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Original Research Article

Gold price dynamics in India: A pre-post-liberalisation comparison

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ABSTRACT

There are considerable differences in gold price movements in India in the periods of pre-and-post globalised regimes. This is because of a change in the controlled regime in the pre-liberalised to a meticulous dilution in the post-liberalised era. Hence, the liberalised period witnessed an upward trend in price dynamics with only occasional dampening in the price cycles. The jewellery sector in India is not driven by local forces as most of the inputs are imported for production and value-added export. It is revealed that the positive impact is the result of liberalisation and related mechanisation. Gold price shows a kind of co-integration of domestic prices with the global cues. In the pre-post-dichotomy, the post-liberalisation period is more integrated with the global prices than the pre-liberalised.

1. Introduction

The present gold price movements show a stochastic pattern not converging to the usual forms like inflation, interest rates, psychological sentiments and geopolitical uncertainties. The conventional economic theory is handy which purports to explain that the gold price is determined by stock and flows. Unlike other commodities, gold output does not vanish. In this respect the gold stock will either be used for present demand or be stored for future sale. In both the cases price acts as a determining factor. Hence, it all depends on the equi-marginal principle of anticipated return vis-à-vis marginal costs. This will become volatile in unprecedented political and catastrophic situations. This situation is utilised well by the market participants to gain by storing gold.

The gems and jewellery sector are not embedded with local resources, but with imported inputs and hence the economics of this industry is entirely different and the capitalists playing in the sector is really powerful business groups. They have good knowledge about the local production system and global demand and value of the products. Nonetheless, the gold jewellery sector is connected with a historically important artisan community known as goldsmith and their art and artefacts are popular in global dimensions. But the malady comes in the form of globalisation as the petty home-linked business of jewellery making becomes the arena for big investment for local as well as for export needs with high level of technological change inter alia the beginning of gigantic production and retail showrooms (Krishnakumar R, 2006). Hence, the traditional hand-made jewellery making gives the way for machine made jewellery making.[1,2]

The product market is oscillating with many factors and variables and with this it is trying to reach equipoise with factors like price, ability to pay characteristics, design changes, demand volumes, repurchase or exchanges and factors involved in marketing. These forces in a way determine the maximisation principle in business either in the case of craftsmen or in the case of businessmen

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are determined by forces of technology. Technology is considered as the linchpin in all facets of production like, melting, refining, moulding, designing, casting, electroplating, carving, testing and stone fixing. To meet the changes in consumer requirement various software are used to meet the suitability of design. The consumers demand is determined by the quality of the products they purchase and the result of this is the introduction of BIS to give quality assurance to the consumers. Hence, the adoption of new technology in the production and marketing process to a greater extent is useful for sustainable production, consumer confidence and profitability of the producers. Obviously, machineries in the areas of mechanical, electrical, electronic including software applications are essential element for anyone in this market to be sustainable and profitable (Hazra. A and Malakar. M, 2006).

The success of jewellery business is, by and large, based on adoption of the appropriate technology suiting the skills of the artisans in the gems and jewellery sector, which in turn benefits the manufacturer or retailer in the gold business. This is long and cumbersome process and generally it takes at least two years to understand the ins and outs of the technology for using it proficiently. Every type of technology transition needs some kind of cost and the adopter of technology has to meet the cost as the gold and jewellery items have big changes in its prices and the late adoption will be costlier (Pradeep. K. V and Karunakaran. N, 2021). This is a peculiar nature of the gems and jewellery industry in comparison with other resource-based industries or even other types of industries. In this respect, whether it is engaged in traditional manufacturing or trade adoption of technology irrespective of its scale and size have to utilise the best technology available without any delay. The changes in life styles led to concomitant changes in the demand for new design and fashion in gems and jewellery and this is growing at a faster pace and the jewellery manufacturers are well aware of these changes (Madhavi. S and Devi. T. R, 2015). The manufacturers are trying to tap the maximum potential from the global demand in the gems and jewellery products as the international jewellery market is very robust for the Indian products.

