Understanding the Development and Influences of the Price of Gold

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A thesis
submitted in partial fulfilment
of the requirements for the degree of
Bachelor of Arts in the School of Business
International University Audentes

April 2008

1. Abstract

This thesis focuses on the development of the price of gold. The author has analyzed supply and demand on the gold market and the factors and trends, which cause fluctuations in supply and demand regarding gold. In addition the author has affirmed the positive correlation between oil and gold prices and USD. The research confirmed the both assumptions. The thesis gives an overview about the geopolitical factors, which have an influence on the price of gold. Finally the thesis provides a summery how gold can be used as a diversifying instrument in an investment strategy.

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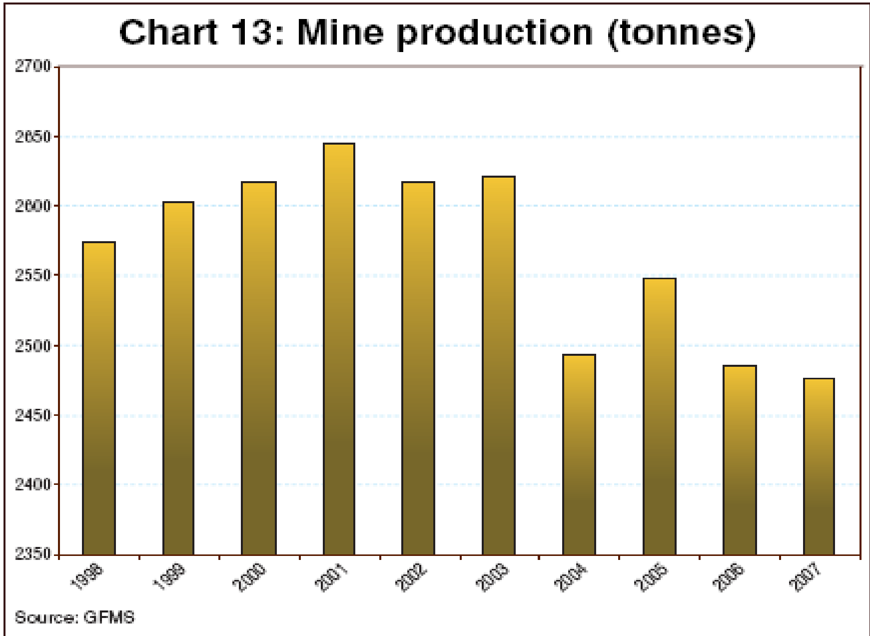
3. Introduction

Gold has always been a symbol of stability and wealth at the same time. People tend to think about buying gold more as a saving than vehicle for as an investment but it does not need to be so. Gold has the same features as every other asset worth investing in, whether stock, bonds, mutual funds, or even commodities like corn, tobacco, crude oil or other precious metals. This makes gold one of the kind being at same time a monetary asset and a commodity. This thesis aims to describe how the price of gold is influenced and affected by the supply and demand of gold, a weakening dollar, crude oil prices, its relationship to stock prices, and overall uncertainty in the economic world.

4. Gold supply and demand

4.1. Mining

Gold as any other precious metal needs to be mined. Every year around 2,500 tons of gold is mined. The amount has increased from 1,311 tons in 1980 to the 2,604 tons in 2001. [1] The total amount of gold ever mined amounts to approximately 165,000 tons almost all of which is still in circulation. Since 1950 66% this amount has been mined. According to studies by the Metals Economics Group there is still 22,000 tons of gold left in current mines.[2] The biggest producer historically has been South Africa, but not anymore. Recently in 2007, China took the lead by becoming the biggest miner and producer in the world producing 290 tons a year.[3] The increasing costs involved with mining gold have slowed down mining from a 2001 high of 2,604 tons to 2,447 tons in 2007.



[1] World Gold Council “Supply and demand statistics”

[2] World Gold Council FAQ

[3] Laura Mandaro “China pushes to top as world's largest gold miners”

The cost of producing went up to $317 per Troy Ounce by 2006, which was 17% higher than in 2005.[4] The previous undervaluation of gold and increasing costs of mining led to the closing of mines and new mining projects. Also the graph of *mine production* shows slowdown trend of mine production from a high during 2000-2001 to a low from 2004 to 2007 due the underinvestment into the industry. This has lead to a shortage in the gold supply and a rise in its price. On an average it takes seven years to research and prepare before actual output can be obtained. Recently the high price of gold defiantly encouraged gold mining, but it takes time to shift from a shortage to surplus.

4.2. Official Sector Sales

The official sector has a huge role in the level of gold supplies. Central banks still hold gold as a reserve to back up currencies as was the case during the gold standard era. On an average it makes up approximately 10% of their total monetary reserve. But time to time they sell it on the open market. This gives central banks huge power over supply. According to World Gold Council, the central banks hold over 29,800 tons of gold. The major holders are the USA with approximately 8,100 tons, followed by Germany with approximately 3,400 tons, then France, Italy, Switzerland, and Japan. But also the IMF and ECB (European Central Bank) with 3,200 and 600 tons respectively are major holders.[5] The yearly production of gold is only around 2,500 tons a year which is close to 12 times less than the amount the Central Banks hold. This entails uncertainty and leads to fears about investing in gold, because Central Banks have historically sold their gold to ease their debt burden. On the average, central banks worldwide

[4] "Gold mine production costs up by 17% in 2006 while output fell" Mineweb
[5] "World Official Gold Holdings" World Gold Council

have sold 527 tons a year between the years 2002-2006. This number has recently dropped below the previous average in 2007 to 485 tons. On September, the 1999 World Gold Council arranged for an agreement between central banks, which allows them to cumulatively sell up to 400 tons of gold a year. This Central Bank Agreement on Gold was renewed in 2004 and expands the allowance for selling gold to 500 tons by central banks.[6] The CBAG reduces some uncertainty regarding the gold supply by regulating the sale of gold by central banks, which fosters the overall stabilization in gold prices.

