

Financial Factors Influencing the Purchase of Export Credit Insurance (ECI) in Sri Lanka

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ABSTRACT. *The insurance that provides exporters with a coverage on losses which may occur when a foreign buyer fails to make payments is referred to as export credit insurance (ECI). However, the purchase of ECI depends on the credit risk bearing ability of the company. Financial stability of the company is an indicator of the credit risk bearing ability and hence this research was conducted to analyse the financial factors that influence the purchase of ECI in Sri Lanka. Data were gathered from sixty three firms who have purchased ECI and operative policies from the Sri Lanka Export Credit Insurance Corporation (SLECIC). Analysis revealed that in Sri Lanka, less than 2% of the exports are covered by the ECI scheme. More private owned agribusiness companies demand ECI. Results of the regression analysis show that 40% of the variability in total premium paid is explained by the independent variables as a whole. However, only the variables buyer evaluation fees and corporate governance were significant at 0.05 probability level. The variable Ln corporate size was significant only at 0.10 probability level. Although previous research have shown that corporate size has a negative relationship with ECI purchases, this study shows that in terms of Sri Lankan exporting firms, larger firms tend to purchase more ECI than smaller firms. Therefore, SLECIC must recognize the problems of the exporting firms, especially the small firms, and make necessary steps in decreasing the costs in purchasing ECI.*

INTRODUCTION

Exports can be defined as the sale of goods or services from one country to another. It measures the value of goods that leave the domestic territory of a country irrespective of their destination. Exports are needed for a country to generate foreign exchange, maintain a healthy balance of trade and it also plays a significant role in generating employment and contributes to rising living standards. In 2005, total export earnings of Sri Lanka recorded Rupees million 793,153 and its contribution to GDP was 32.9% and this shows a 7.4% increase compared to year 2004 (Central Bank of Sri Lanka, 2005).

The level of exports of a country depends on several factors and they are broadly classified into political, legal, economic and social factors. These factors directly or indirectly influence the export transactions. Influence of these factors in obtaining payment

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for goods sold is more common and is referred to as non-payment risk. Export credit insurance (ECI) is an insurance product which provides exporters with a coverage on losses which may occur when a foreign buyer fails to make payments. ECI can be defined as the cover provided for the exporters against non-payment for goods dispatched to buyers abroad that result from commercial or country risk (Taha, 2000).

Exporting companies make two key decisions in terms of ECI and they are the selection of the optimum amount of insurance coverage and optimum amount of exports according to the available insurance. Financial stability of the company is an indicator of the credit risk bearing ability. According to the credit risk bearing ability of the company, the quantity of ECI purchase varies. Generally, the exporting companies get their quantity of insurance purchase based on subjective judgment of the management. This existing subjective judgment system is inadequate in making effective and economical decisions due to lack of a scientific basis. Therefore, this study addresses the influence of credit risk bearing ability of exporting companies in Sri Lanka on choosing optimum amount of insurance coverage. Although a limited number of empirical studies have addressed the corporate purchasing decision for insurance (Kaitchev, 2004; Yamori, 1999), there are no studies done on corporate purchasing decision for insurance in the Sri Lankan context. Therefore, this study aims to fill the vacuum of lack of knowledge in this field to a certain extent.

LITERATURE REVIEW

The purchase of ECI by an exporting company is influenced by its premium payment. According to Booth *et al.* (1999), the premium paid on insurance depends on the exposure of the policyholder and insured goods or services to the various insured perils, the degree of risk associated with the policyholder, the expenses of acquiring and administrating the policy and the profit required by the insurer. Mayers and Smith (1990), Hoyt and Khang (1999; 2000) have used the ratio of property insurance premiums to the value of insurable assets as a proxy for the amount of property insurance purchased by the firm. Yamori (1999) was also used the insurance payment made by the corporations as the dependent variable and used the value of premium in thousands of Yen.

