REVIEW ARTICLE

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Factors and Determinants of Derivatives Use – An Indian Perspective

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Abstract

Usage of derivatives have steadily and gradually increased in India by their wide adoption across corporate entities. However, there exist sharp contrast among various segments and sectors. Key factors that are enablers and deterrents of selection and application of such instruments by the business organizations have been assessed in the present paper. Essentially a handful of research publications are used as secondary resources to deal with the topic. Besides some common paper, research works across non-financial segment, IT sector and multiple sectors have been duly reviewed. It is found that usage of derivatives have some critical features in Indian context as against the developed economies. Generally the common risk factors associated with business organization force them to adopt a risk management policy framework, whereas decisions reading derivatives are linked with firms capacity, level of perception, financial performance level usually measured by key ratios, international transactions and currency rate fluctuations, market linked factors ad interest rate, volatility in earnings & cash flows are transaction costs identified to be the primary concerns. Tax burden and policy level issues and regulation are also found to be critical in specific cases. Many such factors are having varied impact across sectors and industries.

Keywords: Derivatives, hedging, liquidity, profitability, innovative, volatility, cash flow, currency risk, inflation risk, interest rate risk, currency rate, firm size, sales growth , perception, ambiguous, options, swaps, forwards , futures, P/E ratio, cross border trading.

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Introduction

Derivatives have emerged as a tool for management of risk faced by business organizations. Increasing number firms are using derivative products to counter the risks of fluctuations in prices of raw materials, exchange rate between currencies, interest rates, etc. Continuous development and innovations over the years of a variety of derivative products is a testimony of this trend. Besides working as a mechanism of price discovery, derivatives are used as hedging instrument. In fact with reference to use of derivatives in risk management, the basic strategy is hedging, wherein the firm holds or creates two simultaneous positions of almost equal values, one in the underlying market and other in the derivative market. The loss in one market is offset by the profit in another market, thereby preventing fully or reducing the losses due to price change.

Indian derivative market has been steadily growing since past and have recorded phenomenal growth. It is imperative to learn what drives the growth – this learning is required to gain insight for all stakeholders, including the corporates, investors, speculators, traders, regulators and others associated with risk management and innovative financial instruments. Available literature and text not only specify the determinants and factors that determines the adoption of derivative instruments and their applications for risk mitigations, but also implies the trend in the market, challenges faced by the key stakeholders and opportunities exist or lies ahead. This papers reviews mainly the key factors influencing the selection & application of derivatives as risk mitigation instruments.

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Objective and Methodology

The objectives of the study are:

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- To identify the major trends and their background of Indian derivative market
- To review the critical factors leading to the decision pertaining to selection of derivative instruments
- To ascertain the major determinants ascertaining the selection and application of derivative instruments
- To identify the challenges faced by the corporate sector while deciding on derivatives use
- To seek opportunities for adopting new & innovative derivatives as risk management instrument

The present work is purely based on secondary literature. The contents available on factors and determinants of derivative use has been explored and analyzed. No primary data collection was carried out. The major issues related to the topic was to deal with the followings:

- What are the trends in the Indian derivatives market ?
- What are the major factors and determinants that are leading to the decision on derivative use?
- How corporate sector relate their financial risk management and derivative instruments?
- What types of risks and exposures are faced and how risk management strategies are adopted and which risks are prioritized?
- What are the reasons for not adopting derivatives by corporate sector in India I specific cases?
- What are the major challenges faced and opportunities lying ahead for corporate sector?

In the following section a review of available online publications and literature reviews has been analyzed and consolidated along-with discussions in line with the selected issues and objectives of the paper.

Literature Reviews

Vineet Prabha, serving as Asst. Professor, of the Graphic Era Hill University, has authored a study on "Indian Derivative Market – Global Perspective" where the he has presented useful insight on the expansion of derivatives as an innovative risk management instrument across the globe. According to this study, integration of global financial market with domestic markets , increasing price fluctuations in the commodity & equity marketplace and breakthrough & innovations in financial risk management have led to the expansion of financial derivatives worldwide by its gradual adoption by corporate entities operating within national boundaries and beyond. Although adoption of derivatives are linked with purchase & transaction costs, such instruments are leading to value creations and gains for the organizations over and above such costs. This is also essentially viewed by Alan Greenspan, the CEO of Federal Reserve.

