Impact of Macroeconomic Factors upon
Gold Prices in Pakistan

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Abstract:
In recent years sharp increase in gold prices has been witnessed. Since gold has many functions, it provides macroeconomic safety and is used as a hedge against inflation. It is therefore important to know the determinants of gold price in Pakistan. The aim of this study is to analyze the effects of inflation, stock price, international gold price, rupees per dollar exchange rate, international oil price and income on domestic gold price. Due to frequent fluctuations in gold prices, monthly time series data for the period 2000 to 2012 is used in the study. Using GMM, the effects of macroeconomic variables on gold price is empirically examined in Pakistan. GMM results show that inflation, international gold price, international oil price and income have a statistically significant positive impact, while stock price and exchange rate have a statistically significant negative impact on gold prices in Pakistan. The results drawn from this study are useful for financial analysts, policy makers and investors in analyzing the effect of determinants of gold price and accordingly making policy and investment decisions.

Keywords: Gold Prices, GMM, Pakistan

I. Introduction
Gold has been controversial in recent years due to sharp increase in gold price. Global Economic Crisis in the year 2008 brought about uncertainty in the global economy. Jewelry, healthcare and industrial applications involve the use of gold. Investment in gold by governments, institutions, private persons and households is another use of gold. Gold became insurance in economic uncertainty. In uncertain and fragile macroeconomic conditions, we can get protection from inflation through gold.

Gold price is a good indicator to evaluate health of the economy. Gold price becomes high in unhealthy economy, because the investors start assembling gold to
protect themselves from inflation. Drop in gold price means economy is healthy, as investors switch from gold to other more profitable investments like bonds, stocks, real estate, etc. To understand the economy, therefore, it is vital to understand the fluctuations in gold prices.

It is used as a tool in diversifying portfolios, hedging and risk mitigation. Risk in financial market could be reduced by investing in gold, as it is a “safe haven” (Le and Chang, 2011). The price of gold is directly affected by the perceptions about the economy. Gold as an economic indicator is questioned by some researchers, but it is still recognized as inflation and exchange rate hedge. Gold is considered as a safe asset in turmoil, investors like to invest in it.

Governments give high value to gold. Due to this reason central banks keep gold reserves. Gold maintains its value in times of national crisis, bank failures, wars, changing political conditions and in the period of high or low value of paper money. Everywhere people aware of political and macroeconomic uncertainties, keep gold in their personal holdings. Pound, franc, dollar in twenties had stable value as they were backed by gold.

Gold in Pakistan since long times, has been mostly used in ornaments and investment for adverse periods. We can rely on gold for investment, as its returns are greater than certificate of deposit, stocks and bonds, because since many years gold prices are continuously increasing. However, investment analysts are of the view, that investors may not revert to investment to gold till Pakistan Mercantile Exchange becomes operational, to handle exchange of commodity in a planned way. In Pakistan, investment in gold is both in gold bar and jewelry. Presently investors and end users are putting less money due to high prices, because they want to avoid the risk of highly fluctuating gold prices. Citizens invest in gold when they find the prices stable.

Gold is still considered the best investment option for long term purpose due to increase in its prices over the years. Reduction in purchasing power and rise in cost of living has extensively affected the sale of gold. Buyers still have same ratio of visiting jewelry shops, however they choose to purchase lighter jewelry. Gold price in Pakistan has increased by Rs 17,600 per 10 gram since February 2012, due to the rise of gold in international market. Long term investors are still interested in gold because the investment is profitable in the long run. For example, investors who purchased gold at Rs 19,622 per 10 Grams five years back (Sep-2008) have earned abnormal profit as gold prices have jumped to Rs 52,828 per 10 Grams (Sep-2012).

