Chapter 5 – Findings, Conclusions and Recommendations

Exchange-traded currency derivatives were introduced in India with a view to providing a wider choice for managing currency risk for SMEs. The objective of this research endeavour was to see if the introduction of exchange-traded derivatives served the aforesaid purpose of providing an effective alternative to OTC currency derivatives. Exchange rates actually realized using Currency Forwards were compared with rates realized with notional parallel curreny hedges with Futures and Options, albeit based on actual data. The conclusions and implications emerging from the findings are presented in the following paragraphs.

5.1 Implications for Exporters with US$ or Euro receivables

An exporter having US$ receivable realized a mean exchange rate of exchange rate of Rs. 64.7903 per US$ using a Forward hedge as against a rate of Rs. 64.9190 per US$ with a Futures hedge. There is a statistically significant difference in the means of exchange rates realized. Accordingly, the alternative hypothesis that the Futures hedge is more effective than the Forward hedge is accepted. It can be concluded that exporters are at an advantage using currency Futures over Forwards for hedging US$ receivable.

Exporter having Euro receivable realized a mean exchange rate of Rs. 75.1504 per Euro using a Forward hedge as against a rate of Rs. 75.5523 / Euro using the futures hedge. There is a statistically significant difference in the exchange rates realized. Exporters are better off using Futures vis-à-vis Forwards for hedging Euro receivables.

A statistically significant difference is observed in the mean exchange rates realized using an Options hedge versus the Forward hedge for US$ receivable. Therefore, the alternative hypothesis that the Option hedge is more effective than a Forward hedge is accepted. The mean exchange rate realized using the hypothetical Options hedge was observed to be Rs. 63.6015 / US$ compared to Rs. 63.2810 / US$ using the Forward hedge. The Put Option hedge was found to be more effective than the Forward hedge. As with futures, the Option hedge too signals a superior hedging alternative and therefore, exporters should consider hedging US$ receivables through exchange-traded currency derivatives rather than Forwards.

5.2 Implications for Importers with US$ payables

Importers having US$ payable realized a mean exchange rate of Rs. 65.9577/ US$ using a Forward hedge compared to Rs.65.4947/ US$ which would have resulted from a futures hedge. There is a statistically significant difference in the means of exchange rates realized. As the mean exchange rate using Futures is less than that of Forward hedge, the alternate hypothesis that the Futures hedge is more beneficial than a Forward hedge is accepted. The implication is that importer may be at an advantage using currency Futures over Forwards for hedging US$ payables.

A significant difference was also observed in the mean exchange rate realized using an Options hedge when compared to a Forward hedge for US$ payable. Accordingly, the alternative hypothesis that the Option hedge is more effective than a Forward hedge is accepted. The mean exchange rate realized using an Option hedge was observed to be Rs. 65.4708/ US$ compared to Rs. 65.7922/ US$ using a Forward hedge. Thus, the results suggest that an Option hedge too, besides Futures, provides a better hedging alternative and therefore the importers should consider hedging US$ payable through exchange-traded currency derivatives rather than Forward contracts.

5.3 Test of Proportion: Export receivables

The difference of the means test indicates that exchange-traded derivatives provide a more effective hedge compared to Forwards. A Z-test of proportion was also carried out to see if exchange-traded derivatives provide an effective hedge in a majority of the transactions. If it is found that in more than 50% of the transactions, exchange-traded derivatives provide a better realization of the exchange rate compared to Forwards, the conclusion would be that Futures and Options used in hedging US$ receivables perform better in a majority of transactions and should be preferred to Forwards.

5.4 Futures versus forward contracts for US$ receivables

The observed Z-statistic (11.998) is greater than the critical value of 1.6449. Futures had advantage in 71.38% observation out of 643 total observations. The p-value observed is 0.000. Therefore, the null hypothesis is rejected at a significance level of 5%. The alternative hypothesis that Futures provide advantage over Forward hedge, in a majority of transactions, is accepted and therefore seems preferable to Forwards.

