Determinants of Financial Derivative Disclosures in an Emerging Economy: A Stewardship Theory Perspective

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Abstract

The accounting system in India is undergoing a significant change. With the notification of Companies (Indian Accounting Standards) Rules 2015, the Ministry of Corporate Affairs in India converged the Indian Accounting Standards (Ind AS) with International Financial Reporting Standards (IFRS) which was applied in a phased manner from 1 April 2016 beginning with large companies whose net worth was equal to or exceeded INR 5 billion, followed by its implementation for smaller companies with net worth between 2.5 billion to 5 billion thereafter. Among other accounting standards, Financial Instruments Standards Ind AS 32, 109 and 107 that defines, recognises, measures and specifies disclosure norms of financial instruments including financial derivatives were introduced. Warren Buffet very famously called derivatives, "financial weapons of mass destruction," and giving credence to his views, time and again, financial as well as non-financial firms in India and around the world have sustained losses due to the usage of financial derivatives. Over the years, the capital markets have changed, and business models have become more challenging with complex sources of risk and uncertainty which has transformed risk management into a sophisticated art. This complex and ever-changing business environment has brought to the fore the necessity and importance of developing reliable and relevant disclosure norms to help protect all stakeholders, as derivatives, due to their underlying complex nature, can be a significant source of systematic risk. This is also reiterated, with shareholders and investors stepping up the demand for increased financial disclosure. This empirical study models the factors that determine Financial Derivative Disclosure of Indian non-financial firms The study develops a self-constructed unweighted Financial Derivative Disclosure Index (FDDI) to measure the derivative disclosure. The sample represents companies from Nifty 50, out of which banking and financial services companies were removed. Using multiple regression model, this study modelled the corporate governance factors which determine derivative disclosure. The factors identified were presence of usage of derivatives,

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size, foreign income, presence of risk management committee, institutional shareholding and binary variable for family business. The results show that the stewardship theory explains the determinants of financial derivative disclosure in Indian context, and promoters act as stewards and guide their firms to improve their financial derivative disclosures.

JEL Classification: G32

Keywords: Accounting Standards 32, 109 & 107, Financial Derivative Disclosure Index (FDDI), Financial Derivative Disclosure Quotient (FDDQ), derivative usage, Nifty 50.

Introduction

According to the former Governor of Federal Reserve Greenspan (1999), the stupendous increase in the usage of financial derivatives by firms, world over, has marked the most extraordinary development in the field of finance. Although firms use derivatives in most of the industries, their usage may be different. For example, non-financial firms in India, as in the rest of the world, hedge themselves against any one or more of the following market risks: adverse movements in interest rates, commodity prices, foreign exchange rates and equity values. On the other hand, banking and financial firms may use derivatives both as dealers and end-users. With the well-publicized losses from derivatives sustained by both financial and non-financial firms in the past, financial boards across the world have come under the pressure of regulators to create new rules for reliable and relevant disclosures. Moreover, shareholders and investors have also demanded increased financial disclosure. With the increasing sophistication of financial products and services and increased use of derivatives for risk mitigation and trading in India, Accounting Standards (AS) 30, 31 and 32 came into effect on or after 1st April 2009. The standards were recommendationsonly for two years and were supposed to be mandatory for accounting periods commencing on or after April 1, 2011, although by 2015, AS 30 and 31 were replace by Ind AS 109 and 107. In the aftermath of the global financial crisis and significant losses on derivatives transactions announced by Indian companies in the past, a study on the disclosure of derivative usage and its determinants is especially significant.

LITERATURE REVIEW

Annual reports are an important source of information about the derivative activities by any firm. Several users like investors, shareholders, lenders, and analysts of financial statements can use derivative disclosures to understand derivatives activities better and hence take correct decisions. Academics, accountants and analysts have long debated over how to show complex financial instruments like derivatives in the financial statements. Disclosure failure can misrepresent the risk taken by these firms and expose unaware shareholders and investors to huge losses. This phenomenon has been observed in many firms including Proctor & Gamble and Barings Bank. The fact that organizations can display unethical behaviour can be seen by financial scandals of well-known firms like Enron, Arthur Anderson, WorldCom and that of Satyam, in India. These scandals have shaken public confidence in how businesses are managed, creating concern about ethics and corporate governance. With the well-publicized derivative losses sustained by both financial and non-financial firms over the past few years, financial boards across the world have come under the pressure of regulators to create new rules for reliable and relevant disclosures. Additionally, shareholders and investors have demanded increased financial disclosure (Feay &Abdullah, 2001). From another view point, understanding the reason for voluntary disclosure

by firms is beneficial to both the preparers and users of accounting information as well as to accounting policymakers (Meek, Gray & Roberts, 1995).

To contribute towards better disclosures and transparency, several countries have come up with accounting standards for derivatives. The Financial Accounting Standards Board (FASB) of the United States has issued FASB 133 and 137 and FAS 161, Australia has issued AASB 1033. In addition, FRS 13 in United Kingdom, CICA 3862 in Canada, IAS 32 and 39 in Portugal and MASB ED 24 in Malaysia have been issued to improve the corporate reporting standards in derivatives and hedging instruments.

