek ve ihtiyaçları olmasına rağmen toplumun memnuniyeti için kullanılacak kaynaklar sınırlıdır. Tüketiciler, bugünkü tüketim ihtiyaçlarını gelecekte elde etmeyi umdukları gelirleri ile karşılamak ve bu yolla refah düzeylerini artırmak çabasında olmuşlardır.

Tüketim, bireyin varoluş nedeni haline gelmiştir. Türkiye, gelir dağılımındaki dengesizliklere ve yaşam standardının giderek düşmesine karşın borçlanarak tüketmeyi sürdürmektedir. Tüketici davranışlarına etkili faktörler fizyolojik (Öğrenme, motivasyon, algı, kişilik, yaşam tarzı, tutum) ve sosyal -

kültürel (sosyolojik: Aile, yaş, cinsiyet, gelir, eğitim, yerleşim) olmak üzere genellikle iki farklı başlık altında incelenir.

Bu çalışmada, tüketici kredilerinin teorileri anlatılmış, bir literature taramas sunulmuş ve tüketim üzerine araç, ev, ihtiyaç ve diğer kredilerin etkisi araştırılmıştır. Bu faktörler arasındaki ilişkiyi belirlemek için gerekli 2001 yılının 4. çeyreğinden 2014 yılının 3. çeyreğine kadar olan veriler Türkiye Cumhuriyeti Merkez Bankası'ndan sağlanmıştır. Analizde bağımsız değişken kullandırılan tüketici kredileri iken bağımlı değişken tüketim olarak alınmıştır. Ayrıca enflasyon oranı, reel faiz oranı ve gayri safi yurtiçi hasıla kontrol değişkenler olarak kullanılmaktadır. Sonuçlar bilgisayar paket programı (E-VIEWS) kullanılarak analiz edilmiş ve yorumlanmıştır. Bu amaçla, Unit Root Testi, ADF (Augmented Dickey- Fuller), PP (Phillips- Peron) ve Dickey- Fuller GLS (ERS), regresyon analizi ve kointegrasyon analizleri (Engle- Granger Cointegration Testi ve Johansen Cointegration Testi).gerçekletirilmiştir. Tüketim üzerine araç, ev, ihtiyaç ve diğer kredilerin etkileri detaylıca tartışılmıştır. İstatistiksel analiz araç, ev, ihtiyaç ve diğer kredilerin tüketim faktörü üzerine önemli bir etkisi olduğunu göstermiştir

Anahtar Kelimeler: Tüketici kredileri, Tüketim, Tüketim fonksiyonu, İpotek Teminatı, Türkiye

To My Family

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LIST OF ABBREVIATIONS

ADF-TEST ..... Augmented Dickey Fuller Test

ARMS ..... Adjustable Rate of Mortgages

BDDK ..... Bankacılık Düzenleme ve Denetleme Kurumu (Turkish)

BRSA ..... Banking Regulation and Supervision Agency

CBRT ..... Central Bank of the Republic of Turkey

CMB ..... Capital Markets Board of Turkey

EU ..... European Union

FDI ..... Foreign Direct Investment

FHLB ..... Federal Home Loan Bank

FHLBS ..... Federal Home Loan Bank System

FHA ..... Federal Housing Administration

GDP ..... Gross Domestic Product

GSEs ..... Government Sponsored Enterprises

GSYİH ..... Gayri Safi Yurtiçi Hasıla (Turkish)

HDF ..... The Housing Development Fund (HDF)

IMF ..... International Monetary Fund

MHF ..... Mass Housing Fund

MHL ..... Mass Housing Law

MRR ..... The Ministry of Reconstruction and Resettlement

PP-TEST..... Philips-Perron Test

SIC ..... Shwarz Info Criterion

SPK ..... Sermaye Piyasası Kurulu (Turkish)

SSK ..... The Social Security Organization

TCMB ..... Türkiye Cumhuriyet Merkez Bankası (Turkish)

TBB ..... Türkiye Bankalar Birliği

TKHK ……..... Law on the protection of consumers

TOKİ ..... Toplu Konut İdaresi Başkanlığı (Turkish)

U.S ..... United States of America

VA. ..... Veterans Administration

VAR ..... Vector Autoregression

CHAPTER 1

1. INTRODUCTION

Goods and services can be purchased in one of two ways. The first is “buy now, pay now”, and the second is “buy now, pay later”. If you purchase something that you do not pay for immediately, you are using loan.

Consumer behavior has been always of great interest to marketers. The knowledge of consumer behavior helps the marketer to understand how consumers think, feel and select from alternatives like products, brands and the like and how the consumers are influenced by their environment, the reference groups, family, and salespersons and so on (Brosekan, and Velayuthan, 2014). A consumer’s buying behavior is influenced by cultural, social, personal and psychological factors. Most of these factors are uncontrollable and beyond the hands of marketers but they have to be considered while trying to understand the complex behavior of the consumers (Solomon, 1995; Brosekan, and Velayuthan, 2014).

Tendency for consumer loan since 2003 has accelerated at the Turkish banking sector that underwent restructuring process after the crisis of 2001.

Consumer loan, used by consumers with the purpose of providing needed cash and the facilitation of purchasing goods and services, has become an important profit source for banks. The risk distribution and the capability of collection

relatively comfort high net interest margins of banks are among the factors that lead to consumer loan.

Besides the limitation of resources for consumers, given that the financing needs of unlimited consumption needs are of the utmost importance. Particularly narrow and the formation of stable employees are an important part of the community to make this issue more important.

Consumer loans, enabling you to provide the needs of future income that cannot be met by consumers has led to the use of personal loans.

Because of unlimited needs and limited resources, consumers seek to meet their needs with the income they hope to achieve in the future and in this way they aim to increase their welfare. Briefly, without waiting for the income they hope to achieve in the future, taking advantage of consumer loans given by banks has become an attractive option for consumers to meet today's needs.

Nowadays, despite the many different reasons for financing needs individuals use loans due to three main reasons;

1. Consumers want to upgrade their standard of living,
2. Availability of loan conditions,
3. The pressure engendered by the needs of individuals.

In the framework of the above definition, consumer loans do not consist of commercial purposes loans, used by real and legal persons, corporate loans and loans received by public institutions. Consumer loans have a different structure from commercial loans in terms of economic character. The aim of commercial loan is to increase the volume of trade or production by contributing to the company's growth and profit maximization. On the other hand, the main objective of consumer loan is to meet the needs of consumers.

The need for consumer loan arises regarding the following topics:

- Current consumption expenditures,
- Durable consumer goods procurement,
- In automobile purchases,
- Residential in purchasing.

CHAPTER 2

2. LITERATURE REVIEW

Selimoğlu (2006) in her work with the questionnaire method in 309 people in Istanbul has reached the following conclusions;

- More than half of the consumer is preferred consumer loans because of their budget does not allow the purchase goods needed to have in advance.
- According to the findings of the research, Providing easy payment back 74.7 % of consumers and in terms of providing material and moral assurance 45.0 % of consumer finding advantageous consumer loans . On the other hand safeguarding debt 74.1% and destroying the bargaining power 38.9% of consumer is seen as disadvantages.

According to the results of research that title is "The effect of the training about individual banking service on the customers attitude in Turkey " conducted by Bostancı (2004) , consumer loans are the most important applications in the retail banking sector in our country. People can buy goods and services in the period in which the lack of ability to pay through consumer loans and they also gained the opportunity to spread payments for the long term. But in this case, people are being

pushed to unnecessary consumption and future savings to be spent today, cause cash problems of the people live.

Crook (2001) investigates first the factors which determine whether a household is likely to be rejected or discouraged from applying for credit and second, which factors explain the amount of debt which a household demands in USA. these results which are in common with earlier papers for earlier periods it was also found that if a household has a large expected expenditure in the next few years it demands a larger amount of debt now, that the higher the net worth of a household the less debt it desires and that a household's expectations concerning future interest rates has no effect on its demand for debt. A research made by Zhang ve Wan (2002) in China, inflation rates seem to be more relevant to household consumption decisions than do nominal interest rates. The results provide much evidence for the significance of liquidity constraints, but little for that of precautionary savings.

The research has covered 155 families which were selected by the basic random sampling method among the staff of the Ministry of Forest conducted by Ayfer Aydıner Boylu, GülayGünay and Günsel Terzioğlu.

- At the result of research, it was found the proportion of the families, which did not use the consumer loans from the banks (52.3%), was higher than of the families which mentioned that they utilized it (47.3%). Among the reasons why the families (82) did not utilize the consumer loans, the reason, “not requiring to utilize the loan” (40.2%), ranked in priority. Among the reasons why the families (73) utilized the consumer loan, the reason, “not finding the credit from another source (50.7%), was in the first rank.

- Banks are in the first place among the resources that learnt about the loans. In parallel with the rise in income level of families the proportion of those who had information from banks is increasing.
- "Interest rates" come in first place among the information they need regarding loans. Family's monthly income increases, "those who want to learn how to apply the interest rates" is decreasing.
- Families use consumer loans for the purposes of

— pay bills that is accumulated,

— car purchase,

— house purchase,

— ensure the continuation of existing spending.

With monthly income of families increased, increasing consumer loan, to use "to buy houses"

Özdemir and Boran (2004) investigated the relationship between consumer loan customer payment behavior i.e credit risk and some demographic and financial variables. Data to examine this relationship is attained from the customer data of a private bank in Turkey. A binary logistic regression is used to analyze the data. Financial variables and not the demographic characteristics of the customers have a significant impact on amortization of customer performance. So the longer the maturity, the higher the interest rate, and the higher the credit risk.

Independent variables are divided into two categories; demographic variables related to characteristics of customers, such as age, income, marital status, residence status, occupation and sex; and financial variables related to the loan features such as loan amount, term and loan type and interest rate. For demographic variables, the

average age of customers 43.5. Most banks and credit institutions have preferred couples, because they are more reliable (69 percent of borrowers). 46 percent of the total clients are homeowners and 68 percent of credit clients are male. Most of the customers are in the private sector, followed by employees, self-employed workers, bankers, architects and engineers.

- There are moderate positive correlations between income and loan amount because of the policy of the lending institution, so that the amount of credit is determined by borrower income.
- Furthermore, moderate positive correlation between age and income found. This may indicate that older people deserve more.
- Found negative correlation between age-residence statuses, loan category-age, credit category income, credit-category loan amount and loan maturity category during the correlation between age-marital status, rate-age, and interest rate-loans category is found positive.
- The customer payment performance decreases when customers live in their family home.
- Interest rate and maturity positively influence the credit risk, the longer the maturity, the higher the interest rates higher the risk for customers, which their loans not just in time to pay.
- Results show that financial variables to pay back rather than the demographic characteristics of the customers have a significant impact on customers.

Carling et al (1998) empirically model the transition of consumer loans from an active to a dormant status and analyze the factors that determine the time to

maturity. When controlling for income and credit history they find that age, gender, and citizenship no longer have any bearing on duration to dormancy. Married women have significantly shorter payback behavior, and higher incomes also reduce duration, however the latter effect flattens out for incomes above SEK 180k. Variables which they interpret as indicative of a credit active behavior, e.g., the number of outstanding collateral-free loans, the number of requests for information at a credit bureau, and the percentage of credit limit actually utilized, all significantly increase the duration to dormancy. Moreover, they derive the distribution of conditional expected duration of loans in order to calculate expected profits. In a comparison of expected durations with the break-even duration they find that 97.6% of the granted loans have positive expected profits.

The study used data from the 1998 Survey of Consumer Finances (4305 households) reached the following conclusions: (Chien ve Devaney, 2001)

- Credit Use was influenced by demographic and economic factors,
- Marital status and professional status were positively related to installment dept,
- Home ownership was negatively related to installment dept.

A study made by Tsatsaronis (2004), it was reported that a useful distinction in the demand and supply factors that drive real housing prices is between those that have a longer-term influence and those that affect shorter-term dynamics. Factors that influence the demand for housing over longer horizons include growth in household disposable income, gradual shifts in demographics (such as the relative size of older and younger generations), permanent features of the tax system that might encourage home ownership as opposed to other forms of wealth accumulation, and the average level of interest

rates (possibly related to the long-run behaviour of inflation). The availability and cost of land, the cost of construction and investments in the improvement of the quality of the existing housing stock are longer-term determinants of housing supply.

Fortune and Oltmayer (1985) in their study stated that strong empirical support for the expenditure system employed and suggest a significant role for relative prices and for the bequest motive in shaping saving decisions. In addition, Baum (1988) stated that the real interest rate has very little and statistically insignificant effect on the consumption-saving decisions.. Reinhart ve Vegh (1995), stated that nominal interest rates must fall substantially for the 'temporariness' hypothesis to account for an important fraction of the observed consumption booms.

A study was carried out by Allesie et all in 2005 in Italy regarding the interest elasticity of consumer credit demand by using the data including 1995-1999 period. As a result of this study, the result was obtained that the credit demand is flexible against interest rate. The authors also estimate a higher (median) demand asticity in the affluent North (where there is more competition in the credit-card market) than in Central or Southern Italy.

Using data for the United States, Canada, the United Kingdom, Japan and France, Bacchetta and Gerlach (1997) find a substantial impact of credit aggregates on consumption in all countries considered.

Using the monthly data of 2004:4 – 2009:2 Mehmet Baha Karan and Mustafa İbicioğlu (2009) concluded that consumer credit demand is sensitive to the variations in the interest rates based on the regression model using monthly data covering the 2004:4 2009:2 period. On the contrary, consumer confidence index and ISE national

index are found not to have a statistically significant effect in explaining the variation in consumer credit.

Yieh (1996) tested that the number of children was positively related to theprobability of having negative attitudes toward installment debt. Further, the study showed that the probability of having a negative attitude toward installment debt declined when heads of households were younger.

According to Godwin (1997), not only the ability of consumers to borrow could influence the households' amount of debt but also their willingness to borrow. Godwin (1998) reported that there is a positive relationship between consumers' general attitudes toward using credit and the increase in consumer debt from 1983 to 1989. Chien and Devaney (2001) stated that consumers' attitudes have significant relationship to both instalment debt and credit card debt, even after accounting for the impact of demographic and socio- economic variables.

Zhu and Meeks (1994) studied data on low- income families from the1983 and 1986 Survey of Consumer Finances and tested the relationship among knowledge, attitude, and credit use. Their results showed that the significant determinants of the amount of credit outstanding in 1986 were age, employment status, credit balance in 1983, the interaction between specific attitude and education, and the interaction between specific atti-tude and debt balance in 1983. Namely, younger household heads and those employed full time had larger amounts of credit outstanding compared to households headed by someone who was older or not employed.

The researchs mainly based on U.S. data show that rates of change of house prices are quite strongly autocorrelated, more so than most other assets. have conducted by Case and Shiller (1988, 1990) and Meese and Wallace (1994).

(Englund and Ioannides, 1997).

Hofmann (2004), Gerlach and Peng (2002) 's as they find their work, indicated that property prices are an important determinant of the long-run borrowing capacity of the private sector, which needs to be taken into account to explain the long-run movements of bank lending. This result suggests that innovations to property prices may give rise to significant and persistent cycles in bank lending and are thus a potential explanation for the persistent financial cycles observed in the past.

Consequently in these studies, it is determined that there is a strong association between real estates price and loans and also impact direction of long-run relationships from real estates price to loans.

In housing loans report of the Turkish Banking Sector prepared by Banking Regulation and Supervision Agency (2008), volume of housing loans is analyzed by using statistical techniques. In this respect, the relations between the real value of housing loans and real interest rates (real interest rates of government bonds are used), inflation and industrial production index are studied. Results of the study show that a %1 increase in real interest rates is associated with a %1,79 decrease in housing loans while a %1 change in inflation reduces the demand for housing loans by %0,72 with a time lag of one month.

According to studies of Alm and Follain (1984) and Leece (1995), high and volatile inflation lead to liquidity constraints. On the other hand, low inflation rate provide reduction of cost. In addition, alternative mortgage options effected positively the demand for mortgage loans.

Jones (1994), indicated that there is a strong negative relationship between mortgage loan demand and household net wealth; these findings are interpreted as

evidence that net wealth and mortgage debt are substitutes in financing household portfolio objectives.

Again according to Jones (1994), based on the magnitude of the net worth coefficient, they conclude that 75 percent of second mortgage borrowing finances consumption. However, their results indicate that only 30 percent of new borrowing from refinancing first mortgages is financing consumption. Additionally, the estimates in that paper provide a base from which it will be possible to assess the effect of the change in the tax environment on the demand for mortgage debt.

Study in U.S. by Follain and Dunsky (1997) focuses on the behavior of individual households and examines how their demand for mortgage debt responds to the tax rate at which interest on mortgage debt can be deducted and how it varies with income, age, education, and other characteristics. The analysis indicates that the demand for mortgage debt is highly responsive to changes in the deductibility of mortgage interest. The estimates of the other coefficients in the demand for mortgage equation also generate some interesting insights. First, note that the elasticity of the demand for mortgage debt with respect to after-tax income is consistently positive and significant for the large sample; however, the elasticity seems to differ substantially among the income groups. It is negative for the high-income groups and positive for the low-income groups. Also age has an important and nonlinear impact on the demand for mortgage debt, and the pattern of the coefficient estimates seems stable across specifications. The relationship is positive until the household head is in his or her mid-30s, and then it becomes negative.

A study made by Hegedus et al. (2004), the housing finance situation in Budapest and Moscow and the transition from planned economy to market economy. Using two measurements of affordability 1) Housing cost to income, 2) Purchasing

capacity of the households the authors then summarize the problems of operating a housing finance system based upon cash and without the possibility for long-term loans. This they see as a result of deficiencies in the banking sector and peculiarities on the consumer side. They find that there are differences in both the housing stock in the two cities and in the affordability of the housing due to income levels and house prices. After examining the housing markets in both countries a comparative analysis of the effects of mortgage characteristics and subsidy programmes offered is conducted. Differences are noted in the institutional housing lending systems, with the sector dominated by the Housing Mortgage Lending Agency in Russia and the commercial banks in Hungary. The effect upon two groups of house buyers, trade up and first time buyers of the mortgage products was studied. Finally, three different forms of subsidy were looked at to see what effect they had on total demand and on affordability. The paper recommends that while all three have merits, the subsidy type giving upfront cash to households with low savings.

Passmore et al. (2005) derive a theoretical model of how jumbo and conforming mortgage rates are determined and how the jumbo–conforming spread might arise. They show that mortgage rates reflect the cost of funding mortgages and that this cost of funding can drive a wedge between jumbo and conforming rates. Further, they show how the jumbo–conforming spread widens when mortgage demand is high or core deposits are not sufficient to fund mortgage demand, and tightens as the mortgage market becomes more liquid and realizes economies of scale.

Jappelli ve Pistaferri, (2006) address the issue of identification of tax effects by exploiting cross-sectional and time-series evidence in the after-tax rate induced by exogenous policy changes, rather than (possibly endogenous) shifts in the income

distribution. The change that we consider is the elimination of tax incentives in the Italian mortgage market for borrowers with high marginal tax rates. Regression analysis and difference-in-differences estimates indicate that tax considerations have not affected the demand for mortgage debt, neither at the extensive nor intensive margin.

Güler (2007) In an analysis carried out in Kirikkale province specified in the study of the impact on low- and middle-income groups have tried to determine the mortgage system. According to the results; low- and middle-income groups can not provide benefit from the system at a very high level and they can not given housing acquisition. In addition, getting the idea that the system is not useful to reach the wrong conclusions from this situation..Friedman, one of the major proponents of the modern theory (1957) 's analysis of consumption function as the main factors for determining the average propensity to consume are interest rates, wealthy, national income and age.

Specific research of Telatar (2011) related to causality between credits and current account deficit in Turkey presents interesting consequences about relationship between credits and current account deficit. According to this study, there is no meaningful connection between total credit and current account deficit, but there is a positive relationship of causality from consumer credits to current account deficit. Telatar calls the current account deficits as being malicious, since the foreign resources are not used for productivity purposes but for private consumption. Telatar proposes the required reserves ratio as a monetary policy instrument to be used in a selective way in the credit expansion process. Domestic credits should be decomposed, investment and enterprise credits such as Small and Medium Size Enterprise loans and household private consumption credits should be subject to

different required reserve ratios to shift the foreign borrowing to be used in real dynamics of growth and eliminate the malicious current account deficit. Then, the monetary policy instrument towards the current account deficit will also bring satisfying results for the problems of unemployment and growth according to Telatar (2011).

Favarra (2003) reviewed the empirical relationship between financial development and economic growth. It presents evidence based on cross section and panel data using a dataset, various econometric methods and two standard measures of financial development: the level of the liquid liabilities of the banking system and the amount of loans to the private sector by banks and other financial institutions issued. The paper identifies two sets of findings. First, in contrast to the last evidence for Beck, Levine and Loayza (2001), show cross-sectional and panel data instrumental variables regressions, that the relationship between financial development and economic growth is at best weak. Secondly, there is evidence of non-linearity in the data that suggests that is the financing for growth only on intermediate levels of financial development. Besides using a procedure that appropriately designed to estimate long-term relationships in a panel with heterogeneous slope coefficients, there is no clear indication that economic growth drives the finances. Instead, for some specifications, the relationship is, puzzlingly, negative. Allesie, Weber et al (2005) analyse unique data on credit applications received by the leading provider of consumer credit in Italy (Findomestic). The data set covers a five-year period (1995–1999) during which the consumer credit market rapidly expanded in Italy and a new law (the usury law) came into force that set a limit on interest rates charged to consumers. We compute behavioural changes by controlling for changes in the observable characteristics of the Findomestic clientele

and argue that, under suitable identifying assumptions, these changes can be given a structural interpretation. If the usury shock is assumed to have affected credit supply but not credit demand—that is, if the usury law had a differential impact on the supply of various types of credit but a uniform impact on demand—then we can identify and estimate a demand equation.

Wachter (2006) proposes a consumption-based model that accounts for many features of the nominal term structure of interest rates. The driving force behind the model is a time-varying price of risk generated by external habit. Nominal bonds depend on past consumption growth through habit and on expected inflation. When calibrated to data on consumption, inflation, and the aggregate market, the model produces realistic means and volatilities of bond yields and accounts for the expectations puzzle. The model also captures the high equity Premium and excess stock market volatility.

Guest (2006) reports simulations of the effect of fertility on optimal saving and consumption under three assumptions about capital mobility: zero, perfect and imperfect. The case of imperfect capital mobility is modeled by expressing the interest rate as a function of the level of foreign liabilities. Simulations show that even a small degree of responsiveness of the interest rate to the level of foreign liabilities is sufficient to generate optimal paths of consumption and saving that are very close to the paths for a closed economy. The results of the simulations suggest that, with an exogenous rate of technical progress, the effect of a lower fertility rate on social welfare is not likely to be significantly welfare-reducing.

Erceg ve Levin (2006) report that the durable goods sector is much more interest-sensitive than the nondurables sector, and then investigate the implications of these sectoral differences for monetary policy. They find that a monetary policy

innovation has a peak impact on consumer durables spending that is several times larger than the impact on other expenditures.

The first study linked with automobile demand made by Roos and Szeliski (1939). They stated that demand for car related with personal income, cost of car, used car stock, number of cars in operation, population, new model stimulus and date of announcement. Despite Atkinson and Cohen take account of personal income and changes in per capita income for car demand.

The other studies linked with automobile demand made by Suits and Griliches. Suits (1958) stated that demand function, annual retail sales of new passenger automobiles are explained by: (1) real disposable income; (2) the stock of passenger cars on the road and (3) the average retail price of of new passenger automobiles divided by the average number of months' duration of automobile credit contracts. The automobile market may be approximately represented as a system of four equations representing: (I) the demand for new cars by the public, (II) the supply of new cars by retail dealers, (III) the supply of used cars by retail dealers and (IV) the demand for used cars by the public.

Gürkaner (1992) in his study stated that hosehold income and car price are not so important on demand for car. Besides he report that the increase in the income of those who earn enough to affect demand for automobiles in the demand for automobiles is negligible.

Prepared in Turkey progress report 2005 by the European Commission, it was noted that economic growth of accelerated in 2003 to 8.9% on year 2004, supported by strong private consumption spending, which was driven by lower interest rates

increased banking services (Progress Report, 2005).

Using regression analysis by Englund ve Ioannides (1997), It was stated that GDP growth had a significant positive impact on house prices in most of the countries while interest rates had negative and significant impact.

Goodhart (1995) finds that credit growth in the UK but not in the United States real estate prices significantly affect.

Gerlach and Peng (2002) studied the relationship between residential property prices and bank lending in Hong Kong. The authors examined that While the simultaneous correlation between lending and real estate prices is great, the direction of influence of *real estate price goes the credit of bank* rather than vice versa.

According to the results of Sandalcılar and Altıner (2014), there is a causality relationship between current account deficit and total credits of the banking sector, total consumer credits and residential credits that are most significant sub-items of the consumer credits in Turkey. On the other hand, It was stated that the causality relation between current account deficit and necessity credits, vehicle credits and other credits which are sub-items of the consumer credits cannot founded.

Also a specific research of Telatar (2011) related to causality (Granger Causality test is used to study) between credits and current account deficit in Turkey presents interesting consequences about relationship between credits and current account deficit. It has been found that consumer credits are the most important reason for current account deficit and there exists a weak relation of causality between housing credits and current account deficit.

Keynes (1936) despite arguing the quantitative importance of the interest rate effect believes that in the long run substantial changes in the rate of interest could modify social habits considerably, including the subjective propensity to save. Friedman (1957) in his neoclassical analysis of the consumption function suggested that the main variables determining the average propensity to consume are 'the rate of interest, the relative dispersion of transitory components of income and of consumption, the ratio of wealth to income, and the age and composition of consumer units'.

According to Keynes (1936), the main factor affecting the consumption spending is income and the interest rate is effective in short run.

Borio, Kennedy and Prowse (1994) explore the relationship between credit to GDP ratio and aggregate asset prices for a large sample of developed countries over the period 1970-1992 with annual data. They focus on the determinants of aggregate asset price fluctuations, assuming that the credit in relation to the GDP can explain the evolution of the credit conditions based on the evolution of aggregate asset prices. Notice that the GDP ratios to an asset pricing equation add credits helps to improve the fit of this equation in most countries. Based on simulations, show them that the boom-bust cycle on the capital markets of the late 1980s - early 1990s pronounced or not occurred conditions stayed constant at all credit. For a panel of four East Asian countries (Hong Kong, Korea, Singapore and Thailand), Collyns and Senhadji (2001) find that credit growth has a significant contemporaneous effect on residential property prices. Based on this finding, they conclude that bank lending has contributed significantly to the real estate bubble in Asia prior to the 1997 East Asian crisis. (Hofmann, 2004)

The pattern of dynamic interaction between loans and real estate prices were analyzed by Hofmann (2001) and achieved the following results:

A rise in real GDP has a positive effect on lending and property prices. Increases in credit and increases in property prices trigger increases in output. There is a strong evidence of a significant two-way relationship between credit and property prices. (Increases in property prices boost lending and vice versa). Short-term real interest rate have a strong and significant negative effect on bank credit, GDP and property prices. Based on the significant two-way dynamic interaction between bank credit and property prices, Hofmann (2001) find increases in property prices boost lending and vice versa.

Gerlach and Peng (2002), studied the relationship between property prices, bank lending and macroeconomic fluctuations in Hong Kong in the period of 1982-2001 and the analysis focused on residential, rather than commercial property prices. In this study, the authors suggested that the existence of a stable long-run relationship between lending, property prices and GDP, and that the direction of influence goes from property prices to bank credit rather than the other way around.

CHAPTER 3

3. CONSUMER LOANS AND IT'S EFFECT ON ECONOMY

3.1. The Definition and Historical Development of Consumer Loans

Law on the protection of consumers (TKHK) Article.10 consumer loan, in order to obtain a good or service that consumers are defined as loans they receive cash from the lender. This definition of consumer loan concept of not only the borrowed from banks or other financial institutions or lending promises, as well as vendors or made by providers loan or financial leasing enables you to purchase at the end of installment sales, and even period and expanded to include the overdraft. You also; consumer loan, in a broad sense, the whole or part of the remaining cost to be defined as a process that allows to obtain an act which is then payable immediately.

TKHK the elements of movement from the definition of consumer loan in Article.10 as we can determine. For one thing, the parties to the contract is that consumers and consumer loans. secondly, the loan taken subject of consumer loan in cash. Thirdly, the purposes of the consumer to get a loan to acquire a goods or service. Consumers who are party to the consumer loan contract TKHK Article 3/e is defined as follows. "It's a good or service that is acquired for commercial or non-professional purposes, natural or legal person who uses or benefits. The only real person in the European Union Council Directive on Consumer Loan has been accepted as a consumer; This title is granted to legal entities. Supreme Court

decisions in the same direction, and can not qualify as consumer loans taken by the company, admits that need to be addressed in the framework of their overall loan agreements. (Ceylan, 2007).

The other side of the consumer loan contract lender. TKHK Article 3/k 'lenders, "the bank is authorized to provide cash loans to consumers required by the legislation, private financial institutions and finance companies are" as is defined.

The purpose of this act is to take measures aimed at protecting the health, safety and economic interests of consumers in line with the public good, building consumer awareness, indemnifying losses incurred by consumers and protecting them against environmental hazards; to promote consumer initiatives aimed at protecting consumer interests and to encourage volunteer organizations aimed at devising consumer-related policies. 4822 Law No. TKHK Article.10 consumer loans the purpose of While stated that the purchase of a good or service, 4822 law "purchase" from the larger "acquisition" gave in a statement.

Looking at the historical development of consumer loan, it is seen that based on the 19th century, the expansion of consumer loan, which is the oldest type of borrowing since the beginning of the 20th century began in the United States.

20th century, the financing needs of individuals with industrial progress and development of the middle class also began to increase, depending on the post-industrial expansion of the range of products in the field of finance began to multiply.

First installment covered the financing needs in the form of sales, 1960 in place, consumers stopped banks entering the market trading at the first time performing banks only installment sale vendors supported by financing, in upcoming periods are directly gaining weight approach to finance consumers.

3.1.1. Historical Development of the Consumer Loans in Turkey

After the high growth in Turkey's economy in 2000 has reached serious proportions with two financial crisis was faced with economic contraction. The revival of the economy after the crisis has taken a long time.

The Central Bank and the government continues its efforts in securing the objectives envisaged by the economic program to reduce inflationary pressures arising from the left to float freely and regain the credibility of the Turkish lira in the period after the financial market crisis. The annual compound interest rate of treasury bills with 40% in March 2000 was reached the 194% level in March 2001 and then began to decline later. It is well known that the banks do not want to give loan to the consumers and also recall the loans in the same period.

In addition, some banks will fall in large quantities in anticipation of further interest rate received public papers. This situation has increased the prices of the auctions of government securities and led to a further decline in interest rates. Banks have increased consumer loans significantly during the same period. Such banks are largely financed by borrowing from the interbank market and repo transactions and have ignored the risk of maturity mismatch. A fall in interest rates and increase in the amount of loan have increased consumption and investment expenditures. However, developments in the current account balance has begun to adversely affect expectations.

November 2000 and February 2001 crises emerged as an unexpected shock in terms of firms and the financial sector, in particular to take precautions against interest rate and currency risk and financial sector firms adversely affected. Debt service burden on the company in the period after the increase in interest rates and

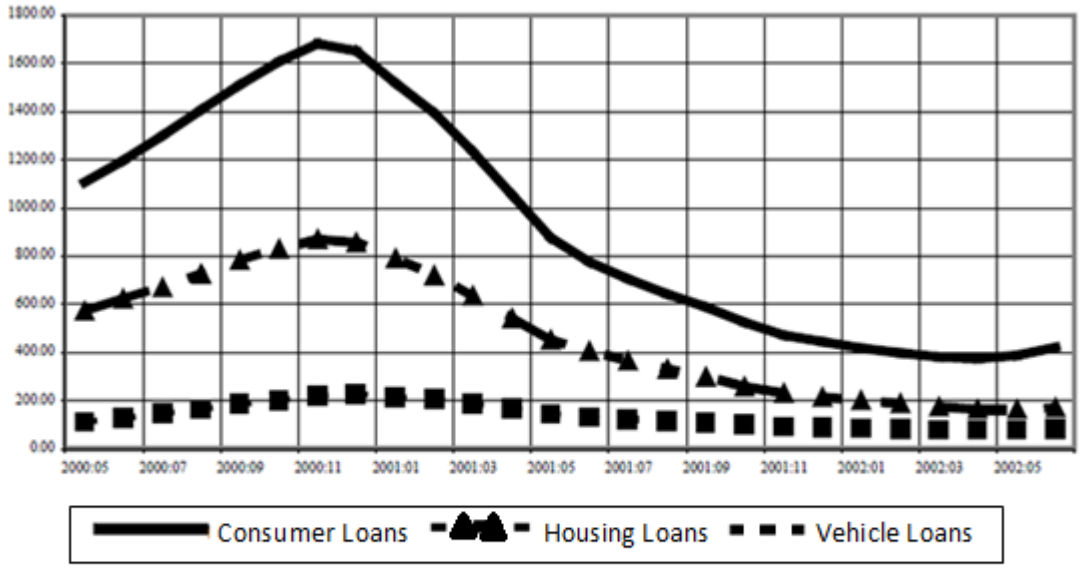
devaluation has increased significantly. Companies have fallen into serious difficulties, this had led to a significant increase in bad loans. High interest rates and borrowers may have reduced the demand for loan deterioration of the balance sheet.