4.3. Old Gold Scrap

Gold is a one of a kind metal – it is virtually indestructible. This means that all the gold ever mined is still in circulation, unless lost. This unique attribute leaves the option to reinvest into industrialized gold products, which simply entails melting and refining. This includes melting dental gold, electronically used gold and the vast majority of jewelry gold. In oriental countries it is common practice to trade gold jewelry, and re-melt it for new usage. The supply of old gold scrap has increased over the past decade reaching its peak in 2006 when 1,107 tons of old scrap gold was sold.[7] The supply of old scrap gold was last at this level in 1998 just before the Asian financial crisis, when South Korea single-handedly sold around 300 tons of old scrap gold to ease problems regarding foreign exchange.[8] But this was only a crisis outburst. In 1999, the supply of old scrap gold went back to around 600 tons per year with a normal increase every year up until 2006. In 2007 the supply of old scrap gold dropped

[6] "The New Central Bank Gold Agreement" GFMS
[7] World Gold Council "Supply and demand statistics"
[8] "Gold Price Chronology 1971-2007" World Gold Council

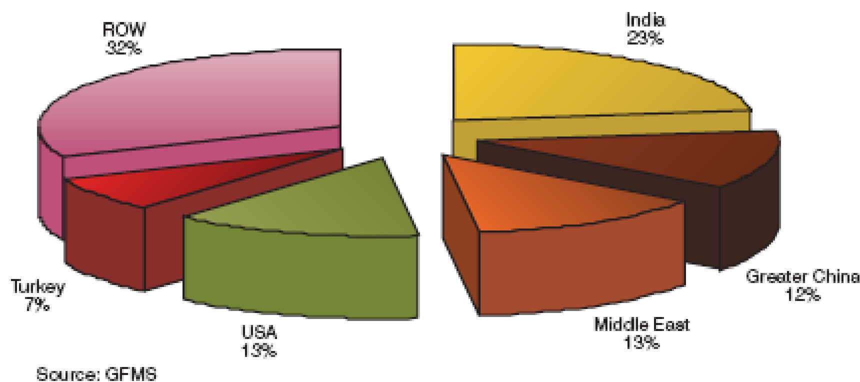
a little to 937 tons. The reason for this might be increasing gold prices and people's belief that it might be better to hold the commodity for use during a crisis situation, in economic conditions, which might arise given the potential slowdown in the world economy.

4.4. Fabrication

4.4.1. Jewelry

The biggest consumer of gold is the jewelry industry. This activity constitutes about 70 % of the whole demand for gold. In 2007, 2,423 tons of gold was utilized by the jewelry industry of the total usage of 3,527 tons, which is less than in 2005 but still more than 2006.[9] There is good potential for the jewelry industry to grow. The selling of gold jewelry is strongly correlated with ethnicity and nationality. The biggest consumer of gold jewelry is India constituting 23% of the whole industry. This is due to historical and cultural factors and perceptions. In 2006, they used 522 tons of gold to produce jewelry in India alone. With a population exceeding 1 billion people and a good potential of economic growth, the demand in India is expected to grow. The same situation is found in China, which is the second biggest gold jewelry market, which just passed the consumption threshold the long time second, the USA in 2007. The Middle East and Turkey are also big players on the gold jewelry market.

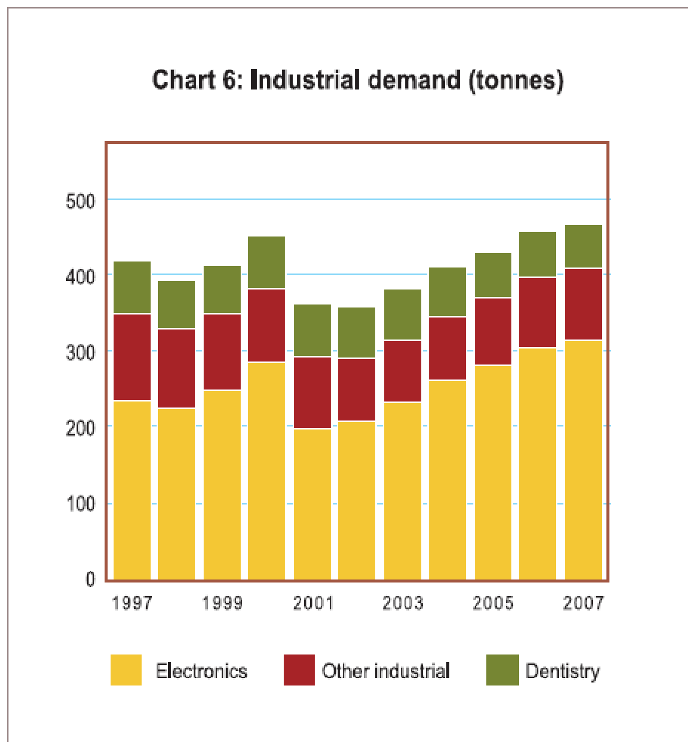
[9] "Supply and Demand – Stocks and Flows" World Gold Council



4.4.2. Industrial and dental

Around 12 % of gold market demand is generated by the producers of electronic components, with little left to other areas such as dental applications, medicine and interior decoration. Around 7% of the gold market demand is generated by the producers of electronic components, most of which are in by North America, Western Europe and East Asia.[10] This industry while developing is very sensitive to changes in economical conditions, especially East Asia. Around 3% of gold industrial uses go to medical products and dental alloys. The part, which is generated by the dental applications, is slowing. Also around 3% of gold market demand goes to decorations of various instruments and objects. The industry has sure-fire developing potential, because research and development departments are finding new uses for gold in electronics as a catalyst.

[10] "Supply and Demand – Stocks and Flows" World Gold Council



Source: GFMS Ltd

4.5. Bar and coin retail investment

One of the options available for investing into gold is buying gold bars or gold coins. It is also the largest investment category in the gold market and slowly increasing in trend. Bullion coins and small bars offer private investors an attractive way of investing in amounts of gold. In many countries - including the whole of the European Union - gold purchased for investment purposes is exempt from Value Added Tax.[11] The other reason the investing in bullion is its anonymity. Of the market demand 3547 tons of gold these markets consume close to 13 % of this demand. Players who are investing into bullion gold generally tend to be long-term investors. The reason for this is obvious, buying and selling bullion gold is inconvenient.

[11] "Coins and Small Bars" World Gold Council

4.6. Exchange Trade Funds

A second form to own and invest in gold is by acquiring gold Exchange Trade Funds. The mechanism was created in March 2003 in Australia, but is now also widely used in France, Mexico, Singapore, South Africa, Switzerland, Turkey, the United Kingdom and the United States. The reason for trading ETFs is simple. Owning a share in a form of securitized gold on the stock market follows the price of gold almost perfectly. Gold ETFs are different from financial derivatives of gold, because they are 100 % backed by physical gold. The gold ETFs have proved very successful in terms of the tonnage they have attracted. "By the end of December 2007, gold ETFs had nearly 870 tons of gold in holdings, with the market value of 23.3 billion dollars."[12] This is easiest and fastest way to buy and resell a gold investment. Gold ETFs constitute around 8% of demand on the gold market. In year 2007 the 251 tons of gold was required by ETF transactions, although was a bit less than during the previous year. It is still approximately 25% more than in 2005, when the number of tons of gold required was 208.

