



Determinants of Hedging – A Study on Top Three Indian IT Companies

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Abstract

When there is business, there is risk which cannot be avoided. The risk may be due to unexpected changes in price of products or stock, change in exchange rate or in interest rates or uncertainty in recovery of credit. The corporate entities take decisions with the goal of maximising the shareholders' value and there is risk of fall in the shareholders' value, if the decision goes wrong. The managers, who are entrusted to protect the shareholders' value, need to use strategies to reduce such risk. As a risk management strategy, the hedging can be used in limiting or reducing the probability of loss due to fluctuations in prices of products or materials, interest rate and foreign exchange rates. Derivative contracts are the tools for hedging and thus checking the financial loss. The objective of the study is to examine the determinants of corporate hedging practices in top three Indian IT companies using panel regression model and hypothesis testing. The findings of the study are: there is no relation between value of hedged instruments with size of the company, managerial remuneration and leverage but there is negative relation between foreign currency transaction and value of hedged instruments.

Key words: Risk, Hedging, IT Companies

Introduction

The companies operate in an uncertain environment and there is every chance of adverse outcome of the business decisions. In the information technology era where information is refined and spread at faster rate, whether a company, which is operating in the global market or only in the local market, is exposed to different types of risk. The risk may be due to unexpected changes in price of products or stock, change in exchange rate or in interest rates or uncertainty in recovery of credit. Such risk is a threat to capital or earnings of the company. The corporate entities take decisions with the goal of maximising the shareholders' value and there is risk of fall in the shareholders' value, if the decision goes wrong. The managers, who are entrusted to protect the shareholders' value, need to use strategies to reduce such risk. The managers need to manage the risk to protect from financial loss to the company.

When there is business, there is risk which cannot be avoided. However, to improve the financial performance and position of the companies, the risk is to be managed by the professional managers appointed by the shareholders. As a risk management strategy, the hedging can be used in limiting or reducing the probability of loss due to fluctuations in prices of products or materials, interest rate and foreign exchange rates. Derivative contracts are the tools for hedging and thus checking the financial loss.

1. Literature Review on Determinants of Hedging

Belk & Glaum (1990), reported the results of an empirical study undertaken during 1988 into how UK multinational corporations try to manage their foreign exchange exposures. The paper concludes, with reservations due to the limited nature of the study, that accounting exposure was managed actively by the majority of respondents, that transaction exposure management was seen as the centre piece of their foreign exchange risk management, and that the management of economic exposure was subject to very heterogeneous practices. Further, it was surveyed that MNCs showed a lower degree of centralization than could have been expected on the basis of the relevant literature, and the majority of respondents described their companies as 'totally risk averse'.

Phillips (1995), made a study on derivative practices and its instruments survey and found that derivative usage for both managing financial risk and obtaining funding, while widespread across organizations of different sizes, increases with the size of the organization.

Geczy, *et.al.* (1997), examined the use of currency derivatives in order to differentiate among existing theories of hedging behavior. It was observed that companies with greater growth opportunities and tighter financial constraints are more likely to use currency derivatives. It was also suggested that companies might use derivatives to reduce cash flow variation that might otherwise preclude companies from investing in valuable growth opportunities. Companies with extensive foreign exchange-rate exposure and economies of scale in hedging activities are also more likely to use currency derivatives. It was concluded that the source of foreign exchange-rate exposure is an important factor in the choice among types of currency derivatives.

Howton and Perfect (1998), have examined that derivatives-use patterns for two separate samples of US companies. It was found that interest-rate swaps and currency futures and forwards are also the largest two contract types in dollar value outstanding. This study explains that the derivatives use is directly related to financial distress and external financing costs, tax considerations, and currency-risk exposure, and inversely related to hedging substitutes.