The charges for buyers evaluation is an additional fee for premium for shipments insured under ECI. This buyer evaluation fees are charged by the insurance company for every buyer approved and rejected. Only approved buyers are available for insurance coverage and premium should be paid to cover shipments on the insurance thereon. These charges are varied depending on the speed of the buyer approval and the country of the buyer (SLECIC, 2004). Therefore, this buyer evaluation charges may affect the purchasing decision of the ECI. If buyer evaluation fees are high, export companies are less interested in ECI. This is measured by the rupee value of buyer evaluation fees paid by the policyholder.

Yamori (1999) found that size of the corporation is an important factor in determining the insurance purchase. Nooteboom (1989) argues that smaller firms may be more risk-averse due to lack of information and the relatively greater impact of failure than larger firms and larger firms can be expected to be less risk-averse, due to a larger size of operations combined with a greater spread of risk. According to Mayers and Sumith (1990), bankruptcy costs are less than proportional to firm size. Small corporations suffer much more than the large firms in the case of bankruptcy. Therefore, it is expected that smaller

firms gain more from insurance than larger firms. Weiss and Chung (2004), Garven and Tennant (2003), Hoyt and Khang (2000) found out that the size negatively impacts on the purchase of insurance, suggesting that an indirect relationship exists between size and the decision to purchase insurance and firm size is associated with corporate incentives to purchase insurance. O'Sullivan (1997) found that large United Kingdom firms are more likely to purchase directors' and officers' insurance in order to monitor managers than small firms.

Different researches have used different proxies in measuring firm size. Wilson, Summers and Singleton (1997) have used log of sales to measure the firm size. Boyer (2004), has used the log of market value of equity and log value of the assets and found out that firm size is negatively related and significant at one percent level to purchasing decision on directors' and officers' (D and O) insurance. Hoyt and Khang (1999) also used log of total assets to measure the size of the firm and found a statistical significance on insurance purchasing. Verwaal and Donkers (2001) have used log of total sales of the firm to measure the size of the firm.

Probability of bankruptcy of a corporate is a sign of one of major financial distress and this could influence the purchasing decision of ECI. It is expected that insurance reduces the probability of bankruptcy. Beaver (1967) concluded that the cash flow to debt ratio was the best single ratio predictor for bankruptcy. This ratio was not considered for future studies, because of the lack of consistent and precise depreciation and cash flow data. According to Altman (1968), Z-score is one of the best ways to predict the bankruptcy of a corporate. In repeated tests up to 1999, the accuracy of the Z-score model on samples of distressed firms has been in the vicinity of 80-90%, based on data from one financial reporting period prior to bankruptcy. Although these tests are based on data from over 40 years ago, they do indicate the robustness of the model which is still in use in the year 2000 (Heine, 2000). Gritta *et al.* (2006) found that Z-Score Model was over 76% successful in predicting the corporate bankruptcy. "ZETA" was another method developed in classifying bankrupt companies up to five years prior to failure (Altman, Haldeman and Narayanan, 1977). The one year prior classification accuracy of bankrupt firms is quite similar for both models that are 96.2% for "ZETA" models. But the accuracy is consistently higher for "ZETA" in years 2-5 prior to the distress data. Unfortunately, the model is right protected and intercept terms in equation is not accessible (Gritta *et al.*, 2006). Studies of Boyer (1997; 2003) pointed out that probability of bankruptcy was negatively related and non significant on D&O insurance purchases. Boyer (1997) has calculated the bankruptcy risk of a company by using liabilities and assets and is shown below.

$$\text{Financial Risk} = (\text{Book value of assets}/\text{Book value of liabilities})*(1/\text{volatility})$$

