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Abstract

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Keywords

risk, exchange, smes, analysis, incurred, management, foreign, cost, information

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ANALYSIS OF INFORMATION COST INCURRED IN FOREIGN EXCHANGE RISK MANAGEMENT BY SMEs

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ABSTRACT

In this study, the theory of Information Cost developed by Casson (1995) is used to explain the various information cost associated with foreign exchange risk management by SMEs. From the application of Casson's theory, it is concluded that the SMEs incur maximum cost in collecting, communicating and synthesising information while managing foreign exchange risk. Also, the SMEs do not seem to have the potential to reduce these information costs because of their limited bargaining capacity in relation to service providers. As such, SMEs would fit the description of "optimal" organisation as defined by Casson (1995) due to the trade-off made by them in their information costs and decision-making in regard to foreign exchange risk management.

INTRODUCTION

The issue of foreign exchange risk management by SMEs engaged in international business is an important issue. Because of the limited bargaining power of the SMEs in relation to their suppliers, customers and other dealing parties, SMEs face a number of difficulties in managing their foreign exchange risk. This inability of SMEs to optimally manage their foreign exchange risk can reduce their profitability, cause financial distress and may also result in business failure.

One of the critical issues involved in the foreign exchange risk management by SMEs is the issue of collecting information, communicating the information collected for the purpose of analysis, synthesizing the information and taking a decision based on the analysis and synthesis of the information collected. Information is therefore required at every step in foreign exchange risk management by SMEs. For example, one of the steps in managing foreign exchange risk is to use the various hedging mechanisms and techniques available. The use of internal and external techniques of hedging, are discussed in detail in the literature on foreign exchange risk management (Davis and Militello, 1995; Collier et. al, 1990; Holland, 1984; Bhati, 2000). However, the decision about the comparative advantage and suitability of a particular technique will be based on the information about the relevance and benefits of the particular technique from the perspective of the firm using the technique. The actual execution of decision about hedging contracts will require the information about various products available with the service providers, costs associated with each of them etc. the final decision about the use of a particular hedging product may ultimately depend on the synthesis and analysis of costs and benefits of various products. Thus the ability to collect, disseminate and synthesise

the information goes a long way in the proper management of foreign exchange risk by SMEs. Although SMEs are known to have lesser access to information in comparison to large firms, the collection, communication and synthesis of information is important because scarce resources available to SMEs need to be put to proper use.

A number of authors have studied the issues related to information in managing foreign exchange risk in large firms such as Davis et. al (1991), Davis and Militello (1995), Batten et. al (1993). In regard to SMEs, the issues of information relating foreign exchange risk management was studied by Bhati (2000) as a part of study on foreign exchange risk management by SMEs. In this paper, the issues related to collection, dissemination and synthesis of information in foreign exchange risk management by SMEs are critically analysed. The analysis is based on the Theory of Information Cost developed by Casson (1995) for firms engaged in international business. In Section 2 of this paper, the general principles underlying the Theory of Information Cost (Casson, 1995) are discussed. In section 3, the nature of information collected, disseminated, analysed and synthesised in managing foreign exchange risk by SMEs is discussed. In Section 4, this information is critically analysed using the Cassen's theory. Finally the conclusions are arrived in Section 5.

CASSEN'S THEORY OF INFORMATION COST

Casson's theory of Information describes the way in which information might be used by firms engaged in international business. This theory is developed for any firm engaged in international business. The general principles underlying this theory are set as follows.

1. Organisations use information to coordinate activities.
2. Information is logically constructed by partitioning the set of all possible states of environment into subsets and then asserting that the reality belongs to one of these subsets.
3. Decisions are constructed by partitioning the set of all possible states of all possible strategies. A decision asserts that the strategy belong to one of the subsets and not the others.
4. An organisation has stakeholders who determine its objective. If stakeholders (usually equity holders) are risk neutral then their objective is the maximisation of the expected profit. The managerial employees collect information, communicate it to one another and take decisions on behalf of stakeholders.
5. Information is costly to collect, to communicate and to use in decisions. Profit is maximised net of information cost. An efficient organisation minimises the information cost of achieving a given degree of coordination. An optimal organisation trades off information cost against the degree of coordination to maximise the degree of net profit.
6. The organisation consists of a rule for gathering the information as well as a rule for acting on it. It is the use of sequential information gathering rules that gives the organisation their distinctive procedural quality.
7. Sources of information in an organisation tend to be dispersed. This dispersion reflects the division of labour in other activities.
8. Information from different sources may have to be synthesised before a decision can be made. This incurs cost of inter-personal communication. The greater the interpersonal cost of communication, the higher the communication cost becomes.

