MARMARA UNIVERSITY

INSTITUTE OF SOCIAL SCIENCE

DEPARTMENT OF BUSINESS ADMINISTRATION

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THE RELATIONSHIP BETWEEN CONSUMER CONFIDENCE INDICES AND ECONOMIC & FINANCIAL VARIABLES -AN ECONOMETRIC ANALYSIS WITH COUNTRY COMPARISONS

M.Sc. DISSERTATION

HiLAL AKTAŞ

İstanbul, 2011

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Master of Science Dissertation

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İstanbul, 2011

Marmara Üniversitesi
Sosyal Bilimler Enstitüsü Müdürlügü

Tez Onay Belgesi

İŞLETME Anabilim Dalı MUHASEBE FİNANSMAN(İNG) Bilim Dalı Yüksek Lisans öğrencisi HİLAL AKTAŞ nın THE RELATIONSHIP BETWEEN CONSUMER CONFIDENCE INDICES AND ECONOMIC & FINANCIAL VARIABLES: AN ECONOMETRIC ANALYSIS WITH COUNTRY COMPARISONS adlı tez çalışması ,Enstitümüz Yönetim Kurulunun 7/13/2011 tarih ve 2011-14/26 sayılı kararıyla oluşturulan jüri tarafından oybirliği/oyçokluğu ile Yüksek Lisans Tezi olarak kabul edilmiştir.

	Ögretim Üyesi Adi Soyadi	Imzasi
Tez Savunma Tarihi :	28.9.2011	
1) Tez Danismani :	~~DOÇ.~~ PROF. DR. ASLI YÜKSEL MERMOD	
2) Jüri Üyesi :	PROF. DR. SELAHATTİN GÜRİŞ	
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ABBREVIATIONS

CCI	: Consumer Confidence Index
ICS	: The University of Michigan Indexes of Consumer Sentiment
ICC	: Conference Board Indexes of Consumer Confidence
IFC	: International Finance Corporation
IFI	: International Financial Institute
IMF	: International Monetary Fund
IR	: International Rates
SMI	: Stock Market Index
TURKSTAT	:Turkish Statistical Institute
UR	: Unempoyment Rates
XR	: Exchange Rates

GENEL BİLGİLER

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Anahtar Kelimeler	: Tüketici Güven Endeksi, İşsizlik Oranı, Enflasyon Oranı, Döviz Kuru.

ÖZET

TÜKETİCİ GÜVEN İNDİSİ İLE EKONOMİK & FİNANSAL VERİLER ARASIDAKİ İLİŞKİ - ÜLKELERARASI KARŞILAŞTIRMALI EKONOMETRİK ANALİZ

Bu çalışmanın temel amacı finansal piyasaları etkileyen ekonomik göstergeler ve tüketici güven endeksi arasındaki ilişkiyi incelemektir. Bu çalışma ekonomik göstergeler ve tüketici güven endeksi arasındaki ilişkiyi incelemek için hem teorik hem de ampirik bir yaklaşım getirmektedir. Birçok araştırmacı ekonomik göstergeler ve tüketici güven endeksi arasındaki ilişki ile ilgilenmiştir. Bazı çalışmalarda ekonomik göstergeleri ve tüketici güven endeksi arasında anlamlı bir ilişki olduğunu savunulmuş bazılarında ise ekonomik değişkenler ve tüketici güven endeksi arasında güçlü bir korelasyon bulunmuştur. Kuşkusuz, enflasyon oranları, işsizlik oranları, döviz kurları gibi ekonomik göstergeler hanehalkı için tüketim ve yatırım kararlarında önemli faktörlerden biridir

Ekonomik göstergeler ve CCI performansları arasındaki ilişkinin yönü zamana, küresel ekonomik ortam, ülkenin ekonomi ve borsa yapısına bağlıdır. Bu çalışmada tüketici güven endeksi analiz edilmeden önce, tüketici güven endeksi etkileyen önemli ekonomik göstergeler açıklanmıştır. Öncelikle ekonomik değişkenler ile ilgili teorileri işlenecek ardından tüketici güven temel ortak özellikleri panel veri analizi kullanılarak analiz edilecektir. Analiz için ise ABD, İngiltere, Türkiye, Japonya, Kanada verileri seçilmiştir.

Son bölümde ise finansal piyasalar üzerinde etkisi olan ekonomik göstergeler ve tüketici güven performansları arasındaki ilişkiyi anlamak için panel veri analizi kullanılacaktır. Panel veri analizi ile elde edilen sonuçlar bize ekonomik göstergelerin tüketici güven endeksi performansı ile birlikte hareket ettiği sonucuna ulaştırmıştır. Statik model regresyon sonuçları Tüketici Güven Endeksi, İşsizlik Oranları ve Enflasyon Oranları arasında anlamlı bir ilişki olduğunu göstermektedir.

GENERAL KNOWLEDGE

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Keywords : Consumer Confidence Index, Unempoyment Rates, Inflation Rates, Exchange Rates.

ABSTRACT

THE RELATIONSHIP BETWEEN CONSUMER CONFIDENCE INDICES AND ECONOMIC, FINANCIAL VARIABLES – AN ECONOMETRIC ANALYSIS WITH COUNTRY COMPARISONS

The primary objective of this study is to examine the relationship between economic indicators that affect the financial markets and consumer confidence index. This study takes both theoretical and empirical approach to study the relationship between economic indicators and consumer confidence index. Many researchers are interested in the relationship between economic indicators and consumer confidence index. Some studies advocate that there is no significant correlation between economic indicators and consumer confidence index. On the other hand, some studies support the strong correlation between the economic variables and consumer confidence index. Undoubtedly, economic indicators as inflation rates, unemployment rates, and exchange rates are one of the most important factors that shape the investment decisions for the household consumption. The direction of the relationship between economic indicators and CCI performances depends on the time period, global economic environment, the structure of the economy and stock market of the country. Before analyzing the consumer confidence index, important economic indicators affecting the consumer confidence index, are described. Theories related with economic variables are elaborated. Basic common characteristics of consumer confidence are analyzed by using panel data analysis. The economic situation of analyzed consumer confidence is emphasized. The data of Italy, USA, UK, Turkey, Japan, and Canada are selected.

In the final section, panel data analysis is performed in order to show the relationship between economic indicators that have impact on financial and consumer confidence performances understand. The results obtained from performing panel data analysis enable us to know which economic indicators move together with the performance of the consumer confidence and there is a correlation among the Consumer Confidence Index, Unemployment Rates and Inflation Rates.

ACKNOWLEDGEMENTS

I would like to thank **Prof. Aslı Yüksel MERMOD** for her valuable insights, and patience about the research process for my masters degree. I owe particular gratitude to **Prof.Dr. Selahattin GÜRİŞ** for his invaluable contribution, criticism and comments and patience, lecturer **Dr. Turgut Un** for his help and **Melek ASTAR** for her kindly and endless support. Also, I am grateful to **Prof.Dr. Gürbüz GÖKÇEN** who gives me a chance to prepare this thesis. Last but not least, I certainly present my gratitude for my family for their endless support and patience that helped me overcome this tough period of study. Finally, I hope this study will provide some guidance to those who are interested in the topic.

İstanbul, 2011 **Hilal AKTAŞ**

INTRODUCTION

In my thesis, I tried to predict the relation between consumer confidence indices and financial/economic variables.

Consumers have a decisive relation with economy and financial system. Consumers can direct the world's economic life with their future expectations in terms of financial situations. Consumers decide on their risk or investment attitudes according to their own future expectations. Permanent income hypothesis and life cycle hypothesis say that consumers' decision depends on their future expectations about their incomes. If consumers are optimistic about future, they save less and consume more than when they are not optimistic about future. That's why it is commonly believed that consumer attitudes are significant variables for economic and financial movements. Moreover, an economy that is mostly consumer driven is dependent on consumer confidence for its efficacy. Therefore, there are many researches which are interested in the relation among consumer confidence indices and financial variables.

In this thesis, the focus is directed on econometric details such Static Panel Data Analysis is used to prove the assumptions in the model.

In our thesis, we combine insights from two strands of recent economic researches. First, we work analyzes of indexes of consumer confidence and their relationship to financial and economic variables.

Second, there is a rapidly growing econometric literature on extracting information from datasets with a large number of series.

This thesis uses the techniques of the Panel Data Analysis. The analysis is based on a monthly data set calculated from daily TUIK Consumer Confidence index values for Turkey and the movements in stock exchange market, foreign exchange rates, unemployment rates, and finally interest rates. Within this framework, the second section of the study covers a brief literature survey on consumer confidence.

This paper begins with an overview of how consumer confidence is measured and reported. It then evaluates what is known about the relationship between consumer attitudes and the real economy, and finally it contains an econometric analysis that covers the relation between economic-financial indicators and consumer confidence index.

The plan of the paper is as follows; Section **I** provides a brief summary as financial literature of consumer confidence. Section **II** summarizes the main affects of the consumer confidence Indies on econometric and financial variables. Section **III** summarizes the main econometric results and methods of the analysis that bring the main findings on the relationship between the CCI and financial variables. We introduce the methodology of our study and present the results of our empirical analysis and conclude with a short assessment of the results and future research.

The literature review of the economic / financial drivers and indicators define the parameters of the variables and how consumer confidence is affected by the variables. Consumer confidence is based on consumer psychology and an in-depth review of consumer psychology is presented to build an appreciation of consumer confidence. The economic and financial drivers chosen for this study encompass unemployment rate, inflation rate and exchange rates.

Section 1 tells about Consumer Confidence, whereas **Section 2** is focused on Financial and Economic Review. **Section 3** introduces the research process and methodology of this study. The mixed-methods study is defined and the parameters of the research are outlined. Firstly, we will make an introduction to the data analysis by organizing the study by defining research questions, statement of the study, purpose of the study, significance of the study etc. After that, we will introduce our econometric model and methodology and our findings. The research design is formulated; metric model is presented at the end of the chapter. The data considered for this study is provided in the Appendix section. Also we will present the results of the research and hypothesis testing. Lastly, we will engage a discussion on the conclusion part from the research.

1. FINANCIAL LITERATURE OF CONSUMER CONFIDENCE INDICES

Since the Michigan Survey Index has been prepared, there is an increasing interest on consumer behavior. The interest is categorized as behavioral or psychological economics and the center of the interest is human effects on the economic movement in an economy.[1] Also, the general availability of Consumer Confidence surveys allow firms to access and incorporate these prior signals of future aggregate consumer expenditures into their planning process and so, CCI can be effective in business dimension.

In this part we will make a review of CCI, structure a conceptual framework for economic and financial variables used in analysis and give information about the relation between CCI, Economy and Financial System.

1.1. Conceptual Framework of Consumer Confidence Indices

Although there are lots of researches about how we can predict economic activity, consumer feelings are not taken into account by researchers for a long time. Because they think that people make their choices by using rational methods and so everyone can reach the same results to make similar choices. But recently, especially after behavioral finance concept becoming popular, researchers started to wonder how human feelings can affect the economy.

Firstly, it is argued by Katona that changes in aggregate consumer expectations can anticipate changes in consumer expenditures. Moreover, the aggregate consumer expectation indexes are better predictors of consumer expenditure levels than are economic indicators, because it is proposed that following to the economic indicators are difficult for consumers as signals of economic wellbeing.[2]

[1] Richard T. Curtin, "**Indicators of Consumer Behavior:The University of Michigan Surveys of Consumers**", Oxford University Press, Vol.46, No.3,1982,pp.340.
[2] David R. Eppright,Nestor M. Arguea,William L. Huth, "**Aggregate Consumer Expectation Indexes as Indicators of Future Consumer Expenditures"**,Journal of Economic Psychology19,pp.2 ıuıppppppp.2-4.(1998) 215-235, pp.5.

Consumer Confidence Indices are becoming more popular in academic area as the data contains significant information about the future development of the economy and the financial market. Recently, academic researchers have started to make researches about the relationships between consumer sentiment and other variables such as GDP, Unemployment rate, Inflation rates or Exchange rates etc.

Now, we will investigate the topic under the main headlines of the study such as definition, measurement, importance, effects.

1.1.1. Definition of Consumer Confidence Indices

Consumer Sentiment is a kind of data on feelings of consumers about economy and how they can react to the new economic movements in the market. It can be a key for determining which instruments can be used for shaping the economy. It is believed that when consumers feel that confidence is high they can spend more, but when they feel that confidence is low, they can spend less and save money.[3]

George Katona developed the Index of Consumer Sentiment at the University of Michigan some fifty years ago and after fifty years and we still use the same index to make research.

There are three basic viewpoints about Consumer Confidence when we look at literature;[4]

Table 1 : Basic Viewpoint about Consumer Confidence

Viewpoints	**Focus on**	**Explanation**
First viewpoint; is the original one that belongs to **Katona**	**Consumer Spending**	Consumer sentiment is a key indicator as much as economic variables to predict discretionary spending.

[3] (Online),http://www.tradingeconomics.com/economics/consumer-confidence.aspx?symbol=usd, 01.02.2011.
[4] Adrian W. Throop, **Consumer Sentiment: Its Causes and Effects**, Economic Review: Federal Reserve Bank of San Francisco, number 1, 1992, pp.2-3., pp.5

Second viewpoint	**Income**	All current spending we do depends on our future income expectations like life cycle or permanent income say, and consumer confidence can provide us a better assumption about future income or economic conditions
Third viewpoint	**Risk and Uncertainty** such as jobless, financial distress	People tend to give up buying durable goods for a while and save liquid assets rather than illiquid, because they can compensate the short fall for the possible future income by liquid assets easily.

Finally, we can say that consumer confidence index is an indicator that provides us significant information about perceived present or future state of the economy. [5]

1.1.2. The Measure of Consumer Confidence

It is thought that consumers' asses the economy or condition of the world economy by using their own perceptions about their present situation. Consumer perception of the economy or future expectations can affect their attitude about risk or investment and thus can affect the whole economy.

[5] Rutger van Oest, Philip Hans Franses, **Measuring changes in consumer confidence**, Journal of Economic Psychology 29,2008, 255–275, pp.256.

It is hard to catch the confidence concept to understand and define precisely, that's why it is also hard to measure it. In practical world, analysts who want to measure it, use some elements in lieu of confidence to represent the confidence key factors. Researchers who want to measure consumer confidence use simple and rapid surveys. Questions are generally as multiple choices.[6] One of the best known surveys about measuring consumers' perception is the index of consumer sentiment or consumer confidence that based on what consumer says about their expectations for the future of the economy.[7]

There are two measures of consumer sentiment available. One of them is prepared and reported by University of Michigan Survey Research Center, other one of them is the Conference Board.

The two numbers expressing consumers' feelings about economy and their subsequent plans to make purchases are the Consumer Confidence Index (CCI), prepared by the Conference Board, and the Consumer Sentiment Index, prepared by the University of Michigan.

Both of them are based on a household survey and reported on a monthly basis. One of the oldest measure of consumer confidence is the monthly Index of Consumer Sentiment (ICS), reported by the Survey Research Center of the University of Michigan. Another national level index using slightly different methodology is put out monthly for the United States by the Conference Board. In other words, there are two renowned measures of consumer confidence available. One is reported by the University of Michigan Survey Research Center, other one is reported by the Conference Board. They are the most widely followed measures of U.S. consumer confidence.

