

AN INVESTIGATION OF LONG-RUN RELATIONSHIP BETWEEN
GOLD AND US DOLLAR

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An Investigation of Long-Run Relationship Between Gold and US Dollar
Altın ve Amerikan Doları Arasındaki Uzun Vadeli İlişkinin Analizi

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Anahtar Kelimeler (Türkçe)

- 1)Altın
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- 3)Altın arzı
- 4)Altın talebi
- 5)Altın fiyatları
- 6)Altın fiyatlarını etkileyen faktörler

Anahtar Kelimeler (İngilizce)

- 1)Gold
- 2)Gold market
- 3)Gold supply
- 4)Gold demand
- 5)Gold prices
- 6)Factors affecting gold prices

I dedicate this thesis to the memory of my father Alparslan Türkeş who
impressed and inspired me about struggling till the end of life and never
giving up hope

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Özet

Uzun yıllar parasal sistemin temelini oluşturan altın, uluslararası ticarete ve finansal işlemlerde değişim aracı olarak kullanılmıştır. Her ne kadar altın, Bretton Woods'un yıkılması ile finansal sistemdeki tahtını dolara bıraktıysa da, halen ulusal devletlerin merkez bankası rezervlerinin vazgeçilmez unsurlarından biridir. Günümüzdeki altın piyasaları, ABD Doları ile altın arasındaki sabit bağın sona ermesi ve altının parasal sistem içindeki rolünün azalması ile gelişmeye başlamıştır. Uluslararası altın ticaretinin serbestleşmesi ile ortaya çıkan spot altın piyasasını, sonraki yıllarda kurulan vadeli ve ödünç altın piyasaları izlemiştir. Altının finansal sistemdeki rolünü tarihi olarak inceleyen, altın talebini ve arzını etkileyen faktörlere değinen, dünyada ve Türkiye'de altın piyasasının oluşumunu araştıran bu çalışmada, altın fiyatlarının ABD Dolarından etkilenip etkilenmediği, ekonometrik bir model ile araştırılmıştır. Ampirik çalışma Ocak 2000-Mayıs 2010 tarihlerini kapsamakta olup, veriler günlük bazdadır. Altın fiyatları ile Euro/ABD Doları (EUR/USD) paritesi arasındaki ilişki, En Küçük Kareler yöntemi ile test edilmiş ve regresyonun sonucunda altın fiyatları ile EUR/USD paritesinin aynı yönde hareket ettiği tespit edilmiştir. Literatürde altın fiyatları ile ilgili pek çok çalışma bulunmakla birlikte, günümüze uzanan çalışmalara pek sık rastlanamamış olup, çalışmada incelenen dönem, küresel krizin yaşandığı, altın fiyatlarının rekor yükselişler kaydettiği bir dönemi kapsamaması açısından önemlidir.

Abstract

Gold has been the primary basis of the monetary system and medium of exchange in international trade and financial transactions. Following the collapse of Bretton Woods, gold had left its throne to U.S. dollar, though it is still the irrevocable asset and financial instrument for the central banks of the national states. The end of the steady relationship between gold and US dollar, led the decrease of gold's role in the monetary system. As a result of this gold markets have developed. By the liberalization of international gold trade, the gold future and gold lending markets followed through the emerging spot gold markets. In this study, we investigated the role of gold in financial system through a historical view, the demand and supply of gold and the development of the gold market both in the World and Turkey. Accordingly, an econometric model is constructed to test whether gold is affected by the U.S. Dollar or not. The empirical study is formed by using daily data which is between January 2000 and May 2010. The relationship between gold and U.S. dollar is tested through the Ordinary Least Square (OLS) Method and by the result of the regression it is determined that the gold and EUR/USD parity move in same direction. Although there are many studies in the literature concerning the gold prices, studies containing present times are rarely found, the period investigated in this study is important in terms of including the times of global crisis and the record increases set by gold prices.

List of Tables

Table 1: Historical Data for World Identifiable Gold Demand.....	17
Table 2: Gold Reserves in Selected Countries (Tonnes).....	22
Table 3: Historical Data for Identifiable Gold Supply (Tonnes)	26
Table 4: The Gold Prices between 2002 and 2010	56
Table 5: The Correlation between G and P	62

List of Figures

Figure 1: Gold Production Percentages Among Countries (1970)	28
Figure 2: Gold Production Percentages Among Countries (2008)	28
Figure 3: World Gold Prices (1968-2010)	53
Figure 5: The Price of Gold and The Euro/USD Dollar Parity (between Jan. '00 and May' 10)	61

TABLE OF CONTENTS

Abstract	vi
List of Tables	vii
List of Figures	viii
1. INTRODUCTION	1
2. THE DEFINITION OF GOLD AND HISTORICAL REVIEW OF GOLD IN MONETARY SYSTEM	5
2.1 The Definition of Gold and It's Properties	5
2.2 The Historical Review of Gold in Monetary System	6
2.2.1 Mercantilist Period (15th c. – 18th c.)	7
2.2.2 The Gold Standard Period (1873-1914)	8
2.2.3 The Period between World War I and World War II (1914-1944)	10
2.2.4 Bretton Woods and Gold Exchange Period (1944 – 1973)	14
2.2.5 Liberalization Period in Gold Market (1973- present)	16
3. THE GOLD DEMAND AND THE GOLD SUPPLY	17
3.1 The Gold Demand	17
3.1.1 Industrial Gold Demand	18
3.1.2 Gold Demand in Jewellery Sector	19
3.1.3 Dentistry Sector Gold Demand	20
3.1.4 Gold Demand for Medallion and Commemorative Coin	20
3.1.5 Gold Demand of Central Banks	21
3.1.6 Gold Demand for Saving Purposes	23
3.1.7 Gold Demand for Investment Purposes	24
3.2 The Gold Supply	25
3.2.1 Gold Mine Production	26
3.2.2 Official Sector Sale	30
3.2.3 The Central Bank Gold Agreement	31
3.2.4 Scrap Gold Supply	32
3.2.5 Hedging Transactions	33
4. THE GOLD MARKET	35
4.1 The World Gold Markets	35
4.1.1 Gold Spot Market	37
4.1.2 Gold Futures Market	38
4.1.3 Gold Bullion Standards	40
4.1.4 Saving	41
4.1.5 Gold Lending Market	42
4.1.6 Gold Interest Rates	43
5. GOLD MARKET IN TURKEY	45
5.1 Place and Importance of Gold in Turkey	45
5.2 Gold Demand in Turkey	45
5.3 Gold Supply in Turkey	46
5.4 Evaluation of Gold Market in Turkey	46
5.4.1 Gold in Turkey before 1980	47
5.4.2 Gold Market against Turkish Lira	47
5.4.3 Foreign Exchange Reciprocal Gold Market	49

5.4.4 Istanbul Gold Exchange (I.G.E.)	49
6. AN ECONOMETRIC ANALYSIS BETWEEN US DOLLAR AND GOLD PRICES.....	51
6.1 Analysis of World Gold Prices	52
6.2 Literature Review	57
6.3 Empirical Analysis	60
6.3.1 The Data	61
6.3.2 Econometric Method	62
So, this model is not included to this thesis.....	66
6.3.4 The Evaluation of the Econometric Model.....	66
7. CONCLUSION	68
REFERENCES	73

1. INTRODUCTION

Gold, is a valuable yellow element with atomic number 79, also known as the unit of value saving accepted by all of the world since long years, features safe medium of investment and saving because of rare existence in nature, being limited of its production, and being able to protect its value in all circumstances.

Gold, comprising the basis of overall monetary system in Gold Coins Standard, applied in between 1873-1914 was treated as a means of reserve, which its value is fixed to US Dollar in Bretton Woods System being valid in between 1944-1973. At the end of decision taken by convention made on March 12th 1973 in Brussels, some European countries left their money to fluctuation against US Dollar, thus constant relation between gold and US Dollar ended and gold lost distinction of being money. Although gold partially lost its significance because of development of financial markets in recent years and increase of alternative medium of investments, it still has indispensable share for international reserve of countries. Gold starts to gain importance again in terms of investors because of crises especially experienced in world economy in recent days, instability at financial markets, and increase of risk factors at markets by terrorism concerns and political tensions experienced among countries.

The basic factors that determine gold demand are industrial gold demands, gold demands of central banks, and gold demands for saving and investment purposes. The demand of jewellery sector in industrial gold

demand constitutes most important share in total gold demand. The determinative factors in gold supply are gold mine production, gold sales from central banks, supply of scrap gold and forward sales.

Gold markets start to develop with decrease of gold's role in the monetary system and as a result of liberalization in international gold trade. Economic conditions among gold markets, differences arisen from customs and local situations are increasingly drawn attention in parallel with increased competition and customs. Among international gold markets, the most important ones are London, Zurich, New York and Tokyo. The daily fixed price occurred in London Gold Market is considered as most important indicator at the market about occurrence of world gold prices. The desire of gold producing companies to safeguard themselves against price uncertainties in the future and guiding the aim to obtain profit from idle gold reserves of central banks caused occurrence of gold lending markets in 1980s in addition to markets where purchase – sale is made.

Gold production is almost non-existing in our country, and intense gold demand leads Turkey to take part at the top of demanding countries. Gold demand brought to the homeland in unofficial ways before 1980 and import of gold liberalized by liberalization movements after 1980 was met. Demand after 1995 is met through Istanbul Gold Exchange. Istanbul Gold Exchange was most important stage during reform of gold sector, the authority to import gold previously only had by the Central Bank of Turkey was given to organizations that are member of exchange and prices were

started to be determined in parallel with international levels in free market conditions.

Impossibility of increase of the gold supply in short time because of physical limits causes more demand being determinative in occurrence of prices at world gold market. The factors affecting gold prices are developments at financial markets, inflation expectations, profits of alternative means of investment, silver and oil prices, political and economic conditions, micro market structure, speculative movements, seasonal effects and psychological factors. The effects of mentioned factors, especially US Dollar currency rate, silver prices, petrol prices, profits of alternative means of investment, and inflation on gold prices were subject of many empirical researches in finance literature.

The aim of this thesis is to give historical perspective about international and Turkish gold markets, to review literature on this subject and to make contribution to literature through an empirical study on oil prices, Dow Jones index, US Dollar and gold prices.

The factors affecting gold prices were reviewed with an econometric model containing the period January 2000 – May 2010, in this study addressing the place and importance of gold in monetary system at historical process, giving information about international gold market by revealing supply and demand structure, mentioning occurrence of gold, through which phases gold went and finally the relationship between gold and EUR/USD parity.

This thesis consists of six main chapters. First chapter contains the introduction part of the study while second chapter presents historical development of gold at market and importance of gold in monetary system. Third chapter describes gold demand and gold supply, while fourth chapter is about evaluation of world gold market. Fifth chapter covers gold in Turkey, gold demand and supply in our country, development of gold in Turkish economy in terms of legal regulations and occurrence of gold market. These chapters are made of detailed analysis of literature review. Sixth chapter examines the relationship between gold prices and EUR/USD parity and an empirical study is presented on this subject. The aim of this chapter is to make contribution to literature about the relationship between gold prices and EUR/USD parity. General assessment is made in conclusion and references are presented.

2. THE DEFINITION OF GOLD AND HISTORICAL REVIEW OF GOLD IN MONETARY SYSTEM

2.1 The Definition of Gold and It's Properties

Gold which is a unit of value saving accepted by all world since long time is a precious metal, which increase its importance from past to present and is used in making jewellery and money for centuries. According to Aslan (1999), gold is started to be frequently used in industrial field with developed technology in recent years because of being easily shapeable, resistant to chemical substances, noncorrosive, resistant to oxidation, high heat and electric conductivity, and having reflective feature. According to Gold Survey Report (2002), 90% of annual total gold production consists of mainly jewellery, coating, decoration and medallion issue works.

The atomic number of gold is 79, atomic weight 197, specific weight 19.3 g/cm^3 , melting point $1,063^\circ\text{C}$, resistance 119 kg/m^2 . The ISO 4217 currency code of gold is XAU. Troy ounce and kg measuring units are used in purchase – sale of gold in international field. Troy ounce is mostly called as ounce.