Schrand and Unal (1998), made a study on how hedging works as a means of allocating risks rather than reducing risk. In this study, it was argued that companies are facing a total risk constraint optimally allocate risk by reducing (increasing) exposure to risks providing zero (positive) economic rents. It was found from the study that mutual thrifts which convert to stock institutions reduce interest rate risk through improved balance sheet maturity matching and increased derivatives use at the time of conversion. This interest-rate risk reduction is followed by slower growth in credit risk. Post-conversion, risk management activities are significantly related to growth capacity and management compensation structure attained at conversion.

Haushalter (2000), studied the hedging policies of oil and gas producers between 1992 and 1994. This study shows that the extent of hedging is related to financing costs. In particular, companies with greater financial leverage manage price risks more extensively. This study also shows that the likelihood of hedging is related to economies of scale in hedging costs and to the basis risk associated with hedging instruments. Larger companies and companies whose production is located primarily in regions where prices have a high correlation with the prices on which exchange-traded derivatives are based are more likely to manage risks.

Gadmor (2006), made a study on the use of derivatives by 15 oil producing companies. The objective of this study was to determine whether the release of Statement of Financial Accounting Standard(SFAS) No 133 and 138 by the federal accounting standard Board has affected hedging product choice and strategies of oil producing companies. In addition, this study attempted to evaluate the connection between company characteristics and risk management strategies in order to determine which type of company characteristic plays a role in the oil producing companies risk management decisions. It was found from this study that SFAS 133and 138 does not affect financial disclosure, derivative hedging strategies for oil companies. Liquidity and leverage play a main role in the decision to engage in derivatives but size of company does not influence on engaging in hedging by the sample companies.

Clark, *et.al.* (2006), made a study on the determinants and the value effects of corporate hedging for 227 Hong Kong and Chinese companies listed on the Hong Kong stock exchange. The data has been collected from disclosures in the annual reports; it was found that evidence linking the decision to hedge and the expected costs of financial distress for the overall sample. The results show that are stronger for the HK companies than the Chinese companies, perhaps due to the fact that as a major shareholder in most of the Chinese companies, the State is a guarantor of the debt there is a negative relationship between hedging and State ownership. The other determinants of hedging identified in this paper are foreign currency exposure, reflected in levels of foreign sales and foreign debt, economies of scale in derivative hedging costs, and levels of liquidity. It was concluded that the debt tax benefits of hedging add about 0.88% to the value of HK companies and 0.56% to Chinese companies.

Klimczak (2008), made a study on corporate hedging and its risk management theory by taking evidence from Polish Listed companies. This study aim was to provide a comprehensive empirical assessment of major contemporary corporate hedging theories: financial theory, agency theory, stakeholder theory and new institutional economics. Methodology has been used in this study as Hypotheses regarding determinants of hedging were tested on a sample of 150 companies listed at the Warsaw Stock Exchange. The panel covered a period of five years i.e., 2001-2005. In this study, the tests were organized around theories rather than individual hypotheses. In addition to classic tests, CART analysis has been used to verify hypotheses. However, results of hypotheses tests identified currency exposure, market-to-book value, IT and service sectors, and size as determinants of hedging.

Ameer (2010), conducted a study on the determinants of corporate hedging practices in Malaysia. The objective of this study was to investigate the factors that influence the demand of the derivatives, in particular, foreign exchange and interest rate derivatives in the case of Malaysian listed companies. It was found that there is a significant relationship between the use of derivatives and foreign sales, liquidity, growth of company, managerial ownership and size. Findings of this study suggest that only a few listed Malaysian companies have appropriate understanding of the derivatives instruments to mitigate risks in international business environment. Most Malaysian managers seem to be risk averse and do not understand the upside of taking position in the derivatives markets.

Smistad (2012), made a study on a sample of twelve primarily oil and gas, western Canadian energy companies and their use of financial derivatives to manage commodity price risk. The companies range in size from small to large based on total assets and all twelve companies' documents disclosed their risk strategies and derivative products they used to manage risk. It was found from the study that regardless of size, all companies make use of common commodity price risk strategies using derivatives. The large energy companies are more likely to utilize hedge accounting than their small and mid-sized peers. It was concluded that all companies, except for the largest ones, claim they do not use derivatives to speculate.

