Chapter 5

Conclusion, Recommendations and Policy Implications

The present chapter draws the conclusion of all previous chapters and discusses the implications of the whole research and its contribution to existing literature and theory. Before giving closing statements, let’s have a recapitulate of the objectives of the study so that the whole discussion could be synchronized with these objectives.

As stated earlier too, the following are the objectives of the study for which various research activities were performed during the study period.

1. To study the Forex Risk Exposure of SMEs and Unlisted Non-Financial Firms in India.

2. To study the Forex Risk Exposure Management by SMEs and Unlisted Non-Financial Firms in India.

3. To study the determinants of Forex Risk Hedging Strategies by SMEs and Unlisted Non-Financial Firms in India.

In lieu of above objectives, the following are the major findings of the study.

Objective One

The first objective of the study was to know the awareness level of SMEs and unlisted non-financial firms regarding forex risk exposure measurement. The management of forex risk exposure is possible only when firms are giving due importance to its measurement. Although companies in international operations found to be fully aware regarding foreign exchange risk management based on different sector but overall results depicted that maximum number of companies were partially aware. Section “B” of survey instrument focused on Forex risk exposure of sample units and four questions
were asked in order to measure the awareness level regarding forex risk exposure among the respondents. These questions were related to knowing the level of cost, revenues and assets expressed in terms of foreign currency, in which foreign currency they trade more, are these firm measuring their forex risk exposure and what type of forex risk exposure is more in these firms.

It was observed that 30.8 percent firms in the construction sector had less than 10 percent of total cost and 15.4 percent firms had 80 to 90 percent of their total cost in terms of foreign currency. Followed by the manufacturing sector, which reported 7.2 percent, firms having less than 10 percent of their total cost and 5.9 percent firms were incurring 90 to 100 percent of their total cost in terms of foreign currency. Similarly, 12.5 percent firms in service sector were having less than 10 percent of their total cost and 9.4 percent firms were having 90 to 100 percent of their total cost in terms of foreign currency. The firms belonged to Trading sector demonstrated that 15.1 percent firms were having less than 10 percent of their total cost and only 3.8 percent of firms in 90-100 percent cost. In the same manner, 50 percent firms from other sectors reported less than 10 percent of their total cost and 50 percent firms in 80 to 90 percent cost in terms of foreign currency.

Further, it was observed that 30.8 percent firms in the construction sector had reported their revenues in foreign currency in the ranges of 30 to 40 percent and 80-90 percent each. Next, in case of manufacturing sector, which showed 2.3 percent firms having less than 10 percent of their revenues in foreign currency and 15.1 percent firms were having their revenue in foreign currency in the range of 90 to 100 percent. Similarly, 6.2 percent firms in service sector received the revenue less than 10 percent on the other hand, 6.2 percent firms got the revenue between 90 to 100 percent. Trading sector indicated 7.5
percent firms came under less than 10 percent revenue however, 11.3 percent firms in 90 to 100 percent revenue. In the similar manner, 50 percent firms from other sectors reported 10 to 20 percent of their revenues in foreign currency and 50 percent firms were ranging in 80 to 90 percent. Hence, it can be determined that firms in manufacturing sector earned more revenue on the contrary, construction and other sector exhibited less revenue in terms of foreign currency.

- It was also noticed that in case of firms in Construction sector, 15.4 percent SMEs and unlisted non-financial firms belonged to construction sector were having less than 10 percent of their assets in foreign currency and 30.8 percent firms were rested in 80 to 90 percent category. Further, in case of manufacturing sector, 6.9 percent firms were holding less than 10 percent of their assets and 12.1 percent sampled firms were having 90 to 100 percent of their assets in foreign currency. Likewise, 12.5 percent firms in service sector were holding assets less than 10 percent and 18.8 percent firms were holding 90 to 100 percent of their assets in foreign currency. Trading sector revealed 26.4 percent firms comes under less than 10 percent assets however, 3.8 percent firms in 90 to 100 percent assets. Likewise, 50 percent of firms from other sectors reported less than 10 percent of their assets in foreign currency and 50 percent of firms were holding 80 to 90 percent of their assets in foreign currency. In view of this, it can be established that firms in service sector possessed more assets on the other hand, manufacturing sector exhibited less assets in terms of foreign currency.

- Next, it was observed that 15.4 percent firms in the construction sector had less than 10 percent debt and 30.8 percent firms were having 80 to 90 percent
of their debt in foreign currency. The manufacturing sector has reported 9.5 percent firms having less than 10 percent debt and 6.6 percent SMEs and Unlisted non-financial firms were having debt between 90 to 100 percent of their total debt. Alike, 28.1 percent firms under service sector were having 50-60 percent and 21.9 percent firms were having 40 to 50 percent of their total debt in foreign currency. Next, firms under Trading sector confirmed 26.4 percent were having less than 10 percent debt however and 17 percent of firms were having 30-40 percent their total debt in foreign currency. In the same manner, 50 percent firms from other sector reported less than 10 percent debt and 50 percent firms in 70 to 80 percent debt in terms of foreign currency.

