

Evaluating the Role of Gold in India's Foreign Exchange Reserves: A Macroeconomic Perspective

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Abstract

This research paper focused on evaluating the role of gold in India's foreign exchange reserves. India's foreign exchange reserves are ranked fourth globally, after only China, Japan, and Switzerland. The Reserve Bank of India's emphasis on expanding gold holdings and strengthening foreign exchange reserves demonstrates a proactive approach to financial management. The figures show a stronger import cover, a healthier debt structure, and better foreign exchange reserve management. These advances strengthen India's financial stability and resilience in the face of global economic crises.

Keywords: Special Drawing Rights, Foreign Exchange Reserves, Gold, Foreign Currency.

Introduction

Foreign exchange reserves, also known as reserve assets, consist of foreign currencies, bank deposits, treasury bills, and government securities, as well as gold reserves, SDRs, and IMF reserve positions. These reserve assets, which include gold, currency, debt securities, and derivatives, are represented in a central bank's balance of payments capital account. Reserve assets enable a central bank to purchase domestic currency, which is considered a liability by the central bank. The quantity of foreign exchange reserves fluctuates as the central bank implements monetary policy, based on factors such as capital mobility and the exchange rate regime. In a pure floating exchange rate regime, reserves are unnecessary because the market determines the exchange rate. Central banks may instead employ other monetary policy tools, such as interest rates. Some mixed exchange rate regimes still require foreign exchange transactions to maintain the target rate, which can be sterilised or unsterilised. Because the amount of foreign exchange reserves available to defend a currency is limited, a currency crisis or devaluation may occur if demand for the currency is extremely low. In contrast, reserves can potentially be continually amassed for a currency in strong demand, however this is expensive due to the necessity for sterilisation. India has a long and enduring association with gold. There are numerous reasons for maintaining gold reserves. You may already be aware that the RBI maintains foreign exchange reserves. Foreign current assets constitute a significant portion of it. The second-largest allocation is gold. The central bank uses gold reserves to diversify its foreign exchange reserves. India's economic power is expanding, and it has achieved a remarkable milestone by reaching the ranks of the world's greatest foreign exchange reserves, ranking fourth after China, Japan, and Switzerland. Every day, the Indian economy sets new records. India's economy was once regarded as one of the 'Fragile Five'. However, India's ascension from the

"Fragile Five" to the world's fastest-growing major economy serves as an example for other developing countries. Today, India has not only become the world's fifth largest economy, but it has also set a new record for foreign exchange reserves. For the first time in history, India's foreign exchange reserves exceeded \$700 billion.

Global Status of Gold Reserves

In terms of world gold reserves, the United States is the clear leader. Not only that, but the United States has nearly as much gold as Germany, Italy, and France, the next three countries in terms of gold reserves. India's gold reserves enable it reach the top ten rankings. You should be aware that certain countries' exact gold reserves are kept secret. We have resources like the World Gold Council that can provide estimates, but confirmation can be challenging. Here are the gold reserves held by several countries (in tonnes).

Country	Economic grouping	Gold Reserves (Tonnes)
United States of America	High income	8133.46
Germany	High income	3352.65
Italy	High income	2451.84
France	High income	2436.97
Russian Federation	Upper middle income	2332.74
China	Upper middle income	2235.39
Switzerland	High income	1040.00
Japan	High income	845.97
India	Lower middle income	803.58
Netherlands	High income	612.45

The RBI has been expanding its gold reserves for several years now. However, in recent quarters, the increase in gold reserves has been tremendous. One of the primary reasons for this is that central banks' confidence in dollar assets has declined. Even US Treasury Department records show that non-US central banks' ownership of US Treasury bonds fell from 50.1% in January 2023 to 47.2% in January 2024. Here are some other causes for the growth:

Diversification and De-dollarization: The RBI wants to diversify its foreign exchange reserves and reduce dependence on the US dollar. Gold provides stability and is not directly related to the success of any certain currency. It can be especially useful during times of economic instability or volatility in the dollar's value.

Hedge Against Inflation: Gold is known for its ability to serve as an inflation hedge. When the value of currencies falls owing to inflation, gold tends to keep its worth or even rise. It preserves the purchase power of India's foreign reserves.

Safe Haven Asset: Gold is viewed as a safe haven asset during global economic crises, such as the one we are currently experiencing as a result of war. When other investments experience volatility, gold tends to remain stable. A big gold reserve serves as a buffer for the economy during financial upheaval.