In addition, we will examine in this study six different indexes of consumer confidence: the Surveys of Consumers taken at the University of Michigan (hereafter called the Michigan survey), and the Conference Board (USA) survey of consumer

[6] Teresa Santero, Niels Westerlund," **Confidence Indicators and Their Relationship to Changes in Economic Activity",** OECD Economics Department Working Papers No. 170, 1996, pp.6.
[7] Chengze Simon Fan,Phoebe Wong, "**Does Consumer Sentiment Forecast Household Spending? The Hong Kong Case**" Economic Letters 58, 1998, 77-84, pp.1-3.

attitudes, Turkish Statistical Institute & Central Bank of the Republic of Turkey CCI and Conference Board of Canada, Italian Consumer Confidence Index and Japan Consumer Confidence Index. But in this chapter, we will mention three most known surveys such as Michigan survey, Conference Board(USA), Conference Board of Canada and we will also examine TUIK CCI due to analyze Turkey Survey method.

1.1.2.1. Michigan University Consumer Confidence Index (CCI)

This section discusses the construction of the Michigan Index of Consumer Sentiment, which is published by the Survey Research Center at the University of Michigan.

The analysis of CCI provides researchers a strong relationship between consumer optimism and consumer spending. There are two ways to study on Consumer confidence. One of them ask the relation between consumer confidence and predicting future household spending, other one is relation between consumer confidence and economic indicators. At that point, consumer confidence can be assumed as a measure for consumer spending.[8] That's why, measurement of CCI data has a significant effect on researches.

Recently, researchers are more interested in how to make better forecast about economy and which techniques they should use to make a reliable analysis. They realized that they can add consumer sentiment variables to make broaden their analysis for future economic forecasts. Consumer Sentiment variable needs a survey results on some questions in general, related with current or future financial or economic situation expectation of households.[9]

[8] Asli Yuksel Mermod, Sadullah Çelik, Hurşit Güneş, "Frequency Domain Analysis of Consumer Confidence, Industrial Production and Retail Sales for Selected European Countries", 6th Colloquium on Modern Tools for Business Cycle Analysis: The Lessons from the Global Economic Crisis Luxembourg, September 26-29, 2010, pp.2-4.

[9] J. Vuchelen ," Consumer sentiment and macroeconomic forecasts", Journal of Economic Psychology 25 (2004) 493–506, pp.3.

Some of the financial markets and business are interested in both of the survey as Michigan index and Conference Board of USA, but most of the academic researchers prefer to use Michigan index because of its longer time series.

The Michigan Survey index is prepared and reported in 1940 and it was annual survey at that time but after 12 years later it was prepared as a quarterly survey in 1952 and from 1978 to present it is prepared as monthly basis.[10] and is published by the University of Michigan Survey Research Center. Every month the Center asks approximately 500 respondents to answer 21 questions. The questions are related with current and expected personal financial situation and overall economic conditions[11] but survey is based on the response to five questions;[12]

1) Personal financial situation now and a year ago,
2) Personal financial situation one year from now,
3) Overall financial condition of the business for the next twelve months,
4) Overall financial condition of the business for the next five years,
5) Current attitude toward buying major household items.

The Center calculates three aggregate indexes of consumer sentiment:[13]
Index of Consumer Sentiment (ICS)
Index of Consumer Expectations (ICE)
Index of Current Economic Conditions (ICC)

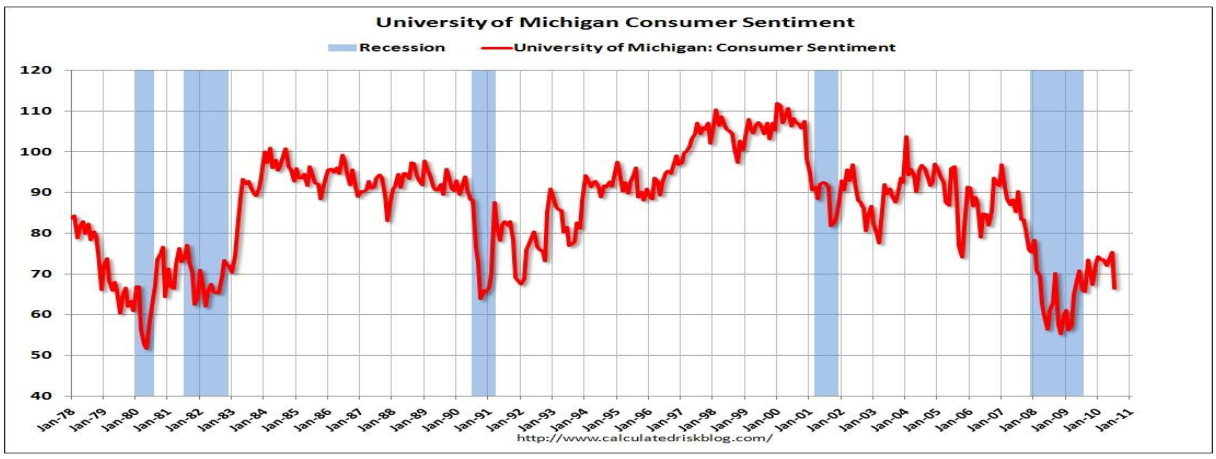
Thus, only five questions of 21 asked are actually used in the construction of indexes of consumer sentiment. The Index of Consumer Expectations is an official component of the U.S. Index of Leading Economic Indicators. Telephone survey is used to prepare a consumer sentiment index and it is prepared monthly with US households. There are five main questions. There is a fixed calculation method for Michigan Survey;

[10] Sydney C. Ludvigson," Consumer Confidence and Consumer Spending", Journal of Economic Perspectives, Volume 18, Number 2,Spring 2004,Pages 29–50, pp.30.
[11] Jirka Slacalek," Analysis of Indexes of Consumer Sentiment",(Online), http://www.slacalek.com/research/sla06sentiment/sla06sentiment.pdf, April 21,2011, pp.1-2.
[12] Ludvigson, ibid,pp.31-32.
[13] Slacalek, İbid , pp.1.

"The ICS is calculated from computing the "relative scores" for each of the five index questions: the percent giving favorable replies minus the percent giving unfavorable replies, plus 100. Each relative score is then rounded to the nearest whole number. All five relative scores are then summed and the sum is divided by 6.7558 (the 1966 base period) and the result is added 2 (a constant to correct for sample design changes from the 1950s). ICC is calculated by dividing the sum of the rounded "relative scores" of the questions one and five by 2.6424 and adding 2. ICE is calculated by dividing the sum of the rounded "relative scores" of the questions two, three, and four by 4.1134 and adding 2."[14]

Consumer sentiment is a significant indicator - and this is further evidence of an economic slowdown as we can see in the figure below.

Figure 1: Michigan Index of Consumer Attitudes



Source: (Online), http://www.calculatedriskblog.com/2010/07/reuters-university-of michigans.html, 20.03.2011

1.1.2.2. Conference Board CCI

According to the Conference Board, Consumer Confidence Index is a highly selected measure in USA economy based on consumer preferences. Mail survey method is used to conduct the index and the questions not only consist of future expectations about economy, but also they are related with perception of present conditions of the households.[15]

[14] (Online), http://www.sca.isr.umich.edu/, 21.04.2011,pp.2-4.
[15] (Online), http://www.conference-board.org/pdf_free/press/TechnicalPDF_4134_1298367128.pdf, 29.07.2011,pp.1-2.

Consumer Confidence Survey had been prepared monthly by Nielson Company on behalf of Conference Board. It is significant source for researchers, because it saves valuable information about consumer's preferences.[16]

Sample selection is done by using probability method. Each month, the provider such as Nielsen or CCS operational support selects the households randomly among the households data base. First of all, households are chosen by randomly, after that datas are satrified based on their own geography, population allocation is important at that point to provide accurate proportion. Thereafter, mailing is the significant level of survey. They are three answer options for each of the questions such as; positive, negative, or neutral. The indexes are then averaged together as follows: [17]

- Consumer Confidence Index: Average of all five indexes
- Present Situation Index: Average of indexes for questions 1 and 2
- Expectations Index: Average of indexes for questions 3, 4, and 5

The Conference Board released three headline figures namely, the Consumer Confidence Index (CCI), the Present Situation Index (PSI), and Expectations Index (EI). The reports are based on income, age, region, buying patterns and consumer attitudes. Each month, the CCI bases its data on a survey of 5,000 households. Consumer confidence about financial and economic situations is reported by The Conference Board. Consumer Confidence Index (CCI) measures consumers' attitude about current economic conditions. It focuses on a shorter period as six months, although Michigan Survey focuses on a year period.

The Conference Board survey was prepared in 1967 a bi-monthly, after 10 years later; from 1977 to present it is prepared monthly.[18] Around the middle of each month, the Board mails out to a sample of 5000 randomly selected lay individuals the following five questions:[19]

[16] (Online), http://www.conference-board.org/data/consumerconfidence.cfm, 17.04.2011
[17] (Online), http://www.conference-board.org/pdf_free/press/TechnicalPDF_4134_1298367128.pdf, 17.04.2011
[18] Dean Croushore , "Do Consumer Confidence Indexes Help Forecast Consumer Spending in Real Time?", Discussion Paper Series 1: Studies of the Economic Research Centre ,No 27/2004, pp.1-5.
[19] R. Batchelor, P. Dua , " Improving macro-economic forecasts The role of consumer confidence",International Journal of Forecasting 14, 71 –81, 1998, pp. 3-4.

Table 2 : Conference Board Survey Questions

Questions	***Answers***
How would you rate the present general business conditions in your area?	*Good* / *Normal* / *Bad*
Six months from now, do you think they will be;	*Better* / *Same* / *Worse*
What would you say about available jobs in your area right now?	*Plenty* / *Not so Many*/ *Hard to Get*
Six months from now, do you think there will be;	*More* / *Same* / *Fewer*
How would you guess your total family income to be six months from now?	*Higher* / *Same* / *Lower*

Source: R. Batchelor, P. Dua , " Improving macro-economic forecasts The role of consumer confidence", International Journal of Forecasting 14, 71 –81, 1998, pp. 3-4.

1.1.2.3. Turkish Statistical Institute & Central Bank of the Republic of Turkey CCI

In Turkey, there are two consumer confidence indices that are announced on a monthly basis. One is the CNBC-e CCI and the other one is the TCMB – TUİK (CBRT - TURKSTAT) CCI. This study employs the TCMB – TUİK (CBRT - TURKSTAT) CCI as it has data of monthly frequency available and official.

Turk Stat Consumer Tendency Survey is official survey that is used for conducting Turkey Consumer Confidence Index. It analyzes consumer preferences and expectations such as job opportunities, household's financial conditions or market structure and development etc. It aims not only what are household's expectations but also how to find how people behave about their expenditures. The survey uses the people who are above 15 years old and have a job. Assessment of the index based on the numbers between 0-200. If it is 100, it means it is neutral. If it is above 100 it means that households are optimistic about future economic situations as general. If it is below 100, it means that households are pessimistic about future

economic situations as general. This page includes a chart with historical data for Turkey's Consumer Confidence.[20]

Figure 2: Turkey Consumer Confidence (2005-2011)

Source: (Online), http://www.tradingeconomics.com/turkey/consumer-confidence, 11.02.2011.

It started to be evaluated on January 2005 and the value of index is determined as 100 at that time. There are approximately 15.000.000 Turkish households that are used as database to make the survey, but index is prepared with making 720 surveys. It is done between 27th day of the past month and 25th day of the current month. The distribution of the completed surveys meets four criteria:[21]

- Purchasing Power Parity (compared to the 6 monhts before)
- Purchasing Power Parity (next 6 months)
- General Economic Situation ((next 3 months)
- Job Opportunities ((next 6 months)

1.1.2.4. Consumer Confidence Index in Canada

The Conference Board's survey of Canadian households has been done since 1980 to prepare the index of Consumer Confidence in Canada. The Index focuses on

[20] (Online), http://www.tradingeconomics.com/turkey/consumer-confidence, 11.02.2011.
[21] (Online), http://www.tuik.gov.tr/MetaVeri.do?tb_id=21&ust_id=7, 03.01.2011.

consumer optimism or perception about current economy and the results are also used as a significant indicator for companies to determine short term sales. It consists of 4 questions as different from other consumer confidence surveys. The survey households are chosen randomly from household's database in Canadian.[22]

The Index of Consumer Confidence survey uses four behavioral questions. It is important that each respondent's age, sex, marital status, and geographic location of residence when data is collected. The questions are:

1. Considering everything, would you say that your family is better or worse off financially than six months ago?
2. Again, considering everything, do you think that your family will be better off, the same or worse off financially six months from now?
3. How do you feel the job situation and overall employment will be in this community six months from now?
4. Do you think that right now is a good or bad time for the average person to make a major outlay for items such as a home, car or other major item?

The index is the average of these values for all four questions, rebased so that 2002 = 100. The calculation of the index for each question is as below;[23]

percentage of positive responses
(Percentage of positive responses + percentage of negative response)

2.1.3. Importance of CCI

Most of the economic players in a country such as retailers, banks, producers or even government keep an eye on how people especially consumers feel about their own economy and these players use the given information to make decisions. A change less than %5 is not considered as important but a change more than %5 is thought that there is a significant movement in the direction of the economy. There

[22] (Online), http://www.conferenceboard.ca/topics/economics/consumer_confidence.aspx, 17.02.2011.
[23] Ibid.

are many players who are affected by the movement of consumer confidence such as;[24]

- If consumers feels themselves more confident in economy, manufacturers or producers expect that there will be more retail purchases particularly expensive ones,

- When confidence increase, builders can be confident to build more houses

- Banks can give more credit to the people, who want to buy a house or something else,

- Consumer confidence has a major role on consumer spending, thus government can follow tax increase by the way etc.

Economy and financial markets have many kind of key indicators to determine or forecast consumer spending, as the consumer spending is a key indicator for aggregate demand and GDP. In USA, which the consumption is a driven for economy, spending is highly percentage of GDP. That's why, measuring or preparing an index of consumer behavior or preferences is very important. There are other spending indicators, such as purchases of durable goods orders and overall auto sales; however, in terms of aggregating the data, these metrics are narrowly defined extensions of overall individual consumption.

Consumer Confidence Indices are significant indicators to comprehend the main economic movements and to predict what will go on in the economy and market by defining the input and output changes.[25]

Researches about CCI stand on two issues as shown below;[26]

-A change in consumer confidence is a cause of changes in consumption

-CCI reflects underlying changes in economic fundamentals that then cause consumption to change.

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[24] (Online), http://www.forexmetrics.com/forex-fundamental-analysis.html, 15.04.2011
[25] Santero, Westerlund, op.cit., pp.12.
[26] Lucia F. Dunn, Ida A. Mirzaie,"**Turns in Consumer Confidence: An Information Advantage Linked to Manufacturing",**pp.1.

1.2. LITERATURE REVIEW

Recent empirical studies that analyze the relationship between consumer confidence and consumption and/or income using U.S. data have produced somewhat varied results, although overall they confirm a connection. Most U.S. studies use The Study of Michigan Index of Consumer Sentiment (ICS), which has a longer history. Also many other researchers investigated the relation between Consumer Confidence Index (CCI) and economic activity. Some of the researchers have focused on the confidence-income link and other ones have focused on aggregate consumption link.

Now we will investigate some of the results of the researches about CCI and its relation between economic datas.

Some of the researchers have focused on the confidence-consumption link will be explained firstly in below, after that we will investigate researchers who have focused on the confidence-income link.