Studies on Derivative Disclosure

Complete compliance to disclosure norms is not a world-wide phenomenon. Several studies show that compliance to derivative disclosure norms is incomplete (Chalmers, 2001; Chalmers & Godfrey, 2000; Blankley et at, 2000; Roulsone, 1999; Hafiz, 2003). Among different nations, it was found that disclosures in British and American firms are higher after examining the disclosure of seven countries namely, United States, United Kingdom, France, Japan, Sweden, Netherlands and West Germany (Barrett, 1976),

However, with the implementation of mandatory standards on financial instruments, there had been a marked improvement in the derivative disclosures (Edward & Eller, 1995, 1996; Dunne, Helliar, Power, Mallin, Ow-Yong and Moir, 2004; Woods and Marginson, 2004; and Hassan, Saleh & Rahman, 2007). The usefulness of the compulsory accounting and reporting practice for derivatives has attracted considerable academic attention since they were issued.

In the accounting literature, the studies in relation to the assessment of derivative disclosures have developed into two branches. Firstly, some studies (Edwards and Eller, 1996; Roulstone, 1999; Blankley et al., 2000, 2002; Bhamornsiri & Schroeder, 2004; Lajili & Zehgal, 2005; Dunne et al., 2007; Lopes & Rodrigues, 2008) have examined the quality of derivative disclosures by evaluating the response of listed companies to the mandated disclosure requirements for derivatives. These researchers intend to find out the answers about whether the mandated derivative disclosure provisions actually achieve the expectation of accounting authorities, by demanding the listed companies to provide more information regarding derivative related activities in their annual reports. Generally speaking, these studies indicate that the quoted companies are able to prepare both qualitative and quantitative information about the derivative usage and associated market risk in accordance with the basic accounting and reporting rules in their annual reports. Nevertheless, they are unwilling to provide sufficient detailed information such as the assumptions of quantitative techniques and corporate risk management activities. Hence, it can be argued that although the implementation of the compulsory disclosure requirements improves the reported information about use of derivatives, the supervisory authorities still have a task to inspire the reporting companies to disclose more information with greater details.

Another strand of studies focuses on the effect of information disclosure on the behaviour of financial market aggregates such as stock price, stock returns and trading volume. These researches (McNally/McAnally, 1996; Nelson, 1996; Barth et al., 1996; Schrand, 997; Rajgopla,

1999; Eccher et al., 1996; Venkatachalam, 1996; Barton, 2001; Seow and Tam, 2002; Jorion, 2002; Liensmeir et al, 2002; Jorion, 2002; Linsmeir et al., 2002; Ahmed et al., 2004; Liu et al., 2004; Eric et al., 2004; Wang et al., 2005; Koonce et al., 2005; Reynolds-Moehrle, 2005; Richie et al, 2005; Chipalkatti and Datar, 2006; Ahmed et al, 2006; Zhang, 2009; Ameer, 2009; and Perignon & Smith, 2010) attempt to explain empirically observed phenomena in the association between the derivative related disclosures and market responses. Overall, the findings of these studies are mixed even contrary. Some researchers (McAnally, 1996; Barth et al., 1996; Eccher et al., 1996; Venkatachalam, 1996; Schrand, 1997; Rajgopal, 1999; Seow and Tam, 2002; Jorion, 2002; Linsmeier et al., 2002; Ahmed et al., 2004; Lin et al., 2004; Eric et al., 2004; Wang et al., 2005; Ahmed et al., 2005; Ameer, 2009; Zhang, 2009) provide the empirical evidence to prove the value relevance of compulsory derivative accounting and reporting regulations to investors' assessment of the corporate risk profile while some empirical studies (Nelson, 1996; Wang et al., 2005; Chipalkatti & Datar, 2006; Perignon and Smith, 2010) demonstrate that there is no relationship between the disclosed derivative information and the market response. Some (Lehn, 1997; AICPA, 1998; Hodder et al., 2001; Kawaller, 2004; Reinstein & Lander, 2000) argue that the complicated accounting and reporting treatments for derivatives have caused difficulties for investors in valuating corporate derivative activities, and even a few studies (Logan & Montgomery, 1997; Koonce et al., 2005) indicate that the disclosures following the mandated derivative related requirements have been misunderstood and adversely affected investors' assessments in a company's risk profile and associated derivative activities. In addition, the restrictive and complex derivative related standards, such as SFAS 133, have made the reporting entities hard to understand and caused a series of significant problems in the use of derivatives and smooth earnings volatility (Osterland, 2000; AFP, 2001; Barton, 2001; Leib, 2001; Richie et al., 2005). Such mixed and contrary results are coincident with the findings achieved by the first stream that the compliance with derivative related standards is mixed and the standard has not adequately achieved the desired level of financial transparency on the use of derivative financial instruments as expected (Bhamornsiri & Schroeder, 2004).

