



# International Journal of Research Publication and Reviews

Journal homepage: [www.ijrpr.com](http://www.ijrpr.com) ISSN 2582-7421

## A Study On Currency Risk, With Special Reference To INR Vs. Dollar, INR Vs. Pound, INR Vs. Euro, USD Vs. Euro, USD Vs. Pound, And USD Vs. YEN

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### ABSTRACT :

Variation in the expected return and the actual return we call has a risk. Managing risk is very essential for the progress of any organization that does business with other countries. Many research studies have evidenced that predictive actions can reduce the currency risk of a country or business. The major currency risk hedging methods are forward contracts, swaps, and cross-currency options. The study identified that INR vs. Dollar is one of the best currency pairs compared to other currencies. The INR vs. Yen currency pair has the highest currency risk compared to other currencies during the study period.

**Key Words:** Currency, Risk, Return, Import, Export, INR vs. Dollar, INR vs. Pound, INR vs. Euro, USD vs. Euro, USD vs. Pound, USD vs. YEN.

### Introduction :

Variation in the expected return and the actual return we call has a risk. Managing risk is very essential for the progress of any organization that does business with other countries. At any time, in any form, business risk will increase because of a change in the price of raw materials, labour, and other overheads, and even from a change in the currency rate, interest rate, etc. The currency risk can be managed by various strategies, like forward contracts, future contracts, and options contracts.

Many research studies have evidenced that predictive actions can reduce the currency risk of a country or business. (*Proactive Financial Risk Management Helps Indonesia Manage Currency and Interest Rate Risks*, n.d.). Today, large business firms are using economies of scale and borrowing to reduce the risk of currency and cost. (Muff et al., n.d.). Sometimes, the weak currency will also impact profitability, for example, in the IT industry. India is good at exporting IT services, and during the weak currency period, we made a profit. The weak currency will also impact the profitability of importing businesses like oil and gas, metals, airlines, and the automobile industry. (Tripathi & General Manager, 2018)

Risk can be assessed by using standard deviation and value-at-risk methods. The standard deviation identifies the deviation of the return from the expected return, and the value at risk assesses the maximum loss that could happen during a particular time frame.

### Literature review :

The study done by Sathya Swaroop Debasish on currency risk, with the title "Foreign Exchange Risk Management Practices: A Study in the Indian Scenario," identified that in India, some of the corporations were using VaR as the major tool for assessing the risk of currency. Most of the companies are using derivatives as a strategy for reducing the risk of currency. According to the data analysis, 53% of companies are using derivatives, while other companies are not using them because the terms are confusing. The major currency risk hedging methods are forward contracts, swaps, and cross-currency options. (Debasish, 2008)

A Research Study on Foreign Exchange and Its Risk Management is done by S. Nagaraju, and the research study identified the three currency risk exposures: transaction, translation, and operation. The study divides techniques into two parts: external and internal tools. The external techniques include forward contracts, factoring, borrowing on short terms, and government exchange risk guarantees for currency options. The study has the objectives of understanding foreign exchange and analysing the risk of revenue when the currency rate changes. The study is carried out by taking HCL technology as a sample to study the risk of currency. (S Nagaraju, 2018)

Inferential statistics techniques such as ANOVA, multiple regression, and F-tests are used to assess the currency risk of Aurobindo Pharma Ltd., Cipla Ltd., Divis Lab Ltd., Dishman Pharmaceutical and Chemical Pvt. Ltd., Dr. Reddy's Lab Ltd., Glenmark Pharmaceutical Ltd., Strides Shasun Ltd., Sunpharma Ltd., Cadila Healthcare Ltd., and Wockhardt Ltd. According to the research study, forward contracts are the most effective hedging strategy. The research study also suggested educating the businesspeople about the option contracts. These are the comments given in the research study done by Prakash Basanna and K. R. Pundareeka Vittala.(Basanna & Vittala, 2019)

Most of the research studies say that standard deviation and VaR are the two important tools to assess the risk of the currency. But no study has clearly identified how much risk is involved with the particular currency pair while doing the exchange. Hence, the current study is carried out to assess the risk of selected currencies from 2009 to 2023.

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### Objectives of the study :

The current research is carried to accomplish the following objectives,

- To assess the risk of the currency pairs by using SD and VaR.
- To identify the best currency pair for import and export business.

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### Scope of the study :

The current research study is done to assess the currency pair risk for the duration of 2009 to 2023. The study is focused on the seven currency pairs, namely INR vs. Dollar, INR vs. Pound, INR vs. Euro, USD vs. Euro, USD vs. Pound, and USD vs. YEN. The study also identified potential losses or profits from different currency pairs by considering the average exports and imports for the 15 years (2008–2022).

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### Need of the study :

Assessing the currency risk is very essential as per the growth of business and economic growth of the country. This will help business organizations which do business in the international trade. One of the major risks in the international business is currency risk and to over come this assessing the currency risk on a periodical basis is very important. As per the government's point of view, assessing the currency risk is very important to changing its interest rates, fiscal policy, and foreign direct investment policy.

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### Research methodology :

Using the statistical methods of standard deviation, value at risk, and return formula, the current research study identified the risk and return of the currency. To calculate the average return, the opening value and closing value of the currency pair are considered. Weekly currency pair values from 2009 to 2023 are collected from secondary sources, i.e., Yahoo Finance, and as per the formula, values are modified and results are driven. To identify the potential loss or profit from different currency pairs, average import and export data was considered.