There are many researchers investigated the relation whether aggregate consumer expectation index is useful to anticipate the changes in future consumer sales activity or not. For example, **Hymans** (1970) found that changes in the ICS have just little effect in predicting automobile and nondurable goods sales. **Burch and Gordon** (1984) observed that the ICS has no important effect to the anticipation of changes in future consumer durable goods sales. **Kamakura and Gessner** (1986) indicated that the Conference Board Indexes of Consumer Confidence (ICC) and ICS are not significant and useful predictors to anticipate consumer expenditures. Generally, they observed that ICS has no significant effect to anticipate the future durable and nondurable goods as consumer expenditures. But some of them like **Hult** (1994) found that aggregate consumer expectation index led durable goods sales whereas nondurable goods sales led the aggregate consumer expectation indexes.[27]

Moreover, the predictive power of consumer confidence indexes has been researched in a number of previous studies, most recently in **Garner** (1991); **Throop** (1992); **Leeper** (1992); **Fuhrer** (1993); **Matsusaka and Sbordonne** (1995). They supported the usefulness of the aggregate consumer expectation indexes for

[27] Eppright, pp.3.

anticipating of changes in aggregate consumer expenditures. For example, the research of Garner indicated supportive results with the Index of Consumer Sentiment leading durable goods and new automobile sales.[28] **Matsusaka and Sbordonne** (1995) estimated that 13% to 26% of variations in gross domestic product can be attributed to consumer confidence. **Leeper** (1992) found out that one using CCI is an advantage to predict future income and consumption. Also, **Ivanova and Lahiri** (2001) found that CCI is better at predicting consumption in volatile economic/political periods with high uncertainty.[29]

In another research paper, **Carroll, Fuhrer, and Wilcox** (1994), called as CFW in this paper, explained that there are two possible interpretation to understand the relation between economic activity and CCI, in fact they tried to figure out the direction of the interaction;[30]

-CCI is an independent variable to predict consumer spending. For example;

Y (income) = CCI + etc.

That's why, if there is a change in CCI, it will affect any movement in economic activity.

-CCI is a fore shadow for overall outlook for an economy and therefore, it is just a reflection without being a casual economic force.

Eppright also used monthly data between 1978 and 1992 period in his study to find out that if there is any determinant of the future consumer spending. He used Vector Auto regression (VAR) model and found consumer expectations are more effective on consumer spending than economic variables.[31]

There are many researchers who are interested in CCI and its relation between economic or financial activity. One of them is **Carroll** (1994). He used long time period data from 1954-1994, and found out a connection between CCI and consumption growth. He figured out that 14 % of the variation in growth of real consumption in USA can be explained by using CCI.[32] **Souleles** (2002) finds that

[28] ibid., pp.4.
[29] Dunn, pp.344.
[30] Yash P. Mehra and ElliotW. Martin," Why Does Consumer Sentiment Predict Household Spending?",pp. 51,52.
[31] Eppright,,pp.2-7.
[32] Carroll, C. D., J. C. Fuhrer, D. W. Wilcox. ''Does Consumer Sentiment Forecast Household Spending? If So, Why?'' American Economic Review, 84(5), 1994,pp. 1397–1408.

CCI can be important to forecast future consumption, also he recognized that it is possible to get more clear results if the household conditions are asked in surveys rather than general economy.[33]

When we look at the literature, we can see that most of the researches on relation between consumer **confidence indices** and **stock market** have been made about developed countries.

Brown and Cliff worked on the relation between investor sentiment and index return in their research. They used monthly data between 1987 and 1998 and found that there is a relation between investor sentiment and index return. [34]

Jansen and Nahuis have analyzed (short-run) relationship between stock market developments and consumer confidence in 11 European countries over the years 1986-2001 in their research. They found out that stock returns and changes in sentiment are positively correlated for nine countries and the stock market-confidence relationship is driven by expectations about economy-wide conditions rather than personal finances.[35]

Otoo has studied the relation between consumer confidence index and stock return in his research. He used monthly data between 1980 and 1990 and found that rising in stock prices increase consumer confidence index.[36]

Bandopadhyaya and Jones made their research on U.S. stock market confidence index, and have found that they create an impact on confidence index stock market index.[37]

There were some problems associated with the previous researched. Some of them will be explained in this part.

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[33] Nicholas S. Souleles; ''**Expectations, Heterogeneous Forecast Errors, and Consumption:Micro Evidence from the Michigan Consumer Sentiment Surveys**.'' Journal of Money, Credit, and Banking, 36 (1), 2002, pp.39–71.
[34] G.W. Brown, M.T. Cliff, "**Investor Sentiment and the Near-Term Stock Market**", *Journal of Empirical Finance*, 2004, pp. 1-27.
[35] W.J. Jansen , N.J. Nahuis, "**The Stock Market and Consumer Confidence: European Evidence**", 2003, pp.1-9.
[36] M.W. Otoo, "**Consumer Sentiment and the Stock Market**", Board of Governors of the Federal Reserve System, 1999**.,pp.2-9.**
[37] A. Bandopadhyaya , A.L. Jones, "**Measuring Investor Sentiment in Equity Market**", Journal of Asset Management, 7, 2006, pp.208–215.

In this respect, our study is important for three reasons: First, it analyzes the determinants of consumer confidence in economies as Turkey, USA, Japan, UK, Italy, and Canada. Second, consumer confidence attains the role of an endogenous variable employing the analysis of co integration. Last, the availability (and use) of monthly data for consumer confidence presents a unique opportunity to assess the dynamic relationship between high frequency financial market variables and consumer confidence.

We propose that consumer confidence should have a relationship with Economic Variables such as Unemployment Rates, Inflation Rates and Exchange Rates.

1.3. BASIC and MODERN CONSUMPTION THEORIES

In this introductory theoretical part, we would like to start with a brief discussion of how consumption could react to adverse information regarding economic prospects**.**

If we consider the importance of consumption expenditure in determining macroeconomic policies in an economy, and its financial effects on financial markets, we can see that it is very important to understand the major factors behind developments in consumption variables. When we think about consumption function and items that determine consumption, there are 4 basic theories called as;

- Absolute Income Hypothesis,
- Relative Income Hypothesis,
- Permanent Income Hypothesis
- Life Cycle Hypothesis

In this view, we will mention about consumption function since 1930 to present. All models we will mention mainly used for explaining the relationship between consumption and income.

This part of my thesis contains assumptions and analysis of the methods of Absolute Income Hypothesis, Relative Income Hypothesis, Life Cycle Income

Hypothesis, and Permanent Income Hypothesis as "**income hypotheses of consumption**".

Also, the thesis consists of discussion of theoretical considerations of modern consumption theory as **Prospect Theory**. Especially Life Cycle Income Hypothesis, and Permanent Income Hypothesis and Prospect Theory take place in modern consumption theories.

1.3.1. Absolute Income Hypothesis

Keynes wrote "Employment, Interest and Money the General Theory" and gave his own opinion about macro economic theory in 1936 and it was a revolution for Economy. Accordingly, national income and employment are elements of level of effective demand. Effective demand contains consumption and investment. It was the first time mentioning consumption in Economy. That's why, firstly we will mention about Keynes Consumption Theory briefly, and after that we will keep on to mention other theories.

Absolute Income Hypothesis was proposed by **J. Maynard Keynes** (1936). Keynes argued that any change in income, results in a smaller change in consumption.

According to the Keynes, consumption is a function of current Income. He says that, people plan to their own consumption for long term and they want to achieve the maximum total benefit from consumption throughout whole their lives. Absolute Income Hypothesis assumes that savings are to meet the old age consumption.[38]

Many researchers used APC (Average Propensity to Consume) which is formulated as ratio of consumption expenditure to the level of disposable income but it cannot take into account to convert nominal values into their real counterpart in that changes in the price level.[39]

[38] Mehmet Demiral, "Türkiye Ekonomisi İçin Tüketim Fonksiyonu Tahmini (1980-2005)",(Online), http://iibfdergi.kmu.edu.tr/userfiles/file/aralik2007/PDF/19.pdf, 02.03.2011, pp.352.
[39] The Permanent Income Hypothesis of Consumption, (Online), http://www.digitaleconomist.org/pih_4020.html, 04.03.2011.

Also, in empirical studies, the APC is observed to be smaller for higher income groups relative to low income groups. However, when the research is done by using long term data, APC is observed to be constant independent of growth in aggregate measures of income. This failure led to the development of alternative theories of the consumption.

Finally, while all other researchers were focusing on consumption- interest rates relation as macroeconomics perspective, Keynes focused on consumption-income relation and changed the literature review way for all of us. He said that consumption is a function of current income and that's why government could interfere the economy by using public spending to provide full employment, but all of his research has short term data and therefore not sufficient for long term research. So, it leads new alternative theories like relative income hypothesis.[40]

1.3.2. Relative Income Hypothesis

Relative Income Hypothesis was proposed by **James S. Duesenberry(**1949). Duesenberry, in his work called "Income, Saving and the Theory of Consumer Behaviour", made us know relative income hypothesis. He says that consumption expenditure of the families depend on their relative income groups that families belong to. There are three main level incomes for families such as lower, middle and upper income groups. Each income group has a unique pattern of spending.[41]

The relative income hypothesis conceives consumption in relation to the income of other households and past income. In other words, Relative Income Hypothesis maintains that an individual's attitude to consumption and saving is guided largely by his/her income in relation to others. The expression "Keeping up with the Joneses" is most consistent with the Relative Income Hypothesis.

Relative income hypothesis, based on two basic assumptions: First, the being consumption behaviors of individuals depend on each other rather than independent. Second, consumers do not react in the same way when their income increases, or decreases. For example, when their income increases, their consumption will increase directly and immediately, but when their income decreases, their reaction to

[40] Recep Tarı,Şadan Çalışkan, "Kocaeli İlinde Tüketimin Gelir Hipotezlerinin Analizi", (Online), http://e-dergi.atauni.edu.tr/index.php/IIBD/article/viewFile/3639/3468, 05.02.2011,p.3.
[41] Demiral, pp.353.

their consumption attitudes will be slower. They try to keep their position. They continue to spend more and resist their react after a long time. During this time they use their savings.[42]

Finally, according to relative income hypothesis we can say that consumption is a part of macroeconomic theory.

1.3.3. Permanent Income Hypothesis

The well-documented predictive power of consumer confidence calls into question the validity of the permanent income hypothesis (PIH). Friedman's (1957) permanent income theory and Modigliani and Brumberg's (1954) life-cycle hypothesis can be called as the **beginning of modern consumption function** literature.

Permanent Income Hypothesis was proposed by **Milton Friedman**(1957). According to the permanent-income hypothesis, consumption depends on permanent income. He says that saving and spending depends on if the income is temporary or permanent. For example, if someone gets an extra income once, he/she will save it now, but if the income is permanent he/she will spend it for current. He argued that, on average, consumption is proportional to permanent income.[43]

1.3.4. Life-Cycle Hypothesis

Life-Cycle Hypothesis was proposed by **Franco Modigliani** (1963). The life-cycle model assumes that consumers use saving and borrowing to smooth consumption over their life cycle.

In permanent income theory, Friedman says that consumption is function of anticipated income in long term. Life cycle hypothesis suppoerts Friedman's explanation and says that current spending should reflect everything known about future income and interest rates over their lives.[44]

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[42] Wallace C. Peterson; Income, Employment, Economic Growth, Sixth Edition, W.W. Norton Company, New York 1987.,pp.1-2.
[43] Robert E.Hall, Stochastic Implications of the Life Cycle –Permanent Income Hypothesis:Theory and Evidence, pp.1-4.
[44] Throop,pp. 5.

Franco Modigliani gives importance for life-cycle hypothesis to the saving for retirement. According to life-cycle hypothesis, the principal determinants of consumption are income and wealth.

1.3.5. Prospect Theory and Downside Risk

Risk and uncertainty in economics benefited greatly from the prospect theory of Kahneman and Tversky (1979) which forever changed the way academicians study risk and its important role in deciding between alternatives. This theory has become a cornerstone for behavioral economics and how sometimes, economic models cannot account for human behavior.

Cognitive psychologists Daniel Kahneman and Amos Tversky are considered the fathers of behavioral economics/finance. Since their initial collaborations in the late 1960s, this duo has published about 200 works, most of which relate to psychological concepts with implications for behavioral finance. In 2002, Kahneman gained the Nobel Memorial Prize in Economic Sciences for his contributions to the study of rationality in economics.

Kahneman and Tversky and their behavioral economics stand in a long tradition of applying mathematics to human behavior. [45]

Sources of Traditional Finance like Modern Portfolio Analysis, Capital Assest Pricing Model and Efficient Market Hypothesis are based on Expected Utility Theory and they assume that people behave and make choice in a rational way. But recently, these models were not enough to explain what‘s going on with the financial market movements. Therefore, people and investors tried to understand psychological structure of decision making process.

Behavioral finance is the study of the influence of psychology on the behavior of financial practitioners and the subsequent effect on markets. Behavioral finance combines the twin disciplines of psychology and economics to explain why and how people make seemingly irrational or illogical decisions when they spend,

[45] Floris Heukelom, Kahneman and Tversky and the Origin of Behavioral Economics, TI 2007-003/1 Tinbergen Institute Discussion Paper , (Online),http://www.tinbergen.nl/discussionpapers/07003.pdf,pp.2-5.

invest, save, and borrow money. It is the study of how psychology affects financial decision making and financial markets.[46]

Specifically, behavioral finance has two building blocks: cognitive psychology and the limits to arbitrage. Cognitive refers to how people think. There is a huge psychology literature documenting that people make systematic errors in the way that they think: they are overconfident, they put too much weight on recent experience, etc. Limits to arbitrage refer to predicting in what circumstances arbitrage forces will be effective, and when they won't be.[47]

Much of the economic and financial theory is based on the notion that individuals act rationally and consider all available information in the decision-making process. A field known as "behavioral finance" has evolved to better understand and explain how emotions and cognitive errors influence investors and the decision-making process. Many researchers believe that the study of psychology and other social sciences can shed considerable light on the efficiency of financial markets as well as explain many stock market anomalies, market bubbles, and crashes.[48]

PART II

[46] (Online),http://introduction.behaviouralfinance.net/, 22.04.2011
[47] Jay R. Ritter, Behavioral Finance, Pacific-Basin Finance Journal Vol. 11, No. 4, (September 2003) pp. 429-437., http://bear.cba.ufl.edu/ritter/publ_papers/Behavioral%20Finance.pdf
[48] (Online),http://www.investorhome.com/psych.htm, March 11,2011.

CONSUMER CONFIDENCE INDICES AND ITS RELATION WITH ECONOMIC AND FINANCIAL SYSTEM

We can see many researches about how we can predict the economic movements. Consumer confidence indices are being accepted one of the significant factors of them. But then a new question reveal; "how does CCI work in this regard?" [49]

The last decades, we faced the fragility of the stock markets, collapse of several investment banks and major bailouts for troubled financial institutions. The extent of the economic downturn has been dubbed by some as the Great Recession, an obvious wordplay on the Great Depression. The severity of the recession has highlighted the ongoing need to understand the underlying causes of macroeconomic distress. As consumption behavior is a key aspect of macroeconomic modeling, it is crucial to comprehend how spending adapts to changing expectations.

Consumer sentiment has the ability to provide researchers with many turning points to test existing Finance and Economic theories. Consumer sentiment signals to general feeling, mood, belief or expectation of market performance. It is an emotional factor which may have a direct influence on consumers' decision making. Sentiments can be irrational. Classical finance theory shows that only systematic risk factors which can affect the entire market should be priced.

2.1. CCI and Economic Activity

Consumer confidence is one of the main factors of economic drivers. Every factor makes economy to find out a new equilibrium. Some of the factors unemployment rate, inflation, finances, trade balance, finances, construction industries, manufactures etc. But we will examine a few of them to research basically.

2.1.1. Unemployment

[49] Dunn, Mirzaie, pp.343.