1 troy ounce: 31.1038079 g

1 kg: 32.1507245 ounce

Gold is also used in alloy with other metals such as silver and copper. According to Bilim ve Teknik Dergisi (1997), the ratio of gold in alloy to alloy weight shows purity of gold. This ratio is expressed as per mil, only 1000/1000 gold is evaluated as pure gold. The gold bullions which are subject to trade in international gold market have generally 995/1000 purity

ratio. The other system used in purity ratio is carat (adjustment) system. 24 carat gold has purity of 1000/1000 in carat system.

Their area of use, change according to geographical regions and societies; the most important reason why gold hold feature of being a valuable metal from past to present is the limited amount of production. Since it is impossible to make production according to increase and decrease in gold prices at mines, flexibility of production against price changes is low. Therefore it is difficult to answer to the changes occurred in gold prices.

The other feature of gold is that there is no other substitute metal. When its physical and chemical properties are examined, it draws attention that this metal leaves other metals behind, such as silver and platinum.

In addition to above mentioned factors, Aslan (1999) also stated that the other superiority of gold against other metals is that it was used as means of exchange in monetary system for long years, is still used as means of saving and investment and is being used as a means of reserve by most of the world countries today.

2.2 The Historical Review of Gold in Monetary System

Gold was used as means of payment and then means of investment and saving since prehistoric ages, and still protects its importance. Gold starting to be used as means of exchange in gold bullion which weights are sealed by competent authorities still holds the feature of sole means of exchange accepted by entire world today. The first gold coins were produced in 700 BC in Lydia, where is now the western Turkey and since

then the precious metal has been used as the primary exchange element. Gold was scarce and highly valued thus made it the perfect means of Exchange.

Gold has been used as money in modern coin form, from 700 BC to about 1930 AD. Then the use of paper, base metal and silver coin in circulation for about 40 years from 1930 to 1970. And the use of paper and base metal coin as "money", without any connection to Gold and silver has been for 40 years from 1970 till today.

Although gold previously formed most important part of treasury of sovereigns lost its monetary function with occurrence of modern economies and development of banking systems, it becomes indispensable elements of central bank of national states. Gold, which has biggest share in national reserves in 19th century, gives its place to alternative means of investment on mostly type of foreign exchange in parallel with increase of international trade and developments seen in financial markets.

In the following sections, the historical development of use of gold in monetary system is analysed under five different periods.

2.2.1 Mercantilist Period (15th c. – 18th c.)

According to Yıldırım (1991), gold is accepted as an indicator of state worthy, economical power and level of welfare in Mercantilist Period reigning in between 15th c. – 18th c. in Europe. The audit of state on economy was obliged for being favorable of commerce balance. In addition, Aliç (1985) mentioned that mercantilist economy policies aim to increase

values, mainly gold entering to country directly as commercial, or indirectly because of its colonies. Also for this reason, import was tried to be prohibited with high customs tax at this period in order to prevent gold exit from state. At the end of 18th c. and at the beginning of 19th c., gold and silver was used as means of exchange.

2.2.2 The Gold Standard Period (1873-1914)

According to Bordo and Eichengreen (1998), the development of national and international commerce as well as occurrence of industrial society in 19th century leads to increase the need of official change standard. Green (1999) added that at this period, the increase of gold supply with discovery of new gold mines leads gold to be accepted as money standard in payments and international commercial transactions, in addition to being used as money at home.

At the end of Napoleon War of UK, with transition to gold standard of other European countries at the beginning of 1870s, Turan (1980) mentioned that gold standard period was started to be applied that gold heads as means of exchange and reserve and as the comprising basis of monetary system.

In addition, Seyidoğlu (1996) mentioned that gold standard, which fulfilled all functions of gold as money, completely became dominant to economies from 1873 to 1914. European countries mainly adopted gold standard since West Europe, especially UK comprises centre of world economy at the stated period.

Money authorities, which were liable to buy gold bullion brought to them at gold standard, were obliged to issue gold coins against bullion. Therefore gold reserve in the state was equal to internal money supply. Aliç (1985) also said that it was allowed to freely circulate gold money without limitation in domestic and foreign markets.

The identification of official gold value of their national monies was brought to money authorities in states in this system. The value of gold money was equal to gold in fixed weight and purity. In other words state monies were expressed as certain gold weight. For example as mentioned by Yıldırım (1991), 1 Ottoman money was equalized to 6,615 g, 1 British currency to 7,322 g pure gold value; and $7,322/6,615 = 1.106$ exchange rate was accepted.

The most important feature of said system is movement of Automatic Gold Mechanism. Aslan (1999) mentioned that according to this mechanism exchange rate remains fixed in the level that determines gold parity of two state monies; in the event of foreign trade is free, payment balance sheet is automatically balanced on this rate. Provision of balance in payments was expressed within the frame of money-goods flow theory. It is considered within the frame of classical thought that prices were flexible, liquidity of domestic production factors were high, and production and employment level was not affected from monetary variables. Since domestic price creation is based on amount theory of money, that state issues gold in order to meet deficit seen in foreign trade items of any state. Turan (1980) states money supply decreases with issuance of gold; price

level decreases with processing amount theory; export of a state having deficit increases; there will be movement through balance.

Akdiş (2002) mentioned that in this period there are also banknotes representing gold coins in gold standard period in addition to gold coins. Such banknotes do not change the logic of the system since they are able to exchange for gold. Gold was held in return for reserve in a sense.

2.2.3 The Period between World War I and World War II (1914-1944)

The balance of forces was shaken upon start of the World War I, at the end of financial crisis, the states adopting gold standard, especially UK were withdrawn from this system. Since gold equivalent of paper money was found to the beginning of war, and gold stocks of states decreased during and after war, Aslan (1999) mentioned that gold convertibility of paper money was suspended at the period from 1914 to early 1920s.

According to Yıldırım (1991), termination of feature of conversion of paper money to gold because of war provided freedom to issue money without control in order to meet war costs to states damaged after the World War I; permanent indebtedness of states from central banks created an inflationist environment and it was lead to release values of money of different countries against each other and gold within broad band. Postwar shift of important part of gold reserve in Europe to USA, which strongly came out of war negatively affects the distribution of gold reserves among states and accelerates collapse of gold standard.

The World War I made trade and payment systems that develops by 19th c. inoperable; leaded states damaged from war to deal with regulation of economy again. Europe lost its undisputed superiority in world trade; only USA came out of war with strong economy. Akdiş (2001) states European countries that seek the way to correct this situation and gain previous prestige back, had efforts to return back to gold standard.

The provision of constant balance in international payments at the period 1870-1914, when gold standard was experiencing its golden age rendered continuous trust to this system. Turan (1980) mentioned that betraying trust to paper money during and after World War I, popularization of opinion regarding that reliable money is only gold money arose the opinion that the only way to get out of difficulties regarding economy of states is to return to gold standard again. Therefore the decisions were taken regarding measures to ensure return to gold at International Money Conference in Genoa held with participation of 33 state representatives in 1922. According to Convention, after providing stability of money by participatory states, they would determine rates on parity before war or on newly calculated parity. Thus all states returned to gold standard in 1928. However, Seyidoğlu (1996) said that countries invested their national money to gold again, they attached importance to exact adoption of prewar parities; they saw this as national prestige. However occurrence of changes in relative competition power of countries because of inflation during war, causes existence of monetary difficulties to arise in the future.

Gold standard adopted in 1920s is different from gold bullion standard in 1920s. Turan (1980) says that gold bullion standard is gold standard system that paper money can only be exchanged for gold bullion which minimum amount was previously determined. For example, convertibility of money to gold in UK was obliged to buy gold bullion of 400 ounce. According to Özgül (1992), the basic difference of this system from gold standard is the absence of gold coins in circulation in order to economize on gold. In said period, gold headed as value measure at only international payments, not at domestic payments.

According to Alıç (1985), domestic money supply in country is equal to gold reserve in gold bullion standard as such in gold standard. However, the system not being strict as gold standard, remained under control of money authorities mostly. At this period there was intervention to money supply and especially to banknote volume for policies followed by governments. Countries tried to keep the value of money higher and lower than money's real value with their own initiative. Seyidoğlu (1996) says increase of country's intervention causes failure of gold bullion standard. Undertaking new tasks in economical and social field by state and priority to provide domestic balance by considering international balance of second importance in order to fulfill goals such as the fight against unemployment, social security, balanced income distribution, price stability, and economical development, causes restrictions of free trade. This prevents longevity of new gold standard implementation.

In addition, trying to hold parities in prewar levels by countries that adopts gold bullion standard because of reasons such as national and international prestige created global deflationary pressure. According to Turan (1980), following restrictive money and finance policies for protection of countries' reserves played a role in creation of the Great Depression of 1929. The bankrupts experienced because of depression, increased liquidity demand, panic in money markets, and collapse of international payment system causing termination of relation of thirty-five state monies with gold in between 1929-1933. The opinion was popularized that gold standards contrast with needs of employment policies and credit required for development of any country and gold bullion standard ended.

After collapse of gold standard, Seyidoğlu (1996) states that international money system was divided into three blocks. The dependency of Sweden, Belgium and the Netherlands national money to gold continues in the leadership of French, and Gold Block was created. A group consisting of former British colonies invested their national currencies in British pound and created Pound Region; whereas a large group which majority consists of less developed countries in leadership of Germany started to implementation of exchange audit. After USA permits US Dollar to loose some value, which allows it to fluctuate freely, it determined 1 ounce gold as 35 US dollar in January 31st, 1934; there was no change in this official Dollar price until December, 1971.

To put it briefly, complete confusion was experienced in international monetary system on the eve of the World War II.

Nonprevention of shocks of international trade and money markets made the need of intercountry cooperation current issue. According to Akdiş (2001), the opinion that the decisions taken by countries separately and without thinking the result accelerates collapse of international monetary system opened door to new quests that provide occurrence of Bretton Woods System.

2.2.4 Bretton Woods and Gold Exchange Period (1944 – 1973)

In light of tests incurred by world economies in the period between World War I and World War II, especially USA and UK, in order to regulate postwar international monetary system, it was started to work as from 1940. The obtainment of credit for reconstruction of Europe, establishment of new order at the world, solution of liquidity problem and determination of means for international payments were brought into question. Alıç (1985) says that a meeting was held in Hampshire State, Bretton-Woods Village on July, 1944 with participation of 44 countries in order to solve these problems and important decisions were taken with regard to economical order at world.

In accordance with Convention of Bretton Woods, signed in 1944, Gold Exchange System, a money system that country currencies can be freely exchanged for another country currency depending on gold standard on fixed rate, was started to implement. Priority was provided for US Dollar in international payments, US Dollar was accepted as sole national currency having feature of conversion under US Dollar. According to Özbek (1981),

the convertibility of national currencies to gold was abolished and foreign values were determined according to US Dollar. In this context, according to fixed but adjustable rate system, 1 ounce gold was equalized to 35 US Dollar, the value of other currencies was defined according to US Dollar. Only the fluctuation of rates within $\pm 1\%$ band was allowed.

Seyidoğlu (1996) states that the importance of Gold Exchange System, a developed form of Gold Standard System is to enable US Dollar to reach international “reserve money” status. Therefore increase of reserve amount to be used in international payments by saving from gold and to create easiness at payments.

The transition from gold standard to gold exchange system was resulted from liquidity difficulty encountered in international payments because of high increase rate of world trade volume more than increase rate of gold amount, not being shaken trust to gold. Since gold production is limited and noneconomic physically, the increase of gold money in volume, means of exchange at that period, in parallel with increase in world economy. The use of means of payment met current need at periods that economies were gradually monetized for protection of macroeconomic balance was necessitated. This development and requirements made referral of creation of reserve by decreasing gold/US Dollar in due course inevitable.

The Bretton Woods system proceeding well until 1958 started to disruption as from this year. Following expansive money policy by USA in 1960s, increase of public expenses because of Vietnam War, thus increase

payments balance deficit of USA causes increase of inflation in USA. The spread of inflation seen in USA, having reserve money to all world were resulted from trying to close deficit of payment balance by emission, and causes occurrence of the abundance of Dollar at the world.