Firms with high debt ratios have become more vulnerable to increases in interest rates. Investment demand of these firms are greatly reduced. During and after the crisis has been a significant contraction in loan to the private sector. Average lending rates increased substantially compared to pre-crisis levels in 2001 and 2002. Beyond the increase in interest rates, the main thing is the private sector to decline along with the loan crunch of the loan (loan crunch) could be. Besides the increase in real interest rates that reflect the tight loan conditions and interest rates of these firms said they could not get loans. Such loan constraints which reduce deposits in the banking system, banks are forced to hold a greater amount of reserves and / or when they are forced to attach a specific capital adequacy ratio. At the same time, demand for loan in the period in which the economy entered a recession will be reduced. Thus, the decline in loan to the private sector supply, demand, or both may be caused by the decrease together.

Although the vast majority of private sector loans consist of groups loan, collapse of the domestic loans affects the domestic demand seriously. In particular, consumer loan is one of the most important factors affecting domestic demand in the economy. Figure 1 shows the developments in real consumer loans. Applied in conjunction with the program of 2000 decreased more than expected interest rate of private consumption expenditures increased by creating the wealth effect.

Consumer loans in 2000, has become the most important factor boosting domestic demand increased by approximately 380% compared to the previous year.

Positive developments in the public sector balance the rapid decline in interest rates and increased consumer loans. However, the post-crisis period, the decline in real wages, the increase in interest rates, expectations and problems in the banking system will disappear in a short time reduces the impact of the crisis on private consumption expenditures. Give loan load has been brought together with the structural problems of the crisis in the banking system in addition to acting abstentions. Less change in housing loans in consumer loans and a high volatility of the share of total auto loans were observed. Housing and loan are loans except those for more durable goods in the car and the same applies for such loan fluctuations.



Source: CBRT and TBB

Figure 1: Real Consumer Loans (TL)

The ratio of consumer loans to total consumer loans will be liquidated after the crisis has increased approximately two-fold. Decline in real wages, the contraction of employment and consumer loan interest rates has been a significant increase in non-performing consumer loans increased due to too much. One of the reasons for the increase in non-performing consumer loans should be noted that they

do enough investigation and research of the loan from the bank in the process of being given the loan.

As can be seen from Table 1, housing loans, consumer loans, car loans, consumer loans and other loans are created. Consisting of approximately ¼ of total loans consumer loans is also seen that the mortgage loans with the most important items of the consumer loans. Creating approximately 44 percent of the housing loans consumer loans, personal loans constitute 34 percent. The domestic banking sector loan in the last 10 years the course of fact, it was observed that approximately 10-fold increase in total loans, consumer loans increased by approximately 60 times. Of total loans used 5 percent in 2003. The proportion of consumer loans, while in 2013 it increased to 25 percent. Looking at the development of loan in the table since 2002 due to the economic conjuncture in Turkey and in the world and has seen an increase in loans used for the reasons described above, the current account of the reduced and conditions of savings accordingly are said to adversely affect the equilibrium.

Table 1: Total Loans and Distribution of Consumer Loans in Turkey
(Million Dollars)

Years	Total Loans	Total Consumer Loans	Percent (%)	Housing Loans	Percent (%)	Vehicle Loans	Percent (%)	General Purpose Loans	Percent (%)	Other Loans	Percent (%)
2003	**41.627**	2.646	100,0	255	9,7	697	26,4			1.694	64,0
2004	**64.804**	8.332	100,0	1.318	15,8	3.211	38,5	3.612	43,4	190	2,3
2005	**107.253**	18.529	100,0	7.107	38,4	4.245	22,9	6.128	33,1	1.050	5,7
2006	**145.047**	30.242	100,0	14.618	48,3	4.527	15,0	9.909	32,8	1.187	3,9
2007	**229.172**	51.863	100,0	24.242	46,7	4.913	9,5	20.142	38,8	2.566	4,9
2008	**246.775**	53.407	100,0	23.873	44,7	3.773	7,1	22.309	41,8	3.451	6,5
2009	**255.208**	57.872	100,0	26.929	46,5	2.932	5,1	24.479	42,3	3.531	6,1
2010	**339.363**	82.944	100,0	38.447	46,4	3.435	4,1	33.403	40,3	7.659	9,2
2011	**380.496**	94.039	100,0	41.575	44,2	3.985	4,2	35.067	37,3	13.412	14,3
2012	**429.622**	104.412	100,0	45.701	43,8	4.328	4,1	36.443	34,9	17.940	17,2
2013	**499.744**	120.389	100,0	53.605	44,5	4.150	3,4	42.052	34,9	20.583	17,1

Source: Banking Regulation and Supervision Agency (www.bddk.org.tr)

Today, the growth of households received macro obligations under the influence of injunction in March 2014 followed by a reasonable cruising ever since. The individual loan composition constitutes a large part of its obligations, macro prudential measures to decreased share of auto loans and credit cards subject, gradually the weight of housing loans have my camel to increase, consumer loans stood out as the main funding instrument of the households (Table 2).

Table 2: Household Financial Liabilities[1]

	03.14		09.14	
	Billion TL	Share	Billion TL	Share
Total Liabilities (Based on Type)	**374.3**	**100**	**389.7**	**100**
Housing	126.3	33.7	134.7	34.6
Vehicle	15.1	4.0	14.2	3.6
General Purpose + Other	136.8	36.5	150.7	38.7
Individual Credit Cards	84.3	22.5	80.7	20.7
Asset Management Companies' Receivables	11.9	3.2	9.4	2.4
Total Liabilities (Based on Counterparty)	**374.3**	**100**	**389.7**	**100**
Banks	342.3	91.4	359.2	92.2
Financing Companies	7.6	2.0	7.8	2.0
TOKİ	12.6	3.4	13.2	3.4
Asset Management Companies	11.9	3.2	9.4	2.4

(1) Housing loans include TOKİ's receivables against house sales with installments.

Source: BRSA-CBRT, TOKİ

If some signs of recovery and growth in retail loans is still weak in the recent trend compared to the previous year's average. Rapid increase in retail loans in 2013, has lost significant power in 2014. In the second and third quarters of the year with the support of the decline in interest rates, although showing some recovery in recent

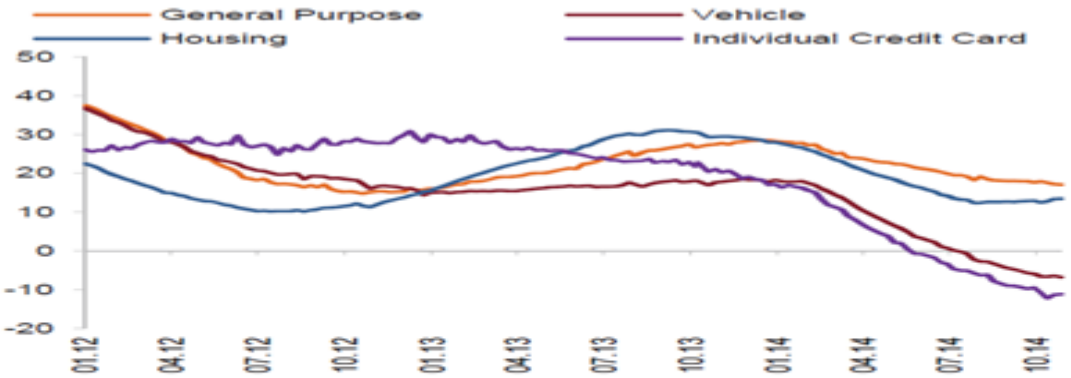
years, the weekly increase in retail loans continues to be weak compared to the prior year average (Figure 2).

Source: BRSA-CBRT (Latest Data: 31.10.14)

Figure 2: Retail Loan Growth

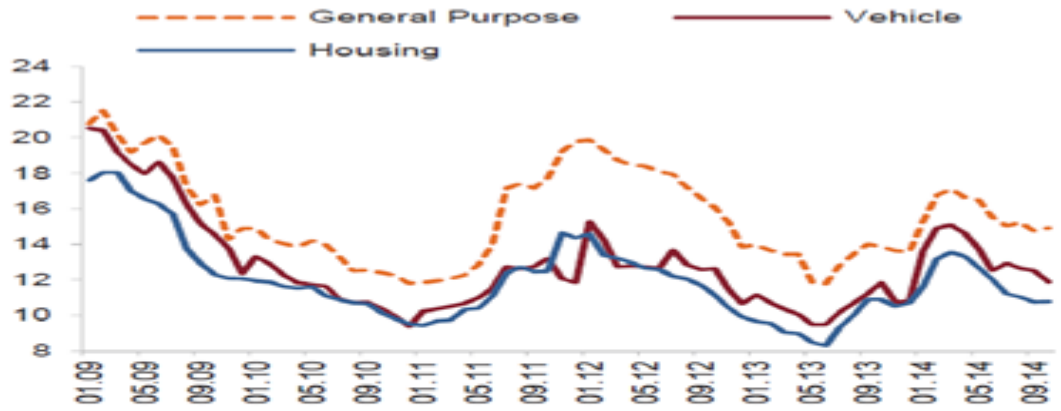
(Stock data, 4-Week Moving Average, Annualized, Percent)

Weakening in retail loans is mainly due to the individual credit cards and auto loans. On the other hand, the housing loan growth in the last quarter of 2013, consumer loan growth is left in a horizontal position in the recent decline in the first quarter of 2014 started the course. According to the latest report published in May 2014, the period of declining interest rates, housing and living needs at a reasonable level of growth in loans are considered to have a significant share. Interest development as well as in consumer confidence observed since March recovery housing loans that stimulate demand, the need for loan in limiting installment brought to the credit card is considered to be determinants of the expected funding needs to be increased with the effect (Figure 3 and Figure 4).



Source: CBRT (Latest Data: 31.10.14)

Figure 3: Retail Loan Growth by Type of Loan
(Stock Data, Annual Percentage Change)

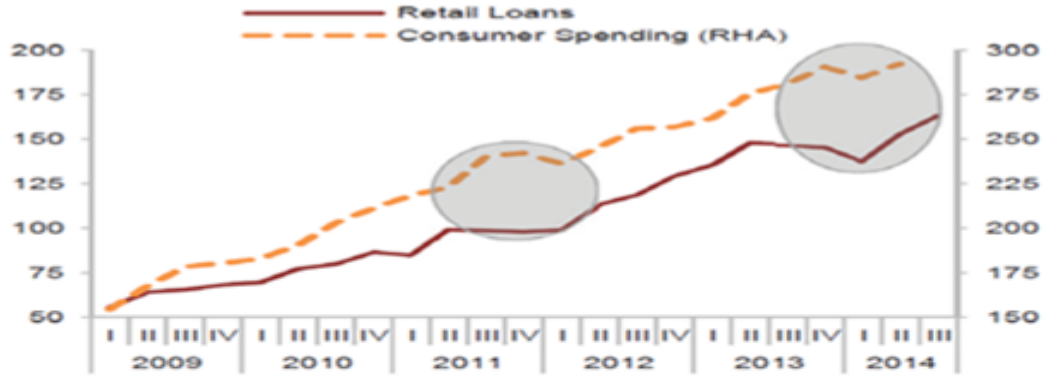


Source: CBRT (Latest Data: 31.10.14)

Figure 4: Consumer Loan Rates
(Percent)

Individual disbursements, excluding housing and vehicle simultaneously with consumer spending is weak. Consumer financing, credit cards and personal loans are becoming a significant share of the increased spending power to influence the

consumption of these financial instruments. Indeed, a projection of the lost momentum in the last quarter of 2013. The need for loan disbursements and individual credit card consumption expenditure is seen in spending. (Figure 5)



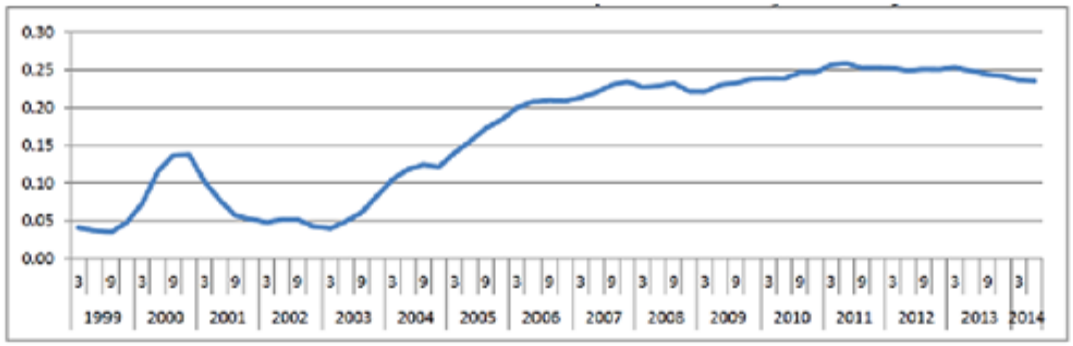
(1) Retail loans are composed of general-purpose and other loans as well as credit card spending.

Source: BRSA-CBRT, BKM (Latest Data: Retail Loans from 09.14, Consumer Spending from 06.14)

Figure 5: Retail Loans[1] Extended and Consumer Spending (Billion TL, Flow Data)

This is caused by the bad loans of loan quality deterioration as a result of cutting of repayment is therefore result in the deletion of the assets of the balance sheet.

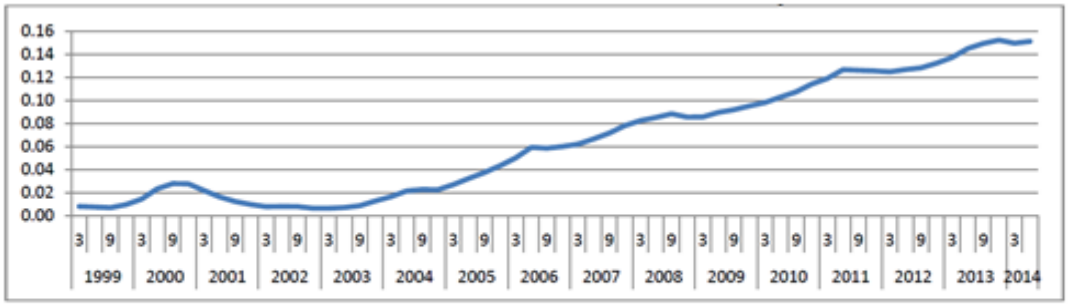
The development of the share of consumer loans in total loans is shown in Figure 6 below.



Source: CBRT, BRSA, TBB

Figure 6: The Rate of Consumer Loans in Total Loans

The annual rate of GDP in the same period of consumer loan also located Figure 7 below.



Source: CBRT, BRSA, TBB

Figure 7: The Annual Rate of GDP in Consumer Loans

3.1.2. Historical Development of the Consumer Loans in the World

Consumer loan practices of the commercial banks in the US, National City Bank of New York began to established personal loan unit with gave personal loan in 1928. However, consumer loan has turned in the commercial banking has gained momentum after 1950s. While having the new technological tools and equipment requirements were causing, 60-70% of the consumer loan used for car sales after the Second World War.(Eliuz, 2009).

The problems in financial markets were occured in the US. In the summer of 2007 that has evolved into a global crisis in September 2008. Stopped operations in the loan markets, stock markets collapsed, and many firms fall into the payment difficulties that has become threatening all international financial markets.

Although financial crisis began in developed countries and it has started to affect developing countries since the mid November 2008. In many the emerging country stock markets have been in serious impairment losses, national currencies had lost value, the country risk premium on boards and commercial bills country risk premium on bonds and commercial bills have increased, at the same time foreign capital flows to these countries and bank borrowing has declined substantially. Regulatory authorities and central banks caused by rapid loan growth and asset price bubbles formed in the systemic risks did not see or did not receive the necessary measures will be adequately addressed. To again increase the confidence in the financial system in the face of developments in the international market, the trillion dollar finding rescue packages are described and by Central Banks of US and Europe and governers which numerous measures taken by.

Developments occurring in the international market can be evaluated in the two processes. The first process that began in July, 2007 and the experiencing turmoil period in financial markets until September 15, 2008. The house price rise in the US. entering 2006 and low interest rates have led to significant increase in mortgage loans, consumers entered into tend to spend a large proportion of their income. In fact, loan ratio and debt of non- financial institutions of households to GDP ratio rose to 173% from 118% in the US. between 1994 and 2007. Household loan debt have made almost the the leap since 2000 has increased of disposable personal income by 98% to 136% between 2000-2007. In the same period, this ratio

rose from 120% to 180% in the England, while in the Eurozone, from 71% to 91%. The unprecedented degree of increase in house prices in the UK has led to the absence of a similar explosion in many developing countries. This situation began to reverse in the last quarter of 2006, The modest decline in home prices as well as the stock of unsold homes reached its highest level since 1993. Home construction dropped by 18 percent in the same period. A mortgage loan with the closure of cheap loan period the debtor area was confronted with a higher monthly payment. The number of houses to be sold by those who can not pay their debts fall into insolvency and enforcement has increased dramatically, and variable rate mortgage interest rates are increased even more. Especially said that loans of changing interest rates (ARMS-adjustable rate of mortgages) areas have fallen into great distress. Foreclosures accelerated in the US. in late 2006 and took place trigger a global crisis between 2007 and 2008. The 1.3 million American homes are subjected to the process of collateral monetized during 2007. According to recent estimates by the IMF of losses arising from US-based residential mortgage loans and other loans are expected to reach 1.4 trillion dollars. This loss is the biggest loss achieved since the Second World War.

Since September 2008, crisis entered into second and a different rocess with banks and financial institutions especially large investment bank Lehman Brothers bankruptcy. Americans are attracted about 150 billion dollars in money market funds in two days with this bankruptcy. The bankruptcy of Lehman Brothers triggered a worsening of the crisis, the Fed took an even more extraordinary and unprecedented step to bail out an insurance company, AIG, the largest insurance company in the world. U.S. Central Bank and other central banks have injected liquidity in the market to 2.5 trillion dollars in October 2008. This is the largest financial

intervention in world history. US government and European governments have also committed amount $ 1.5 trillion in direct equity investment.

Major banks and financial institutions that invest in mortgage-backed securities have announced losses of 453 billion dollars. Central banks have pumped liquidity and exceptional liquidity to find solutions to the problems of financial institutions suffering from insolvency; have gone on sale in interest rates, while governments have announced a package of measures. In financial markets, these measures are intended to ensure economic growth and to re-establish confidence. Losses suffered by US financial institutions amount $ 8 trillion as October 2008. One of the basic elements of economic growth, consumer spending led to reduction by the declining of stock market and housing values.

All financial companies in the world as of August 2008. For the high-risk mortgage loans have written 501 billion dollars damage. According to the IMF forecast in November 2008, losses of financial institutions reached $ 1.5 trillion in the global market. These losses led to the discontinuation of the loan flow and the melting of loan of a large portion of the capital of the banking system. (IMF, 2008).

A significant portion of the losses occurring in the financial markets has occurred from mortgage-backed securities. In recent years, banks distrubuted the loan risk that they carry on their balance sheet through securitization transferring the capital markets. However, the risks of this structure can be transferred to other investors, banks and other financial institutions are lending policies more flexible and increase the risk to the financial system as a whole. However, in this structure, the risks can be transferred to other investors, banks and other financial institutions are lending banks and other financial institutions are lending policies more flexible

and increase the risk to the financial system as a whole. This is caused by the bad loans of loan quality deterioration as a result of cutting of repayment is therefore result in the deletion of the assets of the balance sheet.

3.2. Classification of Consumer Loans

Although in practice the common to the various types of consumer loans, common distinguishing feature of this type of loan, the consumer a certain property of the loan principal and interest payments provided for purchase during the term of the loan is carried out in a fixed time periods. However, competition in the banking sector, banks have recently been directed to provide tailored solutions to customers and expanding alternative consumer loan applications with different payment plans. (İmre, 1989).

According to the maturity structure of consumer loans or consumer loans can be classified according to the extended format. According to the maturity structure of consumer loans, short-term, be classified as medium-term and long-term consumer loans, granted in accordance with the format given in cash or may be classified as indirect consumer loans disbursed.

Short-term consumer loans include consumer loans granted as 3 months and shorter. The medium-term consumer loans from 3 months to 5 years, while the long-term consumer loans, consumer loans over 5 years are granted with the condition to be paid back over a longer time. Lately, the term installment loans to 60 months in Turkey, has extended the housing loans up to 240 months.

Consumer loans are divided into two (2) types according to the extended format: free (cash) consumer loan and connected consumer loan.

Free (cash) consumer loan; by lenders, consumers want the goods or services are loans and cash directly from the seller wants to receive. For example, automobile

loans is a free consumer loan, because consumer lending institutions because of lending institution which the seller gives the loan to do not determin which brand to buy vehicles by consumer. Purpose loans are likewise free consumer loan. Bank gives loan at one time and also the consumers repay to received loan with accrued interest in free consumer loan.

In the connected consumer loan situation is different. Namely, depending on consumer loan, a tripartite relationship is different from free consumer loans. Depending on consumer loan, the sales contract between the seller and the consumer, consumer loan agreements between banks and consumers, a framework agreement between the consumer and the bank. According to TKHK Article No.10 Subsection.5, connected consumer loan is given with a particular person or a particular brand on the condition that the contract on a property. For instance, it is mention connected consumer loans if the data for the a certain brand of car purchase by the consumer or for the purchase white line from a particular vendor by the consumer from by bank. (Ceylan, 2007).

Currently, more than half of banks operating in the banking sector facilities available to consumer loan. Also, financing company has been authorized to utilization of consumer loan that they operates in accordance with Statutory Decree No.545 with different Statutory Decree No.90.

3.3. Benefits and Drawbacks of Consumer Loans

Benefits and drawbacks of consumer loan may be summarized of follows;

Benefits

For Banks;

1. While the bank expand lending volumes while also, they reduce the risk of possible repayment of loan risk by individual or several individuals. Sales of the company increases.
2. Banks are assessed with a higher interest income from the resources they collect more funds in the hand of the individual loans.
3. Personal loans is less affected by fluctuations in the industry, it helps activation of risk management for banks.
4. Provides additional cross-selling opportunities for banks during the loan sales. Banks can increase customer loyalty in this way.

For Sellers;

1. When evaluated for sellers, to go to meet today's needs, taking into account the future income of the person makes a positive impact on economic vitality.
2. Personal loans are increasing sales in advance. This situation raises the firms' profit margins. Due to increased profit margins of firms increases in tax liabilities, acts indirectly on expansionary budget revenues.
3. Depending on advance sales of the company contributes to the development of the company in strengthening cash flows.

4. Companies with sales turnover rises, liquidity problems would be resolved.

In Terms of the General Economy;

1. Personal loans increases the velocity of money. The results begin to consume a greater share of income of individuals is increasing velocity of money circulation.
2. Personal Loans have a positive impact on the total supply. Personal Loans in parallel increase production and leading new investment so, the increase employement.
3. Personal Loans make a positive impact on the country growth and increasing the volume of trade by increasing economic recovery.

For Individuals;

1. Individuals want to buy or they need to have goods and services to provide the ability to pay in accordance with the available budget, raise the standards of living through.
2. Individuals are led to forced savings to pay for their loan installments.
3. Gives collective bargaining power by providing cash benefits to individuals in the shopping.

Drawbacks;

1. The consumer loans can lead to spending on financial opportunities and borrowing by increasing the consumption ambition of the individuals.
2. The results of expending the future savings from today, reduces the ability of future savings to invest in financial assets and future liquidity.
3. By increase in demand can create inflationary effect.

4. It can create disruptive effects on the trade balance in developing countries.

3.4. Impact of Consumer Loans on Economy

3.4.1. In Terms of Money Supply

Invested in bank deposits, by way of granting loan to consumers as money supply affects consumer loans. One of the most important elements of dematerialized money in the banking system (bank money) is to create dematerialized money invested in bank deposits (after legal provisioned) occurs as a result of granting loans again. Signup money directly to many of the payments to be made by writing checks also allow the use of money is a medium of exchange and payment. Consumer loans, dematerialized money supply by enhancing the existing mechanisms of the way money could be made in the form of an impact assessment.

3.4.2. In Terms of the Velocity of Money

Buying power in a country, of each unit as well as the amount of money depends on how many times it is used for the purchase of goods and services within a certain period, on average. Within a year, the number of circulation of money changing hands as the average speedof each unit of money is called.

Velocity of circulation of money, in terms of determining the purchasing power of the money stock in the country is as important as the amount of money. Within one year of purchasing power of the money stock in a country, the amount of money (M) with the circulation velocity (V) is equal to the product. Therefore, one of the compounds that affect the purchasing power of the money supply, while the other is the velocity of circulation of money.

Especially the factors that determines the speed of circulation of money, the development level of money and loan institutions in the country and the people with the degree of people's savings and consumption tend to use them, it is important in terms of the impact of consumer loan.

Growth of money and loan institutions at the country level and the degree of people use them, the funds held by the bank is able to extend to related companies or persons comfortably. Velocity of circulation of money in case someone can not fund the loans held by the Bank will be lower (Aren, 1984). Of new products that appeal to various sectors such as consumer loans with the entry into the banking system, especially in countries where advanced monetary and loan institutions, consumer loans will affect the speed of circulation of money.

Consumers with the convenience able to borrow from banks when an unexpected need, less money to keep their hands will be able to use consumer loan as required. This will increase the speed of circulation of money.

Consumer loans, in line with the income they hope to achieve, then the person is to implement strategies that consumption in order to meet the needs of today. When people begin to consume a larger portion of their income, the amount of money held by the decreases in parallel, thus increasing the rate of circulation of money.

3.4.3. Inflation and Consumer Loans

The effect on prices of consumer loans, consumer loans and total demand is dependent on the effects of aggregate supply, the demand for consumer goods and services against increases to a certain extent.

In the short term, even if the inflation of an increase due to the increase in consumption in the long term, this situation remains largely dependent on the supply elasticity. If we have elastic supply of certain goods in the economy by increased production with increasing demand is expected to happen in an inflationary development. However, it does not lead to an increase in the quantity demanded of a production increase at the same rate, said commodity price inflation experienced in the economy increased.

In a field of activity not working at full capacity, Increase in demand produced a goods, It may also contribute to growth with increase in production and causing employment growth.

Therefore, the resulting increase in consumer loan growth, lowering costs created by the increase in demand in the economy with the rest of the sector tends to create economies of scale. Consumer loans occurred due to expansion of capacity with the help of cost decreases, resulting in the reduction in prices and put pressure on inflation in lowering direction. However, in an environment where the controlled prices (in monopolistic environment) this interaction is eliminated. In general, they reflect the price drop in the cost control in an environment where the price of the company and the company has increased profit margins.

On the other hand production of consumer goods on a large scale, especially natural and causes of the depletion of non-renewable resources or the use of less efficient resource requirements and made production leads to higher rates in the long-run.

On the demand side is that the effect of increasing prices in the short term consumer loans. Consumer loans so if does not increase capacity in the economy

resulting from the provision, the resulting price increases will result in cost increases could lead to inflation. Inflation, consumer loans by making a negative impact on private savings, may also occur as a result of the strengthening of the money flow. (Arpalı, 2008).

CHAPTER 4

4. THE IMPACT OF INTEREST RATES ON CONSUMERS LOANS

Consumer loan is one of the most important financial products that allow consumers to meet their current consumption expenditure. One of the most important cost items of consumer loan is interest rate. If policy maker institutions want to control demand for consumer loan, one of the methods applied is to change the Central Bank lending rate (İbicioğlu, 2009).

Interest rates can influence the real economy through three main mechanism channels. The first one is the substitution effect. The reaction of companies and households depends on the magnitude of the substitution effect, i.e. the change in the relative costs of alternative credit and deposit possibilities. The second is known income effect. Changes in the interest rates alter the costs and incomes of economic agents and, consequently, their net income. Finally, they affect the value of real and financial assets and, therefore, the wealth of companies and households (wealth effect).

Interest rates can be classified as either short-term or long-term. For example, you can take out a home loan with the interest rate fixed for 20 years. This is considered a long-term interest rate. You make the same payments over these years,

regardless of whether interest rates rise or fall. Alternatively, when you use your credit card or take out a personal loan you are borrowing money at an interest rate that can change in the short term. As a general rule, short-term interest rates tend to be higher than long-term interest rates. (Horvat et al., 2004)

Traditional finance theory argues that as the size of a loan expands, the interest rate on that loan rises to accommodate the increased risk associated with the loan. However, utilizing firm-level data of the Barbadian banking industry, it is observed that the smaller the loan's size, the greater the interest rate applied, and vice versa. Yet, using a fixed effect panel data framework, this article also shows that the interest rate differences among loan sizes can be mainly explained by the borrower's characteristics for local banks while for foreign banks, its operating characteristics are the most important factors.

The level of interest rates has a direct effect on a consumer's ability to repay a loan. For example, Thordsen and Nathan (1999), assert that when interest rates are low, people are willing to borrow because they find it relatively easy to repay their debt. When interest rates are high, people are reluctant to borrow because repayments on loans cost more. Some consumers may even find it difficult to meet their existing loan repayments, especially if interest rates increase faster than the rise in a consumer's income. If interest rates rise sharply and stay high for a long period, some consumers will default on their loans.

Consumer loan is an important financial product for financial institutions. In terms of financial institutions providing finance a range of products in consumer countries economic policies, especially loans may also be an important factor to be taken into account in monetary policy implementation. Central Bank of Turkey, while decisions on the policy instrument of interest rates, consumer loans are also

thought to consider. Because of the important dimensions of consumer loans as well as the size of the maker of economic growth and demand inflation.

Consumer loan is considered to be an important factor affecting the private consumption of consumer loans. The importance of private consumption expenditure and consumer loans, considering its importance for economic growth can be seen clearly. In particular, caused the construction and automotive sectors for economic growth in Turkey is known to be important fact. That is why the issue by changing the interest rates of banks in Turkey in particular, it is important relationship between the demand for vehicle and personal loans.

According to the report of the European Commission on Turkey, real gross domestic product growth accelerated from 5.8% in 2003 to 8.9% year-on-year in 2004. The GDP growth supported by strong private consumption growth, that was driven by lower interest rates, increased consumer lending and a surge in private-sector investment in machinery and equipment. In contrast, growth decreased to 4.5%, nearly potential growth estimates, and was mainly equally distributed among expenditure components in the first half of 2005. (Progress Report, 2005).

Studies on the effects of macro-economic factors are the main factors in demand as well as supply-side need for consumer credit, have demonstrated that development and government policy in the financial sector (Brooks, 2008). Interest rates are expected to be the wrong one to evaluate the macro-economic factors.

CHAPTER 5

5. DEVELOPMENT OF HOUSING LOANS

Home is an integral part of an individual, who since his/her birth and childhood, dreams to have living space of his/her own. Once in a life time investment requires loan to accomplish it and that is how the home loan comes into scheme of things. Buying a home is dream for everyone. Owing to the rising price of properties, it has almost become impossible for an average earning person to buy a home on a lump sum payment. Therefore, the concept of home loan has come in existence. There are plethora of housing finance companies and equal number of banks that offer home loans. The task of selecting one company and one offer for home loan amidst the thousands available options have become a very complex task owing to the burgeoning housing finance market in the country. Apart from this, there are intricate business jargons and technicalities that make this task more difficult (Shah, 2012).

Although shelter was enshrined as a fundamental right in the Constitution, housing receive not the attention reserved for it. It was perhaps that nobody, the problem of housing is expected to present at that time assume enormous proportions. It has never kept pace with the minimum requirements of the people correct housing, even at a lower scale. Backlog has exacerbated housing by the high rate of population growth. Inadequate housing facilities led to the rapid growth of slums and unauthorized settlements, poor

quality of services, to land housing, prices and rising costs for the building. Inadequate housing facilities led to the rapid growth of slums and unauthorized settlements, poor quality of services, to land housing, prices and rising costs for the building. In rural areas, the situation is more alarming. The Government and some companies of the public sector have tried to tackle the problem, but their efforts do not much also the edge of the problem.

Housing is accepted as a fundamental right in the international arena according to the Universal Declaration of Human Rights (1948). Moreover HABITAT II Conferences organized by United Nations have underlined the importance of housing with a main theme of UN Habitat Agenda as “enough housing for everyone” (Habitat II, 1996)

However, like in other developing countries, housing is a major problem in Turkey. In very general, authorized-housing shortage in urban areas, unqualified housing stock with poor conditions, and affordability of housing are the main issues related to housing problem due to the rapid urbanization and high population growth. In addition to these, unequal income distribution, insufficient capital accumulation, lack of financial resources which can be allocated to housing due to high inflation rates and high budget deficits and earthquakes make the housing problem worse in our country. (Berberoğlu and Teker, 2005)

5.1. Sources of Housing Finance in Turkey

When we examined the sources of housing finance in Turkey, we see that overall institutional and non-institutional subdivision. This is also the country in the development of the point of giving us an idea of separation. (Uludağ, 1997). Indeed, the funds they need to get the housing of the people we look to developed countries

is seen as a major part of the enterprise resource, we look to developing countries such as Turkey, institutional structure, but can say that about 20%. Turkey lacks a functioning housing finance system. Indeed, it can be argued that lack of experiences of special housing finance circuits unlike other countries impedes the development a functioning system in housing finance. Although certain institutions provided housing loans, they were far from being totally specialized housing finance institutions. On the contrary, they provided housing loans beside their primary roles such as social security, commercial banking or mass housing developer. In the following section, housing finance provided by the institutions namely Social Security Organization, Social Security Organization of Merchants and Artisans and Other Self-Employed Professionals, Housing Development Administration and commercial banks which have substantial contributions to housing finance are discussed in detail.

