

**A STUDY OF CORPORATE RISK-MEASUREMENT,  
DISCLOSURE AND GOVERNANCE**

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DISCLOSURE AND GOVERNANCE**

by

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## CERTIFICATE

The thesis titled, “**A Study of Corporate Risk-Measurement, Disclosure and Governance**”, being submitted by **Ms. MV Shivaani** to the Indian Institute of Technology, Delhi, for the award of degree of **Doctor of Philosophy** is a record of bona-fide research work carried out by her. She has worked under our guidance and supervision, and has fulfilled all the requirements for the submission of the thesis, which has attained the standard required for a Ph.D. degree of this institute. The results presented in this thesis have not been submitted elsewhere for the award of any degree or diploma.

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## **ABSTRACT**

Risk has been an intriguing phenomenon to both managers and academicians. Much of the ambiguity in the domain may be ascribed to different connotations of risk in different contexts. In view of the debacles such as Enron and Satyam (some years back), and global financial crisis, the concept of corporate risk and risk management has been gaining attention not only from investors and corporates but also from policy-makers. The process of risk management can be explained through five steps: identifying and prioritizing risks, quantifying risks, managing risks, reporting risks and reviewing risks.

Literature is replete with risk measures, but most of them are based on market-based information. Even the studies that do take into account firm-specific (accounting) information are primarily ‘outcome-based’ and fail to consider various possible sources of risk. As a result, no comprehensive risk measure, reflecting major corporate risks could be found. Similarly, most of the studies dealing with risk disclosures consider quantity of disclosure as a proxy for quality of disclosure. Accordingly, there appears to be a need for a comprehensive disclosure index that captures not only the quantity of disclosures but also the quality of disclosures in terms of semantic properties. Further, as the direction and supervision of a company and consequently the responsibility of oversight of risk measurement and risk disclosures vests with the board of directors, it seems imperative to gauge the quality of governance structures that exist in firms.

Based on the above perspective and limited literature on the subject, an attempt has been made to develop a risk index (based on nine major risks, namely, market risk, accounting risk, competition risk, contingency risk, credit risk, foreign exchange risk, liquidity risk, operating risk, solvency risk). In addition, the relationship between risk levels and accounting returns has also been examined. Further, a risk disclosure index (based on 69 risk related

items and covering three semantic attributes, namely, nature of disclosure (qualitative/quantitative), time-orientation (backward-looking/forward-looking/both), tone of disclosure (neutral/positive/negative/both positive and negative)); and a risk governance index (based on board size, proportion of women directors, proportion of non-executive directors, proportion of independent directors, CEO duality, executive/non-executive status of Chairman, chief risk officer (CRO), whistle blower policy, risk management committee, compulsory committees, and voluntary committees) have also been developed. Moreover, the relationships among the three indices have also been examined. For the purpose, difference-generalised method of moments (GMM) regression has been used. Besides, a managerial survey and two case studies have been conducted to corroborate the results of secondary data analysis.

The notable findings of the secondary data are that the sample Indian firms, on an average, have 'moderate risk' levels. These findings are supplemented by the evidence of satisfactory return on assets and return on equity for the sample companies. Further, as the risk index is a normative framework, recommendatory in nature, the evidence of negative risk-return relationship (i.e., higher the risk, lower the returns), provides support for the methodology used in the construction of the risk index.

On the one hand, the sample companies exhibit extremely low scores on risk disclosure index, indicating lack of transparency regarding risks and their impacts. On the other hand, the sample companies have sound risk governance structures. But, these could be further strengthened with collaborative efforts of corporates and regulatory bodies.

Though no significant relationship could be found between risk levels and quality of governance structure, risk disclosures appear to be positively influenced by both the risk levels and the quality of governance structure. It is noteworthy, that risk governance index

acts a moderating variable, influencing the relationship between risk disclosure index and risk index.

The survey findings indicate that the sample firms consider risk as something with a positive as well as negative potential. Most firms seem to undertake risk management activities in order to protect firm value. Further, majority of companies have an internal manual for risk management policies and carry a continuous review of techniques used in risk management. It may be noted that companies that seem to be in favour of voluntary risk reporting (in annual reports) tend to have higher risk levels. In addition, Chief Finance Officer emerges as the most widely accepted authority on risk. It may further be noted that the results of secondary data analysis and survey analysis have been corroborated by the results of case study (two cases) analysis. The findings of the cases studied provide credence to the methodology used in construction of risk index, disclosure index and governance index.