2.2.5 Liberalization Period in Gold Market (1973-present)

According to Pringle (1993), in accordance with agreement “The Group of Ten Agreement” signed by the group of ten and participation of Switzerland, reserve was withdrawn to be obligation in gold monetary system and economical validity of official gold price was eliminated and fluctuated rate was taken on basis among different currencies.

After the end of Bretton Woods System, the developments led to loose the feature means of exchange of gold. It causes gradual removal of restrictive measures intended for free gold market. However the developments of other gold markets except London and Zurich were realized after 1974.

According to Bordo and Schwartz (1994), despite decrease of liquidity source role of gold in the past, gold an important role because of its use against inflation (hedge) and as being confidence in political and economical uncertainty. Ware (2003) states that total gold amount held by official authorities reaches 33.000 ton as per 2000.

3. THE GOLD DEMAND AND THE GOLD SUPPLY

3.1 The Gold Demand

Gold, which is accepted as means of exchange in monetary system at certain periods in past, was demanded to be used in jewelery sector, electronics, dentistry and medallion.

Table 1: Historical Data for World Identifiable Gold Demand

	Tonnes				
	Jewellery	Net Retail Invest	ETF's & Similar	Industrial & Dental	TOTAL
2000	3.204	166	-	451	3.821
2001	3.008	357	-	363	3.728
2002	2.660	340	3	358	3.361
2003	2.483	301	39	382	3.205
2004	2.617	349	133	414	3.513
2005	2.712	393	208	432	3.745
2006	2.288	416	260	460	3.424
2007	2.405	433	253	462	3.553
2008	2.187	863	321	436	3.807
2009	1.747	676	595	368	3.386

Source: Gold Demand Trends, February 2010,
http://www.gold.org/assets/file/pub_archive/pdf/GDT_Q4_2009.pdf
(28/04/2010)

According to Özgül (1992), gold's area of usage is extremely broad against limited production volume. In addition to industrial gold demand, the other factors in production of world gold demand are for the purpose of accumulation and saving (holding), for the purpose of investment and gold demand for the purpose of holding reserve by official authorities. In addition to this, the futures made in order to be protected against possible price changes to be occurred in the future (hedging), and factors gold purchases for speculative purposes can be deemed as factors comprising gold demand.

As seen in Table 1, the demand of gold has a fluctuating upward trend in last 10 years. In the beginning of 2000s, the gold demand was contracted following the Asian financial crisis, which started in second half of 1997. Then, the demand of gold jumped as it became a preferable financial instrument as a result of declining trust on equity market and paper based money.

3.1.1 Industrial Gold Demand

Aslan (1999) states that superior physical and chemical properties of gold such as the resistance of gold to chemical substances, resistance to oxidation, being noncorrosive, having high heat and electric conductivity, being reflective, easily shapeable and permanency mainly leads to be demanded in industrial field.

The biggest share in industrial gold demand belongs to jewellery sector. Electronics, dentistry and medallion, and commemorative coin issue follows jewellery sector in developed countries, the share of gold in electronics sector is less in developing countries and use of gold in dentistry sector is almost nonexistent.

According to Lipschitz and Otani (1977), when used as industry raw material, the demand of gold is created as traditional market goods. In other words, industrial gold demand varies depending on gold price, price of similar (substitute) metal to be used instead of gold in same transactions, and demand to the goods used in production, and economic growth rate. However the use of alternative items such as titanium and porcelain instead

of gold in tooth production depending on increase in gold prices in recent years gain intensity and also reducing computer chips in electronic industry.

3.1.2 Gold Demand in Jewellery Sector

Gold is mainly used in jewellery sector. The demand to the gold jewellery varies from country to country and the area of use. The economical, political and cultural differences in countries directly affects the processed jewellery of people live in that country. While gold jewellery is used only for ornament, they are bought in developing countries as safety factor for reason of saving, value protection and wealth accumulation. Processed jewellery shows major differences in developing countries year by year and this is considered as an indicator that gold purchase-sale transactions are mostly intended for these reasons.

Gold jewellery trend is directly in relation with economic growth, income level and welfare level. There is an increase in the amount of money allotted to gold jewellerries by people whose financial situation become better and income level increase. According to Neuberger (2001), the factors affecting gold jewellery demand are psychological and social factors, and changes in fashion, pleasures and preferences.

According to Goknil (2003), common feature of countries, where gold demand are high, is the spectacular jewellery production in said countries. Some of these countries process the demanded gold and turn it into finished product, where as some of them meets finished products from specialized countries in this subject through import. There are national gold jewelry production industry in most of the developing countries such as

Turkey, India, Saudi Arabia, Egypt, Brazil and Mexico. The demand for processed jewellery in countries such as Kuwait, Abu Dhabi, United Arab Emirates and Iran is met by import from countries such as Turkey and Italy.

3.1.3 Dentistry Sector Gold Demand

The gold demand in dentistry sector having little share in total gold demand varies depending on prices of items substitute for gold such as palladium, titanium and porcelain. Price increase of gold within years leads to give weight to use of other alternative items. In addition, Goknil (2003) mentioned that the decrease of social insurance payments made by some countries, especially Germany, for tooth diseases causes decrease of gold demand in dentistry sector.

3.1.4 Gold Demand for Medallion and Commemorative Coin

Depending on economical and political conditions of countries, medallion coin issue changes year by year, and the demand to this kind of monies gradually decrease all over the world.

Gold commemorative coin issue in a considerable extent was made in Germany in last ten years. Since the use of German Marks ended with circulation of Euro, German mark commemorative coin from 12 ton gold in 2001 and from 11 ton gold in 2002 was issued. In addition, a limited edition gold coin has been created to commemorate the 400th anniversary of America with production of up to 100,000 coins approved by Congress in 2007.

3.1.5 Gold Demand of Central Banks

As mentioned before, gold market is a market that money authorities rule. According to Ware (2003), it can be said that the most important reason of holding gold reserve by central banks in 19th c. is to protect local currency in gold. Parallel with increase in number of countries that accepts gold standard, the transition of gold held by private sector to official sector, there is significant increase in gold reserve of central banks until World War II.

Money authorities provided gold price being fixed by having big amounts in gold standard and Bretton Woods System until 1968. However, Aslan (1999) said that there is no change in policies of central banks towards gold after gold money lost its feature of being money in the first half of 1970s. In 1970s, the share of gold in monetary reserve increased because of rapid expansion of international trade. The share of gold in reserves started to increase with the end of Bretton Woods System and start of free market conditions. The increase was provided in gold reserves of central banks by depositing important part of oil incomes of OPEC countries.

Although gold was released from reserve dependency in monetary system and lost its feature of being money, gold continues to be used as reserve holding medium by all countries' treasury and central banks today. The gold reserve in selected countries in last 10 years is shown in Table 2.

Table 2: Gold Reserves in Selected Countries (Tonnes)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009-Q3
United States	8.136,9	8.149,0	8.149,0	8.134,9	8.136,2	8.135,1	8.133,5	8.133,5	8.133,5	8.133,5
Germany		3.456,6	3.445,8	3.439,5	3.433,2	3.427,8	3.422,5	3.417,4	3.412,6	3.407,6
IMF	3.217,3	3.217,3	3.217,3	3.217,3	3.217,3	3.217,3	3.217,3	3.217,3	3.217,3	3.217,3
Italy	2.451,8	2.451,8	2.451,8	2.451,8	2.451,8	2.451,8	2.451,8	2.451,8	2.451,8	2.451,8
France	3.024,6	3.024,6	3.024,7	3.024,7	2.985,3	2.825,8	2.719,8	2.603,1	2.492,1	2.435,4
China	395,0	500,8	600,0	600,0	600,0	600,0	600,0	600,0	600,0	1.054,1
Switzerland	2.419,4	2.198,5	1.916,7	1.633,3	1.354,3	1.290,1	1.290,1	1.145,2	1.040,1	1.040,1
Japan	763,5	765,2	765,2	765,2	765,2	765,2	765,2	765,2	765,2	765,2
Netherlands	911,8	884,5	851,7	777,5	777,5	694,9	640,9	621,4	612,5	612,5
Russia	384,4	423,0	387,7	390,2	387,0	386,9	401,5	450,3	519,6	591,1
ECB	747,4	766,9	766,9	766,9	766,9	719,9	639,9	562,7	533,6	536,9
India	357,8	357,8	357,8	357,8	357,7	357,7	357,7	357,7	357,7	357,7
U.K.	487,5	355,2	313,9	313,2	312,2	310,8	310,2	310,3	310,3	310,3
Turkey	116,3	116,1	116,1	116,1	116,1	116,1	116,1	116,1	116,1	116,1
Greece	132,6	122,6	122,4	107,3	107,7	108,0	111,8	112,5	112,5	112,4
Romania	104,9	105,2	105,3	105,1	105,0	104,8	104,7	103,7	103,7	103,7
Argentina	0,6	0,3	0,3	0,3	55,1	54,7	54,7	54,7	54,7	54,7
Brazil	65,9	34,1	33,6	33,6	33,6	33,6	33,6	33,6	33,6	33,6
Bulgaria	39,9	40,0	39,9	39,9	39,8	39,8	39,8	39,8	39,9	39,9

Source:

http://www.gold.org/assets/file/value/stats/statistics/xls/Quarterly_Gold_and_FX_Reserves_Dec_2009.xls

Since gold in reserve is not dependent on any country contrary to any medium of investments, gold is important because of not directly affected from policies of countries and universally accepting as “last source to be applied” in terms of central banks. According to Ferhani (2003), the most important reason of holding gold by central banks are, gold protects its value despite negativity to be occurred in foreign exchange markets, stock markets or securities market, and to exchange for cash at the market if needed.

There is benefit in diversity of assets in order to minimize risk in portfolio. Since most of the gold’s value is inversely proportional to return of medium of investment .

Based on World Gold Council's report which is called Central Banking in the 1990s (1994), the other factor enabling gold being important that the countries being in trouble in terms of balance of payment shows gold assets as security against the debt receivable in order to get credit at international market. In addition, since gold is considered as an asset not losing its value in general, in many countries, the people who know that country has gold, feels so confident by taking power from this.

3.1.6 Gold Demand for Saving Purposes

According to Abken (1980), gold demand for saving purpose generally coming from individuals, not pursuing a goal for obtainment of profit in short time, containing confidence factor, and intended for saving, and value protection. The important point is to buy gold for saving in long term. In other words, the goal is not commercial, it is for collecting wealth, and gold is withdrawn from market for a long term and saved.

Abken (1980) also added that since gold protects its value in all circumstances, and is considered as safe-haven, especially in high inflation, crisis and war and in circumstances of intense economical and political uncertainty, there is increase in gold demand for saving purpose.

Especially in developing countries where gold is considered as means of prestige, gold demand for saving purpose is high such as in Turkey. Approximately, 25% of annual gold production is demanded from Middle East Countries. The reason of it, is to protect value of monetary assets against inflation, to be convenient for small investments, have high

liquidity, insufficiency of capital markets in these kinds of countries and traditional habits.

3.1.7 Gold Demand for Investment Purposes

For thousands of years, gold has been valued as a global currency, a commodity, an investment and simply an object of beauty. As financial markets developed rapidly during the 1980s and 1990s, gold receded into the background and many investors lost touch with this asset of last resort. Recent years have seen a striking increase in investor interest in gold. While a sustained price rally, underpinned by the fact that demand consistently outstrips supply, is clearly a positive factor in this resurgence, there are many reasons why people and institutions around the world are once again investing in gold.

In general, the most important reason of gold demand for investment purpose coming from investment funds is the aim to obtain profit. In case of concentration of estimates and expectations regarding increase of gold demands at the market, it is observed that investors and speculators being active in finance markets increase gold demands. According to Abken (1980), investors and speculators buy gold from present prices and aim to obtain profit by selling them from high prices to be realized in line with their expectations in the future.

Investments on gold can be made in three ways: to buy and obtain gold as bullion or gold money (coins) directly, to make investment on gold account through banks or intermediary or to make futures rewardingly.

Bordo and Schwartz (1994) mentioned that the factors determining gold demand for investment purposes are gold prices designated at international markets, macro and micro balances such as interest rates, economical growth rate, foreign exchange prices and international political tension, and returns of alternative means of investment.