5.1.1. Non-Institutional Housing Finance Resources

Non-institutional finance sector is a system that there are not any official rules and regulations and that the activities are depend on the applications and traditions. In developing countries, the people who want to buy or construct a building, use the non-institutional sources because of non-formed institutional sector. The non-institutional finance sources can be detailed as household income, the funds obtained from relatives, friends and employers, contractors and housing cooperatives (Alp and Yılmaz, 2000).

5.1.1.1. Household Income

Turkey is a country with large and deep-rooted inequalities: 20% of the households with the highest income have managed to receive at least 45% of total disposable income.

There are also wide regional disparities in income distribution. Urban households constitute only about half of the population but receive nearly 75% of the income, while the rural areas receive the remaining 25%. The Marmara region's share of income is greater than its household share in population, whereas Eastern and Southeastern Anatolia are regions with the lowest income shares.

5.1.1.2. Funds Obtained From Relatives, Friends and Employers

This type of resources, especially relatives, friends or family represents the value provided. Be strong families and relatives of Turkish relations have enabled the use of such a long-term financing.

5.1.1.3. Funds Provided From Contractors

These people are also known as “Yap- Satçılar” in Turkey generally do not provide a sense of funds in cash. They offer convenience only some purchases and maturities of housing facilities during the reception. The high fixed investment in construction works and does not have sufficient financial strength of these people has led to the formation of such a system. “Yap- Satçılar” are in the construction phase of the construction taking advance a portion of the value of property, and sell the rest in installments of real estate. This method is a method commonly used, especially in developing countries like ours. However; usually that will be completed at a later

date the property, as long as the lack of long-term cash requirements and is high, especially in reducing the availability of methods for people of the middle and lower income groups.

5.1.2. Corporate Housing Finance Resources

Corporate sector was approved by the public authorities and based on a legal basis, they are specialized institutions. (Alp, 1996) These institutions in Turkey are different from developed countries, The majority are also official qualification and so far from creating a corporate housing finance system. The biggest cause is inadequate of the financial system in Turkey. Application of these institutions operating generally does not continuous due to lack of resources in Turkey. Also to contribute subsidized most of the practices, has led to only a certain number of people benefit from it. (Köse, 2002). For these reasons, these institutions have begun to experience the fund bottleneck in a short time and they lost their effecttiveness.

These institutions are divided into five (5) as the central government institutions, social security institutions, local governments, banks and housing cooperatives in Turkey.

5.1.2.1. Central Government Institutions

Central government has not provided in the housing problem a contribution in the economic especially in economic sense in Turkey for many years. The increasing and is being seen the impact problem has been mobilized by the central government after a certain period. But it is not permanent solution of this problem in later

applications. Housing Development Administration (TOKI) and the Public Works and Housing Ministry are Continuous and relatively successful central government agencies. (Köse, 2002).

5.1.2.2. Housing Development Administration (TOKİ)

In Turkey, the Constitution (1981) regulates the housing issue in article 57 as "The State shall take measures to meet the needs of housing within the framework of a plan which takes into account the characteristics of cities and environmental conditions and shall support mass housing projects."[1] Also The Universal Declaration of Human Rights has accepted that housing is a human right in 1948.

As a consequence of the influences of the economic crisis in capitalist countries in 1970s, inflation began to rise in the second half of the 1970s in Turkey, but bank interest rates did not increase as much as inflation and the demand for housing rose rapidly as investment in real estate became a way of protection of savings against inflation. Additionally, housing finance institutions (such as SSK, Bağ-Kur) continued to give new credits without raising their interest rates in that period.

On 24 January 1980 an economic stabilization programme aiming 'to liberalize the economy by reducing the role of the state' was put into practice. As a consequence of this programme, interest rates granted by banks and bankers (private money dealers) for deposits increased over the inflation rate. In contrast to the 1976-1980 periods, the demand for real estate decreased very sharply during the 1980-1982 period because the savings were deposited in banks and bankers. More

[1] The Constitution of the Republic of Turkey

important than this, the real wages had decreased with the implementation of the economic stabilisation programme. As a result, decrease in housing demand led to falls in house prices and housing sector went through a financial crisis. (Türel, 1994). As it is expressed by Türel (1994):

> State intervention in order to take the housing sector out of crisis was in the form of creating a new housing finance system under the direct control of the government. Two successive mass housing laws were enacted, the first one by the military regime in 1981 and the second one in 1984 by the newly elected parliament.

In the first mass housing law numbered 2487, it was stated that at least 5 percent of the income of the national budget had to be transferred to a fund each year. This fund would be used to finance large scale housing projects to be produced on lands developed by the Ministry of Reconstruction and Resettlement (MRR).

MRR was attributed duties such as being the developer of publicly owned land and finance institution for both the supply and demand side of the housing sector. However, in 1982 Ministry of Finance could only transfer 1.1 percent of the income of the budget to the fund, and the transferred amount decreased to 0.7 percent in the following year. As a result MRR could not carry out the duties given by the first mass housing law. (Keleş, 1997)

In 1984 the second mass housing law numbered 2985 was enacted. According to this law Mass Housing Fund (MHF) was created as the principal source for housing loans of which the resources would come out of taxes like charges on certain goods and services which were regarded as luxury consumption items. Housing Development Administration (TOKI) has founded in order to manage the MHF in the same year. The revenues of MHF were used via TOKI which were off-budget (Akçay, 2003). The housing loans were given through Emlak bank and other two commercial banks namely Pamukbank and VakıfBank with the guiding lines of

TOKI and the fund resources of MHF. The housing loans were given for 15 years at fixed interest rates between 15-25 percent according to the size of the houses. The interest rates were higher for greater houses.

In the 1984-1992 periods TOKI accepted loan applications for 863,000 dwelling units. About 85 percent of these dwellings were built by housing cooperatives. As housing cooperatives had been favoured in credit allocation (since there are regarded as not profit seeking organizations and contributors to planned urbanization), the members of housing cooperatives and share of cooperative housing increased very rapidly in 1984-1989 period.

TOKI also provided 'personal loans' to be used for purchasing or building own dwelling. However, the condition to get personnel loan was depositing 15-25 percent of the amount that would be received as credit in one of the dealer banks for an unspecified period of time. TOKI stopped giving personal credits after 1989. The number of personal credits extended was 93.215 (www.toki.gov.tr)

TOKI has played an important role in housing finance through the 1980s despite the political pressures on the allocation of credits. However, the number of loan applications accepted by TOKI decreased by the years due to the lack of financial sources of the administration. In addition to this, the increase in construction costs led to falls in loan-to-value ratios of TOKI credits. In other words, the loans given by TOKI could meet 97 percent of construction cost of a $100m^2$-dwelling in 1984 and this ratio decreased to 15 percent in 1991.

The main reason behind TOKI's financial difficulties was the transfer of 30 percent income of TOKI to the national budget in 1988 and 1989. The TOKI's income transfer percentage increased to 50 percent in the following years. The other

important reason was the high inflation rates diminishing the real values of credits (and repayments) given at fixed rates irrelevant of inflation.

Under the pressure of these financial difficulties, a new housing credit system had been introduced by TOKI in 1989. The system was called "dual-indexed mortgage system" which was designed to operate in an inflationary environment. The credit amount was indexed to inflation and repayments were indexed to civil servant's salary increase rates. Indexation was carried out according to the salary increases of the civil servants for every six months. The monthly repayments were adjusted for the 30 percent of the average wage in the public sector. It is argued that the aim of TOKI with this implementation was "to avoid facing the problems which may arise if incomes (and repaid amounts) increase less than the rate of inflation". (Türel, 1994).

However, due to the expectation of the parallel increases in inflation and salary increases in the long run, indexation was reduced to civil servant's salary index.

Between 10 and 35 discount was made for the people who paid the outstanding amount at once.

In 1993 the transfer of all TOKI's incomes and revenues in the national budget precluded this institution to function as a housing finance institution. Additionally, in 2001 mass housing fund was totally abolished. TOKI has become totally dependent to its own resources.

With the government's Emergency Action Plan in 2001 TOKI's function in housing was revitalized. Currently TOKI creates resource with revenue sharing projects and produce social housing for low income groups. As it is stated by the

interviewee from TOKI who is the department manager in Strategy Developing Department:

> TOKI plans to produce 250 thousand houses till the end of 2007 in accordance with the government's Emergency Action Plan. So-called prestige projects [revenue-sharing projects for creating resource] are included in this number. In big cities the projects, based on revenue sharing are built on lands provided by TOKI. The receivables of TOKI irrelevant of sale performance are ready and they are transferred to social housing projects. Indeed TOKI is the only institution that supply housing for the real needy people. I think the involvement of a public institution in housing issue is very important since the guarantee of state for both the builder and buyer exists.

Recently, TOKI extends housing credits via developers and cooperatives with an interest rate indexed to civil servant's salary increases for a period of 10 years for the houses up to 100m^2 and civil servant's salary increase rates plus 10 percent with 5 years maturity for the houses that are 101-150m^2. TOKI has extended 944.347 housing credits between 1984-2005.(www.toki.gov.tr) On the other hand, TOKI also plays an important role in the supply side of housing and contributes housing finance for supply side, such as providing credits for developers and cooperatives and real estate builders. TOKI coordinates with commercial banks supplying credits to real estate developers.

As a conclusion, TOKI is the only public institution both acting in supply side as a developer and demand side as loan provider for housing and its role in housing issue totally depends on the housing policies of the state as the interviewee stated "the efficiency and effectiveness of this institution is directly related to priority and importance given to housing in the government programs".

5.1.2.3. The Ministry of Public Works and Settlement

Only the prevalent of the opinion that the task of the local government of the problems of urban development and housing the central government has made it

necessary to take part in the solution of these issues. Development and Housing Ministry was founded in 1958. (Tekeli, 1996).

The establishment of Ministry of Public Works is October 13, 1923. The name of the Ministry was changed as Public Works and Housing Ministry in 1984. Ministry is an organization that depends on the construction works related to the authorities in Turkey and the services are listed as follows:

- Make public buildings and facilities construction and substantial repairs or procuring,
- Laws of the institutions represented in their organization with affiliates in construction, maintenance and performance of services or do the necessary work to ensure that built,
- According to housing policy to make principle of housing and to make it
- According to the conditions and possibilities of the country, the most necessary and useful structure appropriate to the economic and manufacturing standards of the material and take measures to ensure the exercise, take heed,
- The various features and the plans in the scale of the city's infrastructure and shelter to prepare standard basis to the project,
- Municipalities and Special Provincial Administration to the general budget tax in accordance with the legislation on granting share of the income property is the Municipalities of the share in the Common Fund Provinces to confirm the distribution for investments under the annual program of the Bank and may be summarized as watch.

Bank housing estate which is closely related to the production of the bank connected to the Ministry and the provinces have accelerated their plans and activities related to the production of residental institutions. Particularly among these plans particularly social housing standards and production increase takes party is the legislation on housing. But, funding is to support the sector in terms of number getting back. (Akçay, 1993).

Ministry in direct housing production and financing is not very effective. Directly applications are much more related to land allocation and land for production.

5.1.2.4. Social Security Institutions

The Social Security Organization (SSK) was authorized to give housing loans under the law numbered 5417, which was enacted in 1949. The 20 percent of premiums were devoted for these loans. The loans were provided to the building cooperatives established by at least 30 members of SSK who were covered by its health insurance and pension schemes. The members who paid premiums for at least 1800 workdays could benefit from these loans. (Türel,1994)

These loans were allowed to be used for dwellings smaller than 100 m^2 and up to 90 percent of the construction costs. The loans were given for a period of 20 years for the houses smaller than 85 m^2 and 15 years for the houses 85-100 m^2 with an interest rate of 5 percent per annum. (Gürbüz, 2002).

Social Security Organization (SSK) provided housing loans between 1950 and 1984. Although it was not allowed to provide new loans after 1984, its financial commitments to the building cooperatives of its members, which were undertaken before 1984 had continued until 1990s. Between 1963 and 1992 SSK provided

finance for 233,000 dwelling units. (Türel, 1994; Teker, 1996; Uludağ, 1997) It is argued that effects of the housing loan policy of SSK until 1984 had deepened the serious financial problems of SSK (Türel, 1994; Uludağ, 1997)

5.1.2.5. Local Administrations

The role of local administrations becomes prominent, especially, in the releasing of zoned lands, as well as they can be involved in the production of housing directly. A general regulation was legislated for that municipalities have an authority to produce, allocate, rent and sell land, houses and workplace based on the Article 69 of Municipal Law dated 29.09.2005 and published on the Official Journal. In this regulation, social houses which are not more than a hundred square meter in gross and ones which were produced low costly can be given to people.[2]

a) Who do not earn money more than double of minimum wage in metropolitan municipalities or more than one and a half of minimum wage in other municipalities

b) Who do not have a house or a land to build a house and who reside in municipal boundaries for more than one year

c) Who do not have a house or a land to build a house, of who will be transferred from industrial zone and who will be homeless because of reclamation and liquidation of shanties despite they have certain rights based on the Shanty Law (No: 775, dated in 1966)

d) With the method of indepment from ten years to twenty years without any tender.

This type of land allocation can be for cooperatives which made by people who have above qualifications.

[2] Municipal Law (No: 5393)

Moreover, an expropriation law (No:2942) was legislated by municipalities in order to planned urbanization and to meet house, industry and commerce area needs of cities. According to this law, zoned and sub-structured lands can be used for this purpose. Municipalities can make joint projects with the Mass Housing Administration, credit institutions and other related state agencies and institutes in obtaining lands and establishing houses and workplaces.[3]

Other than that, production and sale of the land will be governed according to the 2886 Government Procurement Law.[4] The law requires municipal council decision to allocate land, house and workplace while it gives certain authorities to municipal council about payments.

Contribution to the housing problems of local governments as seen takes place largely by land for production. Especially, the lack of adequate financial resources of municipalities leads not to meet the demand for land. As a result, the slum housing and zoning makes increasing land prices. Local administrations become more important in the solution of housing because they cause to increase in prices as well as they have an important role in production of zoned lands.

5.1.2.6. Banks

We should divide banks into two as Real Estate Bank and private banks because of the difference of housing finance applications.

1. Real Estate Bank

The Bank was founded in accordance with Atatürk's instructions in June 3, 1926 in order to protect the rights of orphan, to support the construction enterprise of

[3] The Expropriation Law (No:2942)

[4] Government Procurement Law (No: 2886)

the people in Turkey, to provide the necessary loans under the name of 'Real Estate and Orphan Bank'. The first capital of the Bank is determined to be 20 million. The first branch was opened in Ankara on July 13, 1926.

A distinctive feature of Real Estate and Orphan Bank from others banks, the Bank is a state bank which gives a loan of money in exchange for mortgage. Real Estate and Orphan Bank continued to work until 1946. The most important application of the period of time in 1944 is the foundation of neighborhood of 434 houses in 1946 which was laid by Prime Minister Sukru Saracoglu. However, inadequate services of Real Estate and Orphan Bank required to restructure to this bank for developing and growing Turkey. For this purpose, in September 1, 1946 with 110 million TL in Turkey Real Estate Credit Bank Corporation was founded. The Bank's share capital was increased to TL 300 million in 1953. Turkey Real Estate Credit Bank continued to work until 1988. In the last 42 years, the Bank of Turkey has signed to both the commercial banking and housing sector. Contemporary houses that it built has taken place in the sector with banking services including residential and commercial loans that have given.[5]

Mortgage Credit Bank that was unauthorized to conduct banking in 2001 continued to be only bank until now as an expert on housing finance in Turkey. After this date, it was transferred to T.C. Ziraat Bank.

2. Commercial Banks

In Turkey, according to 50th article of the Banks Law dated 23.06.1958 numbered 7129 commercial bank were forbidden to lend housing loan on mortgage until 1979. It has been generally argued that due to this regulation the

[5] http://www.tasfiyeemlak.com/emlak_hakkinda.php

implementation of housing loans on mortgage and establishment of a long term housing finance system including banks were impeded.

However, with the decree law numbered 28, published in the official gazette dated 31.08.1979 numbered 16740, the 50th article was amended and the prohibition of lending housing loans on mortgage by banks was abolished. According to the new regulation, banks were allowed to lend housing loans on mortgage not only individuals but also give credits to building sector in order to support the housing sector.

But, with 50th article of the Banks Law numbered 3182 dated 25.04.1985 the credits that could be lent to the building sector were limited to social housing. On the other hand, this limitation was removed and any kind of credit that could be lent to building sector was prohibited with the decree law numbered 512 published in the official gazette in 16.09.1993.

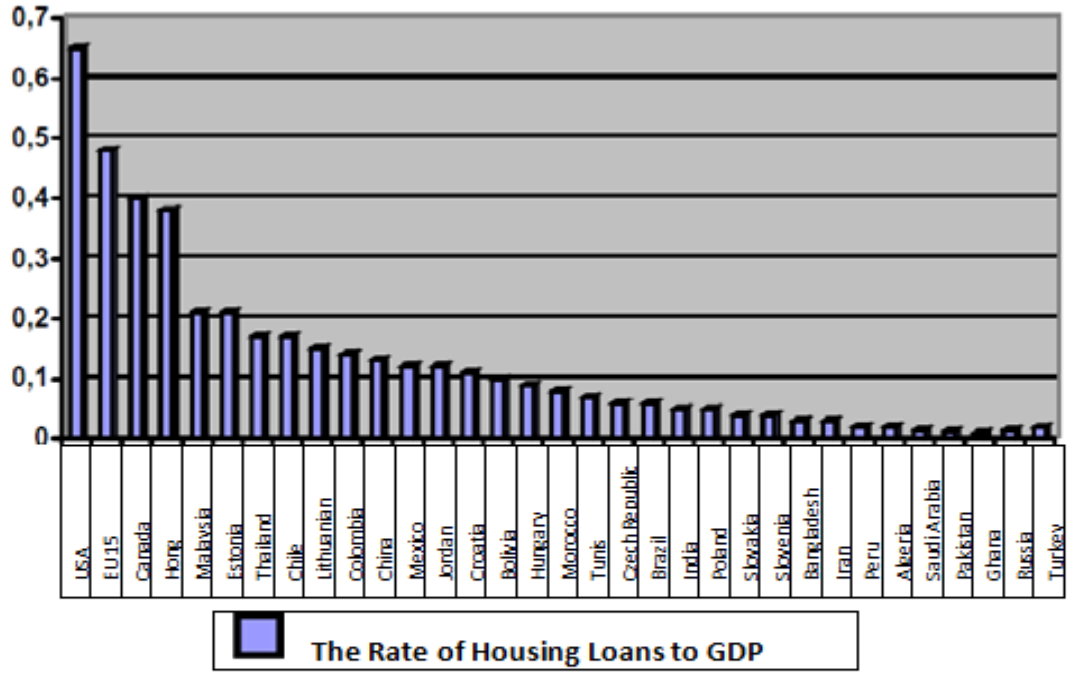
Although banks were prohibited to make loans to building sector with the 12th article of Banks Law dated 18.06.1999 numbered 4389, the existing Banking Law dated 19.10.2005 numbered 5411 excluded this issue. Nevertheless, according to the current regulation, the banks may lend housing loans as a type of consumer loans.
Even though by removal of the provisions prohibiting extension of housing loans the legal barriers were eliminated, the banks were very reluctant to give long term housing loans because these loans were non-profitable within the existing economic conditions. Commercial banks gave only 14.000 housing loans in the period of 1984-1990 except the credits provided by TOKI with the intermediary of the banks. (Kendir Tunalı, 2004) The main reason was the negative effects of high level of inflation on long term credits.

After 1990, commercial banks began to advance credits to house buyers in the form of consumer loans. However, this was rather an expensive type of housing finance for the households since the monthly compounded interest rate was 5,5 percent for a one year repayment period, and it reached to 6-7 percent for the maximum 3 year repayment period. (Türel, 1994).

Since 1990, the amount and number of housing loans have changed pursuant to the economic environment. The housing loans lent by banks decreased when the interest rates increased in respect to high inflation and when Turkish Lira devaluated. During the periods in which relatively better economic conditions existed the consumer loans especially the housing loans increased.

5.1.2.7. International Resources

International resources are the resources that are provided by institutions such as The World Bank, International Financial Institutions, United Nations, etc. at the level of technical assistance.



Source: World Bank & International Finance Corparation "Housing Finance in Emerging Economies", 2005.* Year 2005 for Turkey, years 2003 and 2004 for the other selected countries.

Figure 8: The Rate of Housing Loans to GDP in the World (%)

5.2. Housing Finance Systems

Housing finance systems differ from country to country. However, in the literature there are two main classifications of these systems made by Mark Boleat in his book National Housing Finance Systems in terms of fund resources and Bertrand Renaud in his article The Financing of Social Housing in Integrating Financial Markets: A View from Developing Countries in terms of global trends in housing finance. Boleat (1985) classifies housing finance systems in four groups that are; direct financing, contractual system (Contract Provisions in the Accumulation / Credit System), deposit taking system (Deposit Financing System) and mortgage banking system within the context of resources of the funds to be used in housing finance.

5.2.1. Direct Financing

In direct financing those who need funds to purchase a house obtain funds directly from the individuals with surplus funds. The lender in direct funding is usually a relative especially the parents. Older people lending money to their children to enable them to purchase or construct houses is the common way of direct financing. The other way of direct financing is builder finance. Typically, builder sells the house without demanding the whole price before construction. The price may be paid by installments during and after the construction.

The direct financing predominates the housing sector in less developed countries in which intermediation is not developed, sufficient funds can not be supplied. Moreover, it is used in more advanced economies only when normal institutions are prevented from operating effectively. (Alp, 1996) Nevertheless, as a general rule, the more developed an economy the greater the extent of financial intermediation rather than direct financing of borrower by the lender. (Boleat, 1985).

5.2.2. Contract Method

Contractual system is second type of housing finance system. In this system regular savings are made over a period of time with an interest rate at below the market level and in return "the investor becomes entitled to a loan, again at an interest rate below a market level" (Boleat, 1985). In other words, in order to obtain a housing loan, people should deposit their savings for a certain period below the market interest rate level. The system is based on the savings of people who are potential buyers but may not be able to purchase houses with their own accumulations.

However, the contractual system can not provide the whole amount of funds necessary for a house. The system therefore has to be used with another financial system together. It is possible to assert that contractual system is being used partly as a method of tax-efficient saving for housing rather than funding whole house purchase (Boleat, 1985). This system is used especially in Germany, France and Austria.

5.2.3. Deposits Financing Method

Deposit taking is third type housing finance system which is the most common one (Kim, 1997). According to this system, deposit taking institutions mainly commercial banks, savings banks and specialist housing finance institutions such as building societies in the United Kingdom or saving and loan associations in the United States of America use whole or a proportion of deposits for lending housing loans.

While some deposit taking institutions mainly use deposits for making housing loans, the others such as commercial banks make commercial loans for firms or consumer loans beside housing loans. This means that housing loans may be competing with loans for other purposes (Boleat, 1985). These institutions may not prefer to lend loans for housing in case of inappropriate interest rate levels in order to avoid certain risks such as maturity risk which can be simply described as funding long term loans by short term deposits. Additionally, in developing countries beside maturity risk the funding of budget deficits increases interest rates for deposits and crowds deposit taking institutions out.

5.2.4. Mortgage Banking System (Mortgage Banking)

The last housing finance system is called mortgage bank system or mortgage bond system. In this system an institution make loans with the funds provided by issuing bonds covered by the mortgages. This system works effectively where an active and well-performing capital market exists. Bonds issued by mortgage banks are generally purchased by financial intermediaries such as insurance companies, pension funds, banks and individual investors (Boleat, 1985). This system is used very effectively in Denmark and Sweden.

5.2.4.1. Mortgage in Turkey

The most effective method of housing finance mortgage, (mortgage financing), systems in our country have started to be implemented recently in the 20th century. There was a major crisis in the world during this period due to the mortgage systems. The effect of this crisis is still ongoing.

On the other hand, housing cooperation systems have been used to match the housing needs of people in our country since the 1930s. In contrast, mortgage has been used since 2007 as a result of modulation to liberal economic practices in Turkey. The occurrence of housing co-operatives dates back to the mid-1930s in Turkey. After World War II, Turkey practiced a strong housing shortage due to rapid urbanization. In fact, until 1950 only high ranked state employees established housing co-operatives and few housing co-operatives were developed. The number of housing cooperatives in 1939 was only 4, increasing to 26 in 1942, and 50 in 1946. Two major events asserted the enlargement of housing co-operative development in Turkey:

1. The appropriation of the Co-operative Law in 1969

2. The incentive of mass housing projects under the Five Year Development Plan (1967-1972).

(http://www.chfcanada.coop/icahousing/pages/membersearch.asp?op=country&id=16)

Mass Housing Law (MHL), firstly adopted in 1981 and renewed in 1984, is the important factor for the improving of housing co-operatives. According to this law, 5% of the state budget should be directed towards housing improvements. Also, the law required that the Housing Development Fund (HDF) has supplied financing to housing co-operatives for 18 years (from 1984 to 2001) in the form of mortgages with interest rate subsidies (www.turkkent.org.tr).

A significant development in housing co-op was contributed by MHL. The annual number of housing cooperatives was 131 in 1980 and 91 in 1983. This number increased to 411 in 1984, 920 in 1985, 1,705 in 1986, and 2,613 in 1987. However, a constant decrease has been realized from 1993 to 2002 in housing co-operative development due to major economic challenges in Turkey. Thus, the Housing Development Fund was ended in 2001

(http://www.chfcanada.coop/icahousing/pages/membersearch.asp?op=country&id=16).

A new government was elected at the end of 2002 bringing a new housing policy that excludes housing co-operatives from the State Financial Assistance and allocation of public land for development. In 2003, the government adopted an Emergency Action Plan to solve the housing problems, especially of low-and middle-income groups (Okay, 2010).

For many years, co-op housing representatives have been requesting several financial measures including improvement of the legislation dealing with mortgages,

the set up of a housing finance system within the financial market and assistance for low-and middle-income families. The Law on Housing Finance System (a mortgage law) was approved in February 2007. However, the law covers only individual housing mortgages and only high-income groups can benefit from this new system as the interest rates are still too high for low-and middle-income families. However, mortgage could only be arranged for the objects located in cities, since there is no prohibition for selling real estate objects to foreigners. Today, Turkish banks are much more interested in providing loans to foreigners (Dönmez, 2008).

Today, housing finance systems of developed countries are more improved. In these countries, mortgage markets are used to flow funds from savers to home-buyers. On the other hand, housing finance often continue to exist under-developed in developing countries. The reason is mainly due to the lack of macroeconomic stability and the balance. Turkey has taken important steps towards the development of a mortgage by passing the mortgage law from Turkish parliament (Çobandağ, 2010).

Mortgage loans have been started using with the legislation Number of 5582 "*Law Amending the Laws Related to Housing Finance System*" in 2007. Different methods of the housing financing have been examined by splitting into classifications as intended for the project developers and final users according to the scopes (Topaloğlu, 2012). Some predominant forms of mortgages available in the market are fixed rate, fully amortized and level payment mortgages (Mishkin, and Eakins, 2009).

Draft Law known as "mortgage" or "tutsat" ("hold-sell") law according to Turkish public opinion was enforced by Law regarding Revision of the Housing Finance System dated February 21, 2007 and numbered 5582. Law No. 5582 was

entered into force upon publication in Official Gazette dated March 6, 2007 and numbered 26454 in an instant moment within the time of abandonment of hopes.

Our country accepted this law, and it laid the foundation of the mortgage finance system. The accepted bill of the system in both the US and Europe in particular is permitted to apply in Germany and Denmark.

Principally, the relevant law aims at providing housing loans under more reasonable conditions by establishment of a corporate relation between the investors and consumers. Additionally, formation of a secondary market, which would possibly support development of the housing loan market of a specific size, with the help of corporations, rules and financial instruments, is also among the purposes of the law (Yalçıner, 2006).

The main difference from other mortgage loans in the system, in order to ensure supply, lenders, mortgage loans consist of financing the loan by issuing securities in exchange through the purchase of the investor's securities

Currently, only 3% of housing finance is derived from the existing housing finance system. Home loans are generally provided as a small part of consumer loans by the banks. The ratio of mortgage credit to GDP is approximately 10% in similar occurring market countries. In contrast, the ratio of mortgage credit to GDP is insignificant in Turkey. This means a possible for a huge growth in the near future. In addition the growth of consumer price index was less than 5 percent in all OECD countries in 2004 with the exception of Turkey (Anonymous, 2005).

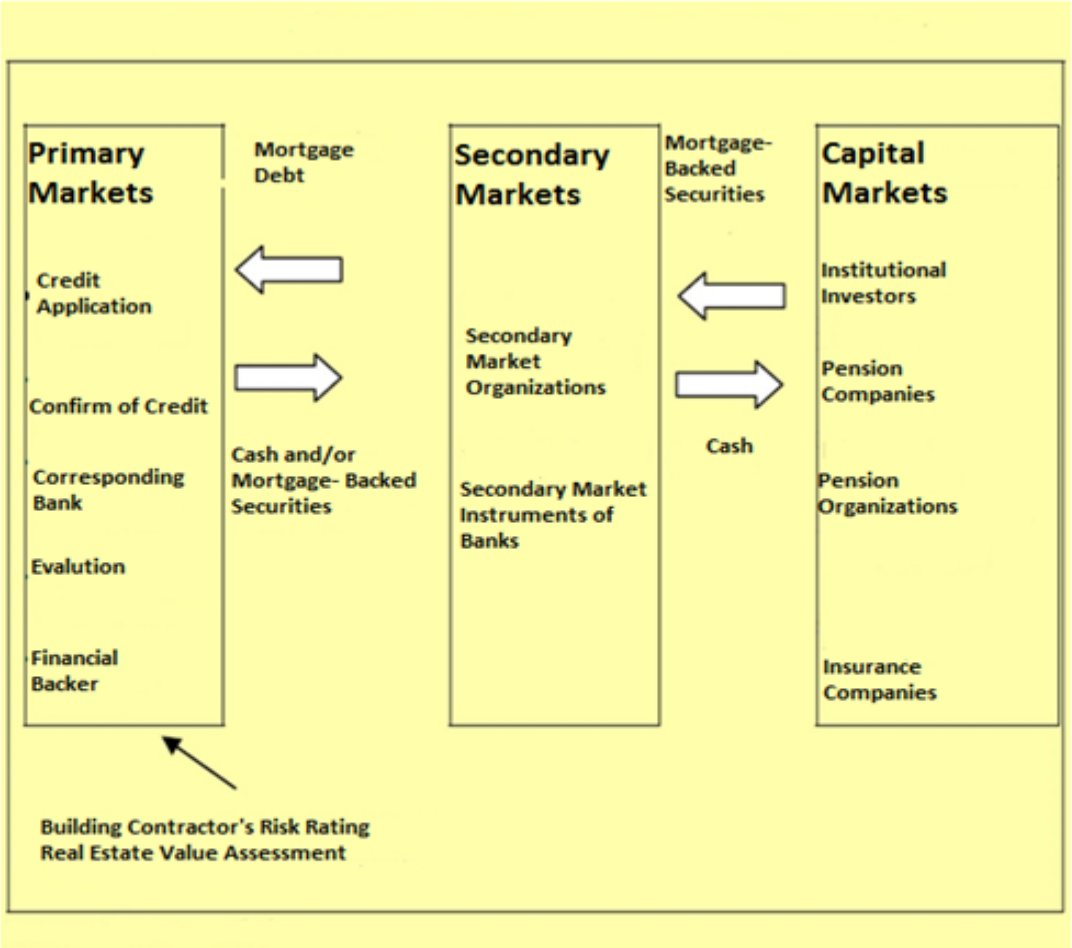
Mortgages have the highest rate of economic expectation among all loan types. According to TurkStat data, home sales across Turkey rose by 25,3 % to reach 95,645 units in October 2014. In May 2014, İstanbul took the biggest share in home sales with 17,852 sales (19.8). Ankara and İzmir followed with home sales of 10,549

(%11) and 5,772 (6 %), respectively. Cities with the lowest number of home sales were Ardahan, Hakkari and Bayburt with 15, 18 and 41 units, respectively. Nearly 38 % of all sales were home sales with mortgages. On the Other hand, sales rose by 19,301 units' year-on-year across Turkey in October 2014. Sales with mortgages reached 8,114 units and other sales 11,187 (TurkStat, 2014) "Home Sales Statistic, October 2014" Issue: 16159, November 24, 2014.

