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A Study on Integrated Risk Management Framework in India

(With reference to Nifty Fifty Companies)

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Abstract: Risk is an integral part of the business, and it can hurt the business performance severely if cohesive risk management framework is not in place. Risk comes from various quarters – internal, external, financial, strategic, compliance and so on. Risk management as a function is in existence since 1950s and it is evolving since then. Businesses are dynamic and as and when conditions change the risk proposition too changes and hence risk management processes too need to become contemporary. In the beginning, risk management was restricted only to usage of insurance products. To manage finance risk like exchange rate fluctuations use of derivatives was introduced. Operational risk and strategic risk too were recognized later, and integrated risk management process came into picture which advocated for collating different risks under one risk management framework and link it to mission of the business. COSO (2004), introduced a comprehensive framework, enterprise risk management (ERM) which endorses integrated risk management process. Businesses across the globe are embracing this integrated risk management to manage and mitigate potential risks. It also helps in identifying potential business opportunities (upside risk). This research is conducted to investigate the current state of risk management processes in Indian scenario by considering Nifty 50 companies.

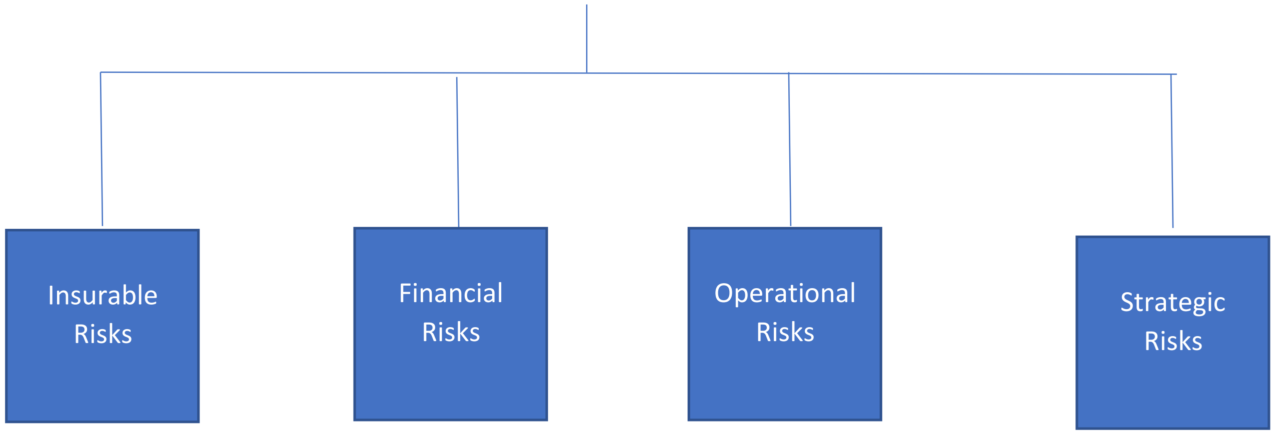
Key Words: Integrated risk management, Enterprise risk management, Upside risk and Downside risk, COSO framework, Insurable risks, Derivatives.

Introduction:

Businesses have inherent risks as they are vulnerable to various uncertainties. Some of these risks are firm specific and hence controllable and the rest are market specific which cannot be controlled. A firm can have comprehensive strategy to control the risk which helps in minimizing the impact. A business risk will impact companies in different aspects. The major impact of business risk will be loss of revenue, loss of market share, reduction in profit or incurring losses. (Chłapek, Katarzyna 2017) identifies following risks to analyze an enterprise's overall risk profile in his study on integrated reporting: Market risk, credit risk, operational risk, liquidity risk, legal risk, business risk, event risk and model risk. Enterprise risk management (ERM) proposes that companies should address and manage different risks comprehensively and coherently instead of addressing them individually (Bromiley, P; McShane, M; Nair, A Rustambekov, E, 2015). The study of risk management started after World War II (Dianne, Georges 2013). Initially risk management was associated with providing insurance to individuals and companies to protect against various losses and accidents. Other forms of risk management like use of derivatives came into light during 1970s when businesses started realizing that only insurance is not enough for effective risk management. Derivatives expanded rapidly during 1980s. All these tools and techniques were primarily targeted at financial risk management. (Dickinson, Jerry 2001). Apart from insurable risks and financial risks which could be managed with derivatives to a large extent, there could be many other internal factors which could create problems for the companies to achieve their target results. These factors could be human error, fraud, regulatory and compliance risk, cyber risk, system failure, reputation, brand integrity, disruption of production to name few. These risks put together are called operational risks. There are strategic risks too like business continuity, competition and changing trends and so on.