2. Materials and Methods

The study makes use of secondary data collected from the Report of World Gold Council and the Reserve Bank of India Bulletin. The Compound Annual Growth Rate is used to evaluate the temporal dynamics and growth in gems and jewellery sector in India. The price of gold fluctuates a great deal over time and to evaluate the instability in gold price, Cuddy-Della Index of Instability (CDII) is used. The higher the score, the higher is the instability and vice-versa. The CDII is worked out for both pre and post liberalisation phases and the values are compared to identify any change in the instability score of gold price during the two periods. The Index is evaluated based on the methodology followed Cuddy and Della (1978).

Cuddy-Della Index of Instability (CDII)

$$CDII = CV \times \sqrt{(1-R^2)}$$

Where, CV = Coefficient of Variation; R^2 = Coefficient of Determination

3. Results, Analysis and Discussions

The dynamics of the sector is not driven by any local issue but is global in nature, which makes the sector always vibrant and this is more so in the post globalised era.

3.1. Temporal dynamics in gold price in India: pre-and post-liberalisation period

Temporal dynamics is evaluated with the trend in gold price of India, which is evaluated temporally to work out the growth rate i.e., the annual rate of change in different phases during the pre and post liberalisation periods. The liberalisation in this sector has witnessed a type of co-integration of prices with the international gold price. Though the gold price is on an increase, there are fluctuations. In 2016 onwards, price data show that domestic price of gold was affected by some factors like PAN card regulations, Brexit issue, GST implementation, hike in interest rate in US and demonetisation in India. For a temporal evaluation, the gold price data for India has been classified into two phases, viz. pre and post liberalisation.[3]

3.1.1. Pre-liberalisation phase (1964-90)

1964-90 period is termed as gold control era. Holding of more than 100g gold by the goldsmith and 2 kg gold by the licensed dealers was prohibited. Forward trading in gold was banned in 1962. The manufacturing of ornaments with more than 14 carat purity was prohibited as per the Gold Control Rules 1963, which was also applicable to the refineries. However, the ban on 14 carat jewellery making was lifted in 1966. As per the Gold Control Act 1968, holding of gold in form other than jewellery was prohibited. The gold bonds which were issued by the government in exchange of gold were also a failure as the women who possessed the lion's share of gold ornaments in the country were unwilling to participate in the scheme. The abolition of Gold Control Act in 1990 was done in tune with liberalisation with the fact that the country had to pledge its gold reserves to the Bank of England due to a foreign exchange default scenario.[4]

The gold price trend during the pre-liberalisation period of 1964-90 is shown in Figure 1. The year 1974 saw an increase in gold price from Rs. 278.5 to Rs. 506 which in percentage terms amounted to 81 percent. The year 1976 saw a fall to Rs. 432. Since 1978, the price of gold has been increasing rapidly at an average rate of more than 35 percent and reached nearly three times the price of 1978 and in 1981 at Rs. 1800 per 10 grams. But 1982 saw a fall in gold price, after which the price stabilised and showed an increasing trend until 1986. In the years 1987 and 1988 witnessed a sharp increase in the average annual price of gold, after which the price again stabilized. Overall, the price of gold has dwindled during the period. In sub-phase-wise, the first phase 1964-72 witnessed a CAGR of 13.77 percent in price. The second period 1972-80 had a CAGR of 23.29 percent and the phase from 1980-90 realised a CAGR of 8.53 percent.