When compared with the other countries that have the high inflation economies, Turkey does not have a well- functioning housing finance system. A well-functioning housing finance system increases housing supply and develops housing quality. A good relationship between government, financial institutions, house builders, and households is needed for this expectation.

5.2.4.2. Mortgage Markets

Housing finance markets can be analyzed in two categories which are primary markets and secondary markets for housing loans.



Source: Özsan, 2005: 3

Figure 9: Mortgage Primary and Secondary Market Operations

Primary market is simply the market where lenders and borrowers come across and the funds are lent by financial institutions and borrowed by the consumers as housing loans. In other words, the loan relations set up between the lender and borrower and the transactions related to this loan are called as primary market (Alp, 1996). The traditional lending activities are operated in this market.

Secondary market is the market where lender creates funds either issuing bonds covered by these loans or by selling the loans to another institution in order to be securitized (Teker, 1996).

Firstly, loan lenders can issue bonds of which the collaterals are mortgage loans, in order to be sold to investors in the capital markets to create funds. These

bonds are called mortgage covered bonds and they are on-balance sheet funding instruments. (Alp, 1996) That is to say; lenders carry the liability of these bonds and loans in their balance sheet. The loans which constitute the assets of the lender can not be used for any other purposes until the mortgage covered bonds are redeemed (Capital Market Board, 2004)

Secondly lenders can sell their loan portfolio to another institution to be securitized as mortgage backed securities. Mortgage backed securities are off-balance sheet funding instruments. That is to say, the lender transfers all liabilities and receivables related to the loans to another institution. In other words, it involves the transfer of the risks and ownership of mortgage loans to a third party (Uludağ, 1997).

Mortgage backed securities, the securities whose cash flows are backed by the principal and interest payments of pooled housing loans, are suitable to be traded in the market and may be issued in terms and with coupons (Alp, 1996). Although, providing liquidity from capital markets through mortgage covered bonds is a widely used way for mortgage loans in some European countries such as Denmark since the last century, the current secondary mortgage market with their instruments such as mortgage backed securities was developed in the United States in the 1970s as a method of selling mortgage loans in order to reduce the interest rate and maturity risks associated with fixed-rate mortgage lending (Lea and Chiquer, 1999).

5.2.4.3. Types of Mortgage Loans

Loan is a type of debt. The borrower initially receives an amount of money from the lender, which they pay back, usually but not always in regular installments,

to the lender. This service is generally provided at a cost, referred to as interest on the debt by the financial institutions such as banks.

A housing loan is also a kind of debt instrument used to purchase housing. The distinctive feature of these loans is that they are secured with a lien established on the purchased house. In other words, the bank is given the title to the house until the mortgage is paid off in full. If the borrower defaults on the loan, the bank can repossess the house and sell it, to get their money back. These loans generally have long maturities since the amount of the loan extended is great (Kendir Tunalı, 2004).

According to the housing policies and financial structure of the countries, different types of loans emerged in order to increase the demand for these loans while reducing the potential risks for lenders. They can be classified in two main groups in term of interest rates as fixed rate, and adjustable rate mortgage loans.

Demand for mortgage loans, in addition to being on the home demand has been based on credit costs and alternative funding costs (Smith, 1969). The demand for mortgage loans, according to the mortgage interest rate is determined to be less flexible. Accordingly, the economy is also decreasing incentive for mortgage interest rates increased mortgage loans (Nellis and Thom, 1983; a and Follaine, 1984; Lee, 1995, Follaine and Dunsky, 1997). High inflation rate affects the demand for mortgage loans in negatively, it is also positively affect this ratio is low. Liquidity crunch that led to high inflation in the mortgage market reduces the cost of low inflation. In addition, the demand for alternative mortgage options mortgage loans affect positively (Alm and Follaine, 1984; Lee, 1995). Families who want to buy a house, there is an inverse relationship between the mortgage loans and with total assets of families. People demand the assets to increase mortgage lending show a decline (Jones, 1994).

The mortgage crisis made in 2007, has led to shortages in many economies in the world because of this system in our country have been forced to act in an extremely sensitive in financial institutions that have been put into practice and raise interest rates in parallel. This situation is shown as one of the major reasons for the lack of applicability of the present system by society.

Besides a part of our society, even in the countries with a developed economy like the US that led to the problem and a system that puts the country's major economic problems that the country has suggested to be useful for the economy.

The most important advantage of mortgage loans to borrowers that are determined as exempt from Banking Insurance, financial institutions, the mortgage has been identified as the most important return for the opportunity to more easily translate on the secondary market funding sources.

In determining the interest rate as the biggest drawback to the height of the credit system users, the system for financial institutions was determined to cause any disadvantage. This shows that the share of the opinion that the mortgage system is a system introduced for credit institutions.

Credit they demand of people in the world during the implementation of this loan MATCH. Although the subject matter will be used to house our country has ignored this issue. More important in the world applications usually easily taken for first home loans and tax exemptions in the application of our country despite the advantages provided just as well be said to be an incomplete application of the system of making such a distinction. In addition, fixed-rate mortgage prepayment receiving a commission of 2% of the loan is not very appropriate for the early payment of the advantages and disadvantages of credit users into emerges.

5.2.4.4. Differences Between Mortgage Loans and Deposits Financing Method

1. Although housing loans between 5 and 10 year mortgage at this time 15-20 even it may extend up to 30 years.
2. The mortgage system is the possibility to use variable-rate loans that you can use as fixed rate loans. In fact, this first as a negative situation may be due to the reduction in risk seen more advantageous because it provides low interest rates.
3. In the mortgage system has protection to people against the rising up interest fluctuations in the direction of the property.
4. If the landlord's mortgage system organizations providing loans for people with credit contracts they signed to that demand for housing as an investment vehicle in return securitized able to sell to other investors and solve liquidity problems in this way.
5. Besides housing loans, while claiming credit loans from a document showing proof of income may be taken only source of income to be made a real requesting mortgage.
6. Received the first loan in the mortgage system; optionally take out a loan at better terms in a short time off from another organization will be involved.
7. Through thick Mortgage will only have to take loans from banks. As a result of the expansion of the system will increase the number of organizations that will provide plenty of choices that mortgage credit users.

5.3. Housing Loans Review in 2014

Particularly, in Turkish real estate sector, housing is regarded as a major investment instrument. Even if such strong investment demand of households is interrupted from time to time it is presumed that housing will continue to preserve its

major role and to be demanded in long term, especially due to the fluctuations in and unreliability of other investment instruments.

Depending on the improvement in the distribution of income, the housing demand of medium and high level income groups would also be accelerated. Population growth and urbanization are expected to persist. Even without any population growth, a higher number of affordable housing is needed due to demographic changes, e.g. changes in marriage, divorce, living alone, working habits. Newly developed housing should be affordable matching the purchasing powers of households, beneath meeting needs.

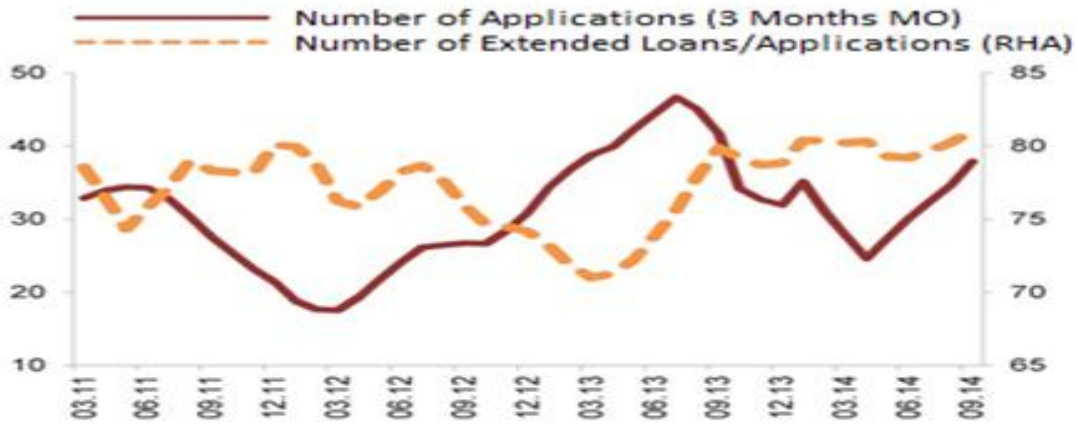
On the other hand, in light of such developments –the use of mortgage loans in purchase of housing is growing accelerated in our country. Law for Mortgage Backed Housing Finance has been put into effect in the year 2006. Thereafter, banks have started to provide mortgage loan facilities, and the mortgage loan volume has grown rapidly. Indeed, interest rates are still higher levels, restricting the target group able use mortgage loans. Banks offer mortgage loans at a monthly interest rate of 0.89% currently (as of July 2014). Since there is no secondary market for mortgage loans yet, interest rates could not lower down to reasonable levels. Even if some financial institutions are able to provide mortgage loan facilities to foreign nationals.

Analysis of the period of last 5 years show that the year-end value of mortgage loan interest rates recorded as 0.79% in the year 2010, has risen to 0.90% in the year 2013 and to 1.13% in the first quarter of the year 2014. When the mortgage loans used are compared by years –a growth of 13% is observed in the year 2011, of 26% in the year 2012 and of 22% in the year 2013. By the end of the first quarter of the year 2014, the cumulative increase in the mortgage loan volume was recorded as 20% year-on-year as of April. Comparison of mortgage loans used by

quarter in the recent three years a growth of 2.07% is observed in the year 2012, of 9.36% in the year 2013 and of 2.10% in the year 2014. Non–performing mortgage loan do also increase in parallel to the growth in mortgage loan volumes.

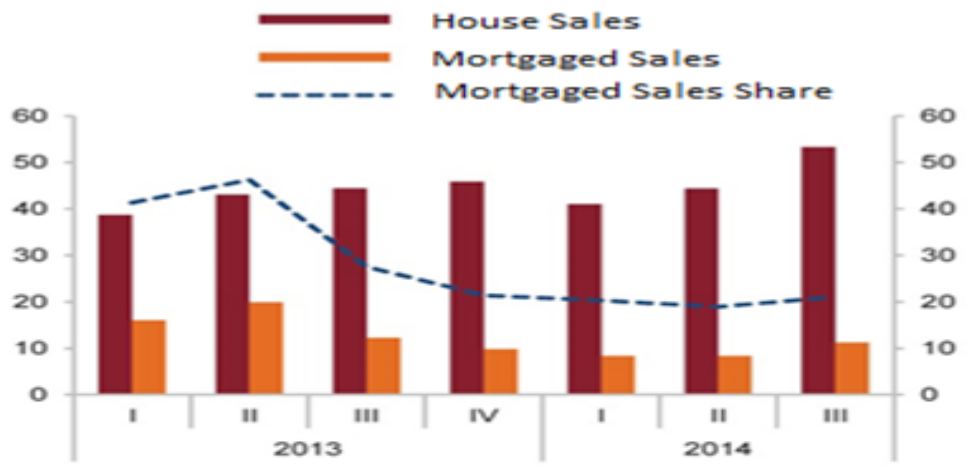
It increases in absolute terms, indeed does not increase relatively with respect to total loan volume which is growing more rapidly; e.g. the share of non–performing mortgage loans within the total of mortgage loan volume has decreased from 1.01% level in the year to 0.54% as of May.

Demand for housing loans originated revival since the second quarter 2014, with an increase in home sales application and disbursement units increased. Declining loan applications up to May 2014 period, the decline in interest rates after this period has also been revived with the support significantly (Figure 10). In the third quarter of 2013 increased in the first half of 2014, rising mortgage interest rates result in a decline in the amount of bank loans, the share of housing purchases origin seems to have reached the end of the level (Figure 11).



Source: CBRT

Figure 10: Applications for Housing Loans and Housing Loans Extended (Thousand, Percent)

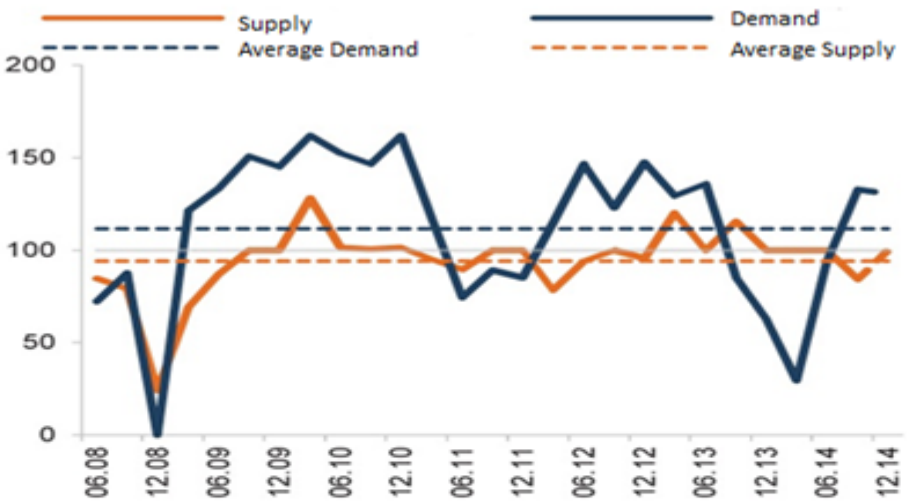


(1) Calculated based on unit square meter prices released by the CBRT, under the assumption that all the houses sold are 120 m².

Source: BRSA-CBRT, TURKSTAT

Figure 11: Housing Sales Financed Through Loans[1]
(Flow Data, Billion TL, Percentage Share)

Bank Loans Tendency Survey results for the period July to September 2014, confirming that the recovery in housing loans originated demand growth. The increase in demand for housing loans is relatively high repayment rates, mainly positive expectations for the housing market, consumer confidence and the reduction of non-consumption of housing purchases have been effective. On the other hand, shows some tightening of mortgage standards. Be carried out with banks regarding general economic activity other than the result of deterioration in expectations of interest rate tightening implemented tools has enabled the survival of the disbursements. When we look at expectations for the fourth quarter of 2014, the survey results indicate that relaxation of credit standards. Recently, are expected to remain the same basis of the strong demand for housing loans (Figure 12).

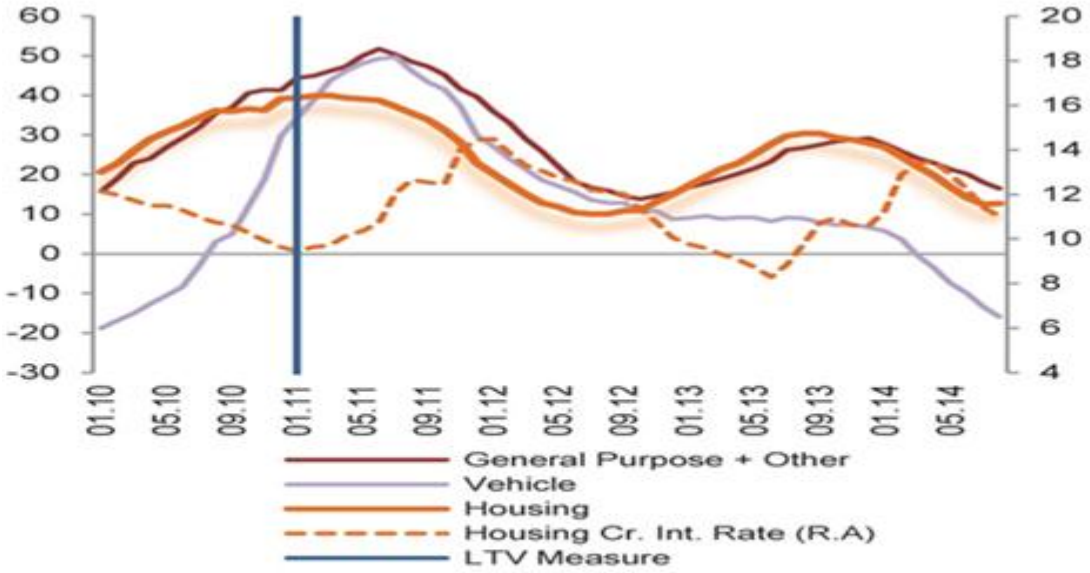


(1) Derived from the Bank Loans Tendency Survey. Values below 100 imply a tightening, values above 100 imply an easing. December 2014 data are estimations taken from the survey.

Source: CBRT

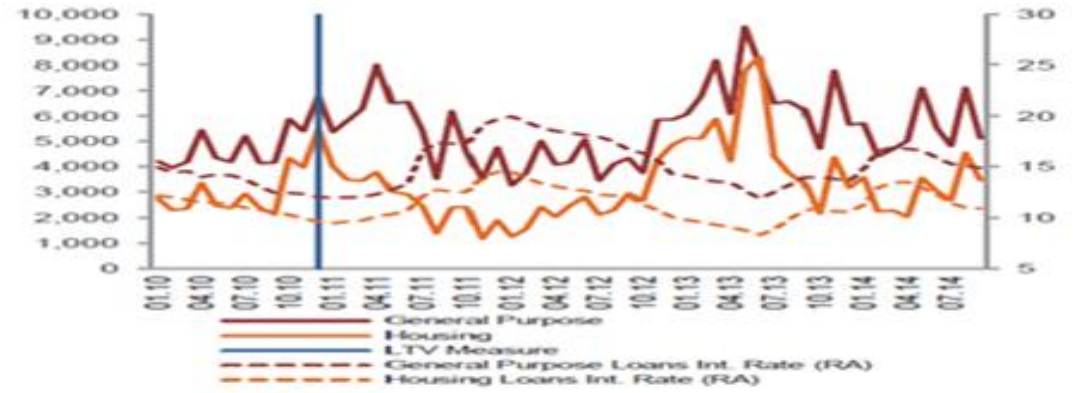
Figure 12: Supply and Demand for Housing Loans[1]

Only macroprudential measures for housing loans in the examined period will be made available from January 2011. mortgage loan amount of 75% of the housing value for consumers, it is the arrangements that can not be above the 50% for corporate customers. Arrangements before climbing to 40 percent on annual growth rate of housing loans has made earlier decline compared to other types of loans after editing. However, regardless of the arrangement, as in the same period in other consumer loans, enter the upward trend of interest rates, "housing / value" created by the application firming effect was further increased (Figure 13).



Source: BRSA-CBRT

Figure 13: Annual Growth Rate of Consumer Loans (Stock Data) and Housing Loans Interest Rates (Flow Data), Percent



Source: CBRT

Figure 14: Housing and General Purpose Loans Amounts and Interest Rates (Flow Data, Million TL, Percent)

Current housing loans, compared with the highest correlation with current consumer loans, are analyzed by their tendency to be more clear. Despite interest rates exhibit similar trends in the relevant period to be a decreasing trend of housing loans is creating the impression that effective immediately the regulation in question

(Figure 14). However, the need for concomitant decrease in mortgage loan growth is considered to be realized because of the needs of consumers who are forced to turn to loans to finance the purchase of housing related regulations. However, the trend reversed the effects of the decline in interest rates remained ongoing period as well as the interest rates associated with credit growth since September of 2012.

5.4. Housing Loans in Developed Countries

Housing finance with mortgage loans in developed countries goes back to nineteenth centuries. Most of the institutions that still lend mortgage loans, for instance, building societies in the United Kingdom and savings and loans associations in the United States, were established in those years. Indeed, the institutional structure and market significance of the specialized mortgage lending institutions were established during the inter-war period in parallel with the development of mass market in house building in most countries that almost completed the urbanization period (Ball et al., 1988). However, during 1980s housing finance systems of developed countries began to change due to the inflation, interest rate volatility and deregulation. Specialized housing finance circuits began to decline, the role of commercial banks in mortgage loan lending increased compared to specialized housing finance institutions and housing finance became more integrated to capital markets especially with the development of secondary mortgage markets and free movement of capital in addition to enormous technological progress.

5.4.1. Mortgage Finance System in the U.S.

The United States of America with a population of nearly 290 million constitutes the 5 percent of world population. Approximately, 30 percent of

population is under the age of 25. The total number of households is about 108 million with an average of 2.57 persons per household which was 2.62 one decade ago. The number of households has grown nearly 1 percent over the last five years.

The total number of housing units in 2004 was 122 million. 87 percent of these were occupied full time and 13 percent unoccupied for various reasons (waiting for sale or holiday house).

Over the last ten years, an average of 1.5 million houses were constructed each year, with higher levels in the last three years due to greater housing demand stimulated by low interest rates. The average annual rate of growth of construction is 2.8 percent that is higher than the growth in households and may lead oversupply problems in the future.

The United States of America has a tradition of house ownership which is mostly referred to as an important part of 'American dream'. (Boleat, 1985). House ownership has been historically and ideologically supported by the governments in the USA and as a result, housing has become the largest asset of most American households which has great effects on wealth distribution. (Green and Malpezzi, 2000)

In the USA, housing has been considered as a 'commodity' unlike the European countries where the housing was regarded as 'public good' or 'social right' as a result of welfare policies. Because of this understanding, social housing, for instance, is so limited that only 2 percent of population has the opportunity to access social housing. Moreover, social housing expenditures have been highly criticized during 1980s, -the age of revival of 'liberal economy' all over the world.

The USA governments have never involved in the housing market directly. Instead ‘a regulatory role’ for the free market mechanism was adopted by the governments in case of market failures. The policies applied after the Great Depression in 1929 is the best example of its regulatory role especially in housing issues which will be discussed in detail.

In the USA mass house ownership developed as a result of “emergence of mass markets for owner occupied house building” in the inter-war period (Ball et al., 1988). Despite the crisis in the Great Depression period, the housing market recovered itself by the government’s regulatory policies and especially after the World War II, not only the supply of housing increased but also the physical conditions and quality of houses developed.

In the USA, compared to other developed countries, housing market has more linkages to financial system, has greater tax advantages and has less restrictive planning and regulatory environment especially for single family houses. (Green and Malpazzi: 2000)

The United States as a model country for other countries has a comprehensive housing finance system which provides long term mortgage loans for home buyers. The system may be analysed in three sections which are primary market institutions, regulatory institutions for the primary market, and secondary mortgage market institutions.

In the USA, the mortgage loan lenders can be mainly grouped into two as depository institutions that make loans based on deposits collected and non depository institutions that make loans based on funds from the sale of mortgage loans to investors or secondary market institutions.

Savings and Loans Associations, Mutual Savings Banks and Credit Unions are three main specialist mortgage loan lenders known as “Thrifts” or “Non-bank Depository Financial Institutions” They collect deposits and make mortgage loans based on these deposits (Uludağ, 1997). Until 1980s the Thrifts were subject to constraints in the percentage of assets required to be held as mortgages and had same tax advantages in order to remain as specialist mortgage loan lenders which were eliminated by 1980s (Diamond and Lea, 1992). Commercial banks are the other depository institutions that make mortgage loan in the housing finance sector beside other banking activities.

Mortgage institutions such as mortgage banks and mortgage brokers are non depository institutions which do not collect deposits but service mortgage loans. They give loans and sell them either to investor or to secondary market institutions after the insurance or government guarantee (Boleat, 1985). In other words, these institutions provide funds for mortgage loans by selling their mortgage portfolios. There are also other non depository mortgage loan lenders such as insurance companies and pension funds in the USA.

After the 1930s economic crisis, the price of real estate had fallen sharply and both the households who borrowed mortgage loans and mortgage loan lenders had experienced financial difficulties. The government’s attitude towards housing finance had changed in order to reduce the effects of economic crisis and to stimulate the mortgage market. As a consequence, institutions that would contribute the operation of primary mortgage market were established which are explained below in chronological order.

In 1932, Federal Home Loan Bank System (FHLBS) was established to regulate and provide liquidity for thrifts which have been the most important providers of mortgage loans. The system consists of 12 regional Federal Home Loan Banks (FHLB) working as the Central Banks for savings and loan industry (Mortens,1988) The duties of FHLBs are to regulate and audit their member thrifts. They give credits with the maturities of 1 month to 10 years to Thrifts. The Thrifts are also shareholders of FHLB and they can be credited for the amounts 12 times of these shares by FHLB. Additionally FHLB can use the deposits of member institutions as a source of fund for mortgage lenders in different states. Members can use credits from the US treasury (Ball et al., 1988).

In 1934, Federal Housing Administration (FHA) was established to insure the mortgage loans in case of payment defaults of borrowers in order to minimize the credit risk of the lenders especially in high loan-to-value ratios. The other objectives of this institution were to increase investor's confidence in mortgage assets and to encourage the adoption of the long term, self amortizing mortgage instrument (Diamond and Lea, 1992). While insuring these loans FHA had made contributions to housing finance market such as setting physical housing standards.

Additionally, Veterans Administration (VA) was established beside FHA to insure mortgage loans with some standards, to facilitate and encourage house ownership and make the loans attractive like FHA. Moreover, VA has another function that is to finance directly Second World War veterans. Some advantages had been provided for veterans such as lack of down payment and insurance premium (Uludağ, 1997).

There are also private insurance companies that insure the mortgage loans. But the insurance premiums taken by both FHA and VA are less than the private ones. With the establishment of these institutions, the necessary conditions for the operation of primary mortgage market have been constituted such as additional resources for lenders, insurance of mortgage loans, standards for these loans etc.

The housing finance system in the US relies heavily on the secondary market. The secondary market, where securities backed by mortgage loans are bought and sold, is dominated by the Government Sponsored Enterprises (GSEs) which are Federal National Mortgage Association (Fannie Mae), Government National Mortgage Association (Ginnie Mae) and Federal Home Loan Mortgage Corporation (Freddie Mac).

In 1938 Federal National Mortgage Association (Fannie Mae) was founded to increase liquidity and to pull private capital to mortgage market by operating in the secondary market as a buyer and seller of the insured mortgage loans and securitizing them. In order to function properly in the secondary market Fannie Mae was authorised to get credit from US treasury. Besides increasing the liquidity in the market, supporting the growth of non-depository lenders was another function of Fannie Mae (Cummings and DiPasquale, 1997).

In 1968, with National Housing Act, this association was separated into two institutions namely Federal Home Loan Mortgage Corporation (Fannie Mae) and Government National Mortgage Association (Ginnie Mae).

After this separation, Fannie Mae has become a private institution purchasing only the loans insured by FHA or VA and to a limit conventional mortgage loans with an aim of developing secondary market for mortgage loans. This institution

issues bonds backed by mortgages or securitize mortgage loans as mortgage backed securities.

Government National Mortgage Association (Ginnie Mae) is a state owned institution with a task of supporting mortgage market by purchasing mortgage loans insured by FHA and VA under the state guarantee. It was an agency of the federal government providing credit guarantee and facilitating direct sale in the capital markets (Diamond and Lea, 1992). In 1970s 'full guaranteed pass through mortgage backed securities' program has started. These securities are the most reliable securities since the mortgage loans backed these securities are insured by FHA and VA. Ginnie Mae provides the funding to perform its functions from the treasury credits and repayments of mortgage loans. Ginnie Mae also insures the private creditors' mortgage backed securities.

Federal Home Loan Mortgage Corporation (Freddie Mac) was established as a half-state institution in 1970 to purchase mortgage loans insured by FHA and VA in order to increase the liquidity. With the establishment of Freddie Mac, the number of institutions operating in the secondary market has increased to three. Freddie Mac like Fannie Mae benefits from borrowing privilege from US Treasury (Diamond and Lea, 1992). Securities issued by these institutions have the guarantee of themselves, there is no federal government guarantee on these securities (Cummings and DiPasquale, 1997)

The combined mortgage portfolios of the GSEs in 2003 were $1.5 trillion. The mortgage loans securitised and held on the balance sheet by GSEs was $3.6 trillion which constitutes about 47 percent of the total residential mortgage debt outstanding at the end of 2003. (http://www.housingfinance.org).

5.4.2. Mortgage Finance System in the E.U.

EU mortgage financing model is considered as their own in German and Danish model in two groups. According to German model; there is a single pool of mortgage bank. When new granting credit are funded by issuing new bonds loans. Issuance of loans continues to remain on the balance sheet of the mortgage bank. In this case the real estate credit risk remains on the mortgage bank. In the Danish model, mortgage banks are not bond issuers, they are means so that it is the most important difference thing seperating Danish model from the German model. Mortgage banks in the system, bringing together consumer loans mediate the bond on behalf of consumers. Create pools of loans of similar credit, tend to bond with them in different series for each pool suitable. In this system, mortgage banks does not carry risk due to undertaking intermediation role. In the German model, the risk is assumed by the mortgage banks (Bereberoğlu, 2009). The differences of US and the EU mortgage market can be summarized as follows: (www.alomaliye.com/2008/abdulkadir-gülsen-abd-ab.htm):

While the US government support in this market, it is absent in the EU. For example, government-sponsored entities such as Fannie Mae, Frediani Mac, Ginnie Mae mortgage market in the United States acts as a very effective and competent institutions. Because of that, ıt has contributed remarkably to the development of the secondary market. On the other hand; the EU does not support state in this figure.

1. Securitization (securitization) market has developed very fast owing to being mortgage market standardized in the US. This standardization has not been achieved in the EU and secondary markets, in particular securitization and structured finance instruments were not very developed.

2. Both market demonstrate differences in terms of funding. For example, while off-balance sheet securitization very common in the United States, on-balance sheet securitization is more common in the EU. Off-balance sheet securitization, risk are transferred to person who is investing in mortgages.
3. Home ownership rate in the US is higher average than the EU. This rate is around 65% in the U.S. On the other hand, this rate is approximately 50% in the EU.

Despite these differences, a similar aspects of both market can be listed as follows (www.alomaliye.com/2008/abdulkadir-gülsen-abd-ab.htm):

1. Both the US and the EU have also been institutionalized in the mortgage market.
2. Both are well developed both primary and secondary markets. While the supply of funds from the capital market with mortgage-backed seccurities in the US, bonds are widely used in the system in the EU. However, obtaining funds from the capital market constitute both common.
3. Although some differences in both the content as well as bank deposits, they are stil operating in collecting mortgage banks.

According to the protocols between TOKI and banks namely Şekerbank, Halkbank and Vakıfbank, these banks serve as guarantors and in the condition that developers delay payments of these credits, banks pay the loan to TOKI and claim the amount from the developer.

CHAPTER 6

6. DEVELOPMENT OF VEHICLE LOANS

As a locomotive sector, the automotive sector is moving up-wards many other sectors in Turkey, as well as in the rest of the World. In addition to globalisation and changing market conditions, the sky scraped competition in the automotive sector has resulted in vital significants of credits supplied to customers in the sector for purchasing new motor vehicles. Moreover, there exists a crucial cause and effect relationship between credits and automobile sales. Furthermore, credits play a tremendeus role for economic development. To sum up, increase in credits results in increase in automotive sales.

Although Turkey has a young population, the number of vehicles per capita in Turkey is below the world average. The fact that increasing of this ratio creates a significant market growing.

Automotive finance which is important for the development of the automotive industry has positive influence to increase sales in the sector. In this context, Yapı Kredi provided the first auto loans in Turkey on 9 March 1989. Those who want to buy Renault model cars, the bank gave loans amounting to 5-25 million pounds with 9-24 month maturity.

6.1. Effects of Loans on Sales

In finance, the financial system is the system that allows the transfer of money between savers (and investors) and borrowers. In the other word, the financial is a set of complex and closely interconnected financial institutions, markets, instruments, services, practices, and transactions.

In addition, management of funds between fund-requesting and fund-supplying unit is provided efficiently and seamlessly. (Bolak, 1991)

Although there have been many studies on the factors affecting the sales of automotive cars in the literature, there is fairly limited number of studies on the effect of provided loans for the automotive products on the automotive sales. There is a survey associated with the impact on sales of loans. (Eken and Çiçek, 2009).

The purpose of the survey is to determine the impact of automotive loan for auto sales in Turkey. The target audience of the study were composed of loan users who lived in İstanbul region and used automobile, light commercial vehicle, truck and buses loan.

In this study, 225 cars, 225 light commercial vehicles, 225 trucks and 225 buses as a total of 900 questionnaires were administered to face to face with automotive customers. Compared with a sample volume of 600, the reason for the the number of questionnaires filled out for each vehicle type more than 50% is to prevent the presence of an insufficient number of questionnaires if necessary. As a result of the questionnaire administered in the elimination of those who are missing and incorrectly filled, the current survey of 150 cars, 150 light commercial vehicles, 150 trucks, and 150 bus, (as a total sample size of 600) were used.

Usage of the credit by the automobile users in financial institutions is different according to the type of motor vehicle. The most credit using persons from the banks are the truck owners with 138 trucks and the ratio of 92%. The most credit using persons from non-bank financial institutions are the bus owners with 41 buses (27 %). There are several reasons for this result. Truck buyers are individual rather than institutional customers. They get more favorable interest rates from the banks. Buses are more expensive than trucks and also bus buyers are comprised of the customers who have corporate owner. These customers have special status for the bus seller companies and they achieved a privileged interest rate from the finance companies of these firms.

The maturity of the loan was also showed difference according to vehicle type. While the bus customers have choose the loans between 25 months and 36 months , other vehicle owners have used the loans between 13-24 months term. The reason for the buses customers prefer longer maturities of loans compared to other customers is the most expensive vehicle type between these vehicle types.