According to Hoyt and Khang (1999), probability of bankruptcy is a ratio of working capital to total assets. Hoyt and Khang (2000) found that the proxy for the likelihood of bankruptcy is not statistically significant on property insurance purchasing decision. Kaltchev (2004) has also used a measure, similar to the one in Boyer (1997) and (2003). Boyer (2004) found out that the way in which a corporation is financed should effect the decision to purchase D and O insurance and a higher bankruptcy risk should be associated with more insurance coverage. The financial distress of the policyholder will take into account the purchasing decision for ECI. Core (1997) was the first one to use cross sectional Canadian data to analyze D and O insurance demand. Analyzing his sample of 222 firms, he concludes that the risks of lawsuit and risks of financial distress are major

determinants of D and O insurance purchase. A study conducted by Hoerger, Sloan, and Hassan (1990) finds that the probability of bankruptcy influences a firm's decision to purchase insurance. Macminn (1987) found that the corporations purchase insurance to eliminate or reduce bankruptcy cost and agency costs. However, Yamori (1999) found that the firms with higher probability of bankruptcy demand more insurance is weak.

The return of an exporting company is one of the factors which may influence the purchase decision of insurance and it can be measured in terms of turnover (income) and profit of the firm. Income of an exporting company comprises cash or cash equivalent turnover and turnover in credit terms. However, export earnings in credit terms might be key decision making factor in purchasing ECI. Firm's profitability is one of the factors that may take into account purchasing decision on D and O insurance and it is included as an independent variable in the study done by Kaltchev (2004). Core (2000) used average revenue and average operating income of a firm as two variables to find factors normally influencing D and O insurance demand. Esho *et al.* (2001) found that strong and consistent evidence that income affects consumption for property casualty insurance. Return of the firm also affects the corporate purchasing decision for insurance. The profitability of a firm is measured by return on assets (ROA) and the higher the ROA the lower the litigation of risk. Study by Kaltchev (2004) found that return of a firm was negatively related and significant at 10 percent probability level. Therefore, firm with higher returns appear to demand lesser insurance. Study of Boyer (2003) also pointed out that return on firm shows negative relationship and it has not significantly affected purchasing of D and O insurance.

Firms that have obtained more finance from external sources could face debt burden (high interest expenditure and loan instalments) and it may be associated with low coverage of insurance. However, this situation leads to take more insurance cover for risk adverse export companies. Smith (1986) concluded that the corporate insurance purchase will be greater if leverage in firm's capital structure is high. For firms facing some degree of financial distress, the interest of bondholders and stockholders can diverge and some actions that benefit stockholders will reduce the wealth of bondholders. Yamori (1999) found that leverage by Japanese corporations is another important factor in determining insurance purchases by Japanese firms. Kaltchev (2004) has used another measure of financial situation as an independent variable. Financial situation of a firm is measured by the leverage that is measured as the ratio of long-term debt to long-term debt plus market value of equity.

According to the Smith (1986) and Hoyt and Khang (1999), financial leverage of a firm is measured as;

$$\text{Financial Leverage} = \frac{\text{Book Value of Long Term Debts}}{\text{Book Value of Shareholders Equity}}$$

According to Yamori (1999) and Kaltchev (2004), firm's financial leverage is also measured as ;

$$\text{Financial Leverage} = \frac{\text{Long Term Liabilities}}{\text{Total Equity}}$$

Peterson and Rajan (1997) pointed out that typically credit period offered on export contracts are slightly longer than those for domestic sales but this varies according to

destination country, the industry sector, the characteristics of buyer and buyer's country and nature of the product. Peterson and Rajan's (1997) empirical analysis found that a greater extension of credit by a firm has negative impact on income and sales growth. Ng, Sumith and Sumith (2000) found that longer credit periods are offered to international customers compared to domestic because international customers require longer inspection period and time to arrange the payments. Firms with dominant buyers have a credit period seven days longer than those without and longer periods are extended to local buyers than foreign buyers, but credit periods are reduced when repeat purchases are high. ECI covers the non-payment risk of account receivables of foreign buyers. Higher the collection period of account receivable leads to higher risk of default and delayed payments. Greene (1965) pointed out that exporters who are selling primary goods, have to give a long credit period than for capital goods. Durable goods also have a longer credit period than the consumer goods. It is expected that credit period will be one of the considerations in purchasing ECI. Eldenburg and Ranjani (2004) have calculated account receivable as;

$$\text{Account receivable turnover in days} = \frac{\text{Account Receivables} \times 365}{\text{Turnover}}$$

