

# SAMZODHANA

A Journal of Management Research

ISSN 2347- 4270

Volume II  
issue I  
March 2014



An International, Double - Blind Peer - Reviewed,  
Open - Access journal published by  
The Department of Management Studies  
Easwari Engineering College

[www.eecmbajournal.in](http://www.eecmbajournal.in)



**"SAMZODHANA"**  
**JOURNAL OF MANAGEMENT RESEARCH**  
**Vol 2, Issue 1, March 2014**

**Table of Content**

<b>S.No</b>	<b>Article Title</b>	<b>Page No</b>
1.	<b>Currency Risk Management through Currency Derivatives</b> <i>Dr. Dharen Kumar Pandey</i>	1
2.	<b>Indian Stock Market Influenced by Global Stock Market- A Study of Select World Major Stock Markets</b> <i>Jayshree Mandaviya</i>	12
3.	<b>Health Economics and Management Perspectives in India</b> <i>Dr.K.Jayaraman, Dr.M.Anand &amp; R.Rajendran</i>	25
4.	<b>Macro Economic Concerns and Challenges Facing India in the Recession Period</b> <i>Dr. G. Rajesh Kumar &amp; P. Meenakshisundaram</i>	38
5.	<b>Strategies for the Optimization of Planted Area and to Increase Production of Avocado in Michoacán</b> <i>José G. Vargas-Hernández</i>	46
6.	<b>Does IPO Grading Positively Influence Retail Investors? A Quantitative Study in Indian Capital Market</b> <i>S.Saravanan &amp; Dr.R.Satish</i>	61
7.	<b>Impact of Academicians Commitment Forms on Work-Life Balance In Engineering Institutions</b> <i>A.Anandh Kumar</i>	74
8.	<b>A Study on Technology Strategy Model</b> <i>B Balaji Srinivasan &amp; Dr K P V Ramanakumar</i>	79
9.	<b>Construction Industry in Kuwait: An Analysis on Causes Of Proect Delays With Respect to Material Suppliers</b> <i>Dr.T.Baladhandayutham</i>	93
10.	<b>Analysis of Relationship of ADR and GDR Prices with the National and International Market</b> <i>Sharmistha Ghosh</i>	114
11.	<b>Soft Competency Based Recruitments in Agile Scrum Projects</b> <i>S. Chandramouli &amp; Dr. G. Rajesh Kumar</i>	126



## **CURRENCY RISK MANAGEMENT THROUGH CURRENCY DERIVATIVES**

**Dr. Dharen Kumar Pandey**

**Inspector of Central Excise & Service Tax, Kalyaneshwari Range, Asansol - II Division**

### **Abstract**

*Risk is as old as civilization. Risk is unique because it cannot be eliminated; but managed. Globalization has led to the interdependency of nations, thus, increasing exposure to exchange rate volatility. The volatility of the exchange rates leads to currency risk in all transactions in a foreign currency. The most significant way to manage the currency risk is the use of currency derivatives. This paper not only explores the various aspects of currency risk but also provides lucid understanding of the instruments that help mitigate the currency risks. The paper has been divided into five parts. The first part deals with the basic introduction of risk and uncertainty. The second part reviews some literature on risk and risk management through derivatives. The third part deals with how the currency derivatives can be used to manage currency risk. In the fourth part, steps in currency risk management using a currency futures has been analyzed with a live example taking the spot and future prices of the USD INR currency futures traded on the National Stock Exchange. The final part is the conclusion.*

**Keywords:** *Currency risk, Currency derivatives, Currency swaps, Options, Forwards, Futures.*

### **Introduction**

*"The root of wealth is economic activity and lack of it brings material distress. In the absence of fruitful activity, both current prosperity and future growth are in danger of destruction."*