Confidence Building: A significant gold reserve helps instill trust in the Indian economy among foreign investors. It indicates a good financial position and stability, which could attract more international investment.

International Transactions: While gold is less popular today, it can still be utilised in international transactions. Holding a gold reserve enables India to settle debts with other countries if necessary, even if those countries refuse to take rupees.

Purchase to Reserve Ratio in India

The purchase to reserve ratio in India's gold reserves refers to the proportion of gold purchased by the country's central bank, the Reserve Bank of India (RBI), in comparison to its overall gold reserves. The ratio sheds light on the RBI's gold holdings management strategy as well as its view of gold as a reserve asset.

You can calculate the ratio using the following formula:

$$\text{Purchase-to-Reserve Ratio} = (\text{Total Gold Purchased}) / (\text{Total Gold Reserves}) \times 100$$

Where:

Total Gold Purchased: The amount of gold acquired by the central bank through purchases or acquisitions within a specific period.

Total Gold Reserves: The entire quantity of gold held by the central bank in official reserves. India has historically been one of the world's major gold users, both culturally and as a store of value. The RBI purchases gold on a regular basis to diversify its reserves and offset the risks associated with currency volatility and other economic factors. The buy to reserve ratio changes over time due to a variety of reasons, including the RBI's assessment of global economic conditions, inflationary pressures, currency stability, and geopolitical threats. In general, a higher purchase-to-reserve ratio reflects greater confidence in gold as a reserve asset and a purposeful decision to devote more resources to gold acquisitions.

Impact on Gold Rates

India's gold purchases, while significant domestically, are a relatively small portion of the global gold market. It means the RBI's buying may not have a huge direct impact on global supply and therefore, gold prices. However, there are indirect influences:

Rupee Strength: If the RBI is buying gold to diversify its reserves and reduce dependence on the US dollar, a stronger rupee could result. It could make gold imports cheaper, potentially increasing domestic supply and putting downward pressure on prices.

Market Sentiment: The RBI's actions can influence market sentiment. If the increase in reserves is seen as a positive sign for the economy, it could lead to a broader increase in investor demand for gold, pushing prices up. Overall, the impact on prices might be more noticeable in the short term due to immediate market reactions. Long-term effects are harder to predict. Also, the RBI's reasons for buying gold can influence the impact. If it's to hedge against inflation, the price impact might be different than if it's for diversification.

Review of Literature

Reddy Y. V (2002) the main concerns with India's foreign exchange reserves are examined in this paper. It answers queries like: What are foreign exchange reserves, and why do nations retain them? How has the foreign exchange reserve policy of India changed throughout time? How does India's current reserve status compare to the ideal level of reserves? The effects of FX management on India's quasi-fiscal deficit and the communication strategy of the Reserve Bank of India are also examined in this article.

Lastly, it provides some forward-looking viewpoints on the issues and factors pertaining to the management of India's foreign exchange reserves.

Charan Singh (2005) According to his research, efforts implemented to liberalise capital inflows under the financial sector reforms carried out since 1991 have caused India's foreign exchange reserves to rise from US\$5.8 billion at the end of March 1991 to US\$140.1 billion at the end of March 2005. Foreign exchange reserves are currently managed by the Reserve Bank of India after consulting with the government. Since liquidity and safety are the goals of reserve management, consideration is given to the currency composition and investment period to ensure that a sizeable amount can be quickly turned into cash. The Indian government plans to finance infrastructure with a portion of its foreign exchange reserves. Due to political and economic challenges, particularly in modifying the tariff structure, enacting labour reforms, and modernising technology, infrastructure investments in India have low or negative returns. There is no proof that any other nation has financed infrastructure with its foreign exchange reserves. One could argue that the suggested strategy might cause more economic problems than expected advantages because India's foreign exchange reserves are small in comparison to some of the other nations in the area.

Saba Abid & Neelam Jhavar (2017) According to their data analysis, foreign exchange reserves have changed significantly over time. The total amount of reserves has grown by 57%, from \$13,610 billion to \$21,376 billion. But these reserves now have a different makeup. Gold reserves now only make up 5.5% of total reserves in 2015, having dropped to \$1,192 billion. At \$81 billion, or barely 0.37% of total reserves, the reserve tranche position has also decreased. 1.16% of the total, or \$249 billion, is allocated for special drawing rights. Foreign currency reserves, which currently account for 92.88% of total foreign exchange reserves and have increased to \$19,855 billion, have been the main contributor to the increase in overall foreign exchange reserves. This indicates that foreign currency is the dominant component backing the country's foreign exchange reserves.