Firms' short term solvency indicates the short term financial health of a company. It measures the ability to pay its short term obligations. Firms' short term solvency is measured by the ratio of current assets to current liabilities. Brandts (2004) points out that a firm faces liquidity risk due to delayed payments. ECI premium also come under short term obligation if a company decided to insure its account receivable fully or partially. But it comes after short term debt obligations (Ross, Westerfield and Jordan, 2004). Hoyt and Khang (2000) used ratio of working capital to total assets to measure the short term solvency probability and found that firm is solvency was negatively related and was not statistically significant on property insurance purchasing.

It is argued that top decisions such as insurance purchase decision for a company is taken by the Directors of the company. Therefore, corporate governance affects ECI consumption. Smith (1986) concluded that corporate will be greater if a company is closely held and the owners of large, widely held corporations, who can eliminate insurable risks by holding portfolios of securities, will find no need for the corporations to purchase insurance. On the other hand, if owners of closely held companies are risk averse, they may ask the corporations to purchase the insurance to protect against the risk of loss. Core (1997) attempted to estimate the non-financial corporations' demand for a special kind of insurance by using firm level data and found that firms with greater distress probabilities and utilities are more likely to purchase insurance and that firms with greater inside share-ownership are less likely to purchase insurance. Kaltchev (2004) used the number of members on the director board and their share ownership as a percentage of the total number of shares to measure the corporate governance. According to his study, corporate governance was negatively related to corporate insurance demand.

MATERIALS AND METHODS

Population

This research focuses on the existing product exporting companies those that have an ECI policy in Sri Lanka. All business entities that have purchased ECI and operative policies from the Sri Lanka Export Credit Insurance Corporation (SLECIC), during 1st April

2005 to 31st March 2006 were included in the study population. During this period, there were 127 policyholders who have paid premium to cover default risk of the shipments.

Sample Formation

A sample of firms was selected by using stratified random sampling technique and the stratification was based on the SLECIC classification of the export companies as described below. SLECIC classifies companies based on the premium paid and accordingly three groups can be identified: companies that have paid a premium of Rs. 500,000 and above, Rs. 500,000 - 100,000, and less than Rs. 100,000. Twenty nine companies belonged to the premium category Rs. 500,000 and above and 40 companies belonged to the premium category 500,000 - 100,000. The premium category less than Rs. 100,000 had the highest number of companies and it numbered 58. A sample of 63 companies was selected randomly from the three categories of policyholders of SLECIC (Table 1).

Table 1. Number of exporting companies selected to the sample

Stratum	Premium Paid (Rupees)	Number of Companies in Population	Percentage of sample size to the Population	Number of companies in the Sampled
1	>500,000	29	50	14
2	500,000 - 100,000	40	50	20
3	<100,000	58	50	29
TOTAL		127		63

Data

A questionnaire was developed after consulting officers of the SLECIC, insurance brokerage firms, commercial/exports managers of few selected exporting companies and bankers. Pre-tested questionnaire was used to collect primary data such as export earnings, year in which the company was established and nature of the commodity exported. Secondary data were obtained from the annual reports of the selected companies by using the SLECIC database.