When an analysis based on annual turnover and the percentage of total cost incurred by the SMEs and unlisted non-financial firms in terms of foreign currency was made then it was observed that 31.2 percent of firms with an annual turnover of less than five crore, were having less than 10 percent of their total cost and 9.4 percent firms were having 90 to 100 percent of their total cost in terms of foreign currency. Next, firms having 5 to 10 crore annual turnover, reported 9.4 percent of firms in this category were having less than 10 percent cost. Similarly, firms with the annual turnover between 10 to 15 crore, 7.3 percent of these firms were having less than 10 percent of their total cost in terms of foreign currency. On the other hand, firms having annual turnover between 15 to 20 crore,17.2 percent of such SMEs and unlisted non-financial firms showed 90 to 100 percent of their total cost in terms of foreign currency. Further, firms with the annual turnover between 20 to 25 crore reported that 62.5 percent of these firms were having 50 to 60 percent of their total cost in foreign currency. Further, 35.5 percent firms with the annual
turnover between 25 to 30 crore showed 70 to 80 percent cost. It was found that SMEs and unlisted non-financial firms with annual turnover between 30 to 35 crore, 35 to 40 crore, 40 to 45 crore and 45 to 50 crore were having more than 20 percent of their total cost in terms of foreign currency under different classification. In addition to this 11.1 percent firms with the annual turnover of 50 to 100 crore reported less than 10 percent of their total cost and 90 to 100 percent of their cost in foreign currency. Whereas, 15.2 percent firms with the annual turnover above 100 crore depicted less than 10 percent of their total cost and 5.7 percent firms showed 90 to 100 percent of their total cost in terms of foreign currency. So, it can be determined that firms with annual turnover between 45 to 50 crore were incurring more cost and firms with the less than 5 crore annual turnover were incurring less cost in terms of foreign currency.

Similarly, if an analysis is made on the basis of annual turnover of the SMEs and unlisted non-financial firms and the percentage of their total revenue received in terms of foreign currency then the results indicated that 12.5 percent firms with the annual turnover less than five crore had less than 10 percent revenue and 21.9 percent firms received 70 to 80 percent revenue in terms of foreign currency. Next, firms with 5 to 10 crore annual turnover have reported that 18.9 percent firms observed to have 90 to 100 percent revenue. Similarly, firms having their annual turnover in 10-15 crore, 26.8 percent of such firms were having their annual turnover between 80 to 90 percent in terms of foreign currency. Further, firms with annual turnover between 15 to 20 crore demonstrated less that 31 percent of such firms were having 90 to 100 percent of their total revenues in terms of foreign currency. In the same manner, firms with the annual turnover between 20 to 25 crore, reported that
their proportion of total revenue was lying in two categories, i.e., 30-40 percent or 90 to 100 percent which was in foreign currency. Added to this, firms with annual turnover in the remaining categories 25 to 30, 30 to 35, 35 to 40, 40 to 45, 45 to 50 and 50 to 100 crore have shown more than 30 percent of their total revenues in terms of foreign currency. Whereas, 3.8 percent firms with the annual turnover above 100 crore depicted that less than 10 percent of their total revenues and 10.5 percent firms indicated that 90 to 100 percent of their total revenues was in foreign currency. Therefore, it can be identified that firms within the annual turnover of 20 to 25 crore were having comparatively more revenues in foreign currency in comparison to firms having their annual turnover more than 100 crore.

Further, when annual turnover of the sampled firms was studied with the percentage of their total assets in terms of foreign currency then the results stated that firms having less than 5 crore as annual turnover, 37.5% fall under the category of less than 10 percent of their total assets followed by 18.8 percent firms falling in the category of 50-60 percent of their total assets in foreign currency. In case of firms having annual turnover between 5-10 crore, maximum (20.8 percent) were having 60-70 percent of their total assets in foreign currency followed by 15.1 percent firms having 40-50 percent of their assets in foreign currency. Likewise, firms having annual turnover between 10-15 crore were having maximum (26.8 percent) 90-100 percent of their total assets in foreign currency. In case of firms with 15-20 crore annual turnover 31 percent (maximum) firms were having 90-100 percent of their total assets, firms with 20-25 crore annual turnover 37.5 percent (maximum) firms were having 60-70 percent and 70-80 percent of their total assets, firms with 25-30
crore annual turnover 29 percent (maximum) firms were having 20-30 percent of their total assets, firms with 30-35 crore annual turnover 50 percent (maximum) firms were having 40-50 percent of their total assets, and firms with 35-40 crore annual turnover 33.3 percent (maximum) firms were having 60-70 percent, 70-80 percent and 90-100 percent of their total assets in each of these three categories in terms of foreign currency.

Next, the smaller the size of the firm, lesser is the exposure of firm/firm for foreign debt. More than 40% of the firms have less than 10% foreign debt in case of firms having turnover lesser than five crore. The firms, having annual turnover more than 100 crore, have shown that their foreign debt is more than 50% of their annual turnover. The larger the size of firm in terms of annual turnover, the higher is the possibility of high amount of foreign debt and hence more exposure to forex risk. This association between more annual turnover of the firm and more is the possibility of high amount of foreign debt has been tested through various tests of association too.

Also it was revealed that majority of the firms/firms, that is, 281 out of 407 (69%) of the firms or firms is not involved in the management of forex risk exposure. It means that only 126 firms or firms are managing their forex risk exposure. In other words, out of our sample size only 30.96% of firms or firms are managing their forex risk exposure. Further, out of this 126 firms/firms, majority of the firms falls under either the category of high of medium level of management in respect of forex risk. So, we can conclude that not very much firms in India is inclined towards the management of forex risk exposure.