Kritika Agarwal (2020) in this paper, the foreign currency assets held by a nation's monetary authority are referred to as foreign exchange reserves. A country can meet its foreign financial obligations and sustain its economic growth with the help of these reserves. The COVID-19 outbreak has caused a notable increase in India's foreign exchange reserves. This study examines the patterns and sufficiency of India's foreign exchange reserves in addition to investigating practical strategies for using them to strengthen the country's economy. The information used in the analysis comes from secondary sources, such as government websites, international financial institutions, and central bank releases. The results indicate that after experiencing a significant drop in March 2020, India's foreign exchange reserves have since increased and are now far over the sufficiency benchmark. Given this excess of foreign exchange reserves, the government should leverage this position to support the country's economic recovery and development, particularly in the aftermath of the pandemic crisis.

Rajah R & P. Satheesh Kumar (2024) this study examined the expansion of India's foreign exchange reserves. Only China, Japan, and Switzerland have larger foreign exchange reserves than India, which is in fourth place internationally. The country's foreign reserves can be boosted by the central bank issuing more domestic currency and buying foreign currency to keep the exchange rate stable in the face of rising demand. A number of reasons, such as a rise in foreign direct investment, a boom in IT and service exports, and sound economic policies, have contributed to the growth of India's foreign exchange reserves over time. The Indian government and Reserve Bank of India efficiently control currency rates and monetary policy by utilising these sizeable reserves.

Methodology

The purpose of this paper is to analyze the role of Gold in India's foreign exchange reserves from 1990-91 to 2023-24. Secondary data on India's foreign exchange reserves were collected from the Handbook of Statistics of the Indian Economy and examined using various statistical models, including linear trend, semi-log, compound growth rate, percentage change, and cuddy della valle instability index models. The analysis was conducted using SPSS 19 software.

Linear Trend

$$Y = \beta_0 + \beta_1t + U_t$$

Semi-Log

$$\text{Log } Y = \beta_0 + \beta_1t + U_t$$

Compound Growth Rate

$$\text{CGR} = [(\text{Antilog } b-1) \times 100]$$

Percentage Change

$$\text{PC} = [(\text{Final value} - \text{Initial value}) / \text{Initial value}] \times 100$$

Cuddy Della Valle Instability Index

$$I = CV \cdot \sqrt{1 - \bar{R}^2}$$

Results and Discussion

The table below showcases the Gold in India's foreign exchange reserves from 1990-91 to 2023-24.

Table 1 Gold in India's Foreign Exchange Reserves during 1990-91 to 2023-24 (US \$ Million)

Year	Gold	Share of FER	% Change	Year	Gold	Share of FER	% Change
1990-91	3496	59.92	-	2007-08	10039	3.24	47.98
1991-92	3499	37.95	0.09	2008-09	9577	3.80	-4.60
1992-93	3380	34.38	-3.40	2009-10	17986	6.45	87.80
1993-94	4078	21.18	20.65	2010-11	22972	7.54	27.72
1994-95	4370	17.35	7.16	2011-12	27023	9.18	17.63
1995-96	4561	21.03	4.37	2012-13	25692	8.80	-4.93
1996-97	4054	15.34	-11.12	2013-14	21567	7.09	-16.06
1997-98	3391	11.55	-16.35	2014-15	19038	5.57	-11.73
1998-99	2960	9.11	-12.71	2015-16	20115	5.58	5.66
1999-00	2974	7.82	0.47	2016-17	19869	5.37	-1.22
2000-01	2725	6.44	-8.37	2017-18	21484	5.06	8.13
2001-02	3047	5.63	11.82	2018-19	23071	5.59	7.39
2002-03	3534	4.64	15.98	2019-20	30578	6.40	32.54

2003-04	4198	3.72	18.79	2020-21	33380	5.79	9.16
2004-05	4500	3.18	7.19	2021-22	42551	7.01	27.47
2005-06	5755	3.80	27.89	2022-23	45200	7.81	6.23
2006-07	6784	3.41	17.88	2023-24	52675	8.15	16.54

Source: Handbook of Statistics of Indian Economy, Various issues.