The most important findings of the survey for all types of vehicles is that the presence of a motor vehicle is having great importance when buying a new automobile. Another very important finding in this view, the need for credit according to vehicle types is not equal, in other words, it is different. Truck customers is the one of the most important group that need of vehicle loan(1.87) and pay importance to vehicle loan. After the vehicle loan, the bus (2,17), light commercial vehicles (2.44) and automobile customers (2.67) were to be important group that need of vehicle loan, respectively. The main reasons of being the truck first are; the truck is more expensive than automobile and light commercial vehicles,

the truck is being used to gain as commercialy, truck customers is less institutional and less professional according to bus customers.

It has been found that the usage of vehicle criteries vary according to the types of automobile. The low interest rate were to be most important for the automobile customer (4.86). while using vehicle loan from the bank. Be able to get services from a single point in the selection of non-bank financial institution that is a very important determining were to be agreed mostl by the bus customers (4.37). Using a low costs bank loan was to be very important criterion of most light commercial owners (4.34). Most car customers is convinced that consumer finance company deliver more flexible services according to the bank (4.26). The biggest support was provided by the bus customer (4.43) for the determination of bank that will use vehicle loan which is already using bank. Including less bureaucracy of consumer finance companies than those of banks was to be very important criterion of most automobile owners (4.34). most car customers (4.52) is an important. To have extensive branch while in determining the bank of loan has been a major reason by the bus customers (4.01) for the choice of bank. To be customer-oriented company of consumer finance banks according to the banks was to be very important criterion of most bus owners (4.34). When using the bank car loan, auto companies and jointly present the option, was to be very important aspect of most automobile owners (4.36). Offering rich run of non-bank financing companies was to be very important determining factor of most truck owners (4.42).

Those who considered that the consumer finance company is an important criterion depending on the brand of the automobil purchase by using loan vehicle customers (4.41), bus (4.28), trucks (4.05) and light commercial vehicles customers

(3.97), respectively. This result is consistent with that of automobile customers use cars for personal purposes. On the other hand, buses, trucks and light commercial vehicle owners use their vehicles for commercial purposes to save money.

Credit contract criteria have varied according to vehicle type. Customers marked the interest rates on all types of vehicles as the most important criteria. Secondly, the customers mentioned the decrease of automobile expenses as an importanr criteria. Hovewer, customers of other vehicle types have preferred the length of the term .

Automobile, light commercial vehicle and buses snd trucks customers have marked not to mark the guarantee, low exchange and low costs of the customer as the most trivial criteria, respectively.

An automotive company having also consumer finance company is a determining factor in the selection of the company's brand are mostly marked by car customers (3.87). Minimum marked customers are the bus (3.73) and truck owners (3.73). These results are compatible with the automobile customers use their automobile for the individual purposes.

While purchasing a motor vehicle with repeat loans, a package of auto loans (maintenance, repair, spare parts) including extended warranty, kasko sigortası e.t.c to be in paid was needed by automobile (4.43) and light commercial vehicle owners (4,43). In contrast, the truck customers need at least (3.93).

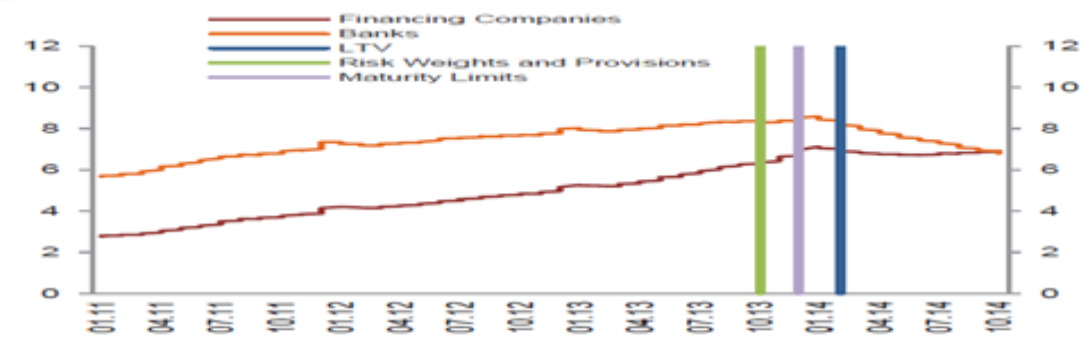
The automotive sector is the backbone of production in developed and developing countries. Sales in this sector are seriously affected by the movements that occur from loans and the national economy. The sector is a driving engine of

economic growth. Social contribution in addition to the economic contribution of the automotive sector should be noted. Social welfare and development in additional power is formed when all these factors combined.

It has been identified as an empirical findings that when buying a new motor vehicle, the loan is very important in all types of vehicles. The credit volume and the volume of automotive loans have increased in recent years in Turkey. This increase in the volume of automotive loans has increased the sales of automotive products.

The inceament in auto sales has increased the national income, the gross national product per capita and wealth levels.

The implementations of Forty-eight (48) months of the introduction of the term limit in December 2013 in auto loans and loan guarantees according to the vehicle value ratio in February 2014, has been quite effective. These adjustments reduced the growth rate in auto loans.



Source: BRSA (Banking Regulation and Supervision Agency)—CBRT (Central Bank of Republic of Turkey)

Figure 15: Vehicle Loans by Banks and Financing Companies (Stock), Billion TL

CHAPTER 7

7. DEVELOPMENTS OF CONSUMER LOANS

Consumer loan means a secured or unsecured loan given to customers for personal, family, or household purposes, or for consumable items such as a car, boat, manufactured home, home equity loan, home equity line of credit, signature loan, signature line of credit, and recreational vehicle. It is usually given on the basis of borrower's integrity and ability to pay. It is also called as consumer lending, consumer credit, or retail lending. Loans taken from the bank is paid according to the determined different payment options and terms of bank with the interest rate and maturity.

Consumer loans are sold to consumers under different names. The name of the credit for the same amount paid in installments for the consumer can be different when compared with the interest rate and maturity. For example, maturity and interest rate of marriage and personal development loans are same, although the names of of the loans are different. The names of general purpose loans are varied by Bank as a marketing strategy. Construction-maintenance loans, household loans, furniture loans, home improvement loans, student loans, medical loans, wedding loans, holiday loans, purchase loans, pension credits, higher education credits, etc.

Loans on special occasions also offered to consumers as a new credit products. Example; private credit in medicine medics' feast and pecial credit to the police during the police week.

Consumer loan mostly also creates an advantageous option for those who have credit card debt. The consumer that is debtor to the more than one bank, provides cash loans from a bank and pay the credit card debt. The borrower is run in to dept to only one bank with the contracted loans.

Types of Consumer Loans

Open-end credit and closed-end credits are the two basic categories of consumer credit are. Open-end credit (revolving credit) requires monthly payments and can be used up to a certain limit.

Credit card accounts and home equity lines of credit are the examples of revolving credit. In open-end credit, consumers can use their credit while paying on their account balance.

Closed-end credit supplies a constant amount of money to finance a certain purpose for a certain period (https://www.debt.org/credit/loans/).

Small Business Loans

Small business loans are given to the entrepreneurs for the beginning of the job, development and business expansion.

Mortgage Backed Securities

The meaning of the mortgage word refers to the mortgagee sales. Mortgages are loans distributed by banks to let consumers to buy homes that they can't pay for upfront. To summarize briefly the system, bank buys home on behalf of us and sells it us by providing ease of installment. In this way it is possible to be host such as paying rent.

Merchandise Loan

Loans, granted for the purchase of goods, such as electronic goods, white goods, accessories, furniture,

Profession Consumer Loan

Loan granted for the meet of self-employed (Doctor, Lawyer, Accountant, Pharmacy, notary, etc.) individual consumers professional needs.

Education Loan

Type of loan that is used to meet the training needs.

Marriage Loan

Loans granted to meet the marriage and wedding expenses.

Health Loan

Loans which is granted to meet health spending.

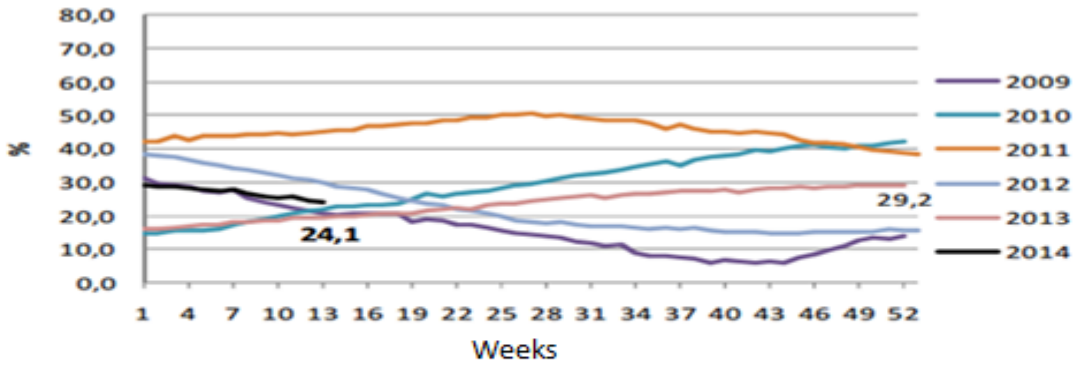
Holiday Loan

This loan is used for tour and holiday.

Home Improvement Loan

Type of loan that is used for required maintenance and repair for home renovations.

As of March 2014, individual consumer loan that have the amount of 331,4 billion TL is consist of 76,1% consumer loan and 23.9% credit card. On the other hand, the consumer loan is consist of 52,3% general purpose and other consumer loan, 44,6% mortgage and 3,1% vehicle loans.



Source: BRSA

Figure 16: Annual Growth Rate of General Purpose and Other Consumer Loans

In March 2014 period the highest growth rate in loan segment was consumer loans with ratio of 2% (2.6 billion). At the same period, vehicle loans has been the lowest growth rate with decreased by 7.6%.

CHAPTER 8

8. ECONOMETRIC METHODOLOGY, DATA ANALYSES AND DISCUSSION

The aim of this chapter is determine of the long-term relationship between factors affecting consumption. A consumption function is estimated and the effect of consumer loans on consumption expenditures is incorporated into the consumption function.

8.1 Econometric Methodology and Descriptive Statistics

In this section more detail will be provided about the econometric methodology. Consumption has been considered as dependent variable in the analysis. Loans (housing loan, vehicle loan, general purpose loan and other loans), interest rate applied to loans (interest rate applied to housing loan, interest rate applied to vehicle loan, interest rate applied to general purpose loan), exchange rate and gross domestic product were taken as independent variable in the analysis.

Interest Rate

According to Keynes (1936) interest rate is a secondary factor affecting individual's short-term consumption expenditures. Furthermore, any change in

interest rate would cause changes in people's habits in the long-term, so they save more and consume less in the long-term. Thus, it can be said that interest rate has a long run influence on consumption and saving (Parkin, Powell and Matthews: 1998). Hamburger (1967) stated that interest rates influence other durables more than automobiles. According to Erceg and Levin (2006) durable consumption goods sector is more sensitive to interest rates than non-durable consumption goods sector. Finally, interest rates affect consumption in long term, but not in the short term (Kutman, 2009).

Exchange Rate

The exchange rate is an important factor for household consumption on durable goods. In emerging economies exchange rate is a key for pricing and in those countries production usually depends on imports. Exchange rate causes uncertainty in import prices. So, both exchange rate and inflation rate affect consumption expenditures; therefore in long term consumption exchange rate and inflation are important (Kutman, 2009).

GDP

Consumption is normally the largest component of GDP; especially private final consumption expenditures constitute the greatest demand component of GDP. Apart from consumer loans there are many factors influencing household consumption expenditure decisions and saving. GDP is an important factor affecting household consumption expenditures (Parkin, Powell and Matthews, 1998).

Loans were analyzed in two ways: as "amount of credit used (million TL) and "stock of credit (million TL)." Data of housing loan, vehicle loan, general

purpose loan and other loans is provided from TBB. Data of interest rate applied to housing loan, interest rate applied to vehicle loan, interest rate applied to general purpose loan were provided from CBRT as weighted average interest rates for banks' loans [(flow data, %) (weekly, Friday)], exchange rates [(exchange (daily) (USD) US dollar (currency sales)], GDP [(gross domestic product) (current)], consumption [(consumption of resident households) (current)]. The data used in econometric analysis includes the quarterly data between 2001Q4- 2014Q3. All variable currencies are translated into the current money (today's million) and analyzed (up to 2001Q4 to 2003Q4 old Billion, up to 2004Q1 to 2007Q3' old thousand, up to 2007Q4 to 2009Q3 old million, up to 2009Q4 to 2014Q3 new million). The variables of time series graphs are given in Appendix. Appendix K: housing loans and vehicle loans according to amount of credit used (million TL); Appendix L: general purpose loans and other loans according to amount of credit used million TL); Appendix M: real consumer loans (million TL) according to amount of credit used (million TL); Appendix N: housing loans and vehicle loans according to stock of credit (million TL); Appendix O: general purpose loans and other loans according to stock of credit (million TL); Appendix P: real consumer loans (million TL) according to stock of credit; Appendix R: GDP growth rate (%) and GDP (million TL) according to amount of credit used (Million TL) and stock of credit (million TL); Appendix S: consumption (million TL) and exchange rate (million TL) according to amount of credit used (million TL) and stock of credit (million TL).

The analysis is performed as follows: Firstly unit root tests [ADF (Augmented Dickey-Fuller), Dickey-Fuller GLS (ERS) and PP (Phillips- Peron)] were applied to the variables to determine the order of integretion of the variables. The cointegration methods were applied to estimate the consumption function for

Turkey. Two (2) different cointegration tests (Engle- Granger cointegration test and Johansen cointegration test) were used.

The following model has been estimated:

$$CONS_t = \beta_0 + \beta_1 LOANS_t + \beta_2 ILOANS_t + \beta_3 XRATE_t + \beta_4 GDP_t + \varepsilon_t \quad (1)$$

Where [CONS] is consumption, [HOUSE] is housing loan, [VEH] is vehicle loan, [GPUR] is general purpose loan, [OTHER] is other loans, (IHOUSE] is the interest rate applied to housing loan, [IVEH] is the interest rate applied to vehicle loan, [IGPUR] is the interest rate applied to general purpose and other loans, [XRATE] is exchange rate and [GDP] is gross domestic product.

Consumption expenditures is measured with “the amount of credit used (million TL)” and “the stock of credit (million TL)”

In Table 3, statistics for amount of credit used (million TL) and stock of credit (million TL) are presented.

TABLE 3

STATISTICS ACCORDING TO DATA OF AMOUNT OF CREDIT USED (MILLION TL) AND STOCK OF CREDIT (MILLION TL)					
	Mean	**Median**	**Maximum**	**Minimum**	**Std. Dev.**
CONS	166339.3	159213.8	299847.9	48840.66	72703.37
XRATE	1.575350	1.505195	2.265250	1.190870	0.264628
GDP	235991.2	224131.7	463902.4	69461.34	105943.0
IHOUSE	21.04327	18.35500	60.75000	9.360000	12.13439
IVEH	25.54135	21.10000	74.83000	11.79000	14.48383
IGPUR	20.66346	16.74000	54.84000	8.490000	12.52213
STATISTICS ACCORDING TO DATA OF AMOUNT OF CREDIT USED (MILLION TL)					
HOUSE	4816.438	4582.750	16918.00	17.33400	3944.111
VEH	1556.902	1557.794	3384.000	83.97400	739.7173
GPUR	12839.54	12708.47	27346.00	3438.609	6710.779
OTHER	1.498537	0.029447	7.660097	0.006266	2.278220
STATISTICS ACCORDING TO DATA OF STOCK OF CREDIT (MILLION TL)					
HOUSE	38414.65	35066.49	109853.7	298.3750	34192.84
VEH	5314.024	5910.878	7965.429	655.4800	2090.322
GPUR	44922.30	42014.80	93060.96	8279.518	25803.46
OTHER	3.781605	0.126468	23.55705	0.027303	6.119389

Volatility increases with the increase of the difference between minimum and maximum. According to the data of “amount of used” (million TL) and “stock of credit” (million TL); with the growing consumption in Turkey 's economy, the maximum value of the increase of the consumption and gross domestic product (GDP) was realised in the third quarter of 2004. Also, the minimum value was realised in the fourth quarter of 2004. Exchange rate has reached the highest value in the third quarter of 2014. Also, the minimum value was obtained in the third quarter of 2007. The maximum values of interest rate applied to housing loan (IHOUSE) vehicle loan (IVEH), general purpose loan (IGPUR) and other loans (IOTHER) were obtained in the fourth quarter of 2001. According to the data of “Amount of used” (million TL), the maximum values of housing loan (HOUSE) and vehicle loan (VEH) was reached in the second quarter of 2013. On the other hand,

While the general purpose loan (GPUR) reached the maximum level in the second quarter of 2013, other loans are in the third quarter of 2007.

According to the data of “stock of credit” (million TL), while the maximum values of housing loan (HOUSE) and general purpose loan (VEH) were reached in the third quarter of 2014, vehicle loan is in the fourth quarter of 2013. Also, other loans reached the maximum amounth in the third quarter of 2014.

The next section describes the analysis of the these data.

8.2 Analysis of the Data

The first task is to determine the order of integration of the variables used. We apply several unit root tests to the variables in equation (1).

For both (amount of credit used (million TL) and stock of credit (million TL) data; all tests are conducted assuming a constant and a constant and linear trend. Numbers in square brackets for the ADF (Augmented Dickey- Fuller) and Dickey-Fuller GLS (ERS) test corresponds to lags. Maximum lags were set at 10 and lag length was determined using SIC (Schwarz Info Criterion). Numbers in brackets in the PP (Phillips- Peron) test correspond to lag truncation parameter, q, determined according to Newey- West Bandwidth automatic criteria using the Default (Barlett Kernel). The null hypothesis for the ADF, Dickey- Fuller GLS (ERS) and PP tests are that the series is non- stationary. * indicates rejection of the null at 5% level of significance.

In Table 4, unit root test results for amount of credit used are presented.

TABLE 4
ADF and PP Unit Root Tests for the Variables

AMOUNT OF CREDIT USED (MILLION TL)				
ADF (Augmented Dickey- Fuller Unit Root Test)			PP (Phillips- Peron Unit Root Test)	
VARIABLES	Intercept	Trend and Intercept	Intercept	Trend and Intercept
CONS	0.774987[2]	-2.039323[0]	2.264285(50)	-2.000259(6)
Δ CONS	-7.586688*[1]	-7.628864*[1]	-8.494071*(29)	-13.93280*(49)
XRATE	-0.033046[0]	-1.236218[0]	-0.111104(2)	-1.331045(2)
Δ XRATE	-6.640547*[0]	-6.816482*[0]	-6.638634*(2)	-7.351792*(6)
GDP	1.819570[5]	-0.185418[5]	1.764582(12)	-3.505884*(11)
Δ GDP	-2.896621[4]	-3.485197[4]	-7.655994*(12)	-8.539332(12)*
IHOUSE	-4.227455*[0]	-3.585659*[0]	-5.835430*(10)	-3.968149*(7)
IVEH	-4.913821*[0]	-4.053243*[0]	-7.571805*(17)	-5.635730*(12)
IGPUR	-2.594697[1]	-2.150256[1]	-4.328345*(11)	-2.368106(9)
Δ IGPUR	-6.067493*[0]	-6.355278*[0]	-6.024839*(6)	-6.467776*(11)
HOUSE	-0.994126[3]	-6.243779*[2]	-1.315299(11)	-2.929306(9)
Δ HOUSE	-6.254633*[2]	-6.174084*[2]	-12.70053*(20)	-12.52356*(20)
VEH	-2.902535[0]	-3.117227[0]	-2.864669(4)	-3.195029(3)
Δ VEH	-8.292083*[0]	-8.281897*[0]	-8.506754*(5)	-8.552785*(5)
GPUR	-1.047220[9]	-3.998600*[2]	-0.588895(11)	-3.271195(6)
Δ GPUR	-6.982530*[0]	-3.998600*[2]	-9.665925*(14)	-9.683719*(14)
OTHER	-2.150139[0]	-2.598497[0]	-2.150139(0)	-2.567387(1)
Δ OTHER	-7.899181*[0]	-7.862885*[0]	-8.205545*(6)	-8.351778*(7)
STOCK OF CREDIT (MILLION TL)				
HOUSE	3.740698[3]	-0.444659[3]	3.444836(2)	-1.344403(2)
Δ HOUSE	-1.971042[3]	-5.773972*[2]	-2.408231(6)	-2.987607(7)
VEH	-2.712952[1]	-2.503277[1]	-2.206391(3)	-1.931512(3)
Δ VEH	-4.016060*[0]	-4.181643*[0]	-3.983184*(1)	-4.154154*(1)
GPUR	1.643130[0]	-1.815635[0]	3.041945(8)	-1.924872(3)
Δ GPUR	-4.689868*[0]	-4.916484*[0]	-4.561879*(5)	-5.252158*(9)
OTHER	-2.025368[0]	-2.335747[0]	-2.036089(1)	-2.335747(0)
Δ OTHER	-7.394742*[0]	-7.355128*[0]	-7.407171*(2)	-7.382708*(3)

Notes: "*" indicates stationarity at 5%.

According to the data of amount of credit used (million TL), the results of ADF (Augmented Dickey- Fuller unit root test) tests, while the series of HOUSE,

GPUR, IHOUSE and IVEH are found stationary in levels, the series of CONS, VEH, OTHER, IGPUR and XRATE are found stationary in first differences.

On the other hand, according to results of PP (Phillips- Peron Unit Root Test) test, while the series of IHOUSE, IVEH, IGPUR and GDP are found stationary in levels, the series of CONS, HOUSE, VEH, GPUR, OTHER and XRATE are found stationary in first differences.

According to the data of Stock of credit (million TL), the results of ADF (Augmented Dickey- Fuller unit root test) tests, while the series of IHOUSE and IVEH are found stationary in levels, the series of CONS, HOUSE, VEH, GPUR, OTHER and XRATE are found stationary in first differences.

On the other hand, according to results of PP (Phillips- Peron unit root test) test, while the series of IHOUSE, IVEH, IGPUR and GDP are found stationary in levels, the series of CONS, VEH, GPUR, OTHER and XRATE are found stationary in first differences.

In Table 5, unit root test results for amount of credit used (million TL) and stock of credit (million TL) are presented.

TABLE 5

Dickey- Fuller GLS (ERS) Unit Root Test for the Variables

Dickey- Fuller GLS (ERS) Unit Root Test				
Amount of Credit Used (Million TL)			Stock of Credit (Million TL)	
VARIABLES	**Intercept**	**Trend and Intercept**	**Intercept**	**Trend and Intercept**
CONS	0.358652[4]	-2.118101[0]	0.358652[4]	-2.118101[0]
Δ CONS	-7.618979* [1]	-7.791521* [1]	-7.618979* [1]	-7.791521* [1]
HOUSE	-0.333852[3]	-6.135684* [2]	0.701290[4]	-0.624220[4]
Δ HOUSE	-6.321394* [2]	-6.144218* [2]	-1.335021[3]	-5.890424* [2]
VEH	-1.812960[0]	-2.936064[0]	-1.268305[1]	-2.120613[1]
Δ VEH	-8.373687* [0]	-8.273953* [0]	-3.931069* [0]	-4.159999* [0]
GPUR	-0.731586[0]	-3.538384* [0]	0.833387[1]	-1.562920[0]
Δ GPUR	-6.985641* [0]	-7.079241* [0]	-4.375231* [0]	-5.038541* [0]
OTHER	-2.079576* [0]	-2.348825[0]	-1.979080* [0]	-2.170306[0]
Δ OTHER	-7.979463* [0]	-8.020998* [0]	-7.471361* [0]	-7.500571* [0]
IHOUSE	-0.401155[0]	-1.530070[0]	-0.401155[0]	-1.530070[0]
Δ IHOUSE	-1.112342[3]	-6.196763* [0]	-1.112342[3]	-6.196763* [0]
IVEH	-0.319641[0]	-1.443342[0]	-0.319641[0]	-1.443342[0]
Δ IVEH	-2.368282* [1]	-4.054102* [1]	-2.368282* [1]	-4.054102* [1]
IGPUR	-0.195165[1]	-1.325754[1]	-0.195165[1]	-1.325754[1]
Δ IGPUR	-4.499875* [0]	-6.144046* [0]	-4.499875* [0]	-6.144046* [0]
XRATE	0.179770[0]	-1.422084[0]	0.179770[0]	-1.422084[0]
Δ XRATE	-6.453387* [0]	-6.798930* [0]	-6.453387* [0]	-6.798930* [0]
GDP	1.218945[5]	-1.099519[5]	1.218945[5]	-1.099519[5]
Δ GDP	-2.584481* [4]	-2.426064* [4]	-2.584481* [4]	-2.426064[4]

Notes: "*" indicates stationarity at 5%.

According to the results of Dickey- Fuller GLS (ERS) unit root test, while the series of HOUSE, GPUR and OTHER are found stationary in levels for amount of credit used (million TL), the series of CONS, VEH, IHOUSE, IVEH, IGPUR, XRATE and GDP are found stationary in first differences.

According to the results of Dickey- Fuller GLS (ERS) unit root test, while the series of OTHER is found stationary in levels for stock of credit (million TL), the series of CONS, HOUSE, VEH, GPUR IHOUSE, IVEH, IGPUR, XRATE and GDP are found stationary in first differences.

MODEL 1, MODEL 2, MODEL 3 and MODEL 4 show the relationships between housing loans and consumption, vehicle loans and consumption, general purpose loans and consumption and other loans and consumption, respectively.

TABLE 6

Regression for Amount of Credit Used (Million TL)

INDEPENDENT VARIABLES \ MODELS	MODEL 1	MODEL 2	MODEL 3	MODEL 4
CONSTANT (C)	16785.15 (0.0113)	13043.57 (0.0966)	26364.51 (0.0348)	27018.69 (0.0008)
HOUSE	1.166113* (0.0090)			
IHOUSE	-405.9574* (0.0108)			
XRATE	7502.530 (0.2669)	6170.588 (0.4062)	10188.83 (0.2320)	10886.38 (0.1275)
GDP	0.596044* (0.0000)	0.630869* (0.0000)	0.539286* (0.0000)	0.587121* (0.0000)
VEH		1.800938 (0.3130)		
IVEH		-317.4664* (0.0394)		
GPUR			1.026533* (0.0474)	
IGPUR			-673.4952 (0.2282)	-709.7222* (0.0001)
OTHER				-1147.340* (0.0190)
STATISTICAL AND ECONOMETRICAL CRITERIA				
F-statistic	1689.822	1446.530	761.5662	1718.915
Prob(F-statistic)	0.000001	0.000001	0.000001	0.000001
R-squared	0.993095	0.991943	0.989283	0.993211
Adjusted R-squared	0.992507	0.991257	0.987984	0.992633

Notes: "*" indicates stationarity at 5%.

According to Table 6, for each of the four (4) models the probability value of the F-statistic indicates that from the models are fully meaningful. Each of the four (4) model, a power of description of model is high, Adjusted R-squared is 0.992507 for Model 1; it is 0.991257 for Model 2 ; it is 0.987984 for Model 3 and it is 0.992633 for the Model 4, respectively. It is compatible with theoretical expectations that the relationship between Consumption and interest rates applied to consumer loan was negative. The exchange rate has no effect on consumption of depending on the four models.

TABLE 7

Regression for Stock of Credit (Million TL)

INDEPENDENT VARIABLES / MODELS	MODEL 1	MODEL 2	MODEL 3	MODEL 4
CONSTANT (C)	82022.12 (0.0000)	16587.41 (0.0642)	70257.34* (0.0000)	24616.67* (0.0020)
HOUSE	1.027195* (0.0000)			
IHOUSE	-761.6924* (0.0000)			
XRATE	-6639.794 (0.1413)	6991.614 (0.3500)	-3522.612 (0.6136)	9203.948 (0.2093)
GDP	0.302326* (0.0000)	0.629189* (0.0000)	0.357628* (0.0000)	0.600240* (0.0000)
VEH		0.009331 (0.9903)		
IVEH		-383.4898* (0.0150)		
GPUR			0.988369* (0.0000)	
IGPUR			-799.7208* (0.0178)	-637.0613* (0.0002)
OTHER				-334.3346 (0.0548)
STATISTICAL AND ECONOMETRICAL CRITERIA				
F-statistic	4327.133	1414.960	1305.456	1652.544
Prob(F-statistic)	0.000000	0.000000	0.000000	0.000000
R-squared	0.997292	0.991764	0.993720	0.992940
Adjusted R-squared	0.997061	0.991063	0.992959	0.992339

Notes: "*" indicates stationarity at 5%.

According to Table 7, for each of the four (4) models the probability value of the F-statistic indicates that from the models are fully meaningful. Each of the four (4) model, a power of description of model is high, Adjusted R-squared is 0.997061 for Model 1; it is 0.991063 for Model 2; it is 0.992959 for Model 3 and it is 0.992339 for the Model 4, respectively. It is compatible with theoretical expectations that the relationship between Consumption and interest rates applied to consumer loan was negative. The Exchange Rate has no effect on consumption of depending on the four models.

In Table 8, cointegration test results for amount of credit used (Million TL) are presented.

If the series are stationary at the same level, there is cointegration between the series. If the series are non-stationary at the same level, there is no cointegration between the series. Cointegration shows long-run relationship between the series and consumption.(CONS).

TABLE 8

Engle- Granger Cointegration Test (ADF and PP Unit Root Tests)

Engle- Granger Cointegration Test				
Amount of Credit Used (Million TL)				
ADF (Augmented Dickey- Fuller Unit Root Test)			PP (Phillips- Peron Unit Root Test)	
VARIABLES	Intercept	Trend and Intercept	Intercept	Trend and Intercept
residhouse (5% level)	-2.406768 [-2.926622]	-2.479344 [-3.510740]	-5.297734* [-2.919952]	-6.159911* [-3.500495]
residveh (5% level)	-1.306701 [-2.923780]	-1.597414 [-3.506374]	-5.347222* [-2.919952]	-5.526080* [-3.500495]
residgpur (5% level)	-2.732190 [-2.957110]	-2.526260 [-3.557759]	-3.874650* [-2.943427]	-3.332691 [-3.536601]
residother (5% level)	-3.238770* [-2.926622]	-3.331762 [-3.510740]	-5.047411* [-2.919952]	-5.266040* [-3.500495]

Notes: "*" indicates stationarity at 5%.

According to ADF (Augmented Dickey-Fuller unit root test) test, only residother is stationary for the intercept model. Rest of variable series is Non-statioanary for the same model. According to Trend and Intercept model, none of series is Non-stationary.

The same findings are applied to the PP (Phillips- Peron Unit Root Test) test, all of series are stationary for Intercept model. Residgpur variable is Non-stationary for trend and intercept model, rest of series are stationary for the same model.

In Table 9, cointegration test results for amount of credit used (million TL) and stock of credit (million TL) are presented.

If the series are stationary at the same level, there is cointegration between the series. if the series are non-stationary, there is no cointegration. Cointegration shows long-run relationship between the series and consumption (CONS).

TABLE 9

Engle- Granger Cointegration Test for Dickey- Fuller GLS (ERS) Unit Root Test

Engle- Granger Cointegration Test				
Dickey- Fuller GLS (ERS) Unit Root Test				
Amount of Credit Used (Million TL)			Stock of Credit (Million TL)	
VARIABLES	**Intercept**	**Trend and Intercept**	**Intercept**	**Trend and Intercept**
residhouse (5% level)	-2.175938* [-1.948140]	-1.344638 [-3.190000]	-4.565668* [-1.947381]	-4.396500* [-3.186800]
residveh (5% level)	-0.713230 [-1.947816]	-0.956846 [-3.190000]	-1.173521 [-1.947975]	-1.756087 [-3.190000]
residgpur (5% level)	-0.841341 [1.951000]	-1.425691 [-3.190000]	-2.938595* [-1.950117]	-3.501704* [-3.190000]
residother (5% level)	-2.540334* [-1.948140]	-2.502745 [-3.190000]	-2.529686* [-1.948140]	-2.386509 [-3.190000]

Notes: "*" indicates stationarity at 5%.

According to Dickey- Fuller GLS (ERS) unit root test for data of amount of credit used (million TL), residhouse and residother variables are statioanary for intercept model. On the other hand, none of series is Non-statioanary for trend and intercept model.

According to Dickey- Fuller GLS (ERS) unit root test for data of stock of Credit (Million TL), only residveh variable are none-statioanary for intercept model. Rests of variable series are stationary. While residhouse and residgpur series are stationary for trend and intercept models, residveh and residother series are non-stationary for same models.

In Table 10, cointegration test results for stock of credit (million TL) are presented.

If the series are stationary at the same level, there is cointegration between the series. if the series are non-stationary, there is no cointegration. Cointegration shows long-run relationship between the series and consumption (CONS).