Supplementary, when the firms were asked regarding management of translation, transaction and economic exposure, then the results obtained
showed that firms whose annual turnover in term of Indian rupees falls under the category of 35-40 Crore, often manage translation exposure (accounting translation into base currency) followed by firms/firms whose annual turnover in term of Indian rupees falls under the range of 20-25, 15-20, above 100, 25-3030-35, 5-10, and 10-15 crore respectively. Overall, 47.9% of the firms sometimes manage for translation exposure (accounting translation into base currency). On the other hand, only 15% of the firms in the sample do not manage for translation exposure (accounting translation into base currency) in the present study which showed that most of the firms either go for often or sometimes options for managing translation exposure (accounting translation into base currency). Regarding management of transaction exposure, the firms who often go for managing the transaction exposure (Foreign receivable and payable currency), two third of these firms were those firms whose annual turnover in Indian rupees is more than 100 crore. The firms whose annual turnover is 40-45 crore, these firms mostly (75.0%) go for some time management of transaction exposure (Foreign receivable and payable currency). Same pattern was observed in the firms whose annual turnover falls under the range of less than 5 crore, 5-10, 10-15, 15-20, 25-30, 45-50 and 50-100 crore. That is, all the firms under this range of turnover in Indian rupees mostly go for some times management of transaction exposure (Foreign receivable and payable currency). Another observation from the analysis is that there are very few firms who never go for managing the transaction exposure (Foreign receivable and payable currency). And regarding management of economic exposure, the results also showed that firms whose annual turnover fall under the range of 20-25 crore, they mostly manage
economic exposure (future expected cash flow and competitive position). The firms having annual turnover was in the range of 5-10 and 25-30 crore, stated that they were not managing economic exposure (future expected cash flow and competitive position). Further, firms whose annual turnover falls under the range of 35-40 crore, they have equal proportion for managing economic exposure (future expected cash flow and competitive position). Also firms whose annual turnover falls under the range of 10-15, 30-35, 40-45 and above 100 crore they mostly manage economic exposure (future expected cash flow and competitive position).

**Objective Two**

As stated above, objective two was intended to study the forex risk exposure management by SMEs and unlisted non-financial firms in India. The following are the major findings of the study for objective two.

- The results attained for this objective stated that that only 15% of the sampled units were fully aware about the forex risk management and 55% of the sampled units were partially aware about forex risk management. A large number, i.e., 122 out of 407 (30%) of the firms were not at all aware regarding the forex risk management. And out of 407 firms, only 74 firms were having a specified policy on forex risk management. More than 70 (73.7%) percent of SMEs and unlisted non-financial firms said they were not having any policy document for forex risk exposure management while 7.9% firms admitted that they are in the process of framing such a policy.

- Further, various parties can define forex risk management policy in the business. Also, different persons working in the firms can do the implementation of forex risk management. The results indicated that 155 out
of 407 firms, the management team of the business collectively designs the forex risk management policy followed by Board of Directors and CEOs of the firms. Finance controller and Accountants were also designing the forex risk management policy of their businesses but the number of such firms was very less. Likewise, the management team of the business, CEOs, and Board of Directors were taking the responsibility of effective implementation of the forex risk management policy of SMEs and unlisted non-financial firms in India.

Next significant question asked was related to the purpose of hedging the forex risk. There can be several purposes of hedging the forex risk by a firm. It can increase the profitability, reducing the volatility in cash flows or speculation etc. It was found that speculation was also a major reason for hedging the forex risk. Although, the technical meaning of the term hedging risk itself indicates a specific meaning but finding speculation (330 out of 407) as a purpose of taking opposite positions in a hedging instrument is an fascinating outcome of the analysis. In addition to speculation, SMEs and unlisted non-financial firms also informed that hedging forex risk is essential for the sustainability of their businesses. 323 out of 407 firms admitted that hedging is indispensible for survival of their businesses. 326 firms said that they were doing hedging to improve the financial performance of their businesses, 285 firms said that it reduces the volatility in the earnings of their business, and 256 firms said that it reduces the volatility in their cash flows etc. The other purposes of hedging forex risk were related to controlling the risk of fluctuations in foreign currencies, to increase the market value of firm and to increase the profitability of the business.
In addition to above, SMEs and unlisted non-financial firms were using multiple methods to measure their forex risk exposure. Among these most popular methods, estimation of cash flows was used most frequently to measure forex risk exposure. The sampled firms were also using rough estimates to forecast their forex risk exposure. Value at Risk, Scenario Analysis and Matching approach were also among other methods adopted by firms to measure forex risk exposure. Although, 78 respondents said that they were not using any kind of methods for this purpose.

When the tendency or frequency of managing the forex risk exposure by the firms was studied then 15.2% of firms said that they always manage their forex risk exposure. It means, whenever there is an exposure of forex risk due to any business transaction, these firms were taking a hedging strategy to manage the forex exposure risk. While 26.3% of the firms said that they often take hedging position for their forex risk exposure. 11.3% and 10.6% of the firms said never or rarely meaning thereby, these firms were not taking any concrete action to manage their forex risk exposure.

Some of the SMEs and unlisted non-financial firms mentioned that they were never managing their forex risk exposure even though they were aware about the risk. As mentioned in previous section, 11.3% of SMEs and unlisted non-financial firms said that they never manage their forex risk exposure then these firms were asked to state the reasons for such type of behavior. The results obtained in this context indicated that lack of awareness about measuring forex risk and cost convoluted in hedging the forex risk were two major reasons for never managing the forex risk exposure. In addition to this, possibility of insufficient loss due to no-management, less quantum of forex
exposure and availability of natural hedge were among the other reasons mentioned by these firms.

- The sampled firms were also asked about their strategy regarding average period of hedging the forex risk exposure. The results directed that 45.7% (186) of SMEs and unlisted non-financial firms were taking their hedging position for an average period of 90 days. And 98 firms out of 407 forms were taking hedging positions for an average period of 180 days. Only 7 firms were doing hedging for a complete year, i.e., 360 days. The variation in hedging period can be because of the quantum of forex risk exposure of the respective firms too. But, it is good if the firms having forex risk exposure are having hedging for a period matching with their risk exposure.