The value of India's foreign exchange reserves from Gold has fluctuated significantly over the years. From 1990-91 to 1991-92, the reserves from gold nominal increased from \$3496 million to \$3499 million. This accelerated further, reaching \$4078 million by 1993-94. However, the reserves from gold then accelerated, rising to \$4561 million in 1995-96, it suddenly decreased to \$4054 million in 1996-97 due to crash in international gold prices. After a drastically deceleration to \$2960 million in 1998-99, the reserves from gold suddenly to grow, reaching \$3047 million in 2001-02. This upward trend continued, with the reserves from gold accelerating to \$4500 million by 2004-05 and peaking at \$10039 million in 2007-08. Since then, the value of India's foreign exchange reserves from gold has been more volatile, decelerating to \$9577 million in 2008-09 due to fallout of the global crisis and strengthening of the US dollar vis-a-vis other international currencies has been responsible for the decline. However, the reserves from gold have ascended in recent years, rising from \$22972 million in 2010-11 to \$27023 million in 2011-12, it suddenly decreased to \$25692 million in 2012-13 due to the main reasons of decline are the revaluation effect and intervention in the domestic foreign exchange market. From 2014-15 to 2015-16, the reserves increased nominally from \$19038 million to \$20115 million. However, the reserves from gold have ascended in recent years, rising from \$21484 million in 2017-18 to \$23071 million in 2018-19 due to RBI has brought home a little over 100 tonnes of gold from the UK. This upward trend continued, with the reserves from gold accelerating further from \$30578 million in 2019-20 to \$33380 million in 2020-21. However, the reserves from gold have tremendously ascended in recent years, rising from \$45200 million in 2022-23 to \$52675 million in 2023-24. Overall, India's foreign exchange reserves from gold have grown substantially over the past two decades, though the pace of growth has fluctuated considerably during this period.

However, the reserves from gold have also registered negative growth during certain years, including 1992-93, 1996-97, 1997-98, 1998-99, 2000-01, 2008-09, 2012-13, 2013-14, 2014-15, and 2016-17. The highest annual growth was observed in 2009-10 at 87.80%, while the lowest was in 2004-05 at 3.18%. Notably, the value of India's foreign exchange reserves from gold has increased more than 15-fold from 1990-91 to 2023-24, demonstrating the substantial growth and importance of this crucial economic indicator over the past three decades.

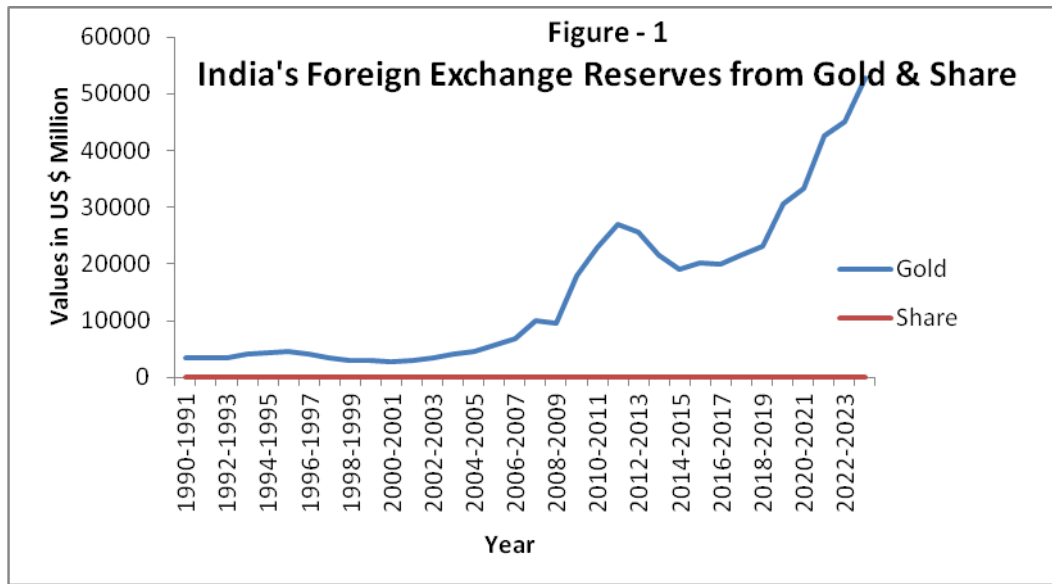


Table 2 Results of Trend Analysis of Gold in India’s Foreign Exchange Reserves during 1990-91 to 2023-24

Parameter and Statistics	Linear Model	Semi-Log Model	Compound Growth Rate Model
β_0	-6532.209	7.550	1901.184
Standard Error	2325.406	0.133	251.996
t statistics	-2.809	56.963	7.545
Significant	0.008	0.000	0.000
β_1	1230.619	0.092	1.097 (9.7)
Standard Error	115.909	0.007	0.997
t statistics	10.617	13.954	151.361
Significant	0.000	0.000	0.000
R square	0.779	0.859	0.859
Adjusted R square	0.772	0.854	0.854
F statistics	112.724	194.726	194.726

Source: Authors own calculation.