Another study titled "Emerging Trends in Indian Derivative Market" authored by Greeshma Francis, confirms that growth of Indian derivative market has surpassed the growth rate of global derivative market in the recent past owing to widespread adoption of innovative and sophisticated risk management tools or innovative derivatives across the globally operated business organizations. Furthermore, commodity price fluctuations & volatility of financial assets, in the marketplaces and advanced options with derivatives to mitigate such risks are also driving forces and contributing significantly through price discovery & other means for the acceleration of Indian derivative market and associated contribution on the national economy as a whole.

In their paper "Emerging Trends in the Indian Derivatives Market, Challenges and Future Prospects", author & co-author, Neha Shekhawat and Randeep Singh (MBA Scholar & Faculty of Management, Bhagwant University Ajmer, Rajasthan) have cited important factors driving the adoption of derivatives – (a) volatility in financial markets (b) global access of the national financial markets (c) marked improvement in cheaper communication facilities. Derivatives have earned repute as innovative financial instruments in Indian financial market and also growing significantly.

Tejaswini N. (2019) in a study on "History of Derivative Market & Its Current Scenario in India" illustrated the core services that are utilized by investors. These services include risk management strategies through risk control & avoidance, risk shifting & managing though hedging, arbitraging & spreading techniques, price discoveries, ensuring better allocation of resources in the economy by providing liquidity and reducing transaction costs and enabling price stabilization functions specially in the cash markets for underlying assets linked with derivatives. Many such issues and attributes are also taken into consideration for taking hedging decision by corporates.

Anuradha Sivakumar and Runa Sarkar, in their paper "Corporate Hedging for Foreign Exchange Risk in India" dealt with the determinants of hedging decisions. The authors affirmed that besides production & sales, strategic decisions on financial risk management and selection of appropriate tools are simultaneously but independently carried out as a financing decision by the multinational companies. According to this work, there is conclusive evidence that affirms that firms with larger size, R&D exposure linked with international trading are

more prone to select & adopt derivatives for hedging associated risks. The authors also identified critical factors that have bearing with the use of innovative risk mitigation tools and four such factors are specified as the firm size, leverage, liquidity & profitability and sales growth.

Anupam Mitra, Associate Professor, SIBM, (2013) published "A Comparative Analysis of Foreign Exchange Risk Management Practices among Non-Banking Companies in India". This publication revealed that most of the organizations covered under the research were duly concerned about exchange rate fluctuations and hedging the risk is an obligation rather than an option. Restricting volatility in cash flows was a priority in the corporate risk management policy and derivatives had been chosen as the appropriate instruments. Main concerns in foreign exchange risk management, as depicted in the research work in primary responses, are placed in the order – of their proportions - difficulty in quantifying exposure (43%), derivative pricing, valuing & accounting (24%), transaction cost (19%) & tax compliance related issues (14%). An overwhelming majority of respondents were not confident about application of innovative risk management instruments and their eventual benefits and also they had perceived their treasury function as a cost center only.

Another research publication by Abhimanyu Sahoo and Seshadev Sahoo (2020) , "What Drives Derivatives: An Indian Perspective" focused on the financial indicators of the firms on derivative use and identified the contrasts emerged between the adoption and non-adoption of derivatives by users mainly owning to the financial indicators making such differences. Financial strength of the organizations are mainly determined by their capital structure and leverage , liquidity positions and capacity level for revenue generation and thereby creating values. The market linked indicators are mainly justified by P/E ration and market to book value ratio, whereas revenue & capacity and leverage are associated with total assets, turnover ratio and interest coverage. A financially strong organization is able to adopt risk mitigation policy & strategy through use of sophisticated derivative instruments.