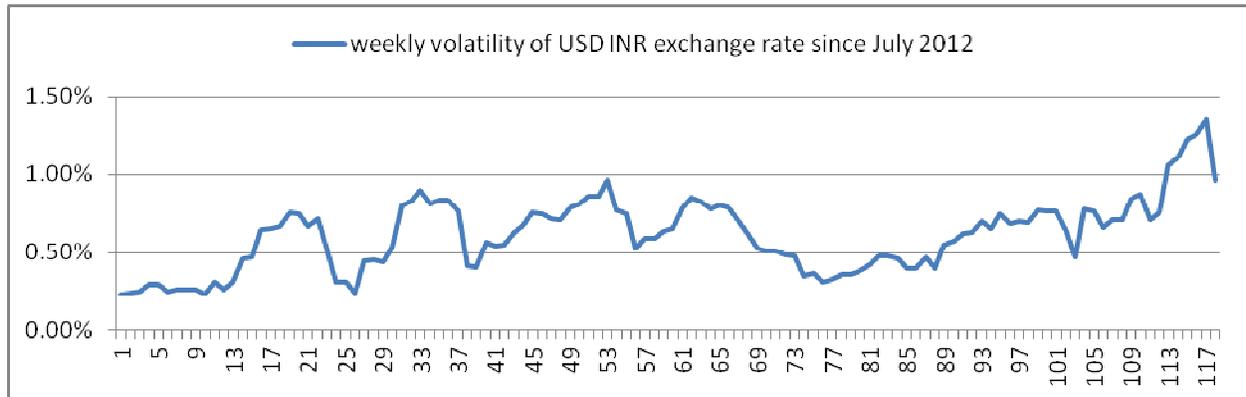
**– Kautilya in Arthashastra**

The above statement in Kautilya's Arthashastra clearly indicates that economic activities are the root of wealth, but it is also true that expansion economic activities leads to exposure to various types of risk. Risk and uncertainty are two interrelated terms that needs to be differentiated at the early bid. Uncertainty is as dark as a moonless night where nothing is visible, that means the future which is uncertain and unknown. Risk, on the other side, is like a



fog through which not clearly but something hazy could be seen, thus, giving a warning that there is something unclear in the future. Nothing could be done for uncertainty, but provisions. Risk cannot be completely eliminated, but mitigated. Since, the risk is possible manageable, one efforts for the maximum possible mitigation of a particular risk. Lots of funds are being absorbed in risk management and, hence, it is inevitable that the quality of the risk management is expected to be at the pinnacle. Currency derivatives are one of the best instruments to manage currency risk. Firms and financial institutions all over the globe are turning towards the currency derivatives so that their exposure to currency risk due to the globalised businesses is mitigated in order to minimize the finance cost of their activities. Currency derivatives include currency swaps, currency futures, currency options and currency forwards. These derivatives, if used carefully, help the firms and financial institutions to safeguard their available resources from the never-ending fire of exchange rate volatility. Currency risk is a financial risk that is posed by an exposure to unanticipated changes in the exchange rate between two currencies. Currency risk may be of three types: translation, transaction and economic exposure. Translation risk is the exchange rate risk that is associated with those companies who deal in foreign currencies or list foreign assets on their balance sheets. The greater the proportion of asset, liability and equity classes denominated in a foreign currency, the greater the translation risk. Transaction risk is the risk related to a future transaction that is denominated in a foreign currency, thus, exposing a firm to possible losses of revenue or increase in costs due to unfavorable exchange rate movements. Transaction risk is most efficiently managed by using forward contracts. Economic exposure refers to the degree to which the market value of a firm is influenced by unexpected exchange rate fluctuations. Exchange rates have always been volatile. Firms and financial institutions have been tackling with the exchange rate risks with one or another ways. But derivatives have been the most notable tool for risk management. Today's world is getting smaller and the exposure to foreign economies is increasing. In order to survive in this competitive environment firms need to focus over all ends, and particularly, the risk management. For an instance, figure 1 shows the trend of weekly volatility of the USD INR exchange rate calculated with the help of standard deviation

formula. It clearly shows the degree to which the firms operating in USD are exposed to currency risk. The main objective of this paper is to discuss various aspects of currency risk and to provide for a better understanding of the currency derivatives being used as tools for mitigating risk.



Source: Computed on the basis of the RBI reference rates available on NSE website

### **Review of Literature**

The theoretical literature provides mixed evidences regarding the hedging techniques for foreign exchange risk management. Most of the researchers have instated that hedging through currency derivatives is an efficient tool for currency risk management. Let us go through some selected literatures which best suits our requirements.

*Geczy, Minton, & Schrand, 1997* suggest that firms might use derivatives to reduce cash flow variation that might otherwise preclude firms from investing in valuable growth opportunities. They also added that firms with extensive foreign exchange-rate exposure and economies of scale in hedging activities are also more likely to use currency derivatives. They concluded that the source of foreign exchange-rate exposure is an important factor in the choice among types of currency derivatives.

*Levich et al, 1999* conducted a survey of 298 fiduciary institutions in the US in 1998 and they found that at least 80 per cent of them permitted the use of derivatives to manage risk. They conclude that exposure to currency risk should be managed through hedging.