In Pakistan the role of gold in the economy cannot be ignored. Pakistan always kept a sufficient amount of gold reserves. Trend of gold reserves could be seen in the Figure 1. Historically, gold reserves (current US$) of Pakistan in billions are shown in the figure given below, time series shows trend line for Pakistan. Line graph shows an increasing trend for Pakistan. Gold reserves data has been taken from WTI for the period 2000-2011. In 2000 gold reserves for Pakistan were $2.09 in billions. In 2003 gold reserves for Pakistan were $11.82 in billions. In 2006 gold reserves for Pakistan were $12.88 in billions. In 2009 gold reserves for Pakistan were $13.61 in billions. In 2011 gold reserves for Pakistan were $17.70 in billions. Its overall trend is increasing, after the
economic crises in 2008 Pakistan increased its gold reserves as only gold retains its value in times of turmoil.

Figure 1: Gold Reserves of Pakistan from 2000-2011

Gold Reserve

$0.00
$5.00
$10.00
$15.00
$20.00
Gold Reserve

Gold prices are affected by several factors. These factors include, among others, inflation, oil prices, interest rate, exchange rate, political risk, credit risk default premium, gold lease rate etc. For detail on determinants of gold price see Wang et al. (2011), Le and Chang (2011), Gunes and Guler et al. (2010), Levin and Wright (2006), Moore (1990), Sjaastad (2004), Anssi (2007).

Our proposed research hypotheses are
H⁰: Inflation rate has no significant impact on gold price.
Hₓ: Stock price has no significant impact on gold price.
Hₚ: International gold price has no significant impact on gold price.
Hₒ: Exchange rate has no significant impact on gold price.
Hᵣ: International oil price has no significant impact on gold price.
Hᵦ: Income has no significant impact on gold price.

The rest of the paper is organized in the following manner. Section 2 gives a literature review of gold price studies and the impact of various variables on gold prices. Section 3 comprises of analytical framework. The data sources, construction of variables and estimation procedure have been explained in Section 4. Section 5 explains the empirical results along with interpretations and finally the conclusion.

II. Literature Review

There are number of studies in financial and economic literature related with the functions gold has in the economy. Four groups can be categorized in order to divide these studies. The first group includes the literature showing how gold price is affected by macroeconomic news (Dooley et al.,1995; Fortune, 1987; Sherman, 1983; Sjaastad and Scacciaballani, 1996; Wang and Lee, 2011). These studies investigate the relation of gold price with economic variables which includes inflation, interest rate, exchange rate etc. Second group includes the literature focusing on the speculation or prediction of gold
price (Diba and Grossman, 1984; Pindyck, 1993; Baker and Tassel, 1985). These variables examined the influencing factors in the variations of the gold price.

Third group includes the literature aiming on the advantage of using gold in diversifying risk for a long-run portfolio (Chua et al., 1990; Sherman, 1986; Michaud et al., 2006; Ciner, 2011; Jaffe, 1989). These studies find out the correlation between major assets and gold that whether it is negative or low. Fourth group includes the literature focusing on the inflation hedging effectiveness of gold (Kolluri, 1981; Chappell and Dowd, 1997; Moore, 1990; Ghosh et al., 2004; Mahdavi and Zhou, 1997; Levin and Wright, 2006). These studies explored the long-run and short-run relationship between CPI and price of gold.

Wang et al. (2011) examines the long-run and the short-run relationship between CPI and gold price in Japan and United States. Monthly data has been used in this study from 1971 to 2010. Using Cointegration technique of Engle and Granger (1987), the study finds that if there is long run comovement between inflation and gold prices in Japan and the USA then we can say that gold is a hedge against inflation. Time selection and market selection are important keys of inflation hedge. The time in which gold replies faster to inflation must be selected by the investors for hedging inflation. Gold is not an inflation hedge in case of Japan while it is a good hedge against inflation in United States.

In another study, the long run and short run determinants of gold price has been examined by Levin and Wright (2006). The independent variables used in this study are US dollar exchange rate, inflation rate, gold lease rate, political risk and credit risk default premium. Co-integration techniques were used for the time period 1976 to 2005. The result of empirical finding was that positive relationship found between gold price and United States CPI was long run, which means that one percent increase in United States CPI leads to one percent increase in the gold price which shows that gold can be used as inflation hedge. Statistically significant results were found for short run negative relationship between United States dollar exchange rate and price of gold.