Analysis of Data

Financial factors that influence the purchasing of ECI in Sri Lanka was analysed by using regression analysis technique. Similarly, Hoyt and Khang (1999) have used an ordinary least squares (OLS) regression model to test the firm characteristics that influence the amount of insurance purchased by a firm. Further, Yamori (1999) and Kaltchev (2004) have also used the OLS estimation technique to explain the factors influencing corporate purchasing decision. The model that was developed to determine the factors that influence the purchasing of ECI in Sri Lanka is as follows.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \epsilon$$

Where,

Y = Total premium paid (Rupees)

X₁ = Return of the firm (Net Profit/loss ratio)

X₂ = Account receivable period (Number of days)

- X_3 = Buyer evaluation fees paid (Rupees)
 X_4 = Size of the company (Total value of fixed assets in Rupees)
 X_5 = Probability of bankruptcy of the policyholder (Z- Score value)
 X_6 = Short term solvency (Current ratio of the firm)
 X_7 = Financial leverage of the policyholder (Ratio of debts to equity)
 X_8 = Corporate governance (Dummy variable '0' for private ownership and '1' for public ownership)
 ε = Error term

It was hypothesised that the total premium paid is positively related with the variables account receivable period, buyer evaluation fees, probability of bankruptcy of the policyholder paid and corporate governance. The size of the company, return of the firm, short term solvency and financial leverage of the policyholder are hypothesised to be negatively related to the total premium paid.

RESULTS AND DISCUSSION

Table 2 provides the total product exports and their coverage of ECI from 2000 to 2006. Accordingly, in Sri Lanka, less than 2% of the exports are covered by the ECI scheme. This shows a significantly lower coverage compared to developed countries where they show a coverage of more than 50%. Developing countries such as India and Indonesia also have a greater coverage like 18% and 30% of exports respectively (Bern Union (2005). Although the agricultural exports have increased from 18% to 19% over the period 2000 to 2006, ECI coverage has increased marginally from 0.004% to 0.03% during the same period. The industrial exports have increased from 78% to 81% over the period from 2000 to 2006 but ECI coverage of industrial exports have increased only from 0.0004% to 0.01%. Further, only less than 2% of the small and medium sized exporting companies have purchased ECI during the financial year of 2006.

Table 2. Product exports and ECI coverage.

Year	2000	2001	2002	2003	2004	2005	2006
Total Product Exports (Rs Mn)	407,613	421,465	445,320	483,138	574,551	621,438	562,115
ECI (Rs Mn)	527	1549	1974	2722	5423	8389	9250
ECI as % of Total Exports	0.13	0.37	0.44	0.56	0.94	1.35	1.65

Source: EDB and SLEIC

According to the primary data collected from 63 companies, 30 firms who have obtained ECI are involved in exporting agriculture and fisheries related products and 33 are involved in exporting industrial products. Sixteen firms were involved in tea, 4 in food processing, 4 in plantation crop producing (tea, rubber and coconuts), 3 in export crops producing, one in foodstuff, one in desiccated coconut and one in fish processing belonged to the sample of agribusiness companies. Among the 33 industrial products exporting

policyholders, there were 6 ceramic and porcelain, 6 garments, 8 rubber product and 3 electrical product exporting companies. Ownership structure of these firms revealed that there were 21 public owned companies and 42 private limited companies. Thirteen public owned companies belonged to industrial sector and 26 private limited companies belonged to agribusinesses. This shows that more publicly held industrial companies demand ECI. On the other hand, more privately held agribusiness companies demand ECI. Descriptive statistics for the variables that used in the regression analysis are presented in table 3.

Table 3. Descriptive Statistics (n = 63).

Variable	Mean	Standard Deviation	Maximum	Minimum
Premium (Rs.)	486,631	1,163,572	7,755,891	6,848
Bankruptcy – Z Score	3.11	1.71	6.96	0.42
Financial leverage	0.71	1.69	11.96	-0.65
Return of the firm	1.16	12.36	26.96	-67.52
Corporate size (Rs.)	511,772,788	826,402,670	3,650,134,000	542,000
Short term solvency	1.29	0.82	4.32	0.08
Accounts receivable	102.61	308.17	2479.05	3.96
Buyer evaluation fees	50,874.60	57,147.30	335,400	0

Source: Survey data (2006).