*Keloharju & Niskanen, 2001* suggest that firms tend to borrow in periods when the nominal interest rate for the loan currency, relative to other currencies, is lower than usual. This is consistent with the currency debt issue decision being affected by speculative motives. Large firms, with a wider access to the international capital markets, are more likely to borrow in foreign currencies than small firms. They also added that the use of foreign currency denominated debt enables firms to hedge at a corporate level, presenting overall benefits through reduced tax liabilities, minimizing costs of financial distress, and enabling retention of sufficient funds to allow organic growth.

*Hagelin and Pramborg, 2004* conducted a study of the Swedish firms to investigate the risk reducing effect of foreign exchange exposure hedging. Further, they also investigated risk reduction from using different hedging instruments, particularly the impact of transaction exposure hedges and translation exposure hedges. They found that the firm's foreign exchange exposure increases with the level of inherent exposure, measured as the difference between revenues and costs denominated in foreign currency, and, that it is decreasing with firm size. We find a significant reduction in foreign exchange exposure from the use of financial hedges. They claim that the using foreign denominated debt and currency derivatives together reduce the firm's foreign exchange exposure. They also claimed that firms can economic exposure by hedging translation exposure.

*Goswami, Nam, & Shrikhande, 2004* suggest that financing of foreign projects using a domestic currency and currency swaps is economically more beneficial than using a foreign currency alone. *Goswami & Shrikhande, 2007* claimed that firms which invest in foreign markets will need foreign currency in order to carry out its operations and, thus, it should inevitable use currency swaps to manage the currency risk.



It is, thus, obvious from the above literature that hedging through currency derivatives has not only been used by firms from the most beginning but also it has been successfully implemented. Let us now move to the next part where we will be discussing the various types of currency derivatives and how they work as tool for currency risk management.

### **Currency Derivatives as a tool for Currency Risk Management**

*"By far the most significant event in finance during the past decade has been the extraordinary development and expansion of financial derivatives. These instruments enhance the ability to differentiate risk and allocate it to those investors most able and willing to take it – a process that has undoubtedly improved national productivity growth and standard of living."*

*.....Alan Greenspan (Former Chairman, Board of Governors of the US Federal System)*

To understand better the concept of currency derivatives, one needs to conceptualize the meaning of derivatives contracts. Derivatives are financial instruments, the value of which is derived from underlying assets. Where the underlying asset is a financial instrument; it is termed as financial derivatives. A currency derivative is derivatives contract where the underlying asset is a currency. Among currency derivatives, currency future is the most efficient and effective tools for currency risk management. Various risks related to the exchange rate volatility (currency risk) can be managed with the help of currency derivatives. Let us now consider each type of currency derivatives separately as below:

**a) Currency Swaps:** As the name signifies, currency risk is a risk that involves exchange rates. It occurs when transactions are done in foreign currency and the main reason for it is the volatility in the exchange rates. Currency swaps were first introduced in 1970s in the United Kingdom. It was the time when the UK companies had to pay a premium to borrow in US Dollars. Later, they found a solution for this. UK companies set up back-to-back loan agreements with US companies wishing to borrow Sterling. A currency swap is a foreign-exchange agreement between two parties to exchange the principal or the interest of a loan in one currency for equivalent the principal or the interest of an equal in net present value loan in another currency. Suppose a person holds a debt in one currency, he can exchange it with



another person who holds a debt in a different currency. The parties exchange no cash initially but they are entitled to exchange future cash flows. Globalization has led to the necessity of currency swaps in order to mitigate the currency risk involved in international transactions. A company which intends to invest in foreign markets will also need to finance its operations with foreign currency. Thus, in order to mitigate the currency risk, currency swaps will necessarily be useful. A firm involved in such activities globally, can use currency swaps by borrowing in a domestic currency and then swapping it to a foreign currency. Currency swaps with a longer maturity, helps the firms easily achieve the risk management objectives. In order to understand more clearly let us go through an example. A company based in India has its branch situated in USA. For the operations in USA, the company will necessarily need US Dollars. In order to meet out its needs, the company will have to borrow US currency and accordingly pay interest on such loan. In this case there will be an exposure to currency risk. Suppose, another company based in USA has its branch in India. This company will need INR in order to operate its branch in India. This company, too, will face the exposure to currency risk. If both the companies enter into an agreement of currency swapping, they will be able to manage their currency risk. This can be done in two ways: Firstly, if the companies have already borrowed in the currencies each needs the principal in; they can agree to swap the cash flows only, so that each company's finance cost is in that company's domestic currency. Secondly, the companies could borrow in their own domestic currencies, and then get the principal in the currency they desire by agreeing to swap only the principal amount of the loan. However, the second option is possible only if they have some comparative advantage. However, through this instrument, one finances its activities with its domestic currency and a currency swap and thus, is able to reduce the cost that would have been incurred in case it had used only the foreign currency.