Gold investment demand increases when decrease of interest to the other means of investments take place. Idle funds directs to the gold at periods that real interest rates provides negative return, indexes decrease at stock markets and interest decreases to securities exchange. The interest of investors to the gold decrease on days that alternative means of investments provide high returns and securities market is movable.

3.2 The Gold Supply

Since B.C 4000, it was estimated that more than 110,000 ton gold was extracted and Aslan (1999) mentioned that approximately 33% of it is held by central banks, 30% of it is processed as jewelry, and 27% of it is used in industry sector.

According to Bordo and Schwartz (1994), total gold supply at the market is designated by gold production made at mining companies (as seen in Table 3), gold produced from scraps used before (scrap gold supply), gold sales coming from official authorities, and hedges made by gold mining companies in order to protect against price uncertainties in the future.

The gold supply between 2002 and 2009 is shown in Table 3. The gold supply also has an upward trend in last 10 years, as a result of discovery of new mines.

Table 3: Historical Data for Identifiable Gold Supply (Tonnes)

	Tonnes					
	Mine Production	Net Producer Hedging	Total Mine Supply	Official Sector Sales	Recycled Gold	TOTAL SUPPLY
2002	2.591	-412	2.179	545	835	3.559
2003	2.592	-279	2.313	617	944	3.874
2004	2.478	-445	2.033	497	829	3.359
2005	2.522	-86	2.436	659	889	3.984
2006	2.467	-403	2.064	319	1.069	3.452
2007	2.476	-444	2.032	484	956	3.472
2008	2.409	-349	2.060	236	1.217	3.513
2009	2.554	-257	2.297	44	1.549	3.890

Source: World Gold Council

3.2.1 Gold Mine Production

Gold mine production is biggest supply source of gold, approximately 70% of world gold supply is provided from goldfields. However the contribution of this source to total supply started to decrease gradually in recent years.

As from the beginning of history, the production of gold mine rapidly increases as of mid-1800s. The gold mine production which was annually around 450 ton at the beginning of 20th century exceeds annual 2,500 ton at the end of this century. According to Neuberger (2001), as a result of this increase in production provided by discovery of large gold mines and learning of development of gold extraction, more than one third of gold amount extracted from mines up to present was obtained in last three decades.

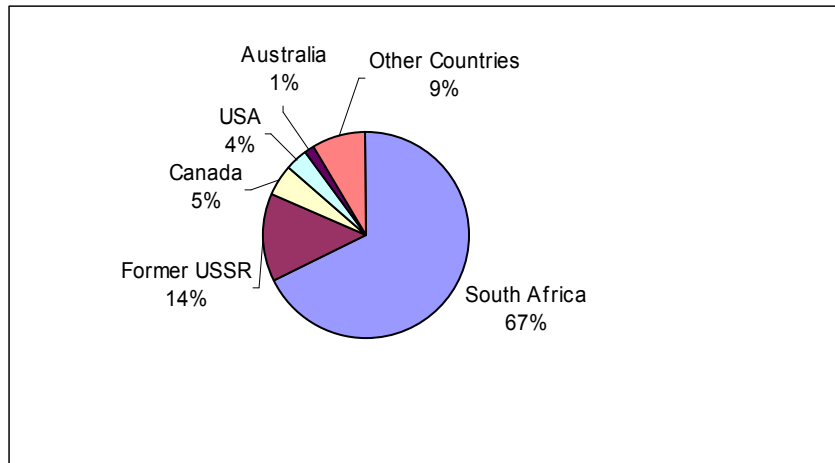
Aslan (1999) said that the increase in gold mine production is not only depended on increase in real gold prices because real gold prices do not proceed a clear trend within a certain time period. The effect of fluctuations in real gold prices is seen in medium term after a certain time at the market. Gold mine production can change depending on policies of some producer countries in addition to fluctuations in gold prices. According to Neuberger (2001), other important factors providing increase of gold mine production in long term are discovery of new mines, discovery of new countries and regions which has gold mine and innovations in technology.

The low gold mine production during the World War I had started to increase as a result of rise in inflation rate after war and adoption of gold standard by many countries. The gold prices increased to 35 US Dollar/ounce in 1934 leads gold production to increase until disruption due to the World War II. Whilst production slowly increased in 1950s and 1960s, the decrease in real prices causes pressure owing to the fact that ounce price of gold is fixed at 35 US Dollar. Neuberger (2001), added that inexistence of new mines and non-extraction of gold from old mines cause decrease of production despite the increase in gold prices in 1970s. In addition, the gold mine production had started to increase in 1980s as a result of discovery of new mines as seen in Table 3.

The gold production continue to increase in 1990s, thanks to direct investments made to several developing countries and developments in economical managements, such countries are seen advantageous as new working areas in terms of international mining companies, by this means,

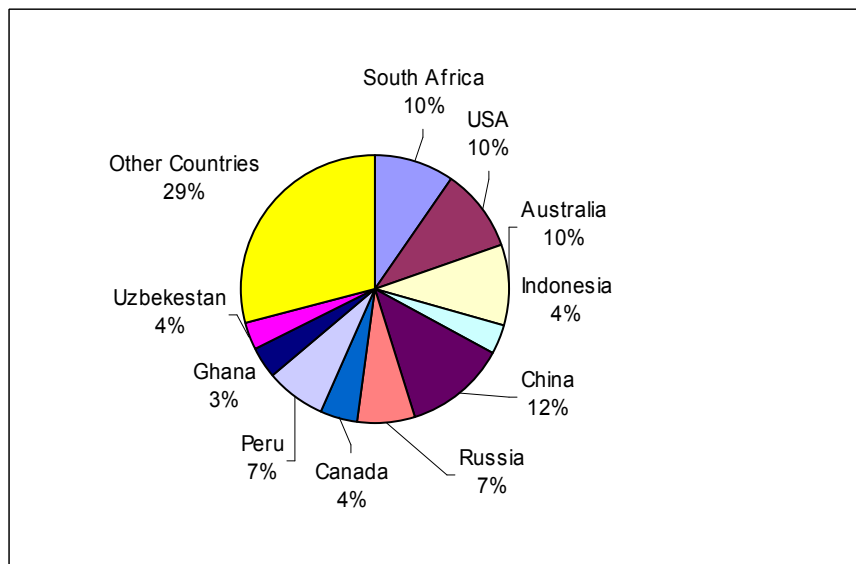
new places reveal in gold production. New advantages provided by new technology and positive developments in many countries and working conditions increase the number of gold producing countries in this period.

Figure 1: Gold Production Percentages Among Countries (1970)



Source: <http://www.goldsheetlinks.com/production.htm>

Figure 2: Gold Production Percentages Among Countries (2008)



Source : <http://www.goldsheetlinks.com/production.htm>

As seen in Figure 1 and 2, whilst only South Africa has 67,7% of total production in 1970, this rate decreased to 9.8% in 2008 with participation of new countries.

The increase in gold production in 1980s and 1990s stopped in 2000. The reason for this, is the technologic developments had started to slow down starting from 1990s, especially after first half of 1996, and the decrease in gold prices. The decrease of gold prices causes decrease of profit margin of mining companies and thus decrease their activities. As from second half of 1990, decrease of production due to negative process of prices does not happen instantly, increased rate of gold production decrease. Gold mines having adjustment flexibility of production against changes in gold prices respond to the fluctuating market conditions by decreasing costs and applying hedging programs. Nevertheless damaged mines were closed or bankrupted.

However, in 2000s, the gold price managed to catch it's uptrend which was seen in 1970s. The major reasons behind this uptrend are said that the massive terrorist attack which was occurred on September 11, 2001 on the United States, resulting in the collapse of the World Trade Center's twin towers and surrounding buildings, and part of the Pentagon building, the 2003 invasion of Iraq (from March 20 to May 1, 2003) which was led by the United States, alongside the United Kingdom and smaller contingents from Australia and Poland, and the continuing high tension in Middle East.

3.2.2 Official Sector Sale

In addition to gold mine production, the other factor comprising most important share in gold supply is gold sales coming from governmental agencies, especially from central banks. Central Banks continuously decrease their gold reserves as of 1989.

According to Stanley (1998), central Banks sell gold in order to provide money stability, diversify their portfolio and stabilize the inflation. The developed countries such as Sweden and UK prefers to create their reserves by assets having high profit and being more liquid and thus sells gold regularly.

Bordo and Schwartz (1994) added that the other reason of gold sale is; it is used as the final source when a country is in trouble. For example, whilst in 1990s, Belgium decreased its public debt by selling 1,006 ton gold for admission to EU, gold producing country Canada also sold gold in order to close its budget deficit. Switzerland having high amount of gold within national reserve proportional to size of its economy made a plan intended to decrease of gold stocks within 5 years in 1999 and started to sell gold. Some part of funds obtained from sale transferred to defense fund.

Gold sales in economies governed by central planning are determined according to the foreign exchange needs of such countries not their annual gold mine productions. The increase of number of central banks made difficult to estimate what central banks do or what central banks will do about gold reserve of central banks that have different fiscal and money policy. For example central banks that made supply of 544 ton in 1979 purchased 230 ton in 1980.

As it is known that an important amount of gold is remained idle, there is increase in gold supply in the event these stocks are presented for sale, and this makes prices lower. Cross (2000) said that the Central Bank Gold Agreement was signed by 15 central banks on 26 September 1999, which concerns reserve policies of participating countries and limits gold sales. After the agreement, gold producers that think gold prices would increase and official institutions' gold sales remain in certain amount, decreased hedging transactions and this caused decrease of gold supply.

3.2.3 The Central Bank Gold Agreement

15 central banks within the scope of agreement: Austria Central Bank, Italy Central Bank, French Central Bank, Portuguese Central Bank, Switzerland Central Bank, Belgium Central Bank, Luxemburg Central Bank, Germany Central Bank, Spain Central Bank, UK Central Bank, Finland Central Bank, the Netherlands Central Bank, Ireland Central Bank, Swiss Central Bank, and Europe Central Bank.

According to said agreement, gold continues to remain important part of global monetary system. 15 countries that signed agreement already planned gold sales of central banks and scheduled it, and already declared date of sales to the market. Countries cannot realize another sale except for planned sales.

This agreement also planned gold sales for 5- year time period. In addition, annual sales cannot be more than about 400 tons; thus total gold sales cannot exceed approx. 2,000 tons within 5 years. Also after 5 years,

the countries that signed agreement would not increase futures and option gold transactions.

This agreement affected gold supply because of limitation to governmental agencies' sales and also stabilized gold market as a result of gold sales by central banks. This agreement expired in 2004.

On Monday, 8th March 2004, the European Central Bank and 14 other central banks announced the renewal of the Central Bank Gold Agreement (CBGA). The new agreement's terms are similar to the one due to expire in September 2004. For instance, the new agreement even maintains the cap on lending and derivatives activity at levels lower or equal to the ones "prevailing at the date of the signature of the previous agreement". Indeed, the only substantive change to the existing CBGA is that the maximum level of sales has been increased from 400 to up to 500 tonnes per year, with an overall total of no more than 2,500 tonnes permitted during the five-year life of the new agreement.

3.2.4 Scrap Gold Supply

Scrap gold supply provides to meet cash need of especially jewellery, commemorative coins, medallion or similar items or to change in order to buy new ones.

Scrap gold sold to the jewelers and goldsmith by people having gold money or jewellery are treated to refining procedure after melting and supplied to gold markets again after turning into standard 24 carat gold bullion.

Gold jewellery items sold by various country citizens in periods when structural changes occurred and gold prices increase comprises most important source of scrap gold supply.

The person buying gold, can want to sell it in case of increasing prices or encountering economical difficulties. For example there is 700% increase in scrap gold supply in Thailand at the moment of crisis.

The most highest price flexibility is at scrap gold supply among mine production comprising world gold supply, and official sector sales . Once the gold prices increase, the people start to sell their gold and the gold prices decrease, sale proceedings end and they buy jewellery that they sold in short term. The increase of gold ounce price by 850 US Dollar in 1980 caused the increase of scrap gold supply by 482 ton; the decrease of ounce price by 600 US Dollar in 1981 caused the drop of scrap gold supply by 232 ton.