Enterprise risk can be defined as an over all risk proposition of a firm which encompasses insurable risks, financial risks which can be managed through derivatives, operational risks, and strategic risks.

Fig 1: Enterprise Risk



(Source: Primary)

Risk management as a function is not new to businesses. It has been evolving from time to time based on the changing business conditions and other associated factors. Risky events may be external (economic, environmental, social, political, or technological) or internal (infrastructure, human resources, processes, and technology used by the company) (COSO, 2004). Though the risk management processes adopted by businesses were comprehensive, it could not avoid nor raise red flag about financial scams and corporate governance failures. Huge accounting scams and corporate governance failures surfaced regularly causing extensive damage to the investors, employees and to the economy. Scams like Enron, Tyco international, Satyam, WorldCom, Lehman Brothers and so on created lot of fear and uncertainty in the business world. The existing risk management framework and auditors too couldn't help in mitigating this risk. According to Paape and Spekle (2012) during the financial crisis "weaknesses in risk management practices have become painfully visible and companies are currently under significant pressure to strengthen their risk management systems and to take appropriate actions to improve stakeholder value protection." It is very well understood that the relationship between risk and return is positively correlated. In investment management investors are classified as aggressive, moderate, and conservative investors based on their ability to take risk. Therefore, the question is should risk management function be a tool to just control and mitigate various risks or should it be viewed as a strategic tool to maximize stakeholders value? Meulbroek (2002) advocates integrated risk management which will aggregate all the risks faced by a business. By doing so, risk management will become 'strategic' rather than 'tactical'. Tactical risk management, which is commonly used, has a narrow approach whereas integrated risk management will help looking at risk management from a strategic perspective and thereby facilitates in maximizing the value for the stakeholders. Gatzert and Martin (2015) argue 'that enterprise risk management (ERM) has become increasingly relevant for managing corporate risk. In contrast to the traditional silo-based risk management, ERM considers the company's entire risk portfolio in an integrated and holistic manner. They also state that ERM not only helps in mitigating and managing the risks more effectively, but it also helps in identifying potential opportunities. There have been several attempts to standardize risk management as a strategic tool i.e., Integrating different types of risks and moving towards a holistic approach. The Committee of Sponsoring Organizations of the Treadway Commission (COSO) has issued a framework in the year 2004 for internal control. The objective is to integrate internal controls into business processes. COSO (2004) defines ERM *'as a process, effected by an entity's board of directors, management, and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives'.*

Enterprise Risk Management (ERM)

ERM is a very comprehensive tool to manage and mitigate risk from an operational as well as strategic perspective. Traditional techniques will classify the risks and analyze them separately wherein it is very unlikely to assess the impact from an overall perspective. ERM on the other hand helps not only risk management from a holistic perspective, but it also aids in identifying potential opportunities from a strategy point of view. Schiller and Prpich, (2014) state that ERM is the only tool that integrate financial risk, insurable risk, operational risk, and strategic risk. COSO (2004) identifies 4 dimensions (strategic, operations, reporting and compliance) and 8 components (Internal environment, objective setting, event identification, risk assessment, risk response, control activities, information & communication, and monitoring) (Fig 2). Some of the important features of COSO framework are:

1. Wide range of risks are discussed which includes strategic risks like business continuity and reputation risk
2. Different types of risks are integrated together and aligned with strategy mission.
3. Helps in identifying business opportunities
4. Risks are identified and managed at the department levels
5. Various tools available to mitigate and manage risks
6. Chief risk manager is heads the risk management function (Hardy, 2015)

Another important factor identified in ERM is risk appetite and risk tolerance of an organization. According to COSO (2004) "risk appetite is the amount of risk, on a broad level, an entity is willing to accept in pursuit of value". This helps in a self-assessment process for the organizations to understand what their respective risk appetite is while evaluating projects or expansion of business operations.