**b) Forward Contracts:** A forward contract is a non-standardized contract between two parties to buy or sell an underlying asset at a specified future time at a price agreed upon today. Investopedia defines a forward contract as a cash market transaction in which delivery of the commodity is deferred until after the contract has been made. Although the delivery is made in the future, the price is determined on the initial trade date. Forward contracts are



traded on the over-the-counter exchange. A currency forward contract is a contract between two parties where the exchange of currencies would take place at a future date at a rate of exchange decided upon at the time of agreement. The sole idea of entering a forward contract is to avoid exchange rate risk. A company that has invested or borrowed in foreign currency will definitely face the exchange rate risk. For example, if a person borrows US \$ 100 on a particular date when the value of 1\$ be Rs. 45. After a year when he pays back the loan, the exchange rate may be a different one and the person may either lose or gain. But if he hedges this risk with the help of a forward contract, he can minimize his loss. In order to understand this better, let us go through an example and see how forwards help in managing risk. Suppose a firm intends to purchase machinery for US \$5000 from another firm after three months. If the exchange rate currently is Rs. 45/\$, his purchase amount is Rs. 2,25,000/- and if after three months the exchange rate be Rs. 50/\$ then the firm though pays \$5000 but this costs to Rs. 2,50,000/-, thus, Rs. 25,000/- is the loss to him due to exchange rate volatility. In order to mitigate this loss, the firm can opt to buy a 3 months forward contract with a bank. With this forward contract, on the date of maturity the firm will pay Rs. 2,25,000/- to the bank and the bank will pay to the firm \$5000 which it will then pay to the seller. In this way, the firm would be able to mitigate its loss of Rs.25,000/- that would have been occurred if no forward contract was used for hedging the risk.

**c) Futures Contracts:** A futures contract is a standardized form of forwards contracts. Currency futures are exchange traded financial derivatives contracts. A Futures contract is a standardized contract between two parties to buy or sell a specified asset of standardized quantity and quality for a price agreed upon today with delivery and payment occurring at a specified future date, the delivery date. Where the specified asset is an exchange rate, it is referred to as a currency future. A currency future is a futures contract to exchange one currency for another at a specified date in the future at a price (exchange rate) that is fixed on the purchase date. Currency futures have significantly gained importance all over the world since the first currency futures contract was traded in the year 1972. Since the, the currency futures is most significantly used as a risk management tool by the hedgers. It is also used for



speculation. Currency futures are safer than forward contracts because forward contracts holds counter-party risk because of unavailability of clearing houses; in case of currency futures, initial margins are held from both parties and so the risk of counter-party denying the contract on maturity is eliminated. Let us consider the following example to understand how a firm or financial institution can hedge risk by using currency futures. Suppose that an Indian firm has to receive US \$5000 due from a transaction after one year. The current exchange rate be Rs. 50/\$. The firm may sell currency futures contracts worth US \$5000 and at the expiry of the contract, the firm will receive Rs. 2,50,000/- irrespective of the fact that the exchange rate has gone up or down. In this way, the firm would be able to mitigate its risk due to the exchange rate volatility. In the globalized business environment, firms necessarily need to hedge their risks using currency futures.

**d) Options Contracts:** Option is a derivative contract between two people where one person grants the other person the right to buy or sell a specific asset at a specific price within a specific time period, without an obligation. The person, who has received the right, must pay for this right as premium, is known as option buyer. The person who has sold the right, and received the premium, is known as option writer. There are two types of options: Call option & Put option. A call option is an option that gives the buyer the right to buy a specific asset at specified price within a specified price without an obligation. A put option is an option that gives the buyer the right to sell a specific asset at specified price within a specified price without an obligation. A currency option is such an option where the specified asset is a currency. A firm or financial institution that is to receive some payments in foreign currency may purchase a currency put option. In case the foreign currency depreciates, the put option will be exercised so that the firm gets its expected amount unchanged and the loss is, thus, averted. In case the foreign currency appreciates, the firm will not exercise the put option and will, thus, reap the benefits of the increased yields and that, too, at a cost of the contract premium. In this way, the firm will be able to mitigate its currency risk by hedging in currency options.