Based on the findings of the research, following recommendations have been made: (i). Policy-makers should take initiatives to prescribe a risk index type normative framework for non-financial companies, to help them maintain theoretically tenable risk levels; to enhance transparency and improve communication between companies and stakeholders, to make risk disclosures mandatory; non-compliance with certain mandatory provisions, such as, appointment of woman director need to be dealt with swiftly and strictly. (ii). Managers should avoid excessive risk-taking as higher risk does not always translate into higher return; they should focus on increasing transparency, improving communication with stakeholders and reducing information asymmetry to garner investor confidence. (iii). Investors should invest in companies with lower risks (as per the risk index) if they desire higher (accounting) returns.

# कॉर्पोरेट रिस्क – मेज़रमेंट, डिस्कलोजर और गवर्नेंस -- एक अध्ययन

## सार

रिस्क प्रबंधन, प्रबंधकों और शिक्षाविदों दोनों के लिए एक पेचीदा विषय है। विभिन्न संदर्भों में रिस्क के विभिन्न अर्थों को अस्पष्टता के लिए जिम्मेदार माना जा सकता है। कुछ साल पहले सत्यम और एनरॉन जैसी संस्थाओं की विफलता और वैश्विक वित्तीय संकट ने कॉर्पोरेट रिस्क और रिस्क प्रबंधन की अवधारणा की ओर न केवल निवेशकों और कंपनियों का अपितु नीति निर्माताओं का भी ध्यान आकर्षित किया है। रिस्क प्रबंधन की प्रक्रिया को पांच चरणों के माध्यम से समझाया जा सकता है—रिस्क की पहचान और प्राथमिकता देना, रिस्क मात्र निर्धारण, रिस्क प्रबंधन, रिस्क रिपोर्टिंग और रिस्क की समीक्षा।

साहित्य रिस्क पर आलेखों से परिपूर्ण है, लेकिन उनमें से ज्यादातर बाजार के आधार रितआधा-जानकारी पर है। जो आलेख फर्म खाते से जानकारी लेते हैं, रिस्क के विभिन्न संभावित स्रोतों पर विचार करने में असफल रहे हैं। नतीजन, कोई व्यापक रिस्क उपाय जो प्रमुख कंपनियों के रिस्क को दर्शा पाता, प्राप्त नहीं किया जा सका है। इसी प्रकार, रिस्क डिस्कलोजर से सम्बंधित अध्ययन में डिस्कलोजर की गुणवत्ता के लिए एक प्रॉक्सी के रूप में डिस्कलोजर की मात्रा पर विचार किया गया है। तदनुसार, एक व्यापक डिस्कलोजर index की आवश्यकता है जो कि न केवल डिस्कलोजर की मात्रा, अपितु अर्थ गुणों के संदर्भ में भी डिस्कलोजर की गुणवत्ता को उजागर करे। साथ ही कंपनी की दिशा, देखरेख, रिस्क माप और रिस्क डिस्कलोजर सम्बंधित निरीक्षण की जिम्मेदारी निदेशक मंडल पर होती है इसलिए यह जरूरी है कि फर्मों में मौजूद शासन संरचनाओं की गुणवत्ता का आकलन किया जाए।

ऊपर के परिप्रेक्ष्य और इस विषय पर सीमित साहित्य के आधार पर, एक रिस्क index विकसित करने का प्रयास किया गया है। रिस्क index का आधार नौ निम्नलिखित रिस्क लिए गए हैं: मार्किट रिस्क, एकाउंटिंग रिस्क, कॉम्पीटिशन रिस्क, कॉटिनजेंसी रिस्क, क्रेडिट रिस्क, फॉरेन करेंसी रिस्क, लिक्विडिटी रिस्क, ऑपरेटिंग रिस्क, सोल्वेंसी रिस्क। इसके अलावा, रिस्क स्तर और एकाउंटिंग रिटर्न के बीच संबंध की भी जांच की गयी है। इसी प्रकार एक रिस्क डिस्कलोजर सूचकांक, 69 रिस्क सम्बंधित आइटम तथा तीन सिमेंटिक गुण, डिस्कलोजर की प्रकृति (मात्रात्मक/गुणात्मक); टाइम ओरिएंटेशन (बैकवर्ड लुकिंग / फॉरवर्ड लुकिंग अथवा दोनों); डिस्कलोजर की टोन ( तटस्थ /