A total sample of 433 firms listed in National Stock Exchange was covered under the above-mentioned study. The study spanned across a five year year period – 2013-2018. The study revealed sharp contradiction in the features of derivative use across diverse economies - Indian and western economy. Financially distressed condition of a firm is found to be major reason to use derivatives for mitigating such condition in western economies. On the contrary in a developing country like India, only financially strong companies are able to afford and thereby use derivatives as risk management tools. A highly levered firm with a higher debt to equity ratio that is the firms using higher proportion of debts in their capital structure limit their adoption and application of derivatives whereas theoretically such firms are more likely to use financial risk management having higher debt that need stable revenue generation to pay out their debt obligation. A logistic regression analysis revealed that in Indian context highly levered firms are less prone to use derivatives and condense the application of innovative tolls as a part of their risk management strategy.

A research paper "The determinants of Currency hedging in Indian IT firms" authored by Mr Raghavendra R.H and Prof Dr.Velmurugan of Pondicherry University, examined the major determinants of derivative use Indian IT firms. The study encompassed three years spanning across 2011 through 2013. Authors depicted that theoretically hedging decisions are associated with cost of financial backwardness, underinvestment, taxation, liquidity, quantum of revenue generation & capacity of the firm and alternative approaches of risk management. The vital determinant of the derivative choices and their applications by IT firms are essentially firm size (Total assets) and underinvestment (PE ratio) and this implied that only larger companies are able to adopt and afford derivatives. On the other side, neither financial distress and underinvestment hypothesis, nor taxation and liquidity and rationale for alternate methods of hedging could provide any rationale for IT firms choice and application of derivatives instruments.

Y.Padmavati & Dr. D.N.Mishra in their work "Determinants of Hedging – A Study on Top Three Indian IT Companies" revealed relevant findings in the present context. Using panel regression model and hypothesis testing the examined the underlying reasons and factors leading to particular corporate hedging practices in top three Indian IT companies - Tata Consultancy Services(TCS), Infosys and HCL Technologies (HCLTech). 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. For the study, the top three IT companies which are also generating their major portion of revenue from export of software are selected. The derivative contracts are used as hedging instruments. 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.

Discussions

Indian Derivative Market - Trend Analysis

It is evident from the published information from various sources that Indian derivative market is growing by leaps and bounds. This has been possible mainly due to globalization of Indian financial market and integration of the market with developed economies, innovations in the financial instruments available for risk management, corporate decisions to upgrade their risk management practices and the like. The contribution of derivatives market on the national economy is assessed to be beneficial due to the inherent characteristics of the derivatives in price discovery & stabilization of financial assets, increased volume of trading due to participation in risk management, larger investors base creation and thereby additional savings and investments. Furthermore value creation for the organization , revenue generation and protection of losses by the user corporates are also creating and enabling environment for derivative market. However, based on actual need and capability of the firms to handle such sophisticated instruments there is some variations across industries when it comes to hedging and risk mitigation using derivatives.

A number of determinants and critical factors have driven the growth in the adoption off derivatives, especially by the corporate sector. Critical financial indicators and their co-relation with the quantum of derivatives used for hedging purposes are also observed by various authors across sectors like IT & allied sectors, multiple sectors taken together with or without banking companies. Indian and non-Indian MNCs are also included or excluded in the samples of various studies.

Types of Risks and Derivatives as a Risk Management Tool

Corporates are faced with specific risk factors like – market risks, interest rate risks, inflation risks, business risks financial risks and currency risks for the companies operating across the border. Each business organization has to deal with multiple risks in a combination of such risks and such risk factors vary across the companies. Depending on the nature and size of the transactions and their risk exposure, a firm can decide to use forwards, futures, options and swaps and other derivative instruments to deal with risk. Ideally, the management takes a conscious decision to manage all or a given portion of risk exposure by focusing on risk-return profile while using such instruments. Market environments and predictions over earnings & cash flows are essential components of such evaluations and should be consistent with the risk management policy & procedures.

Major Determinants and Concerns for Derivatives Use

Reasons for derivative use and concerns of the corporate sector for selection and adoption of such instruments are assessed in the following, mainly across non-banking & IT specific sectors.

Non-Banking Sector

Restricting volatility in cash flows was a priority in the corporate risk management policy and derivatives had been chosen as the appropriate instruments. Main concerns in foreign exchange risk management, as depicted in the research work in primary responses, are placed in the order – of their proportions - difficulty in quantifying exposure (43%), derivative pricing, valuing & accounting (24%), transaction cost (19%) & tax compliance related issues (14%).

