# Executive Summary

Business entities involved in overseas trade are exposed to fluctuations in foreign currency exchange rates. If the domestic currency strengthens, then an importer gains and the exporter is at a disadvantage, with regard to the expected future transaction designated in the foreign currency. However, if the foreign currency strengthens, then the importer stands to lose while the exporter would gain. To reduce uncertainty in cash flows, businesses may opt to hedge their foreign currency exposures. Derivatives like Currency Futures, Currency Forwards and Currency Options are available to hedge currency exposures arising out of import or export transactions.

Post liberalization in the nineties, the flow of foreign capital into India increased significantly. This was due to increased international trade. This expansion in trade was welcomed by industry, but, concurrently, certain challenges also arose. One of the challenges has been to manage the risk of foreign exchange rate fluctuations for those entities that have foreign currency payables or receivables. Traditionally, Indian businesses relied upon an OTC product, i.e., Currency Forwards, for hedging transaction exposures. A need was felt to expand the choice of hedging products and therefore exchange-traded currency derivatives were introduced. Initially, NSE started with Currency Futures on US Dollars to Indian Rupees (USD-INR) pair in 2008. Therefore, these can be said to be of a relatively recent origin for India. The exchange-traded derivatives were aimed at providing a transparent and cost effective hedging alternative especially for the small- and medium-sized players. The aim of this research work is to see if the objective of providing a cost effective alternative, in the form of exchange-traded currency derivatives, has been achieved. The review of extant research/ literature does not yield specific studies carried out to evaluate the cost of Currency Forwards versus Currency Futures and Options in India. Thereby, it identifies a research gap. A comparative analysis of the efficacy of OTC and exchange-traded products may provide pointers to business entities regarding the use of exchange-traded derivatives for hedging foreign currency risk. It is pertinent to note that much of hedging is apparently still done through Forwards (OTC contract) in the currency market. According to the Triennial Central Bank Survey of foreign exchange and OTC derivatives markets in 2016 done by Bank for International Settlements (BIS),exchange-traded derivatives accounted for a small percentage

(2.2%) of the total foreign exchange turnover. Turnover in Forwards was almost six times that of exchange-traded derivatives. However, the turnover of exchange-traded derivatives has been rising and has grown at a cumulative annual growth rate of 16.26% from 2001 through 2016.

The ultimate test of effectiveness of a hedge in a foreign currency is gauged by the actual exchange rate realized at the end of the hedging period. The exchange rate realized at the end of hedging period, is the parameter that this research work is based upon. In order to compare the hedging effectiveness of exchange-traded products with the traditional OTC products, data on Forward rates provided by the banks are required. The Forward rates quoted by banks to SME exporters or importers form the basis of comparison. The data span the period from 2014 to 2017. Nine hundred and fifteen (915) observations were recorded based on the data collected. The secondary data on Futures and Options on currencies were collected from NSE's website (www.nseindia.com). The data on spot rates were collected from www.xe.com .

Paired t-test was carried out see if the exchange rates notionally realized using exchange-traded currency derivatives, viz., Futures and Options were significantly better than the actual exchange rates realized using Forwards. Since the hypotheses to be tested were directional, one-tailed test was employed with a significance level of five percent. Test of proportion was also carried out to see if the exchange-traded derivatives provided advantage in more than fifty percent of the transactions. The significance level for test of proportion was five percent.

It is concluded that exchange-traded derivatives provide more effective hedges when compared to OTC products for hedging exchange rate risk arising out of overseas trade transactions denominated in foreign currency. Based on this outcome 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. During the course of research Currency Options only on US$-INR pair were available. It was also observed that Currency Options having expiry of greater than one month were not liquid. Data on forward contracts on major currencies other than US$ and Euro were not available. The data were collected, with a geographic limitation, that is, from business based in the city of Vadodara, Gujarat. Further research could be done to inquire whether exchange-traded derivatives continue to have an advantage compared to OTC currency derivatives and if so, then the reasons that explain their superior performance. Options on other major currencies have been recently introduced. Further study could be

carried out to see if the Options in currencies other than US$ provide advantage over Forward contracts.