Fig:2 Enterprise Risk Management – An Integrated Approach (COSO Framework)

(Source: https://www.coso.org/documents/coso-erm-executive-summary.pdf)

Ezeosa (2011), has researched about the strategic implications of ERM. The author perhaps has mainly concentrated on the relevance and need for ERM for a company. A company requires ERM framework for several reasons such as: a) Company faces operational, financial, strategic risks b) The risks faced by the company has an impact on its profitability, effectiveness, and reputation c) Some drivers of ERM such as Greater transparency, Business continuity, focus on rating agencies etc. the researcher has analyzed the COSO's framework on ERM with regards to two companies Infosys and Rolls Royce. The findings prove that there is a linkage between ERM and its benefits. Antonio Renzi (2020) has analyzed the relationship between corporate governance, ERM and inter- risk transfer. According to the author, proper ERM implies involvement of managers and board of directors with respect to the risk analysis of the firm and periodic objectives. The theoretical framework of the paper is based on four hypotheses using which the author has designed a matrix with four regions showing the structural implications and firm's size. The model developed by the researchers helps in identifying the company's attitude towards transfer of risk, income smoothing and its corporate governance structure. Fong-Woon Lai (2010), has conducted research on Public listed companies in Malaysia. The study focuses on developing a framework for ERM and empirical determinants of its implication. The framework consists of 14 elements of ERM such as understanding of the objectives of implementing ERM, understanding its accountability, integrating across all functions and business units, identifying key risk indicators etc. The authors have also conducted scale reliability test, penetration of ERM implementation to check if the model works better. The paper concludes on the note that a firm's ERM helps in measurement of its performance and therefore, firms should invest money, time and technology in developing the same. Bromiley (2015), has thrown light in the requirement and scope of research in the field of ERM. Explaining the definition of ERM, the author has also highlighted the conceptual roots of ERM. According to them, there is an opportunity for scholars to engage in more critical research on ERM adoption and effectiveness. Some more areas which management research can focus on are examine the role of board in ERM implementation, how changes in the board structure can impact on firm's risk behavior, how corporate governance model can influence on ERM implementation etc.

Enterprise Risk Management in Indian Companies

ERM is a very comprehensive and process driven tool that integrates different types of risks rather than looking at them in silos. Since risk management process is linked to strategy and mission, organizations having a proper ERM in place are going to benefit. Most businesses across the globe realized the potential benefits of ERM and started to build an integrated risk management framework based on the COSO model. Indian companies too started to embrace ERM slowly but steadily since 2008. Currently, it is not mandatory in India for companies to have ERM in place but as per Companies Act of 2013 certain regulatory requirements regarding risk management function. Added to this, board and audit committees have vested with responsibilities to assess the robustness of risk management framework, policies, and processes as per SEBI (LODR) regulations, 2015. SEBI (Securities and Exchange Board of India) Indian capital market regulator also makes it mandatory that largest listed companies must form a risk management committee. With the transformation of corporate governance practices and focus on robust risk management system, Indian companies are adopting integrated risk management framework. (Afsharipour, Manali 2021)

Research Design: This study is conducted to analyze integrated risk management framework in Indian companies. The research is empirical in nature. Sample size comprises of 50 largest Indian companies by market capitalization (Nifty companies) and the period considered is financial year 2019-20. Data collected through secondary sources by analyzing annual reports of all 50 companies for the financial year 2019-20. The analysis is conducted by considering 4 parameters which were identified through the literature review on ERM and by considering statutory guidelines of SEBI and Indian Companies Act 2013. The parameters are; *Is there a detailed risk management framework/policy available, has the company identified major risks, if so, are there any mitigation plans/strategies stated, and lastly, is there a risk management committee in place*. We have also tried to identify is there any best practice followed with regards to risk management process. 30 companies represent 19 different sectors. Sector wise analysis has been done to identify if there are any sector specific observations/features in the risk management process. Due to the paucity of time, we have considered only one financial year. Also, in our sectorial analysis few sectors have just one company as a sample. Inference regarding the quality of risk management report on such companies may not be accurate as we have analyzed just one company. Nifty basket had just one company from these sectors and our sample size is top 50 Indian companies by market capitalization. These two are the limitations of the study.

Analysis of Risk Management Reports of 50 Largest Indian Companies by Market Capitalization (Nifty Fifty Companies)

1. Sector: Petroleum Products

Sl no.	Name of the company	Risk management framework / Policy	Identified risks / Major risks	Mitigation plans/ strategies	Risk management committee	Best practices followed (if any)
1	Reliance Industries Ltd.	Framework is given as a description.	The risks are classified into categories such as: strategic and commercial, safety & operational, compliance & control risk and financial risks.	Risk response for all the risks are provided in the annual report.	7 members are present in the committee. Their roles and responsibilities are also explained.	
2	Bharat Petroleum Corporation Ltd.	Risk management framework is not given in detail.	Identified risks: • Pandemic • A low international crude oil price • erosion in oil and gas demand and high Volatility in prices. • Peak of Oil and pace of energy Transition. Competition Health, safety and environment. Etc.,	Mitigation strategies are disclosed for all the risks.	The committee has 5 members. The roles and responsibilities are also explained.	International trade and risk management is a set-up done by BPCL, which has a special policy designed for managing risks in exports and imports.
3	Indian Oil Corporation Ltd.	Risk management framework is explained using a flowchart.	Major Risks Identified: Erosion in margins, Cost and time overruns in projects, Lack of adequate infrastructure, Return on producing E&P assets etc.	Mitigation plan for all the risks are disclosed.	The committee consists of 5 members.	

