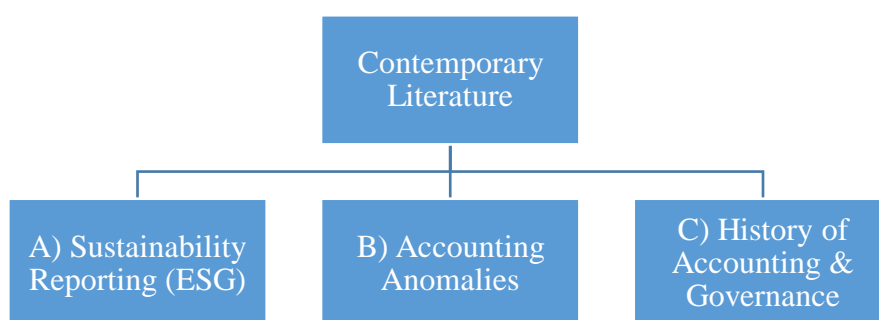


## Chapter 3: REVIEW OF SCIENTIFIC LITERATURE ON ACCOUNTING AND RELATED AREAS

3.1 Study of contemporary literature has been divided into three parts based on the three challenges.

Figure No. 6: Three contemporary challenges in accounting domain



### A) Sustainability reporting: (ESG Reporting)

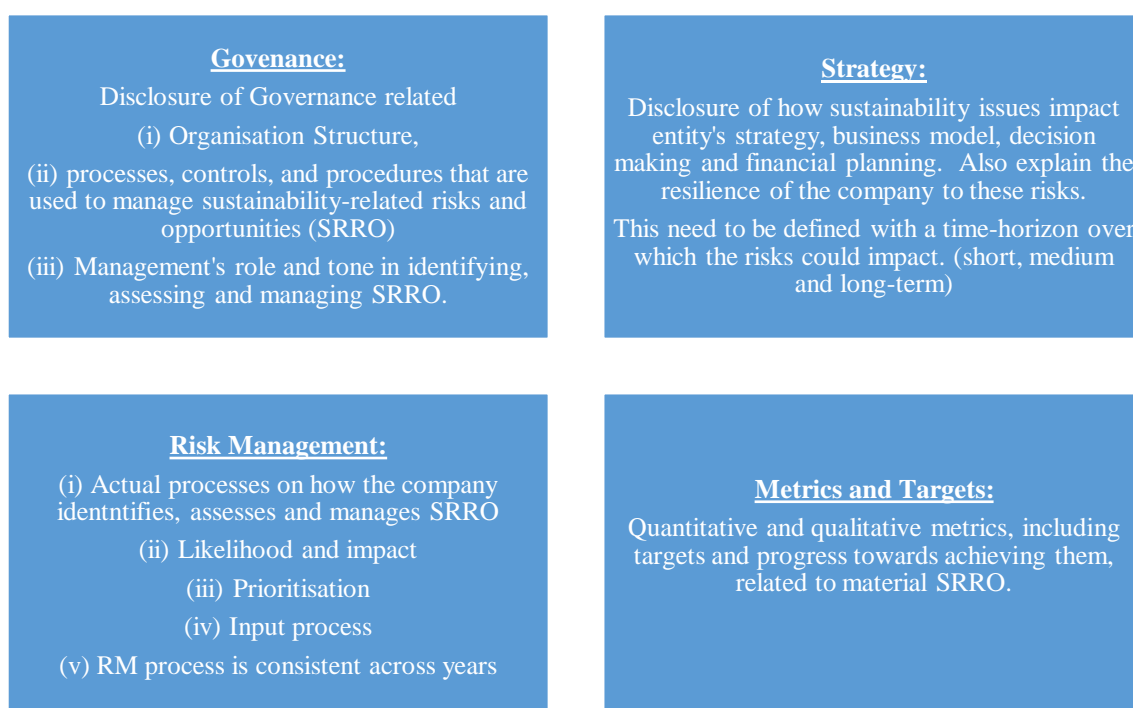
After many decades of inadequacy and challenges, on June 26<sup>th</sup>, 2023, the International Sustainability Standards Board (ISSB) has released two key sustainability standards:

#### **IFRS S1: General Requirements for Disclosure of Sustainability-related Financial Information:**

- i. The general objective is to provide a global baseline for sustainability-related financial disclosures which would enhance comparability and consistency of information reported by various companies.
- ii. The specific objective of IFRS S1 is to require an entity to disclose '**material information**' about its sustainability-related risks and opportunities (SRRO) that is useful to users of general-purpose financial reports, in making decisions relating to providing resources to the entity. (i.e. those that could reasonably be expected to affect a company's prospects).