- An appropriate hedge ratio is a significant criterion to manage the forex risk. Hedge ratio is an important aspect of determining the forex risk exposure management. The results found in this direction have revealed that 49.9% of the firms (203) were following no specific hedge ratio for the management of forex risk exposure whereas, 88 (21.6%) firms (highest) were using 41-60% as hedge ratio to manage their forex risk exposure management. Further, 14% (57) firms were having 21-40% as hedge ratio for the purpose of managing forex risk exposure. Out of 407, 37 firms were having a practice of 1-20% ratio as their hedge ratio policy to manage forex risk exposure. Finally, there were only 7 (1.7%) firms who were having highest hedge ratio, i.e., 81-100% to manage forex risk exposure. The findings have indicated that majority of the SMEs and unlisted non-financial firms in the study were having moderate hedge ratio as a policy to manage forex risk exposure.
There are various instruments provided by financial institutions, which are used for hedging the forex risk. In addition to these instruments, the practitioners also use various techniques like cash flow matching and asset-liability management etc. to hedge the forex risk. The cash flow matching technique has been preferred than asset liability management for hedging forex risk. Out of 407 firms, 87 firms said that they always use cash flow matching, and 74 firms said that they often use cash flow matching technique to hedge forex risk. More than 100 firms said that they use asset-liability management to hedge forex risk. Structured derivatives is the least used instrument by various firms (247) followed by Hybrid Debt in order to hedge forex risk exposure followed by exchange traded options, swaps, hybrid debts, asset liability management and OTC options respectively. Exchange Traded Futures, OTC traded Options and Exchange Traded Options were also found comparatively popular instruments of hedging forex risk by SMEs and unlisted non-financial firms in India.

There are multiple options available in selecting the instrument or technique to hedge the forex risk. But the SMEs and unlisted firms were not using all such instruments and techniques with same frequency. When they were asked that why they were not considering any specific instrument or technique for the purpose of hedging forex risk then there these firms stated many reasons for not using or rarely using specified type of instrument or technique. These reasons can be that the instrument or technique is too complex, causing problem in accounting treatment, not allowed in some markets, high cost involved or too complex etc. There were 285 firms (70%) who were either agreed or strongly agreed that complexities involved in the hedging instrument
was the major reason for not considering a specific instrument for hedging purpose. The next prominent reason was related to accounting problems (364), followed by higher cost than expected benefits (356), insufficient exposure (353), not having the desired features (333), not having sufficient exposure of market instruments (253), and lack of willingness to disclose much about forex risk exposure of business (230) respectively. The least important reason that was affecting the firms’ decision regarding not choosing of a specific hedging instrument or technique “Not liquid enough” (304). Whereas 207 respondents believed that these hedging instruments are too risky to use for managing forex risk exposure. In nutshell, there are many reasons, which are causing firms’ decision to not to use various instruments and techniques of hedging the forex risk exposure.

- The average maturity period of hedging instruments is analyzed on the basis of usage of hedging instruments. As discussed in previous section, all types of hedging instruments are not used each of the SMEs and unlisted non-financial firm, therefore, the total of last column of Table 13 is not same in all cases. As shown in Table 13, an average period of 91-180 days (most preferred) is considered by sample units for different types of hedging instruments, to be more specific, in case of Futures (109), Forwards (123), Options (102), OTC forwards (154), and OTC options (70), the firms are hedging their forex risk exposure for an average period of 91-180 days followed by an average maturity period of 0-90 days and 180-360 days. Almost all types of hedging instruments were used for partial, full and dynamic hedging. But the use of various hedging instruments for partial and full hedge was found comparatively more than their use for dynamic hedge. In case of Futures, out
of 407 firms, 140 said that they use it for partial hedge and 145 firms said that they are using Futures instrument for full hedging. Similarly, in case of Forwards (164), Options (151), Swaps (71), Hybrid Debts (101) and Others (16), the firms were using more of these instruments for partial hedging rather than using them for full or dynamic hedging.

As we know that there are three types of forex risk exposures faced by SMEs and unlisted non-financial firms and the firms can have a hedging position shorter than or longer than the duration of forex risk exposure. In some cases, firms can have an exact matching of hedging with the forex risk exposure. The results attained in this direction showed that 172 firms having translation exposure said that they were hedging their forex risk exposure for a period shorter than the maturity of the exposure. 95 firms with translation exposure stated that they were exactly matching their hedging position with the maturity of forex risk exposure while 108 firms having translation exposure said that they were taking hedging position for forex risk exposure for a period longer than the maturity of such type of risk exposure. Similarly, 232 firms having transaction exposure said that they were hedging their forex risk for a period which is exactly matching with their risk exposure. While 146 firms having transaction exposure stated that they were hedging forex risk for a period shorter than the maturity of forex risk exposure and 124 such firms were hedging for a period longer than the maturity of their forex risk exposure. Third type of exposure, i.e., economic exposure has indicated slight dissimilar results when compared with translation and transaction exposure. 175 firms having economic exposure stated that they prefer to hedge such type of exposure for a period longer than the maturity of risk exposure. While 89
firms said that they were hedging for a period shorter than the maturity of their forex risk and 80 firms having economic exposure were saying that they were taking hedging position exactly matching with the maturity of forex risk. Supplement to this, 140 firms were doing 40-60% hedging of their forex risk exposure. Only 24 firms were doing 80-100% of hedging of their forex risk exposure. A large number of sample firms, i.e., 173 (84+89), were hedging less than or equal to 40% hedging of their total forex risk exposure which is actually not a suitable approach of managing the forex risk exposure.