Further, there are some studies that have examined the relationship between the extent of derivative disclosure and certain firm-specific variables. Studies have shown positive and significant association between derivative disclosure and size (Mapurunga, Ponte, Coelho & de Meneses, 2011; Lopes & Rodrigues, 2007; Hassan, Percy & Goodwin-Stewart, 2006-2007, Hassan, Salah & Rahman, 2007 and Hafiz, 2003); type of auditor (Lopes & Rodrigues, 2007); earnings (Mapurunga, Ponte, Coelho & de Meneses, 2011; Hassan, Percy & Goodwin-Stewart, 2006-2007); board characteristics like existence of risk management committee and more independent board composition (Hassan, Salah & Rahman, 2007; Hossain, 2008); listing status (Lopes & Rodrigues, 2007); reputation costs of managers and firms (Chalmers and Godfrey, 2004); debt ratio (Hassan, Percy & Goodwin-Stewart, 2006-2007; Hassan, Salah & Rahman, 2007); and economic sector (Hossain, 2008).

Determinants of Derivative Disclosure - A Stewardship Theory Framework

Role of a Promoter

Stewardship Theory is a relatively new concept (Karns, 2011) and has been developed to explain the rational behaviour of management (Donaldson & Davis, 1991). According to Hernandez (2012) and Davis et al. (1997), stewardship is the "extent to which an individual willingly subjugates his or her personal interests to act in protection of others' long-term welfare." This theory holds that there is no conflict of interest between managers and owners (Donaldson, 1990), no inherent problem of executive control (Donaldson, 2008) and there is effective coordination between the two parties and the focus is on achieving organisation's goals rather that self-interests (Van Slyke, 2007).

India is a very unique country in its structure of business. In most of the organisations, the promoter or the promoter group is the main decision taker. This is because the financial organisations in India are very passive and do not play any major role in decision taking (Verma, 1997). By this virtue, the promoter and the promoter group become the dominant shareholders and the rest the minority shareholders. The principal-agent problems are virtually non-existent in India and conflicts of interest between the owners and managers are not likely, as the owners are in the helm of their businesses, hiring managers to perform key tasks in their businesses (Ahmed & Nicholls, 1994), showing less difference between those who own and those who manage. They are the Owner-Managers, performing the dual role of also managing their businesses and are the stewards of their businesses. Therefore, theory of stewardship fits well in the Indian context. It is hypothesized that in an emerging economy, owner-managers of large organizations guide their business for higher productivity (Durand and Vargas, 2003), higher performance (Anderson et al., 2003; Anderson & Reeb, 2003; Villalonga & Amit, 2006) and better regulatory compliance in some areas (Chen, Chen & Cheng, 2008). However, Ali, Chen and Radhakrishnan (2007) report that family firms have fewer disclosures about corporate governance practices.

Since the sample of the study contains very large organizations in India, it is the duty of the Owner-Manager or the promoter group to have better adherence to regulations and have better disclosures to have better reputation in the financial markets (Skinner, 1994). Therefore, firms with higher promoter or promoter group holding will have higher derivative disclosures.

Presence of Institutional Holding

The role of institutional investors has become more active since the global financial crises and other controversies like tax avoidance and scarcity of fossil fuels. Several studies have identified the role of investors as stewards who hold the companies, in which they hold a stake, responsible and accountable (Kay, 2012; Myners 2001; Financial Reporting Council, 2012).

The literature review on the role of institutional investors is divided into areas concerning their role and behaviour. Several studies have focused on the "monitoring" aspects of institutional investors by engaging with the management to achieve the organizational objectives (Shleifer & Vishny 1986, 1997; Dobrzynski 1993 and Monks & Minow 1995;) which have helped

organisations to improve operating performance and profitability (Dimson, Karakas, & Li, 2015) leading to increase in shareholder value (Becht, Franks, Mayer, & Rossi, 2010).