It is very easy to have opinion regarding in which point increase and decrease is concluded at the market by monitoring course of gold supply. The increase of scrap gold supply is construed as the end of price increase and decrease of prices soon; and the decrease of scrap gold supply is construed as the end of price decrease and increase of prices soon.

3.2.5 Hedging Transactions

According to Neuberger (2001), hedging transaction means agreement of gold producer by a bank or intermediary agency that trades gold bullion for the reason of sale in certain amounts in designated date in order to protect itself against decrease of prices. In this sense, hedging transaction can be evaluated as forward sale.

The forward sales of producers arisen from hedging transactions causes physical gold sales at the spot market and increases gold supply. Commercial bank or intermediary agency undertaken to buy gold from gold producer in the future generally receive borrowed gold from any central bank in order to protect itself for risk and turn these gold into cash in spot market. Bank that uses the cash fund at finance market and gain some earning to buy gold from producers against foreign exchange on due date and uses it to pay gold debt to central bank. Sale of gold borrowed from reserve of central bank by other party, commercial bank at the spot market creates additive effect of gold supply.

4. THE GOLD MARKET

4.1 The World Gold Markets

International exchange system in periods that gold is used as means of exchange in monetary system, thus strict controls on gold trade prevent development of gold market in many countries. However monetary function loosening of gold in economical order with end of Bretton Woods principles at the beginning of 1970s removes principle of prohibition intended for international gold trade. According to Yıldırım (1991), popularization of liberalization movements intended for gold trade prepares suitable ground for creation and development of international gold markets.

Many gold exchanges are structured different from good exchanges by reason of the fact that gold is strategically important and international means of reserve. These are exchanges called as gold or precious metal exchange and operated 24 hours.

Some gold exchanges are: London Gold Exchange, Zurich Gold Exchange, New York Gold Exchange (COMEX), Hong Kong Gold Exchange and Tokyo Gold Exchange. There are differences in development of exchanges and also between markets developed in national or regional conditions.

The decrease of the importance of gold caused development of new centers which futures depending on gold are carried out. London and Zurich Gold Markets are examples for centers that spot gold transactions are made.

New York (COMEX) and Hong Kong markets are examples of markets that futures are made.

The point in international gold markets is that in some countries, there is more than one operational exchange. There is only one exchange in UK, Switzerland and Japan, respectively, as London, Zurich and Tokyo Gold Market. There are five major exchanges in USA: New York Commodity Exchange (COMEX), Chicago International Monetary Market, Chicago Board of Trade, Mid-America Exchange, and New York Mercantile Exchange. The biggest transaction volume is realized by COMEX with 95% share.

The other difference among world gold markets is regulatory authorities. In some countries gold authorities operate under supervision of central banks, whilst in some of them this task is carried out by governmental agencies responsible for operation of futures markets. For example London Gold Market in UK operates under the roof of LBMA established in supervision and consultancy of UK Central Bank. Gold Markets in the USA are assessed as a part of commodity exchange. Therefore it operates in supervision and consultancy of Commodity and Futures Trading Commission responsible for gold market and futures markets.

The certain standards are applied in transactions realized in international gold markets and there are some differences. According to said international standards, ounce is used as weight in London, Singapore, Hong Kong and USA markets and US Dollar is used as the major gold related

currency. The transactions are made in Swiss Frank in Zurich Gold Market, in Tokyo Gold Market; 100 g is used as weight instead of 1 ounce.

It is obliged to be member to operate in gold markets and to meet some conditions such as capital sufficiency. Professional competence and experience is another condition at London and USA gold markets.

General trend is to have three structures in membership mechanism. This structure consists of broker, dealer and traders (making purchase-sale for arbitrage). Brokers are intermediaries transferring the orders of gold purchasers-sellers for speculative purpose to exchange saloon.

Dealers are operators making transaction for their accounts and the most important function of them is to present liquidity. Arbitragers carry out physical transactions. Banks and intermediaries trading gold bullion, refiners, trading agencies actively operated in gold production, analyzing, refining, storing, distribution and marketing are in this group. The aim of these members is to gain profit from price differences and to protect against foreign exchange risk.

4.1.1 Gold Spot Market

Spot markets are markets that gold is physically purchased and sold, and delivery is made two days after payment. If customer wants this transaction to occur in another place, it can be realized at its cost and risk. The investors who want to hold gold, the jewelers who need gold and mining companies and banks that want to receive their money when gold sold, are some participants of spot gold markets.

The leading spot gold markets of the world are London Gold Market and Zurich Gold Market. London, the biggest center of gold trade, played an important role in development of spot markets.

It is required to provide supply of raw material to be marketed in any markets. Thus it is very important to provide gold supply with minimum input cost rather than rich goldfields among natural resources of country. Yildirim (1991) stated that however rich goldfields are not sufficient in South Africa, gold coming from colonies of UK in 19th century were marketed in London, and causes London being world's first and most important gold market.

According to Yildirim (1991), the second condition in development of gold market is the requirement of capital centered market. London becomes a capital centered point with effect of colonialist position of UK in 1800s. This provides required infrastructure in London for marketing gold.

London has organizational structure in purchase-sale of gold. Price occurred in London Gold Market having important place in international gold market significantly affects determination of world gold price.

4.1.2 Gold Futures Market

Futures means purchase and sale of agreements conditioned that the value of standard item is designated today and payment is made in future dates. At futures, delivery dates can change. There are some certain months that transaction volume is high. Most of the transactions realized in specified months. For example in COMEX, active months are February,

April, June, August, October, and December. In that case delivery must be realized within such month and one of the following 11 months.

Futures markets are used as a protection method against risk, speculation and arbitrage. Exchange where contracts are transacted designates creation of estimate price for future, risk transfer, supply-demand balance, and real source distribution.

The aim in establishment of these markets is decrease of price risk that affects decision making process negatively. In case of efficiency of these markets, there is a chance to have knowledge of the course of demand and supply in the future and to evaluate the future prices in purchase-sale.

Futures agreements provides protection for members who needs said item against increase and decrease of prices in transacted due. On the other hands futures provides item needed by consumers in delivery due and prevent storage cost. By this means payment is made at specified future date and the option to alternatively use the amount paid against said product up to delivery date is allowed. Futures have risk decreasing effect, however risk does not eliminate, it is only transferred to those made transactions for speculative purpose.

Gold is transacted in spot markets and futures market. According to Yıldırım (1991), competition among world gold exchanges is effective in leading of new presentation of newly developed centers and this causes functional differences and revealing futures gold markets. Prohibition of gold trade until 1974 in USA led to benefit futures exchange by New York,

Chicago gold markets in that period concentrated on speculative gold demand.

The gold futures market operated in second half of 1970s in addition to gold and silver exchange that cash purchase is made. Hong Kong Gold Futures Market is the second most important position after New York COMEX.

Yıldırım (1991) stated that there are three effective factors in development of gold futures markets after oil crisis experienced in 1970s and high inflation. First two factors are high gold demand for speculative investment purpose and development of mechanism intended for international fund management. The third factor is completion of institutional and technical infrastructure, occurrence of exchange centre operating in international standards, benefiting from automation and developed technology.

Jewelers made purchases in order to eliminate risks arisen from changes of gold price and fix the price of products. Mining companies make sale in order to protect their productions against price decreases.

4.1.3 Gold Bullion Standards

The gold bullions has to meet certain standards in subjects relating to weight, adjustment, physical appearance, melting and assessment report of analysis companies. These standards are as follows;

1. Weight: weight of bullions is 350 – 430 ounce in London Gold Market, 95-105 ounce in COMEX and 1000 g in Tokyo Gold Market.

2. Purity degree (adjustment): Minimum purity must be 995/1000 in London and New York Gold Market; 999/1000 in Tokyo Gold Market.

3. Stamp: Gold bullion must be stamped by registered analyst and expert and must have serial number. For bullions having not expert stamp, there must be a document with regard to serial number and adjustment of gold.

4. Appearance: Gold bullion must be free from foreign matters, extreme volume loss and must be pure, smooth surface and free from gap and bubble. It has no acuminate edge.

4.1.4 Saving

According to Yıldırım (1991), Members give gold saving service in almost all gold markets. Saving has implemented in two ways:

1. Unallocated accounts: most of the customers do not want physical delivery and to have gold accounts under their names and keeping gold in that account. In that case, gold bullions must not be allocated on customer basis.

2. Allocated accounts: If customers want purchased accounts to be delivered, this method is used. In that case, there must be detailed list for weight and assessment results.

There are very few differences in operation and institutional structure but there are differences arisen from economical conditions and traditions.

4.1.5 Gold Lending Market

Gold lending market is a market that gold is borrowed in specified due date. Gold lending market was started to form in 1980s. Transaction volume at the market showed five times increase in last decade. The 900 ton borrowed gold in 1990 increased by 4,700 ton by 2001.

There are three participating groups in development of markets. These are mining companies extract gold in goldfields, gold bullion banks make intermediary and central banks for hedging and liquidity.

4.1.5.1 Demand in Gold Lending Market

The most important reason of volume increase is gold lending movement resulting from hedging transactions.

When there is expectation in decrease of gold prices, gold producers sell gold for account to gold trading banks or intermediaries. The other party (bank or intermediary) borrow gold for protection and invest on them. When fallen due, gold liability to central bank meet by gold undertaken to purchase from producer and it pays funds to customer.

The other reason is the obligation to decrease cost of gold. Mining companies borrow gold from intermediary firms in order to finance required investment and transaction expenses. Producers sell borrowed gold at spot market against cash fund in US dollars and use funds for finance of protections.

The other demand factors are jewelers, jewellery producers, commercial banks, intermediaries, investors and speculators. Jewelers and producers demand gold for protection from risks.

4.1.5.2 Supply in Gold Lending Market

The willingness of central banks about lending gold in their reserves causes rapid growth at gold lending market within last decade. They aim to increase their profits by using their gold reserves and they frequently take part in gold lending market.

Central banks provide liquidity through swap transactions as Foreign Exchange Reciprocal Gold or forward gold storage. Central banks lend gold to commercial banks and organizations and they take risk of the bank. The interest of borrowed gold can be foreign exchange or gold.

The decrease of demand of gold lending and unwillingness of central banks not to make investment with low interest causes decrease of liquidity. In addition, since credit rating institutions decrease credit marks in banking sector, the concerns increase about credibility of banks causes risk of non-obtainment of gold.

4.1.6 Gold Interest Rates

Gold interest rates are determined by demand and supply conditions. Surplus of supply at gold lending market causes gold interest rate being lower than interest rate in all money markets.

Size of hedging markets and high activities in lending market of central banks affects gold interest rates significantly. There is no demand in lending markets in 1970s and liquidity surplus in parallel with increase of transactions of central banks leads to low interest rates and remains at 0.25-0.50%. The interest rates tending to increase up to 90s, in general transacted in the levels of 1-3%. However, rates do not remain constant (0.01-7.00%)

after 1995. Gold interest rates highly increased in 1999. At the same year, the gold sales of central banks and the agreement signed by 15 European Central Banks, limitation of amount of borrowed gold caused liquidity shortage. In parallel with these developments, gold interest rates increase by 6.5%.

Gold interest rates decrease in last two years. Increase of gold prices because of political and economical negativeness in the world and increase of geopolitical risks, and the expectation about continuity of increase causes decrease of transactions for protection against risks and thus decrease of borrowed gold demands. It is the one of the effective factor of decrease seen in 2001.

5. GOLD MARKET IN TURKEY

5.1 Place and Importance of Gold in Turkey

According to Özgül (1992), gold played different roles in country's economy. The first gold used in our country is Sultani gold used by Fatih Sultan Mehmet in 1477. Paper money was started to be used in the last years of Ottoman, however because of instability gold demand increase. Gold that provides return up to 1980s cannot provide return after 1980 because of the lack of alternative means of investment, increase of inflation and interest.

It is traditional to use gold as saving with the effect of use as money in Ottomans. Gold culture is developed in Turkey in terms of investment.

5.2 Gold Demand in Turkey

The factors affecting gold demand in Turkey are social, economical and political factors. Important part of the gold is bought and sold because of wedding, bairams and circumcision feast, and also gold demand increase in war period, and authoritarianism.

The other factor affecting gold demand in Turkey is economical factors. Strict exchange controls, fixed rate system, devaluations with high rates causes increase of demand of gold.