2. Sector: Banks

Sl no.	Name of the company	Risk management framework	Identified risks / Major risks	Mitigation plans/ strategies	Risk management committee	Best practices followed (if any)
1	HDFC Bank Ltd.	Risk management framework is explained using a flowchart.	Major risks are : credit risk, market risk, reputation risk, compliance risk etc.	The strategic priority and mitigation plan is provided for all the risks.	Risk policy and monitoring committee consisting of 5 members.	Risk architecture: Framework and process for each risk is given.
2	ICICI Bank Ltd.	Framework is given as a description.	Risks of the bank are: crisis and catastrophe risks, macro-economic uncertainties, credit, market and liquidity etc.	Mitigation plans for all the risks are given.	Risk committee is responsible for making the framework. It consists of 4 members.	Independent groups for monitoring risks in the bank : risk mgt group, compliance group, corporate legal group etc.
3	Kotak Mahindra Bank Limited	Risk management framework is given as description.	Credit risk, market risk, collateral security risk, interest rate risk etc.	Mitigation plans are discussed for each risks.	The committee consists of five members and the terms of reference are also mentioned.	
4	Axis Bank Ltd.	The bank has a framework but it is not discussed in the annual report.	Major risks of the bank are: credit risk, market risk, operational risk, liquidity risk, counterparty risk, country risk, reputational risk, strategic risk and	Mitigation plans are discussed for some of the risks.	There are 7 members in the committee and their terms of reference is also provided in the annual report.	Risk management initiatives: 1. Setting up a risk department to monitor the risk profile of the bank time to time. 2. Operational risk management committee which is a sub-committee

			subsidiaries risk			under risk management committee.
5	State Bank of India	A proper risk management structure is given in the annual report which explains the process in which risk management is undertaken in the bank.	Major risks are: Credit risks, market risks, operational risks, enterprise risk.	The bank has disclosed the detailed mitigation strategies for all the risks identified.	A 11 members committee is formed to oversee the policy and review it time and again.	1. An independent risk governance structure is adopted after going through international best practices. There are sub-committees for each risk identified. 2. Group risk mitigation measures are introduced which has to be adopted by the group entities where SBI has 20 % or more stake.
6	IndusInd Bank Ltd.	Not given in the annual report.	Credit risk, market risk, liquidity risk, asset liability management, contingency funding plan etc.	Mitigation plan is mentioned for all the risks.	The committee has 6 members.	Proactive risk management.

3. Sector: Software/IT

Sl no.	Name of the company	Risk management framework	Identified risks / Major risks	Mitigation plans/ strategies	Risk management committee	Best practices followed (if any)
1	Infosys Limited	A proper enterprise risk management framework is given in the AR which is depicted through a flowchart.	Some of the key risks identified are: risks related to market, cost structure, employee work force etc.	Mitigation strategies are not given for all the risks.	There are 4 members in the committee and their activities for the given financial year are also mentioned.	The charter of the risk management committee is mentioned in a separate document for which the link is given in the AR.
2	Tata Consultancy Services Ltd.	The company has a risk management framework but it is not explained in detail in the AR.	Key risks are : Disruption and Uncertainty in Business due to Covid-19 pandemic, Volatile global political and economic scenario, Restrictions on global mobility, location strategies etc	Mitigation strategies are provided for all the risks along with the impact of risks on business.	It consists of 6 members. Terms of reference is also provided.	
3	HCL Technologies Ltd	Framework is just explained in description.	The company identifies some of the risks: supply side risks, pandemic risks, geo political risk, business continuity risk, privacy risk etc.	Mitigation plan is given for all risks.	Consists of 4 members. Terms of reference is also given.	
4	Wipro Ltd.	Risk management framework is explained in detail along with a flow chart.	COVID-19 pandemic, Escalation of Information Security & Cyber Security risk, changes in	The company provides mitigation strategies for all the	The company has Audit, Risk and compliance committee which acts as a risk	Risk management process is explained in detail.

			internal controls over financial reporting, Data Privacy regulations etc are some of the risks identified by the company.	risks identified.	management committee.	
5	Tech Mahindra Ltd.	The framework is not mentioned in the annual report.	Some of the key risks identified: High concentration in Communication vertical, Communication vertical Cyclicality, Global economy risk, Regulatory changes risk/ Visa risk	All the risks identified are discussed in detail along with their impact on the company and mitigation plans.	The committee consists of 8 members who review various enterprise risks.	