- iii. These are GAAP (Generally Accepted Accounting Practises) agnostic – i.e. regardless of the accounting standards applicable in different jurisdictions, these standards must be adhered to. This would facilitate comparable information across entities.
- iv. The standard retains the four pillars of TCFD (Task Force on Climate-Related Financial Disclosures) viz.

**Figure no. 7: Four pillars of TCFD**



**IFRS S2: Climate Related disclosures:**

The two standards are designed to be applied together. This standard has been developed to capture the climate-specific requirements through the TCFD framework.

- i. **Governance:** Disclosures about the governance processes, controls, and procedures related to assessing and managing climate-related risks and opportunities. (CRRO)
- ii. **Strategy:** The impact of climate-related risks and opportunities on the entity's business model, strategy, and financial planning.

- iii. **Risk Management:** How the entity identifies, assesses, and manages climate-related risks.
- iv. **Metrics and Targets:** Specific climate-related metrics and targets, such as greenhouse gas emissions, and progress towards achieving them.

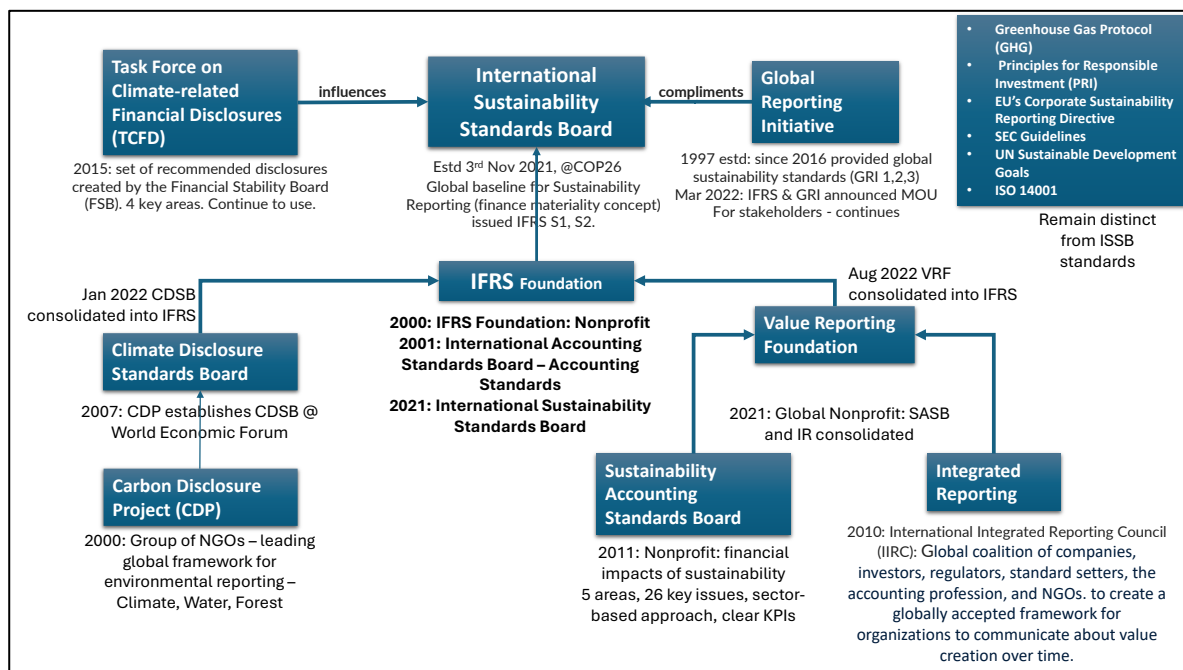
The landscape of Sustainability reporting has been diverse and non-consistent with multiple authorities issuing multiple standards, rules, and metrics. A brief representation of these are as follows:

- i. **Triple Bottom Line reporting (1994):** A sustainability framework that evaluates a company's performance based on three pillars: environmental (planet), social (people), and economic (profit) impact, emphasising the importance of balancing these aspects for long-term success.
- ii. **Global Reporting Initiative (GRI) Standards (1997):** Guidelines for reporting on environmental, social, and governance performance.
- iii. **Greenhouse Gas Protocol (GHG) (1998):** Provides standards and guidance for companies and governments to measure and manage greenhouse gas emissions.
- iv. **Carbon Disclosure Project (CDP) (2000):** Helps companies and cities disclose their environmental impact, particularly in terms of carbon emissions, water usage, and deforestation.
- v. **United Nations Global Compact (2000):** Encourages businesses worldwide to adopt sustainable and socially responsible policies and to report on their implementation.
- vi. **ISO 14001 (2004, revised in 2015):** An international standard for environmental management systems.
- vii. **Principles for Responsible Investment (PRI) (2006):** A global network of investors working together to promote sustainable investment practices.
- viii. **Sustainability Accounting Standards Board (SASB) Standards (2011):** Industry-

specific standards for reporting on sustainability issues likely to impact financial performance.