4.7. Gold Futures and Options

Currently the price of the gold on a large scale today is determined by gold futures and options. These are financial instruments are derivatives that change significantly in response the daily prices of gold. Although these instruments have not been the biggest player in the

[12] "Trading and the Markets" World Gold Council

gold market they have been the most influential. They are largely used by mining companies and jewelry producers, who are looking to hedge the fair value risk of gold. But futures and options are also tools for speculators, who wish to manipulate the price of gold. Gold future contracts are firm commitments to make or take delivery of a specified quantity and purity of gold on a prescribed date at an agreed price. The initial margin - or cash deposit paid to the broker - is only a fraction of the price of the gold underlying the contract. This means that investors can achieve notional ownership of quality of gold worth considerably more than their initial cash outlay. While this leverage can be the key to significant trading profits, it can also give rise to equally significant losses in the event of adverse movements in the gold prices. Futures prices are determined by the market's perception of the current price of the underlying and the transaction and capital costs, which include the interest cost of borrowing gold plus insurance and storage charges. The futures price is usually higher than the spot price for gold. A gold option is a derivative, which gives the holder the right, but not the obligation, to buy ('call' option) or sell ('put' option) a specified quantity of gold at a predetermined price at an agreed date. The cost of such an option depends on the current spot price of gold, the level of the pre-agreed price (the 'strike price'), interest rates, the anticipated volatility of the gold price and the period remaining until the agreed date. The futures and options of gold are regulated by commodity exchanges. The most significant are the New York Stock COMEX division of the New York Mercantile Exchange, the Chicago Board of Trade and the Tokyo Commodity Exchange. These gold future markets have substantial volume and volatility, which gives them huge influence over the price of gold.[13]

[13] “Exchange-traded gold“ World Gold Council

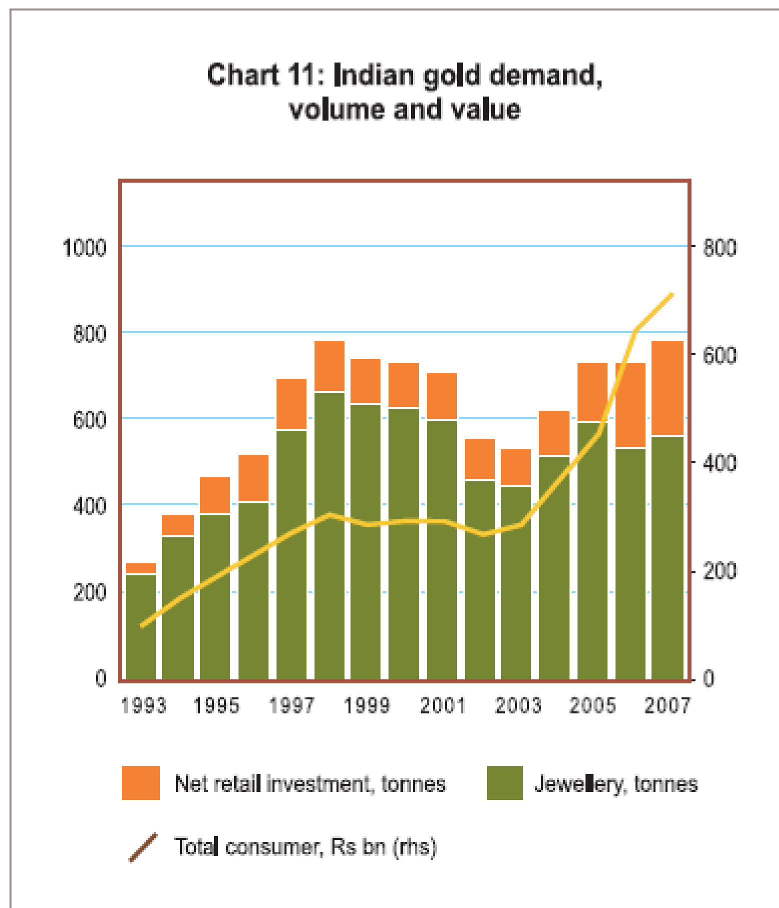
4.8. Seasonality

There are seasonal patterns regarding jewelry demand, although the pattern varies from one country to another. Global demand is usually the strongest in the fourth quarter of the year, followed by first quarter demand. The main elements governing this are: in Western world is Christmas, in the Islamic world it is Eid Al Fitr at the end of Ramadan, in India the wedding season, in China and East Asia the Chinese New Year and in Turkey tourist season.[14] The effect of a holiday would normally show up earlier than the date in gold sales since people purchase in advance. Retail or wholesale prices do not reflect the price of gold because they have different margins.

4.9. India and China

India with a population over a billion people is the largest gold-consuming country in the world. During recent years the government of India has liberalized its laws concerning private property, including gold. The reason why gold is so popular in India is due the Hindu religion, which considers gold to be a symbol of wealth and prosperity.[15] The economic growth in India is increasing the wealth of its population and consequently the demand for gold. The graph below presents the increase in the demand and value of gold in India.

[14] World Gold Council <http://www.gold.org/faq/>
[15] Natalie Dempster "The Role of Gold in India" World Gold Council September 2006



Source: GFMS Ltd, WGC

China is teaching the West something new. Its economy, growing at 9 percent per year, is expected to become the second largest in the world by 2020, behind only the United States. Last year Americans spent $162 billion more on Chinese goods than the Chinese spent on U.S. products. That gap has been growing by more than 25 percent per year. China's consumer class, meanwhile, is spending on everything from bagels to Bentleys – and will soon outnumber the entire U.S. population. China's explosive growth "could be the dominant event of this century," says Stapleton Roy, former U.S. ambassador to China. "Never before has a country risen as fast as China is doing.” [16]China recently passed legislation that will allow the country's four major commercial banks to sell gold bars to their customers in the near future. Currently, individuals in China are only allowed to buy gold-backed certificates

[16] “Why own gold? The six primary reasons why investors own gold.” Blanchard Economic and Research Unit.

from the Bank of China and the Industrial and Commercial Bank of China. "In addition to that, there is speculation over the enlargement of gold reserves by the Chinese central bank. They are planning to sell dollars for 400 tons of gold. This deal would weaken the dollar and would give a huge boost to the price of gold."[17]