9. An individual collector may lack the skill to understand what other people are telling him, whereas the specialist synthesizer can be chosen for his ability to choose different types of information from different sources. The use of specialist increases the amount of information that has to be communicated but it may still reduce the overall cost because the information that is communicated is more readily understood.
10. The reason why certain types of information are difficult to understand lies in their tacit nature. The more tacit the information the higher the cost of interpersonal communication. For this reason it is often useful to allocate the synthesis of information to the person who collect the information of the most tacit nature.
11. Decisions tend to be easier to communicate than information because their explicit communication costs are normally minimised by giving the synthesiser the authority to make the decisions.
12. To each possible set of rules prescribed above there correspond an optimal division of labour in implementation, which minimises the overall information cost. The optimal organisation trades off the degree of coordination and the information cost in the appropriate way.

Casson (1995, p.73-75)

THE NATURE OF INFORMATION COLLECTED, DISSEMINATED AND SYNTHESISED

In this section the Theory of Information Cost developed by Cassen is used to explain the data collected in regard to foreign exchange risk management by SMEs. According to Cassen (1995, p.73), "organisations use information to coordinate activities. Information is logically constructed by partitioning the set of all possible environment into subsets and then asserting that the reality belong to one of these subsets." In regard foreign exchange risk management by SMEs the observed data (Bhati, 2000) given in Table.1 indicates that SMEs require a host of information to manage foreign exchange risk. From Table 1, the following information can be inferred to be of use in exchange risk management. Table 1 also gives the subsets of exchange risk environment, such as

- Export Sales and Import Purchases as part of the total business
- Average periods of realisation creating foreign exchange exposure
- Number and denomination of currencies other than home currency in which the companies deal
- Preferred mode of realisation of export sales/ payment of import purchases
- Various methods used in the forecast of currency positions and the suitability of each of the methods to a particular company.
- Various methods used in the forecasts of currency movements and the suitability of each of the methods to a particular company
- Use of internal techniques in the management of foreign exchange risk and selection of proper technique for managing the risk
- Use of financial instruments in the management of foreign exchange risk and selection of proper instruments for managing the risk
- Use of information technology tools such as computers and suitability of each of the tools
- Various performance evaluation methods used in the evaluation of foreign exchange risk management and suitability of each of the methods for a particular company.

- Services provided by banks in foreign exchange risk management
- Quality of service provided by a particular bank for foreign exchange risk management.

The nature of information used in foreign exchange risk management and given above is not easy to understand. The information given above can be understood and used by a person who would be exposed to international business and has an understanding of risk management principles and practice in addition to the knowledge and exposure to foreign exchange markets. The information used by SMEs in foreign exchange risk management and given in Table 1 can be termed "tacit". Because of the "tacit" nature of information, the cost of obtaining, communicating and using the information could increase for SMEs.

ANALYSIS OF INFORMATION COLLECTED IN FOREIGN EXCHANGE RISK MANAGEMENT BY SMEs BASED ON CASSEN'S THEORY

In this section, various issues in regard to the information collected, disseminated and synthesised by SMEs in relation to their foreign exchange risk management is critically examined and analysed. According to Cassen (1995, p.73), "Decisions are constructed by partitioning the set of all possible states of all possible strategies. A decision asserts that the strategy belong to one of the subsets and not the others." The companies involved in the exchange risk management can construct many strategies from the various subsets given in each of the sets in Table 1. For example, in deciding about using a method to forecast currency position, a company may construct four different methods such as

- Forecast using the contracts
- Forecast using orders
- Cash forecast by currency
- Balance Sheet/Income forecast.

These four methods available in the literature could constitute the set of all possible states of all possible strategies in forecasting currency positions. The decision to forecast the currency position may not belong to one of the subsets (forecasting method in this case) but may belong to more than one possible states of subset (more than one forecasting method). The observed data (Bhati, 2000) indicate that companies have used more than one method in forecasting currency position, in conflict with the theory of Cassen according to which "a decision asserts that the strategy belong to one of the subsets and not the others." This is the first observed difference between the theory and the empirical observation.