- In a volatile market scenario, readjustment of hedging position is equally important. Therefore, the survey instrument of the study also asked about the frequency of readjustment in the forex risk management hedging strategy. Out of 407 firms, 34 firms mentioned that they readjust their hedging position on daily basis and 93 firms said that they prepare a weekly schedule to readjust their hedging position in forex risk management avenues. A large number, i.e., 183 (45%) firms readjust their hedging position on monthly basis. A small number (13) of firms readjust their hedging position on yearly basis. The purpose of readjustment in hedging position is to ensure that the exposure to forex risk is fully covered. The sample units considered in the study are not of similar nature in terms of their forex risk exposure, annual turnover, and frequency of foreign transactions etc. therefore, their schedule to readjust their hedging position may also vary but considering the nature of forex market, a readjustment schedule of monthly, quarterly, semi-annual or annual may cause increase in forex risk exposure of the firms.

- The execution of forex risk management policy also play imperative role in apposite management of forex risk. Out of 407 respondents, 177 firms said
that they are not following any specific timeline in execution of hedging strategy while 126 respondents said that whenever they submit a bid or transaction is initiated then they execute their hedging strategy for forex risk exposure. While 57 firms said that whenever an order is received from a customer in foreign currency or an order is received which involves inflow of cash flows in foreign currency, that is the time they initiate the execution of their forex risk hedging strategy. And 47 firms said that they execute a hedging strategy at the time of realization of revenues in terms of foreign currency.

- There are several benefits attached to Exchange Earners’ Foreign Currency (EEFC) Account. A firm having EEFC accounts is presumed to be more aware regarding the forex risk exposure management. Therefore, the sample units were also asked about their EEFC Accounts. Out of 407 firms, 275 firms said that they have EEFC Account to manage their earnings in foreign currencies. While 132 (32.4 percent) of the SMEs and Unlisted firms were not having EEFC Account.

- Both economic sector and turnover of the firms are two important demographic features that have earlier been used for cross tabulation analysis. Similarly, while studying the results for attainment of second objective, these two parameters were used to find out if some significant association exists between these two basic parameters and other relevant inputs. For this, cross tabulation results were obtained for 16 different types of possible associations. The results of cross tabulation of these results are given in Appendix A. But the results obtained to test the significance of association and strength of that association are mentioned below. As discussed earlier too that chi-square is
good measure for assessing the significance of association between two variables, therefore, considering the results of chi-square test indicate that the association between all the variables studies on the basis of their belongingness to specific economic sector and on the basis of different categories of their annual turnover was found significant. The phi coefficient and Cramer’s V coefficient was also found significant at 5% level of significance which further indicated the existence of relationship between variables. Also the phi coefficients and Cramer’s V coefficients were found less than 0.5 and positive in majority of the cases, which suggested a moderate to low degree of association between the variables.

**Objective Three**

The third objective was to identify the determinants of forex risk hedging strategies considered by SMEs and unlisted non-financial firms. As already revealed in chapter three that to attain this objective, an exploratory factor analysis was applied to know the major determinants or factors or latent variables or constructs to recognize the major factors which are considered by the SMEs and unlisted non-financial firms in India. These factors are further prioritized on the basis of experts’ opinion by using AHP (Analytic Hierarchy Process). The SMEs and unlisted non-financial firms were also asked that how forex risk management strategy of a firm could be improvised. The overall results attained to achieve objective three can be concluded as under.

- The results of exploratory factor analysis designated that 32 variables examined for determining the forex risk hedging strategy can be categorized into five main determinants. These variables are given in Table 101 below along with the variables defining them.
## Determinants/Factors of Forex Risk Hedging Strategy

<table>
<thead>
<tr>
<th>Determinants/Factors</th>
<th>Variables</th>
</tr>
</thead>
</table>
| **FACTOR ONE** (Firm Specific Indicators) | 1. Nature of the business of Firm, i.e., how much business is dependent upon the export and import.  
2. Clear Forex Risk Hedging guidelines issued by the firm, viz. use of specific hedging instrument, duration of hedging strategy and time horizon of forex hedging strategy etc  
3. Forex Risk Exposure of the Business in proportion to total Turnover,  
4. Past Experience of the firm in hedging Forex Risk  
5. Balance sheet and cash flow position of the firm |
| **FACTORTWO** (Foreign/Global Economy’s Macro Indicators) | 1. Political conditions of the foreign country with whom trade has happened  
2. Economic condition of the foreign country with whom trade has happened, i.e., GDP, Inflation Rate, Money Supply, Capital Market Conditions, Balance of Trade Position etc.  
3. Interest Rate Fluctuations in the International Market  
4. Overall sentiments regarding Forex Market  
5. Forex Control Mechanism in the foreign country  
6. Fluctuations in Crude oil Prices as it affect the volatility in prices of all major currencies  
7. Speculation (Forex Market, Real Estate, Securities and Uncovered Interest Arbitrage) |
| **FACTOR THREE** (Domestic Economy’s Macro Indicators) | 1. Political conditions of Domestic country  
2. Interest Rate Fluctuations in the Domestic Market  
3. Economic condition of the domestic country, i.e., GDP, Inflation Rate, Money Supply, Capital Market Conditions, Balance of Trade Position etc.  
4. Development of Banking system |
### FACTOR FOUR
( Forex Market Scenario )

1. Government regulations regarding Forex Market
2. Intervention of Central Bank in Forex Market
3. Volatility in the value of Domestic Currency
4. Volatility in Foreign Currency in which payment has to be made or any other currency used for international settlement
5. Future Expectations regarding movement in Foreign exchange rate
6. Demand and Supply Conditions of Domestic Currency
7. Demand and Supply Conditions of Foreign Currency
8. Convertibility of Indian rupee
9. Fluctuations in US Dollar Prices

### FACTOR FIVE
( Forex Risk Hedging Instruments )

1. Availability of Forex hedging instruments at Exchange and OTC market
2. Ease of using various forex risk hedging instruments like options, futures, synthetic derivatives etc. and their
3. Popularity of the forex risk hedging instrument
4. Experience of Forex Risk Manager in using Forex Risk Hedging Instruments
5. Perception of Forex Risk Manager regarding various hedging instruments
6. Option of Customization of Various Forex Risk Hedging Instruments