Increase of alternative means of investment negatively affects gold demand, gold releases its importance. Gold demand decreases with development of capital market after 1980, occurrence of stock certificate, bond and repo.

The estimates and indicators affect gold demand. New regulations on import and export, strict money policies for decrease of inflation, change

of interest rates, increase or decrease of required reserve ratio of central banks affect gold demand directly.

Çıtak (1999) said that the use of gold is concentrated on jewellery sector. In research of PIAR Gallup company, it is seen that 62% of Turkish people see gold as an item used in jewellery and 38% of them sees gold as means of investment. In same research, the share of bank security and real estate as per 1996 is respectively 25% and 20%, gold jewellery, republic gold and gold bullion is 25%.

Goknil (2003) highlighted that Turkey is among first ten countries in the world with gold export ranging between 100-200 tons. This shows its importance of its role in world gold sector.

5.3 Gold Supply in Turkey

Although there is gold mines in Turkey, since mines are not operated in, important part of gold need is met by export and approx. 30% of it is met by exchange of gold.

5.4 Evaluation of Gold Market in Turkey

The formation of gold market in Turkey is examined in four stages. Historical process starting before 1980, prohibition of gold export: Gold Market against Turkish Lira established under Turkish Central Bank, Foreign Exchange Reciprocal Gold Market established in 1989 and Istanbul Gold Exchange established in 1995.

5.4.1 Gold in Turkey before 1980

According to Aslan (1999), governments stored gold reserve for T.R. Central Bank from establishment of Republic to 1960s. At this period, there are strict controls on foreign trade and gold trade was mainly ignored.

The cares were concentrated on internal and external gold flows and the efforts controlling gold smuggling increased. For this purpose, the law “Law for Value Protection of Turkish Currency” was ruled and the authority of prohibition, limitation and regulation on precious metal import and export, precious stone and products export , ruled. However due to limitations in exchange regime, prohibition of gold import and export causes sale and purchase of gold with high profit by smuggling. According to Çıtak (1999), it is estimated that at that period, annual approximate 80 tons gold enters to the country in illegal ways.

Gold was assessed as a very important resource in order to export raw material and other goods in Turkey at period experienced foreign exchange crisis. Gold played means of exchange in Turkey before 1980, it is borne feature of means providing required flexibility. Thus free gold and foreign exchange market developed in İstanbul and Tahtakale became center of it. At the end of 1970s, required transfers were realized in Tahtakale for payments and major amount of gold exit appeared in country.

5.4.2 Gold Market against Turkish Lira

Turkish Government adopted new structuring program containing liberalization in 24 January 1980 and tried to integrate with global markets. Aslan (1999) mentioned that the program depending on establishment of

free market rules in all commodity, foreign exchange and capital markets played important role in liberalization of gold trade. Trading and import of gold was set free at the period 1983-1984 and export was subjected to some permits. The authority to fixing foreign currencies and gold prices against Turkish Lira (TRY) was given to T.R. Central Bank. Official gold market was first established with this authority.

T.R. Central Bank started to import gold, to sell imported gold to individuals and institutions against TL and to determine market price of gold on Turkish Lira basis by establishing Gold Market against TRY.

Existence of market in exporter and supplier structure prevented removal of difference between world gold prices and local gold prices, and saleable of gold only on Turkish Lira caused formation of foreign exchange risk. However this approach coincides with period that no sufficient foreign exchange of T.R. Central Bank is available, and this causes failure. Aslan (1999) said that the obligation to keep high of gold prices in order to decrease sales of T.R. Central Banks, the sole institution in export of gold, causes weakness of competitive force of jewellery producers and occurrence of unauthorized traders who make gold smuggling.

According to Aytoğlu (1996), in 1998, government gave authority to make new regulations related to gold trading to T.R Central Bank. Thus, Foreign Exchange Reciprocal Gold Market was established in 29 February 1989 under T.R. Central Bank. the authority of T.R. Central Bank was strengthened and the authority to make gold trade against foreign exchange with banks, private financial institutions and authorized agencies was given.

5.4.3 Foreign Exchange Reciprocal Gold Market

Central Bank of Turkish Republic has kept its position as the most competent body in raw gold import and established the Foreign Exchange Reciprocal Gold Market in 29th February, 1989. According to Aslan (1999), gold imported by Central Bank of Turkish Republic have been sold to persons within the country in exchange and in cash. The establishment of Foreign Exchange Reciprocal Gold Market is regarded as the most important development in the liberalization of gold market in Turkey.

Following the new reforms carried out in gold sector, there has been taken an important step in terms of the establishment of Istanbul Gold Exchange by making amendment under decree no.32 in regard to maintaining the value of Turkish Lira against foreign currencies in 1993. Aslan (1999) also mentioned that this amendment has ensured the liberalization of import and export of gold, authorized market participants have been given the right of importing and exporting gold bullion as depending upon their declaration clause; determination of gold price has been allowed to be decontrolled instead of its being carried out by the Central Bank of Turkish Republic. These new adjustments have been implemented by the establishment of Istanbul Gold Exchange on 26th July, 1995.

5.4.4 Istanbul Gold Exchange (I.G.E.)

Istanbul Gold Exchange opened on 26th July, 1995 and has been the most material stage within the process of gold sector reform. Authority to import gold has been given to the institutions which are the members of

the stock exchange by means of getting rid of the monopoly of the Central Bank of Turkish Republic when Istanbul Gold Exchange got into operation. Gold deals have begun to carry out within a transparent environment under the rules of perfect competition and within an organized market in our country.

Gold Exchange ensures suppliers and demandants to meet each other within a determined corporate environment with the most plausible costs; some processes such as purchase, sales, pricing, exchanging, delivery... etc. to be carried out in accordance with the rules determined and under the control of laws as well. There has come up a chance for competitive price making following Istanbul Gold Exchange. Unofficial gold market has gained a corporate structure and there has been presented a safe environment for investors. By this means, gold formerly regarded as a tool for conserving and keeping values in the form of jewelry to a great extent has been presented for Turkish people in the form of bullion as an investment tool.

Developments with regard to gold cause the difference between domestic gold prices and world prices and costs to decrease disadvantageously. Foreign competition chance of gold sector has been increased; there has been entered into such a process that not only would give a opportunity for satisfying domestic demand by means of processing gold imported, but also exporting abroad.

6. AN ECONOMETRIC ANALYSIS BETWEEN US DOLLAR AND GOLD PRICES

In gold market, prices are fixed in the long run by some factors determining supply and demand. However, in the short run, gold demand is more likely to be the determinant over the price making due to the fact that supply is not flexible and physical restrictions prevent gold production from passing beyond a determined point.

As it is considered in terms of supply, total annual world gold production, production costs, political environment of gold producer countries and developments in balance of payments (BOP) in these countries, gold sales of central banks and forward sales of metal manufacturers are all effective over the price movements. Costs required to be covered by mining companies in order to implement gold production account for the fundamental level for gold prices.

On the other hand, economic and political development in the world, fluctuations experienced in share and foreign currency markets, inflation, devaluation expectations, oil prices, monetary policy of central banks and interest rates, interventions by central banks in markets, reserve management of central banks are the other factors becoming determinant over gold prices as it is considered in terms of demand. As a matter of fact, demand factors has been influencing the gold prices much more since 1971, when developments in gold prices are all evaluated.

Gold's disappearing from the circulation in the international monetary system and the start of fixing gold prices freely under the conditions of supply and demand in the market has made governments,

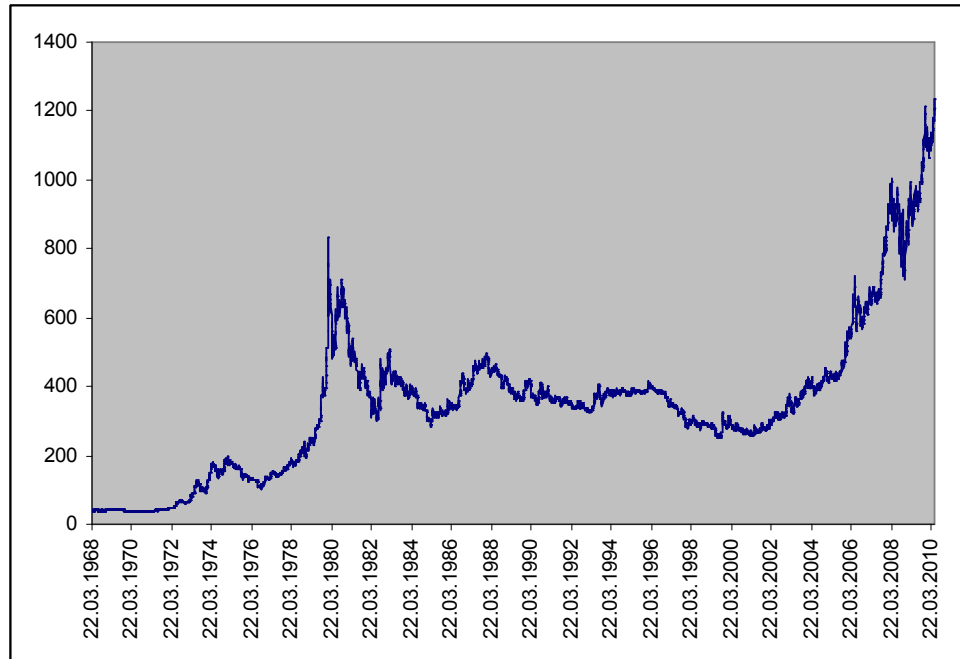
business environments and academicians more interested in gold prices. Each new crisis encountered in the world economy has triggered this interest and caused economists to explain fluctuations in gold prices by themselves. According to Booth Kaen and Koveos (1982), particularly the US Dollar foreign exchange, silver prices, oil prices, alternative investment tools and effect of inflation over gold prices have accounted for the subject of many empirical studies taking part in finance literature

In this part of the analysis, the developments monitored on world gold prices and EUR/USD parity between the years 2000- 2008 have been firstly discussed in brief.

6.1 Analysis of World Gold Prices

1 ounce gold started to be trading for 44 US Dollar in free market following the amendments of the gold convertibility of US Dollar in 1971. Between the years 1944-1973 when Bretton Woods's system was in force, gold prices, which were allowed to fluctuate but limited, started to increase faster after the system ceased. Term between the years 1970-1980 when contradictions were going on between Eastern and Western blocks, oil prices and inflation rising, interest rates providing with negative income in real terms and there was not such a development over capital markets as it is today has come up with the required environment for persons to be more interested in gold.

Figure 3: World Gold Prices (1968-2010)



Source: Reuters

Instability in money markets at the beginning of 1970s has maintained the speculative gold demand continuously active. According to Aliç (1985), at the end of 1973, prices reaching upon 112 US Dollar/ounce (as seen in Figure 3), American government's announcing that gold sales would be free to people and oil crisis having started in 1974 had all caused it to increase up to 200 US Dollar/ounce as a whole (as seen Figure 3). Yıldırım (1991) mentioned that fast increase in oil prices during this term caused oil manufacturing countries to have excessive funds and invest these funds in the gold-indexed time accounts centered in European and American banks. Increase of demand for gold passed through to the prices accordingly.

Economic revival in USA and the decision of IMF taken about "stopping the role of gold as a scale in monetary system" caused the gold to

be regarded as just a good not passing beyond its being a precious mine and demand for the gold started to fall. In addition Aliç (1985) said that the negative effect of this situation over prices, the decision of IMF in the direction of selling 1/6 of gold in hand within four-year duration in free market and starting sales in 1975 caused prices to move backward on 109 US dollars/ounce (as seen in Figure 3). As a result of instabilities in exchange markets and Central Banks' directing to gold markets, Akben (1980) mentioned that prices in upward trend again rose up to 850 US Dollar/ounce upon the political tension in Iran and Afghanistan at the beginning of 1980s (as seen Figure 3). However, by this time gold had experienced a decline for a while.

Aliç (1995) also mentioned that industrialized countries' setting their economies into order, appreciation of US Dollar, increase in gold supply and interest rates and fall in oil prices had become primary reasons for gold prices to move backward for 50% percent within two years and become 332 US Dollars/ounce again (as ssen in Figure 3). Fast upturn in prices in 1970s could not be experienced in gold prices again in 1980s but recorded some rises and falls during the term till 1988 depend on changes in gold supply and its progress in exchange markets and have entered into a determined slowdown trend since 1988.