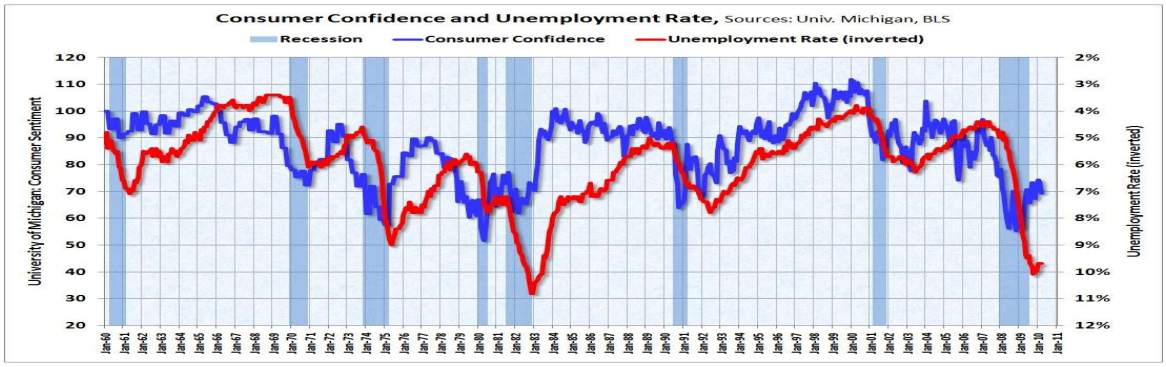
The sum of all people who are either employed or unemployed is the labor force. The unemployed rate is simply the percentage of the labor force that is officially unemployed.

Rising unemployment, or threat of being fired, raises precautionary savings and reduces current consumption. Conversely, fall in unemployment boost consumer confidence and increases spending. Changes in unemployment also affects real factor incomes earned by those in employment. If unemployment is falling quickly, growth of wages and earnings accelerates, boosting spending power of people in work. Rising unemployment in a recession causes slowdown in income growth and encourages consumers to rein back on spending plans.

Main effect of the employment conditions on expectations is of major interest because of the demonstrated impact of consumers' expectations regarding business conditions on large discretionary expenditures. The dampening of consumer optimism as a result of our high level of unemployment imposes some caution and restraint on consumer spending, which, in turn, reduces the demand for labor. [50]

We can see the table below that there is a strong correlation between consumer confidence and unemployment rate.

Graph 1 : Consumer Confidence and Unemployment Rate



Source: (Online), http://calculatedriskimages.blogspot.com/2010/04/consumer-confidence-and-unemployment.html, 24.04.2011

2.1.2. Domestic Demand

[50] Eva Mueller, The Impact of Unemployment on Consumer Confidence, Oxford University Press, American Association for Public Opinion Research,1966, (Online), http://www.jstor.org/stable/2747368 , 27.05.2011, pp.3-5.

First of all we should say that consumption accounts for 65% of aggregate demand. There are many factors that affect how much people are willing and able to spend. It is important to understand these factors because changes in consumer spending have an important effect on path of the economic cycle.

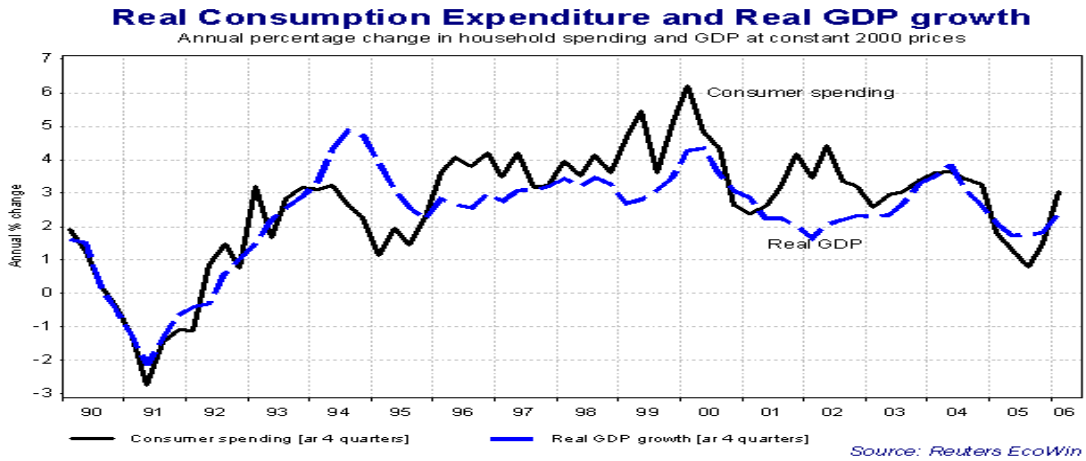
The relation between buyers' preferences and microeconomic markets can be extended to consumer confidence and the macroeconomic aggregate market. At that point, consumer confidence is the household sector's general perception of the economy. The importance of the consumer confidence as an aggregate demand determinant is fundamental to the business cycle. Household consumption expenditures are the largest of the four expenditure categories.

Consumer Confidence affects household's willingness to spend and we should ask that how does increased uncertainty about the future affect the consumer's choice between saving and immediate consumption?[51]

- If households feel their own more confident, they want to increase consumption expenditures,
- If households feel their own less confident, they want to decrease consumption expenditures.

Graph 2: Relation between Consumer Expenditure and GDP

[51] Consumer confidence, Aggregate Expenditures Determinant: (Online), http://www.amosweb.com/cgi-bin/awb_nav.pl?s=wpd&c=dsp&k=consumer+confidence,+aggregate+expenditures+determinant, May 12, 2011.



Source: (Online), http://tutor2u.net/economics/revision-notes/as-macro-consumer-spending-and-saving.html , 19.05.2011

2.1.3. Anticipating Future Consumer Expenditures

Various jobs such as businessman, forecasters and policymakers are sensitive about consumer sentiment because they believe that it contains useful information on future economic trend. It is important to the study of consumer psychology that aggregate consumer purchases and the underlying motivation for those purchases be examined. Consumer behavior and purchase intentions have been studied extensively.

Anticipating future consumer expenditure has critical influence on economic activity. There are some kind of index to anticipate future consumer buying activity such as The University of Michigan Indexes of Consumer Sentiment (ICS) and consumer expectations, also Conference Board Indexes of Consumer Confidence (ICC) and Consumer Expectations (CBE). Therefore, firms can use these datas for their own planning process.[52]

[52] Eppright, pp.2-4.

2.1.4. Tendency to Save or Consume

Saving represents a decision to postpone consumption by saving money out of disposable income. Why do people choose to save their incomes? There are many motivations for saving like **Precautionary saving, Building up potential spending power, Interest rates and saving, Saving and the life-cycle of consumers** etc.

Saving ratio for households is the level of people's savings as a percentage of their income. The decision of spending depends on how people feel about future of the economic conditions. People have very fragile decision making process about how the economy goes on, that's why consumer confidence volatile term for literature. Moreover, recent data indicates that people are more optimistic about their own financial position than the economy as a whole.[53]

2.1.5. Welfare Effect

Wealth means that the value of people's stock. Some of the stocks are from property, some of stocks are from stock market, some of stocks are savings in banks etc. We can say that there is a positive relation between wealth and consumer demand. Because, if house prices are rising strongly, consumer confidence grows and home-owners can also borrow some of the equity in their homes to finance major items of spending.[54] In this Study, we will take into account the wealth terms as increasing stock prices.

The mechanism is from stock market movements to CCI. Because, when stock prices increases, people feel that their value of stocks increases and consumers can feel that they are wealthier than before and it makes them feel more confident about economy. For example, a bullish stock market may make consumers feel better about the future of the economy, thus consumers can anticipate higher income and hence increase their spending. [55]

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[53] Consumer Spending and Saving, (Online), http://tutor2u.net/economics/revision-notes/as-macro-consumer-spending-and-saving.html, May 15,2011

[54] İbid.

[55] Lilia Karnizova, Hashmat Klan, The Stock Market and the Consumer Confdence Channel in Canada", (Online), http://www2.carleton.ca/economics/ccms/wp-content/ccms-files/cep10-08.pdf, August 29, 2011, pp.1-3.

2.1.6. Inflation Rate

It is commonly believed that when inflation rate decrease, consumption increase because of the rising purchase power of money and when inflation rate increase, it means that prices are rising, people cut their spending on non essential items such as home appliances or entertainment etc. It is because people can't feel themselves in confident about future economic conditions or current economic conditions and consumer confidence indices will decrease easily.

If we look at the tables below about USA inflation rates and consumer confidence indices movements we can see the relation between two variables;

Figure 3 : USA Inflation Rate (2008-2011)

Source: (Online) http://www.tradingeconomics.com/united-states/inflation-cpi, 05.09.2011

Figure 4: USA Consumer Confidence Indices (2008-2011)

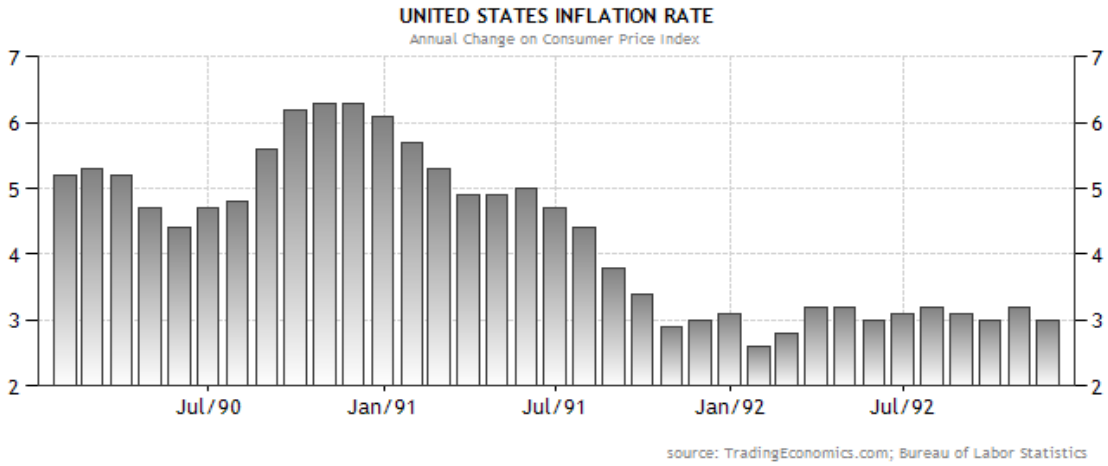
Source: (Online),http://www.tradingeconomics.com/united-states/consumer-confidence, 05.09.2011

2.4.1.7. Political and Economic Developments

Researchers generally examine the relation between economic variables and CCI, but we can easily understand that there is a strong correlation between the political trends and economic conditions. Since the world globalizes and all markets and economies are strongly related with each other, politics is a significant factor for economic and especially financial life. Politics can easily affect economy in a good or bad way and contagion effect can affect our financial or economic perceptions and decisions immediately.

Consumer confidence usually called with other economic variables such as inflation rate, unemployment rate, interest rate etc. But it doesn't mean that economic variables are only indicators for confidence. For example, when Iraq attacked to the Kuwait, although inflation rate in USA were decreasing in 1991, Consumer Confidence Index began to decrease sharply after a while. [56] You can see the related figures below;

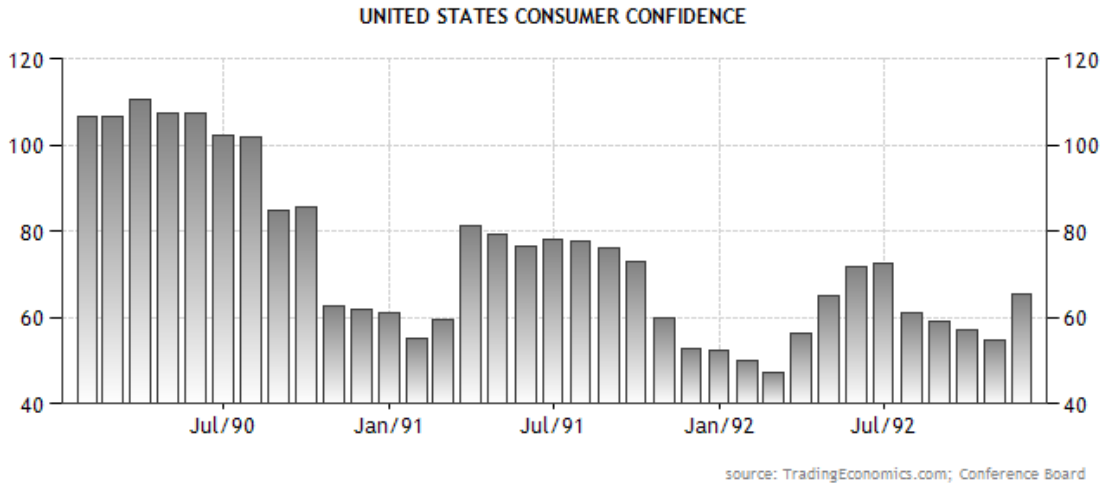
Figure 5: Inflation Rate in USA (1990-1992)



Source: (Online),http://www.tradingeconomics.com/united-states/inlation-rate, 19.01.2011

[56] Suzanna DeBoef, Paul M. Kellstedt," **The Political (and Economic) Origins of Consumer Confidence"**, pp.1.

Figure 6: Consumer Confidence Index in USA (1990-1992)



Source: (Online),http://www.tradingeconomics.com/united-states/consumer-confidence, 19.01.2011

Political changes can be effective on peoples' feeling, for example if people believe that president can manage the country and economy successfully, they feel that they are in confident as many ways. Political changes can be a driven for consumer sentiment, because of the economic conditions can easily be fluctuated according to the political movements.[57]

Finally, economic conditions are not totally independent from political decisions; sometimes even they can be determined by the political decisions. That's why; political decisions or movements can be crucial factor for consumer sentiment.

2.2. CCI and its effects on Financial Markets

Capital market is the heart of a market economy. Its main goal is the allocation of the economic sources accurately. [58] While the world globalizes and the world becomes a small village, financial boundaries did not move parallel to the geographic boundaries. Information is crucial factor that makes market efficient. While the researchers follow the markets by using more information day to day, gains and losses are not determined according to rational human behavior because of the anomalies.

[57] DeBoef, Kellstedt, pp.1-2.
[58] Eugene Fama,"Efficient Capital Markets: A Review of Theory and Empirical Work",pp.1.

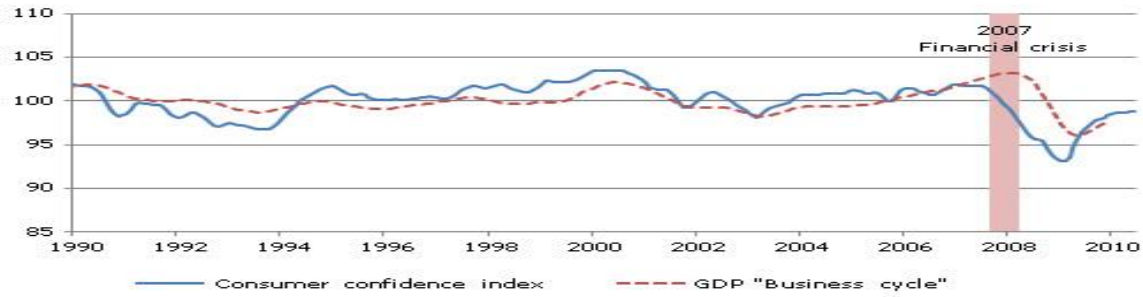
Human factor makes financial system more fragile than before as long as it is ignored to take into account human expectations or behaviors. Healthy future expectations develop the market in a good way and protect it from misleading indicators.

CCI is an original indicator to determine or conduct how people feel about current financial situation and future financial situation. In fact we can separate consumer confidence term into 3 parts. One of them is; how people feel currently (Index of Consumer Sentiment), other one is how they feel the general economy is going (Current Economic Conditions), and the third one is how they see things in six months' time.

When people feel a strong confidence on economy, it can accelerate the market by making investors more willing to purchase equities. The idea behind consumer confidence is that a happy consumer - one who *feels* that his or her standard of living is increasing - is more likely to spend more and make bigger purchases, like a new car or home.