Chaudhry *et.al.* (2014), did a study which aim was to examine the determinants of corporate hedging policies and derivative usage in risk management particularly with respect to Pakistan, as the political and economic conditions in Pakistan are highly volatile which intends the corporations to handle and mitigate their risk through channelizing the derivatives. Secondary data of 75 non financial companies listed in Karachi Stock Exchange was collected over the period 2007-2011 – to regress empirically – for achieving the aim of this study. Mann-Whitney U test was used to distinguish the derivative user and non user. Findings of this test characterized users as large size, higher growth opportunities, cash flow volatility, foreign exchange and interest rate exposure. Moreover, this study found that there is a significant relationship between the use of derivatives and foreign purchase, liquidity, growth of company and size. Our findings suggest that derivative users have competitive edge over the non user, as they get economies of scale and proper risk management through using these kinds of derivative instruments.

Jawad *et.al.* (2014), conducted a study on hedge accounting and its role in the protection from and hedging of risks to which businesses are exposed. The objective of this study was that how the use of hedge accounting can help to achieve efficient management of financial risk in businesses. It was found from the

study that the use of hedge derivative instruments can have significant effects on other corporate decisions, such as the level and maturity of debt, dividend policy, holdings of liquid assets, and the extent to which hedging is utilized. Finally, it was concluded that the hedge accounting strategy should be designed to balance the economic effectiveness of the hedge with the cost of the hedge.

The study by Sahoo (2015), through literature review on how corporate risk can be managed through financial derivatives. This study focused on the financial derivatives and its use in corporate risk management and hedging risks from different dimensions in corporate scenario. It was found from the literature that a number of research work have been done in western economies like U.S, U.K, Germany, Australia, New Zealand, Sweden and others, but a very few works has been done in Indian context. Therefore, an attempt has been made in form of a research work by the author to discover the hedging pattern of Indian Inc. by using financial derivatives as a risk management tool along with other aspects like: motivation to use financial derivatives, reason behind not to go for financial derivatives, difference in hedging pattern between public (Govt.) and private companies etc.

Mittal, *et.al* (2015), made a study which is based on the selected Indian Companies, on how to hedge the foreign exchange risk more effectively through the use of derivatives. The objectives of the study were to get insight about forwards as hedging tool, to Study how forward contracts are used for minimizing currency exchange risk in efficient manner, to understand current methods of hedging foreign exchange risk and to study the effectiveness of using derivative tools by selected Indian companies. This study was based on the descriptive study and convenient sampling method has been used on four Indian companies which were selected that too of Information Technology sector only for the analysis purpose. It was concluded from this study after studying the current practices of using derivative contracts of selected Indian companies that majority of Companies that have been presently using forward as their widely used technique for hedging their foreign exchange fluctuation risk. The main reason for the use of forward contract as preferred derivative instrument is it helps to stabilize the total risk that may arise due to swings in the exchange rate of foreign currency. Companies are presently using the hedging derivatives mainly to hedge their risk, in other words companies do not intend to make profit out of such contract but they want to minimize their risk.

Sahoo (2016), did a study on corporate risk management through financial derivatives with the objectives of understanding the determinants influencing the use of the derivatives and the significant difference between users and non-users of financial, derivatives with regard to selected financial indicators. Using the binary logistic regression, it was found by the researcher that size and international transaction ratio are the strong determinants and growth and financial distress are moderate determinants for use of hedging by the sample companies. The important parameters on which the users and non users differ in use of derivative are international transaction ratio, market capitalization and book to market value ratio.