- ix. **Integrated Reporting Framework (<IR>) (2013):** Developed by the International Integrated Reporting Council (IIRC), it combines financial and sustainability information for a comprehensive view of an organization's performance.
- x. **EU Non-Financial Reporting Directive (NFRD) (2014, updated in 2021 as CSRD):** Requires large companies in the EU to disclose information on social and environmental challenges.
- xi. **Science Based Targets initiative (SBTi) (2015):** Provides guidance for companies to set science-based emissions reduction targets.
- xii. **United Nations Sustainable Development Goals (UN SDGs) (2015):** A set of 17 global goals designed to be a "blueprint to achieve a better and more sustainable future for all" by 2030.
- xiii. **Task Force on Climate-related Financial Disclosures (TCFD) (2017):** Provides recommendations for disclosing climate-related financial risks and opportunities.
- xiv. **Value Reporting Foundation (2021):** Formed by the merger of the International Integrated Reporting Council (IIRC) and the Sustainability Accounting Standards Board (SASB), it provides frameworks and standards for integrated reporting and sustainability disclosure.

**Figure No. 8: Pictorial representation of ESG Reporting landscape**



There are a few drawbacks and challenges<sup>101</sup> with respect to the above ESG reporting standards. They are:

- i. **Lack of Standardization**<sup>102</sup>: There are multiple ESG reporting frameworks and standards, such as GRI, SASB, TCFD, and others, leading to inconsistencies in reporting and difficulties in comparing data across companies and industries.
- ii. **Lack of Clarity and Consistency**<sup>103</sup>: Each standard focuses on certain parameters and there is a need for a common minimum protocol which can provide clarity and can be consistently followed by companies.

<sup>101</sup> Norman, Wayne, and Chris MacDonald. "Getting to the Bottom of 'Triple Bottom Line.'" *Business Ethics Quarterly* 14, no. 2 (April 2004): 243–62. <https://doi.org/10.5840/beq200414211>.

<sup>102</sup> Eccles, R. G., Krzus, M. P., & Solano, C. (2019, March 2). A comparative analysis of integrated reporting in ten countries. SSRN. <https://doi.org/10.2139/ssrn.3345590>

<sup>103</sup> KPMG. (2020). The state of play in sustainability reporting. <https://home.kpmg/xx/en/home/insights/2020/11/the-state-of-play-in-sustainability-reporting.html>

- iii. **Complexity and Costs:** Implementing ESG reporting can be complex and costly for companies, especially smaller ones. It requires gathering extensive data, developing reporting processes, and often hiring consultants or additional staff.
- iv. **Data Quality and Reliability:** ESG data can vary in quality and reliability, as it often involves subjective assessments and may not be audited or verified to the same extent as financial data.
- v. **Greenwashing<sup>104</sup>:** Some companies may engage in "greenwashing," where they exaggerate or misrepresent their ESG performance to appear more sustainable or ethical than they actually are.
- vi. **Focus on Short-Term Performance:** ESG reporting can sometimes emphasize short-term performance over long-term sustainability and resilience, leading companies to prioritize immediate ESG metrics over more significant, long-term impacts.
- vii. **Limited Scope:** ESG reporting standards may not cover all relevant sustainability and ethical issues, leading to gaps in reporting and a lack of comprehensive understanding of a company's overall impact.
- viii. **Regulatory Uncertainty:** The regulatory landscape for ESG reporting is evolving, with different countries and regions adopting varying requirements and standards. This creates uncertainty for companies operating in multiple jurisdictions.
- ix. **Stakeholder Skepticism:** Some stakeholders, including investors and consumers, may be skeptical of ESG reports, questioning their accuracy, relevance, or the company's genuine commitment to sustainability and ethical practices.

Potential insights are drawn from Indian Knowledge Systems to address these challenges.