*Source: Calculations Done by Researcher*

Next, the important factors, which are requisite to be upgraded for a superior forex risk hedging strategy, were also obtained by using the exploratory factor analysis. Table 102 given below has given the list of factors along with their observed variables which were submitted by SMEs and unlisted non-financial firms to improve forex risk hedging strategies by them.
Table 102

Determinants/Factors to Improve Forex Risk Hedging Strategy

<table>
<thead>
<tr>
<th>Determinants/Factors</th>
<th>Statements</th>
</tr>
</thead>
</table>
| **FACTOR ONE**<br>(Internal Management’s Approach for Forex Risk Hedging Management) | 1. The management of business should play more intense role in formation of a forex risk management policy  
2. The management shall motivate for risk management practices  
3. The top management or decision maker should gain more expertise in forex risk management  
4. Forex risk management policy must be made mandatory for all Small and Medium Enterprises  
5. The business associations should provide necessary assistance and support to their members in managing forex risk  
6. More trained people are required |
| **FACTOR TWO**<br>(Awareness Regarding Forex Risk Hedging Instruments and Forex Market Regulations) | 1. More Hedging instruments need to be introduced  
2. The cost of hedging devices should be less  
3. Hedging instruments shall be introduced with some tax benefit schemes  
4. More innovative, customized and low cost hedging instruments should be introduced by regulators  
5. Clear guidelines should be forwarded by RBI regarding usage of derivative products |
| **FACTOR THREE**<br>(Regulators’ initiatives to increase Hedging Instruments’ Literacy) | 1. More awareness shall be done by RBI  
2. More certification and educational programs  
3. The bank should aware business whenever it approaches the bank for export-import financing  
4. The RBI or Government shall make it mandatory to hedge the forex risk |

*Source: Calculations Done by Researcher*

- The five constructs or criterion recognized by the outcomes of Exploratory Factor Analysis (EFA) were used to develop paired comparison questionnaire
to be sent to Experts. This effectual tool for decision makers which was introduced by Saaty (1980) has extensively been used in every decision area related to finance. The experts’ priorities for various criteria were used and then relative importance of each criteria is ascertained. While selecting the experts for the survey, it was ensured that the quality of survey is attained to a desired level while considering the limitations of budget and time-line. The local priority weights of factors, sub-factors are combined together with respect to all successive hierarchical levels to obtain the global composite priority weight of all the sub-factors. (Detailed calculations are already mentioned in Chapter IV). The domestic economy’s macro indicators (DEMI) scored the highest global weight, i.e., 22.54% followed by firm specific indicators (22.13%) and foreign and global economy’s macro indicators (21.74%). It indicates that for a decision maker of hedging strategies, the domestic economy’s macro indicators are considered as foremost important decision criteria. Among the sub-criteria for firm specific indicators (FSI), nature of business (5.93%) and balance sheet and cash flow position (5.53%) are found with highest global weights, in case of decision criterion on forex risk hedging instruments (FRHS), the perception of forex risk manager regarding various hedging instruments is found most important sub-criterion as its global weight is highest (3.14%) among all other sub-criteria, i.e., FRHS1 (2.89%), FRHS2 (1.61%), FRHS3 (2.15%), FRHS4 (2.02%), FRHS6 (1.2%). The availability of forex hedging instruments at exchange and OTC market and popularity of the forex risk hedging instrument are other two important sub-criterions under forex risk hedging instruments decision criterion. Next decision criterion is fore market scenario (FMS). Under this
decision criterion, the global weight for future expectations regarding movement in foreign exchange rate (FMS5) is highest, i.e., 3.97% followed by government regulations regarding forex market (FMS1 with 3.25% as global weight) and volatility in the value of domestic currency (FMS3 with 3.08% as global weight) as next two important sub-criterion. Further, political condition of domestic country (DEMI1) and development of banking system (DEMI4) scored highest weight, i.e., 5.32% and 5.07% respectively as sub-criterion of domestic economy’s macro indicators (DEMI).

The most important determinant of foreign/global economy’s macro indicators (FGEMI) is forex control mechanism in the foreign country with highest global weight of 4.80% followed by interest rate fluctuations in the international market (FGEMI with global weight of 3.63%). The priority order according to local weights is also similar to the results of global weights indicating the importance of various sub-criteria in determining the major criterion respectively. The summarized results are given in Table 103 below.