An ordinary least squares (OLS) regression model was used to test the relationship between the amount of ECI purchased by a firm and the financial factors. Correlation matrix and the Variance Inflation Factors (VIF) confirmed that there is no multicollinearity in the specified model. However, the variables, total premium paid and firm size were highly skewed. Goldfield Quant test indicated the presence of heteroscedasticity. Thus, log transformations were done for these two variables. Results of the regression analysis are reported in table 4. The *F*- test results show that the overall model is significant at 0.01 level.

Table 4. Results of the regression analysis

Variable	Coefficient	Std. Error	t-value	p-value
Constant	7.295	1.876	3.889	0.000
Buyer evaluation fees	0.452	0.000	3.899	0.000
Probability of bankruptcy	0.010	0.020	-0.527	0.601
Financial leverage	-0.058	0.114	-0.505	0.616
Return of the firm	-0.004	0.017	-0.220	0.827
Ln Corporate size	0.168	0.098	1.709	0.093
Accounts receivables	0.000	0.001	-0.463	0.645
Corporate governance	0.908	0.440	2.063	0.044
Short term solvency	-0.063	0.138	0.249	0.805
R ² = 0.398		Adj-R ² = 0.309		n= 63
F-value = 4.466		p-value = 0.000		

Y= Ln Total premium paid

Results of the regression analysis show that 40% of the variability in total premium paid is explained by the independent variables as a whole. However, only the variables buyer evaluation fees and corporate governance are significant at 0.05 probability level. The variable *Ln* corporate size was significant only at 0.10 probability level. Analysis shows that total buyer evaluation fees paid by the policyholder leads to increase the ECI purchases. The buyer evaluation fee is an additional fee that is paid to the SLECIC to evaluate a particular buyer. Once the buyer is evaluated, the exporting company can continue to purchase ECI without paying an additional fee. Therefore, companies those who have buyers evaluated tend to get more ECI. This implies that initial payment for buyer evaluation fees has a direct impact on purchasing ECI. Therefore, any reduction in evaluation fees by the SLECIC may encourage exporting companies to evaluate their buyers and it could lead to increase the purchase of the ECI in Sri Lanka. Analysis also shows that corporate governance of the policyholder has a positive relationship with ECI purchases and is consistent with previous research findings. It indicates that publicly held corporations tend to get more ECI than smaller privately held companies. Although the previous research have shown that corporate size has a negative relationship with ECI purchases, this study shows that in terms of Sri Lankan exporting firms, larger firms tend to purchase more ECI than smaller firms. This could be one of the important findings in terms of ECI of Sri Lanka because in reality firms in developing countries are relatively smaller than larger firms in developed countries and hence they tend to be risk averse by purchasing ECI. Further, it also could be due to high volume of exports of the larger firms compared to smaller firms. Although the probability of bankruptcy, financial leverage, firm return and short term solvency had the expected signs they were not statistically significant.

CONCLUSIONS

Analysis of the ECI market in Sri Lanka reveals that Sri Lanka is far behind in terms of providing ECI. Given the turbulent environment, exporters must recognise the need to protect themselves against losses which may occur when a foreign buyer fails to make payments. In this regard, SLECIC could play a significant role in educating exporters, especially the small exporting firms in purchasing ECI. The total buyer evaluation fees that need to be paid will increase when the small exporting companies export to a number of different countries. This will be a crucial issue when the volume of exports becomes small and hence they may be reluctant to purchase ECI. Therefore, SLECIC must recognize the problems of the exporting firms especially the small firms and make necessary steps in decreasing the costs in purchasing ECI. The empirical results of this study shows that financial factors explain a significant percentage of the variability in ECI purchases. Except the corporate size, all other variables had expected relationships with ECI purchases. Although in this study only financial factors that influence the purchase of ECI were addressed further research is needed to identify the impacts of other factors that influence the purchase of ECI.

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