4. Sector:Finance

Sl no.	Name of the company	Risk management framework	Identified risks / Major risks	Mitigation plans/ strategies	Risk management committee	Best practices followed (if any)
1	Housing Development Fin. Corp. Ltd	The company has not disclosed any framework in the AR.	Major risks include credit risk, liquidity risk, foreign exchange risk and interest rate risk.	Mitigation strategies for all the financial risks are given.	There are 8 members in the committee. The role of RMC is given in detail.	
2	Bajaj Finance Ltd.	The company has not disclosed any framework in the AR.	BFL is exposed to credit, liquidity, market and interest rate risk. The company also has operational risk.	Mitigation strategies for all the financial risks are given.	There are 8 members in the committee. Their terms of reference are also given.	
3	Bajaj FinServ Ltd.	The framework	Major risks are: liquidity and	Mitigation strategies	There are 5 members in	1.The company along with

		is explained in detail as a description.	funding risk, credit risk, market risk etc.	for all the financial risks are given.	the committee. The link for the document which contains the terms of reference is given.	identifying the major risks also covers the aspect of where it arises from and changes made in the governance structure to manage the same. 2. A special section called risk management under COVID `19 is also included.
4	HDFC Life Insurance Company Limited	The company has explained its risk management framework in detail (with a flowchart) in the annual report.	• Operational Risk • Technology and Business Continuity Risk • Compliance/ Regulatory Risk • Strategy and Planning Risk • Insurance risk • Subsidiary related risks And financial risks.	Mitigation strategies for all the risks is mentioned in the annual report.	The committee is composed of 6 members who will Report to the Board, details on the risk exposures and the actions taken to manage the exposures.	a. Various Governance Councils (such as investment council, compliance council, Asset liability management council etc.,)are involved to help assess risks. b. Roles of various stakeholders of the ERM Framework are explained.
5	SBI Life Insurance Company Ltd.	Framework is explained in detail in flowchart.	Risks identified: insurance risk regulatory & operational risks, change in macro-economic factors etc.	The capitals impacted and mitigation strategies for all the risks are mentioned.	6 members are present in the company. Their terms of reference are also given.	Strategic objectives of the company are matched with risks.

5. Sector: Consumer Non-Durables

Sl no.	Name of the company	Risk management framework	Identified risks / Major risks	Mitigation plans/ strategies	Risk management committee	Best practices followed (if any)
1	Hindustan Unilever Ltd.	Framework is not mentioned in the Annual report.	Brand Preference, supply chain, business transformation, plastic packaging, talent, ethics etc.	Management of risk is mentioned for all risks identified.	5 members are there in the committee who help in implementation of the framework and review process.	
2	ITC Ltd.	Framework is explained in the form of a description.	Some of the risks identified: employee safety & well-being, supply chain, regulatory compliance etc.	Mitigation plans are also explained.	6 members are there in the committee.	
3	Asian Paints Limited	Framework is not mentioned in the annual report.	Safety risk, sustainability risks, human capital risks, information security risk, statutory compliance risk etc. are some of the risks identified.	The company has discussed how it has managed all the risks.	The committee is composed of 6 members who is mainly responsible for framing the risk management policy and identifying and managing various risks.	
4	Nestle India Ltd.	Not given in the annual report.	The company identifies the following risks: constant fluctuations in commodity and fuel prices, Economic slowdown impacts consumer demand, consumer	The company has discussed mitigation plans for few of the risks.	4 members are there in the committee.	

			health and safety etc.			
5	Britannia Industries Ltd.	Not given in the annual report.	Primary risk to the business will be on account of adverse changes to the economy. Changes in consumer behaviour, buying patterns and working environment arising due to COVID-19 pandemic.	Mitigation plans are mentioned in general.	6-member committee to assess the risk and suggest measures to mitigate.	

6. Sector: Construction Project

Sl no.	Name of the company	Risk management framework	Identified risks / Major risks	Mitigation plans/ strategies	Risk management committee	Best practices followed (if any)
1	Larsen and Toubro Ltd.	Not disclosed in detail in the AR.	Major risks for the business are delay in obtaining Right of Way (RoW), work front, third-party liability, epidemic risks, schedules, approvals/clearances, design approvals, and change in design.	Mitigation strategies are discussed for the risks identified.	There are 3 members in the committee. The terms of reference is mentioned.	