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<sup>104</sup> Testa, F., Boiral, O., & Iraldo, F. (2021). Greenwashing in Environmental, Social, and Governance (ESG). *Journal of Business Ethics*, 173(2), 241-255. <https://doi.org/10.1007/s10551-020-04679-6>

## B) Accounting Anomalies:

A few important concepts, articles, standards, frameworks which are part of the literature review are:

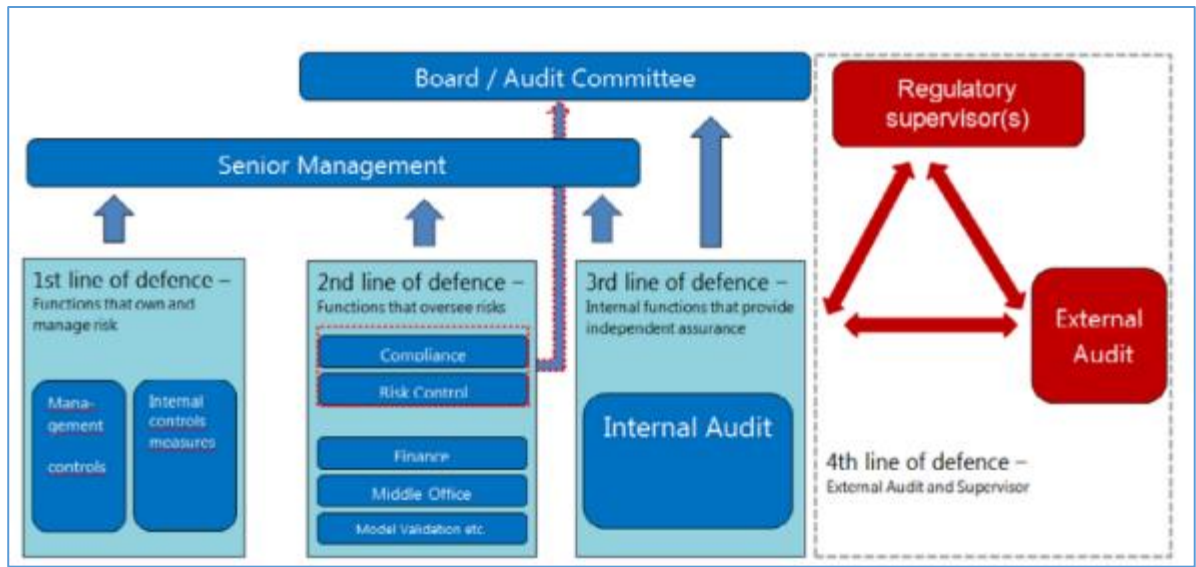
- (i) The three lines of defense Model by Institute of Internal Auditors. (2013). This framework enables managing risks and ensuring effective Governance within a organisation. The first line of defense consists of operational management, responsible for owning and managing risks. The second line includes various risk management and compliance functions that provide oversight and support to the first line. The third line is the internal audit, which provides independent assurance on the effectiveness of risk management and internal controls. This model emphasises the importance of clear roles, responsibilities, and collaboration among the three lines to achieve organizational objectives and mitigate risks.

**Figure No. 9: Three Lines of Defense Model.**



(ii) The paper by Arndorfer and Mintom (2015)<sup>105</sup> introduces the Four-Line-of-Defense Model for financial institutions, which expands on the traditional Three Lines of Defense model by adding a fourth line dedicated to independent assurance provided by external auditors or regulators.

**Figure No. 10: Four lines of Defense Model**



(iii) **Forensic Accounting and Investigation Standards (FAIS):** Issued by the Digital Accounting and Assurance Board (DAAB) under the authority of the Institute of Chartered Accountants of India. These have been revised and released along with an implementation guide on 1<sup>st</sup> July 2023<sup>106</sup>. These are principle-based standards and provide adequate scope for professional judgement when applying to unique situations and specific circumstances. The FAIS, as and when issued, are classified, and numbered in a

<sup>105</sup> Arndorfer, I., & Mintom, A. (2015). The four-line-of-defence model for financial institutions. Financial Stability Institute Working Paper. Bank for International Settlements. <https://hdl.handle.net/10278/3685180>

<sup>106</sup> <https://www.icai.org/post/daab270723>

series format, as follows:

- 7.3.1 100 Series: Standards on Key Concepts.
- 7.3.2 200 Series: Standards on Engagement Management.
- 7.3.3 300 Series: Standards on Executing Assignments.
- 7.3.4 400 Series: Standards on Specialised Areas.
- 7.3.5 500 Series: Standards on Reporting.
- 7.3.6 600 Series: Standards on Quality Control.

These standards are designed to promote best practices in forensic accounting and investigation and to enhance the credibility and reliability of the services provided by chartered accountants in this field.