4.10. Institutional Buying

In recent years, there has been a remarkable increase in the institutional demand for gold. In addition, although individual investment demand has been fairly quiet in the U.S., there is plenty of demand from the booming middle classes in China and India and from central banks in countries that have enjoyed gains from foreign trade, such as Russia, the Persian Gulf oil producing states and China. The gold market continues to enjoy healthy and substantial demand combined with fund-led speculative activity, particularly during periods of dollar weakness. That speculative activity is expected to increase as the flight from the dollar accelerates.[18]

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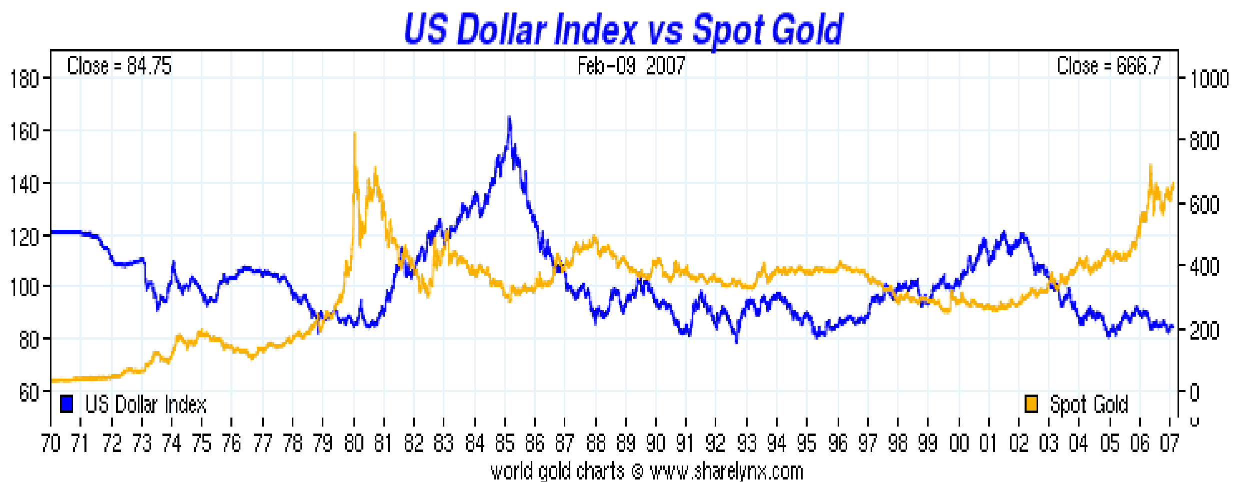
[17] "IMF may sell 400 tons of gold" Cnn.com
[18] "5 Factors Driving Gold in 2008." Blanchard Economic and Research Unit.

5. Gold and USD Relationship

The U.S. dollar has lost his value against the euro by 50 %. Due to this central banks, large institutions, and investors are starting to move away from the US dollar. The Federal Reserve Bank has started to stimulate the dollar market by lowering interest rates, which how ever consequently reduces the value of the dollar.[19] At this point investors at that point are starting to look to alternatives to dollar based stock, bond, and mutual funds markets. "Gold has long been regarded by investors as good protection against depreciation in a currency's value, both internally (i.e. against inflation) and externally (against other currencies). In the latter case, gold is widely considered to be a particularly effective hedge against fluctuations in the US dollar, the world's main trading currency."[20] Historically the correlation between US dollar and gold has been moderate.[21] This means that gold is an effective regarding USD risks. Since the dissolution of the Bretton Woods system, the value of the US dollar has fluctuated against the price of gold. The reason why dollar couldn't be tied to gold any longer was simply due to the U.S. dollars overvaluation against the fixed price of gold. U.S. president Nixon had no other choice but to abandon the Bretton Woods's system. The dollar was now free. The cost of the Vietnamese War, increased inflation and led to the overvaluation of U.S. dollar as a base currency. This is also indicated in the following graph, which shows a declining dollar until the early 1980's as gold moves in the opposite direction.

[19] "5 Factors Driving Gold in 2008." Blanchard Economic and Research Unit
[20] "Gold and the dollar" World Gold Council
[21] Nikos Kavalis "Commodity Prices and the Influence of the US Dollar" January 2006



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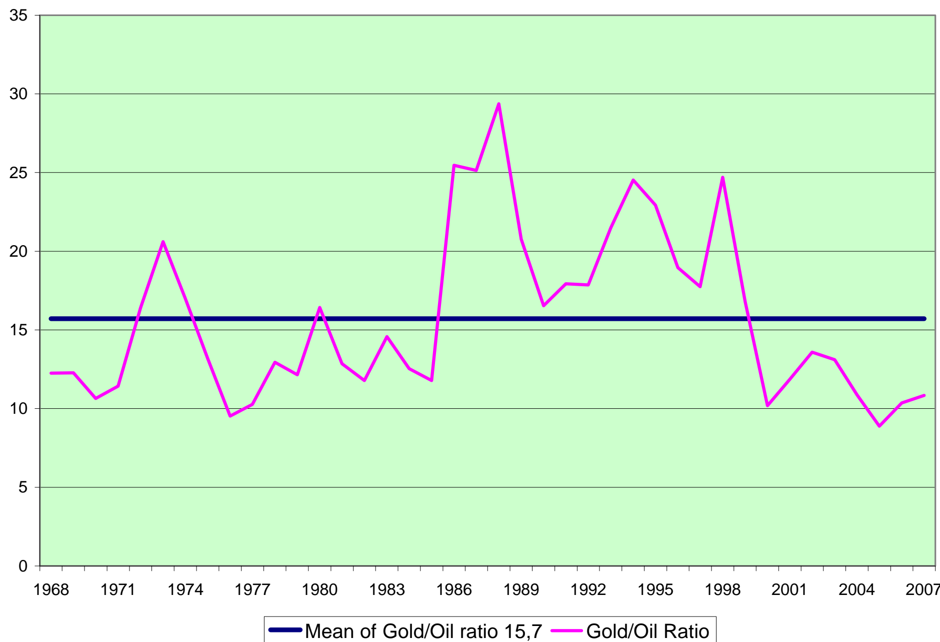
During the mid 1980s the US economy had overcome high inflation and dollar against gold was strong. On Black Monday in 1987 the dollar fell and gold prices gained momentum. The price of gold stayed strong against the dollar with small ups and downs till 1998 Asian stock crisis, whereas South-Korea sells 300 tons of gold against dollar in order to mitigate a foreign exchange rate crisis.[23] The value of the dollar then strengthened against the price of gold. In 2003, the price of gold started to move up in respect to the dollar. The confidence in the US economy floundered after the announcement regarding a record high trade deficit. Since then the dollar has been in constant decline against gold. "Gold is not only a potent hedge against risk attached to the US dollar compared with other commodities, but also provides protection when most needed i.e. when the dollar is losing value, with relatively little loss upside during periods of USD appreciation." [24]