TABLE 10

Engle- Granger Cointegration Test for ADF and PP Unit Root Tests

Engle- Granger Cointegration Test				
Stock of Credit (Million TL)				
ADF (Augmented Dickey- Fuller Unit Root Test)			PP (Phillips- Peron Unit Root Test)	
VARIABLES	**Intercept**	**Trend and Intercept**	**Intercept**	**Trend and Intercept**
residhouse (5% level)	-4.509299* [-2.919952]	-4.412937* [-3.500495]	-4.492326* [-2.919952]	-4.394283* [-3.500495]
residveh (5% level)	-1.960366 [-2.926622]	-1.527983 [-3.510740]	-5.288063* [-2.919952]	-6.056241* [-3.500495]
residgpur (5% level)	-3.319946* [-2.960411]	-3.250858 [-3.562882]	-3.189195* [-2.943427]	-2.980859 [-3.536601]
residother (5% level)	-3.080235* [-2.926622]	-3.258702 [-3.510740]	-4.915849* [-2.919952]	-5.000295* [-3.500495]

Notes: "*" indicates stationarity at 5%.

According to ADF (Augmented Dickey-Fuller unit root test) test, only residveh variable is non-stationary for intercept model. Rests of variable series are stationary for the same model. Besides only residhouse series is stationary for Trend and Intercept model.

The same findings are applied to the PP (Phillips- Peron unit root test) test, all of series are stationary for intercept model. Residgpur variable is non-stationary for trend and intercept model, rest of series are stationary for the same model.

Johanson Cointegration model have been implemented due to for the ADF, PP and Dickey-Fuller GLS (ERS) tests were given conflicting results according to Engle-Granger model. Although Engle-Granger cointegration test is more appropriate for simple regression models, Johanson cointegration test gives more accurate results in multivariate regression model.

Johansen Cointegration Test

According to Amount of Credit Used (Million TL)

Table 11

VAR Lag Order Selection Criteria for CONS, HOUSE, IHOUSE, XRATE and GDP

Lag	AIC	SC	HQ
0	69.23985	69.43476	69.31351
1	62.28608	63.45558	62.72803
2	61.18348	63.32757*	61.99374
3	60.51607	63.63474	61.69462*
4	60.42736*	64.52061	61.97420

* indicates lag order selected by the criterion
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

It was studied to determine the most appropriate delay began with the two (2) delay according to SC criteria that give the smallest value among the information criteria given in the table. AR roots remain in the unit circle, there is no autocorrelation and changing variance problems. Therefore, it was determined that most appropriate delay is three (3).

Principle of Pantula (Trace Statistics)

TABLE 12

Models for CONS, HOUSE, IHOUSE, XRATE and GDP According to Amount of Credit Used (Million TL)

Rank (r)	Model 2	Model 3	Model 4
None (r=0)	135.3994 (0.0000) H_0 Reject	102.3087 (0.0000) H_0 Reject	112.4044 (0.0004) H_0 Reject
At most 1 (r=1)	63.87775 (0.0052) H_0 Reject	46.63915* (0.0648) H_0 Accept	54.69253 (0.2319) H_0 Accept
At most 2 (r=2)	36.06230 (0.0402) H_0 Reject	25.46176 (0.1456) H_0 Accept	33.29825 (0.3217) H_0 Accept

Where H_0 describes models and rank that cointegration hypothesis for the first time accepted.

LAG:3

Trace statistic show that there is one cointegration relationship at 5% significance level.

According to Pantula principle, "Model 3" is suitable specification for data and it is signed with "*".

While the values in parentheses "( )" show standard errors, the values within the square brackets "[ ]" show the t-statistics. Critical values for t-statistics are 1.645

(10%), 1.96 (5%), 2.578 (1%) and if t-stat is is greater than the critical value, it is indicated that the value is significance.

TABLE 13
Statistical Values for HOUSE, IHOUSE, XRATE and GDP According to Amount of Credit Used (Million TL)

	C	HOUSE	IHOUSE	XRATE	GDP
Coefficients	14843.86	-1.378813	-322.7482	-2985.672	0.719366
Standart error		(0.24155)	(74.7303)	(2987.46)	(0.01244)
t- stat (Coef./Std. error		[-5.708]***	[-4.318]***	[-0.999]	[57.818]***

Notes: "***,**,*" indicates significance levels at 1, 5 and 10 %.

Long-run equilibrium model is as follows:

CONS= 14843.86-1.37*HOUSE-322.74*IHOUSE-2985.67*XRATE+0.71*GDP

The effect of housing loan (HOUSE) and interest rate applied to housing loan (IHOUSE) on consumption are significant and negative as statistically. The effect of exchange rate (XRATE) on consumption is insignificant and negative statistically. The effect of gross domestic product (GDP) on consumption is significant and positive statistically.

As seen in Table 14,

If Probability is greater than 0.05, H_0 variable is weak exogenous. It has no effect on consumption in the short-run.

TABLE 14

Cointegration Restrictions for CONS, HOUSE, IHOUSE, XRATE and GDP According to Amount of Credit Used (Million TL)

Cointegration Restrictions	A(1,1)=0 (rank=1)	A(2,1)=0 (rank=1)	A(3,1)=0 (rank=1)	A(4,1)=0 (rank=1)	A(5,1)=0 (rank=1)
Chi-square(1)	11.10339	7.527745	0.645629	0.092425	18.45859
Probability	0.000862	0.006076	0.421680	0.761117	0.000017

Accordingly, interest rate applied to housing loan (IHOUSE) and exchange rate (XRATE) are weak exogenous and they have no effect on consumption in the short-run.

It is rejected that hypothesis of H_0 variable is weak exogenous for variables of HOUSE and GDP. For this reason, it must be estimated VECM models of these variables. Thus, short term imbalances are corrected over CONS, HOUSE and GDP.

The error correction coefficient is negative and significant indicates that the variable is decrease while fixing long run balance facility. The error correction coefficient is positive and significant indicates that the variable is increase while fixing long run balance facility.

VECM (Vector Error Correction Model)

TABLE 15

Speed of Adjustment for CONS, HOUSE, and GDP According to Amount of Credit Used (Million TL)

Error Correction	D(CONS)	D(HOUSE)	D(GDP)
CointEq1	0.052150 (0.02845) [1.83280]	-0.051686 (0.00983) [-5.25910]	0.147155 (0.05815) [2.53069]

Accordingly,

For consumption (CONS) and GDP, there is no error correction mechanism.

For housing loan (HOUSE), when fixing balance facility is to establish a balance with 5 % rate in the one quarter. In other words, short-term imbalances are eliminated in (1/0.051)=19.60 period.

TABLE 16

VAR Lag Order Selection Criteria for CONS, VEH, IVEH, XRATE and GDP

Lag	AIC	SC	HQ
0	66.87385	67.06877	66.94751
1	59.73331	60.90281	60.17527
2	58.35383	60.49791*	59.16408
3	57.95557	61.07423	59.13411
4	57.51463*	61.60788	59.06148*

* indicates lag order selected by the criterion
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

It was studied to determine the most appropriate delay began with the two (2) delay according to SC criteria that give the smallest value among the information criteria given in the table. AR roots remain in the unit circle, there is no autocorrelation and changing variance problems. Therefore, it was determined that most appropriate delay is three (3).

Principle of Pantula (Trace Statistics)

TABLE 17

Models for CONS, VEH, IVEH, XRATE and GDP According to Amount of Credit Used (Million TL)

Rank (r)	Model 2	Model 3	Model 4
None (r=0)	101.4646 (0.0002) H_0 Reject	76.11797 (0.0144) H_0 Reject	91.55347 (0.0312) H_0 Reject
At most 1 (r=1)	49.94870* (0.1111) H_0 Accept	41.43984 (0.1750) H_0 Accept	56.54577 (0.1772) H_0 Accept
At most 2 (r=2)	30.00189 (0.1630) H_0 Accept	22.68887 (0.2617) H_0 Accept	35.92464 (0.2090) H_0 Accept

Where H_0 describes models and rank that cointegration hypothesis for the first time accepted.

LAG:3

Trace statistic show that there is one cointegration relationship at 5% significance level.

According to Pantula principle, "Model 2" is suitable specification for data and it is signed with "*".

While the values in parentheses "( )" show standard errors, the values within the square brackets "[ ]" show the t-statistics. Critical values for t-statistics are 1.645 (10%), 1.96 (5%), 2.578 (1%) and if t-stat is is greater than the critical value, it is indicated that the value is significance.

TABLE 18

Statistical Values for VEH, IVEH, XRATE and GDP According to Amount of Credit Used (Million TL)

	C	VEH	IVEH	XRATE	GDP
Coefficients	11900.81	-0.407508	-234.4585	-3192.385	0.680008
Standart error	(2588.97)	(0.70741)	(78.9745)	(3382.45)	(0.01257)
t- stat (Coef./Std. error	[4.596]	[-0.576]	[-2.968]***	[-0.943]	[54.099]***

Notes: "***,**,*" indicates significance levels at 1, 5 and 10 %.

Long-run equilibrium model is as follows:

CONS=11900.81-0.407*VEH-234.458*IVEH-3192.385*XRATE+0.680*GDP

The effect of vehicle loan (VEH) and exchange rate (XRATE) on consumption is insignificant and negative statistically. The effect of interest rate applied to vehicle loan (IVEH) on consumption is significant and negative statistically. The effect of gross domestic product (GDP) on consumption is significant and positive statistically.

As seen in Table 19,

If Probability is greater than 0.05, H_0 variable is weak exogenous. It has no effect on consumption in the short-run.

TABLE 19

Cointegration Restrictions for CONS, VEH, IVEH, XRATE and GDP According to Amount of Credit Used (Million TL)

Cointegration Restrictions	A(1,1)=0 (rank=1)	A(2,1)=0 (rank=1)	A(3,1)=0 (rank=1)	A(4,1)=0 (rank=1)	A(5,1)=0 (rank=1)
Chi-square(1)	14.99630	0.576251	6.313198	0.005780	23.59214
Probability	0.000108	0.447786	0.011984	0.939401	0.000001

Accordingly, vehicle loan (VEH) and exchange rate (XRATE) are weak exogenous and they have no effect on consumption in the short-run.

It is rejected that hypothesis of H_0 variable is weak exogenous for variables of IVEH and GDP. For this reason, it must be estimated VECM models of these variables. Thus, short term imbalances are corrected over CONS, IVEH and GDP.

The error correction coefficient is negative and significant indicates that the variable is decrease while fixing long run balance facility. The error correction coefficient is positive and significant indicates that the variable is increase while fixing long run balance facility.

VECM (Vector Error Correction Model)

TABLE 20

Speed of Adjustment for CONS, IVEH, and GDP According to Amount of Credit Used (Million TL)

Error Correction	D(CONS)	D(IVEH)	D(GDP)
CointEq1	1.031612 (0.22155) [4.65627]	-0.000267 (0.00016) [-1.67075]	2.471210 (0.38828) [6.36454]

Accordingly,

For consumption (CONS) and GDP, there is no error correction mechanism.

For interest rate applied to vehicle loan (IVEH), when fixing balance facility is to establish a balance with 267 per million rate in the one quarter. In other words, short-term imbalances are eliminated in (1/0.0002)= 5000 period.

TABLE 21

VAR Lag Order Selection Criteria for CONS, GPUR; IGPUR, XRATE and GDP

Lag	AIC	SC	HQ
0	67.32719	67.54939	67.40389
1	61.76311	63.09627	62.22332
2	60.63629	63.08041*	61.48000
3	59.88065*	63.43573	61.10786*

* indicates lag order selected by the criterion
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

It was studied to determine the most appropriate delay began with the two (2) delay according to SC criteria that give the smallest value among the information criteria given in the table. AR roots remain in the unit circle, there is no autocorrelation and changing variance problems. Therefore, it was determined that most appropriate delay is two (2).

Principle of Pantula (Trace Statistics)

TABLE 22

Models for CONS, GPUR; IGPUR, XRATE and GDP According to Amount of Credit Used (Million TL)

Rank (r)	Model 2	Model 3	Model 4
None (r=0)	142.2074 (0.0000) H_0 Reject	112.1009 (0.0000) H_0 Reject	127.1302 (0.0000) H_0 Reject
At most 1 (r=1)	78.25812 (0.0001) H_0 Reject	48.67987 (0.0417) H_0 Reject	62.93807* (0.0598) H_0 Accept
At most 2 (r=2)	31.56208 (0.1170) H_0 Accept	24.23648 (0.1906) H_0 Accept	34.34253 (0.2731) H_0 Accept

Where H_0 describes models and rank that cointegration hypothesis for the first time accepted.

LAG:2

Trace statistic show that there are two cointegration relationships at 5% significance level.

According to Pantula principle, "Model 4" is suitable specification for data and it is signed with "*".

In Table 23, while the values in parentheses "( )" show standard errors, the values within the square brackets "[ ]" show the t-statistics. Critical values for t-statistics are 1.645 (10%), 1.96 (5%), 2.578 (1%) and if t-stat is greater than the critical value, it is indicated that the value is significant.

TABLE 23

Statistical Values for GPUR, IGPUR, XRATE and GDP According to Amount of Credit Used (Million TL)

	C	GPUR	IGPUR	XRATE	GDP
Coefficients	28433.73	0.382823	-553.7375	-8153.358	0.636472
Standart error		(0.21849)	(195.348)	(2801.94)	(0.02260)
t- stat (Coef./Std. error		[1.752]*	[-2.834]***	[-2.909]***	[28.166]***

Notes: "***,**,*" indicates significance levels at 1, 5 and 10 %, respectively.

Long-run equilibrium model is as follows:

CONS= 28433.73+0.38*GPUR-553.73*IGPUR-8153.35*XRATE+0.63*GDP

The effect of general purpose loan (GPUR) and gross domestic product (GDP) on consumption are significant and positive statistically. The effect of interest rate applied to general purpose loan (IGPUR) and exchange rate (XRATE) on consumption are significant and negative statistically.

As seen in Table 24,

If Probability is greater than 0.05, H_0 variable is weak exogenous. It has no effect on consumption in the short-run.

TABLE 24

Cointegration Restrictions for CONS, GPUR, IGPUR, XRATE and GDP According to Amount of Credit Used (Million TL)

Cointegration Restrictions	A(1,1)=0 (rank=1)	A(2,1)=0 (rank=1)	A(3,1)=0 (rank=1)	A(4,1)=0 (rank=1)	A(5,1)=0 (rank=1)
Chi-square(1)	8.771214	0.096558	2.939359	0.662348	32.22345
Probability	0.003060	0.756000	0.086445	0.415732	0.000000

Accordingly, general purpose loan (GPUR), interest rates applied to general purpose loan (IGPUR) and exchange rate (XRATE) are weak exogenous and they have no effect on consumption in the short-run.

It is rejected that hypothesis of H_0 variable is weak exogenous for variables of GDP. For this reason, it must be estimated VECM models of this variable. Thus, short term imbalances are corrected over CONS, and GDP.

The error correction coefficient is negative and significant indicates that the variable is decrease while fixing long run balance facility. The error correction coefficient is positive and significant indicates that the variable is increase while fixing long run balance facility.

VECM (Vector Error Correction Model)

TABLE 25

Speed of Adjustment for CONS and GDP According to Amount of Credit Used (Million TL)

Error Correction	D(CONS)	D(GDP)
CointEq1	0.814059 (0.15785) [5.15730]	3.754892 (0.36121) [10.3952]

Accordingly,

For consumption (CONS) and GDP, there is no error correction mechanism.

TABLE 26

VAR Lag Order Selection Criteria for CONS, OTHER, IGPUR, XRATE and GDP

Lag	AIC	SC	HQ
0	55.52315	55.71806	55.59681
1	47.74860	48.91810*	48.19056
2	46.93004	49.07412	47.74029
3	46.58538	49.70405	47.76393
4	46.13987*	50.23312	47.68672*

* indicates lag order selected by the criterion
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

It was studied to determine the most appropriate delay began with the one (1) delay according to SC criteria that give the smallest value among the information criteria given in the table. AR roots remain in the unit circle, there is no autocorrelation and changing variance problems. Therefore, it was determined that most appropriate delay is two (2).

Principle of Pantula (Trace Statistics)

TABLE 27

Models for CONS, OTHER, IGPUR, XRATE and GDP According to Amount of Credit Used (Million TL)

Rank (r)	Model 2	Model 3	Model 4
None (r=0)	152.9341 0.0000 H_0 Reject	112.4108 0.0000 H_0 Reject	127.8596 0.0000 H_0 Reject
At most 1 (r=1)	71.11580 0.0008 H_0 Reject	36.13625* 0.3895 H_0 Accept	48.81427 0.4676 H_0 Accept
At most 2 (r=2)	29.12768 0.1945 H_0 Accept	20.78737 0.3710 H_0 Accept	27.50634 0.6515 H_0 Accept

Where H_0 describes models and rank that cointegration hypothesis for the first time accepted.

LAG:2

Trace statistic show that there is one cointegration relationship at 5% significance level.

According to Pantula principle, “Model 3” is suitable specification for data and it is signed with “*”.

In Table 28, while the values in parentheses “( )” show standard errors, the values within the square brackets “[ ]” show the t-statistics. Critical values for t-

statistics are 1.645 (10%), 1.96 (5%), 2.578 (1%) and if t-stat is greater than the critical value, it is indicated that the value is significance.

TABLE 28

Statistical Values for OTHER, IGPUR, XRATE and GDP According to Amount of Credit Used (Million TL)

	C	OTHER	IGPUR	XRATE	GDP
Coefficients	17330.25	-473.0761	-204.4208	-3330.277	0.676278
Standart error		(203.637)	(77.6742)	(3328.16)	(0.01340)
t- stat (Coef./Std. error		[-2.323]**	[-2.631]***	[-1.0006]	[50.477]***

Notes: "***,**,*" indicates significance levels at 1, 5 and 10 %, respectively.

Long-run equilibrium model is as follows:

CONS= 17330.25-473.07*OTHER-204.42*IGPUR-3330.27*XRATE+0.67*GDP

The effect of other loan (OTHER) and interest rate applied to other loan (IGPUR) on consumption are significant and negative statistically. The effect of exchange rate (XRATE) on consumption is insignificant and negative statistically. The effect of gross domestic product (GDP) on consumption is significant and positive statistically.

As seen in Table 29,

If Probability is greater than 0.05, H_0 variable is, weak exogenous. It has no effect on consumption in the short-run.

TABLE 29

Cointegration Restrictions for CONS, OTHER, IGPUR, XRATE and GDP According to Amount of Credit Used (Million TL)

Cointegration Restrictions	A(1,1)=0 (rank=1)	A(2,1)=0 (rank=1)	A(3,1)=0 (rank=1)	A(4,1)=0 (rank=1)	A(5,1)=0 (rank=1)
Chi-square(1)	25.34688	0.156270	3.527812	0.579438	60.92202
Probability	0.000000	0.692614	0.060347	0.446533	0.000000

Accordingly, other loans (OTHER), interest rates applied to other loan (IGPUR) and exchange rate (XRATE) are weak exogenous and they have no effect on consumption in the short-run.

It is rejected that hypothesis of H_0 variable is weak exogenous for variables of OTHER, IGPUR and XRATE. For this reason, it must be estimated VECM models of these variables. Thus, short term imbalances are corrected over CONS, and GDP.

The error correction coefficient is negative and significant indicates that the variable is decrease while fixing long run balance facility. The error correction coefficient is positive and significant indicates that the variable is increase while fixing long run balance facility.

VECM (Vector Error Correction Model)

TABLE 30

Speed of Adjustment for CONS and GDP According to Amount of Credit Used (Million TL)

Error Correction	D(CONS)	D(GDP)
CointEq1	0.738072 (0.13511) [5.46273]	3.252963 (0.32316) [10.0661]

Accordingly,

For consumption (CONS) and GDP, there is no error correction mechanism.

TABLE 31

Dynamics for Consumption in Turkey				
Long- Run Dynamics				
	HOUSE	VEH	GPUR	OTHER
Loan	-1.378813 (0.24155)	-0.407508 (0.70741)	0.382823 (0.21849)	-473.0761 (203.637)
Interest	-322.7482 (74.7303)	-234.4585 (78.9745)	-553.7375 (195.348)	-204.4208 (77.6742)
Exchange Rate	-2985.672 (2987.46)	-3192.385 (3382.45)	-8153.358 (2801.94)	-3330.277 (3328.16)
GDP	0.719366 (0.01244)	0.680008 (0.01257)	0.636472 (0.02260)	0.676278 (0.01340)
Short- Run Dynamics				
	HOUSE	VEH	GPUR	OTHER
Loan	-15.08420 (2.21088)			
Interest		-242.8904 (58.7222)	-195.0978 (50.2074)	-196.2068 (50.0808)
Exchange Rate				
GDP	1.181641 (0.08033)	0.669296 (0.00700)	0.676145 (0.00608)	0.676074 (0.00607)
Intercept (c)	-39201.87	9326.757 (2960.91)	8870.210 (2361.81)	11263.34

According to the data of amount of credit used (million TL), loans, interest rate applied to loans, exchange rate and gross domestic product have been on the consumption function in the long-run. Additionaly, housing loan (HOUSE) and gross domestic product (GDP) for housing loans; interest rate applied to vehicle loan (IVEH) and gross domestic product (GDP) for vehicle loans; interest rate applied to general purpose loans (IGPUR), gross domestic product (GDP) for general purpose loans; interest rate applied to other loan (IGPUR) and gross domestic product (GDP) for other loans are effective on consumption in the short-run.

According to Stock of Credit (Million TL)

TABLE 32

VAR Lag Order Selection Criteria for CONS, HOUSE, IHOUSE, XRATE and GDP

Lag	AIC	SC	HQ
0	69.99395	70.18886	70.06761
1	61.49153	62.66103	61.93348
2	60.32807	62.47215*	61.13832
3	59.95465	63.07332	61.13320
4	59.17835*	63.27160	60.72519*

* indicates lag order selected by the criterion
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

It was studied to determine the most appropriate delay began with the two (2) delay according to SC criteria that give the smallest value among the information criteria given in the table. AR roots remain in the unit circle, there is no autocorrelation and changing variance problems. Therefore, it was determined that most appropriate delay is three (3).

Principle of Pantula (Trace Statistics)

TABLE 33

Models for CONS, HOUSE, IHOUSE, XRATE and GDP According to Stock of Credit (Million TL)

Rank (r)	Model 2	Model 3	Model 4
None (r=0)	103.6771 (0.0001) H_0 Reject	75.74692 (0.0156) H_0 Reject	120.8197 (0.0000) H_0 Reject
At most 1 (r=1)	39.07076* (0.5175) H_0 Accept	30.00899 (0.7185) H_0 Accept	53.04917 (0.2889) H_0 Accept
At most 2 (r=2)	22.60133 (0.5550) H_0 Accept	14.00263 (0.8405) H_0 Accept	26.50659 (0.7093) H_0 Accept

Where H_0 describes models and rank that cointegration hypothesis for the first time accepted.

LAG:3

Trace statistic show that there is one cointegration relationship at 5% significance level.

According to Pantula principle, "Model 2" is suitable specification for data and it is signed with "*".

In Table 34, while the values in parentheses "( )" show standard errors, the values within the square brackets "[ ]" show the t-statistics. Critical values for t-statistics are 1.645 (10%), 1.96 (5%), 2.578 (1%) and if t-stat is is greater than the critical value, it is indicated that the value is significance.

TABLE 34

Statistical Values for HOUSE, IHOUSE, XRATE, and GDP According to Stock of Credit (Million TL)

	C	HOUSE	IHOUSE	XRATE	GDP
Coefficients	-3827.865	-0.274372	-132.2844	-6045.515	0.792491
Standart error	(9456.53)	(0.13401)	(107.164)	(3112.64)	(0.04962)
t- stat (Coef./Std. error	[-0.404]	[-2.047]**	[-1.234]	[-1.942]*	[15.969]***

Notes: "***,**,*" indicates significance levels at 1, 5 and 10 %, respectively.

Long-run equilibrium model is as follows:

CONS=-3827.865-0.27*HOUSE-132.28*IHOUSE-6045.51*XRATE+0.79*GDP

The effect of house loan (HOUSE) and exchange rate (XRATE) on consumption are significant and negative statistically. The effect of interest rate applied to house loan (IHOUSE) on consumption is insignificant and negative

statistically. The effect of gross domestic product (GDP) on consumption is significant and positive statistically.

As seen in the Table 35,

If Probability is greater than 0.05, H_0 variable is weak exogenous. It has no effect on consumption in the short-run.

TABLE 35

Cointegration Restrictions for CONS, HOUSE, IHOUSE, XRATE and GDP According to Stock of Credit (Million TL)

Cointegration Restrictions	A(1,1)=0 (rank=1)	A(2,1)=0 (rank=1)	A(3,1)=0 (rank=1)	A(4,1)=0 (rank=1)	A(5,1)=0 (rank=1)
Chi-square(1)	21.55849	0.000877	5.734818	3.858504	27.16554
Probability	0.000003	0.976371	0.016632	0.049494	0.000000

Accordingly, house loan (HOUSE) is weak exogenous and it has no effect on consumption in the short-run.

It is rejected that hypothesis of H_0 variable is weak exogenous for variables of IHOUSE, XRATE and GDP. For this reason, it must be estimated VECM models of these variables. Thus, short term imbalances are corrected over CONS, IHOUSE, XRATE and GDP.

The error correction coefficient is negative and significant indicates that the variable is decrease while fixing long run balance facility. The error correction coefficient is positive and significant indicates that the variable is increase while fixing long run balance facility.

VECM (Vector Error Correction Model)

TABLE 36

Speed of Adjustment for CONS, IHOUSE, XRATE and GDP According to Stock of Credit (Million TL)

Error Correction	D(CONS)	D(IHOUSE)	D(XRATE)	D(GDP)
CointEq1	1.118064 (0.22999) [4.86135]	-0.000322 (0.00014) [-2.30627]	$-4.87*10^{-06}$ $(5.0*10^{-06})$ [-0.96563]	2.421497 (0.42777) [5.66080]

Accordingly;

For consumption (CONS) and GDP, there is no error correction mechanism.

For interest rate applied to house loan (IHOUSE), when fixing balance facility is to establish a balance with 322 per million rates in the one quarter. In other words, short-term imbalances are eliminated in (1/0.0003)= 3333.33 period.

For exchange rate (XRATE), when fixing balance facility is to establish a balance with 4 per million rate in the one quarter. In other words, short-term imbalances are eliminated in $(1/4{,}87x10^{-6})$=205338.8 period.

TABLE 37

VAR Lag Order Selection Criteria for CONS, VEH, IVEH, XRATE and GDP

Lag	AIC	SC	HQ
0	68.55035	68.74527	68.62401
1	60.22226	61.39176	60.66422
2	59.01903	61.16312*	59.82928*
3	58.73819	61.85686	59.91674
4	58.60659*	62.69984	60.15343

* indicates lag order selected by the criterion
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

It was studied to determine the most appropriate delay began with the two (2) delay according to SC criteria that give the smallest value among the information criteria given in the table. AR roots remain in the unit circle, there is no autocorrelation and changing variance problems. Therefore, it was determined that most appropriate delay is three (3).

Principle of Pantula (Trace Statistics)

TABLE 38

Models for CONS, VEH, IVEH, XRATE and GDP According to Stock of Credit (Million TL)

Rank (r)	**Model 2**	**Model 3**	**Model 4**
None (r=0)	114.6328 (0.0000) H_0 Reject	79.52120 (0.0069) H_0 Reject	115.8466 (0.0002) H_0 Reject
At most 1 (r=1)	50.01831* (0.1097) H_0 Accept	39.03453 (0.2589) H_0 Accept	63.77472 (0.0510) H_0 Accept
At most 2 (r=2)	26.72015 (0.3032) H_0 Accept	18.57716 (0.5236) H_0 Accept	27.92873 (0.6263) H_0 Accept

Where H_0 describes models and rank that cointegration hypothesis for the first time accepted.

LAG:3

Trace statistic show that there is one cointegration relationship at 5% significance level

According to Pantula principle, "Model 2" is suitable specification for data and it is signed with "*".

While the values in parentheses "( )" show standard errors, the values within the square brackets "[ ]" show the t-statistics. Critical values for t-statistics are 1.645 (10%), 1.96 (5%), 2.578 (1%) and if t-stat is is greater than the critical value, it is indicated that the value is significance.

TABLE 39

Statistical Values for VEH, IVEH, XRATE and GDP According to Stock of Credit (Million TL)

	C	VEH	IVEH	XRATE	GDP
Coefficients	11855.34	0.051145	-214.7964	-4579.565	0.684979
Standart error	(2823.43)	(0.23727)	(64.7392)	(2824.79)	(0.01096)
t- stat (Coef./Std. error	[4.198]***	[0.215]	[-3.317]***	[-1.621]	[62.475]***

Notes: "***,**,*" indicates significance levels at 1, 5 and 10 %, respectively.

Long-run equilibrium model is as follows:

CONS=11855.34+0.05*VEH-214.79*IVEH-4579.56*XRATE+0.68*GDP

The effect of vehicle loan (VEH) on consumption is insignificant and positive statistically. The effect of interest rate applied to vehicle loan (IVEH) on consumption is significant and negative statistically. The effect of exchange rate

(XRATE) on consumption is insignificant and negative statistically. Gross domestic product (GDP) on consumption is significant and positive statistically.

As seen in Table 40,

If Probability is greater than 0.05, H_0 variable is weak exogenous. It has no effect on consumption in the short-run.

TABLE 40

Cointegration Restrictions for CONS, VEH, IVEH, XRATE and GDP According to Stock of Credit (Million TL)

Cointegration Restrictions	A(1,1)=0 (rank=1)	A(2,1)=0 (rank=1)	A(3,1)=0 (rank=1)	A(4,1)=0 (rank=1)	A(5,1)=0 (rank=1)
Chi-square(1)	18.03885	0.166530	9.523964	0.881045	30.93810
Probability	0.000022	0.683215	0.002028	0.347916	0.000000

Accordingly, vehicle loan (VEH) and exchange rate (XRATE) are weak exogenous and they have no effect on consumption in the short-run.

It is rejected that hypothesis of H_0 variable is weak exogenous for variables of IVEH and GDP. For this reason, it must be estimated VECM models of these variables. Thus, short term imbalances are corrected over CONS, IVEH and GDP.

The error correction coefficient is negative and significant indicates that the variable is decrease while fixing long run balance facility. The error correction coefficient is positive and significant indicates that the variable is increase while fixing long run balance facility.

VECM (Vector Error Correction Model)

TABLE 41

Speed of Adjustment for CONS, IVEH, and GDP According to Stock of Credit (Million TL)

Error Correction	D(CONS)	D(IVEH)	D(GDP)
CointEq1	1.031612 (0.22155) [4.65627]	-0.000267 (0.00016) [-1.67075]	2.471210 (0.38828) [6.36454]

Accordingly;

For consumption (CONS) and GDP, there is no error correction mechanism.

For interest rate applied to vehicle loan (IVEH), when fixing balance facility is to establish a balance with 267 per million rate in the one quarter. In other words, short-term imbalances are eliminated in (1/0.0002)= 5000 period.

TABLE 42

VAR Lag Order Selection Criteria for CONS, GPUR, IGPUR, XRATE and GDP

Lag	AIC	SC	HQ
0	68.35466	68.57685	68.43136
1	61.33133	62.66449	61.79154
2	60.19298	62.63710*	61.03669
3	59.61440*	63.16948	60.84162*

* indicates lag order selected by the criterion
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

It was studied to determine the most appropriate delay began with the two (2) delay according to SC criteria that give the smallest value among the information criteria given in the table. AR roots remain in the unit circle, there is no

autocorrelation and changing variance problems. Therefore, it was determined that most appropriate delay is two (2).

Principle of Pantula (Trace Statistics)

TABLE 43

Models for CONS, GPUR, IGPUR, XRATE and GDP According to Stock of Credit (Million TL)

Rank (r)	Model 2	Model 3	Model 4
None (r=0)	130.5149 (0.0000) H_0 Reject	105.7075 (0.0000) H_0 Reject	116.6822 (0.0001) H_0 Reject
At most 1 (r=1)	70.71995 (0.0008) H_0 Reject	47.41685* (0.0549) H_0 Accept	57.12436 (0.1622) H_0 Accept
At most 2 (r=2)	35.49113 (0.0464) H_0 Reject	18.77524 (0.5092) H_0 Accept	28.16164 (0.6124) H_0 Accept

Where H_0 describes models and rank that cointegration hypothesis for the first time accepted.

LAG:2

Trace statistic show that there is one cointegration relationship at 5% significance level.

According to Pantula principle, "Model 3" is suitable specification for data and it is signed with "*".

While the values in parentheses "( )" show standard errors, the values within the square brackets "[ ]" show the t-statistics. Critical values for t-statistics are 1.645 (10%), 1.96 (5%), 2.578 (1%) and if t-stat is is greater than the critical value, it is indicated that the value is significance.

TABLE 44

Statistical Values for GPUR, IGPUR, XRATE and GDP According to Stock of Credit (Million TL)

	C	GPUR	IGPUR	XRATE	GDP
Coefficients	33499.86	0.028005	-833.5236	-9936.492	0.682000
Standart error		(0.10847)	(169.968)	(3691.92)	(0.02940)
t- stat (Coef./Std. error		[0.258]	[-4.904]***	[-2.691]***	[23.193]***

Notes: "***,**,*" indicates significance levels at 1, 5 and 10 %, respectively.