7. Sector: Telecom - Services

Sl no.	Name of the company	Risk management framework	Identified risks / Major risks	Mitigation plans/ strategies	Risk management committee	Best practices followed (if any)
1	Bharti Airtel Ltd.	Risk identification process is	Potential risks such as political	The mitigation actions for	The committee consists of 6 members. The	• The risk management is

		explained well with a flow chart	uncertainties, economic uncertainties, network experience, data loss etc., are identified.	each risk is given in detail in the annual report.	key responsibilities of the committee are also discussed.	decentralised into 3 levels: 1. At Board governance level. 2. At the management level. 3. At the operating level

8. Sector: Auto

Sl no.	Name of the company	Risk management framework	Identified risks / Major risks	Mitigation plans/ strategies	Risk management committee	Best practices followed (if any)
1	Maruti Suzuki India Limited	No framework was found in the annual report.	Focus Areas of Risk Management: Safeguarding consumer and personal data, Guarding confidential information and IT systems, Management of COVID-19-related risks to ensure human health and safety and continuity of operations etc.	The company provides mitigation strategies for all the risks.	RMC has 5 members. Their roles and responsibilities are discussed.	
2	Mahindra & Mahindra Ltd.	No framework was found in the annual report.	Commodity risk and supply management risk were the most commonly found risks in the annual report.	Mitigation strategies are not discussed.	There are 4 members in the committee. They are involved in framing, implementing and monitoring the Risk Management	

					Plan of the Company.	
3	Tata Motors Ltd.	Not given in detail.	• Principal risks are identified and a proper description is provided: • COVID-19 and global economic conditions, • Impairment of tangible and intangible assets, • Supply chain disruptions, distributional channels and retailer network, • Credit rating and liquidity risks, • Intensifying competition and brand positioning etc.	The company provides mitigation strategies for all the risks.	The Risk Management Committee assists the Board in overseeing the risk management process, controls, risk tolerance, capital liquidity and funding and reviewing the Company's risk governance.	Under the heading Value creation, the company has drafted a table which contains, principal risks, description, consequence, mitigation, opportunities and impact on the capital.
4	Bajaj Auto Limited	Framework not disclosed in the AR.	The company has discussed all the financial risks such as credit risk, liquidity risks, market risks etc.	Measurement and mitigation of financial risks is mentioned.	5 member committee.	
5	Hero MotoCorp Ltd.	Framework is not given in detail.	1. Business Continuity Planning (BCP) 2. Social media interactions and control 3. Corporate affairs and the opportunity for a closer policy maker positioning 4. New age businesses and their impact on established	Annual report mentions that there is a Mitigation plan for each risk but it is not given in detail.	5-member committee for assisting board in monitoring and mitigating risks. Duties of the committee are given in a separate pdf document in the annual report.	The company has a special mention about the new risks added as a result of the review of the risk management policy.

			business models.			
6	Eicher Motors Ltd.	Framework is not mentioned in detail.	3 risks are identified: COVID -19 pandemic, regulatory and availability of financing.	Mitigation strategies for all three risks are mentioned.	The committee comprises of 3 members, who assist in formulating risk management plans and practices.	

9. Sector: Pharmaceuticals

Sl no.	Name of the company	Risk management framework	Identified risks / Major risks	Mitigation plans/ strategies	Risk management committee	Best practices followed (if any)
1	Sun Pharmaceutical Industries Ltd.	A small description about the ERM team and its functions is mentioned.	Risks are categorised into Strategic, Financial, Operational, Compliance & Reputational.	The mitigation plans are not discussed in detail.	There are 3 members in the committee.	
2	Dr Reddys Laboratories Ltd.	A small description about the ERM team and its functions is mentioned.	strategic, business, compliance and operational risks	The mitigation plan for each risk is not given.	The committee has 6 members and the key functions are explained in the annual report.	
3	Divis Laboratories Ltd.	The company has not mentioned any details about the framework/ policy.	Some of the major risks identifiedare:Global markets, competition, COVID 19- pandemic, regulatory and quality compliances, patent compliance, employee relations, commercial & financial risks, insurance, environment and health & safety, Information technology,	The company has disclosed the risk mitigation strategies for all the identified risks.	The committee comprises of 5 members who are engaged in identifying, assessing and minimising the risks relating business, customer concentration, supplier concentration etc.	

			sustainable operations.			
4	Cipla Ltd.	Framework is given as a flowchart.	Some of the major risks are: business continuity, quality, Environment, Health and Safety (EHS) Risks, Cyber-security and data privacy regulations etc.	The company has disclosed the risk mitigation strategies for all the identified risks.	There are 4 members in the committee. Risk committee is combined with investment committee. the roles and responsibilities of members are explained.	Enhancements made during the year to control risks are given in the AR along with mitigation strategies.