The next issue relates to the collection and, communication of information in managing foreign exchange risk management. According to Cassen(1995, p.74), "The managerial employees collect information, communicate it to one and take decisions on behalf of stakeholders." Available evidence supports the Cassen's theory about collection and communication of information and decision-making, in regard to foreign exchange risk management for large firms. The observations of Davis and Militello (1995) and Collier et. al (1991) suggest that the foreign exchange risk management of the large multinationals is controlled by a system of line management and treasury. The Chief Executive Officers of large multinationals are not directly involved in the management of foreign exchange risk management although the objectives of the exchange risk management may be set by the board or the chief executive officers in case of large multinationals. In the case of small firms the situation is however different from that of the large firms. From the data collected by Bhati(2000), it was observed that the Chief

Executive Officers of SMEs could be directly involved in the day to day operations of foreign currency dealings. The CEOs of SMEs could also be assisted in managing exchange risk by external consultants, general managers and company accountants. Even where CEOs of SMEs were assisted by company accountants, general managers and external consultants in managing exchange risk, the ultimate control of exchange risk management rested with CEOs who would take final decision in regard to foreign exchange dealings. Bhati(2000) has explained the reason for the difference in the approach of large multinationals and SMEs in managing foreign exchange risk management as follows. In the case of small companies the export or import business of SME constitutes a large proportion of their total business. Small foreign currency movements could affect the profitability and firm value of SME in a large way. The CEOs of SMEs are, therefore more concerned about the currency movements than the CEOs of large companies. This difference in the approach to managing foreign exchange risk management between large firms and SMEs can be illustrated by the chart given in Figure 1.

The issue of information cost is another important issue in foreign exchange risk management. According to Cassen(1995, p.74) "Information is costly to collect, to communicate and to use in decisions. Profit is maximised net of information cost. An efficient organisation minimises the information cost of achieving a given degree of coordination. An optimal organisation trades off information cost against the degree of coordination to maximise the degree of net profit." The costs incurred in managing the foreign exchange risk by SMEs were observed by Bhati(2000) and are given in Table 2. The available evidence supports the theory about the cost of information collection in regard to exchange risk management. The costs given in Table 2 can be divided into two groups. Bank charges, exchange margin, cost of writing contract and cost of deposits required in managing exchange risk are transaction costs. The cost of obtaining information is explicitly an information cost. Cost of staff and management time would include both transaction cost and information cost. If TC_n is the transaction cost incurred for a particular transaction undertaken to manage exchange rate risk in say currency n and IC_n is the information cost incurred for the same transaction by a SME, then the total cost of the transaction C_n is given by

$$C_n = TC_n + IC_n$$

If A_n is the value of Assets denominated in the same currency n and L_n is the value of liabilities in currency n for the same SME, then the net assets NA_n in currency n which needs to be managed through the transaction is

$$NA_n = A_n - L_n$$

If ΔEX_n is change in the value of currency n from the time of entering into contracts for the currency to the time of realisation of assets/liabilities then

$$\Delta EX_n (A_n - L_n)$$

represent the gain on the home currency value of net assets due to change in the exchange rate. The profits can be maximised only if the gain on home currency value of net assets due to change in the exchange rate is greater than the total cost G_n incurred for the particular transaction or

$$\begin{aligned} \text{EX}_n (A_n - L_n) &> C_n \\ &> (TC_n + IC_n) \end{aligned}$$

In the case of SMEs the transaction cost is an externality for SMEs because the SMEs do not have any bargaining power towards the transaction service providers (such as banks) and as such are not able to negotiate any reduction in transaction cost. SMEs may also not be able to reduce the information cost as the SMEs may not have the bargaining power towards the information providers as well. The issue of "profit maximisation net of information cost" for SMEs may not have the same implication as for large firms. A large organisation may employ different people for collecting information, communicating the information and synthesise the information and thereby reduce its information cost. Large organisation can also combine the decision making process with the synthesis of information and reduce the combined cost of synthesis and decision making. In the case of SMEs, collecting, communicating and synthesising the information is undertaken by the same person, according to the observations of Bhati (2000). The opportunity for reduction in information cost is minimum for SMEs because the synthesiser would be a trained person who could be a company accountant or general manager. This person would also collect and communicate information in case of SMEs whereas in case of large firms the collection and communication of information could be done by a person with less training. Large firms would therefore pay less for collection and communication of information as compared to SMEs as synthesiser would be paid more than a lesser trained person whose only job would be to collect and communicate information. The SMEs would therefore incur the maximum information cost, which would be paid to a synthesiser. SMEs would therefore loose on two counts in collection, communication and synthesis of information. One, SMEs would pay higher charges to service provider for collection of information and also for transaction costs in managing foreign exchange risk. Second, by employing a synthesiser who would also collect and communicate information, SMEs would pay high wages to synthesiser. Large firms are efficient because they can minimise their information costs whereas SMEs are "optimal" in managing the information costs relating to exchange risk management because they cannot reduce their information cost. SMEs however have one advantage in relation to information cost of exchange risk management as compared to large firms. SMEs can reduce the cost of inter-personal communication as compared to large firms because the number of persons involved in collecting and communicating the information in SMEs would be very small as compared to large firms. According to Cassen, "Information from different sources may have to be synthesised before a decision can be made. This incurs cost of inter-personal communication. The greater the interpersonal cost of communication, the higher the communication cost becomes." Because the SMEs are in a position to reduce the cost of interpersonal communication, they can also reduce the total communication and total information costs.