[22] Graph „US Dollar index vs Spot Gold" <www.sharelynx.com>
[23] "Gold Price Chronology 1971-2007" World Gold Council
[24] "Gold and the dollar" World Gold Council

6. Oil and Gold Relationship

Gold has been called a commodity to hedge inflation. At the present time, the main cause of inflation is deemed to be raising energy and oil prices. Oil as the most influential energy source contributes substantially to inflationary pressures. This entails that oil should influence other commodities prices. Oil prices are quite related to gold prices as oil prices affect energy prices and thereby the cost of most goods. Both are commodities, which mean that they are alternative investments to investments into stocks, bonds and mutual funds. In addition both are affected by political and economical tensions. After re-opening the London Gold Market in 1968, the positive correlation between average gold and oil prices has been 0.84 which is considered to be strong. Although there have been deviations in their price patterns, the relationship is strong enough to assume their dependence note their co-affects. Thus it seems reliable to analyze the ratio between oil and gold prices, which has using averages been approximately 15:1, meaning that the price of 15 barrels of oil equals the price of one ounce of gold in US dollars. [25]

[25] "5 Factors Driving Gold in 2008." Blanchard Economic and Research Unit.

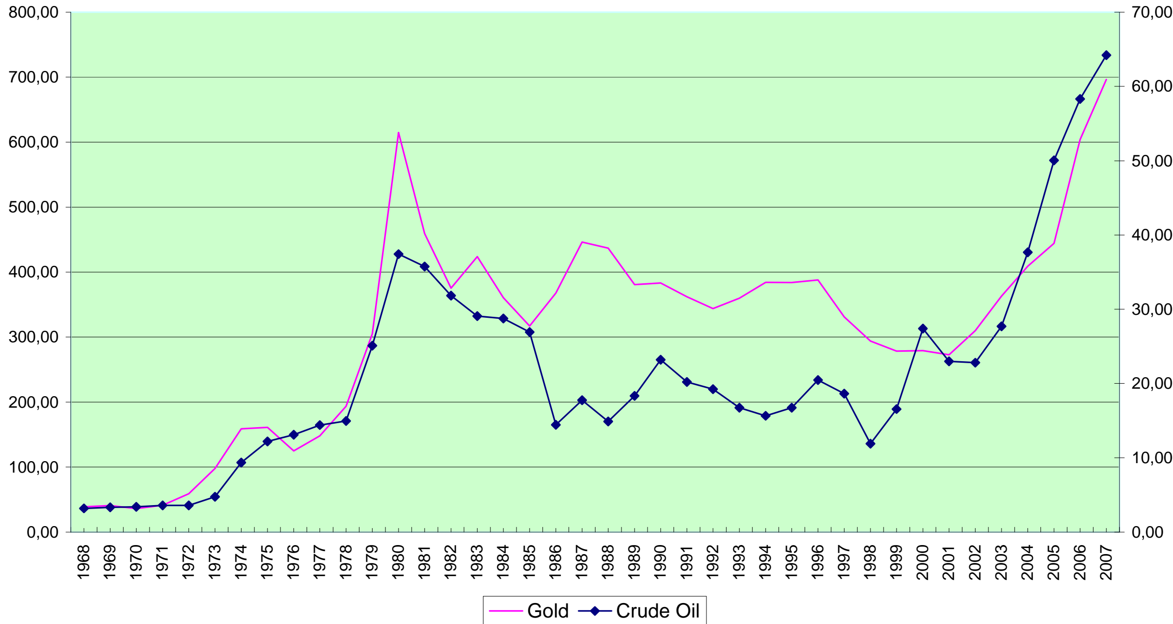


As the *Gold/Oil Ratio* graph shows and according to the data, it has been in the constant state of fluctuation. This means there have been periods when the ratio has been significantly higher or lower than the average. Recently the ratio has been dropped below 10. "To return to average levels, the price of gold would have to increase to around $1400 or there would have to be a drop of similar magnitude in the price for a barrel of oil. In the near future, $1400 gold is more likely than $50 oil."[26] If that was the case at the end of 2007 the price of gold should be around $1250 compare to the crude oil price December average at 83.42 when the ratio was 15 to 1. But the actual average price of gold in December 2007 was $803. The price of oil should have been respectively around $54 per barrel. This ratio is somewhat biased as both commodities are subject to different political and geopolitical pressures and the demand for oil is more obvious and measurable.

More importantly the graph *Gold versus Crude Oil* shows, how gold and crude oil prices move along. The overall correlation of 0.84 between average gold and oil prices in the period between 1968 and 2007 strongly supports the actual graph. The lagging oil prices

[26] "5 Factors Driving Gold in 2008." Blanchard Economic and Research Unit.

move almost perfectly with the price of gold from 1968 to 1985. During that time political and economical crises affected gold and oil prices simultaneously. The reasons why gold and oil prices moved differently from 1986 till 2000 are due to the factors, which affected either only gold or crude oil prices.[27] For example the *Oil Gult* during the late 1980's, which placed strong downside pressure on the price of oil, had no effect on the price of gold. Simultaneously, the crisis in the stock markets and the wave of the bankruptcies of banks in late the 1980's, led investors to find alternative investments such as gold. Crude Oil investments were not an option due to the oversupply of oil. After September 11 in 2001, gold and crude oil prices started to move along a similar path. These events increased immediately gold and oil prices. Regardless of the glitch witnessed during 1986 to 2000 the graph also shows the increasing rate of change in the price of gold and crude oil and the correlation between gold and oil prices.[28]