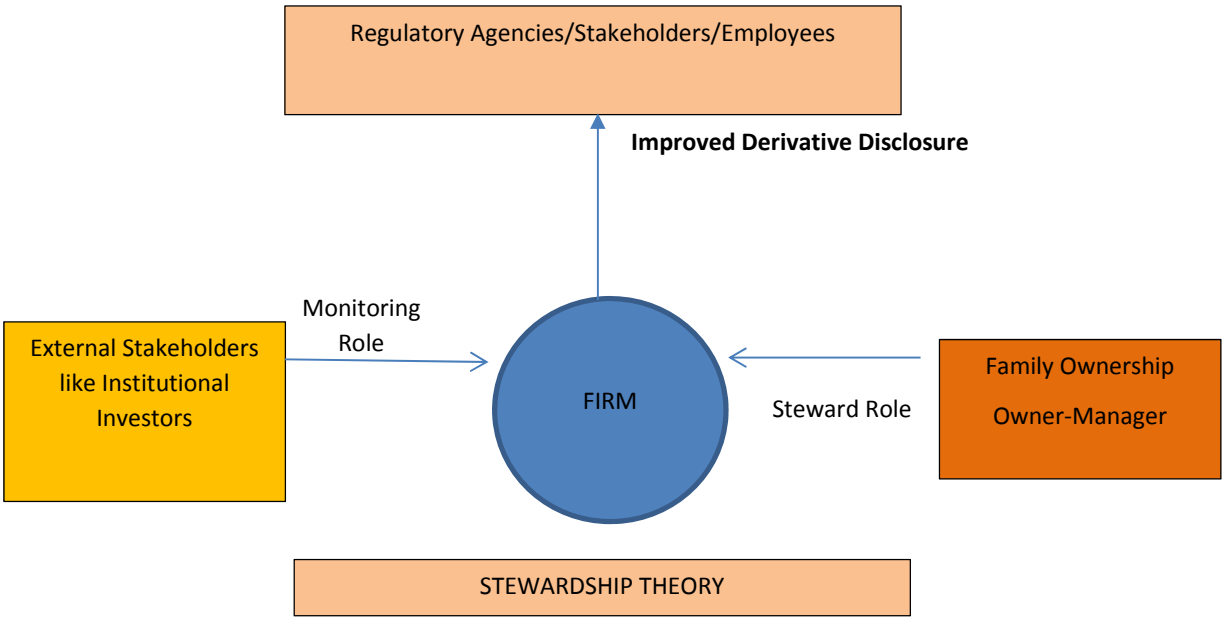

Figure 1: Theoretical Framework explaining the Determinants of Financial Derivative Disclosure

Research Gap

Overall, the prior researches in relation to the impacts of compulsory derivative related accounting and reporting requirements were mostly based upon the sample from developed countries with mature financial derivative markets. In particular, most of the studies on risk management and disclosures have been directed to the U.S. setting with an emphasis on financial risk disclosures. However, till now, very limited studies have been conducted so as to specifically address accounting and reporting for derivatives in India.

In India, corporate disclosure studies have been conducted in several areas like voluntary disclosures in non-financial firms (Charumathi & Ramesh, 2013; Sarkar, 2011; and Varghese, 2012), banks (Hossain and Reaz, 2007), insurance companies (Charumathi & Nithya, 2012), environmental disclosures (Joshi, Suwaidan and Kumar, 2011); and Sen, Mukherjee and Pattnayak, 2011, disclosure of intangibles (Ragini, 2012), intellectual capital disclosures (Bhasin, 2011) and Singh and Kansal, 2011, online and website reporting disclosures (Charumathi & Surulivel, 2010; and Garg and Divya, 2013), EVA disclosures (Kaur and Narang, 2010) and corporate governance disclosure studies (Balasubramaniam, Black and Khanna, 2008; Bhanumurthy and Dessai, 2010; Bhasin, 2010; Charumathi, 2008 and Charumathi, 2010).

Apart from general disclosure studies, several researchers have also studied the attributes of disclosure like timeliness of financial reporting (Charumathi and Murlikrishnan, 2011); effectiveness of disclosures (Charumathi and Surulivel, 2009); comprehensiveness of corporate

disclosures (Bhayani, 2012; and Nandi and Ghosh, 2012) and extent of disclosure (Hossain, 2008).

On the basis of the literature review done, there seems to be no study on the determinants of disclosure of derivatives by non-financial Indian firms. Hence, the present study intends to fill this gap

OBJECTIVE OF THE STUDY

The objective of the study is to develop an original index viz., Financial Derivative Disclosure Index (FDDI) to empirically measure the disclosure level and model its corporate governance determinants.

RESEARCH METHODOLOGY

Sample: The sample taken for studying the derivative disclosure is 50 companies of CNX Nifty. CNX Nifty is a well-diversified 50 stock index accounting for 22 sectors of the economy. The stocks that make the NIFTY index represent the prime companies in India and they are leaders in the stock exchange in terms of the derivative trading volume and the market capitalization. CNX Nifty stocks represent about 67.2% of the total free float market capitalization of the universe of the stocks traded on NSE as on September 28, 2012 and is a true reflection of the Indian stock market. NSE is India's largest and world's third largest stock exchange in terms of transactions. Out of 50 companies chosen as sample, 11 firms are in banking or financial services sector and were removed from the sample. The total of 36 firms was finally studied.

Sources of Data Collection: The study primarily used secondary data. Various secondary resources include annual reports, National Stock Exchange's official website www.nseindia.com, websites of individual firms, Confederation of Indian Industries (CII) library, databases like Centre for Monitoring Indian Economy (CMIE) Prowess and Business Beacon, annual report library services like Sansco Services. In addition, Accounting Standards (AS) 32, 109 and 107 were studied extensively. A number of research papers, working papers and financial dailies were also referred to.

Variables of the Study

Variables for Constructing Financial Derivative Disclosure Index (FDDI)
Table 1 shows the variables of the Financial Derivative Disclosure Index (FDDI).

Table 1 **Variables for constructing Financial Derivative Disclosure Index (FDDI)**	
1.	Risk Management Objective
2.	Recognition of the type of hedge
3.	Separate disclosure for each type of hedge (cash flow/fair value/hedges of net investment in foreign operations)
4.	Disclosure regarding the future expectation of cash flows and hedge reserve account
5.	Disclosure regarding gains/losses and ineffectiveness
6.	Qualitative Disclosures
7.	Quantitative Disclosures
8	Valuation

Variables for Studying the Determinants of Financial Derivative Disclosure

Table 2 shows the variables for studying the determinants of financial derivative disclosure.