तथा सकारात्मक नकारात्मक / सकारात्मक और नकारात्मक दोनों) पर आधारित है। इसके अलावा, एक रिस्क गवर्नेंस index, Board size , महिला निदेशकों के अनुपात, गैर कार्यकारी निदेशकों के अनुपात, स्वतंत्र निदेशकों के अनुपात, सीईओ ड्यूलिटी (CEO Duality), अध्यक्ष की कार्यकारी अथवा गैरकार्यकारी स्थिति, सीआरओ (CRO), whistle blower policy, रिस्क प्रबंधन समिति, compulsory committees, और voluntary committees के आधार पर विकसित किया गया है। इसके अलावा, तीनों index के बीच संबंधों की भी जांच की गई है। इस प्रयोजन के लिए, GMM (difference generalised method of moments) नामक रिग्रेशन विधि का इस्तेमाल किया गया है। इसके अलावा, एक प्रबंधकीय सर्वेक्षण और दो केस स्टडीज़ का उपयोग secondary data विश्लेषण के परिणाम की पुष्टि करने के लिए किया गया है।

Secondary data के उल्लेखनीय निष्कर्ष है कि चुनी गयी भारतीय फर्मों, औसतन, 'मध्यम स्तर के risk' स्तर पर हैं। इसके अलावा, नेगेटिव रिस्क रिटर्न संबंध, अर्थात् उच्च रिस्क - कम रिटर्न, रिस्क index के निर्माण में इस्तेमाल मेटोडोलोजी को संबल प्रदान करता है।

एक ओर, sample कम्पनियों का रिस्क डिस्क्लोजर index पर बेहद कम स्कोर का प्रदर्शन, रिस्क और उनके प्रभावों के बारे में पारदर्शिता की कमी का संकेत है। तो दूसरी ओर, sample कंपनियों की मजबूत रिस्क गवर्नेंस संरचना है। इन्हें कंपनियों और नियामक निकायों के सहयोगी प्रयासों के साथ और मजबूत बनाया जा सकता है।

हालांकि, कोई महत्वपूर्ण संबंध रिस्क स्तर और गवर्नेंस structure की गुणवत्ता के बीच नहीं पाया गया है फिर भी रिस्क डिस्क्लोजर, रिस्क स्तर और गवर्नेंस structure की गुणवत्ता दोनों से सकारात्मक रूप से प्रभावित होते दिखाई देते हैं। यह उल्लेखनीय है, कि रिस्क गवर्नेंस index एक moderating variable के रूप में कार्य करता है, और रिस्क डिस्क्लोजर index और रिस्क index के बीच के रिश्ते को प्रभावित करता है।

सर्वेक्षण निष्कर्षों से पता चलता है कि sample फर्मों रिस्क को सकारात्मक और नकारात्मक दोनों रूप में स्वीकार करती है। अधिकांश कंपनियां फर्म वैल्यू की रक्षा के लिए रिस्क प्रबंधन गतिविधियों को अपनाती हैं। इसके अलावा, अधिकतर कंपनियों के आंतरिक मार्गदर्शन मनुअल में रिस्क प्रबंधन नीतियों और रिस्क प्रबंधन में प्रयोग की जाने वाली तकनीकों की सतत समीक्षा का प्रावधान है। यह उल्लेखनीय है कि जो कंपनियां स्वैच्छिक रिस्क रिपोर्टिंग के पक्ष में होती हैं उनमें रिस्क उच्च स्तर का होता है। इसके अलावा, मुख्य वित्त अधिकारी (Chief Finance Officer) रिस्क पर एक व्यापक रूप से स्वीकृत अधिकारी के रूप में उभर रहे हैं। आगे यह भी उल्लेखनीय है कि secondary data विश्लेषण और सर्वेक्षण विश्लेषण के परिणामों का पुष्टिकरण दो केस स्टडीज़ (फर्म विशेष अध्ययन) के