The impact of the regulations during the pre-liberalisation was manifold, in that it promoted black economy and gold smuggling. While the gold control policy was aimed to curb the purchase of gold by the public, the policy had created reverse effect. The Act was a total failure to curb price rise, control imports and stop black marketing. The jewellery during the period was made using recycled gold or smuggled gold. The jewellery making was the monopoly of the traditional goldsmiths during the period and most of them also started dealing with black marketing.[5]

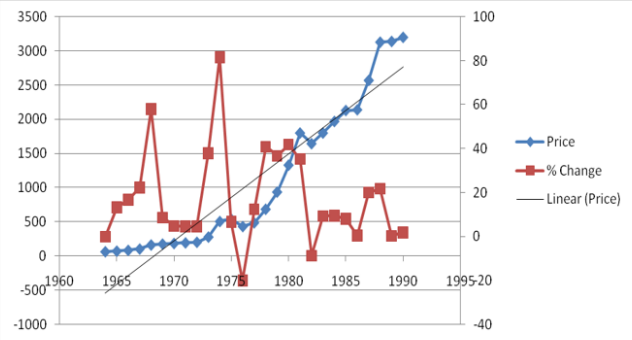

Fig. 1: Gold price during Pre-liberalisation period Source: World Gold Council (2018)

3.1.2. Post-liberalisation phase since 1991

The 1991 post liberalisation phase started with annulling the gold control act and permitting to hold gold bars and coins. Banks were allowed to import gold in 1997 so as to sell or give loan to jewellers and exporters. Non-resident Indians could now bring gold. Moreover, 100 percent FDI in the sector was also allowed. The liberalisation of the sector and allowing the import facilitated the growth of the sector and integrated the market and price with the international markets. The growth experience in the sector has been immense since globalisation which is evident from the data depicted in the aforementioned sections. The phases during the post-liberalisation are classified into three sub-phases of 9 years duration viz. Phase 1: 1991-99, Phase 2: 2000-08 and Phase 3: 2009-18.[6]

3.1.2.1. Post-liberalisation phase 1 (1991-99). The first sub-phase of post-liberalisation phase witnessed a growth of only 2.25 percent in the gold price (from Rs. 3466 to Rs. 4234 during 1991 and 1999). There were lots of dynamics in price year-wise (Figure 2). The years 1997 and 1998 saw a fall in gold price compared to 1996.

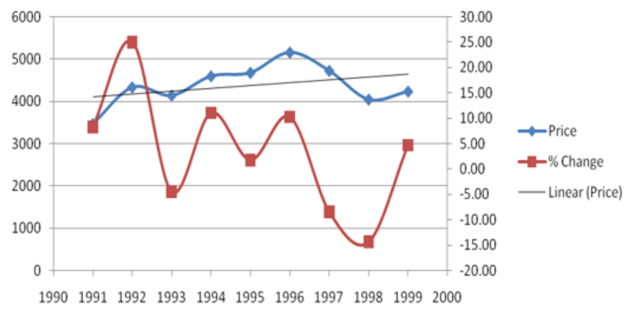

Fig. 2: Gold Price1991-99 Source: World Gold Council (2018)

3.1.2.2. Post-liberalisation phase 2 (2000-08). The second sub-phase (Figure 3) saw a phenomenal increase in the annual price of gold. The price of gold per 10 grams increased from Rs. 4400 in 2000 to 12500 in 2008. The CAGR for the period stood at an impressive value of 12.3 percent. Except for 2001, where there was a slight decline in the gold price, the price has increased during this period and it could be inferred that the trend is going upward. The year-wise growth data also show some fluctuations but an increasing pattern. The period could be termed as one of the important post liberalisation phases. The gold price was impacted due to the domestic growth as well as global factors during this period. The measures taken by government to deregulate the gold industry were showing desired results.[7]

3.1.2.3. Post-liberalisation phase 3 (2009-19). During the start of the period, gold price was Rs. 14500. From 2010-11, there was an increase of 42.70 percent (Figure 4). The price reached a peak of Rs. 31050 per 10 grams during 2012. Afterwards, price started falling and reached a low of Rs. 26344 in 2015. While the trend is positive, the price has shown a decline since 2012. The CAGR for the period is 8.28 percent.