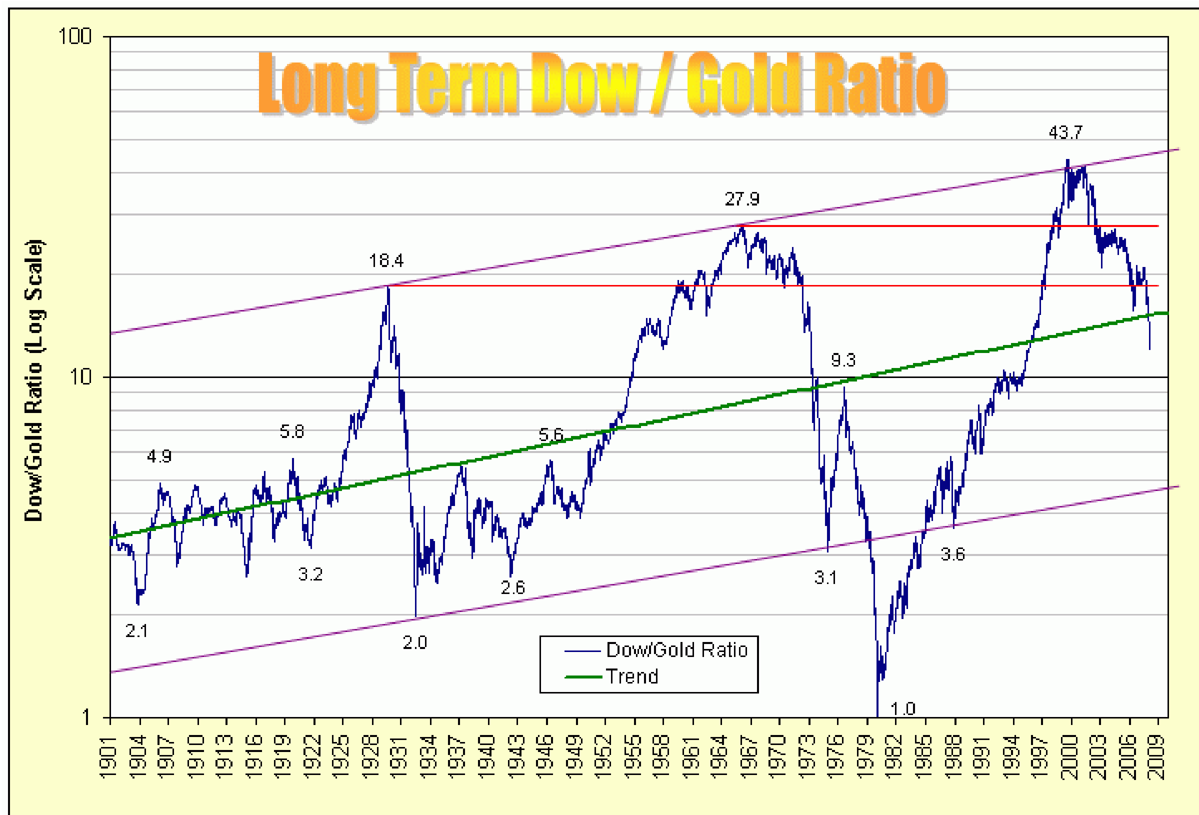
[27] "Gold Price Chronology 1971-2007" World Gold Council
[28] "Historical Crude Oil Prices" InflationData.com

Although there is a strong relationship between the price of gold and price of crude oil history shows the oil prices is just the one of the indicators determining the price of gold. Some economical and geopolitical decisions influence both simultaneously.

7. Stock and gold relationship

Investors like to have different kinds of comparisons. One of this is the relationship between stock price and gold price. As the graph *Long Term Dow/ Gold Ratio* shows gold price and stock price have historically had a solid inverse price correlation. The first peak for Dow Jones to gold price 18.4 ensued in a ratio before the Great Depression in 1929 in the USA. Although the price of gold was fixed to $20.67 per ounce at that time, the analysis of the graph shows that uncertainty and crisis situations tend to appreciate the value of gold against stock values. The ratio dropped in 3 years to a low of 2.0, while stocks were still recovering from the Great Depression. Shortly after, the fixed gold price was pegged to $35 per Oz. The cyclical ratio climbs upwards to the peak of Dow in 1966 with a ratio of 27.9 and starts to fall after the re-opening of the London Gold Market in 1968, which meant that gold prices were no more fixed. The ratio drops to a long time low of 3.1 as a result of the stock marker crisis between 1973 and1974 and gold prices jump from the 1973 average of $97 to the 1974 average of $158, which was due to increasing oil prices, world -wide double digit inflation and the stock crisis.[29][30]

[29] "Gold Price Chronology 1971-2007" World Gold Council
[30] Micheal J. Kosares "Kulla investeerimise põhitõed" pg. 76-82



[31]

By 1976, gold is making price corrections and stocks adjust to their usual path. The largest gap between stock and gold prices occur in 1980, when gold hits its record price of 875 against the US dollar. After gold price outbursts and after inflation is under control people start believing in stocks again. The ratio did a short upset in 1987, during Black Monday on the stock market. The ratio is 3.6 at that moment. From 1987 till 2000 and 2001, the ratio climbed up till its peak of 43.2, when the dot-com bubble burst and the 2001 events of September 11th. The ratio then started its downfall pattern again.

To conclude, according to the relationship between gold prices and stocks as presented in this thesis, during the times of uncertainty in the stock market, gold prices rise, the reason being that investors start to look for alternatives.

[31] "Dow-Gold Ratio" Fred's Intelligent Bear Site

8. Economic Uncertainty, Political Shocks and Crisis Situations on the Price of Gold

The insecurity on the world stock markets has caused investors to invest part of their investments into alternative assets, which are more stable such as gold, which suits this category perfectly. Economic instability causes the price of gold to increase. Although the price of gold was fixed during the Gold Standard and Bretton Woods era, gold maintained its purchasing power regardless of geopolitical shocks. The first well-known case was after the Great Depression, when the world economy was collapsing under its stress. The gold price stayed stable, while other assets did not. In 1934, in the U.S., the price of gold was appreciated from $20.67 to 35$ per ounce. This was a political decision by the Roosevelt administration caused by the economic crisis.[32] In 1971, U.S. president Nixon ended the Bretton Woods system, which opened the doors for fluctuating prices of gold and its vulnerability to dollar based assets. The reason to "close the gold window" was to simulate U.S. economy. The price of gold went up in two years from $39 to $65 per ounce. This entails a 66% rise in price. Besides the "closing of the gold window" the economy was shocked by Watergate Scandal, which supposedly caused alarm in the world economy. In 1973, the U.S. alarmed the public by announcing their record high trade deficit. Israel announced the Yom Kippur war, which resulted in the OPEC announcing an embargo on oil to countries supporting Israel. This included the U.S., Japan and Western Europe. The gold price rose sharply over 80% during this year. In 1974, the U.S. is suffering double digit inflation, people were hedging against inflation by purchasing gold; in addition France experienced political turmoil, plus Nixon resigned. All these factors led to an increase in the price of gold $116 to

[32] Doug Casey "Gold During Inflation, Deflation and Chaos" Kitco. Dec. 18, 2002