According to the observation of Bhati (2000) the Company Accountants and General Managers may act as synthesiser of information in case of SMEs and the CEOs act as the decision maker, when it comes to managing the foreign exchange risk. The available evidence from Bhati (2000) suggests that the CEOs of SMEs do not appear to vesting their authority of decision making to Company Accountants or General Managers, which could increase the cost of decision making. Casson's theory suggest that it is economical and efficient to vest the decision making authority to specialist synthesiser. The available evidence from Bhati (2000) suggests that the CEOs of SMEs are willing to trade off the cost of decision-making against maintaining their control and power on the organisation. This attitude of the CEOs of SMEs

also contribute to the increase in the information costs of SMEs in managing their foreign exchange risk management.

It can be concluded that the SMEs have to make the following tradeoffs while managing exchange rate risk as compared to large organisations

- Tradeoffs in transaction cost and cost of collecting the information due to their poor negotiating capacity vis-a-vis the service providers.
- Tradeoffs in the cost of collection and dissemination of information due to the use of specialist synthesisers in collecting and disseminating information in addition to synthesis of information.
- Tradeoffs in decision making cost because CEOs do not wish to vest their decision-making authority in specialist synthesisers.

These three factors mentioned above tend to increase the cost of collection, dissemination and synthesis of information by SMEs while managing their foreign exchange. Because SMEs are either unable to reduce these costs or consciously take decisions which would increase the information costs, SMEs in managing their foreign exchange risk do not act efficiently. The action of SMEs would fit them into the description of an "optimal" organisation as defined by Casson (1995) due to the choices made by the CEOs and their inability to negotiate with service providers. According to Casson, "the optimal organisation trades off the degree of coordination and the information cost in the appropriate way" and does not operate in the "efficient" way. The discussion given above suggests that SMEs are "optimal organisations when it comes to managing foreign exchange risks because the CEOs of SMEs tradeoff tradeoff the information cost for maintaining their control on the organisation.

CONCLUSIONS

Based on the theory of Cassen (1995) and the empirical evidence provided primarily by Davis and Militello (1995) and Bhati (2000), the following conclusions are drawn about the information costs in foreign exchange risk management by SMEs.

1. Cassen's theory can be used to explain a number of empirical observations in regard to the information cost incurred by SMEs in foreign exchange risk management although some differences exist between the theory and the empirical evidence.
2. SMEs have to "optimise" their costs of collection, disseminating and synthesising information in managing the foreign exchange risk instead of minimising the cost in efficient way either due to their limited bargaining power with respect to service providers or because of conscious decisions made by stakeholders, in particular "CEOs".

These differences in information costs tend to differentiate the management of SMEs from those of large companies.

TABLES

Table 1: The information which may be used by SMEs in managing foreign exchange risk.

1. Export Sales and Import Purchases as part of the total business

Export sales and percentage of export sales to total sales
Import purchases and percentage of import purchases to total purchases
Export denomination in currencies other than Australian dollar (%)
Average amount of each export transaction (\$)
% of average export transaction amount/export sales
% of average export transaction amount/total sales
Import denomination in currency other than Australian dollar (%)
Average amount of each import transaction (\$)
% of average import transaction amount/import sales
% of average import transaction amount/ total sales

2. Average periods of realisation creating foreign exchange risk

Average time from the receipt of the export order to the dispatch of export order by the company
Transit time from the dispatch of shipment by the company to the receipt of goods by the buyer
Average time from the receipt of the goods by the buyer to the payment in the company's account (in case of credit sales)
Average time from the day of ordering the goods to the dispatch of goods by the supplier
Transit time from the day of shipment of goods by the supplier to the receipt of the goods by the company
Average time from the day of receipt of the goods by the company to the day of payment to the supplier (in case of credit purchases)