Mahdavi and Zhou (1997) test the performance of commodity prices and gold as important gauges of inflation rate. Cointegrating relationship among CPI and commodity prices was evident in this study. Short-run increase in commodity prices or gold did not lead to rise in CPI but in long-run they may lead to increase in general price level and they may be cointegrated.

Tkacz (2007) examined the leading indicator properties of gold for fourteen OECD and Non-OECD countries using monthly data for the period 1994 to 2005. Inflation rates and exchange rates were used as independent variables in this study. Unit root test and covariance matrix was used. The finding of this study was that for future inflation gold had significant information for several countries.

Moore (1990) analyzed whether gold prices are affected by market’s view of inflation or not. To test this hypothesis author examined this relation to the New York market gold price using data from 1970 to 1988. Gold is used in investment by many investors, while keeping in mind the expectation that as the general price level increases gold prices also increase. The results suggest that investor should buy gold when there is
up signal and sell in the down signal. This strategy benefits investors from the gain in gold prices during the up signal and from gain in stock prices or bond prices during the down signal.

Ciner (2011) has conducted the empirical investigation between inflationary dynamics and commodity prices. The findings were that long term permanent shocks in commodity markets have positive impact on consumer inflation. Results showed that commodity prices cause inflation in the long term.

Davis (2007) has conducted research on the future of gold price forecast. The study defines the collective drivers of gold price. The main drivers under consideration in this paper are economic environment of the United States economy, strength of the United States dollar, change in supply and demand of gold, commodity and oil prices and exchange rates. Credit market tightening and interest rate lowering weaken the United States dollar which leads into increase in price of gold, because investors perceive gold as a secure commodity.

Dupuis et al. (2006) has done anticipation of investors intentions and behavior in the near future for gold investment by considering the variables that affect gold prices like United States dollar, production of gold, consumer demand and inflation. Gold and United States dollar has strong negative correlation. If US dollar appreciates gold prices declines. Di Bartolomeo (1993) investigated whether gold price dominates gold related equity securities i.e. common stock in gold mining companies. Descriptive methodology, CAPM model and linear regression model were used. The findings reveal that Gold mining equities do not depend on the gold price, but inflationary expectations, level of international economic and political instability influenced them.

Harmstone (1998) has conducted a study on function of gold as a long term reserve of value. Gold has consistently proved a better wealth preserver than other assets, in times of high inflation. The expectation of continual rise in gold price (return) in investment increases the interest of investors. It is important to invest in gold as a part in portfolio in times of turmoil and dropping stock prices, as gold retains its value even in this condition. Finding of the study was, gold functions as a long term store of value.

Barsky and Summers (1988) explained the correlation between interest rates and gold standards. Findings show that gold price and changes in nominal interest rates are associated but gold discoveries are also associated with the price. Lawrence (2003) studied the difference between gold and other assets. To show that returns on gold are independent of the business cycle, a number of different relationships were examined. Static and dynamic analysis was used in this study to examine relationship between economic variables and financial indices, commodities diversifier.

Using cointegration technique Shahzadi and Chohan (2011) no long run relationship between stock and gold price was found in Pakistan. Monthly data from 2005 to 2010 for Pakistan was used in this study. Unit root, correlation, Johansen’s cointegration technique and Granger causality test were used in the study. Correlation found between gold prices and KSE 100 index was negative. In another study Mylchreest (2007) analyze the effect of oil price on gold price using data starting from 1970 to 2007. Study finds that oil price has a statistically significant positive effect on gold prices.
Le and Chang (2011) investigated the relationship between oil and gold price with the indirect impact of inflation channel. This paper adds to the growing literature through using different proxies of oil price. Time period used in this study was 1986 to 2011. Monthly time series data was used in this study. Unit root tests, Johansen cointegration technique, Granger Causality test (pairwise) and VAR Model were used in this study.