Table 2 **Variables for Studying the Determinants of Derivative Disclosure**				
	Purpose/Category	**Variable**	**Definition**	
DEPENDENT VARIABLE	To measure the disclosure of derivative activity by a firm	Financial Derivative Disclosure Quotient FDDQ	It is the ratio of the actual score based on the FDDI and the most optimum score.	
INDEPENDENT VARIABLES	Derivative Usage	DER	Log of the notional value of total derivatives (including interest rate and foreign exchange derivatives) used by a firm	
	Size of the firm	SIZE	Log of the size of the firm	
	Multinationality	FXINC	Ratio of the foreign exchange earnings to total income	
	Percentage of Institutional Holding	INSTI	The percentage of the institutional holding in the firm.	Stewardship Theory
	Risk Management		Binary variable that takes	Stewardship Theory

	Committee	RMC	the value of 1 if risk management committee is present otherwise zero	
	Family Business	FB	Binary variable takes the value of 1 if the promoter/promoter family has a majority share and is actively involved in management of the business otherwise zero	Stewardship Theory

Methodology for constructing Financial Derivative Disclosure Index (FDDI): *Content Analysis*

According to **Krippendorff (1980)**, content analysis is a research technique for making replicable and valid inferences from data to their context. **Berelson (1952)** defines content analysis as a research technique for the objective, systematic and quantitative description of the manifest content of communication. Similarly, **Carney (1972)** describes it as a research technique for making inferences by objectively and systematically identifying specified characteristics of messages. Content analysis is mainly of two types: i) conceptual content analysis, where the frequency of certain key words or concepts are studied and ii) relational content analysis examines the relationships among concepts in a text. Conceptual content analysis is frequently used in disclosure literature. Content analysis can also be categorized as i) partial and ii) comprehensive. The content analysis used in the present study is conceptual and partial.

This study constructed an unweighted Financial Derivatives Disclosure Index (FDDI) based on a thorough and rigorous study of the existing regulatory framework for Indian listed companies. This index is first of its kind in India. The components examined include Accounting standards 32, 109 and 107. A manual content analysis is done by studying 288 annual reports (36 annual reports for each year for eight years from 2010-11 to 2016-17). Using the FDDI, this study computed Financial Derivate Disclosure Quotient (FDDQ) based on the derivative disclosure information in the annual reports during 2010-11 to 2016-17. FDDI is constructed by studying various aspects as mentioned in Table 1. Table 3 gives the details of the variables used in constructing the FDDI.

Table 3: Financial Derivatives Disclosure Index (FDDI)	
I. Risk Management Objective	Score
Does the company identify the risk management objective and strategy for undertaking the hedge?	1
II. Recognition	
Does the company recognise usage of fair value hedge or cash flow hedge or hedges of a net investment?	1
III. Items of Disclosure	
III. (a) Whether the company discloses separately for each type of hedge (fair value/cash flow/hedges of net investment in foreign operations)	
A description of each type of hedge	1
A description of the financial instruments designated as hedging instruments and their fair value at the reporting date.	1
The nature of the risk being hedged.	1
III. (b) For cash flow hedges, a company should disclose	
The periods when the cash flows are expected to occur and when they are expected to affect profit or loss.	1
A description of any forecast transaction for which hedge accounting had previously been used, but which is expected to occur.	1
The amount that was recognized in the appropriate equity account (hedge Reserve Account) and included in the statement of profit and loss for the period, showing the amount included in each line item in the statement.	1
The amount that was removed from appropriate equity account (Hedge Reserve Account) during the period and included in the initial cost or carrying amount of a non-financial asset or non-financial liability	1
III. (c) A company should disclose separately	
In fair value hedges, gains and losses: (i) on the hedging instrument: and	1
(ii) on the hedged item attributable to the hedged risk.	1
The ineffectiveness recognised in the statement of profit and loss that arises from cash flow hedges.	1
The ineffectiveness recognized in the statement of profit and loss that arises from hedges of net investments in foreign operations	1
IV. Qualitative Disclosures	
The company should disclose the exposure to risk and how they arise.	1
Its objectives, policies and processes for managing the risk and the methods used to measure the risk.	1
Any changes in 1 or 2 from the previous period	1
V. Quantitative Disclosures	
Summary quantitative data about its exposure to that risk at the reporting date.	1
The disclosures required by paragraphs 36-42 of AS 32, to the extent not provided in 1.	1
VI. Valuation	
The method and when a valuation technique is used, the assumptions applied in determining fair values of each class of financial assets or financial liabilities.	1
Should disclose whether fair values are determined directly by reference to published price quotations or are estimated using a valuation technique.	1
Total Score	**20**

RESULTS AND DISCUSSION

Using the FDDI, the derivative disclosure of different Indian non-financial firms is measured and the FDDQ is shown in Table 4.