We can easily see that financial market movements are very effective for consumer confidence index.

Graph 3: OECD Area Consumer Confidence Index



Source:(online),http://www.oecd.org/document/48/0,3746,en_2649_33715_45694064_1_1_1_1,00.html, 13.05.2011

2.2.1. The Relationship between Consumer Sentiment and Stock Prices

Financial movements can be followed by using stock prices datas for all of us. Risk perception of the economy can change from time to time and stock prices are leading indicator to comprehend what is going on the financial markets.[59]

There are many researchers who say that confidence indices can move together with stock returns. If stock prices decrease, consumer sentiment will decrease too, because of the fact that declining stock prices hurt the perception of common wealth among the people and thus hurt consumer confidence of households. Moreover, stock prices are used as a leading indicator of the economy and financial wealth among the households.[60]

There are many researches about the link between consumer confidence and stock prices. One of them is studied by Maria Ward Otto, and she says that an increase in stock market can reflect faster and higher that wealth effect and consumer confidence can increase. Other ones are Poterba and Samwick and they say that if stock market has a rising line, it makes the consumer sentiment become higher than before due to expected higher labor income. Better stock prices signal better economic conditions. [61]

2.2.2. The Relationship between Consumer Confidence and Gold Prices

Recently, developments of behavioral economy show us researchers should be paid attention with not only economic variables but also sociological and psychological factors. Thus, the results show us the effect of the trust should be searched firstly in the economical studies. At that point, the consumer confidence is often associated with the economic developments and used to estimate economic sizes.

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[59] Lawrence Leger, Vitor Leone, "Changes in the risk structure of stock returns: Consumer Confidence and the Dotcom Bubble", Review of Financial Economics 17 (2008),pp. 228–244
[60] Kenneth L. Fisher, Meir Statman, Consumer Confidence and Stock Returns, August 2002.,pp.3
[61] Otto, pp.4-5.

There are fewer researches about the relation between consumer confidence and gold prices in literature. Gold is used by households to protect money from time effect on money, at the same time it is easily affected by economic or political movements. Akçacı and Yöntem researched about it and wanted to find any relation between gold prices and CCI. They found that there is a long term relation between them , moreover they found that there is bi-directional casuality relationship between variables.[62]

[62] Taner Akçacı,Tuğçe Yöntem,"The Effect of Consumer Confidence on Gold Prices", (Online), http://ozal.congress.inonu.edu.tr/pdf/53.pdf, 21.04.2011,pp.1.

PART III
DATA, METHODOLOGY AND EMPRICAL RESULTS

3.1. RESEARCH FUNDEMENTALS

3.1.1. Background of the Study

Consumer Sentiment Index is based on the discipline of psychological economics. Main objective of measurement of the Consumer Sentiment Index is willingness to buy. Consumer confidence index has been prepared from 1967 to present but it has no enough study about consumers' perception of their own confidence in the marketplace. [63]

When we look at the background of the terms, we can go through the Industrial Revolution. Prior to the Revolution, there were no mass production and by this way living standards were stable as producers just produce as much as consumers can eat. With the Industrial Revolution, which also indicates mass production, economic growth rate was a new term for them and living standards were not stable anymore. While technology has proved its importance in our daily life, people were to make choices among the alternative economic units and this decision process leads to face new economic terms such as, opportunity cost of capital, aggregate consumption etc. The theories about consumption became popular, but main significance of the consumer decision reveal with behavioral economics or finance.

Until the behavioral approach became popular, individuals assumed to make choices rationally like a computer. It was thought that there is a linear relation between choices and economic variables. According to this relation, all research designed, started to have a relation with aggregate consumption, market structure etc.[64] Since behavioral economics were popular, researchers attempted to lead their researches accordingly to how people think. There is a wide range of psychology

[63] FRBSF Weekly Letter, "Consumer Sentiment and the Economic Downturn", March 1,1991, pp.1-2.
[64] Gur Huberman, "**Behavioral finance and markets",** Ch. 1, from Cognitive Processes and Economic Behavior, edited by Nicola Dimitri, Marcello Basili and Itzhak Gilboa, Routledge 2003 (available at http://www.routledge.com), pp.1.

literature documenting and explores that people can easily make systematic errors in the way that they think such as they can be overconfident; they can trust their own experiences too much, etc. Some of the economic agents are not totally rational, they can have misbeliefs and misbeliefs cause mispreferences, mispreferences cause some problems such as distortion.[65]

In traditional economic theory, households or consumers' behavior is rational and react according to income or wealth changes. But psychological economics say that consumers react the change in some way. That means, consumer expenditures can vary not only according to buying impulses, but also it can change according to willingness to buy. It was argued by Katona firstly and he used Michigan Survey Index for his research in 1950. Katone believed that consumer behavior is not so complicated, they can react more simply way than we can assume. It is possible that they don't use economic data as much as we think. Katona says that, if we think consumers act like a computer or use a mechanic thinking way, it can be true but it doesn't mean that it is always true. Consumer willingness can be a significant factor to determine consumption.[66]

Some of the researchers who study consumer confidence focused on the relation between consumer confidence and consumption. In their researches, they found out how much percent of the consumption can be affected by consumer confidence. Other ones focused on the relation between consumer confidence and income. Their researches showed how much percent of the income can be affected by consumer confidence.

One of the oldest measures for CCI is the Michigan Survey Index since 1954. Other one is monthly index for USA by Conference Board. In Turkey we use two different kinds of survey index; one of them is TUIK Consumer Confidence Index, other one is CNBCE Consumer Confidence Index. We will use TUIK Index in this study for Turkey data.

3.1.2. Statement of the Problem

[65] Ritter, pp.2.
[66] Throop, pp.2-3.

The purpose of this research is to establish whether the attachment of a financial adviser to Consumer Confidence has impact on financial decisions among the countries. If this attachment can be shown as an effective way of improving the quality of financial decisions, then this could be a significant research finding, given the large numbers of individuals in predicting these decisions.

3.1.3. Purpose of the Study

The aim of this study is to investigate the relationship between some economic and financial variables and consumer confidence indices. I also study how changes in consumer sentiment can foretell future stock returns for firms in different industries and of different sizes. Towards this end the relationship between the IMKB-100 index, Turk-Stat and Consumer Confidence Index that is calculated by Turkish Central Bank is analyzed using monthly data for Turkey and Conference Board of Canada for Canadian Data and OECD, IMF, Trade Economics data for the other country data. Both the consumer confidence Indices contains information about consumer spending and expectations that provide predictive powers.

We propose that there is a correlation between CCI and economic/financial variables. We researched for 6 countries because we want to know that different financial markets can response the crisis in a different behavioral reflex on past information and current economic outlook. The countries are Turkey, USA, UK, Canada, Japan and Italy. We choose these 6 countries because we aimed to research countries as emerging countries and developed countries. But, we could not find out appropriate CCI data as monthly for each country. That's why; we made our analysis by using these 6 countries which have all data as monthly from 2005 to 2010.

So, consumer confidence should be modeled with high frequency financial market variables such as, unemployment rates, inflation rates, exchange rates and the stock exchange index. We utilize this relationship for the countries and make an econometric research. This study attributes consumer confidence the role of an endogenous variable while assessing the dynamic relationship between the consumer confidence and the financial risk taking variables for the case of country classification as emerging and developed. We employ monthly data obtained from

Consumer Confidence index survey unemployment rates, inflation rates, exchange rates and the stock market index of the countries.

3.1.4. Research Questions and Objectives

Given the ambitious scope of this study, the following research questions emerge:

1. How does consumer confidence correlate with unemployment rates?
2. How does consumer confidence correlate with inflation rates?
3. How does consumer confidence correlate with stock market ?
4. How does consumer confidence correlate with variables in general?

The objectives of the research project are to:

1. Examine the factors responsible for the Consumer Confidence
2. Identify specific effects of the Consumer Confidence on Financial Markets
3. Establish the relationship between Consumer Confidence and Economy as general.

3.1.5. Significance of the Study

This study seeks to expand the basic knowledge regarding financial variables and consumer sentiment. Consumer sentiment has the ability to provide researchers with many avenues to test existing Finance and Economic theories. By studying how individuals display optimism and pessimism through consumer sentiment surveys, we will be able to contribute to the literature by shedding additional light on just how the Consumer sentiment is related with other financial and economic variables.

The significance of the study will be to:

1. Improve public understanding of the role of Consumer Confidence Indices in the achievement of effects on economy and financial markets among the countries.
2. Improve literature on relationship between Consumer Confidence and Financial/Economic variables.

3.1.6. Assumptions and Limitations

The psychology of the aggregate consumer is difficult to measure discretely. Because of cognition, the consumer makes decisions based on many kinds of factors. Placing a number on this psychology is difficult and burdens the study with incomplete assessment.

The financial markets continue to evolve rapidly given new technologies and more efficient dissemination of information, so too must the projection metrics need to assess it. Information has become instantly accessible and the influences on the consumer markedly spontaneous. New information technologies of various kinds have diminished compatibility issues and standardized key positions of externality effects. The stock market rewards firms that form alliances in the short term as these cater to the spontaneous purchasing of a consumer and risk taking decision of a investor that is effected consumer choices.

Furthermore, there is no thesis and there are just a few articles about consumer confidence indices in Turkey as literature review or econometric analysis. That's why; it is hard to prepare a general draft**.**

One problem with the available confidence indicators is the different measures (i.e. balance, balance +50 or balance +100, index, % positive answers) used for the presentation of the national indicators calculated for countries outside Europe. On the other hand monthly consumer confidence indicators are available for all OECD Member countries except Norway. Switzerland uses quarterly data for CCI and no surveys are conducted in India, Indonesia and just a few for Turkey[67]

Finally, the main difficulty for the thesis is to find monthly CCI data for the countries. CCI is a new process for the countries, thus it is very difficult to find monthly CCI data for many of the countries. For example, Switzerland has no monthly CCI data and Hong-Kong has same problem. Trying to find appropriate monthly data limited number of the countries for our research and by the way limited our research.

3.2. Data, Methodology and Empirical Results

The main objective of this study is to investigate the relation between Consumer Confidence Index (CCI) on Exchange rates, unemployment rates, and inflation rates in six countries such as Turkey, Canada, USA, UK, Japan and Italy over the 2005:1 – 2010:12 periods by utilizing several econometric techniques.

[67] (Online),http://www.oecd.org/dataoecd/7/17/35601565.pdf , 15.12.2010

Moreover, Turkish Lira (TRY) Exchange Rates are gathered from the Central Bank of Turkey and Exchange rates for all other five countries are gathered from the IMF, X-rates.com, Trading Economics. Information is updated regularly and only reflects the currency trading data. USA Dollar was used for our thesis such as Country Currency units per Dollar. We wanted to use Currency units per SDR, but we could not find the data for Turkey. Inflation rates are gathered from Inflationeu.com, unemployment rates are gathered from TCMB, Econ-Stat and OECD. CCI data are gathered from National Bureau, Turk-Stat, Conference Board of Canada, Trading Economics, and IMF. Stock Exchange Rates are gathered from ISE, Dow Jones Composite, FTSE London, and Trading Economics.

We have monthly data from 1:2005 to 12:2010 and thus we can have an opportunity to research the variables by testing models. This paper studies the main relation between consumer confidence and economic/financial variables by using data at a monthly frequency.

The main findings of the paper are as follows that consumer confidence correlates closely with joblessness, inflation rates and exchange rates. The growth of help wanted advertising as measured by the Conference Board has also been a strong contributor to consumer confidence.

3.2.1. The Data and the Variables used in the Estimations

This part provides information about the data and the hypothesis behind the choice of variables employed in the models that will be introduced in the following section. In this study we used 6 country and 4 variables include Turkey, USA, UK, Italy, Canada, and Japan. Variables are Consumer Confidence Index, Unemployment Rates, Inflation Rates, and Exchange Rates.

Consumer confidence is a leading indicator for the financial markets. Release provides information on consumer assessments of the present situation and expectations for the future. Improved expectations for the future indicate that consumers will be more willing to spend now or in coming months. The survey is conducted not only nationally as TURKEY but also by the 5 more countries as USA,

UK, JAPAN, CANADA and ITALY. The country indexes reflect the economic situations in each region.

Consumers do not usually have the necessary information to accurately assess income and job growth six months hence. Release provides information on planned spending, which does not necessarily turn into actual spending, although it is unlikely that increasing consumer confidence would be followed by a decline in spending. The Consumer Confidence survey is not useful for any type of forecasting.

Hypothesis testing was generated using E-views. It is developed by Quantitative Micro Software. It is used for general statistical analysis and econometric analyses, such as cross-section and panel data analysis and time series estimation and forecasting.

Data for this study was collected from various sources including the Inflation EU, Canada Stock Exchange, OECD, Trade Economics, TURKSTAT, ISE, and TCMB. Permission was requested and granted from the Conference Board Canada to access their data tables.

3.2.1.1. Consumer Confidence

Dependent variable of our model is Consumer Confidence Indices. The Consumer Confidence Index measures households' attitudes about current and future economic conditions. It is based on a monthly survey of 5,000 households conducted for The Conference Board in USA, Turk Stat in Turkey, etc. The Board develops a report based on the survey that gives details about consumer attitudes and buying intentions, with data available by age, income, and region.

Independent Variables of the study are Unemployment Rates, Inflation Rates and Exchange Rates.

3.2.1.2. Unemployment Rate

In our model we use different categories of financial and economic variables. The effects of these variables on Consumer Confidence Indices are the main interest of the study. Our hypothesis is when a country has lower unemployment rate or inflation rate, the consumer confidence indices will be better.

Unemployment Rate is independent variable in our study. The monthly unemployment rate is calculated based on a monthly sample survey conducted by the Bureau of Labor Statistics to measure the extent of unemployment in the U.S. The Bureau of Labor Statistics of the U.S. Department of Labor reports the unemployment rate on a monthly basis. Although unemployment rate is commonly used as a lagging indicator, it is nevertheless an important signal of overall economic health. This is because consumer spending is highly correlated with labor conditions. When unemployment rate is high, consumer spending will decrease, and that means sluggish economic growth and lesser corporate profits.

3.2.1.3. Inflation Rate

The monthly inflation rate is calculated based on monthly sample survey conducted by OECD data. The inflation rate is the increase in prices for a basket of goods and services expressed on a yearly basis. Perhaps the most common measure of the inflation rate is the monthly Consumer Price Index which is based on a survey of tens of thousands of items household commonly purchase.

A rising inflation rate prompts the Federal Reserve Board to push up interest rates to slow the economy; a declining inflation rate encourages the Fed to loosen monetary policy to stimulate demand. Bond prices move inversely with interest rates; thus a lower inflation rate increases bond prices, a higher rate reduces them. At that point, Consumer behavior is closely related with Inflation Rates.

3.2.1.4. Exchange Rate

Exchange Rates are calculated based on monthly sample survey conducted by TCMB and X-rates.com. An exchange rate index is a way of measuring the performance of a currency against a basket of other currencies. The exchange rate movements also depend on the relative importance of trade with the other currencies.

3.2.2. Models and Methodology

In this chapter we introduce the models we used for the analysis and present the results we reached by the use of the methodology explained in the previous. We will consider static panel data models where we firstly present our estimation and methodology, next we will mention the empirical results and finally we will present the robustness checks.

3.2.2.1. Models

We use panel data set in this research to exploit the available data efficiently and to analyze the effects of aid flows and disbursements in both time-series and cross-section context. In a panel data a set of individuals is repeatedly sampled at different points in time, by this way it provides multiple observations on each individual in the sample. Panel data sets for economic research have quite a lot of advantages over cross-sectional or time-series data sets. First, panel data sets let the researcher to utilize a larger number of data points when compared to cross-sectional or time-series data sets. This situation is likely to produce more reliable parameter estimates and results in higher degrees of freedom and reduced collinearity among explanatory variables, which in turn improves the efficiency of econometric estimates.

