Effect of Exchange Rates on Cross-Border Investments

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Abstract

In this study spanning the last decade, the volatile relationship between the USD-INR exchange rate and cross-border investment returns is examined. The primary objective is to understand how the fluctuations in the exchange rate have given birth to profitability and risks that characterize cross-border investments. Using financial data, this research delves deep into the interactions between the USD-INR exchange rate and investment returns.

The investigation considers a broad array of factors, including economic indicators and geopolitical events, to provide an understanding of the forces that determine exchange rates. By considering these variables, the research aims to understand how currency movements manifest in investment portfolios. This approach seeks to offer not only a retrospective analysis of cross-border investments but also help in forecasting the future for investors, policymakers, and financial analysts navigating this volatile landscape.

The ultimate goal of this research is to help stakeholders make better investment decisions in the face of a highly volatile and unpredictable financial market. This study thus aspires to contribute to the refinement of investment strategies, especially for Indian and American investors.

Research

Research Question: How has the evolution of the US-INR exchange rate determined the returns of cross-border investments over the past 10 years?

Investment decisions are hard to make. Deciding whether to invest in foreign assets is even harder. Unlike domestic investments, cross-border ones entail an added layer of complication because of the dynamic exchange rates between the domestic and foreign currencies.

An American investor that invested in an Indian VC fund in 2012 optimistically may have not been able to forecast how the appreciation of his own currency would be his downfall.

USD-INR Exchange Rate

Date	Rate
2012	53
2013	55
2014	62
2015	63
2016	66
2017	68
2018	63
2019	70
2020	72
2021	73
2022	74
2023	83

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Let's assume that $100 was invested by an American investor in the Indian venture capital market in 2012. This amount translated to INR 5305.

Let us further assume that the annual CAGR on VC investments in India is 25%.

The below table shows the growth of this initial investment in a period of 10 years.

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Investment grew to	**₹5,305**	**₹6,631**	**₹8,289**	**₹10,361**	**₹12,952**	**₹16,190**	**₹20,237**	**₹25,296**	**₹31,620**	**₹39,525**	**₹49,407**

Over these 10 years, the INR investment grew to almost 10 times its initial amount which is gratifying for any investor. However, the role of the exchange rate is yet to be taken into account.

In January 2022 the USD-INR exchange rate was 74.4. The return of ₹49,407 was therefore equivalent to $664.04 which is the amount that will be repatriated to the American investor.

The investor put $100 into the Indian VC fund in 2012 and 10 years later, his investment yielded an amount of $664.04. His return in USD was therefore 20.84% as compared to the actual return of 25% made by the VC fund per annum.

The fall of the value of INR against the US Dollar is attributable to the dilution of this investment. American investors are therefore adversely affected by the USD-INR exchange rate and may avoid investing in the Indian economy.

While this American investor faces an adverse sunk cost, Indian investors are making more and more money. Here is the case if an Indian investor were to put ₹100 into an American VC fund in 2012.

Amount Invested (₹) in 2012	**Amount Invested ($) in 2012**	**Assumed return in US market**	**Investment value in 2022**	**Amount repatriated to Indian investor in 2022**	**Investor's return rate (in INR)**
₹100	**$1.89**	**25%**	**$17.56**	**₹1,306.18**	**29.30%**

The movement of the USD-INR exchange rate is thus favorable to the Indian investor who makes 29.30% on his investment as compared to the 20.84% made by the American investor. On average, the Indian investor is making 4% more than the expected return of 25% while the American investor is making approximately 4% less.

Let us assume that the actual return rate in the US market is 20%. In order for the American investor to be incentivised to invest in the Indian VC fund, the return rate must be substantially greater even after accounting for the 4% loss. If the fund can promise the investor a return of, for instance, 30%, the efficacy of the investment greatly increases.

This preaches the importance of considering foreign exchange rates when making cross-border investments. A substantial return such as that made by the American investor in 2022 may be weakened by unfavorable value of one's home currency against the foreign currency. On the contrary, the everchanging foreign exchange rates may be greatly beneficial to some investors whose home currency is weaker than the foreign currency.

By virtue of investing in US stocks, your investment encompasses not only the inherent value of the stocks themselves but also the dynamic interplay between the value of the dollar and the rupee. This relationship reveals that any fluctuations in the strength of the dollar relative to the rupee have a direct impact on the growth and potential returns of your investment. When the dollar gains strength against the rupee, it brings forth favorable consequences for your investment portfolio. As the value of the dollar rises, the purchasing power of each dollar you've invested increases in comparison to the rupee. This, in turn, amplifies the value of your investments denominated in dollars and potentially leads to higher returns. However, it is important to note that currency fluctuations are a double-edged sword. While a stronger dollar can enhance the value of your investments, a weaker dollar in comparison to the rupee can have the opposite effect.

Therefore, as an investor, it is essential to monitor and consider the currency dynamics between the foreign currency and your home currency. Understanding the intricate relationship between these currencies empowers you to make informed decisions that maximize the growth potential of your investment.