10. Sector: Consumer Durables

Sl no.	Name of the company	Risk management framework	Identified risks / Major risks	Mitigation plans/ strategies	Risk management committee	Best practices followed (if any)
1	Titan Company Ltd.	The framework is not given in the annual report.	Import Controls on Account Current Account Deficit, The Prevention of Money-Laundering Act, 2002 (PMLA), Gold Price Volatility Risk.	The company has discussed the mitigation strategies for each identified risk.	The committee consists of 5 members who oversee various risks such as business/ strategic risks, operational risk, cyber security and financial risks.	The risks are identified at operating management level either as gross risk/ net risks and is presented to the board for developing mitigation plan. This forms the basis for the framework.

11. Sector:Power

Sl no.	Name of the company	Risk management framework	Identified risks / Major risks	Mitigation plans/ strategies	Risk management committee	Best practices followed (if any)

1	Power Grid Corporation of India Ltd.	Framework is not given in detail in the AR.	Only financial risks are discussed.	Mitigation planof financial risks are mentioned.	3 members are present in the committee.	
2	NTPC Limited	The framework is not given in the annual report.	The company has identified 9 major risks: compliance, delay in execution of projects, risks relating to hydro projects, relating to coal mining, sustaining efficient plant operations, legal risks etc.	Only strategies to measure and mitigate financial risks is mentioned.	A committee consisting of 5 members is set up which is responsible for risk assessment, mitigation and reviewing the framework from time to time.	

12. Sector: Non - Ferrous Metals

Sl no.	Name of the company	Risk management framework	Identified risks / Major risks	Mitigation plans/ strategies	Risk management committee	Best practices followed (if any)
1	Hindalco Industries Ltd.	Not given in the AR.	Only financial risks are mentioned.	Management of financial risks is mentioned.	6 members are present in the committee.	

13. Sector: Ferrous Metals

Sl no.	Name of the company	Risk management framework	Identified risks / Major risks	Mitigation plans/ strategies	Risk management committee	Best practices followed (if any)

1	Tata Steel Ltd.	ERM framework is given in descriptive format in the AR.	Risks are classified as: Financial risk, macro economic and market risks, operational, regulatory, safety etc.	The impact of each risk on the capitals and mitigation strategies are mentioned.	There are 12 members are in the committee. Their terms of reference are also given.	
2	JSW Steel Ltd.	The framework adopted by the company is based on COSO framework. But the details are not given in the AR.	The risks are classified into: strategic and operational. Regulatory and compliance, Declining global liquidity, Mergers and acquisitions etc.	The responses by the company to all the risks are mentioned in the AR. Mitigation measures are also given in a separate section.	The committee has 6 members.	The risk management committee has sub committees such as 'capex risk evaluation committee'. Locational Committees namely (a) Corporate Locational Committee (b) Vijayanagar Locational Committee (c) Dolvi Locational Committee and (d) Salem Locational Committee to further review risk assessment at Location Level.

14. Sector: Transportation

Sl no.	Name of the company	Risk management framework	Identified risks / Major risks	Mitigation plans/ strategies	Risk management committee	Best practices followed (if any)

1	Adani Ports & Special Economic Zone	Risk management framework is given in the annual report in the form of a flow chart.	The risks are categorised into : strategic, financial, operational and sustainability risks.	The definition, mitigation strategies, movement in risk and their impact on capitals is given in the AR.	6 members are there in the committee. The terms of reference is also given.	

15. Sector: Cement

Sl no.	Name of the company	Risk management framework	Identified risks / Major risks	Mitigation plans/ strategies	Risk management committee	Best practices followed (if any)
1	UltraTech Cement Limited	Framework is not given in the AR.	Key business risks: Economic Environment and Market Demand, inflation and cost of production, legal and compliance etc.	Mitigation strategies given for all the risks.	Risk management is a part of sustainability committee. It consists of 3 members. The objectives and scope of the committee is also mentioned.	
2	Grasim Industries Ltd.	Framework is given in the form of a description.	Some of the risks identified: Availability of natural resource-based inputs, Price volatility of input materials and finished products, Product dumping by overseas suppliers,	The description and mitigation plan for all the risks are given in the AR.	There are 7 members in the committee.	