$186 per ounce. During the following years 1975 to 1977 gold prices experienced corrections and stabilization. In 1978, the price of gold increased from $160 to high of $242 per ounce, which resulted from concerns regarding inflation and of the tense situation in Iran. The characteristics, which describe upward trends in the price of gold, are Iran's Islamic revolution, oil crisis, and people's fear about double digit inflation. The price of gold launched from a low of $216 to $500 per ounce at year end. At this point the U.S. and world's economy was on the edge of total uncertainty. At the beginning of 1980 the Soviet Union invaded Afghanistan. The price of gold skyrocketed to $850 per ounce. At that time the U.S. and IMF allocated resources to stop gold price increases. Gold prices fell in September 1980 when Iraq invaded Iran, which resulted in a rise in oil prices and in local inflation. Consequently, on September 1980 gold price reached a price of average price of $674 per ounce. In 1981, the price of gold fell from the beginning of the year $599 to a year end low of $398 per ounce. At that time the U.S economy started to regain its confidence as a result of high interest rates, which caused the dollar to strengthen and gold as an alternative weaken. In 1982, the U.S. economy stabilized and inflation dropped from 9% to 3.5%. During the period between 1982 and 1985 the price of gold price fell from a high of $509 to $326 per ounce at the end of 1985. On January 1986, the U.S. froze Libyan assets and ended commercial relations with them. This made investors speculative about the economies further development and resulted in a sharp rise in gold prices. In August six Commonwealth countries imposed economic sanctions on South Africa. In two months, the price of gold rose from $377 to $423 per ounce. The gold price fluctuation in 1987 can be attributed to U.S. citizens concerned about a weakening dollar, caused by rising inflation, and Black Monday in the world stock markets in October. "Alan Greenspan said that the world was on the edge of a global financial collapse. The 1987 market crash precipitated a stampede to alternative assets.

Much the same thing is happening now, as the credit markets go through the same sort of collapse that equities suffered in the autumn of 1987." [33]

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This situation raised the price of gold from the beginning of the year from $390 to the December high of $500 per ounce, which was a five year high. From the beginning of 1988, the price of gold started its downtrend as the stock and bond markets strengthened with along with the dollar. Gold prices fluctuated from $486 to a low of $355 per ounce during the year. The major change in the price of gold during the year coincides in the disturbance in China in conjunction with protest in Tiananmen Square, when gold prices increased by $27 in three weeks. As the result of stabilizing geopolitical tensions agitated by the around cold war, gold prices fall. Gold rallies up to a daily high of $415 per ounce in the middle of 1990, when Iraq invades Kuwait, but as the alarm is short and gold price fall back to $385 per ounce by the end of 1990. After the disintegration of Soviet Union in 1991, gold prices remained almost

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[33] "5 Factors Driving Gold in 2008." Blanchard Economic and Research Unit
[34] *Graph* "Gold Prices" World Gold Council

the same for four and half years with minor effects presumably caused by the banking crisis in Japan and economic crisis in Mexico, with gold prices ranging between $350 to $390 per ounce. On the January 1996, U.S. Federal Reserve Bank lowered base interest rates to 5%. Investors take this as a sign of the Federal Reserve Bank's attempt pamper the economy and they started to buy gold. The price of gold rose to $414 per ounce, which entails 6 % rise in one month. Stable economic conditions and the strong stock markets persuade the investors to buy stock instead of gold.

Between 1997 and 1998 a stock market crisis emerged in Asia and Russia. This didn't ensue in increasing the price of gold, rather the opposite. The price of gold had fallen by the middle of 1999 to $252 per ounce. The supposed reasons for this were Asian economies, which were in a crisis, which resulted in an decrease in the demand to gold for jewelry. In addition to that South Korea bought close to 300 tons of gold from its citizens, in order to buy dollars to ease their foreign exchange crisis. On September 1999, an extremely important agreement was signed concerning, how much gold central banks can sell in a year. This raised the price of gold momentarily. The on going war in Afghanistan and the concerns of European, North American and Japanese investors concerns over instability in the banking sector propelled the price of gold upwards. Gold rose more than 25% in 2002. In 2003, the price of gold continued its positive trend of going up, which was caused by the U.S. record high trade deficit, which consequently lowered the trustworthiness of the USD and geopolitical tensions caused by the Iraq war. The price of gold had risen up to $440 by the end of 2004. In 2005 august Hurricane Katrina devastated some regions of the US U.S. which caused oil prices to boom and consequently, the price of gold to rise. By the end of 2005, the price of gold is $517 per ounce. Worries about Middle East instability, the weakening dollar and rising inflation led to increase in the price of gold and a price of $725 per ounce by end of May. The price adjusted and started to rise again in February 2007, when Chinese stocks fell

by 9% in one day. People started to look for a safe haven regarding an investments. The trend in 2007 was gold, because the dollar reached its all time low against the euro of 1.40, in addition to increasing turmoil on the credit market. The price of gold rose from $630 to $833 per ounce during the year.[35][36] Geopolitical shocks and economic instability are one of the main causes for changes in gold prices. Although investors have grown smarter over the years, which means they are not reacting to crisis situation as hastily as in the 1970's and 1980's.

[35] Micheal J. Kosares "Kulla investeerimise põhitõed" pg. 76-82
[36] "Gold Price Chronology 1971-2007" World Gold Council

9. Portfolio diversification

The author finds there is a reason to believe that gold is useful as the diversifier in an investment portfolio. Given risk management technique that mix a wide variety of investments within a portfolio. The rationale behind this technique contends that a portfolio of different kinds of investments in our case gold will, on the average, yield higher returns and pose a lower risk than any individual investment in the portfolio. Diversification strives to smooth out unsystematic risk in a portfolio so that the positive performance of some investments will neutralize the negative performance of others.[37] While gold has shown strong returns over recent years, its most valuable contribution to a portfolio lies in the fact that it is not correlated with e.g. stock markets, bonds and mutual funds. This is because the gold prices are not driven by the same factors that drive the performance of other assets.