3. Number and denomination of currencies other than Australian dollar the companies deal in

4. Preferred mode of realisation of export sales/ payment of import purchases*

a. Mode of Realisation of exports

Letter of credit opened by the buyer
Payment of export bills by the buyer
Direct remittance by cheque/DD

b. Mode of Payment of imports

Letter of credit opened favouring supplier
Payment of import bills to supplier
Direct remittance to supplier

5. Methods used in the forecast of currency positions by the companies

Forecasting Methods

Forecast using the contracts
Forecasts using orders

Cash forecast by currency
Balance sheet/Income forecast

6. Methods used in the forecasts of currency movements by the companies

Methods of forecasts

Forecast by consultant/expert
Forecasts by banks/RBA
Forecast by own employees
Forecasts using sophisticated models/computers

7. Use of internal techniques in the management of foreign exchange risk

Invoicing in Australian dollars
Matching
Portfolio approach

8. Use of financial instruments in the management of foreign exchange risk by the companies

Forward exchange contracts
Foreign currency accounts
Currency options

9. Use of technology by the companies in the foreign exchange risk management

Time sharing from banks
PCs/Microcomputers
Commercial information services like Reuter
Manual

10. Rating of performance evaluation methods used by the companies in the evaluation of foreign exchange risk management

*Performance evaluation method**

Fully hedged position
Spot rate of settlement
Best rate during the period
Opportunity loss/gain

11. Considerations in choosing the banks for foreign exchange risk management

Conditions set by banks
Exchange rate
Credit availability
Service quality
Value dating terms
Security requirements

12. Companies' perception of quality of service provided by their banks in relation to foreign exchange risk management

Nature of service provided by respective banks
Opening hours
Speed of transaction
Technical knowledge
Advice on various issues
Location advantage
International network
Contacts with correspondent bank

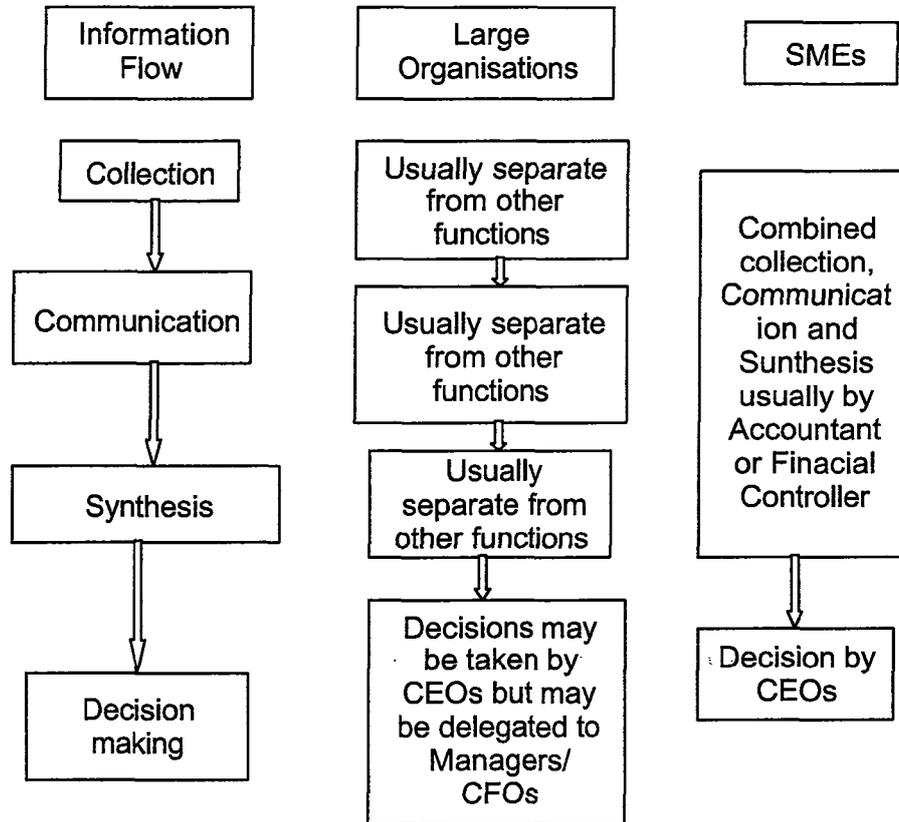
Data source: Bhati (2000)

Table 2: Costs associated with foreign exchange risk management by SMEs

Nature of the cost
Bank charges
Exchange margin
Cost of writing contracts
Staff and management time
Cost of funds for deposits
Cost of obtaining information

Datasource: Bhati(2000)

Figure 1. Model of information flow in foreign exchange risk management by SMEs



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