5.5 Put Option versus forward contracts for US$ receivables

The observed Z-statistic (10.131) is greater than the critical value of 1.6449. Therefore, the null hypothesis is rejected at a significance level of 5%. The alternative hypothesis that a Put Option hedge provides an advantage over a Forward hedge in a majority of transactions is accepted and therefore appears preferable to Forwards for hedging US$ receivable. Out of 239 observations Options had an advantage in 77.41% observations over Forward hedge. The p-value observed was 0.000.

5.6 Futures versus forward contracts for Euro receivables

The observed Z-statistic (13.119) is greater than the critical value of 1.6449. Therefore, the null hypothesis is rejected at a significance level of 5% (with a p-value of 0.000). The alternative hypothesis, that Futures provide an advantage over a Forward hedge in a majority of transactions, is accepted and therefore appears preferable to Forwards for Euro receivables. The Futures hedge was observed to provide advantage over Forward hedge in 83.82% of observations out of 171 observations.

5.7 Futures versus Forward contracts for US$ payable

The observed Z-statistic (21.553) is greater than the critical value of 1.6449. Therefore, the null hypothesis is rejected at a significance level of 5%. The alternative hypothesis that Futures hedges provide advantage over Forward hedges in a majority of transactions is accepted and therefore seem preferable to Forwards for US$ payable. The Futures hedge provided advantage in 96.88% of observations out of a total of 62 observations. The observed p-value was 0.000.

5.8 Summary of Performance

A summary of the performance of OTC currency derivatives in comparison to exchange-traded derivatives is presented in Table 5.1 below.

Table 5.1 Summary of statistical tests with outcomes

Test conducted for:	**Conclusion of difference of the means test**	**Conclusion of Z-test of proportion**
A comparison of hedging effectiveness of Forwards versus Futures for US$ receivable	Futures hedge more effective	Futures hedge more effective
A comparison of hedging effectiveness of Forwards versus Options for US$ receivable	Option hedge more effective	Option hedge more effective
A comparison of hedging effectiveness of Forwards versus Futures for Euro receivable	Futures hedge more effective	Futures hedge more effective
A comparison of hedging effectiveness of Forwards versus Futures for US$ payable	Futures hedge more effective	Futures hedge more effective
A comparison of hedging effectiveness of Forwards versus Options for US$ payable	Option hedge more effective	Z-test not applied as n<30

It is therefore concluded that exchange-traded derivatives apparently produced more effective hedges when compared to OTC products for hedging exchange rate risk arising out of overseas trade transactions denominated in certain foreign currencies. Based on this it is also concluded that the objective of introducing exchange-traded derivatives, as a tool of cost effective hedging mechanism, appears to have been met.

5.9 Recommendations

The following recommendations are made based on this research study:

1. SMEs having foreign currency exposure, especially in US$ and Euro ought to consider hedging their currency risk by using exchange-traded derivatives, viz., Futures and Options. It appears that most of the hedging is still done through OTC products.
2. Options provide the benefit of choice, without obligation, regarding their exercise. While they protect against loss due to adverse fluctuations in the exchange rate, they preserve the advantage of making a profit if the exchange rate moves in favour of the hedger. The market for Currency Options in India is not active for maturities greater than one month. Though the exchange does list Currency Options for maturities greater than one month, no trading activity, as indicated by volume was seen in a majority of transactions studied in this research work. This limits their use, but they have been found to be more advantageous compared to other hedging tools, when available. The research study showed that Option hedges yielded a better realization when compared with Forward hedges for import as well as export transactions. Option hedges also performed better than Future contract hedges for US$ receivables and payables.
3. Efforts are required to spread awareness about the exchange-traded products. One reason that SMEs still prefer OTC products could be that their understanding and knowledge about exchange-traded derivatives is deficient. A coordinated effort could be made by stock exchanges and chambers of commerce to make SMEs aware about the value of Currency Futures and Options. This could be done by organizing workshops and seminars.