Fast development particularly in international capital markets and eastern block countries' speeding up the gold sales due to the political and economical conditions they experienced were effective over the price falls in 1988 and 1989.

According to Özgül (1992), prices increased by the impacts of The Gulf Crisis arising in 1990 were move backward again in 1991, as the war was not so long and there was stagnation in production and political tensions lessened after the dispersal of Soviet Union.

After three year- duration when gold prices increased or decreased only for about 4% on the base of US Dollar, gold prices recorded the most important fall of all occurred throughout the years in 1977 by excessive rise of domestic gold prices due to the monetary crisis breaking out in the second half of the year in Eastern Asia and the increase in gold sales carried out by central banks since 1996, has been in a downward movement until 2002.

The factors effective in the downward movement of prices from 1995 till 2002 as seen in Figure 3, are the sales implemented by central banks, forward sales implemented by producers and tension experienced in the market with regard to the level of sales the sector would implement in the future. Also, there has been the expectation that strengthening of US Dollar would further weaken the price of gold in US Dollar. This was also an effective factor for the downturn process.

Although the general tendency of the term between the years 1995-2002 has been in the direction of fall in prices, seasonally in this process there has been monitored sometimes that gold prices was supported as well. Partially elimination of uncertainty and unrest occurred in the market due to the sales implemented by central banks through “The Central Bank Gold Agreement” signed on 26th September, 1999 that caused gold prices to

increase. Additionally, becoming smaller of gold mining sector due to the closure of some companies and some wave of mergers cause mining companies' forward sales for the purpose of protection to minimize and this situation contribute to gold prices.

After the terrorist attacks in 11th September, 2001, considering gold as a trustable investment, fluctuations in foreign currency markets and the recession in the world economy directed the attention of investors to gold. The loss in equity market, confidence crisis, and increasing conflicts between Israel and Palestine in Middle East were other factors supporting gold. Due to this reason, gold prices showed a rising tendency as a result of recovery in physical demand during 2002 and with the impacts of investment transactions. On the other hand, Vural (2003) said that besides all of these factors the tension between USA and Iraq in 2002 about the subject of disarmament, increasing geopolitical risks, concerns about the possibility of war in Iraq, value loss in US Dollar and the rapid rise in oil prices caused gold prices to reach the highest level, 349.30 US Dollar/ounce, in the last five years. With the increase for 26% in the prices, gold became the most profitable investment of 2002.

Table 4: The Gold Prices between 2002 and 2010

	2002	2003	2004	2005	2006	2007	2008	2009	2010*
The Gold Price	346,70	414,80	438,10	517,20	636,30	833,20	878,20	1.095,70	1.197,70
The Change (%)	-	19,6%	5,6%	18,1%	23,0%	30,9%	5,4%	24,8%	9,3%

*As of May 7, 2010

Source: Reuters

As seen in Table 4 after 2002, the gold prices continued its upward trend. Gold prices increased by 19.6% to 414.80 USD in 2003, by %5.6 to 438.10 USD in 2004, by 18.1% to 517.20 USD in 2005 and by 23.0% to 636.3 USD in 2006 which signaled the global financial crises that was realized in the second half of 2007 and 2008. The gold prices jumped by %30.9 to 833.20 USD in 2007 while it only improved by 5.4% to 878.20 USD in 2008 as a result of big global financial crises in the same year. The demand for all financial instruments including gold prices was contracted in that period. However, this was a short- term for gold prices because it has reached its highest levels in the following years. In 2009, the gold prices rose by 24.8% to 1,095.70 USD while it has reached the 1,200 USD in May 2010 on the back the decline of trust in paper money all over the world parallel to economic and political uncertainty and the downward trend of US Dollar.

6.2 Literature Review

In the literature of international finance, different opinions' having been expressed according to the econometric analysis about the factors affecting the gold prices and reaching different conclusions by using time series analysis and setting different econometric models with different explanatory variants.

According to the studies of Kotsiyannis (1983), Dooley, Isard and Taylor (1995), Sjaastad and Scacciavillani (1996) Ghosh, Levin and Macmillan (2002); the general opinion between the academicians and professionals, and the overall tendency observed in the market show that

there is a close and inverse relation between gold prices and US Dollar. This relation arises from 1 ounce gold price's being denominated in US Dollar within international market. As the value of US Dollar increases, the gold price decreases and as the value of US Dollar decreases, gold price increases. When US Dollar gains value, national currency loses value and purchasing power of the investors decreases; as a result of this they retract their demand from the market. This situation puts pressure on prices and causes shrinkage in prices.

The movements in USA interest rates affect the world economy in terms of the intensity of international trade volume and capital movement of USA and US Dollar composes a significant share of liquidity in financial markets. So, these situations are accepted as the most important reasons for the relation between gold prices and US Dollar and USA economy as well. Being deprived of the interest gain of the traders, who have a gold stock, according to the interest rates in the money market creates opportunity cost. According to Koutsiyannis (1983), increasing impact of interest yield as a result of the strength of US Dollar causes the traders to prefer US Dollar rather than gold.

Koutsiyannis (1983) added that because oil revenues of the countries which are the members of OPEC, are considered as the most active participant in gold market, are calculated in US Dollar due to the crude oil prices' being quoted in US Dollar, it is thought that this situation is effective on the relationship between gold prices and US Dollar.

There has been coincided with various studies examining the relationship between US Dollar and gold prices among the empirical studies related to financial markets. Koutsiyannis (1983) studied the daily price movements during the term between January, 1980 and March, 1981 and showed that gold prices move reversely according to US Dollar and there was a strong relation between them supporting the general opinion.

In the studies of Baker and Van Tassel (1985) including the period from 1974 to 1980, by using monthly data, it was defined that there was a meaningful and reverse relation between the value of US Dollar in foreign currency market and gold prices.

In another study about the relationship between exchange rate and gold prices Dooley, Isard and Taylor (1995) determined that exchange rate parity of US Dollar against German Mark, Japanese Yen and British Pound is effective for explaining the changes in gold prices.

According to the results of econometric model found by Sjaastad and Scacciavillani (1996) in order to show the relationship between gold prices and exchange rates during the period between 1982 and 1990, although the changes in the value of US Dollar affected the gold prices reversely, the relationship between them was not strong as it was thought. The changes in national currency of the country which has a significant portion in world gold production and the fact according to which there was not a systematic relation between gold prices, gold prices' being mostly affected from the loss and increase in value of the currencies of European countries and directly related relation between them are the other findings of the model.

According to the argument of Sjaastad and Scacciavillani (1996), the biggest transaction volume is carried out by European countries. Increase in the value of currencies of the countries against other foreign currencies increases the purchasing power of European investors and provides them to purchase gold in greater amount. In this situation gold prices are supported.

Ratner (1992) conducted a study about the impact of exchange rates in Canada, France, Italy, Japan, Germany and England over gold prices between April, 1973 and December 1988 and found out that exchange rates did not have a statistically meaningful impact over the gold prices in contrast to the findings of other studies in literature.

Recently, Sjaastad has analyzed the relationship between the price of gold and the exchange rate in 2008. In this study, he used 1991- 2004 daily data and he found that USD Dollar was the exchange rate which affected the gold prices more than the other ones. According to his study, it is seen that the European exchange rates are more effective than the US Dollar on the gold prices in 1980s while the USD Dollar has become more effective than European exchange rates in 1990s.

6.3 Empirical Analysis

In this section, the relationship between gold and EUR/USD parity will be analyzed by an econometric model. In this model, the daily gold and EUR/USD parity between Jan.'00 and May'10 will be used as data and the effect of EUR/USD parity on gold prices will be analyzed. In addition, the oil prices and Dow Jones Industry Index are also included in the study for the same period.

This part of the study will explain the selection of the sample, collection of the data, along with the method of the research and the analysis of the data.

6.3.1 The Data

This study includes 2,697 data which are obtained from Reuters.

The input data are:

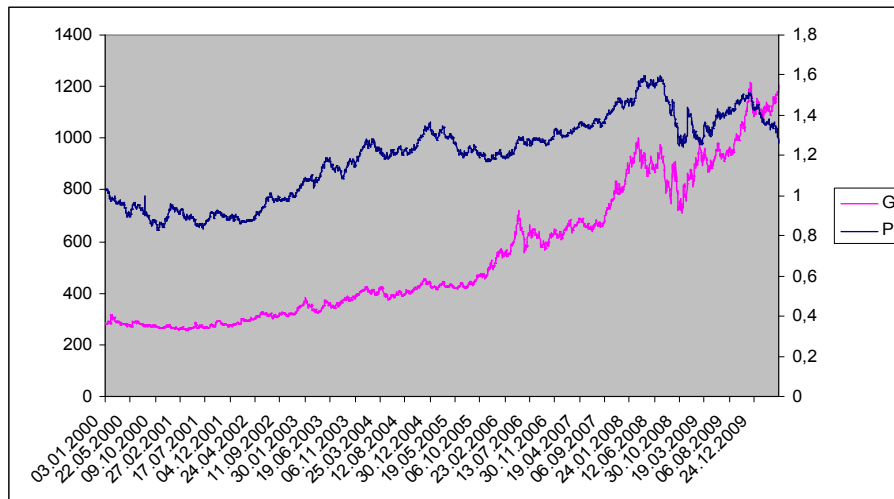
G: The price of Gold

P: EUR/USD Parity

O: Oil

DJ: Dow Jones Industry Index

Figure 4: The Price of Gold and The EUR/USD Parity (between Jan. '00 and May' 10)



Source: Reuters

The correlation between these series is shown in Table 5.

Table 5: The Correlation between Gold and EUR/USD Parity

	G	P1	PETROL	DJ
G	1.000000	0.847685	0.805110	0.209095
P	0.847685	1.000000	0.849171	0.355319
OIL	0.805110	0.849171	1.000000	0.542566
DJ	0.209095	0.355319	0.542566	1.000000

6.3.2 Econometric Method

In this study, a simple econometric model is built based on the Ordinary Least Squares (OLS) estimation rule via E-views. According to least squares estimation rule, a line is fit or chosen that sum of the squares of the vertical distances from each point to the line is as small as possible.

The econometric model is

$G = aP + e$; G: The price of Gold, P: The EUR/USD parity, e: error term

Dependent Variable: G					
Method: Least Squares					
Date: 06/13/10 Time: 14:43					
Sample (adjusted): 3/01/2000 7/01/2010					
Included observations: 2697 after adjustments					
Variable	Coefficient	Std. Error	t-Statistic	Prob.	
P1	472.7504	3.012169	156.9468	0.0000	
R-squared	0.479984	Mean dependent var		543.1032	
Adjusted R-squared	0.479984	S.D. dependent var		262.8379	
S.E. of regression	189.5380	Akaike info criterion		13.32743	
Sum squared resid	96852867	Schwarz criterion		13.32961	
Log likelihood	-17971.04	Durbin-Watson stat		0.002205	

Following testing of the mentioned econometric model via E-views, these results can be mentioned:

1. Since the R-squared (0.479984) is below to 0.50, it can be said that the movements of the price of gold can not wholly explained by the movements of EUR/USD parity. (R-squared is a statistical measure of how

well a regression line approximates real data points; an r-squared of 1.0 indicates a perfect fit.)

2. On the other hand, according to t-test, it is seen that the model is a meaningful statistical model since the p calculated (0.0000) is smaller than p value (0.05).

As a result, since R- squared is lower than 0.50, this model has become invalid.

So, this econometric model has been restructured by adding the oil price (O) and Dow Jones Industry Index (DJ) as a parameter to the model.