			Competition risk etc.			
3	Shree Cement Ltd.	Framework is not given in the annual report.	The key risks identified by the Company: Over-Capacity in the Industry, Availability of Limestone and other resources, Fuel Cost, conomic shocks due to external factors etc.	All the risks have mitigation strategies.	Risk management is a part of audit committee of the board. Terms of reference is given.	

16. Sector : Oil

Sl no.	Name of the company	Risk management framework	Identified risks / Major risks	Mitigation plans/ strategies	Risk management committee	Best practices followed (if any)
1	Oil & Natural Gas Corporation Ltd.	Framework not mentioned in the AR.	Risks identified: risk of human capital, price, HSE risk etc.	Mitigation process is given for all risks.	The risk management is a part of audit committee.	

17. Sector: Minerals/Mining

Sl no.	Name of the company	Risk management framework	Identified risks / Major risks	Mitigation plans/ strategies	Risk management committee	Best practices followed (if any)
1	Coal India Ltd.	Framework is given as a description.	The entity level Risk Assessment included: i)	Only for financial risks management	There are 7 members in the committee.	

			Strategic Risk. ii) Operational Risk. iii) Financial Risk. iv) Compliance Risk. v)Project Related Risk. vi) Support System Risk.	plan is given.		

18. Sector: Pesticides

Sl no.	Name of the company	Risk management framework	Identified risks / Major risks	Mitigation plans/ strategies	Risk management committee	Best practices followed (if any)
1	UPL Ltd.	The framework explains the risk management process and objectives of the risk management policy.	Changes in market dynamics, Research and development, Regulatory changes, Product pricingetc., are some of the identified risks.	For all the identified risks the company has given description, impact and mitigation measures in the form of a table.	The committee comprises of 3 members to monitor mitigation plans for the identified risks.	

19. Sector: Gas

Sl no.	Name of the company	Risk management framework	Identified risks / Major risks	Mitigation plans/ strategies	Risk management committee	Best practices followed (if any)
1	GAIL (India) Ltd.	The PNGRB Act provides a legal framework. The company	a. Market Risk of LNG b. Risk of reduction in margin of Petrochemicals due to lower	Mitigation plans are mentioned in general i..e not given for	The committee consists of 6 members. There are sub committees	• Risk units • Risk registers • Steering committee etc. are a part of

		provides a separate document which contains every single detail about the process of risk management along with a detailed framework.	industry demand, lower sale price & high input cost. c. Risk of delay in Project Execution due to delay in obtaining Right of Use (RoU)/Land. Etc.	each risk individually.	such as corporate level risk steering committee and site level risk steering committee.	risk reporting which is practised by the company.

(Source: Annual report 2019-20)

Summary of Findings and conclusion: All 50 companies analyzed have identified types of risks that their businesses are exposed to and have also mentioned the risk mitigating strategies. Few companies have given the risk management framework in detail whereas few companies have either not mentioned or mentioned very briefly about the risk management framework. Major risks identified are: Strategic risk, financial risk, regulatory and compliance risk, reputation risk, operational risk, and market risk. There are sector specific risks too identified such as credit risk for banks, sustainability risk for manufacturing/oil and gas industries, project execution risk for manufacturing and so on. All companies have risk management committee in place with 5 to 7 members. In some companies, audit committee itself is acting as a risk management committee too. Around 20 companies have adopted some of the best practices in their risk management framework. Though not mandated by law, these companies are proactive in adopting good practices which should be replicated by their industry counterparts. For e.g., JSW steel has sub committees in their main risk committee such as capex evaluation committee, locational committee for their branches like Salem committee and son on. There are no significant findings with reference to sectorial analysis.

This research highlights that risk management has been a dynamic process and has been continuously evolving from time to time. As businesses are becoming more and more competitive it is important to stay stable in this VUCA world (volatility, uncertainty, complexity, and ambiguity). A robust risk management framework will help in identifying not only potential risks but opportunities too which comes in the form of upside risk. Risk management also helps in mitigating potential corporate governance scams, accounting scandals and financial mismanagement. Businesses must upgrade/adopt to new techniques and tools of risk management. Integrated risk management or enterprise risk management must be followed in the larger interest of the business and stakeholders. This will not only help in risk management but also serve as a good indicator while evaluating the corporate governance process. Most of the companies analyzed in this study have a good risk management framework and processes in place. Going forward, regulatory and compliance requirements are going to increase in this regard. It is in the best interest of the companies to realize the importance of integrated risk management and adopt the same by keeping global risk management framework standards as a benchmark.

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