Second, panel data allows a researcher to analyze a number of important economic questions that cannot be addressed using cross-sectional or time-series data sets". In addition to being a method that allows constructing and testing more complicated behavioral models than purely cross-sectional or time series data, the use of panel data also provides a means of resolving or reducing the magnitude of a key econometric problem that often arises in empirical studies, namely, the often-heard assertion that the real reason one finds variables that are correlated with explanatory variables.

The basic panel data regression model is as;

$$yit = \alpha i + \beta xit + \varepsilon it \qquad i = 1, \ldots, N;\ t = 1, \ldots, T$$

There are two fundamental structures used to generalize this model, namely fixed effects and random effects methods. We will use Fixed effect Model for our study.

The fixed effects methodology asks for two conditions to be present for the use of fixed effects model and for the estimation of a panel data set. The first condition requires the characterization of the unobservable factors that differentiate cross section units as parametric shifts of the regression function so that a separate intercept is required for each individual in the sample. In our analysis this condition is likely to hold given the country-specific nature of the cross-section units under investigation. However, the second condition requires that a relatively large proportion of the population is represented in the sample.

While using this method we specify the model as follows:

$yit = a + bxit + uit\ i = 1, \ldots, N;\ t = 1, \ldots, T$

In this model we simply stack the observations of each country over time on top of one another. This is the standard pooled model where intercepts and slope coefficients are homogeneous across all N cross-sections and through all T time periods. Finally, in OLS methodology each observation is given equal weight. We estimated the Consumer Confidence Index and its components for 6 countries however due to the data availability and start with a fixed effects panel data model.

3.2.2.2. Methodology

In this section, we estimate the following equation with a panel data set of 6 countries where the data is averaged over 6 year intervals from 2005-2010 monthly basis;

$$\mathbf{CCI}\ i,t = \boldsymbol{\alpha} + \boldsymbol{\beta}UR\ i,t + \gamma IR\ i,t + \boldsymbol{\eta}XR\ i,t + \boldsymbol{\varepsilon}it$$

Where, CCI represents per capita Consumer Confidence Index, UR represents Unemployment Rates, XR represents Exchange Rates and IR represents Inflation Rates. The i subscript, therefore denotes the cross-section dimension whereas t

denotes the time-series dimension. In addition, α *is* an unobserved country specific effect.

In empirical analysis, the panel data set consisting of 6 countries were used for the 72 months observation.

Descriptive Statistics are used to describe the basic features of the data gathered from an experimental study in various way. Descriptive statistics about the data set are summarized below.

Table 3: Descriptive statistics

	CCI	UR	XR	IR
Mean	80.59887	7.121296	18.33719	2.886944
Median	88.43000	6.550000	1.212925	2.185000
Maximum	113.6000	16.10000	122.6890	12.06000
Minimum	4.000000	3.600000	0.482871	-2.500000
Std. Dev.	25.22836	2.438574	39.03188	2.996109
Skewness	-0.583500	1.010874	1.848233	1.171858
Kurtosis	1.999304	3.860016	4.514475	3.900083
Jarque-Bera	42.53903	86.88770	287.2349	113.4568
Probability	0.000000	0.000000	0.000000	0.000000
Sum	34818.71	3076.400	7921.668	1247.160
Sum Sq. Dev.	274318.6	2563.004	656623.1	3868.944
Observations	432	432	432	432

As shown in Table 3, which is included in the analysis period 2005-2010 the number of countries belonging to 6 and the number of observations for each variable 432. 2005-2010 period, the countries included in the sample average of the CCI is 80.6%, sample average of the unemployment rate is 7.1%, sample average of the Exchange rate is 18.33% and sample average of the Inflation Rate is 2.9%.

First of all be determined what kind of model for this data set to determine the **Chow test** (F test) was used.

H_0 : Pooled Model

H_1 : Fixed Effect model

Table 4: Redundant Fixed Effects Tests

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section and period fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	89.162725	(5,352)	0.0000
Cross-section Chi-square	353.481340	5	0.0000
Period F	5.969792	(71,352)	0.0000
Period Chi-square	341.424640	71	0.0000
Cross-Section/Period F	14.571836	(76,352)	0.0000
Cross-Section/Period Chi-square	614.386202	76	0.0000

All of the probability (prob.) values are less than 0.05, that's why we can reject the Ho hypothesis and accept the H1. It means that Chow test shows us that the appropriate model for our analysis is Fixed Effect Model.

According to the results of tests carried out, Chow test is made to make a choice between OLS and fixed effects. Pool of OLS is rejected and alternative null hypothesis that indicates the existence of a fixed effects model is accepted. Then, to determine whether to work with fixed or random effects, the Hausman specification test was made and fixed effects is accepted by the way the null hypothesis was rejected.

It can be seen from the test results that a fixed effects model was accepted by the H1 hypothesis. In this case, Hausman test was used to determine which of these resources will prefer between the fixed effects and random effects models.

The main problem facing researchers is that which model to accept to work with for their analysis; fixed effects model or random effects model? It largely depends on the assumption about possible correlation between a horizontal cross-section specific error component εi and explanatory variables X. If there is no correlation between them, random effects model is the model to use, but if there is no correlation between them, using fixed effects model will be appropriate.

In the following, we used analysis of panel data, **fixed effects** or **random effects** models, which are often preferred in the literature to be selected **Hausman** test, was used to determine. The **Hausman** test is used in applied economic work as a test of misspecification. It is most commonly thought of as a test of whether one or more explanatory variables in a regression model are endogenous.

Null hypothesis reveals that the random effects estimation of panel data model should be used. The results of the test are given below.

H_0 : There is Random Effect

H_1 : There is no Random Effect

Table 5: Correlated Random Effects – Haussmann Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	39.993197	3	0.0000

Correlated Random Effects - Hausman Test

Equation: Untitled

Test period random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	104.084696	3	0.0000

Probability (Prob.) value is less than 0.05, that's why we can reject the Ho hypothesis and accept the H1. As observed from the table, the results of the test accept the H1 hypothesis. In other words, the model will be estimated as fixed effect panel data model in the direction of the panel data model.

In the study, heteroscedasticity problem is also examined before the the estimated model. Heteroscedasticity is one of the key assumptions of regression is that the variance of the errors is constant across observations. If the errors have constant variance, the errors are called *homoscedastic*. Typically, residuals are plotted to assess this assumption. Standard estimation methods are inefficient when the errors are *heteroscedastic* or have non-constant variance.

First, the likelihood ratio (likelihood ratio, LR) test, which is the error variance fixed country-specific variance (homoskedasticiy) rejects the null hypothesis.

H0= There is heteroscedasticity

H1= There is no heteroscedasticity

	Value	df	Probability
F-statistic	26.71518	(3, 352)	0.0000
Likelihood ratio	88.61671	3	0.0000

Thus, Generalized Least Squares (GLS) will be sufficient to correct the changing the variance.

Probability (Prob.) value < 0.05, that's why we can;

Reject the Ho hypothesis

Accept the H1 hypothesis

It means that there is no heteroscedasticity problem for the model.

Table 6: Estimated model

Dependent Variable: CCI				
Method: Panel EGLS (Cross-section weights)				
Date: 08/15/11 Time: 01:37				
Sample: 2005M01 2010M12				
Periods included: 72				
Cross-sections included: 6				
Total panel (balanced) observations: 432				
Linear estimation after one-step weighting matrix				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
XR	0.252516	0.059109	4.272018	0.0000
UR	-4.751165	0.434679	-10.93029	0.0000
IR	-3.288801	0.425248	-7.733835	0.0000
C	119.2975	4.018207	29.68923	0.0000
Effects Specification				
Cross-section fixed (dummy variables)				
Weighted Statistics				
R-squared	0.905736	Mean dependent var	99.65408	
Adjusted R-squared	0.903953	S.D. dependent var	43.14620	
S.E. of regression	12.36621	Sum squared resid	64686.52	
F-statistic	508.0481	Durbin-Watson stat	0.202960	
Prob(F-statistic)	0.000000			
Unweighted Statistics				
R-squared	0.703441	Mean dependent var	80.59887	
Sum squared resid	81351.53	Durbin-Watson stat	0.159769	

As observed from the table, estimation results is meaningful as statistical because of the all of the probability values is lower than 0.05. The resulting R2 value (0.90) is quite high. In this case, XR (exchange rate) helps to increase for consumer confidence (CCI), but other variables helps to mitigate.

R2 shows us the overall effect of the dependent variables on the independent variable. In our descriptive analysis, we can see that 90 percent of

the change occurring in CCI can be explained by selected independent variables. It is a very high percent for a panel data analysis.

The panel data model that provides statistically meaningful results with the fixed effect variables in the model was estimated. While Exchange Rate and CCI has a relationship with the variable in the parallel direction, Unemployment Rate and Inflation Rate as explanatory variables and the CCI has a relationship with the variable in the opposite direction.

As a result; we can basically say that when Exchange Rate increased 1 unit it will cause 0,252516 units increasing in CCI, when Unemployment Rate decreased 1 unit it will cause 4,751165 units increasing in CCI and when Inflation Rate decreased 1 unit it will cause 3,288801units increasing in CCI. Also, we can see that Unemployment rate and Inflation rate has nonlinear relation with CCI but Exchange Rate has linear relation with CCI. Unemployment Rate and Inflation rate has an significance effect on CCI but Exchange Rate has no significance effect as much as other two variables.

Table 7: Estimation of the Pool Model

Dependent Variable: CCI				
Method: Panel EGLS (Cross-section weights)				
Date: 08/15/11 Time: 01:38				
Sample: 2005M01 2010M12				
Periods included: 72				
Cross-sections included: 6				
Total panel (balanced) observations: 432				
Linear estimation after one-step weighting matrix				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
XR	-0.476712	0.019200	-24.82864	0.0000
UR	-1.896823	0.372515	-5.091940	0.0000
IR	0.939243	0.272690	3.444363	0.0006
C	101.5155	2.811708	36.10457	0.0000
Weighted Statistics				
R-squared	0.705851	Mean dependent var		94.41274
Adjusted R-squared	0.703789	S.D. dependent var		40.38329
S.E. of regression	17.76610	Sum squared resid		135091.5
F-statistic	342.3482	Durbin-Watson stat		0.087653
Prob(F-statistic)	0.000000			
Unweighted Statistics				
R-squared	0.484753	Mean dependent var		80.59887
Sum squared resid	141341.9	Durbin-Watson stat		0.077617

We can see the pool Model and problems with its results. Probability (prob.) values are lower than 0.05 but R2 is lower than fixed model, also economics and financial explanation is not possible between results. For example, according to the pool model, when Inflation rate increased it makes people feel more confident about economic conditions or when exchange rate decreased consumer confidence will increase. Pool model, we can see that 70 percent of the change occurring in CCI can be explained by selected independent variables. It is not a high percentage for our analysis. Fixed model provide us a higher R2 value as 90 percentage, that's why, fixed effect model is more meaningful.

3.2.3. Discussion of the Findings

This study examined the correlation between consumer confidence and economic and financial variables. The data for this study were compiled from The Conference Board, which conducts consumer confidence surveys of 5,000, randomly selected, respondents every week. These respondents are asked several questions regarding their employment status, financial status, future expectations, and confidence in the economy. These scores are then disseminated to the public for correlational studies. A high consumer confidence score indicates that the aggregate consumer is optimistic about the economy thus driving aggregate demand for products and services.

A historical study was conducted over the last 6 years to determine whether there existed a correlation and if so, to what extent. This correlation is influenced by several factors including unemployment rate, inflation rate, Exchange rate and consumer confidence index.

This study ferreted out the influence and to what extent consumer confidence has a relationship with the variables. An economy that is weighted consumer-driven, must rely on consumer sentiment for guidance. With the rapid expansion of communications, consumer sentiment and financial and economic variables become more highly correlated.

3.2.4. Results

Consumer confidence has been measured by The Conference Board since 1967 and it provides an accurate indication of consumer behavior within the context of the prevailing economy. Each trend rise maintained its own equilibrium status induced by the different economic forces of exchange rates, unemployment, inflation rates, and consumer confidence.

Consumer confidence shares a direct relationship with Exchange rates, an inverse relationship with inflation and unemployment rates.

Inflation and CCI have an indirect relationship. It means that, inflation is the counter force to unemployment in the short run, all other things equal. Increasing inflation effects people's perception in a bad way. Households feel that prices of the products will be expensive than before. Thus, households tend to be feal in danger as

economic situation. Expectation for future income, because of decreasing purchasing power, becoming worse from day to day. Results of our analysis prove that when inflation rate increases, consumer confidence decreases.

Unemployment and CCI have an indirect relation too. It means that when people doubt that future income or future employment conditions can be worse, they consume less in current time and save more for the indefinite future. Consumers don't feel there are in confidence about future. Results of our analysis prove that when unemployment rate increases, consumer confidence decreases.

Exchange Rate and CCI have a direct relation. Results of our analysis prove that when exchange rate increases, consumer confidence increases too. But Exchange Rates have just very little effect on CCI. When we criticize the Exchange rate- CCI relation according to our analyzes we can see a problem. We can ask that when Exchange Rates increase, it means that value of money decreases, how can households can feel confident in their financial position? We could not separate the countries as emerging and developed because we could not find monthly data for all the countries we used in our analyzes , moreover we could not find Turkey exchange rate data as SDR and used Dollar as exchange rate, that's why panel data analysis could not give meaningful result for exchange rate-CCI relation.

Finally, we can say that CCI is a crucial player for new economic conditions. While the world globalizes and transforms a small village with fiber optic cables, individual decision making process is in the heart of the financial and economic movements for the whole of the world. Contagion effect presents us a real movement area to shape the supply and demand equilibrium, because of the Information Technology. That's why, the development processes both behavioral economics and Information Technology begins exactly since the same years. Households join the supply and demand process more than before and now households can affect the market just in a few minutes by using internet or any other sources to make expenditure or to define the price of something. At that point, it is significant to define the relation between consumer confidence term that affects the spending decision precisely, and economic indicators. Consumer confidence provide market players more reliable and logical movement area in the market not only households, but also investors.

CONCLUSION

This paper investigates the relationship between Consumer Confidence Indices, unemployment rate, inflation rate and exchange rate in six different countries such as Turkey, USA, Canada, Japan, Italy, UK. A considerable body of economic literature indicates the adverse economic impact of unemployment rate and inflation rate movements for the economies. But, there are not enough empirical studies on Turkey about consumer confidence indices. Especially there is no research thesis about it in Turkey. By making our research procedure, our results suggest that in the short run all the exchange rate, inflation rate and unemployment rate have an effect on the consumer confidence indices in all six countries. Future consumer expenditures estimation is the key point for successful economic and financial performance. There are many researches that have suggested that aggregate consumer attitude and expectation surveys should be useful in anticipating future aggregate expenditure levels. The University of Michigan Indexes of Consumer Sentiment (ICS) and Consumer Expectations (UME) and the Conference Board Indexes of Consumer Confidence (ICC) and Consumer Expectations (CBE) were developed in order to anticipate and predict future consumer buying activity.

Consumer confidence is the degree of optimism that consumers feel about the overall state of the economy and their personal financial situation. It is hard to catch the confidence concept to understand and define precisely, that's why it is also hard to measure it. One of the best known surveys about measuring consumers' expectations is the index of consumer sentiment or consumer confidence that based on what consumer says about their expectations for the future of the economy.