Long-run equilibrium model is as follows:

CONS= 33499.86+0.02*GPUR-833.52*IGPUR -9936.49*XRATE+0.68*GDP

The effect of general purpose loan (GPUR) on consumption is insignificant and positive statistically. Gross domestic product (GDP) on consumption is significant and positive statistically. The effect of interest rate applied to general purpose loan (IGPUR) and exchange rate (XRATE) on consumption are significant and negative statistically.

As seen in Table 45,

If Probability is greater than 0.05, H_0 variable is weak exogenous. It has no effect on consumption in the short-run.

TABLE 45

Cointegration Restrictions for CONS, GPUR, IGPUR, XRATE and GDP According to Stock of Credit (Million TL)

Cointegration Restrictions	A(1,1)=0 (rank=1)	A(2,1)=0 (rank=1)	A(3,1)=0 (rank=1)	A(4,1)=0 (rank=1)	A(5,1)=0 (rank=1)
Chi-square(1)	8.967391	0.186524	1.398148	2.809909	28.06934
Probability	0.002748	0.665826	0.237034	0.093684	0.000000

Accordingly, general purpose loan (GPUR), interest rate applied to general purpose loan (IGPUR) and exchange rate (XRATE) is weak exogenous and it has no effect on consumption in the short-run.

It is rejected that hypothesis of H_0 variable is weak exogenous for variable of GDP. For this reason, it must be estimated VECM models of this variable. Thus, short term imbalances are corrected over CONS and GDP.

The error correction coefficient is negative and significant indicates that the variable is decrease while fixing long run balance facility. The error correction coefficient is positive and significant indicates that the variable is increase while fixing long run balance facility.

VECM (Vector Error Correction Model)

TABLE 46

Speef of Adjustment for CONS, and GDP According to Stock of Credit (Million TL)

Error Correction	D(CONS)	D(GDP)
CointEq1	0.738072 (0.13511) [5.46273]	3.252963 (0.32316) [10.0661]

Accordingly;

For consumption (CONS) and GDP, there is no error correction mechanism.

TABLE 47

VAR Lag Order Selection Criteria for CONS, OTHER, IGPUR, XRATE, and GDP

Lag	AIC	SC	HQ
0	57.65193	57.84685	57.72559
1	49.66645	50.83595*	50.10841
2	48.83040	50.97449	49.64065*
3	48.49159	51.61026	49.67014
4	48.14748*	52.24073	49.69432

* indicates lag order selected by the criterion
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

It was studied to determine the most appropriate delay began with the one (1) delay according to SC criteria that give the smallest value among the information criteria given in the table. AR roots remain in the unit circle, there is no autocorrelation and changing variance problems. Therefore, it was determined that most appropriate delay is three (3).

Principle of Pantula (Trace Statistics)

TABLE 48

Models for CONS, OTHER, IGPUR, XRATE, and GDP According to Stock of Credit (Million TL)

Rank (r)	**Model 2**	**Model 3**	**Model 4**
None (r=0)	124.5222 (0.0000) H_0 Reject	89.61115 (0.0006) H_0 Reject	110.6618 (0.0006) H_0 Reject
At most 1 (r=1)	56.38019 (0.0307) H_0 Reject	48.03373 (0.0481) H_0 Reject	61.30922* (0.0807) H_0 Accept
At most 2 (r=2)	28.30775 (0.2278) H_0 Accept	22.61951 (0.2653) H_0 Accept	31.89105 (0.3943) H_0 Accept

Where H_0 describes models and rank that cointegration hypothesis for the first time accepted.

LAG:3

Trace statistic show that there is one cointegration relationship at 5% significance level.

According to Pantula principle, "Model 4" is suitable specification for data and it is signed with "*".

While the values in parentheses "( )" show standard errors, the values within the square brackets "[ ]" show the t-statistics. Critical values for t-statistics are 1.645 (10%), 1.96 (5%), 2.578 (1%) and if t-stat is greater than the critical value, it is indicated that the value is significance.

TABLE 49

Statistical Values for OTHER, IGPUR, XRATE, and GDP According to Stock of Credit (Million TL)

	C	OTHER	IGPUR	XRATE	GDP
Coefficients	35086.79	-551.0980	-241.9321	-23035.71	0.848379
Standart error		(104.320)	(97.5831)	(4429.36)	(0.04108)
t- stat (Coef./Std. error		[-5.282]***	[-2.479]**	[-5.200]***	[20.651]***

Notes: "***,**,*" indicates significance levels at 1, 5 and 10 %, respectively.

Long-run equilibrium model is as follows:

CONS=35086.79-551.09*OTHER-241.93*IGPUR-23035.71*XRATE+0.84*GDP

The effect of other loans (OTHER), interest rate applied to general purpose loan (IGPUR) and exchange rate (XRATE) on consumption are significant and negative as statistically. The effect of gross domestic product (GDP) on consumption is significant and positive statistically.

As seen in Table 50,

If probability is greater than 0.05, H_0 variable is weak exogenous. It has no effect on consumption in the short-run.

TABLE 50

Cointegration Restrictions for CONS, OTHER, IGPUR, XRATE, and GDP According to Stock of Credit (Million TL)

Cointegration Restrictions	A(1,1)=0 (rank=1)	A(2,1)=0 (rank=1)	A(3,1)=0 (rank=1)	A(4,1)=0 (rank=1)	A(5,1)=0 (rank=1)
Chi-square(1)	3.737695	0.001707	$4.95*10^{-05}$	8.183825	6.133549
Probability	0.053198	0.967049	0.994386	0.004227	0.013264

Accordingly, other loans (OTHER) and interest rate applied to other loans (IGPUR) is weak exogenous and it has no effect on consumption in the short-run.

It is rejected that hypothesis of H_0 variable is weak exogenous for variables of XRATE and GDP. For this reason, it must be estimated VECM models of these variables. Thus, short term imbalances are corrected over CONS, XRATE and GDP.

The error correction coefficient is negative and significant indicates that the variable is decrease while fixing long run balance facility. The error correction coefficient is positive and significant indicates that the variable is increase while fixing long run balance facility.

VECM (Vector Error Correction Model)

TABLE 51

Speed of Adjustment VECM for CONS, XRATE, and GDP According to Stock of Credit (Million TL)

Error Correction	D(CONS)	D(XRATE)	D(GDP)
CointEq1	0.789620 (0.32063) [2.46270]	$-5.98*10^{-07}$ ($7.2*10^{-06}$) [-0.08341]	2.874731 (0.58164) [4.94242]

Accordingly;

For consumption (CONS) and GDP, there is no error correction mechanism.

For exchange rate (XRATE), when fixing balance facility is to establish a balance with 5 per ten million rate in the one quarter. In other words, short-term imbalances are eliminated in ($1/5{,}98x10^{-7}$)=1672240.8 period.

TABLE 52

Dynamics for Consumption in Turkey				
Long- Run Dynamics				
	HOUSE	VEH	GPUR	OTHER
Loan	-0.274372 (0.13401)	0.051145 (0.23727)	0.028005 (0.10847)	-551.0980 (104.320)
Interest	-132.2844 (107.164)	-214.7964 (64.7392)	-833.5236 (169.968)	-241.9321 (97.5831)
Exchange Rate	-6045.515 (3112.64)	-4579.565 (2824.79)	-9936.492 (3691.92)	-23035.71 (4429.36)
GDP	0.792491 (0.04962)	0.684979 (0.01096)	0.682000 (0.02940)	0.848379 (0.04108)
Short- Run Dynamics				
	HOUSE	VEH	GPUR	OTHER
Interest	-231.3633 (69.6656)	-242.8904 (58.7222)		
Exchange Rate	-5418.916 (2806.32)			-10399.53 (2711.11)
GDP	0.686892 (0.01088)	0.669296 (0.00700)	-0.695714 (0.00472)	0.671238 (0.03447)
Intercept (c)	12186.52 (2294.56)	9326.757 (2960.91)	-2693.430	17282.88

According to the data of stock of credit (million TL), loans, interest rate applied to loans, exchange rate and gross domestic product have been on the consumption function in the long-run. On the other hand, interest applied to housing loan (IHOUSE), exchange rate (XRATE) and gross domestic product (GDP) for housing loans; interest rate applied to vehicle loan (IVEH) and gross domestic product (GDP) for vehicle loans; gross domestic product (GDP) for general purpose loans; exchange rate (XRATE) and gross domestic product (GDP) for other loans are effective on consumption in the short-run.

8.3 Discussion

In theory, it is assumed that while all loans and GDP affect the consumption in the positive direction, interest rate applied to the loans and exchange rate are at negative direction. According to the data of amount of credit used (million TL) in the analysis; it was determined that the effects of housing loan and other loan on consumption are significant and negative; vehicle loan insignificant and negative, general purpose loan significant and positive, in the long– run, respectively. In addition, the effects of interest rate applied to housing loan, interest rate applied to vehicle loan, interest rate applied to general purpose loan and interest rate applied to other loans on consumption were found as significant and negative. While the effects of exchange rate for housing loan, vehicle loan, and other loan on consumption are insignificant and negative. While the effects of exchange rate for general purpose loan on consumption is significant and negative; the gross domestic product (GDP) is significant and positive.

When fixing balance in short run, it was seen that HOUSE and GDP are effective for housing loan, IVEH and GDP are effective for vehicle loan, GDP is effective for general purpose loan and other loans.

According to the data of stock of credit (million TL) in the analysis; it was determined that the effects of housing loan, and other loans on consumption is significant and negative. The effects of vehicle loan, and general purpose loans insignificant and positive, in the long – run, respectively. In addition, the effects of interest rate applied to housing loan on consumption were found insignificant and negative; interest rate applied to vehicle loan, interest rate applied to general purpose loan and interest rate applied to other loans on consumption significant and negative.

The effects of exchange rate on consumption is significant and negative, insignificant and negative, significant and negative, and significant and negative for housing loan, vehicle loan, general purpose loan and other loans, respectively. On the other hand, the effect of gross domestic product (GDP) on consumption was found significant and positive for all equations.

When fixing balance in short run, it was seen that IHOUSE, XRATE and GDP; IVEH and GDP; GDP; XRATE and GDP is effective for housing loan, vehicle loan, general purpose loan and other loans, respectively.

CHAPTER 9

9. CONCLUSION

Linear regression is attempting to model the relationship between two variables by fitting a linear equation with observed data. One variable is considered as an explanatory variable, and the other is considered to be a dependent variable. Before trying to fit a linear model to observed data, a modeler should first determine whether or not there is a relationship between the variables of interest. This does not mean that one variable cause necessarily on the other hand however, there is some significant relationship between two variables. A scatterplot can be a crucial creature in determining the strength of the relationship between two variables. If it seems no connection between the proposed explanatory and dependent variables, provide no useful model then fit on the data of a linear regression model probably. A valuable numerical measure of relationship between two variables is the correlation coefficient, which is a value between -1 and 1 indicating the strength of the association of the observed data for the two variables.

The most widely used method for fitting a regression line is the method of least squares. This method calculates the precise line of the observed data by

minimizing the sum of squares of vertical deviations from each data point in the line (if a point lies on the fitted line exactly, then its vertical deviation is 0). Since then totaled deviations first squared, there are no cancellations between positive and negative values.

At the end of the linear regression analysis, a significant relationship between loans (housing, vehicle, general purpose and other loans), balance and amount were determined. The balance and remaing amount were increased as the number of housing, vehicle and general purpose increase.

Ordinary least squares (OLS) is one of the most commonly used methods for modeling the functional relationship between variables. But this assessment procedure is some assumptions and the violation of these assumptions nonrobust estimates may result. For the determination of the time series characteristics of variables in the regression approach the study of Augmented Dickey-Fuller (ADF), Dickey- Fuller GLS (ERS) and Philips Perron (PP) unit root tests. There are three conventional ways of testing for unit roots, Augmented Dickey-Fuller (ADF), Dickey- Fuller GLS (ERS) and Philips-Perron (PP). In this study, we employ the ADF, Dickey- Fuller GLS (ERS) and PP methods when examining the roots of unity. In ADF, Dickey- Fuller GLS (ERS) and PP methods, the null hypothesis that the time series are a unit root, i.e. it is non-stationary. If the calculated test-statistics for our variables in their level forms are more negative than the critical values, the null hypothesis is rejected, suggesting that variables are stationary in their level forms, i.e. they are I(0). In case where the variable is not stationary in levels, we should investigate the stationarity in first differences. If the calculated test-statistics for our variables in their first differenced forms are more negative than the critical values, the null hypothesis can be rejected, suggesting that our variables are stationary after

differencing, which is denoted as I(1). The results indicated that in ADF method entire variables of industrial production, openness and inflation becomes stationary after first differencing.

The second, and the most common, motive is to investigate the properties of the prior to the construction of an econometric model. In this case, unit root tests are mainly a descriptive tool performed to classify series as stationary and non-stationary. If there is no cointegration among the individual time series, the residual process should contain a unit root. Otherwise, if there is cointegration, the residuals will be stationary. Thus, unit root tests can be applied to the residual process and the null hypothesis that there is a unit root in the residual process corresponds to the null hypothesis of no cointegration in the vector time series. These procedures are used in the same way as unit root tests.

Before we do the co-integration tests we used the Augmented Dickey-Fuller (ADF), Dickey- Fuller GLS (ERS) and Philips-Perron (PP) unit root tests to make sure we do not have any variables that are I(2). So, In this section the cointegration properties of the data are investigated making use of the Engle-Granger test. The test results reveal that all cointegrating vectors are present in the data.

Johanson Cointegration model have been implemented due to for the ADF, Dickey-Fuller GLS (ERS) and PP tests were given conflicting results according to Engle-Granger model. Although Engle-Granger cointegration test is more appropriate for simple regression models, Johanson cointegration test gives more accurate results in multivariate regression model.

In conclusion, the amount used according to the data in the long-term, negatively influenced the consumption of housing loans (HOUSE) and other loans

(OTHER). General purpose loans (GPUR) have had a positive impact on consumption, whilst vehicle loans (VEH) had no notable effect. For all types of loans, the interest rate has had a negative impact on consumption. Exchange-rates (XRATE) for housing (HOUSE), vehicle (VEH) and other loans (OTHER) do not influence consumption, whilst in general purpose loans (GPUR) it has had a negative impact. Gross Domestic Product (GDP) consumption has had a positive impact for all loan types.

In the short term, housing loan (HOUSE) and GDP for housing loans (HOUSE). The interest rate applied to vehicle loans (IVEH) and GDP for vehicle loans (VEH); GDP only effects the consumption for general purpose loans (GPUR) and other loans (OTHER) and it is located in the model of error correction.

According to the data of the stock of credit in the long term, housing loans (HOUSE) and other loans (OTHER) effect the consumption negatively. Vehicle loans (VEH) and general purpose loans (GPUR) do not affect consumption. For all types of loans, the interest rate has had a negative impact consumption. Exchange rate (XRATE), for housing loan (HOUSE), general purpose loan (GPUR) and the other loans (OTHER) also impress the consumption negatively. There is no effect on the consumption of the exchange rate (XRATE) for vehicle loans (VEH). GDP consuption has had a positive impact for all loan types.

In the short term, interest rate that is applied to housing hoans (IHOUSE), exchange rate (XRATE) and GDP for housing loan (HOUSE); GDP and the interest rate that is applied to vehicle loans (IVEH) for vehicle loans; GDP only effects the consumption for general purpose loans (GPUR); the exchange rate (XRATE) and

GDP for other loans (OTHER), effect the consumption and it is located in the model of error correction.

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- 2886 Sayılı Devlet İhale Kanunu
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- 2987 Sayılı Toplu Konut Kanunu
- 5393 Sayılı Belediye Kanunu

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APPENDIX A

AMOUNT OF CREDIT USED (MILLION TL) RAW DATA

date	veh	house	gpur	other	iveh	ihouse	igpur	igpvehho	xrate	gdp	cons
2001Q4	132,343	17,334		0,247	74,830	60,75	54,84	66,41	1,36259	69.640,33	48.840,659
2002Q1	83,974	23,597		0,280	66,860	51,59	49,85	62,5	1,41137	69.461,34	52.915,430
2002Q2	286,599	77,335		0,555	54,910	47,33	47,34	51,35	1,65067	78.985,10	55.571,394
2002Q3	291,732	76,677		0,397	53,440	45,7	49,04	49,75	1,62025	101.975,29	62.860,842
2002Q4	536,012	80,410		0,629	48,510	38,6	44,62	41,91	1,65478	100.054,36	67.051,417
2003Q1	378,285	103,775		0,719	55,040	48,13	49,38	52,91	1,51952	98.040,16	75.399,728
2003Q2	609,587	122,046		0,922	46,560	42,04	42,27	44,52	1,39555	105.709,00	76.719,389
2003Q3	1.165,618	195,782		1,354	39,610	33,79	35,94	36,93	1,44515	128.512,18	84.405,857
2003Q4	2.535,471	378,955		1,994	33,860	28,03	29,33	30,12	1,33397	122.519,32	87.490,777
2004Q1	2.187,285	636,448		2,286	29,350	23,56	24,76	25,55	1,45393	119.502,31	93.183,959
2004Q2	2.695,968	890,937		3,024	34,100	28,32	30,88	31,15	1,47847	130.998,60	97.009,869
2004Q3	1.664,578	528,625		2,163	32,560	27,88	29,72	30,33	1,44584	157.689,94	104.610,840
2004Q4	1.908,684	656,621		2,702	31,450	24,07	25,19	27,27	1,32682	150.842,18	103.754,577
2005Q1	1.526,023	1.331,007		4,309	25,340	19,1	18,44	21,61	1,36425	141.085,93	108.128,447
2005Q2	1.676,341	3.070,679	5.399,459	5,413	25,120	18,28	16,4	20,18	1,34098	153.763,76	111.834,975
2005Q3	1.797,715	4.085,883	6.395,090	6,407	23,550	19,46	16,68	19,36	1,35658	181.572,35	121.934,788
2005Q4	1.836,040	4.478,967	3.438,609	3,453	21,190	17,36	15,1	17,44	1,33208	172.509,68	123.503,549
2006Q1	1.444,320	5.225,733	4.205,594	4,337	20,650	16,1	14,47	16,61	1,45646	160.072,57	124.743,840
2006Q2	1.830,891	6.167,372	6.598,861	6,826	25,570	20,84	18,54	22,63	1,50174	183.652,12	132.454,172

2006Q3	921,679	1.733,237	4.095,790	4,319	26,940	21,55	21,54	24,63	1,45741	213.295,40	138.777,308
2006Q4	1.176,023	2.477,814	5.075,103	5,146	25,160	20,52	21,45	23,26	1,41103	201.370,70	138.873,886
2007Q1	857,508	2.445,708	4.804,770	5,313	24,190	19,85	19,1	22	1,34015	187.950,69	139.343,406
2007Q2	1.269,390	4.122,338	6.742,248	6,977	22,880	19,46	17,59	20,65	1,28868	203.279,71	145.850,620
2007Q3	1.330,121	4.279,965	7.342,964	7,660	21,110	18,43	17,43	19,88	1,19087	232.256,57	159.346,510
2007Q4	1.721,397	4.686,533	8.647,572	0,009	19,660	16,46	16,8	18,36	1,20236	219.691,46	156.698,071
2008Q1	1.408,571	5.338,118	8.080,993	0,009	21,090	18,48	18,12	19,85	1,26323	215.605,65	159.081,052
2008Q2	1.451,110	4.736,859	8.734,147	0,009	21,570	19,5	18,17	20,28	1,21008	239.363,43	167.107,765
2008Q3	1.496,873	3.704,385	9.686,766	0,011	21,190	19,46	18,61	20,25	1,54061	262.392,17	173.589,935
2008Q4	672,923	1.580,609	5.435,845	0,006	26,260	21,59	20,67	25,11	1,65744	233.172,99	164.165,499
2009Q1	650,039	2.478,973	7.639,854	0,008	18,570	18,66	17,47	18,28	1,57281	207.925,99	154.399,121
2009Q2	1.250,730	3.972,124	10.156,625	0,010	19,920	18,16	16,19	18,63	1,50069	228.571,90	167.584,065
2009Q3	1.164,661	5.990,524	9.890,164	0,010	16,520	14,9	12,93	14,6	1,48832	261.710,45	178.388,857
2009Q4	1.797,442	8.780,667	12.234,318	0,012	14,890	12,36	12,06	13,68	1,50865	254.350,24	180.396,296
2010Q1	1.578,988	6.543,199	13.182,627	0,013	13,990	11,98	11,49	12,96	1,53894	241.026,02	182.874,420
2010Q2	1.955,920	7.527,884	14.373,979	0,015	13,910	11,29	11,05	12,72	1,51699	265.996,87	190.552,699
2010Q3	1.716,789	6.853,166	15.303,433	0,016	12,390	10,63	10,47	11,54	1,46446	295.995,61	203.036,357
2010Q4	2.528,763	10.897,186	17.672,390	0,019	11,790	9,36	9,53	10,58	1,57795	295.780,86	211.289,308
2011Q1	2.390,997	9.770,540	18.409,971	0,020	12,050	10,49	9,86	11,25	1,56601	289.905,00	218.367,658
2011Q2	1.811,653	9.379,439	21.352,676	0,023	15,630	11,35	11,68	14,12	1,73415	317.392,14	223.045,889
2011Q3	1.750,633	5.327,081	15.057,693	0,016	17,180	12,75	12,48	15,57	1,84004	351.173,12	240.351,660
2011Q4	2.082,881	5.278,662	14.583,275	0,016	20,120	13,9	14,4	18,06	1,79901	339.242,95	242.070,984
2012Q1	1.240,347	4.799,125	14.736,018	0,016	18,900	13,21	13,17	16,73	1,80657	325.184,11	235.983,069
2012Q2	1.536,600	6.814,301	17.445,376	0,019	17,940	13,08	12,51	15,79	1,80441	350.160,53	245.502,634
2012Q3	1.823,557	6.520,871	14.405,584	0,018	16,610	12,86	11,65	14,43	1,7947	377.042,31	256.041,094

2012Q4	2.775,851	10.334,269	18.771,778	0,023	13,900	10,56	9,9	11,99	1,78623	364.411,54	256.868,956
2013Q1	3.022,000	12.339,000	23.062,000	0,028	13,500	10,52	9,09	11,53	1,84008	355.812,71	261.609,869
2013Q2	3.384,000	16.918,000	27.346,000	0,033	12,100	9,78	8,49	10,39	1,97022	387.127,91	276.060,954
2013Q3	2.506,000	11.196,000	23.939,000	0,029	13,990	11,54	11	12,89	2,02913	417.849,26	281.283,402
2013Q4	2.223,000	9.947,000	23.494,000	0,029	14,300	10,71	10,69	12,59	2,21986	406.499,36	290.768,256
2014Q1	1.484,000	7.243,000	16.548,000	0,021	17,080	15,18	13,65	16	2,11546	411.255,18	284.600,936
2014Q2	1.467,000	7.802,000	20.896,000	0,026	15,580	12,36	11,75	14,09	2,16542	428.258,81	293.472,081
2014Q3	1.924,000	10.488,000	22.718,000	0,029	14,740	12,39	10,72	12,96	2,26525	463.902,42	299.847,888

APPENDIX B

STOCK OF CREDIT (MILLION TL) RAW DATA

date	veh	house	gpur	other	iveh	ihouse	igpur	igpvehho	xrate	gdp	cons
2001Q4	749,274	352,973		0,811	74,830	60,750	54,840	66,410	1,36259	69.640,328	48.840,659
2002Q1	655,480	476,192		0,786	66,860	51,590	49,850	62,500	1,41137	69.461,341	52.915,430
2002Q2	730,421	506,487		1,017	54,910	47,330	47,340	51,350	1,65067	78.985,100	55.571,394
2002Q3	708,693	298,375		1,282	53,440	45,700	49,040	49,750	1,62025	101.975,294	62.860,842
2002Q4	1.039,605	306,798		1,428	48,510	38,600	44,620	41,910	1,65478	100.054,355	67.051,417
2003Q1	1.175,182	434,016		1,527	55,040	48,130	49,380	52,910	1,51952	98.040,157	75.399,728
2003Q2	1.438,595	463,091		1,815	46,560	42,040	42,270	44,520	1,39555	105.708,998	76.719,389
2003Q3	2.143,794	552,908		2,437	39,610	33,790	35,940	36,930	1,44515	128.512,184	84.405,857
2003Q4	3.981,457	801,378		3,492	33,860	28,030	29,330	30,120	1,33397	122.519,320	87.490,777
2004Q1	5.182,537	1.245,684		4,685	29,350	23,560	24,760	25,550	1,45393	119.502,314	93.183,959
2004Q2	6.662,794	1.925,840		6,038	34,100	28,320	30,880	31,150	1,47847	130.998,596	97.009,869
2004Q3	6.985,493	2.169,757		6,664	32,560	27,880	29,720	30,330	1,44584	157.689,939	104.610,840
2004Q4	7.303,434	2.439,096		7,052	31,450	24,070	25,190	27,270	1,32682	150.842,176	103.754,577
2005Q1	6.840,528	3.307,364		8,715	25,340	19,100	18,440	21,610	1,36425	141.085,930	108.128,447
2005Q2	5.009,489	6.073,167	8.279,518	8,455	25,120	18,280	16,400	20,180	1,34098	153.763,755	111.834,975
2005Q3	5.496,931	8.994,246	8.973,833	9,188	23,550	19,460	16,680	19,360	1,35658	181.572,348	121.934,788
2005Q4	6.147,419	12.388,716	9.372,162	9,729	21,190	17,360	15,100	17,440	1,33208	172.509,679	123.503,549
2006Q1	6.324,580	16.202,311	9.979,892	11,004	20,650	16,100	14,470	16,610	1,45646	160.072,572	124.743,840
2006Q2	6.867,158	20.474,812	13.049,520	14,234	25,570	20,840	18,540	22,630	1,50174	183.652,122	132.454,172

2006Q3	6.544,074	21.041,215	13.961,685	15,314	26,940	21,550	21,540	24,630	1,45741	213.295,396	138.777,308
2006Q4	6.401,968	22.136,700	15.712,103	16,636	25,160	20,520	21,450	23,260	1,41103	201.370,695	138.873,886
2007Q1	5.987,630	23.206,746	17.242,531	18,042	24,190	19,850	19,100	22,000	1,34015	187.950,694	139.343,406
2007Q2	5.868,327	25.470,745	19.935,986	20,712	22,880	19,460	17,590	20,650	1,28868	203.279,705	145.850,620
2007Q3	5.776,205	28.132,286	22.630,415	23,557	21,110	18,430	17,430	19,880	1,19087	232.256,566	159.346,510
2007Q4	5.963,958	30.735,007	25.869,181	0,027	19,660	16,460	16,800	18,360	1,20236	219.691,456	156.698,071
2008Q1	5.819,113	33.930,286	28.375,463	0,030	21,090	18,480	18,120	19,850	1,26323	215.605,654	159.081,052
2008Q2	5.892,335	36.202,690	30.979,486	0,033	21,570	19,500	18,170	20,280	1,21008	239.363,433	167.107,765
2008Q3	5.929,420	37.649,142	34.415,147	0,037	21,190	19,460	18,610	20,250	1,54061	262.392,170	173.589,935
2008Q4	5.386,827	37.346,502	33.525,943	0,036	26,260	21,590	20,670	25,110	1,65744	233.172,993	164.165,499
2009Q1	4.818,165	37.383,664	35.676,958	0,036	18,570	18,660	17,470	18,280	1,57281	207.925,991	154.399,121
2009Q2	4.660,966	38.610,317	37.469,227	0,038	19,920	18,160	16,190	18,630	1,50069	228.571,898	167.584,065
2009Q3	4.386,137	39.715,910	38.690,773	0,039	16,520	14,900	12,930	14,600	1,48832	261.710,449	178.388,857
2009Q4	4.222,376	42.733,101	40.768,981	0,041	14,890	12,360	12,060	13,680	1,50865	254.350,241	180.396,296
2010Q1	4.009,767	45.461,717	43.260,615	0,045	13,990	11,980	11,490	12,960	1,53894	241.026,016	182.874,420
2010Q2	4.161,088	49.236,296	44.112,400	0,049	13,910	11,290	11,050	12,720	1,51699	265.996,869	190.552,699
2010Q3	4.479,428	52.105,369	46.762,869	0,054	12,390	10,630	10,470	11,540	1,46446	295.995,607	203.036,357
2010Q4	5.350,960	57.583,882	45.599,689	0,059	11,790	9,360	9,530	10,580	1,57795	295.780,856	211.289,308
2011Q1	5.654,567	61.775,697	50.512,799	0,066	12,050	10,490	9,860	11,250	1,56601	289.904,998	218.367,658
2011Q2	6.176,700	66.780,648	58.801,846	0,075	15,630	11,350	11,680	14,120	1,73415	317.392,144	223.045,889
2011Q3	6.377,531	68.372,173	61.343,303	0,080	17,180	12,750	12,480	15,570	1,84004	351.173,122	240.351,660
2011Q4	6.933,068	69.754,743	62.261,270	0,083	20,120	13,900	14,400	18,060	1,79901	339.242,947	242.070,984
2012Q1	6.847,444	70.400,091	62.686,463	0,085	18,900	13,210	13,170	16,730	1,80657	325.184,111	235.983,069
2012Q2	7.075,394	73.005,821	64.697,639	0,089	17,940	13,080	12,510	15,790	1,80441	350.160,525	245.502,634
2012Q3	7.212,395	75.226,438	65.185,226	0,091	16,610	12,860	11,650	14,430	1,79470	377.042,314	256.041,094
2012Q4	7.560,618	79.592,180	67.364,505	0,095	13,900	10,560	9,900	11,990	1,78623	364.411,539	256.868,956

2013Q1	7.460,691	84.856,502	72.688,534	0,101	13,500	10,520	9,090	11,530	1,84008	355.812,714	261.609,869
2013Q2	7.572,284	92.536,598	78.301,950	0,109	12,100	9,780	8,490	10,390	1,97022	387.127,908	276.060,954
2013Q3	7.719,892	97.549,777	82.324,871	0,116	13,990	11,540	11,000	12,890	2,02913	417.849,259	281.283,402
2013Q4	7.965,429	101.322,345	85.892,622	0,122	14,300	10,710	10,690	12,590	2,21986	406.499,357	290.768,256
2014Q1	7.355,631	103.044,514	86.777,394	0,124	17,080	15,180	13,650	16,000	2,11546	411.255,184	284.600,936
2014Q2	6.904,550	105.395,827	90.503,456	0,129	15,580	12,360	11,750	14,090	2,16542	428.258,814	293.472,081
2014Q3	6.411,436	109.853,733	93.060,956	0,135	14,740	12,390	10,720	12,960	2,26525	463.902,420	299.847,888

APPENDIX C

VECM (Vector Error Correction Model) for CONS, HOUSE, and GDP According to Amount of Credit Used (Million TL)

Error Correction:	D(CONS)	D(HOUSE)	D(GDP)
CointEq1	0.052150	-0.051686	0.147155
	(0.02845)	(0.00983)	(0.05815)
	[1.83280]	[-5.25910]	[2.53069]
D(CONS(-1))	-0.409838	0.111852	0.416738
	(0.21193)	(0.07320)	(0.43311)
	[-1.93379]	[1.52799]	[0.96220]
D(CONS(-2))	-0.117341	-0.001449	0.263891
	(0.20791)	(0.07181)	(0.42488)
	[-0.56439]	[-0.02018]	[0.62109]
D(HOUSE(-1))	0.053163	0.389897	-1.019005
	(0.42535)	(0.14692)	(0.86925)
	[0.12499]	[2.65388]	[-1.17228]
D(HOUSE(-2))	0.157869	0.646446	-1.853426
	(0.40078)	(0.13843)	(0.81904)
	[0.39390]	[4.66989]	[-2.26294]
D(GDP(-1))	0.135077	-0.070298	-0.008973
	(0.06476)	(0.02237)	(0.13234)
	[2.08580]	[-3.14277]	[-0.06780]
D(GDP(-2))	-0.133278	-0.012842	-0.931696
	(0.06803)	(0.02350)	(0.13902)
	[-1.95920]	[-0.54657]	[-6.70189]
C	7470.214	117.3780	11536.17
	(1271.21)	(439.073)	(2597.85)
	[5.87648]	[0.26733]	[4.44067]

APPENDIX D

VECM (Vector Error Correction Model) for CONS, IVEH, and GDP According to Amount of Credit Used (Million TL)

Error Correction:	D(CONS)	D(IVEH)	D(GDP)
CointEq1	1.031612	-0.000267	2.471210
	(0.22155)	(0.00016)	(0.38828)
	[4.65627]	[-1.67075]	[6.36454]
D(CONS(-1))	-0.885864	0.000430	-1.236108
	(0.30960)	(0.00022)	(0.54257)
	[-2.86136]	[1.92868]	[-2.27823]
D(CONS(-2))	-0.237382	0.000199	-0.760367
	(0.24977)	(0.00018)	(0.43773)
	[-0.95039]	[1.10579]	[-1.73706]
D(IVEH(-1))	-384.9395	-0.031014	-237.6731
	(178.064)	(0.12830)	(312.062)
	[-2.16180]	[-0.24172]	[-0.76162]
D(IVEH(-2))	-209.9707	0.270395	102.8701
	(179.443)	(0.12930)	(314.478)
	[-1.17012]	[2.09129]	[0.32711]
D(GDP(-1))	0.467382	-0.000162	0.822479
	(0.11675)	(8.4E-05)	(0.20461)
	[4.00321]	[-1.93053]	[4.01974]
D(GDP(-2))	0.076538	-0.000117	-0.234190
	(0.10510)	(7.6E-05)	(0.18420)
	[0.72821]	[-1.54391]	[-1.27141]