3.2. Instability in gold prices: A pre-post liberalisation comparison

Instability in gold prices, particularly inferring pre and post liberalisation has been evaluated using instability index.

It is show that the p values are significantly related both for pre and post liberalisation phases and the instability value during pre-liberalisation period is less than post-liberalisation score (Table 1); indicates that the liberalisation has increased instability in price of gold in India. The

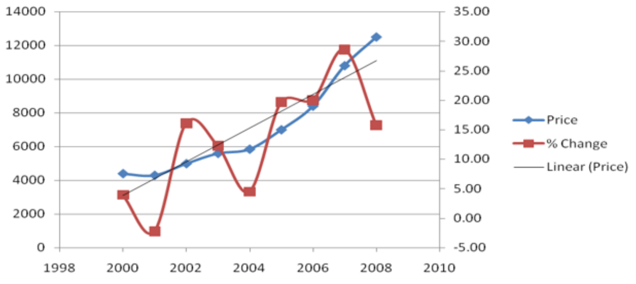

Fig. 3: Gold Price 2000-2008 Source: World Gold Council (2018)

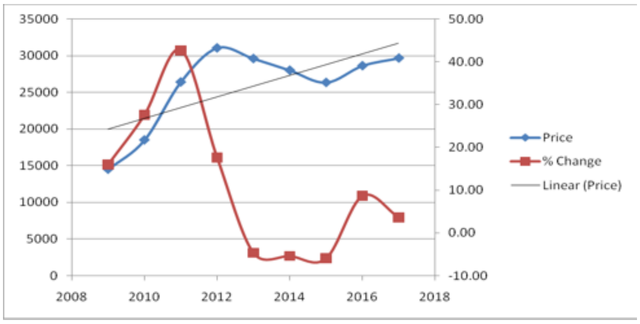

Fig. 4: Gold Price 2009-2018 Source: World Gold Council (2018)

liberalisation has integrated the domestic market with the global market and hence any variation in global gold market affects the domestic market more. Gold is a highly volatile commodity, price of which depends on the demand and supply factors as well as other global and domestic factors. It is evident that the price of gold has been fluctuating more after liberalisation.

Table 1: Instability in gold price

	Pre-liberalisation	Post-liberalisation
R Square	0.888	0.785
DW	0.234	0.178
Mean	1109.565	12441.222
SD	1070.663	10346.621
CV	96.494	83.164
T Value	14.057	9.552
P Value	0.000	0.000
C-D	5.404	8.940

3.3. *Global and domestic gold price: A pre-post liberalisation comparison*

Dynamics in gold price is identifiable with respect to stochastic and non-stochastic factors like several government policies, political situations, catastrophic situations, monetary policies of governments, inflation, American bond issues, central banks policies of various economies and equity markets. Currency volatilities of various countries are also responsible for the gold price as most of the currencies of the world are pegged with dollar. Weak and strong dollar either makes gold price up or down as it becomes cheap or expensive for the foreign purchasers of gold in the international markets.

Even though a change in the global market impacted the domestic price, there was high difference in the price of gold in the global and domestic markets during the pre-liberalisation period. In fact, the domestic price of gold was more than the global price during most of the years of the pre-liberalisation era. The price of gold in India was at least 35 percent more than the international price on an average during the pre-liberalisation period. Only for a brief period of 1979-80 and 1980-81, the difference was minimal (Figure 5). However, the domestic market price is closer with the global price after the liberalisation as the difference has come down and now the average difference during the post liberalisation period is close to10 percent. The price seems to be more co-integrated with the global market since 2001-02 as the average score is 2.4 percent during the period. However, a close observation of post 2013-14 data shows a higher difference in the gold prices with domestic price of gold higher than the global price. This is due to the increasing duties and introduction of GST on gold from 2017 onwards. Other factors which are influential in the gold price spurt come to be economic slowdown, stock market performance, geo-political tensions, and recently the spread of Covid-19 pandemic.