Results showed that there was a co-integrating relationship between inflation and oil price, gold price and inflation and oil and gold price. This shows a rise in oil price causes rise in inflation which increases the demand and price of gold in long run. Findings of this study suggest that gold price could be predicted by oil price and gold can be used in hedging inflation.

Han et al. (2008) investigated the short-term and long-term relationship between AUS/US dollar exchange rate and price of gold. This paper used weekly, monthly and quarterly data started from 2002 to 2008. Cointegration and ECM were employed and estimation was done through OLS. Estimates showed a positive long run relationship between AUS/US dollar exchange rate and price of gold. Continuous increase in gold price increases AUS/US$ exchange rate equilibrium, which in the long run leads to increase in export revenue of gold, which makes Australian economy stronger.

Ghosh et al. (2004) examined the long-run and short-run movements in gold price. For this purpose monthly data was used for the period 1976 to 1999. Explanatory variables used in this paper were US price index, world price index, gold lease rate, world income, gold’s beta, dollar/world exchange rate, financial and political shocks. The paper used Cointegration regression technique. Finding of the study was that at the general rate of inflation gold price rises over time which showed that gold is used as a hedge against inflation.

Gunes et al. (2010) analyzed the impact of changes in interest rate (3 month US treasury bill’s rate), oil price and Euro-dollar (Euro/$) exchange rate on gold price rise. In order to test the relationship of these variables with gold prices, monthly data from 2000 to 2009 was used in this study. OLS and cointegration technique were used in this study. Results showed a positive relationship between oil price, Euro-dollar parity and gold price. Negative relationship was found between price of gold and interest rate. When interest rate decreases, people will reduce depositing money in the bank and start additional gold investment.

Sjaastad (2004) examined the empirical relationship between gold price and major exchange rates. Exchange rates and inflation (US dollar, pound sterling, Japanese yen) were used as explanatory variables. The study used daily and monthly data from 1991 to 2004. Market efficiency tests and OLS were used in this study to know the relationship among these variables. Findings of the study are that US dollar, a negative significant effect of world inflation was found on gold price.

Lampinen (2007) used monthly data from 1972 to 2006 to examine the gold price determinants in long and short-run. The study also investigates the possibilities of investing in gold. United States and world inflation, beta of gold, credit default risk, gold lease rate, inflation volatility and United States-world exchange rate index were used as
Determinants of gold prices were analyzed by Šimáková (2011). Determinants of gold price used in this study are oil price, CPI, United States three-month treasury bills rate, gold mining index and index of industrial production. Monthly data was used from 1970 to 2010. Quantitative analysis of variables was done by OLS, unit root test (ADF), Granger-Causality test, Johansen Cointegration technique and VEC model. Oil and gold were strongly positively correlated. Long-run relationship between oil and gold was showed by Johansen cointegration technique. VEC confirmed the long-term equilibrium between examined variables.

Samanta and Zadeh (2012) examined the co-movements among several macroeconomic and financial variables. These variables include gold price, oil price, US dollar index and stock price. Econometric methodologies used in this paper were Johansen Co-Integration technique, Granger Causality and ADF test for stationarity. Results shows the causality runs from gold price and stock price to oil price and exchange rates, while gold price and stock price move on their own. Co-movements among these variables were found.

Comprehensive review of some of the recent studies on gold prices has been carried out in this chapter. Studies shed light on the importance of gold and its role in the economy. Number of factors that affect gold prices have been reported in these studies, for example, inflation, oil prices, interest rate, exchange rate, political risk, credit risk default premium, gold lease rate, stock price, etc. However, it is difficult to include all these factors in our study due to data availability problems. Therefore, some of the most important factors will be included in the study, for instance, inflation, stock prices, international gold prices, exchange rate, international oil prices, income. Aim of our study is to describe the escalation of domestic gold price by considering the effects of macroeconomic variables so that the components of gold price in Pakistan could be understood.