Seng and Thakar (2018), made a study to examine the main determinants of corporate hedging practice in Malaysia. To investigate the determinants of corporate hedging, 50 companies from 4 different economic sectors from year 2010 until 2011 have been chosen for the analysis purpose. The regression analysis has

been performed and found that debt is significantly and positively related to corporate hedging practice. Companies with high debt usage will hedge more in order to reduce their risk. Besides, managerial ownership is significantly and negatively related to corporate hedging practice. This shows that agency theory is not applicable in the context of Malaysian companies. Managers who held more shares in the company will involve in less hedging activities.

The existing literature depicts the major part of empirical studies explore the determinants of hedging by companies in foreign countries and the usage of derivative instruments as hedging. Only few have explored the study for Indian companies is in respect of determinants of hedging. This study however fills the gap by examining the determinants of corporate hedging practice in Indian companies by taking the data of top three Indian IT companies.

2. Objective of the study:

- To explore the determinants of corporate hedging practices in top three Indian IT companies.

To test the objective of this study, the following hypotheses are to be tested:

H1: The company with larger in size has higher value of hedged instruments.

H2: The Company is having high proportion of foreign currency transactions (imports, exports and foreign currency borrowings) has higher value of hedged instruments.

H3: There is positive relation between value of hedged instruments and leverage of the company.

H4: The high managerial remuneration motivates the managers to hedge the risk.

3. Research Methodology

The research is expected to proceed with aforementioned objective. The objective is to examine the determinants of hedging in top three Indian IT companies using panel regression model and hypothesis testing.

4.1. Scope and period of the study

For this study, top three Indian IT companies have been taken as sample companies on the basis of market capitalisation and the study has taken data from the year 2016 to 2019.

4.2. Sources of data

For this research work, the data are to be collected from secondary source. The major sources of secondary data are:

- Annual Reports of the top three Indian IT companies
- Websites of the BSE, NSE
- Money control Data

4.3 Sample Companies and Rationale for Selection:

The rationale for choosing the IT companies for the study is that the top software companies generate revenue from exports and hence the cash inflow from revenue of such companies are affected by the fluctuations in exchange rates. For the study, the top three IT companies which are also generating their major portion of revenue from export of software– Tata Consultancy Services(TCS), Infosys and HCL Technologies (HCLTech) are selected.

4. Analysis:

The three companies - TCS, Infosys and HCLTech, are the top three Indian IT companies. They are the top three companies in export of software also. They are hedging their cash flows using the derivative contracts - forwards and options. The current study focuses on exploring the financial characteristics of the companies which determines the hedging practices by these three sample companies. The corporate attributes studied for association with hedging practice by the sample companies are: size of the company, leverage, foreign currency transactions, expenditure on managerial remuneration. 'Hedge' is the dependent variable which is measured as notional value of cash flow hedge scaled to net sales of the company.

6.1. Hypothesis Development:

Size of Company:

Clark *et.al.*(2006), Ameer(2010), Sahoo(2016), Giraldo-Prieto *et.al.*(2017), Nzioka and Maseki(2017), Seng and Thakar (2018) have found strong positive relation between hedging and size of the company. But the study of Chaudhry *et.al.*(2014) found no relation between size of firm and hedging. Due to such mixed result, the following hypothesis is tested for the current study:

H1: The company with larger in size has higher value of hedged instruments.

The independent variable for hypothesis 1 is 'Size' measured by log of total assets.

Foreign Currency Transactions:

The prior research papers found the positive association between foreign currency transactions of the companies and hedging (Clark *et.al.*(2006), Ameer(2010), Sahoo(2016), Giraldo-Prieto *et.al.*(2017), Nzioka and Maseki(2017), Seng and Thakar (2018)). The association between foreign currency transaction and hedging of the three sample IT companies, whose major sources of revenue is in foreign currency, is studied.

H2: The Company is having high proportion of foreign currency transactions (imports, exports and foreign currency borrowings) has higher value of hedged instruments.

The independent variable for hypothesis 2 is 'Fctr' measured by Exports scaled to sales.