APPENDIX E

VECM (Vector Error Correction Model) for CONS, and GDP According to Amount of Credit Used (Million TL)

Error Correction:	D(CONS)	D(GDP)
CointEq1	0.814059	3.754892
	(0.15785)	(0.36121)
	[5.15730]	[10.3952]
D(CONS(-1))	-0.755349	-2.040997
	(0.19628)	(0.44916)
	[-3.84838]	[-4.54402]
D(GDP(-1))	0.370256	1.243166
	(0.07576)	(0.17336)
	[4.88748]	[7.17101]
C	5978.682	8958.217
	(891.640)	(2040.43)
	[6.70526]	[4.39036]

APPENDIX F

VECM (Vector Error Correction Model) for CONS, and GDP According to Amount of Credit Used (Million TL)

Error Correction:	D(CONS)	D(GDP)
CointEq1	0.738072	3.252963
	(0.13511)	(0.32316)
	[5.46273]	[10.0661]
D(CONS(-1))	-0.718656	-1.786073
	(0.18787)	(0.44934)
	[-3.82536]	[-3.97487]
D(GDP(-1))	0.368392	1.179953
	(0.07268)	(0.17383)
	[5.06884]	[6.78791]
C	5812.522	8164.350
	(870.851)	(2082.91)
	[6.67453]	[3.91968]

APPENDIX G

VECM (Vector Error Correction Model) for CONS, IHOUSE, XRATE and GDP According to Stock of Credit (Million TL)

Error Correction:	D(CONS)	D(IHOUSE)	D(XRATE)	D(GDP)
CointEq1	1.118064	-0.000322	-4.87E-06	2.421497
	(0.22999)	(0.00014)	(5.0E-06)	(0.42777)
	[4.86135]	[-2.30627]	[-0.96563]	[5.66080]
D(CONS(-1))	-1.025265	0.000471	5.13E-06	-1.242663
	(0.33232)	(0.00020)	(7.3E-06)	(0.61810)
	[-3.08514]	[2.33207]	[0.70499]	[-2.01046]
D(CONS(-2))	-0.287488	0.000257	1.01E-05	-0.635044
	(0.25104)	(0.00015)	(5.5E-06)	(0.46692)
	[-1.14518]	[1.68536]	[1.83329]	[-1.36007]
D(IHOUSE(-1))	-317.1757	-0.014854	-0.003454	-45.49419
	(248.841)	(0.15128)	(0.00545)	(462.826)
	[-1.27461]	[-0.09819]	[-0.63348]	[-0.09830]
D(IHOUSE(-2))	-267.7021	0.167834	0.003759	305.8807
	(200.577)	(0.12194)	(0.00439)	(373.059)
	[-1.33466]	[1.37637]	[0.85533]	[0.81993]
D(XRATE(-1))	-15613.50	19.96712	0.060263	-5072.127
	(6718.48)	(4.08447)	(0.14719)	(12495.9)
	[-2.32396]	[4.88855]	[0.40942]	[-0.40590]
D(XRATE(-2))	-12620.63	0.876502	0.094000	-23406.08
	(8858.76)	(5.38564)	(0.19408)	(16476.7)
	[-1.42465]	[0.16275]	[0.48433]	[-1.42056]
D(GDP(-1))	0.533444	-0.000218	-1.55E-06	0.819715
	(0.12464)	(7.6E-05)	(2.7E-06)	(0.23182)
	[4.27990]	[-2.87480]	[-0.56810]	[3.53599]
D(GDP(-2))	0.125356	-0.000148	-3.34E-06	-0.241593
	(0.11536)	(7.0E-05)	(2.5E-06)	(0.21455)
	[1.08670]	[-2.11626]	[-1.31963]	[-1.12603]

APPENDIX H

VECM (Vector Error Correction Model) for CONS, IVEH, and GDP According to Stock of Credit (Million TL)

Error Correction:	D(CONS)	D(IVEH)	D(GDP)
CointEq1	1.031612	-0.000267	2.471210
	(0.22155)	(0.00016)	(0.38828)
	[4.65627]	[-1.67075]	[6.36454]
D(CONS(-1))	-0.885864	0.000430	-1.236108
	(0.30960)	(0.00022)	(0.54257)
	[-2.86136]	[1.92868]	[-2.27823]
D(CONS(-2))	-0.237382	0.000199	-0.760367
	(0.24977)	(0.00018)	(0.43773)
	[-0.95039]	[1.10579]	[-1.73706]
D(IVEH(-1))	-384.9395	-0.031014	-237.6731
	(178.064)	(0.12830)	(312.062)
	[-2.16180]	[-0.24172]	[-0.76162]
D(IVEH(-2))	-209.9707	0.270395	102.8701
	(179.443)	(0.12930)	(314.478)
	[-1.17012]	[2.09129]	[0.32711]
D(GDP(-1))	0.467382	-0.000162	0.822479
	(0.11675)	(8.4E-05)	(0.20461)
	[4.00321]	[-1.93053]	[4.01974]
D(GDP(-2))	0.076538	-0.000117	-0.234190
	(0.10510)	(7.6E-05)	(0.18420)
	[0.72821]	[-1.54391]	[-1.27141]
R-squared	0.477046	0.108290	0.848729
Adj. R-squared	0.402338	-0.019097	0.827119
Sum sq. resids	8.20E+08	425.8093	2.52E+09
S.E. equation	4419.025	3.184072	7744.446
F-statistic	6.385495	0.850089	39.27464
Log likelihood	-477.0413	-122.5012	-504.5331
Akaike AIC	19.75679	5.285763	20.87890
Schwarz SC	20.02705	5.556023	21.14916
Mean dependent	4985.235	-0.819796	7855.456
S.D. dependent	5716.085	3.154098	18625.88
Determinant resid covariance (dof adj.)		8.53E+15	
Determinant resid covariance		5.37E+15	
Log likelihood		-1095.982	
Akaike information criterion		45.75436	
Schwarz criterion		46.71957	

APPENDIX I

VECM (Vector Error Correction Model) for CONS, and GDP According to Stock of Credit (Million TL)

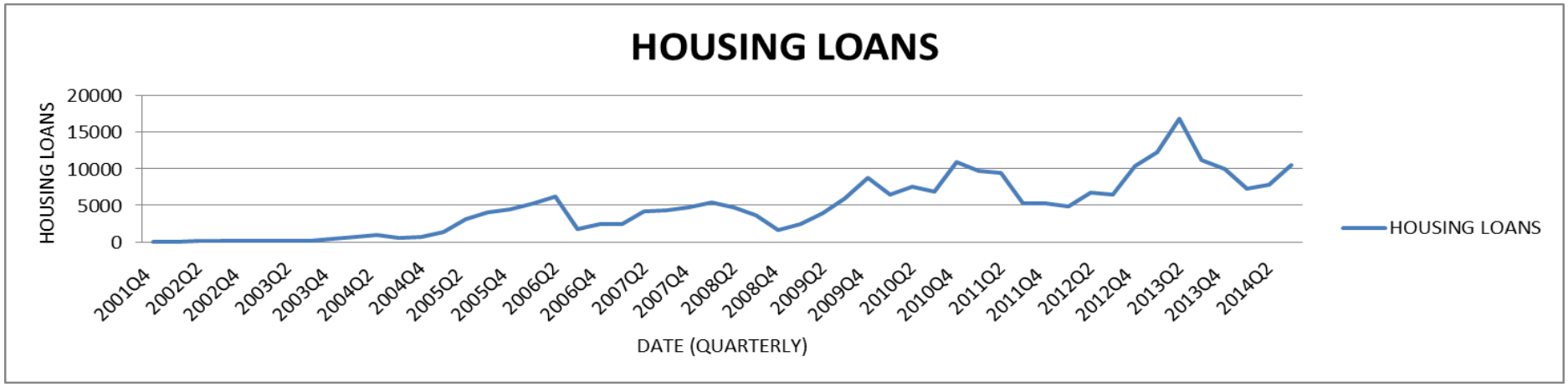
Error Correction:	D(CONS)	D(GDP)
CointEq1	0.943802	3.120808
	(0.13708)	(0.29255)
	[6.88527]	[10.6676]
D(CONS(-1))	-0.483804	-1.937070
	(0.19728)	(0.42103)
	[-2.45242]	[-4.60078]
D(GDP(-1))	0.392256	1.164423
	(0.08104)	(0.17296)
	[4.84010]	[6.73218]

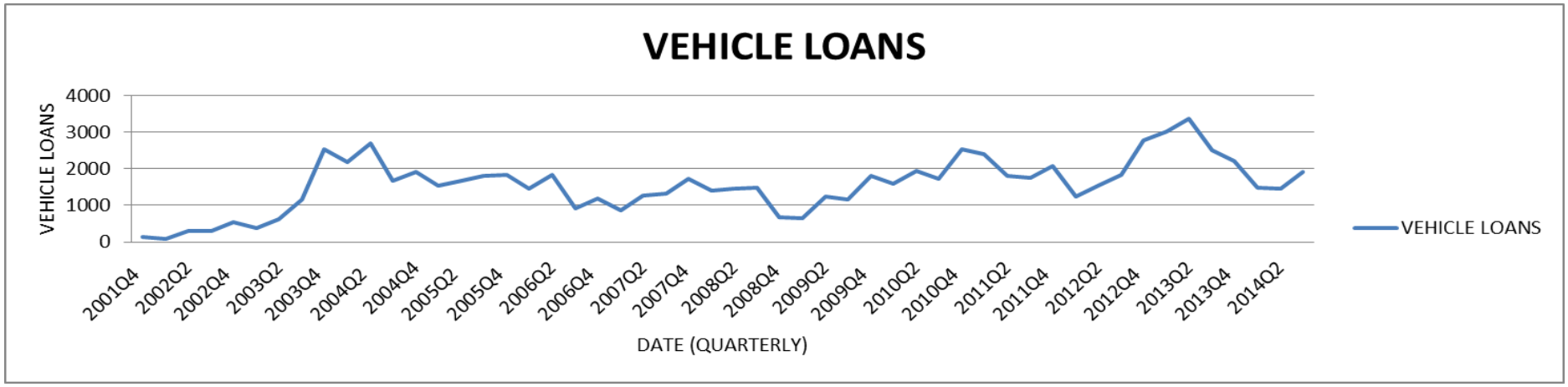
APPENDIX J

VECM (Vector Error Correction Model) for CONS, XRATE and GDP According to Stock of Credit (Million TL)

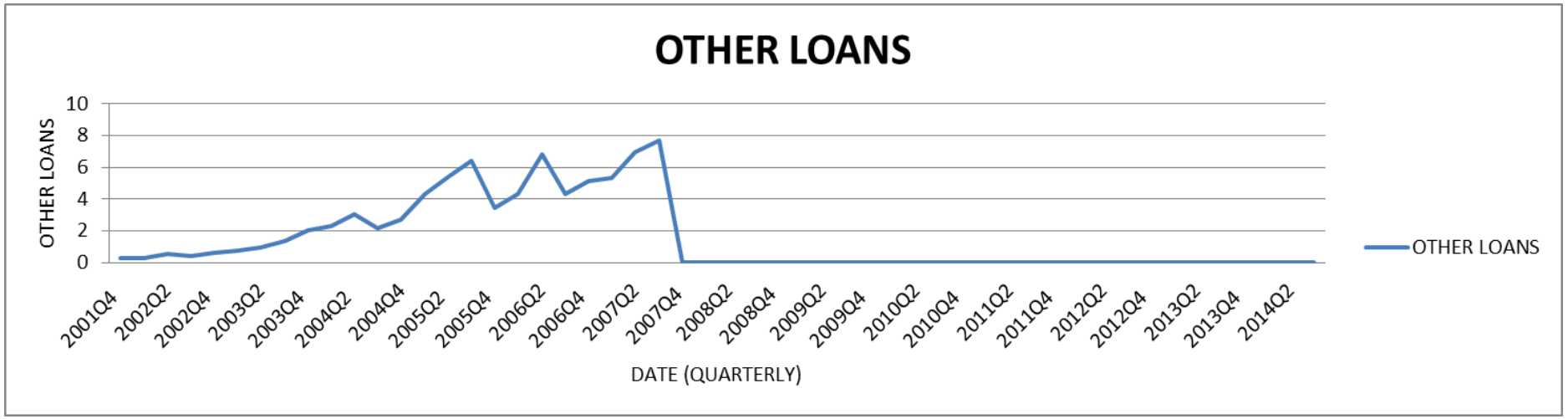
Error Correction:	D(CONS)	D(XRATE)	D(GDP)
CointEq1	0.789620	-5.98E-07	2.874731
	(0.32063)	(7.2E-06)	(0.58164)
	[2.46270]	[-0.08341]	[4.94242]
D(CONS(-1))	-0.839386	2.75E-07	-1.665680
	(0.32672)	(7.3E-06)	(0.59269)
	[-2.56912]	[0.03772]	[-2.81037]
D(CONS(-2))	-0.229171	7.19E-06	-0.791514
	(0.23141)	(5.2E-06)	(0.41980)
	[-0.99031]	[1.39038]	[-1.88546]
D(XRATE(-1))	-14795.95	0.028187	-19838.61
	(7165.00)	(0.16017)	(12997.7)
	[-2.06503]	[0.17598]	[-1.52631]
D(XRATE(-2))	-15679.62	-0.014668	-27606.52
	(6945.78)	(0.15527)	(12600.1)
	[-2.25743]	[-0.09447]	[-2.19098]
D(GDP(-1))	0.396801	5.34E-07	1.022940
	(0.14347)	(3.2E-06)	(0.26026)
	[2.76579]	[0.16661]	[3.93049]
D(GDP(-2))	0.029470	-1.44E-06	-0.120906
	(0.11735)	(2.6E-06)	(0.21288)
	[0.25114]	[-0.54800]	[-0.56796]
C	7566.304	-0.017516	13923.13
	(1206.21)	(0.02696)	(2188.13)
	[6.27280]	[-0.64960]	[6.36302]

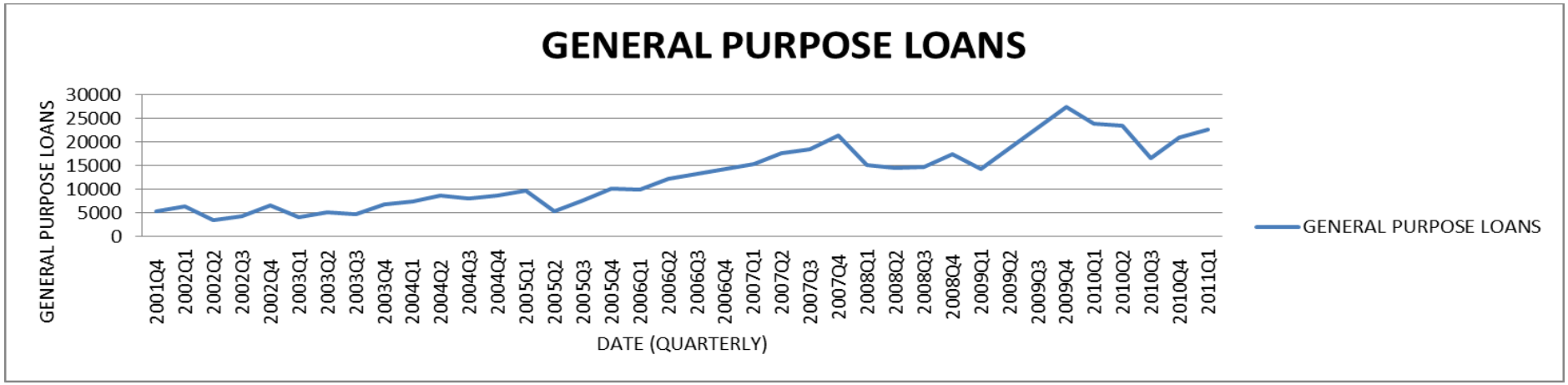
APPENDIX K
THE FIGURES OF AMOUNT OF CREDIT USED (MILLION TL)





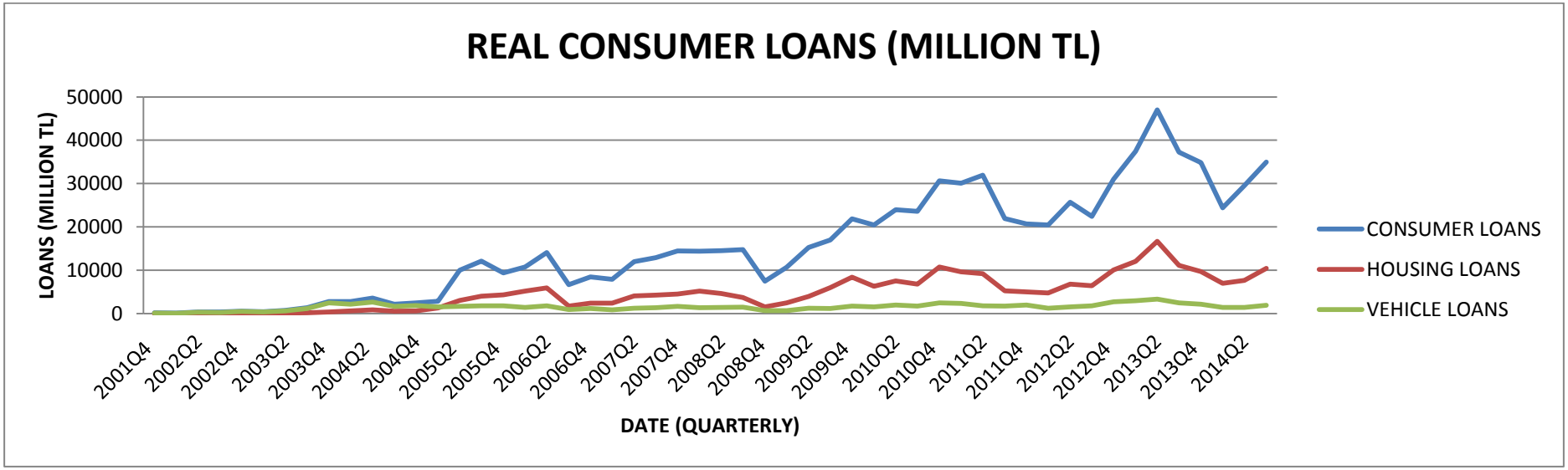
APPENDIX L
THE FIGURES OF AMOUNT OF CREDIT USED (MILLION TL)





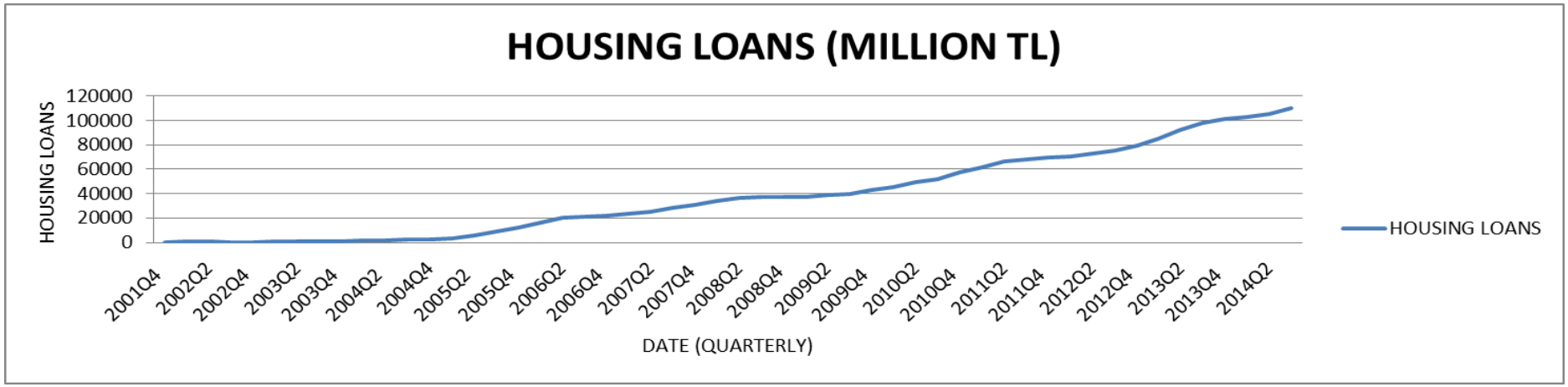
APPENDIX M

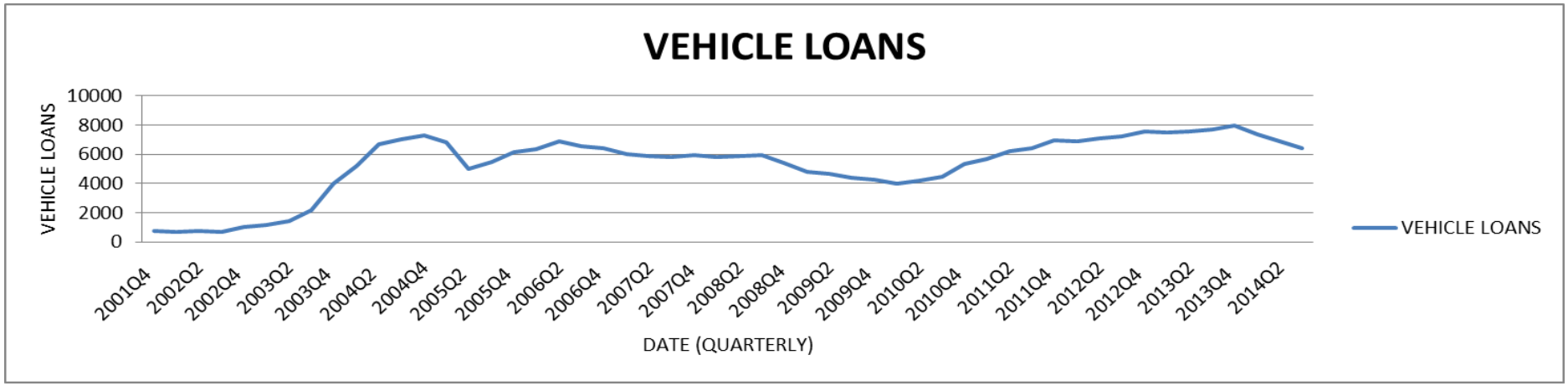
THE FIGURES OF AMOUNT OF CREDIT USED (MILLION TL)



APPENDIX N

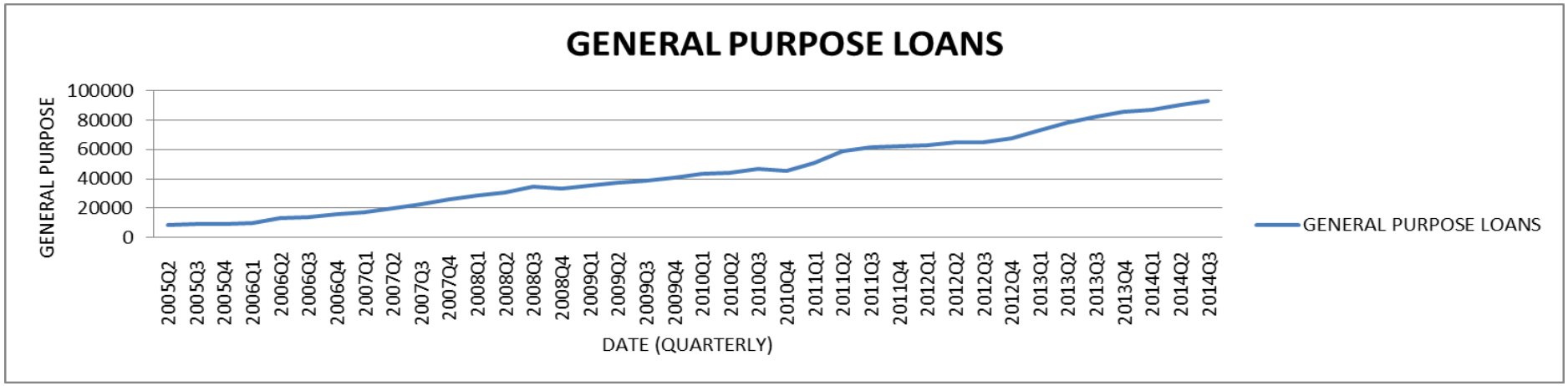
THE FIGURES OF STOCK OF CREDIT (MILLION TL)

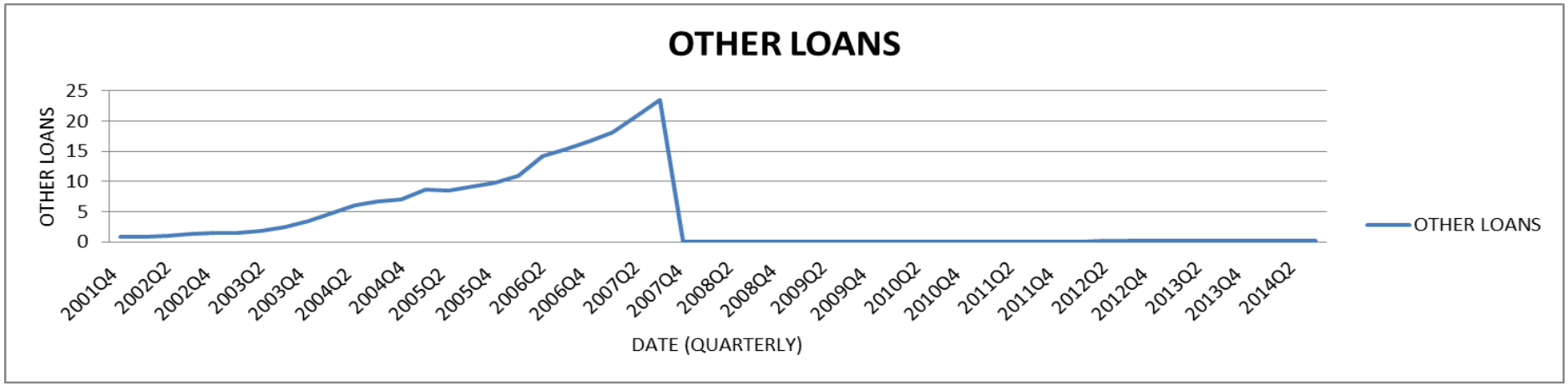




APPENDIX O

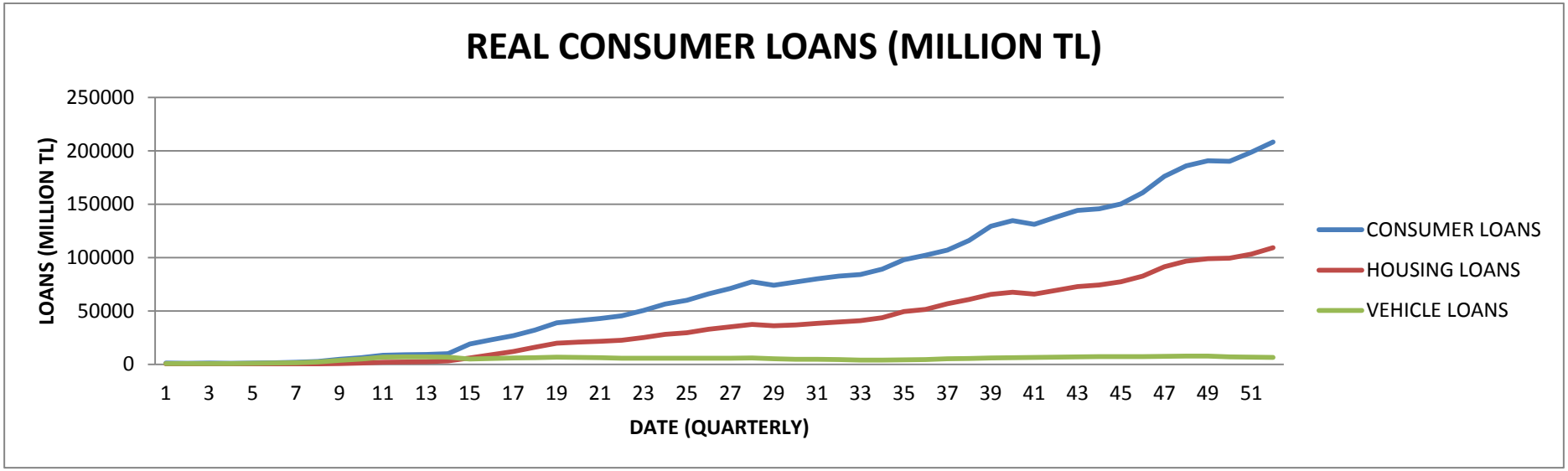
THE FIGURES OF STOCK OF CREDIT (MILLION TL)





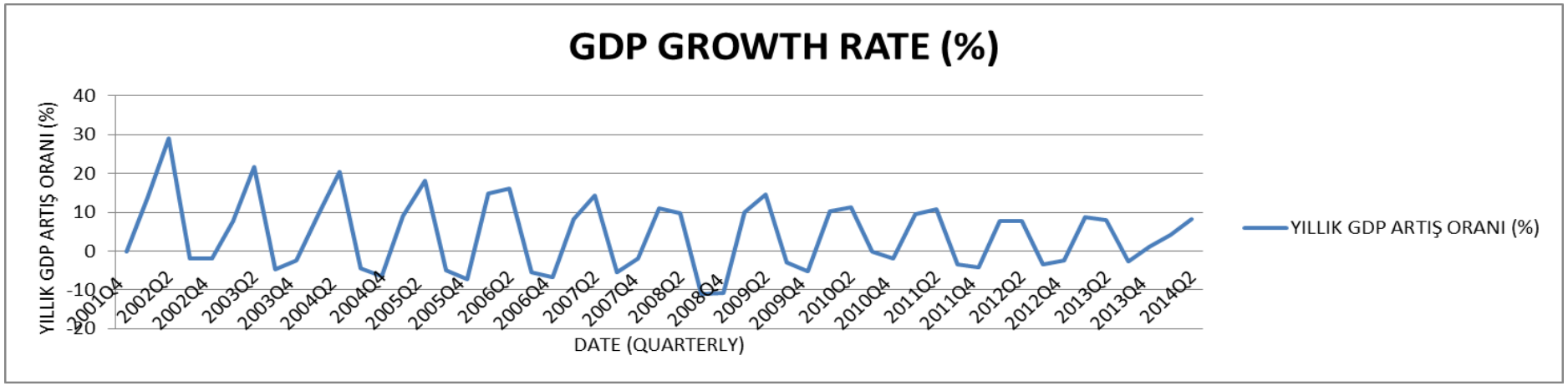
APPENDIX P

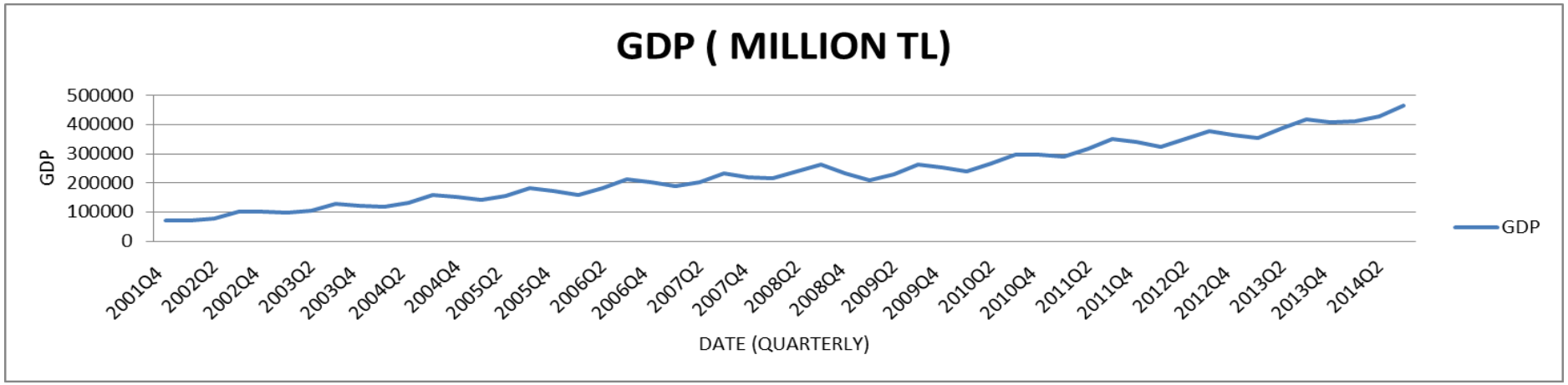
THE FIGURES OF STOCK OF CREDIT (MILLION TL)



APPENDIX R

THE FIGURES OF AMOUNT OF CREDIT USED (MILLION TL) AND STOCK OF CREDIT (MILLION TL)





APPENDIX S

THE FIGURES OF AMOUNT OF CREDIT USED (MILLION TL) AND STOCK OF CREDIT (MILLION TL)