Table 103

_local and Global Weight for the Factors and sub Factors_

<table>
<thead>
<tr>
<th>Codes for Factors/Sub-factors</th>
<th>Factors/Sub-factors</th>
<th>Local Weights</th>
<th>Global Weights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm Specific Indicators (FSI)</td>
<td></td>
<td>22.1295%</td>
<td>22.1295%</td>
</tr>
<tr>
<td>FSI1</td>
<td>Nature of the business of Firm, i.e., how much business is dependent upon the export and import</td>
<td>26.78%</td>
<td>5.93%</td>
</tr>
<tr>
<td>FSI2</td>
<td>Clear Forex Risk Hedging guidelines issued by the firm, viz. use of specific hedging instrument, duration of hedging strategy and time horizon of forex hedging strategy etc.</td>
<td>12.12%</td>
<td>2.68%</td>
</tr>
<tr>
<td>FSI3</td>
<td>Forex Risk Exposure of the Business in proportion to total Turnover,</td>
<td>18.06%</td>
<td>4.00%</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------------------------------------</td>
<td>--------</td>
<td>-------</td>
</tr>
<tr>
<td>FSI4</td>
<td>Past Experience of the firm in hedging Forex Risk</td>
<td>18.07%</td>
<td>4.00%</td>
</tr>
<tr>
<td>FSI5</td>
<td>Balance sheet and cash flow position of the firm</td>
<td>24.97%</td>
<td>5.53%</td>
</tr>
<tr>
<td><strong>FSI6</strong></td>
<td><strong>Forex Risk Hedging Instruments (FRHS)</strong></td>
<td><strong>13.0232%</strong></td>
<td><strong>13.0232%</strong></td>
</tr>
<tr>
<td>FRHS1</td>
<td>Availability of Forex hedging instruments at Exchange and OTC market</td>
<td>22.19%</td>
<td>2.89%</td>
</tr>
<tr>
<td>FRHS2</td>
<td>Ease of using various forex risk hedging instruments like options, futures, synthetic derivatives etc. and their</td>
<td>12.34%</td>
<td>1.61%</td>
</tr>
<tr>
<td>FRHS3</td>
<td>Popularity of the forex risk hedging instrument</td>
<td>16.58%</td>
<td>2.16%</td>
</tr>
<tr>
<td>FRHS4</td>
<td>Experience of Forex Risk Manager in using Forex Risk Hedging Instruments</td>
<td>15.52%</td>
<td>2.02%</td>
</tr>
<tr>
<td>FRHS5</td>
<td>Perception of Forex Risk Manager regarding various hedging instruments</td>
<td>24.15%</td>
<td>3.14%</td>
</tr>
<tr>
<td>FRHS6</td>
<td>Option of Customization of Various Forex Risk Hedging Instruments</td>
<td>9.22%</td>
<td>1.20%</td>
</tr>
<tr>
<td><strong>FSI7</strong></td>
<td><strong>Forex Market Scenario (FMS)</strong></td>
<td><strong>20.5676%</strong></td>
<td><strong>20.5676%</strong></td>
</tr>
<tr>
<td>FMS1</td>
<td>Government regulations regarding Forex Market</td>
<td>15.79%</td>
<td>3.25%</td>
</tr>
<tr>
<td>FMS2</td>
<td>Intervention of Central Bank in Forex Market</td>
<td>8.68%</td>
<td>1.78%</td>
</tr>
<tr>
<td>FMS3</td>
<td>Volatility in the value of Domestic Currency</td>
<td>14.99%</td>
<td>3.08%</td>
</tr>
<tr>
<td>FMS4</td>
<td>Volatility in Foreign Currency in which payment has to be made or any other currency used for international settlement</td>
<td>13.33%</td>
<td>2.74%</td>
</tr>
<tr>
<td>FMS5</td>
<td>Future Expectations regarding movement in Foreign exchange rate</td>
<td>19.29%</td>
<td>3.97%</td>
</tr>
<tr>
<td>FMS6</td>
<td>Demand and Supply Conditions of domestic Currency</td>
<td>10.30%</td>
<td>2.12%</td>
</tr>
<tr>
<td>FMS7</td>
<td>Demand and Supply Conditions of Foreign Currency</td>
<td>7.04%</td>
<td>1.45%</td>
</tr>
<tr>
<td>------</td>
<td>------------------------------------------------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>FMS8</td>
<td>Convertibility of Indian rupee</td>
<td>3.35%</td>
<td>0.69%</td>
</tr>
<tr>
<td>FMS9</td>
<td>Fluctuations in US Dollar Prices</td>
<td>7.23%</td>
<td>1.49%</td>
</tr>
<tr>
<td></td>
<td><strong>Domestic Economy’s Macro Indicators (DEMI)</strong></td>
<td>22.5416%</td>
<td>22.5416%</td>
</tr>
<tr>
<td>DEMI1</td>
<td>Political conditions of Domestic country</td>
<td>23.60%</td>
<td>5.32%</td>
</tr>
<tr>
<td>DEMI2</td>
<td>Interest Rate Fluctuations in the Domestic Market</td>
<td>21.65%</td>
<td>4.88%</td>
</tr>
<tr>
<td>DEMI3</td>
<td>Economic condition of the domestic country, i.e., GDP, Inflation Rate, Money Supply, Capital Market Conditions, Balance of Trade Position etc.</td>
<td>19.35%</td>
<td>4.36%</td>
</tr>
<tr>
<td>DEMI4</td>
<td>Development of Banking system</td>
<td>22.48%</td>
<td>5.07%</td>
</tr>
<tr>
<td>DEMI5</td>
<td>Discovery of New Resources</td>
<td>12.92%</td>
<td>2.91%</td>
</tr>
<tr>
<td></td>
<td><strong>Foreign/Global Economy’s Macro Indicators (FGEMI)</strong></td>
<td>21.7381%</td>
<td>21.7381%</td>
</tr>
<tr>
<td>FGEMI1</td>
<td>Political conditions of the foreign country with whom trade has happened</td>
<td>15.71%</td>
<td>3.42%</td>
</tr>
<tr>
<td>FGEMI2</td>
<td>Economic condition of the foreign country with whom trade has happened, i.e., GDP, Inflation Rate, Money Supply, Capital Market Conditions, Balance of Trade Position etc.</td>
<td>8.98%</td>
<td>1.95%</td>
</tr>
<tr>
<td>FGEMI3</td>
<td>Interest Rate Fluctuations in the International Market</td>
<td>16.70%</td>
<td>3.63%</td>
</tr>
<tr>
<td>FGEMI4</td>
<td>Overall sentiments regarding Forex Market</td>
<td>15.76%</td>
<td>3.43%</td>
</tr>
<tr>
<td>FGEMI5</td>
<td>Forex Control Mechanism in the foreign country</td>
<td>22.06%</td>
<td>4.80%</td>
</tr>
<tr>
<td>FGEMI6</td>
<td>Fluctuations in Crude oil Prices as it affect the volatility in prices of all major currencies</td>
<td>12.96%</td>
<td>2.82%</td>
</tr>
<tr>
<td>FGEMI7</td>
<td>Speculation (Forex Market, Real Estate, Securities and Uncovered Interest Arbitrage)</td>
<td>7.83%</td>
<td>1.70%</td>
</tr>
</tbody>
</table>