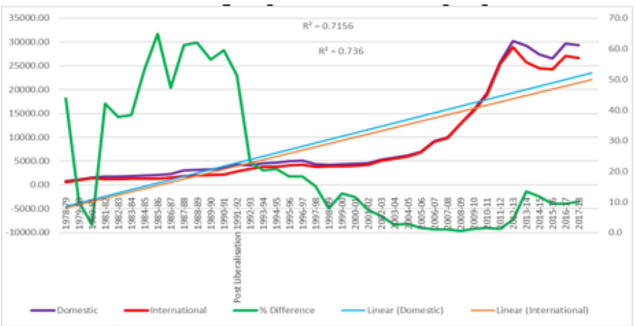

Fig. 5: Domestic and international gold price difference: A pre-post liberalisation comparison Source: RBI (2020)

3.4. *Factors determining gold price in India*

The analysis of the post liberalisation gold data shows that the domestic market price is closely cointegrated with the global market and any decrease or increase in global gold price impacts the domestic market price as well. Though the price of gold in India has increased due to imposition of import duty and other taxes, the prices often move in tandem with the global prices. Gold prices are also determined by dollar exchange rate and stock market performance holding

Table 2: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	1.100	.220		5.001	.000					
	Int	1.102	.064	1.180	17.103	.000	.993	.961	.339	.082	12.122
	Exc	-.286	.104	-.100	-2.748	.011	.798	-.489	-.054	.294	3.397
	Sen	-.092	.056	-.108	-1.634	.115	.934	-.316	-.032	.090	11.144

Model Summary: R=.995; R Square=.991 **ANOVA**: Sig.= .000; F=840.943
Predictors: (Constant), Sen, Exc, Int; Dependent Variable: Dom

other stochastic components are nonacting. To find out which of these have a profound influence on the gold price during the post-liberalisation period, regression inference is used by taking domestic gold price as dependent variable and international gold price, rupee-dollar exchange rate and Sensex rate as independent variables. Model summary shows that the R and R Square values are 0.995 and 0.991 respectively. This is further inferred with the ANOVA result, which is significant (Table 2). To ascertain the validity, multicollinearity is worked out by inspecting the VIF values. VIF value of more than 10 is often considered as a concern and even though international gold price is significant, the concern still exists. Nonetheless the international and domestic gold price move in symmetry, the regression value infers that the dollar rate significantly influences the gold price in India and even negatively correlated.

4. Conclusion

Gold price is always the result of a random ramification and hence is dynamically settled. It is customary to connect the gold price dependency with demand and supply factors; demand is perpetually increasing so also its supply. In this respect onething makes special, as the quantity is always added up as consumption of gold does not mean that the consumed commodity is exhausted. Instead it is stocked in one form or other. Hence has these incessant dynamics. The dynamics of the sector is not driven by any local issue but is global in nature, which makes the sector always vibrant and this is more so in the post-globalised era or its sub-eras in comparison to the pre-liberalised regime. One reason quite often cited for this positive impact is that the liberalisation and related mechanisation, the prospects of the industry has been elevated and new investors entered into the sector in India with huge capital investment to reap the potential benefit. It is obvious that gold price shows a kind of co-integration of the domestic gold prices with the global prices. But in a pre-post-liberalisation comparison, the post-liberalisation period is more integrated with the global prices than the pre-liberalised. The domestic price of gold was more than the global price during most of the years of the pre-liberalisation era as the price of gold in India on an average was 30 percent more than the international price. But the caveat in gold liberalisation is that it is integrating the domestic market with the global market and any reverberation in the global gold market has affected the domestic market unequivocally. This is well authenticated with Cuddy-Della Index, regression and correlation inferences all of which show an augmented reality of global integration of prices and its dynamics.

5. Source of Funding

None.

6. Conflict of Interest

None.

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