**Currency Risk Management Process using Currency Futures**

We have already discussed the four derivatives that could help mitigate the currency risk. Currency futures are the most efficient and effective tool for hedging currency risk. Currency risks can be managed with the help of an appropriate hedging strategy. Let us now discuss the most essential two steps in considering a hedging strategy:

**a) Assess the amount of currency risk exposure:** The first and foremost thing that must be carefully assessed while hedging currency risk is the amount of risk exposure.

**b) Determination of hedge ratio:** The hedge ratio is very simple to be determined. It is just the linear function of the value of the risk exposure relative to the futures contract size. It can be arrived at by the following equation:

$$\text{Hedge Ratio} = \text{Value of risk exposure} / \text{Futures contract size} \quad \text{..... eq. 1}$$

Let us now consider an example to better understand the practical application of hedging strategies in case of currency futures for mitigating currency risk. The spot and future prices in the National Stock Exchange for the currency futures expiring on 27/12/2012 have been considered in this example. Consider that an Indian company, on 03/09/2012, enters into a contract with an US based firm and expects an inflow of \$50000. The present value of this future income as per the spot value is Rs.27,72,700/-. On the future date i.e., 20/12/2012, when the payment was to be received, the value of the inflow was Rs.27,42,100/- and thus there is a loss of Rs. 53,110/- in the spot market. Now consider that a futures contract was to be sold. Here, the amount of risk exposure is \$50000 and the contract size is 1000\$ and therefore, the hedge ratio on basis of eq. 1 above will be 50. So, 50 USD INR currency futures of Dec. 2012 were sold on the contract date (03/09/2012) and on the date of inflow 50 USD INR futures contracts were purchased, thus, resulting in a profit of Rs.81,125/- (Refer to the table below).

Date	Spot INR/USD	\$50000 in INR	Dec. 2012 Futures	Basis = FP - SP
03/09/2012	55.4540	27,72,700	Sell 50 @ 56.5375	1.0835
20/12/2012	54.8420	27,42,100	Buy 50 @ 54.9150	0.0730



		Loss of Rs. 53,110	Profit of Rs.81,125	-1.105
<b>Net Profit = Rs. (81,125 – 53,110) = Rs.28,015</b>				

Thus, the position of the firm when it used a short hedge was quite better than that without any hedge. There would have been a loss of Rs.53,110/- to the firm but due to the hedging strategy, the firm was able to mitigate its loss and in fact earned some profit. This practical example more clearly represented that how the currency futures can be used for mitigating the currency risk.

### **Conclusion**

Financial system all over the globe is going major transformation. The recession that marked the globe in 2008 accelerated the degree of currency risk exposure to the firms and financial institutions. The firms and financial institutions that are more prone to exchange rate volatility needs special attention to hedging strategies in order to recover from the owes of the global financial crisis. It should be noted that the post recession period although being exposed to risk, has ample opportunities that can be reaped using proper speculation strategies. Time calls for a change from defensive risk management strategies to offensive risk management strategies and go for risk mitigation through speculation along with hedging. Besides hedging, speculation could also help earn sufficient gains that would indirectly poise the losses that may occur due to excess volatility in the exchange rates. Towards home, it is conclusive that the firms and financial institutions are more exposed to currency risk and hence they should use appropriate hedging strategies with the selection of any one or combination of the currency derivatives available in the market. Both, over-the-counter traded and the exchange traded currency derivatives provide for better hedging the various types of currency risk.

### **References**

1. Choudhari, N. (2009). "Global Recession and its impact on Indian financial market."



2. Géczy, C., Minton, B. A. & Schrand, C. (1997), "Why Firms Use Currency Derivatives". *The Journal of Finance*, 52: 1323–1354.
3. Goswami, G., & Shrikhande, M. M. (2007). "Economic Exposure and Currency Swaps". *Journal of Applied Finance*, 17 (2), 62-71.
4. Goswami, G., Nam, J., & Shrikhande, M. M. (2004). "Why do Global Firms use Currency Swaps? Theory and Evidence". *Journal of Multinational Financial Management* , 14 (4), 315–334.
5. Guru, A. (2009). "Forex derivative markets in India: Developments thus far and road ahead."
6. Hagelin, N. and Pramborg, B. (2004), "Hedging Foreign Exchange Exposure: Risk Reduction from Transaction and Translation Hedging". *Journal of International Financial Management & Accounting*, 15: 1–20.
7. Keloharju, M. (2001). "Why do Firms Raise Foreign Denominated debt? Evidence from Finland". *European Financial Management*, 7 (4), 481-496.
8. Lee, S. H., & Malliaris, A. G. (2011). "Currency Markets and International Interest Rate Parity".
9. T, Baitshepi, (2012) "Currency Derivatives: Valuation and Risk Management".