Last decades, forecasters wants to make use of better forecasting techniques. The Michigan index began as an annual survey in the late 1940s. Every month the Center asks approximately 500 respondents to answer 21 questions. The Index of Consumer Sentiment (ICS) is based on the monthly telephone survey of the US household data. The Index is aggregated from five questions. Another index is The Conference Board survey began in 1967 on a bi-monthly basis and has been conducted monthly since June 1977. The Board mails out to a sample of 5000

randomly selected lay individuals the following five questions. In Turkey, there are two consumer confidence indices that are announced on a monthly basis. One is the CNBC-e CCI and the other one is the TCMB – TUİK (CBRT - TURKSTAT) CCI. This study employs the TCMB – TUİK (CBRT - TURKSTAT) CCI as it has data of monhly frequency available and formal.

Consumer spending is the key to any market economy. Because, depending on the economy's sheer breadth, consumer spending can range anywhere a large percent of gross domestic product (GDP).

Researches about CCI stand on two issues as shown below;[68]

-A change in consumer confidence is a cause of changes in consumption

-CCI reflects underlying changes in economic fundamentals that then cause consumption to change.

In this respect, our study is important for three reasons: First, it analyzes the determinants of consumer confidence in economies as Turkey, USA, Japan, UK, Italy, and Canada. Second, consumer confidence attains the role of an endogenous variable employing the analysis of co integration. Last, the availability (and use) of monthly data for consumer confidence presents a unique opportunity to assess the dynamic relationship between high frequency financial market variables and consumer confidence.

In this study we used 6 country and 5 variables include Turkey, USA, UK, Italy, Canada, Japan. Variables are Consumer Confidence Index, Unemployment Rates, Inflation Rates, Exchange Rates, Stock Market Index.

Data for this study was collected from various sources including the Inflation EU, Canada Stock Exchange, OECD, Trade Economics, TURKSTAT, ISE, TCMB and the . Permission was requested and granted from the Conference Board Canada to access their data tables.

Our Model is;

$$\mathbf{CCI}_{i,t} = \beta i + \beta UR_{i,t} + \beta IR_{i,t} + \beta XR_{i,t} + \varepsilon it$$

[68] Dunn, Mirzaie, pp.1.

Where, CCI represents per capita Consumer Confidence Index, UR represents Unemployment Rates and IR represents Inflation Rates and XR represents Exchange Rates. The *i* subscript, therefore denotes the cross-section dimension whereas *t* denotes the time-series dimension. In addition, βi is an unobserved country specific effect.

In empirical analysis, the panel data set consisting of 6 countries were used for the 72 months observation.

This study examined the correlation between consumer confidence and economic and financial variables and we find out that there is a correlation between CCI and economic variables as Unemployment Rates and Inflation Rates and financial variable as Exchange Rates.

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Appendix 1: Datas for Turkey

Country	Term	CCI	IR	UR	XR
TURKEY	2005.01	105,43	9,24	11,50	1,35690
TURKEY	2005.02	105,21	8,69	11,70	1,31390
TURKEY	2005.03	102,05	7,94	10,90	1,31120
TURKEY	2005.04	100,36	8,18	10,00	1,36004
TURKEY	2005.05	100,34	8,70	9,20	1,37163
TURKEY	2005.06	99,05	8,95	9,10	1,36122
TURKEY	2005.07	99,23	7,82	9,10	1,33915
TURKEY	2005.08	97,46	7,91	9,40	1,34308
TURKEY	2005.09	95,51	7,99	9,70	1,34064
TURKEY	2005.10	98,06	7,52	10,10	1,35771
TURKEY	2005.11	99,53	7,61	10,60	1,36021
TURKEY	2005.12	99,45	7,72	11,20	1,35220
TURKEY	2006.01	101,74	7,93	11,80	1,33490
TURKEY	2006.02	101,10	8,15	11,90	1,32654
TURKEY	2006.03	101,70	8,16	10,90	1,33513
TURKEY	2006.04	102,27	8,83	9,90	1,33745
TURKEY	2006.05	100,10	9,86	8,80	1,42066
TURKEY	2006.06	92,20	10,12	8,80	1,60054
TURKEY	2006.07	88,60	11,69	8,80	1,55827
TURKEY	2006.08	91,40	10,26	9,10	1,46937
TURKEY	2006.09	91,36	10,55	9,10	1,47925
TURKEY	2006.10	91,56	9,98	9,30	1,48337
TURKEY	2006.11	93,35	9,86	9,60	1,45802
TURKEY	2006.12	92,00	9,65	10,50	1,43227
TURKEY	2007.01	91,80	9,93	11,00	1,42666
TURKEY	2007.02	92,70	10,16	11,40	1,39694
TURKEY	2007.03	92,40	10,86	10,40	1,40963
TURKEY	2007.04	93,70	10,72	9,80	1,36182
TURKEY	2007.05	95,00	9,23	8,90	1,33764
TURKEY	2007.06	94,20	8,60	8,80	1,32155
TURKEY	2007.07	95,50	6,90	8,80	1,28213
TURKEY	2007.08	98,25	7,39	9,20	1,31459
TURKEY	2007.09	97,11	7,12	9,30	1,26739
TURKEY	2007.10	96,20	7,70	10,60	1,20237
TURKEY	2007.11	92,52	8,40	10,10	1,19046
TURKEY	2007.12	93,89	8,39	10,60	1,17863
TURKEY	2008.01	92,12	8,17	11,60	1,17609
TURKEY	2008.02	87,60	9,10	11,90	1,19391
TURKEY	2008.03	81,96	9,15	11,30	1,23833
TURKEY	2008.04	76,24	9,66	9,90	1,30297

TURKEY	2008.05	75,36	10,74	9,20	1,25301
TURKEY	2008.06	75,01	10,61	9,40	1,23374
TURKEY	2008.07	77,01	12,06	9,90	1,21579
TURKEY	2008.08	79,85	11,77	10,20	1,17833
TURKEY	2008.09	80,72	11,13	10,70	1,23349
TURKEY	2008.10	74,24	11,99	11,20	1,48025
TURKEY	2008.11	68,88	10,80	12,60	1,59505
TURKEY	2008.12	69,90	10,10	14,00	1,52180
TURKEY	2009.01	71,56	9,50	15,50	1,60483
TURKEY	2009.02	74,01	7,73	16,10	1,66473
TURKEY	2009.03	74,77	7,89	15,80	1,71297
TURKEY	2009.04	80,75	6,13	14,90	1,61332
TURKEY	2009.05	83,28	5,24	13,60	1,55693
TURKEY	2009.06	85,27	5,73	13,00	1,54648
TURKEY	2009.07	82,37	5,39	12,80	1,51767
TURKEY	2009.08	81,30	5,33	13,40	1,48840
TURKEY	2009.09	81,92	5,27	13,40	1,49105
TURKEY	2009.10	80,46	5,08	13,00	1,47300
TURKEY	2009.11	78,38	5,53	13,10	1,49266
TURKEY	2009.12	78,79	6,53	13,50	1,50651
TURKEY	2010.01	79,24	8,19	14,50	1,47350
TURKEY	2010.02	81,85	10,13	14,40	1,51678
TURKEY	2010.03	84,74	9,56	13,70	1,53457
TURKEY	2010.04	85,80	10,19	12,00	1,49063
TURKEY	2010.05	86,58	9,10	11,00	1,54917
TURKEY	2010.06	88,04	8,37	10,50	1,57884
TURKEY	2010.07	87,48	7,58	10,60	1,54059
TURKEY	2010.08	87,35	8,33	11,40	1,51100
TURKEY	2010.09	90,41	9,20	11,30	1,49485
TURKEY	2010.10	89,02	8,60	11,20	1,42479
TURKEY	2010.11	91,34	7,29	11,00	1,44404
TURKEY	2010.12	90,99	6,40	11,40	1,52494

Appendix 2: Datas for USA

Country	Term	CCI	IR	UR	XR
USA	2005.01	103,40	2,97	5,20	1,31227
USA	2005.02	104,00	3,01	5,40	1,30131
USA	2005.03	102,40	3,15	5,20	1,31850
USA	2005.04	97,70	3,51	5,10	1,29425
USA	2005.05	103,10	2,80	5,10	1,26910
USA	2005.06	102,20	2,53	5,00	1,21553
USA	2005.07	105,80	3,17	5,00	1,20366
USA	2005.08	103,20	3,64	4,90	1,22952
USA	2005.09	105,60	4,69	5,10	1,22496
USA	2005.10	85,20	4,35	5,00	1,20268
USA	2005.11	98,30	3,46	5,00	1,17870
USA	2005.12	103,80	3,42	4,90	1,18608
USA	2006.01	106,80	3,98	5,70	1,21032
USA	2006.02	102,70	3,60	5,60	1,19393
USA	2006.03	107,50	3,36	5,80	1,20284
USA	2006.04	109,80	3,55	5,60	1,22733
USA	2006.05	104,70	4,17	5,60	1,27662
USA	2006.06	105,70	4,32	5,60	1,26606
USA	2006.07	107,00	4,15	5,50	1,26806
USA	2006.08	100,20	3,82	5,40	1,28105
USA	2006.09	105,90	2,06	5,40	1,27274
USA	2006.10	105,10	1,31	5,40	1,26164
USA	2006.11	105,30	1,97	5,40	1,26164
USA	2006.12	110,00	2,54	5,40	1,32013
USA	2007.01	110,20	2,08	5,80	1,29990
USA	2007.02	111,20	2,42	5,90	1,30830
USA	2007.03	108,20	2,78	5,90	1,32459
USA	2007.04	106,30	2,57	6,00	1,35129
USA	2007.05	108,50	2,69	6,10	1,35150
USA	2007.06	105,30	2,69	6,30	1,34206
USA	2007.07	111,90	2,36	6,20	1,37214
USA	2007.08	105,60	1,97	6,10	1,37214
USA	2007.09	99,50	2,75	6,10	1,39099
USA	2007.10	95,20	3,54	6,00	1,42330
USA	2007.11	87,80	4,31	5,80	1,46817
USA	2007.12	90,60	4,08	5,70	1,45517
USA	2008.01	87,90	4,30	5,00	1,47178
USA	2008.02	76,40	4,00	4,80	1,47554
USA	2008.03	65,90	4,00	5,10	1,55202
USA	2008.04	62,30	3,90	5,00	1,57536
USA	2008.05	57,20	4,20	5,40	1,55646

USA	2008.06	50,40	5,00	5,50	1,55617
USA	2008.07	51,90	5,60	5,80	1,57564
USA	2008.08	58,50	5,40	6,10	1,49561
USA	2008.09	61,40	4,90	6,20	1,49561
USA	2008.10	38,80	3,70	6,60	1,32833
USA	2008.11	44,90	1,10	6,90	1,27492
USA	2008.12	38,60	0,10	7,40	1,27492
USA	2009.01	4,00	0,00	7,70	1,32387
USA	2009.02	25,30	0,20	8,20	1,27847
USA	2009.03	26,90	-0,40	8,60	1,30498
USA	2009.04	40,80	-0,70	8,90	1,30498
USA	2009.05	54,80	-1,30	9,40	1,30498
USA	2009.06	49,30	-1,40	9,50	1,40165
USA	2009.07	47,40	-2,10	9,40	1,40877
USA	2009.08	54,50	-1,50	9,70	1,42680
USA	2009.09	53,40	-1,30	9,80	1,45616
USA	2009.10	48,70	-0,20	10,10	1,48164
USA	2009.11	50,60	1,80	10,00	1,49145
USA	2009.12	53,60	2,70	10,00	1,46136
USA	2010.01	56,50	2,60	9,70	1,42721
USA	2010.02	46,40	2,10	9,70	1,36857
USA	2010.03	52,30	2,30	9,70	1,35685
USA	2010.04	57,70	2,20	9,90	1,34095
USA	2010.05	62,70	2,00	9,70	1,25653
USA	2010.06	54,30	1,10	9,50	1,22085
USA	2010.07	51,00	1,20	9,50	1,27700
USA	2010.08	53,20	1,10	9,60	1,29029
USA	2010.09	48,60	1,10	9,60	1,30670
USA	2010.10	49,90	1,20	9,60	1,38978
USA	2010.11	54,30	1,10	9,80	1,36610
USA	2010.12	53,30	1,50	9,40	1,32201

Appendix 3: Datas for UK

Country	Term	CCI	IR	UR	XR
UK	2005.01	110,33	1,65	4,70	0,53201
UK	2005.02	109,95	1,65	4,70	0,52997
UK	2005.03	109,67	1,95	4,60	0,52519
UK	2005.04	106,91	1,94	4,50	0,52736
UK	2005.05	101,63	1,94	4,60	0,53941
UK	2005.06	95,84	1,94	4,70	0,55015
UK	2005.07	101,60	2,35	4,80	0,57090
UK	2005.08	101,15	2,34	4,90	0,55731
UK	2005.09	92,59	2,44	5,10	0,55318
UK	2005.10	85,68	2,34	5,10	0,56664
UK	2005.11	100,31	2,13	5,00	0,57650
UK	2005.12	100,54	1,92	4,90	0,57306
UK	2006.01	100,65	1,93	5,10	0,56648
UK	2006.02	94,84	2,13	5,20	0,57216
UK	2006.03	95,85	1,81	5,30	0,57335
UK	2006.04	92,66	2,01	5,20	0,56569
UK	2006.05	92,74	2,20	5,30	0,53532
UK	2006.06	95,24	2,50	5,50	0,54249
UK	2006.07	94,70	2,40	5,70	0,54222
UK	2006.08	84,37	2,49	5,70	0,52798
UK	2006.09	86,29	2,39	5,60	0,53056
UK	2006.10	91,38	2,48	5,40	0,53301
UK	2006.11	88,56	2,68	5,30	0,52291
UK	2006.12	86,40	2,97	5,30	0,50954
UK	2007.01	86,15	2,69	5,50	0,51058
UK	2007.02	85,51	2,78	5,60	0,51060
UK	2007.03	88,91	3,07	5,40	0,51353
UK	2007.04	89,72	2,75	5,20	0,50307
UK	2007.05	97,98	2,54	5,20	0,50399
UK	2007.06	96,04	2,44	5,30	0,50336
UK	2007.07	97,63	1,85	5,50	0,49152
UK	2007.08	94,77	1,75	5,50	0,49730
UK	2007.09	96,06	1,75	5,40	0,49547
UK	2007.10	91,51	2,03	5,20	0,48904
UK	2007.11	85,80	2,13	4,90	0,48287
UK	2007.12	88,14	2,12	4,90	0,49657
UK	2008.01	83,04	2,23	5,00	0,50761
UK	2008.02	78,43	2,51	5,20	0,50908
UK	2008.03	78,21	2,40	5,20	0,49966
UK	2008.04	70,23	2,97	5,00	0,50466

UK	2008.05	68,18	3,34	5,20	0,50874
UK	2008.06	64,27	3,81	5,50	0,50855
UK	2008.07	54,63	4,41	5,90	0,50289
UK	2008.08	53,48	4,78	6,10	0,53029
UK	2008.09	50,94	5,25	6,10	0,55627
UK	2008.10	55,42	4,46	6,20	0,59334
UK	2008.11	52,26	4,07	6,10	0,65252
UK	2008.12	51,00	3,11	6,20	0,67375
UK	2009.01	43,43	3,03	6,70	0,69395
UK	2009.02	45,23	3,10	7,20	0,69378
UK	2009.03	45,53	2,91	7,30	0,70506
UK	2009.04	54,15	2,32	7,40	0,68022
UK	2009.05	58,41	2,22	7,60	0,64933
UK	2009.06	63,89	1,83	7,90	0,61123
UK	2009.07	65,73	1,78	8,00	0,61115
UK	2009.08	67,13	1,59	8,00	0,60464
UK	2009.09	75,10	1,09	8,00	0,61211
UK	2009.10	74,52	1,55	7,80	0,61800
UK	2009.11	77,19	1,91	7,50	0,60274
UK	2009.12	73,17	2,87	7,40	0,61583
UK	2010.01	77,44	3,44	7,90	0,61873
UK	2010.02	83,61	3,01	8,10	0,64019
UK	2010.03	75,96	3,37	7,90	0,69395
UK	2010.04	77,02	3,72	7,60	0,66451
UK	2010.05	67,94	3,38	7,60	0,65249
UK	2010.06	65,35	3,24	7,80	0,68245
UK	2010.07	65,52	3,03	7,90	0,67804
UK	2010.08	58,67	3,10	7,80	0,65450
UK	2010.09	63,71	3,09	7,90	0,63862
UK	2010.10	54,59	3,18	7,80	0,64289
UK	2010.11	53,05	3,21	7,60	0,63059
UK	2010.12	45,46	3,69	7,60	0,62611