Table 4: Disclosure of Derivative Information by Indian Non-Financial Firms									
S. No.	Firm Name	2010	2011	2012	2013	2014	2015	2016	2017
1	ACC	0	0.2	0.15	0.2	0.05	0.05	0.05	0.05
2	Ambuja Cements	0.05	0	0.05	0.1	0	0	0.05	0.05
3	Bajaj Auto	0.05	0.1	0.25	0.3	0.65	0.65	0.65	0.65
4	BHEL	0.05	0	0	0.05	0	0.1	0.1	0.1
5	BPCL	0.15	0.15	0.1	0.2	0.3	0.2	0.25	0.25
6	Bharti Airtel	0	0.3	0.2	0.25	0.35	0.35	0.4	0.4
7	Cairn	0.2	0	0.15	0.2	0	0.15	0.1	0.1
8	Cipla	0	0.1	0.15	0.1	0.1	0.05	0.1	0.1
9	Dr. Reddy	0.4	0.55	0.4	0.4	0.55	0.7	0.7	0.7
10	GAIL	0	0	0	0	0	0.05	0.1	0.1
11	Grasim	0.2	0.2	0.2	0.2	0.25	0.3	0.3	0.3
12	HCL Tech	0.15	0.45	0.55	0.45	0.5	0.55	0.55	0.55
13	Hero	0	0	0	0.05	0.05	0.15	0.25	0.25
14	Hindalco	0.35	0.4	0.35	0.65	0.65	0.6	0.65	0.65
15	Infosys	0.25	0.35	0.25	0.3	0.25	0.35	0.35	0.45
16	ITC	0.15	0.25	0.2	0.2	0.3	0.2	0.2	0.35
17	Jaiprakash	0	0.2	0.1	0	0.05	0.05	0.05	0.025
18	Jindal Steel	0.05	0.15	0.1	0.2	0.05	0.25	0.05	0.1
19	L&T	0.2	0.45	0.35	0.35	0.35	0.45	0.45	0.45
20	M&M	0.2	0.55	0.35	0.5	0.4	0.3	0.45	0.5
21	Maruti	0.3	0	0	0	0.15	0.55	0.45	0.45
22	NTPC	0	0	0	0	0.05	0.1	0.1	0.1
23	ONGC	0	0	0	0	0	0	0	0.025
24	Power Grid	0	0	0	0	0.05	0.1	0.1	0.075
25	Reliance Comm	0.1	0.2	0.3	0.2	0.1	0.2	0.2	0.175
26	Reliance	0.2	0.3	0.25	0.2	0.25	0.25	0.2	0.2
27	Reliance Infra	0.2	0.25	0.25	0.25	0.15	0.15	0.2	0.2
28	Reliance Power	0	0	0	0	0.05	0.05	0.1	0.1
29	Sesa Goa	0	0	0.35	0	0.2	0.2	0.2	0.25
30	SAIL	0	0	0	0	0	0	0.25	0.2
31	Sun Pharma	0	0	0.05	0.2	0.2	0.05	0.05	0.05
32	TCS	0.4	0.55	0.55	0.5	0.55	0.55	0.55	0.6
33	Tata Motors	0.2	0.2	0.45	0.45	0.35	0.5	0.5	0.55
34	Tata Power	0.25	0.25	0.25	0.15	0.2	0.25	0.25	0.25
35	Tata Steel	0	0.25	0.25	0.3	0.15	0.5	0.55	0.6
36	Wipro	0.25	0.45	0.5	0.4	0.7	0.5	0.5	0.55
N		36	36	36	36	36	36	36	36
Min.		0	0	0	0	0	0	0	0
Max.		0.4	0.55	0.55	0.65	0.7	0.7	0.7	0.65

Mean	0.12	0.19	0.20	0.20	0.22	0.26	0.28	0.30
Std. Dev	0.13	0.18	0.17	0.18	0.21	0.21	0.21	0.21
Note: FDDQ is computed using FDDI.								

MEASURING DERIVATIVE DISCLOSURE

To measure the derivative disclosure, this study first develops a Financial Derivative Disclosure Index (FDDI) based on the variables mentioned in Table 1 and Financial Derivative Disclosure Quotient (FDDQ) is computed using the formula mentioned. This section establishes the reliability and validity of FDDI using Cronbach's Alpha and Pearson's correlation. Further, this section also finds whether derivative disclosure by firms has increased during the period of study.

Table 5: Testing Reliability of Financial Derivative Disclosure Index (FDDI)	
Cronbach's Alpha	0.872
N	281
Note: Results computed using SPSS 20.0	

Reliability and Validity of any index needs to be checked for using the same for any further study. Table 5 shows the reliability test of FDDI. It is found that the Cronbach's Alpha value is 0.872, suggesting that the FDDI is reliable. Table 6 tests the validity of FDDI. For checking the validity of the FDDI, the study tests the correlation between the disclosure scores measured by FDDQ and the notional value of the derivatives used (TOTALDER). A high correlation between FDDQ and TOTALDER suggests that the FDDI measures the disclosure of derivatives by the firms, which it intends to measure. It is found that the correlation between FDDQ and TOTALDER is high and is also significant at 1% level. This suggests that the FDDI is a valid disclosure index.