Contribution of this study differs from the contribution of previous gold studies. First of all we take into account the effect of mentioned variables on domestic gold price in Pakistan that has not been examined earlier. So we are adding to the literature in the sense of examining new relationship in Pakistan. Secondly most recent and most frequent monthly data is used in this study, from January 2000 to June 2012 with 150 observations which will provide most recent estimates; this is also an addition in the literature. For examining the relationship and recent changes in our said variables, we examined this relation for the period of over a decade.

III. Analytical Framework

This section will provide a brief understanding about our theoretical framework. Gold prices are affected by numerous factors. In literature various variables are mentioned as determinants of gold price, for example, inflation, oil prices, interest rate, exchange rate, political risk, credit risk default premium, gold lease rate, stock price, etc. Following the literature we have identified the following economic and financial variables as the most important determinants of gold prices in Pakistan. These factors are
inflation rate, stock prices, international gold price, exchange rate, international oil price and income.

**Model**

Econometric model is developed in this sub-section. In the succeeding chapters this model will be empirically estimated. A conventional model is utilized for consistency with previous studies. We will estimate the given gold price model:

\[
gp_t = \beta_0 + \beta_1 \pi_t + \beta_2 sp_t + \beta_3 gpi_t + \beta_4 er_t + \beta_5 op_t + \beta_6 y_t + \mu_t
\]  

(4.1)

Where we will estimate parameters that are \( \beta \)'s, and stochastic disturbance term is denoted by \( \mu_t \) such that it follows normal distribution where mean is equal to zero and variance is sigma square \( \mu_t \sim N(0, \sigma^2) \). Natural logarithm forms of the variables are stated in lowercase letters. Variables used in our model are defined as follows:

\[
gp_t = \text{Gold Price (domestic)}
\]

\[
\pi_t = \text{Inflation Rate}
\]

\[
sp_t = \text{Stock price}
\]

\[
gpi_t = \text{International gold price}
\]

\[
er_t = \text{Exchange rate}
\]

\[
op_t = \text{International oil price}
\]

\[
y_t = \text{Income}
\]

The theoretically expected signs of these variables on gold prices are summarized in Table 1.

**Table 1: Theoretically Expected Effect of Variables on Gold Prices**

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflation</td>
<td>+</td>
</tr>
<tr>
<td>Stock price</td>
<td>-</td>
</tr>
<tr>
<td>International gold price</td>
<td>+</td>
</tr>
<tr>
<td>Exchange rate</td>
<td>-</td>
</tr>
<tr>
<td>International oil price</td>
<td>+</td>
</tr>
<tr>
<td>Income</td>
<td>+</td>
</tr>
</tbody>
</table>

**IV. Data Sources, Construction of Variables and Econometric Methodology**

This chapter provides explanation about the data sources, construction of variables and econometric methodology. Three sections are allocated to this chapter. First section will explain data sources. Second section will describe about the construction of variables used in our study. Third section will tell about the econometric tools and techniques used in this study.

**Data Sources**

In this study monthly secondary data pertaining to Pakistan will be used for the period January 2000 to June 2012. The data will be taken for 24 Karat 10 gram gold
prices in rupees, closing values of KSE-100 index, CPI, Rs/$ Exchange rate, international gold prices in grams, crude oil prices and MPI, prevailing on the last day of each month, during the said period. The data has been taken from International Financial Statistics (IFS), Forex and Karachi Stock Exchange (KSE) websites and World Gold Council.

Econometric Methodology
To evaluate the relationship between gold price and our explanatory variables, the econometric tools and techniques used are described in this section. Time series econometrics emphasizes on the time series properties of the economic variables, to overcome the problem of spurious regression. Through GMM we will estimate our model.

V. Empirical Findings and Interpretation of Results
We are now able to present the results of our statistical tests and model by following the analytical tools described in the preceding chapter. Two sections are allocated to this chapter. First section provides descriptive statistics of the variables. Second section reports the empirical results of the effects of macroeconomic variables on gold price in Pakistan.