Appendix 4: Datas for Japan

Country	Term	CCI	IR	UR	XR
JAPAN	2005.01	47,00	0,20	4,40	103,34100
JAPAN	2005.02	47,50	-0,10	4,60	104,94400
JAPAN	2005.03	47,00	0,30	4,50	105,25400
JAPAN	2005.04	47,70	0,10	4,50	107,16700
JAPAN	2005.05	49,00	0,10	4,50	106,65400
JAPAN	2005.06	47,50	-0,50	4,30	108,74700
JAPAN	2005.07	48,40	-0,30	4,40	111,94000
JAPAN	2005.08	49,10	-0,30	4,30	110,60700
JAPAN	2005.09	47,00	-0,30	4,20	111,15600
JAPAN	2005.10	49,10	-0,79	4,40	114,82000
JAPAN	2005.11	49,40	-0,99	4,50	118,45000
JAPAN	2005.12	49,40	-0,40	4,40	118,36800
JAPAN	2006.01	50,10	-0,10	4,40	115,58600
JAPAN	2006.02	50,10	-0,10	4,10	117,83900
JAPAN	2006.03	49,10	-0,20	4,10	117,27800
JAPAN	2006.04	50,20	-0,10	4,10	117,07000
JAPAN	2006.05	50,50	-0,10	4,10	111,76700
JAPAN	2006.06	48,20	0,10	4,20	114,62500
JAPAN	2006.07	49,40	0,50	4,10	115,76700
JAPAN	2006.08	47,80	0,30	4,10	115,92400
JAPAN	2006.09	48,10	0,60	4,10	117,21400
JAPAN	2006.10	49,20	0,40	4,10	118,62200
JAPAN	2006.11	49,30	0,30	4,00	117,28800
JAPAN	2006.12	46,90	0,30	4,00	117,39700
JAPAN	2007.01	49,20	0,00	4,00	120,38100
JAPAN	2007.02	49,30	-0,20	4,00	120,44100
JAPAN	2007.03	47,80	-0,10	4,00	117,26000
JAPAN	2007.04	47,80	0,00	3,80	118,93200
JAPAN	2007.05	47,60	0,00	3,80	120,81400
JAPAN	2007.06	46,10	-0,20	3,70	122,68900
JAPAN	2007.07	45,60	0,00	3,60	121,46000
JAPAN	2007.08	44,40	-0,20	3,70	116,73300
JAPAN	2007.09	44,90	-0,20	3,90	115,04300
JAPAN	2007.10	42,40	0,30	4,00	115,86600
JAPAN	2007.11	39,50	0,60	3,80	111,06500
JAPAN	2007.12	38,70	0,70	3,80	112,54400
JAPAN	2008.01	37,90	0,70	3,90	107,94400
JAPAN	2008.02	36,40	1,00	4,00	107,06000
JAPAN	2008.03	37,00	1,20	3,80	100,75600
JAPAN	2008.04	35,40	0,80	3,90	102,67800

JAPAN	2008.05	34,10	1,30	4,00	104,30800
JAPAN	2008.06	32,90	2,00	4,00	106,91500
JAPAN	2008.07	31,60	2,30	4,00	106,84900
JAPAN	2008.08	30,50	2,09	4,10	109,40400
JAPAN	2008.09	31,80	2,09	4,00	106,67100
JAPAN	2008.10	29,80	1,69	3,80	99,97520
JAPAN	2008.11	28,70	0,99	4,00	96,94000
JAPAN	2008.12	26,70	0,40	4,40	91,24910
JAPAN	2009.01	27,00	0,00	4,20	90,42120
JAPAN	2009.02	27,60	-0,10	4,40	92,54220
JAPAN	2009.03	29,60	-0,30	4,80	97,83570
JAPAN	2009.04	33,20	-0,10	5,00	98,88810
JAPAN	2009.05	36,30	-1,10	5,10	96,73570
JAPAN	2009.06	38,10	-1,80	5,30	96,59920
JAPAN	2009.07	39,70	-2,30	5,60	94,47340
JAPAN	2009.08	40,40	-2,20	5,40	94,83840
JAPAN	2009.09	40,70	-2,20	5,30	91,44320
JAPAN	2009.10	40,80	-2,50	5,20	90,37670
JAPAN	2009.11	39,90	-1,90	5,30	89,15730
JAPAN	2009.12	37,90	-1,70	5,20	89,81410
JAPAN	2010.01	39,40	-1,30	4,90	91,31660
JAPAN	2010.02	40,00	-1,10	4,90	90,20730
JAPAN	2010.03	41,00	-1,10	5,00	90,67850
JAPAN	2010.04	42,10	-1,20	5,10	93,53820
JAPAN	2010.05	42,70	-0,90	5,20	92,15100
JAPAN	2010.06	43,60	-0,70	5,30	90,91960
JAPAN	2010.07	43,30	-0,90	5,20	87,49930
JAPAN	2010.08	42,40	-0,90	5,10	85,33090
JAPAN	2010.09	41,20	-0,60	5,00	84,37660
JAPAN	2010.10	41,10	0,20	5,10	81,79480
JAPAN	2010.11	40,60	0,10	5,10	82,51300
JAPAN	2010.12	40,20	0,00	4,90	83,29090

Appendix 5: Datas for ITALY

Country	Term	CCI	IR	UR	XR
ITALY	2005.01	103,30	1,87	8,00	0,76211
ITALY	2005.02	104,40	1,94	8,50	0,76856
ITALY	2005.03	104,20	1,94	8,30	0,75858
ITALY	2005.04	104,80	1,85	7,70	0,77268
ITALY	2005.05	104,40	1,93	7,30	0,78808
ITALY	2005.06	102,90	1,76	7,50	0,82273
ITALY	2005.07	100,90	2,08	6,40	0,83084
ITALY	2005.08	100,80	2,00	6,40	0,81336
ITALY	2005.09	102,90	2,00	8,20	0,81651
ITALY	2005.10	105,60	2,24	8,40	0,83151
ITALY	2005.11	108,70	2,23	8,10	0,84845
ITALY	2005.12	108,20	1,99	7,60	0,84317
ITALY	2006.01	106,50	2,23	7,70	0,82627
ITALY	2006.02	110,00	2,14	8,00	0,83759
ITALY	2006.03	109,10	2,06	7,20	0,83141
ITALY	2006.04	106,10	2,21	6,70	0,81490
ITALY	2006.05	107,60	2,20	6,90	0,78335
ITALY	2006.06	110,40	2,28	6,10	0,78993
ITALY	2006.07	109,40	2,20	5,60	0,78864
ITALY	2006.08	108,10	2,19	5,80	0,78062
ITALY	2006.09	110,10	2,11	6,90	0,78572
ITALY	2006.10	108,50	1,80	7,40	0,79265
ITALY	2006.11	109,10	1,80	7,10	0,77594
ITALY	2006.12	113,30	1,87	6,20	0,75753
ITALY	2007.01	110,40	1,71	6,80	0,76933
ITALY	2007.02	111,50	1,79	6,50	0,76438
ITALY	2007.03	112,70	1,71	5,90	0,75499
ITALY	2007.04	108,30	1,55	5,60	0,74008
ITALY	2007.05	109,50	1,54	6,10	0,73994
ITALY	2007.06	107,30	1,69	5,40	0,74514
ITALY	2007.07	107,40	1,61	5,80	0,72881
ITALY	2007.08	106,60	1,61	5,20	0,73395
ITALY	2007.09	107,30	1,69	6,00	0,71904
ITALY	2007.10	107,10	2,07	6,60	0,70263
ITALY	2007.11	107,50	2,38	6,60	0,68116
ITALY	2007.12	106,70	2,61	6,70	0,68727
ITALY	2008.01	102,20	2,99	7,40	0,67947
ITALY	2008.02	102,90	2,90	7,20	0,67785
ITALY	2008.03	99,00	3,28	6,50	0,64443
ITALY	2008.04	99,70	3,35	6,90	0,63481

ITALY	2008.05	103,20	3,57	6,70	0,64252
ITALY	2008.06	99,90	3,79	6,60	0,64264
ITALY	2008.07	95,80	4,08	6,00	0,63469
ITALY	2008.08	99,60	4,07	5,70	0,66890
ITALY	2008.09	102,80	3,77	6,60	0,69673
ITALY	2008.10	102,20	3,46	7,10	0,75372
ITALY	2008.11	100,50	2,70	7,20	0,78448
ITALY	2008.12	99,60	2,24	6,80	0,74045
ITALY	2009.01	102,70	1,64	7,90	0,75572
ITALY	2009.02	104,10	1,63	7,90	0,78224
ITALY	2009.03	99,90	1,18	8,10	0,76696
ITALY	2009.04	104,90	1,18	7,60	0,75779
ITALY	2009.05	105,00	0,88	7,10	0,73381
ITALY	2009.06	105,50	0,51	7,30	0,71350
ITALY	2009.07	107,50	0,00	7,20	0,70989
ITALY	2009.08	111,80	0,15	6,60	0,70090
ITALY	2009.09	113,60	0,22	8,20	0,68683
ITALY	2009.10	111,70	0,29	8,70	0,67499
ITALY	2009.11	112,80	0,73	8,50	0,67052
ITALY	2009.12	113,60	1,02	8,50	0,68454
ITALY	2010.01	111,60	1,32	9,10	0,70078
ITALY	2010.02	107,60	1,17	9,30	0,73077
ITALY	2010.03	106,30	1,39	8,90	0,73706
ITALY	2010.04	107,80	1,53	8,90	0,74579
ITALY	2010.05	105,40	1,38	8,50	0,79625
ITALY	2010.06	104,50	1,31	7,80	0,81919
ITALY	2010.07	105,60	1,67	7,50	0,78329
ITALY	2010.08	104,10	1,59	6,90	0,77524
ITALY	2010.09	107,20	1,60	8,10	0,76570
ITALY	2010.10	107,70	1,74	9,10	0,71958
ITALY	2010.11	108,50	1,67	8,70	0,73241
ITALY	2010.12	109,10	1,88	8,30	0,75646

Appendix 6: Datas for CANADA

Country	Term	CCI	IR	UR	XR
CANADA	2005.01	104,30	1,94	7,50	1,22484
CANADA	2005.02	100,50	2,13	7,50	1,24005
CANADA	2005.03	103,60	2,31	7,40	1,21603
CANADA	2005.04	98,90	2,40	7,00	1,23686
CANADA	2005.05	102,40	1,62	7,00	1,25566
CANADA	2005.06	101,00	1,71	6,30	1,24017
CANADA	2005.07	103,00	2,00	6,90	1,22376
CANADA	2005.08	94,60	2,58	7,10	1,20428
CANADA	2005.09	80,70	3,24	6,20	1,17789
CANADA	2005.10	85,60	2,57	6,10	1,17728
CANADA	2005.11	98,10	1,99	6,00	1,18139
CANADA	2005.12	93,60	2,09	6,10	1,16166
CANADA	2006.01	107,00	2,75	7,20	1,15788
CANADA	2006.02	104,20	2,18	6,70	1,14873
CANADA	2006.03	102,60	2,16	6,70	1,14873
CANADA	2006.04	106,20	2,44	6,60	1,14410
CANADA	2006.05	100,00	2,81	6,10	1,10987
CANADA	2006.06	106,50	2,43	5,60	1,11373
CANADA	2006.07	100,50	2,33	6,70	1,12945
CANADA	2006.08	99,10	2,14	6,80	1,11821
CANADA	2006.09	99,20	0,74	5,90	1,11562
CANADA	2006.10	102,10	1,02	5,60	1,12843
CANADA	2006.11	99,00	1,39	5,90	1,13613
CANADA	2006.12	102,60	1,67	5,70	1,15344
CANADA	2007.01	108,30	1,11	6,70	1,17553
CANADA	2007.02	104,00	2,04	6,50	1,17063
CANADA	2007.03	103,70	2,30	6,50	1,16816
CANADA	2007.04	102,80	2,20	6,30	1,13499
CANADA	2007.05	102,20	2,19	6,10	1,09440
CANADA	2007.06	101,80	2,19	5,60	1,06510
CANADA	2007.07	102,60	2,19	6,20	1,05060
CANADA	2007.08	105,00	1,73	6,40	1,05785
CANADA	2007.09	106,00	2,47	5,50	1,02675
CANADA	2007.10	102,10	2,38	5,30	0,97541
CANADA	2007.11	105,30	2,47	5,60	0,96593
CANADA	2007.12	98,70	2,38	5,60	1,00136
CANADA	2008.01	98,10	2,20	6,30	1,00984
CANADA	2008.02	99,30	1,80	6,10	0,99869
CANADA	2008.03	95,70	1,40	6,40	1,00294
CANADA	2008.04	91,70	1,70	6,30	1,01372
CANADA	2008.05	79,70	2,20	6,20	0,99881

CANADA	2008.06	68,70	3,10	5,60	1,01662
CANADA	2008.07	71,40	3,40	6,30	1,01329
CANADA	2008.08	75,20	3,50	6,50	1,05296
CANADA	2008.09	80,80	3,40	5,70	1,05843
CANADA	2008.10	61,70	2,60	5,60	1,18523
CANADA	2008.11	57,50	2,00	6,20	1,21681
CANADA	2008.12	52,00	1,20	6,30	1,23277
CANADA	2009.01	56,20	1,10	7,80	1,22664
CANADA	2009.02	54,30	1,40	8,30	1,22664
CANADA	2009.03	56,20	1,20	8,80	1,26275
CANADA	2009.04	62,10	0,40	8,50	1,22697
CANADA	2009.05	69,80	0,10	8,70	1,15311
CANADA	2009.06	72,20	-0,30	8,10	1,15311
CANADA	2009.07	72,70	-0,90	8,90	1,12350
CANADA	2009.08	81,50	-0,80	9,00	1,12350
CANADA	2009.09	85,40	-0,90	7,60	1,08182
CANADA	2009.10	84,70	0,10	7,60	1,05427
CANADA	2009.11	79,00	1,00	8,00	1,05978
CANADA	2009.12	82,80	1,30	7,80	1,05366
CANADA	2010.01	96,60	1,90	8,70	1,04270
CANADA	2010.02	88,30	1,60	8,50	1,05611
CANADA	2010.03	92,50	1,40	8,80	1,02363
CANADA	2010.04	84,80	1,80	8,40	1,00447
CANADA	2010.05	89,30	1,40	8,30	1,03967
CANADA	2010.06	83,60	1,00	7,40	1,03819
CANADA	2010.07	80,00	1,80	8,30	1,04334
CANADA	2010.08	79,10	1,70	8,70	1,03991
CANADA	2010.09	78,10	1,90	7,40	1,03440
CANADA	2010.10	79,60	2,40	7,90	1,01833
CANADA	2010.11	83,60	2,00	7,60	1,01256
CANADA	2010.12	81,00	2,40	7,60	1,00808