The new model is: $G = aP + bO + cDJ + e$; G: The price of Gold, P: The EUR/USD parity, O: the price of oil, DJ: Dow Jones Industry Index, e: error term

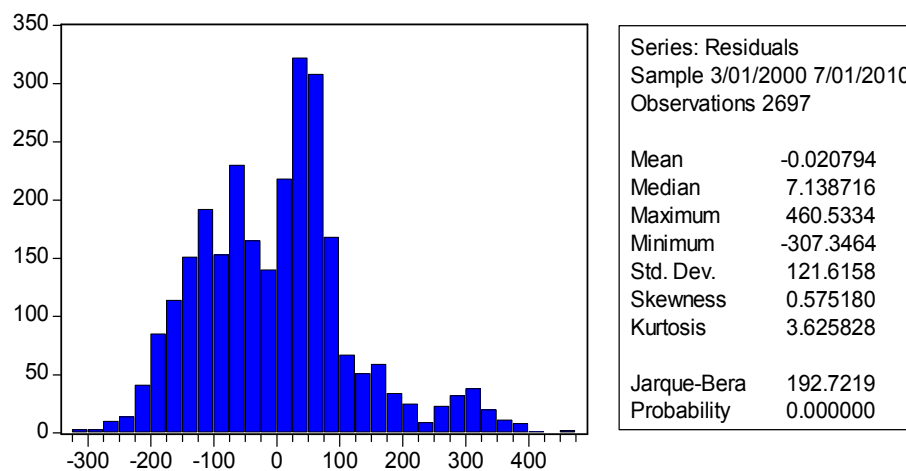
Dependent Variable: G					
Method: Least Squares					
Date: 06/13/10 Time: 14:45					
Sample (adjusted): 3/01/2000 7/01/2010					
Included observations: 2697 after adjustments					
Variable	Coefficient	Std. Error	t-Statistic	Prob.	
P	635.7150	13.76212	46.19310	0.0000	
O	5.269588	0.125572	41.96480	0.0000	
DJ	-0.046079	0.001310	-35.17344	0.0000	
R-squared	0.785906	Mean dependent var		543.1032	
Adjusted R-squared	0.785747	S.D. dependent var		262.8379	
S.E. of regression	121.6610	Akaike info criterion		12.44147	
Sum squared resid	39874947	Schwarz criterion		12.44803	
Log likelihood	-16774.32	Durbin-Watson stat		0.012698	

Following testing of the mentioned econometric model via e-views, these results can be mentioned:

1. Since the R-squared (0.785906) is high (above 0.50), it can be said that all movements of the gold price can be explained by the movements of oil price and Dow Jones Industry Index.

2. According to t-test, it is seen that the parameters of the model (price of oil and Dow Jones Industry Index) are statistically meaningful since the p calculated (0.0000) is smaller than p value (0.05).

3. In order to analyse the reliability of the t-test, it should be analyzed that whether the error term of the model distributed normally or not via Jarque-Bera Test (is a goodness-of-fit measure of departure from normality). As known that if the error term is normally distributed, this means that the data are also normally distributed.



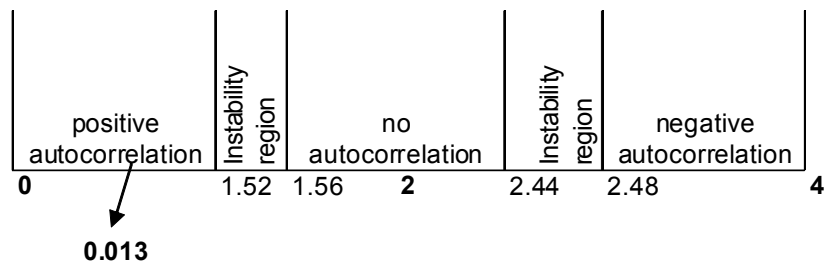
According to Jarque-Bera Test, the error term is not distributed normally since skewness is bigger than “zero” (it should be smaller than “zero”) and the kurtosis is bigger than “three” (it should be smaller than “three”). As seen in the table p calculated (0.000000) is smaller than p value (0.05). This result is cause a decrease in the reliability of our model. But since we cover the crises period, the data that we used are wearing this

abnormality. In addition, the demand of gold has risen sharply in recent years since it has been seen as a safe haven in this period. As a result, when evaluating the model these conditions should be considered.

4. The next step is to test the presence of autocorrelated errors. Such testing is necessary because in real-world problems we are uncertain as to whether the errors in our econometric model are correlated. If the errors are correlated, the generalized least squares (or non-linear least squares) procedures are needed for estimation and inference.

H_0 : There is no autocorrelation between error terms.

H_1 : There is autocorrelation between error terms.



When the $d_L=1.56$ and $d_U=2.44$ are checked from the d statistics table, it is seen that there is autocorrelation between error terms, the H_0 hypothesis is rejected.

On the other hand, when the constant term (C) which refers to other factors that are effected the movements in the price of gold, has added to the model and the model has become statistically unmeaningful.

The model is: $G = C + aP + bO + cDJ + e$

Dependent Variable: G					
Method: Least Squares					
Date: 06/13/10 Time: 14:45					
Sample (adjusted): 3/01/2000 7/01/2010					
Included observations: 2697 after adjustments					
Variable	Coefficient	Std. Error	t-Statistic	Prob.	
C	-3.372226	29.83855	-0.113016	0.9100	
P1	637.7178	22.43960	28.41931	0.0000	
PETROL	5.252715	0.195096	26.92370	0.0000	
DJ	-0.045906	0.002015	-22.78182	0.0000	
R-squared	0.785907	Mean dependent var		543.1032	
Adjusted R-squared	0.785669	S.D. dependent var		262.8379	
S.E. of regression	121.6833	Akaike info criterion		12.44220	
Sum squared resid	39874758	Schwarz criterion		12.45095	
Log likelihood	-16774.31	F-statistic		3295.219	
Durbin-Watson stat	0.012673	Prob(F-statistic)		0.000000	

So, this model is not included to this thesis.

6.3.4 The Evaluation of the Econometric Model

Based on the econometric model, it is obviously seen that the EUR/USD parity is not only factor that affects the price of gold. However, it has an effect on the price of gold with Dow Jones Industry Index and the price of oil. So analyzing the simple relationship between the price of gold and the EUR/USD parity is not enough to reach a conclusion.

The price of oil and the Dow Jones Industry Index are important parameters for the price of gold. Based on our e-views analyses, the price of gold, the price of oil and the EUR/USD parity move together while the price of gold has a negative relationship between Dow Jones Industry Index. This is also an expected result, since gold and Dow Jones are substitutes while oil and gold are both traded as commodity in the market. In addition, since gold seen as a safe heaven in the world, the negative market conditions also increase the gold demand.

Gold has been thought as a substitute of US Dollar since the collapse of Bretton Woods System in 1970s. As known, all the countries have started to issue their local money based on US Dollar since 1970s, however in recent years the market and the political conditions have changed which causes a big uncertainty in the world. As a result of this, the trust on paper money is declining day by day, which makes the gold attractive, precious and expensive.

7. CONCLUSION

Gold, which is known as the unit of value saving accepted by all world since long years, features safe medium of investment and saving because of rare existence in nature, being limited of its production, and being able to protect its values in all circumstances.

Gold was used as means of payment and then means of investment and saving for prehistoric ages, and it still protects its importance. However, it lost its monetary function with occurrence of modern economies and development of banking systems while gold becomes indispensable elements of central bank of national states.

On the other hand, gold also demanded to be used in jewelery sector, electronics, dentistry and medallion. Although gold was released from reserve dependency in monetary system and lost its feature being money, gold continues to be used as reserve holding medium by all countries' treasury and central banks today. In addition, individuals also demand gold for saving purpose since gold protects its value in all circumstances, and is considered as safe-haven, especially in high inflation, crisis and war and in circumstances of intense economical and political uncertainty.

Generally gold traded in two kinds of markets all over the world. One of them is called spot markets in which gold is physically purchased and sold, and delivery is made two days after payment. The leading spot gold markets of the world are London Gold Market and Zurich Gold Market. The other one is future markets in which purchase and sale of agreements conditioned that the value of standard item is designated today

and payment is made in future dates. Futures markets are used as a protection method against risk, speculation and arbitrage.

The importance of gold may differ depending on the countries. In Turkey, gold is a very important metal. The factors affecting gold demand in Turkey are social, economical and political. Important part of the gold is bought and sold in our country because of wedding, bairams and circumcision feast, and also gold demand increase in war period, and authoritarianism. The other factor affecting gold demand in Turkey is economical factors. Strict exchange controls, fixed rate system, devaluations with high rates causes increase in gold demand.

Following the collapse of Bretton Woods, the importance of gold in monetary system shifted to US Dollar, since all countries has started to issue money, based on their US Dollar reserve and US Dollar has also started to be used as a store of a value. However, the demand for gold always exists and the price of gold has upward trend. Especially, in 1970s after oil crisis, gold price reached its highest value from \$35 per ounce to \$850 in 1980. In addition, the demand of gold has been incerasing in recent years, while the price of gold has also reached its highest levels. The trust of paper money has started to decline more rapidly as a result of global financial crises, which started in the second- half of 2007.

After the 1980 peak of gold price, gold had been in a bear market for about 20 years till 2000. Since 2001 gold has been in a new bull market and it is thought that this would be the most powerful and impressive bull market in history, as gold is trading around record \$1250s whilst the

recently weakened EUR/USD parity. As gold is mainly priced and traded in US Dollars, most of the times there has been a strong inverse relationship between gold and US Dollar. At this point, we have to emphasize a very interesting development, as we look at the year 2008 we can see the gold price of \$1033 with EUR/USD parity trading at 1,60, then in 2010 we can see \$1200 gold price with the EUR/USD parity trading at 1,27. So this shows us the decoupling of gold from US Dollar, which is the major mover of the gold price, and it also proves that gold is gradually taking back its forgotten historic role of being 'The Real Money and The Real Store of Value'. This is the latest proof of the great bull and the increasing mistrust in paper currencies. As previous bull and bear cycles lasted about 15 to 20 years, we can assume that this new bull would last about 6 to 10 years more as it started in 2001. Some analysts argue that the gold price must rise to its real value, which would be calculated according to the adjusted CPI (Consumer Price Index) , in order to have a true monetary and economic system that would offset the financial conflicts and set real values for goods and services. There are analysts expect to see the gold price at \$10,000 per ounce before the bull is over. Also there are ones going one step further and claiming, the paper currencies will die forever thus gold and silver coins will be used as money all over the World. Although it is very difficult to make a right prediction on future of the gold prices and EUR/USD parity, we can comfortably expect to have much higher gold prices in the light of the weakening and collapsing national economies and currencies, especially

after the 2008 financial crisis and growing global political conflicts all around the world.

As a result of this big change in gold prices in recent years, we want to analyze the relationship between the gold price and the US Dollar via an econometric model by using the data between January 2000 and May 2010.

Based on the econometric model, it is obviously seen that the gold prices and EUR/USD parity is moving together, which means that EUR/USD parity is an important factor on gold prices. This result is generally parallel to real life and the prior studies in the literature (which was detailly explained in section 6.2). In the financial markets, when EUR/USD parity rises, the gold price also rises and vice versa. However, in recent days while the EUR/USD parity decreases, the price of gold is continuing its upward trend, the reason of this increase is different this time. As mentioned before, the trust of paper money has started to decline which means that the dollarization may give its place to gold again in coming years.

In addition, based on econometric analysis (which are mentioned above) it is seen that the price of oil and Dow Jones Industry Index are also effective in the price of gold. This is also an expected result, however the price of oil has a positive effect on the price of gold while the Dow Jones negatively affected the price of gold. Since, the oil and the gold are traded in the same basket, which is called commodity, having similar market movements is not a surprise. Additionally, both oil and gold has limited sources in the nature and usually during the political and economical period, the price of both commodities goes up. In some cases, which can be a major

slowdown in World economy or a depression, that can take all the commodity prices down.

On the other hand, Dow Jones Industry Index and the price of gold has a negative relationship, which means that when the Dow Jones Industry Index rises, the price of gold decreases and vice versa. This is also consistent with the prior analysis which was detailed and mentioned in Section 6.2.

As a result, it is seen that the major parameter of the price of gold is EUR/USD parity since it includes the effect of other parameters such as the price of oil, US interest rate and Dow Jones Industry Index. This means, US Dollar and the price of gold has a negative relationship. This is also an expected result because the strong place of US Dollar in the world financial system, has occurred following the collapse of Bretton Woods, which makes the US Dollar and the gold substitute financial instruments.

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