** Significant at one percent level.

The results of the trend analysis in Table 2 indicate that India's foreign exchange reserves from gold increased by an average of \$1230.619 million annually from 1990-91 to 2023-24. The regression coefficients of the semi-log linear model and compound growth rate model suggest that India's foreign exchange reserves grew at annual rates of 9.2% and 9.7% respectively. All three models were statistically significant at the 1% level. The adjusted R-squared values were 0.772, 0.854, and 0.854 for the simple linear regression, semi-log, and compound growth rate models respectively. This means the independent variables in these models explained around 77.2%, 85.4%, and 85.4% of the variation in the dependent variable.

Cuddy Della Valle Index of Gold in India’s Foreign Exchange Reserves during 1990-91 to 2023-24 is presented in Table 3.

Table 3 Cuddy Della Valle Index of Gold in India’s Foreign Exchange Reserves during 1990-91 to 2023-24

Variable	CV	Adjusted R ²	CDVI	Inference
India’s FER from Gold	92.549	0.854	35.353	High Instability

Source: Authors own calculation.

It brings out the Gold in India’s Foreign Exchange Reserves during 1990-91 to 2023-24 are showing high growth rate. The Gold in India’s Foreign Exchange Reserves registered high instability which recommended significant inter-year fluctuations during the whole study period.

Conclusion

India's foreign exchange reserves are ranked fourth globally, after only China, Japan, and Switzerland. The Reserve Bank of India's emphasis on expanding gold holdings and strengthening foreign exchange reserves demonstrates a proactive approach to financial management. The figures show a stronger import cover, a healthier debt structure, and better foreign exchange reserve management. These advances strengthen India's financial stability and resilience in the face of global economic crises.

References

1. Achille, C., Mezui, M. & Duru, U., (2013) “Holding Excess Foreign Reserves Versus Infrastructure Finance: What Should Africa Do?”, Working Paper No. 178, Asian Development Bank Group. Retrieve from: <https://www.adb.org/publications/series/economics-working-papers>.
2. Abiola, G.A. & Adebayo, O.A., (2013) “Channelling the Nigeria’s Foreign Exchange Reserves into Alternative Investment Outlets: A Critical Analysis”, International Journal of Economics and Financial, 4(3), pp. 813-826.
3. Arunachalam, P., (2010) “Foreign exchange reserves in India and China”, African Journal of Marketing Management, 2(4) pp. 69-79.
4. Brown, W.M., (1964) “The External Liquidity of an Advanced Country”, Princeton Studies in International Finance, Princeton.
5. Charan Singh (2005) “Should India use Foreign Exchange Reserves for Financing Infrastructure?”, Stanford University, working paper, pp. 1-27.
6. Das, R. and Nath, S. (2015) “Assessing the Reserve Adequacy in India”, Occasional Papers, Reserve Bank of India. Retrieve from: <https://www.rbi.org.in/Scripts/Publications.aspx?publication=Occasional>.
7. Dominguez, K., Hashimoto, Y (2011) “International Reserves and the Global Financial Crisis”, Working Paper, National Bureau of Economic Research.
8. Du, S., Lin, X., Han, X., (2018) “Advantages and Disadvantages of Continued Growth in Foreign Exchange Reserves”, Financial Statistical Journal, 1(1), pp 8-13.
9. Greenspan, A.,(1999) “Currency Reserves and Debt”, Remarks at the World Bank Conference on Trends in Reserve Management.
10. Kritika Agarwal (2020) “An Analysis of Rising Foreign Exchange Reserves of India During The Covid-19 Pandemic and Its Potential Use for Economic Development”, International Journal of Advanced Research in Engineering and Technology, Vol. 11, Issue. 7, pp. 372-382.

11. Rajah R & P. Satheesh Kumar (2014) “Growth of India’s Foreign Exchange Reserves”, International Journal of Scientific Research and Engineering Development, Vol. 7, Issue. 6, pp. 239-243. <https://zenodo.org/records/14198319>
12. Reddy Y. V (2002) “India’s Foreign Exchange Reserves: Policy, Status and Issues”, Economic and Political Weekly, May 18.
13. Saba Abid & Neelam Jhavar (2017) “An Analysis of Foreign Exchange Reserves in India since 2001- 2016”, IOSR Journal of Economics and Finance, Vo. 8, Issue. 2, pp. 70-74.