Leverage:

Clark *et.al.*(2006), Ameer(2010), Sahoo(2016), Giraldo-Prieto *et.al.*(2017), Nzioka and Maseki(2017), Seng and Thakar (2018) have found strong positive relation between hedging and leverage. The current study checks whether leverage is associated with hedging for the three IT companies. The hypothesis is:

H3: There is positive relation between value of hedged instruments and leverage of the company.

The independent variable for hypothesis 3 is 'Leverage' measured by total debt to equity.

Managerial Remuneration:

There is mixed result in the prior research work on the association between hedging as managerial compensation. Smith and Stulz(1985) and Ameer(2010) found a positive relationship between managerial remuneration and hedging but Seng and Thakar (2018) found a negative relationship between managerial compensation and hedging.

H4: The high managerial remuneration motivates the managers to hedge the risk.

The independent variable for hypothesis 4 is ‘Mgrrem’ measured by managerial remuneration to sales.

6.2. Results and Discussions:

The data are compiled for the three companies for four years from 2015 – 16 to 2018 – 19 from the annual reports of the companies and websites of stock exchanges. Also the readymade data available on the website of money control, one of the popular site for analysts. The values which are used in the study are shown in Annexure-I. of all the The dependent variable is ‘Hedge’ which is measured in terms of notional value of cash hedge scaled to sales and the independent variables are ‘Size’(log of total assets), ‘Leverage’ (debt to equity), ‘Fctr’(exports to sales) and ‘Mgrrem’ (managerial remuneration to sales). The calculated values of dependent variables and independent variables are shown in Annexure- II.

Regression is run for the panel data of three companies for four years using Gretl software. The panel regression has three models such as pooled OLS Model, fixed effect model and random effect model. The regression is to be with the dependent variable The random effect model is not effective as number of cross sectional and time series data are very few. Between the pooled OLS and fixed effect, the panel diagnostic test suggested for pooled OLS model for the data. The results of the model are shown in table 1.

Table 1: Results of Pooled OLS

Model 1: Pooled OLS, using 12 observations				
Included 3 cross-sectional units				
Time-series length = 4				
Dependent variable: Hedge				
	coefficient	std. error	t-ratio	p-value
Const	1478.60	234.422	6.307	0.0004 ***
Size	-66.9083	56.4599	-1.185	0.2747
Fctr	-1171.30	224.459	-5.218	0.0012 ***
Leverage	-12663.1	7459.11	-1.698	0.1334
Mgrrem	-11808.7	9220.17	-1.281	0.2411
Adjusted R-squared	0.832091			
F(4, 7)	14.62791	P-value(F)	0.001645	

Source: Self compiled

F statistic for the model is 14.63 with p value 0.002 shows the overall fitness of the model which is also evidenced by the high adjusted R-square of 0.832. Among the variables only ‘Fctr’ which foreign currency transactions defined as export to sales explains the dependent variable ‘hedge’. To the contrary of prior studies, the foreign currency transaction has a negative relation with the hedge. The statistical tests fail to accept the explanatory power of other independent variables.

5. Findings:

The findings of the study are:

- There is no relation between size of the company and value of hedged instruments.
- There is negative relation between foreign currency transaction and value of hedged instruments.
- There is no relation between leverage and value of hedged instruments.
- There is no relation between managerial remuneration and value of hedged instruments.

6. Conclusion:

The derivative contracts are used as hedging instruments. These instruments are used to manage the risk. The sample three companies are using foreign currency options and forwards as cash flow hedge. The sales of the companies immediately generate receivable and cash is expected to be generated at a later date. The cash inflow from receivables in Indian rupees may not be same as the revenue recognised in Indian rupees due to the movement in the foreign exchange rate during the time lag in the date of raising invoice and collection against the invoice. The study of the annual reports of these three sample companies reveal that they use foreign exchange derivative contracts – forwards and options to manage the currency risk. From the findings it is concluded that there is negative relation between foreign currency transactions and value of derivative contracts used as hedge.

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