IT Sector

The vital determinant of the derivative choices and their applications by IT firms are essentially firm size (total assets) and underinvestment (PE ratio) and this implied that only larger companies are able to adopt and afford derivatives. On the other side, neither financial distress and underinvestment hypothesis, nor taxation and liquidity are proportionately linked with derivatives use.

The determinants of corporate hedging practices in top three Indian IT companies (TCS, Infosys & HCL Tech) reflected that 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.

Multiple Sector

All types of firms taken together across multiple, it is revealed that adoption and non-adoption of derivatives by users are primarily the financial indicators making such differences. Such indicators are associated capital

structure and leverage (debt-to-equity), liquidity positions and capacity level of the firms measured by revenue generation and thereby creating values. The market linked indicators are equally critical and mainly justified by P/E ratio and market to book value ratio, whereas revenue generation & capacity level are essentially linked with total assets, turnover ratio and interest coverage. Financial strength of the company is a major enabler of derivatives due to their capacity and affordability. A highly levered firm with a higher debt to equity ratio that is the firms using higher proportion of debts in their capital structure limit their adoption and application of derivatives in Indian context which is contrasting when compared with use of derivatives in western worlds and developed economies.

Factors Affecting Derivatives Adoption by Corporates

To conclude about the major factors in this paper the findings and assessments described are summarized herewith.

Major factors that are driving the growth of the derivatives usage across corporate entities are –risk factors including currency rate fluctuations, market price volatility and common risk factors business are faced with. Many researches have put effort to identify the correlation of use of such instruments with financial ratios related with investments, revenue generation, liquidity and leverage positions of the business organizations and their market linked price related indicators.

Important factors driving the growth of derivatives are found from one published article– (a) volatility in financial asset prices (b) globalization of financial markets and (c) marked improvement in cheaper communication facilities.

Firms with larger size, R&D expenditure and exposure to exchange rates through foreign sales and foreign trade are more likely to use derivatives. The authors also described the four factors that have baring with the use of derivatives as hedging instruments – the firm size, leverage, liquidity & profitability and sales growth.

Financial characteristics determined by capital structure (debt–equity ratio), firm size (total asset, total turnover), capacity & affordability (revenue generations, interest coverage ratio), cross-border trading (exposure to foreign currency cash flow) and market-related characteristics such as P/E ratio, market value to book value ratio, were marked as the key financial ratios and indicators that influence the usage and application of derivative instruments.

Indian IT firms, especially the branded and big size entities, are comparatively more prone to international transactions and capacity and affordability of such Indian IT firms enable them to use derivatives. Thus, exposure to international trade is a major reason associated with firms' ability. Across non-banking sector restricting volatility in cash flows and protection of financial loss is a major concern. Difficulty in predicting exposure is a difficult proposition besides, derivative pricing & valuing, accounting treatments of derivatives, transaction & tax related cost and complications are major deterrents for derivative adoption. All types of companies taken together across multiple sectors the adoption and non-adoption of derivatives are mainly linked with financial performance of the firms – key indicators associated with the capacity & affordability, liquidity position, leverage and market related ratios are found to be critical.

Challenges & Opportunities

Some corporate entities and other stakeholders are still not fully aware or confident regarding use of derivatives. Policy level issues & their implications, confused perception is found to be the major deterrents. In case of firms having smaller size and low growth potential the cost factor may be a hindrance. A segment of the corporate entities may not be able to decide on derivatives despite having adequate knowledge, owing to its ambiguous perception on actual outcome – little or no benefits predicted out of use of derivatives.

A systematic approach on risk management and potential of revenue generation and value creation for the company may be useful. Innovations and combinations of newer types of derivatives may be helpful for many organizations even if they are operating at a relatively smaller economy of scale or having smaller size. It is all about a strategic decision to adopt a strong risk management policy & procedures and place derivatives in such framework with all logical considerations. Financially backward and even smaller organizations should be sensitized and supported for the use of derivatives so that they become confident about the benefits of using such instruments. The ongoing role of regulators is praiseworthy and should be continued to further support to resolve all complications in the holistic development of the financial derivative segment.

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