Table 1: Basic Assets, Inflation-Adjusted Risk-Return Estimates January 1974 - December 2005

Asset Names	Return	Std dev	Correlations							
			US Tbills	Intrmd US Gov Bonds	Long Term US Govt Bonds	Russell 1000 Large Cap US Equity	Russell 2000 Small Cap US Equity	MSC EAFE International Equity	CRB Futures Index	Gold, London PM Fix
US TBills	1.4%	1.1%	1.00							
Intermediate US Govt Bonds	3.6%	6.1%	0.35	1.00						
Long Term US Govt Bonds	4.9%	10.8%	0.29	0.86	1.00					
Russell 1000 Large Cap US Equity	9.3%	15.5%	0.16	0.20	0.26	1.00				
Russell 2000 Small Cap US Equity	9.8%	19.8%	0.12	0.11	0.15	0.84	1.00			
MSCI EAFE Interntional Equity	7.2%	17.0%	0.17	0.16	0.18	0.61	0.56	1.00		
CRB Futures Index	2.5%	9.7%	-0.09	-0.13	-0.10	0.14	0.18	0.26	1.00	
Gold, London PM Fix	2.1%	19.7%	-0.15	0.02	0.00	0.07	0.14	0.20	0.59	1.00

*Russell from January 1979, CRB from January 1982.
EM and Ledoit estimated

[37] "Diversification" Investopedia.com

Although the price of gold has been volatile in the short-term, gold has maintained its value over the long-term, serving as a hedge against the erosion of the purchasing. Gold is an important part of a diversified investment portfolio because its price increases in response to events that erode the value of traditional investments like stocks and bonds.[38]

[38] "Why own gold? The six primary reasons why investors own gold." Blanchard Economic and Research Unit.

10. **Conclusion**

Gold is at the same time a commodity and financial instrument. This makes changes in the price of gold different from other investment possibilities. The factors, which affect the price of gold, are the supply and demand of gold, changing oil prices and stocks, given their relationship to dollar exchanges rates and geopolitical shocks. According to this thesis, none of these factors have a very strong influence over the price of gold alone, but when combined together, it explains gold price movements. Historically, economic and political crisis situations, plus increasing inflation have had the strongest impact on the price of gold. During times of war, trade embargos and economic crashes, gold prices have changed. Investors have become smarter and do not react as robustly as they did in the 1970's and 1980's. According to study correlation between gold and oil prices was very strong in most of the periods. Nowadays, the best tools for analyzing increases and decreases in the changes of gold prices are other commodities. In addition nowadays, as the dollar weakens the gold price tends to strengthen, because investors are using gold to hedge the exchanges rates of USD. The supply and demand is affecting the price of gold slowly. In addition there is strong evidence to use gold as diversifier in an investment strategy.

11. Data of Yearly Averages

Year	Av. Gold	return of gold	Av. Oil	return of oil	Av. Dow	return of Dow	US CPI	US inflation
1968	$38,94	11,26%	$3,18	1,92%	903,4733333	3,85%	34,8	4,19%
1969	$40,76	4,67%	$3,32	4,40%	873,4666667	-3,32%	36,7	5,46%
1970	$36,07	-11,51%	$3,39	2,11%	756,2716667	-13,42%	38,8	5,72%
1971	$41,17	14,14%	$3,60	6,19%	883,0525	16,76%	40,5	4,38%
1972	$59,00	43,31%	$3,60	0,00%	954,2008333	8,06%	41,8	3,21%
1973	$97,84	65,83%	$4,75	31,94%	917,5341667	-3,84%	44,4	6,22%
1974	$158,96	62,47%	$9,35	96,84%	745,6991667	-18,73%	49,3	11,04%
1975	$160,91	1,23%	$12,21	30,59%	812,78	9,00%	53,8	9,13%
1976	$124,71	-22,50%	$13,10	7,29%	982,2975	20,86%	56,9	5,76%
1977	$147,78	18,50%	$14,40	9,92%	885,8058333	-9,82%	60,6	6,50%
1978	$193,39	30,86%	$14,95	3,82%	813,9733333	-8,11%	65,2	7,59%
1979	$304,83	57,62%	$25,10	67,89%	843,2375	3,60%	72,6	11,35%
1980	$614,61	101,62%	$37,42	49,08%	895,2266667	6,17%	82,4	13,50%
1981	$459,26	-25,28%	$35,75	-4,46%	932,7016667	4,19%	90,9	10,32%
1982	$375,28	-18,29%	$31,83	-10,97%	890,1491667	-4,56%	96,5	6,16%
1983	$423,61	12,88%	$29,08	-8,64%	1197,866667	34,57%	99,6	3,21%
1984	$360,50	-14,90%	$28,75	-1,13%	1175,196667	-1,89%	103,9	4,32%
1985	$317,18	-12,02%	$26,92	-6,37%	1345,8075	14,52%	107,6	3,56%
1986	$367,72	15,93%	$14,44	-46,36%	1815,099167	34,87%	109,6	1,86%
1987	$446,28	21,36%	$17,75	22,92%	2273,365833	25,25%	113,6	3,65%
1988	$436,79	-2,13%	$14,87	-16,23%	2077,34	-8,62%	118,3	4,14%
1989	$380,74	-12,83%	$18,33	23,27%	2535,72	22,07%	124	4,82%
1990	$383,32	0,68%	$23,19	26,51%	2662,2325	4,99%	130,7	5,40%
1991	$362,10	-5,54%	$20,20	-12,89%	2964,3625	11,35%	136,2	4,21%
1992	$343,86	-5,04%	$19,25	-4,70%	3296,365833	11,20%	140,3	3,01%
1993	$360,00	4,69%	$16,75	-12,99%	3537,623333	7,32%	144,5	2,99%
1994	$384,12	6,70%	$15,66	-6,51%	3792,855	7,21%	148,2	2,56%
1995	$384,05	-0,02%	$16,75	6,96%	4534,1925	19,55%	152,4	2,83%
1996	$387,82	0,98%	$20,46	22,15%	5780,1325	27,48%	156,9	2,95%
1997	$330,98	-14,66%	$18,64	-8,90%	7437,573333	28,67%	160,5	2,29%
1998	$294,12	-11,14%	$11,91	-36,11%	8610,2025	15,77%	163	1,56%
1999	$278,55	-5,29%	$16,56	39,04%	10474,77667	21,66%	166,6	2,21%
2000	$279,10	0,20%	$27,39	65,40%	10688,0425	2,04%	172,2	3,36%
2001	$272,67	-2,30%	$23,00	-16,03%	10139,92667	-5,13%	177,1	2,85%
2002	$309,66	13,57%	$22,81	-0,83%	9180,964167	-9,46%	179,88	1,57%
2003	$362,91	17,20%	$27,69	21,39%	9017,915833	-1,78%	183,96	2,27%
2004	$409,17	12,75%	$37,66	36,01%	10325,96583	14,51%	188,9	2,69%
2005	$444,47	8,63%	$50,04	32,87%	10529,12833	1,97%	195,3	3,39%
2006	$603,92	35,87%	$58,30	16,51%	11472,08083	8,96%	201,6	3,23%
2007	$696,43	15,32%	$64,20	10,12%	13197,97917	15,04%	207,34	2,85%

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