Following are the formulas are used for the risk and return calculation,

$$\text{Standard Deviation} = \sqrt{\sum \frac{(R_i - ER)^2}{n-1}}$$

$$\text{Return} = ((\text{Close Price} - \text{Opening price}) / \text{Opening Price}) * 100$$

$$\text{Value at Risk} = \text{PERCENTILE.INC}(\text{Weekly Returns from 2009 to 2023})$$

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### Hypothesis of the study

Ho : There is no significance of difference between risk of selected currency pairs.

Ho : There is no significance of difference between return of selected currency pairs.

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### Data analysis and major findings

**Table No 1: Average risk and return of selected currencies (Weekly basis from 2009 to 2023)**

Sl No	Currency Pairs	Risk (Average in %)	Return (Average in %)	Value at Risk
1	INR vs YEN	1.4497	0.0068	-3.6033
2	INR vs Dollar	0.8914	0.0847	-2.1263

3	INR vs Pound	1.3293	0.0120	-3.3924
4	INR vs Euro	1.1967	0.0017	-2.8352
5	USD vs Euro	1.1002	-0.0275	-2.7482
6	USD vs Pound	1.2412	-0.0326	-3.4679
7	USD vs YEN	1.1462	0.0416	-3.0225

Sources : Yahoo finance

The detailed data analysis identified that, in terms of lowest risk, INR vs. Dollar stands first since it has the lowest volatility compared to other currency pairs. The risk (standard deviation) of INR vs. USD is less than one percentage during the study period. The INR vs. Yen standard deviation is 1.4497%, which is the highest-risk currency pair compared to other currency pairs. The second-best currency in terms of low risk is USD vs. Euro since its standard deviation was 1.1002% during the study period.

The currency pair return data analysis has identified that INR vs. Dollar is the highest return currency pair during the study period in comparison with other currency pairs. The USD vs. Euro and USD vs. Pound returns were negative during the study period. As per the value at risk analysis, INR vs. dollar risk is low compared to other currency pairs. The overall data analysis of above table says that using INR vs. Dollar will reduce the currency risk in the international trade business.

**Table No 2: Calculation of Risk and Return Amount by using SD, Return, and VaR for the Average Export of India (Average export of 2008 to 2022)**

SI No	Currency Pair	Average Export (Values in Crore)		
		Risk Amount	Return Amount	VaR Risk Amount
		<b>Rs 17,15,782</b>		
1	INR vs YEN	24,874.54	116.52	-61,824.93
2	INR vs Dollar	15,293.92	1,452.94	-36,482.23
3	INR vs Pound	22,808.06	206.31	-58,205.83
4	INR vs Euro	20,533.44	29.42	-48,645.79
5	USD vs Euro	18,876.73	-472.20	-47,153.59
6	USD vs Pound	21,296.66	-559.79	-59,500.95
7	USD vs YEN	19,665.92	714.41	-51,859.01

Sources : India Budget & Yahoo finance

The above data analysis derives that, in terms of risk amount, the currency pair of INR vs. Dollar has the lowest risk (loss of Rs 15,293.92 crore) compared to other currency pairs. When the risk percentage is applied to the export amount, it is very clear that INR vs. Dollar is good for international trade, and INR vs. Yen has the highest loss (Rs 24,874.54 crore) if the export is done in the currency pair of INR vs. Yen. If exports are done using the currency pair of INR vs. dollar, we will have a profit of Rs 1,452.94 crore; similarly, if USD vs. Euro and USD vs. Pound are used, we could have a loss for the export. VaR is one of the best methods to identify the highest possible loss from currency risk. As per the table data, the possible loss from the export is Rs 36,482.23 crore to Rs 61,824.93 crore at different currency pairs.

**Table No 3: Calculation of Risk and Return Amount by using SD, Return, and VaR for the Average Import of India (Average export of 2008 to 2022)**

SI No	Currency Pair	Average Import (Values In Crore)		
		Risk Amount	Return Amount	VaR Risk Amount
		<b>Rs 25,60,964</b>		
1	INR vs YEN	37127.57	173.91	-92279.46
2	INR vs Dollar	22827.59	2168.65	-54453.12
3	INR vs Pound	34043.15	307.93	-86877.61
4	INR vs Euro	30648.07	43.91	-72608.36
5	USD vs Euro	28175.27	-704.80	-70381.12
6	USD vs Pound	31787.24	-835.53	-88810.70
7	USD vs YEN	29353.22	1066.33	-77404.38

Sources: India Budget & Yahoo finance

The data analysis shows that the usage of a different currency pair will have a different risk amount and return amount while doing the import. The total risk amount by using the INR vs. Dollar pair is Rs 22,827.59 crore, which is the lowest compared to other currency pairs, and the total return is Rs 2,168.65 crore, which is the highest by using the INR vs. Dollar pair. The average expected loss from the usage of different currency pairs for imports stands at Rs 54,453.12 crore to Rs 92,279.46 crore as per the VaR analysis during the study period.

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**Conclusion :**

India is a part of the global village, and it depends on the import and export of goods and services. To do the import and export business, organizations need to use different currency pairs, and this will have different risk and return as per the SD and VaR. The objective of the study is to identify the risk percentage for different currency pairs. The data analysis clearly shows that INR vs. Dollar is one of the best currency pairs compared to other currencies. The INR vs. Yen currency pair has the highest currency risk compared to other currencies during the study period.

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