Table 6: Testing Validity of FDDI Using Pearson's Correlation		
		TOTALDER
FDDQ	Pearson Correlationship	.648***
	Sig. (2 tailed)	.000
	N	281
****Correlation is significant at 1% level*		
Note: Results computed using SPSS 20.0		

IMPROVEMENT IN DERIVATIVE DISCLOSURE OVER TIME

Table : 7 Independent t-tests of FDDQ during Different Time Periods							
Variable	**2008-2011 (N = 135)**		**2012-2015 (N = 136)**		**Levene's test for Equality of Variances (Sig.)**	**Equal Variances Assumed (Sig.)**	**Equal Variances not Assumed (Sig.)**
	Mean	**Std. Dev**	**Mean**	**Std. Dev**			
FDDQ	.1859	.16814	.2708	.21595	14.817 (.000)	.000	.000
Note: Results computed using SPSS 20.0							

Table 7 shows the results of independent t-test for the two different time periods 2010-2013 and 2014-2017 and the following observations are made. It is evident that the mean FDDQ for 2010-2013 is at 0.1859 and that of 2014-2017 is at 0.2708. The F value stands at 14.817 with a significance value of 0.000. Since the *p*-value is at 0.031 for Levene's test, we conclude that we have unequal variances and look at equal variances not assumed column. It is concluded that FDDQ in 2014-2017 is significantly higher than in 2010-2013 since the significance value is at 0.000 and is significant at 1% significance level. Thus, there is a significant difference in the derivative disclosure of firms during the time periods, viz., 2010-2013 and 2014-2017.

Determinants of Financial Derivatives Disclosure Quotient (FDDQ)

Table 8 shows the descriptive statistics for studying the determinants of Financial Derivative Disclosure Quotient (FDDQ)

Table 8: Descriptive Statistics for studying the Determinants of Financial Derivative Disclosure Quotient (FDDQ)			
	Mean	**Std. Deviation**	**N**
FDDQ	.2295	.19816	269
TOTALDER	6.9008	4.98562	269
SIZE	12.2659	.98790	269
FXINC	23.4892	30.30147	269
INSTI	3.3465	.51320	269
RMC	.4647	.49968	269
FB	.6134	.48788	269
Note: Results computed using SPSS 20.0			

Tables 8 and 9 also shows the model summary, ANOVA results and the coefficients of regression when the dependent variable is FDDQ and the company specific independent variables.

Table 9: Table showing the Determinants of Financial Derivative Disclosure Quotient (FDDQ)

Variable	Model 1	Model 2	Model 3	Model 4
	t-Stat (Sig)	t-Stat (Sig)	t-Stat (Sig)	t-Stat (Sig)
TOTALDER	7.262***	7.972***	5.146***	5.499***
SIZE	1.950*	.240	4.383***	2.067**
FXINC	5.777***	5.204***	5.089***	4.576***
INSTI	2.836**	2.001**	.587	.265
RMC	4.942***	3.897***	4.686***	3.849***
FB	3.632***	2.803**	3.798***	3.151**
Adjusted R2	.542	.562	.630	.640
F(Sig)	53.961***	27.445***	22.734***	18.024***
D-W Statistic	2.058	2.241	2.252	2.362
N	269	269	269	269
Year Fixed Effects	No	Yes	No	Yes
Industry Fixed Effects	No	No	Yes	Yes

****sig at 1%, **sig at 5%, *sig at 10%*

All results are consistent with Breusch-Pagan Test for Heteroscedasticity

Table 9 shows four different models. Model 1 does not take into account both the industry and year fixed effects; model 2 shows only the year fixed effects; model 3 discusses only the industry fixed effects and model 4 takes into account both industry and year fixed effects.
The adjusted R-square for model 1 is fairly high at 54.2% and the model is significant at 1% significance levels. The Durbin-Watson statistic is 2.058 showing that there is no auto-correlation.

It can also be seen that there is a positive relationship between FDDQ and TOTALDER. The coefficients of all the four models are positive at 7.262 (p = 0.000), 7.972 (p =0.000), 5.146 (p = 0.003) and 5.499(p= 0.004), respectively and are significant at 1 per cent level. Thus, there is a positive and significant relation between FDDQ and TOTALDER. It can also be seen that there is a positive relationship between FDDQ and Size. The coefficients of all the four models are positive at 1.950 (p = 0.052), 0.240 (p =0.810), 4.383 (p = 0.000) and 2.067 (p= 0.040), respectively. In models 1 and 4, size is significant at 5% and in model 3, it is significant at 1% level. In model 2, size is an insignificant determinant of FDDQ. In general, there is a positive and significant relation between FDDQ and SIZE. The relationship between forex income (FXINC) and FDDQ is also positive and the coefficients of all the four models are positive at 5.777 (p = 0.000), 5.204 (p =0.000), 5.089 (p = 0.000) and 4.576 (p= 0.000), respectively and are significant at 1 per cent level. Thus, there is a positive and significant relation between FDDQ and FXINC.

It can be noted that there is a positive and significant relationship between institutional holding (INSTI) and FDDQ in models 1 and 2. The coefficients are positive at 2.836 (p=.005) and 2.001 (p =.046) and are significant at 5% level. Thus, there is a positive and significant relation between FDDQ and INSTI. There is a positive relationship between the presence of risk management committee (RMC) and FDDQ. The coefficients are positive in all the four models at 4.942 (p = 0.000), 3.897 (p =0.000), 4.686 (p = 0.003) and 3.849 (p= 0.004), respectively and are significant at 1 per cent level. Thus, there is a positive and significant relation between FDDQ and RMC.