Bibliography

1. ***** McKenzie, M. D. (1999). The Impact of Exchange Rate Volatility on International Trade Flows

   This study looks at how changes in exchange rates affect international trade in Mexico, Indonesia, Nigeria, and Turkey. It uses models to predict volatility in exchange rates and examines both short-term and long-term effects. In the short term, there are noteworthy connections between volatility and import/export demand in Indonesia and Mexico. For Nigeria, there's a one-way relationship from export demand to volatility, while in Turkey, there's no detected link between volatility and import/export demand. This highlights the complex and varied impacts of exchange rate volatility on international trade in different countries, emphasizing the need to consider both short-term and long-term perspectives in analyzing these effects. Although this paper focuses on countries that are not India and the USA, its findings are applicable to this investigation.

2. ***** Malhotra, S. and Malhotra, N. (2007), "Investing in an emerging market: evidence from US firms investing in India"

   This study explored investor reactions to US investments in the Indian market. The results show diverse market responses across industries, with some firms experiencing positive or negative abnormal returns and others showing no significant results. Factors like small investment size contribute to the lack of significant results in some cases. The paper suggests that US firms can enhance their multinational network and profitability

through investments in developing countries like India. This research uniquely focuses on the Indian market, filling a gap in existing literature.

3. * Darby, J., Hallett, A. H., Ireland, J., & Piscitelli, L. (1999). The Impact of Exchange Rate Uncertainty on the Level of Investment.

   This study challenges the idea that increased uncertainty in prices or exchange rates always reduces investment. Using econometric models, the research identifies specific situations where uncertainty affects investment positively or negatively, introducing threshold effects. It also explores how different industries may be impacted by a shift to fixed exchange rates. The findings are important for understanding the effects of volatility on investment in the context of the European monetary union. Despite trade being less responsive to exchange rate uncertainty, the study suggests that the longer-term nature of investments could still be influenced by such uncertainties.

4. * Iqbal, J., Misbah Nosheen, & Aviral Kumar Tiwari. (2023). Exchange rate volatility and India–US commodity trade: evidence of the third country effect.

   This study explores how exchange rate uncertainty affects India's trade with the United States, considering the "third-country" effect. By analyzing time series data of a plethora of Indian businesses, the research finds that the volatility of the rupee against the dollar and yen significantly influences trade volumes in specific industries. These effects are observed in both short and long terms for both exporting and importing sectors. The study highlights the complex relationship between exchange rate volatility and India's trade dynamics.

5. * Damani, A., & Vora, V. (n.d.). International Journal of Innovative Studies in Sociology and Humanities (IJISSH) An Empirical and Analytical Study of the Factors Affecting the Exchange Rate Fluctuation in India

   This study looks into what influences the exchange rates in India, specifically focusing on the Rupee-Dollar value. It examines the impact of factors like interest rate differences, India's trade deficit, and short-term influences like oil and gold prices. The research also checks how these factors contributed to exchange rate movements during the 2008 Global Financial Crisis. The results show that interest rate differences, foreign net investment, and crude oil prices significantly affect the exchange rate in the short term.

6. “Determinants of Exchange Rate Practices.” Journal of Money, Credit and Banking.

   The paper explores why countries choose between floating and pegged exchange rates, considering factors like size, trade dependence, and financial integration. Larger nations with less reliance on foreign trade tend to favor floating rates for flexibility. The study also examines the economic traits of countries in the European currency snake, revealing Germany's preference for floating rates. Importantly, a country's trade connections influence the currency it pegs to, impacting exchange rate stability. In simpler terms, the paper shows that specific economic factors guide a country's choice of exchange rate

system, affecting the predictability of international monetary arrangements and the level of volatility.

7. Sircar, S. (2023, May 21). Should NRIs invest in India for higher returns and later repatriate?

   This article examines whether Non-Resident Indians (NRIs) should invest in India for higher returns and later repatriate funds. It explores the appeal of higher returns in India, considering investment options like NRE Fixed Deposits and Indian stock markets. The challenge is introduced when repatriating funds due to the rupee's fluctuation against home currencies like USD. The article uses examples to show how currency movements impact investment returns over different periods. It discusses the lower potential returns than expected due to currency fluctuations when repatriating funds, emphasizing the need for NRIs to factor in this aspect when investing in India.

8. Board of Governors of the Federal Reserve System (US). (1973, January 2). Indian Rupees to U.S. Dollar Spot Exchange Rate. Retrieved from FRED

   Over the past decade (approximately from 2012 to 2022), the USD-INR exchange rate has experienced fluctuations influenced by a myriad of factors. Global economic conditions, domestic economic indicators in India, political stability, trade balances and interventions by central banks such as the Reserve Bank of India and the US Federal Reserve have all played roles in shaping the future trend of the exchange rate. The rate

has responded to periods of global economic uncertainty, fluctuations in India's economic performance, political and geopolitical events like COVID-19, and changes in trade balances.