Descriptive Statistics
Table 2 contains descriptive statistics for the gold price and macroeconomic variables used in this study. In interpreting the coefficient estimates it will be helpful. A careful study shows that gold price in Pakistan has a mean value of 17040.19. For explanatory variables mean values are 122.62 for domestic inflation, 7442.82 for domestic stock price, 16991.25 for international gold price, 67.18 for rupees per dollar exchange rate, 26.20 for international oil price and 95.57 for domestic income. Domestic gold price has a standard deviation of 13741.01. Independent variables have standard deviation of 44.58 for domestic inflation, 4356.24 for domestic stock price, 13725.48 for international gold price, 12.31 for rupees per dollar exchange rate, 17.05 for international oil price and 24.13 for domestic income. Number of observations included for each variable are 150.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Median</th>
<th>Maximum</th>
<th>Minimum</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold Price</td>
<td>17040.19</td>
<td>11443.5</td>
<td>51229</td>
<td>4548</td>
<td>13741.01</td>
</tr>
<tr>
<td>Inflation</td>
<td>122.62</td>
<td>105.23</td>
<td>222.99</td>
<td>75.9</td>
<td>44.58</td>
</tr>
<tr>
<td>Stock Price</td>
<td>7442.82</td>
<td>8011.26</td>
<td>15125.29</td>
<td>1133.44</td>
<td>4356.24</td>
</tr>
<tr>
<td>Int'l Gold Price</td>
<td>16991.25</td>
<td>11397.4</td>
<td>50783.42</td>
<td>4505.94</td>
<td>13725.48</td>
</tr>
<tr>
<td>Exchange rate</td>
<td>67.18</td>
<td>60.63</td>
<td>94.63</td>
<td>51.79</td>
<td>12.31</td>
</tr>
<tr>
<td>Int'l oil Price</td>
<td>26.2</td>
<td>22.04</td>
<td>67.19</td>
<td>7.09</td>
<td>17.05</td>
</tr>
<tr>
<td>Income</td>
<td>95.57</td>
<td>105.27</td>
<td>138.06</td>
<td>49.02</td>
<td>24.13</td>
</tr>
</tbody>
</table>

Model Estimations and Interpretation of Results:

GMM Estimates
In our model, endogeneity problem is likely to arise. Hence, to estimate the model GMM estimation technique is used. As instruments, lagged values of the variables are
used. The estimated results of the model are stated in the Table 3. The slope coefficient of inflation is positive and significant which indicates that when inflation increases by 1 percent, domestic gold price increases by 0.551 percent. Stock price has a negative and significant effect on gold price. Slope coefficient of stock prices is statistically significant and shows that one percent increase in stock price implies about a 0.107 percent decrease in domestic gold price. Further, the regression coefficient on international gold price is positive which suggests that one percent increase in international gold price will lead to 0.934 percent increases in domestic gold price. This result is highly statistically significant.

Like stock price, exchange rate also has a significant negative effect on domestic gold price, because as dollar appreciates against rupee, for non-United States citizens purchasing gold in dollar terms will be expensive and hence demand and gold price decreases. Result shows that one percent increase in exchange rate will decrease gold price by 0.695 percent. In turn, the results on international oil price shows that one percent increase in international oil price will lead to 0.043 percent increase in gold price; this result is significant at 10% level. Finally, the coefficient of income is positive which shows that one percent increase in income will lead to 0.031 percent increase in gold price, its result is significant at 10% level.

Thus, the estimated impact of explanatory variables on gold price in Pakistan is robust with reasonable values of overall R-square. As DW value is round about two it means there is no autocorrelation problem. High p-values of J-statistics indicate that the instruments are valid.