Family owned (FB) business also has a positive and significant relation with FDDQ. The co-efficients are positive in all the four models at 3.632 (p = 0.000), 2.803 (p =0.005), 3.798 (p = 0.000) and 3.151 (p= 0.002), respectively and are significant at both 1 per cent and 5 per cent level. Thus, there is a positive and significant relation between FDDQ and FB

Table 10: Table showing the Correlation between Financial Derivative Disclosure Quotient (FDDQ) and Company Specific Determinants

	FDDQ	TOTADER	SIZE	FXINC	INSTI	RMC	FB
FDDQ	**1.000**	**.657*** **	**.015**	**.477*** **	**.209*** **	**.276*** **	**.363*** **
TOTALDER	**.657*** **	**1.000**	**.051**	**.409*** **	**.260*** **	**.107** **	**.422*** **
SIZE	**.015**	**.051**	**1.000**	**-.221*** **	**-.168** **	**.197** **	**-.325*** **
FXINC	**.477*** **	**.409*** **	**-.221**	**1.000**	**-.054**	**.104** **	**.191** **
INSTI	**.209*** **	**.260*** **	**-.168**	**-.054**	**1.000**	**-.051**	**.101** **
RMC	**.276*** **	**.107** **	**.197**	**.104** **	**-.051**	**1.000**	**-.117** **
FB	**.363*** **	**.422*** **	**-.325**	**.191** **	**.101** **	**-.117** **	**1.000**

***sig at 1%, **sig at 5%, *sig at 10%

Table 10 shows the Pearson correlation between the dependent, independent and control variables. The results show that there is a strong correlation between FDDQ and TOTALDER at 0.657, FXINC at 0.477, INSTI at 0.209, RMC at 0.276 and FB at 0.363 and are significant at 1% significance level.

Testing for multicollinearity. Table 11 shows the collinearity statistics and collinearity diagnostics and shows that VIFs of all the independent variables are less than 10 and in fact very close to the value of one. The tolerance is also greater than 0.5 in all the cases. This also shows that the problem of multicollinearity does not exist. The condition index for most of the variables is less than 30, which suggest that there is no serious multicollinearity problem.

Table 11: Testing Multicollinearity

Collinearity Statistics		
Model	**Tolerance**	**VIF**
TOTALDER	.554	1.804
SIZE	.711	1.407
FXINC	.710	1.408
INSTI	.833	1.200
RMC	.925	1.081
FB	.679	1.474
Collinearity Diagnostics		
Model Dimension	**Eigenvalue**	**Condition Index**
1	5.404	1.000
2	.591	3.023
3	.523	3.214
4	.282	4.378
5	.181	5.464
6	.017	17.762
7	.002	54.140

RESULTS

Very interesting results have come out of the analysis in the Indian context. The disclosure of financial derivatives activity by any firm in India is although desirable, but is voluntary at present. Therefore, firms in India are under no obligation to disclose their financial derivative

activities undertaken to manage their risks. Although not mandatory, the study finds that there has been a significant increase of financial derivative disclosures of Indian firms over the years.
The results show that the stewardship theory explains the determinants of financial derivative disclosure in Indian context, and promoters act as stewards and guide their firms to improve their financial derivative disclosures. The study shows that the presence of Risk Management Committees in a firm lead to better financial derivative disclosures. In addition, if a firm is a family business (the promoter or promoter group has a majority share in the firm and are actively involved in managing the business), the financial derivative disclosure is better.

In addition, external agencies like institutional shareholders/foreign stakeholders have a monitoring effect on a firm. The higher proportion of institutional shareholders in the ownership pattern leads to better derivative disclosure. In addition, when a firm has higher foreign income (a proxy for foreign operations and foreign stakeholders), again, the financial derivative disclosure is better. This conforms to the monitoring role of stewards, in this case, external agencies, in their role to push firms to improve their derivative disclosure.
Size of the firm and the value of derivatives used are also significant determinants of financial derivative disclosures in India.

CONCLUSION

There have been significant steps by regulatory bodies across the world to increase the effective of governance especially in increasing the transparency of financial reporting. Transparency in financial reporting is imperative as it provides a true picture of an organization to its stakeholders. Transparency in reporting financial derivative holdings of an organisation is essential as the use of financial derivatives has the potential to increase the overall risk of the organization manifold. By far derivatives research has predominately been based on western developed economies; little has been known about reporting and disclosing of derivatives from developing economies. The motivation of this study is to fill the research gap with the primary aim to assessing the determinants of financial derivative disclosures in India – one of the largest developing economies in the world. This empirical study models the factors that determine Financial Derivative Disclosure of Indian non-financial firms The study develops a self-constructed unweighted Financial Derivative Disclosure Index (FDDI) to measure the derivative disclosure. The sample represents companies from Nifty 50, out of which banking and financial services companies were removed. Using multiple regression model, this study modelled the corporate governance factors which determine derivative disclosure. The factors identified were presence of usage of derivatives, size, foreign income, presence of risk management committee, institutional shareholding and binary variable for family business. The results show that the stewardship theory explains the determinants of financial derivative disclosure in Indian context, and promoters act as stewards and guide their firms to improve their financial derivative disclosures.

LIMITATIONS OF THE STUDY

The following are limitations of the study: firstly, data availability was a major limitation as many firms did not disclose the notional value of the derivatives used by them. Secondly, the usual limitations of financial statements and annual reports apply to this study as well.

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