परिणामों द्वारा भी किया गया है। फर्म विशेष अध्ययन द्वारा प्राप्त निष्कर्ष, रिस्क index, रिस्क डिस्कलोजर index और गवर्नंस index के निर्माण में इस्तेमाल की गई मेथोडोलोजी को बल प्रदान करते हैं।

अनुसंधान के निष्कर्षों के आधार पर निम्नलिखित सिफारिशें की गई हैं

1. नीति निर्माताओं को गैर वित्तीय कंपनियों के लिए एक रिस्क index प्रकार की मानक रूपरेखा निर्धारित करने के लिए पहल करनी चाहिए जिससे उन्हें सैद्धांतिक रूप से तर्कसंगत रिस्क का स्तर बनाए रखने, पारदर्शिता बढ़ाने, कंपनियों और स्टैकहोल्डर्स के बीच संवाद को बेहतर बनाने और रिस्क डिस्कलोजर अनिवार्य बनाने के लिए मदद मिले।
2. प्रबंधकों को अत्यधिक रिस्क लेने से बचना चाहिए क्योंकि अधिक रिस्क हमेशा अधिक लाभ में परिवर्तित नहीं होता है। उन्हें पारदर्शिता बढ़ाने, स्टैकहोल्डर्स के बीच संवाद में सुधार करने और निवेशकों का विश्वास जुटाने के लिए जानकारी विषमता (information asymmetry) को कम करने पर ध्यान केंद्रित करना चाहिए।

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## ABBREVIATIONS

AICPA	American Institute of Certified Public Accountants
ANOVA	Analysis Of Variance
BCBS	Basel Committee on Banking Supervision
BOD	Board Of Directors
BOP	Beginning Of Period
CAPM	Capital Asset Pricing Model
CCR	Contingency Coverage Ratio
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CI	Composite Indicator
CICA	Certified Internal Control Auditors
COO	Chief Operating Officer
COSO	Committee of Sponsoring Organizations of the Treadway Commission
CRO	Chief Risk Officer
DOL	Degree of Operating Leverage
EBIT	Earnings Before Interest and Taxes
EOP	End Of Period
ERM	Enterprise Risk Management
ESOP	Employee Stock Option Plan
EWRM	Enterprise –Wide Risk Management
FASB	Financial Accounting Standards Board
FDI	Foreign Direct Investment
FMCG	Fast Moving Consumer Goods
FSB	Financial Stability Board
GARP	Global Association of Risk Professionals
GIM	Gompers Ishii Metric
GMM	Generalized Method of Moments
HR	Human Resources
IASB	International Accounting Standard Board
IATR	Inverse of Acid-Test Ratio
ICAEW	Institute of Chartered Accountants in England and Wales
ICAI	Institute of Chartered Accountants of India
ICSI	Institute of Company Secretaries of India
ICT	Information and Communication Technology
IFC	International Finance Corporation
IFRS	International Financial Reporting Standards
IRGC	International Risk Governance Council
IRRC	Investor Responsibility Research Center
MD	Managing Director
MD&A	Management Discussion and Analysis
MDI	Modified Defensive Interval
MMTC	Metals and Minerals Trading Corporation of India
NSE	National Stock Exchange
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary Least Squares
PoF	Proportion of Females
PoID	Proportion of Independent Directors
PoNED	Proportion of Non-Executive Directors

PSU	Public Sector Undertaking
RDI	Risk Disclosure Index
RGI	Risk Governance Index
RI	Risk Index
RMC	Risk Management Committee
ROA	Return On assets
ROE	Return On Equity
SEBI	Securities and Exchange Board of India
SEC	Securities Exchange Commission
SRM	Spectral Risk Measures
SWOT	Strengths Weaknesses Opportunities Threats
TD/E	Total Debt/Equity
UK	United Kingdom
UNCTAD	United Nations Conference on Trade and Development
USA	United States of America
VaR	Value at Risk
WTD	Whole-Time Director