Table 3: Empirical Estimates of GMM

<table>
<thead>
<tr>
<th>Variables</th>
<th>GMM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>1.582</td>
</tr>
<tr>
<td></td>
<td>(5.906)*</td>
</tr>
<tr>
<td>Inflation</td>
<td>0.551</td>
</tr>
<tr>
<td></td>
<td>(3.445)*</td>
</tr>
<tr>
<td>Stock Price</td>
<td>-0.107</td>
</tr>
<tr>
<td></td>
<td>(-6.067)*</td>
</tr>
<tr>
<td>Int’l. Gold Price</td>
<td>0.934</td>
</tr>
<tr>
<td></td>
<td>(10.953)*</td>
</tr>
<tr>
<td>Exchange Rate</td>
<td>-0.695</td>
</tr>
<tr>
<td></td>
<td>(-8.180)*</td>
</tr>
<tr>
<td>Int’l. Oil Price</td>
<td>0.043</td>
</tr>
<tr>
<td></td>
<td>(1.952)**</td>
</tr>
<tr>
<td>Income</td>
<td>0.031</td>
</tr>
<tr>
<td></td>
<td>(1.765)**</td>
</tr>
<tr>
<td>AR(1)</td>
<td>0.760</td>
</tr>
<tr>
<td>R²</td>
<td>0.997</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.996</td>
</tr>
<tr>
<td>DW</td>
<td>1.980</td>
</tr>
<tr>
<td>J-statistic</td>
<td>10.647</td>
</tr>
<tr>
<td>Prob.(J-stat.)</td>
<td>0.168</td>
</tr>
</tbody>
</table>

Note: Student-t values are denoted in parentheses. * (**) indicates significant at 5% (10%) level of significant.
VI. Conclusion

In current scenario focusing analysis on Pakistan poses special concern as Pakistan is facing with distressing security circumstances, instable political position and fragile economic situation. In these conditions investors switch from stock markets to gold markets as they think gold as a secure commodity and used to mitigate the risk against inflation because when inflation rate increases the purchasing power falls down while purchasing and investing in gold as a long term asset can save their purchasing power against inflation.

In Pakistan gold prices are continuously fluctuating for so many years, there is a need to explore the macroeconomic variables which affect gold prices. The study empirically explores the relationship between gold price and macroeconomic variables in Pakistan. This study used monthly time series data from January 2000 to June 2012. These variables include inflation rate, stock price, international gold price, exchange rate, international oil price and income. The aim is to analyze whether these explanatory variables affect gold prices in case of Pakistan.

For this purpose we have estimated an econometric model using GMM estimation techniques. GMM results show that inflation has statistically significant positive impact on gold prices in Pakistan. As inflation increases it increases the uncertainty which force people to withdraw their money from the bank and convert it into a long lasting product that is gold. This increase the demand for gold and ultimately gold price increases.

The relationship between domestic gold price and stock price is negative and statistically significant. Gold is used as alternatives in investment. In uncertain political, economic and security conditions investors switch from stock markets to gold markets. It decreases the stock prices and increases the gold prices due to its high demand and ultimately gold prices increases. International gold price has a strong positive and statistically significant effect on gold prices in Pakistan. It means when international gold prices rise it will increase gold prices in Pakistan.

The impact of exchange rate on domestic gold price found is negative and statistically significant. The reason behind a negative relationship between exchange rate depreciation and gold price is that as domestic currency depreciates against foreign currency, for domestic residents’ purchasing gold in terms of foreign currency will become expensive. Therefore, the demand and hence the price of gold will decrease. Findings suggest positive significant effect of international oil price on domestic gold price. Reason behind it is rise in oil price generates higher inflation which increases the demand for gold and hence increases gold price. Another reason could be as oil price increases, oil producing countries get high returns from oil and they invest in gold which increases the demand and ultimately price of gold increases.

National income has statistically significant positive impact on domestic gold price. The intuition is as income increases, purchasing power of the people increases. Therefore, people like to purchase and invest in gold by considering it a safe heaven. The demand for gold increases and hence gold prices also increase.
References