*Source: Calculations Done by Researcher*
Recommendations/Implications for Various Stakeholders

- **Recommendations/Implications for SMEs and Unlisted non-financial Firms:** The SMEs and unlisted firms need to improve the awareness level regarding forex risk hedging instruments among the people involved in financial decision-making. Further, these firms need to have clear guidelines for forex risk management. The findings of the study recommends that SMEs and unlisted non-financial firms should use full hedging strategies in place of partial hedging to reduce the forex risk. Also, these firms need to devise methods to train the concerned person regarding all types of hedging instruments and techniques. It will provide them more choices to frame strategies to hedge their forex risk exposure. The SMEs and unlisted firms can also consider the determinants recommended by present study to devise their hedging strategies and which factors these firms should focus to contrive their hedging strategies.

- **Recommendations/Implications for Forex Risk Managers/Advisors/Professionals:** The forex risk managers should consider various determinants for forex risk hedging while determining a hedging strategy. Moreover, these practitioners can design training programs or capacity building programs for SMEs and unlisted non-financial firms so that the gap in their understanding for various hedging instruments and techniques can be filled to reduce forex risk.

- **Recommendations/Implications for Government/Regulators:** The empirical evidences of the study have revealed lack of awareness regarding forex risk exposure and its management. As a regulator, Government should take initiatives to increase the awareness level among SMEs and unlisted non-
financial firms. The government and regulators need to createseveral platforms for SMEs and unlisted non-financial firms where forex risk exposure management, forex risk hedging instrument and other related matters can be undertaken.

- **Recommendations/Implications for Academia**: The less awareness regarding forex risk, forex risk hedging instruments, and determinants of forex risk hedging strategies etc. signifies that such an fundamental subject should be a part of most of the finance/SMEs related programs in different universities and institutions. The elements covered in the study can provide broader guidelines to develop curriculum related to Forex Risk Awareness among SMEs and Unlisted Firms, and Forex Risk Management by SMEs and Unlisted Firms etc.

- **Recommendations/Implications for Researchers**: The study under consideration stipulates valuable comprehensions to the researchers on the related field. It will benefit the researchers to cognize this field in an enrichedmanner to conduct research related to forex risk management, determination of hedging strategies and exploring various types of relation between demographic features and forex risk exposure and its management related variables for SMEs and unlisted firms in India and worldwide.

**Contribution to Existing Literature and Theory**

The empirical evidences obtained from the present study will postulate further insight into the forex risk management and hedging practices by SMEs and unlisted non-financial firms in an emerging economy like India. The findings of the study complement to the existing literature related to forex risk exposure, forex risk management practices and forex risk hedging strategies. The main contribution to
existing theory will be in the form of determinants of forex risk hedging strategy, determinants of improvement in forex risk hedging strategy and hierarchy of decision criteria in determining forex risk hedging strategy. The existing theories and literature (as discussed in introduction and review of literature) address the issues linked to impact of hedging on cash flows of the business, relevance of hedging, use of derivatives to hedge forex risk etc.

But the determinants of forex risk hedging strategy, determinants to improve forex risk hedging strategy and Hierarchy of Decision Criteria for forex risk hedging strategy by experts involved in framing policy guidelines regarding forex risk hedging are the three original contributions to the existing theory on forex risk management and hedging practices by firms in general and by SMEs and unlisted non-financial firms in specific. These three inputs are cited below in exhibit I, II and exhibit III respectively.
Exhibit I

Determinants of Forex Risk Hedging Strategy by SMEs and unlisted Non-financial Firms

Exhibit II

Determinants to Improve Forex Risk Hedging Strategy by SMEs and unlisted Non-financial Firms
Determinants to Improve Forex Risk Hedging Strategy

- Internal Management’s Approach for Forex Risk Hedging Management
- Awareness Regarding Forex Risk Hedging Instruments and Forex Market Regulations
- Regulators’ initiatives to increase Hedging Instruments’ Literacy
Exhibit III

Hierarchy of Decision Criteria for Forex Risk Hedging by Experts

- Domestic Economy’s Macro Indicators
- Firm Specific Indicators
- Foreign/Global Economy’s Macro Indicators
- Forex Market Scenario
- Forex Risk Hedging Instruments
Scope for Future Research

- The current research provides a list of various determinants for hedging strategies with the help of exploratory factor analysis. The determinants identified in the current study can be re-investigated or validated with a fresh survey to confirm the factors. Such type of research will require in-depth analysis using confirmatory factor analysis.

- The evidences of the study have shown strong indication of association between the demographic profile of the SMEs and unlisted firms with their forex risk hedging awareness and management policies. The future studies in the related field can be narrowed down on the basis of individual specific demographic features based classification of SMEs and unlisted non-financial. For example, sector wise, turnover wise, size of the firm, and turnover in foreign currency wise etc. can be the criteria to study the forex risk exposure awareness, management and determinants of SMEs and unlisted non-financial firms.

- There is good scope for investigating causal studies on the basis of determinants and effectiveness of hedging strategy as dependent variable. Such type of studies can be based on application of regression analysis or tools like structural equation modeling. The demographic profile of SMEs and unlisted non-financial firms can be considered to examine the mediation effect.

- The research areas suggested above have scope to be extended to international markets too as there is dearth of empirical studies on the related field in India and worldwide too.