(iv) **Introduction to Forensic Accounting**<sup>107</sup>:

Forensic accounting is a specialized field of accounting that focuses on investigating financial records and transactions to detect fraud, embezzlement, or other financial irregularities. It involves applying accounting, auditing, and investigative skills to uncover and document financial discrepancies, often for legal or regulatory purposes. Forensic accountants may work on cases related to financial crimes, disputes, or litigation, and their findings can be used as evidence in court proceedings. They may also be involved in assessing damages, valuing assets, or performing due diligence in financial transactions.

A few concepts:

- **Fraud Triangle:** Donald Cressey, a criminologist, in his 1953 book "Other People's Money<sup>108</sup>," described the elements that lead to trust violations in embezzlement

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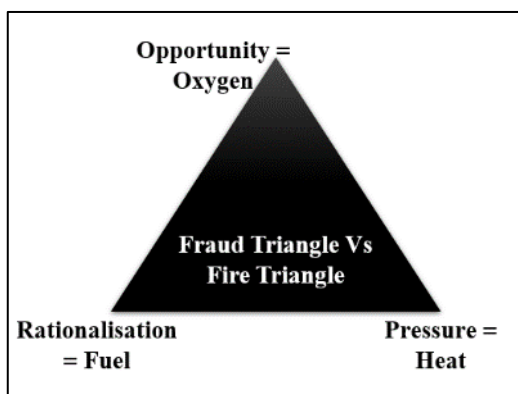
<sup>107</sup> Silverstone, H., Sheetz, M., Pedneault, S., & Rudewicz, F. (2012). Forensic accounting and fraud investigation for non-experts (3rd ed.). John Wiley & Sons.

<sup>108</sup> Cressey, D. R. (1953). Other People's Money: A Study in the Social Psychology of Embezzlement. Glencoe, IL: The Free Press.

cases. While Cressey identified the fraud elements of opportunity, pressure, and rationalization, he did not use a triangle to illustrate their relationship. The Fraud Triangle serendipitously emerged in the late seventies when a Brigham Young accounting professor, Steve Albrecht, conducted a fraud seminar at a large paper company<sup>109</sup>. One of the participants recognized and pointed out to the professor the similarities between the various components needed for fire and fraud.

The triangle posits that individuals are motivated to converge: a) a perceived pressure, b) a perceived opportunity, and c) a way to rationalize the fraud as consistent with one's values. **Opportunity**, often resulting from a control weakness, acts as the **oxygen** that fuels fraud. **Pressure** serves as the **heat** that ignites it, while **rationalisation** provides the **fuel** that sustains it. Like a fire, removing one side of the Fraud Triangle can significantly enhance your ability to prevent fraud or mitigate its impact. Implementing basic control measures, such as regular reviews, verification, and segregation of duties, can substantially reduce the element of opportunity.

**Figure No. 11: Fraud Triangle:**

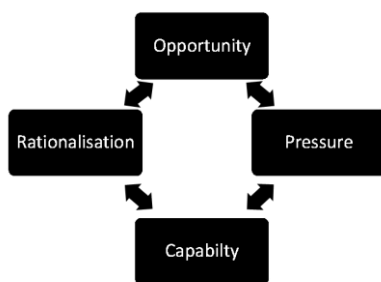


- **Fraud Diamond Theory:** The Fraud Diamond Theory was introduced by David T. Wolfe and Dana R. Hermanson in their 2004 article titled "The Fraud Diamond:

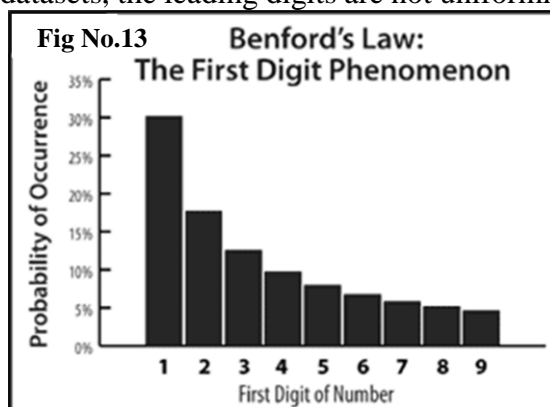
<sup>109</sup> <https://www.wichita.edu/administration/internalaudit/blog/2019-04-10-triangle.php>

Considering the Four Elements of Fraud<sup>110</sup>." The article was published in the CPA Journal, which is a publication of the New York State Society of CPAs. The theory expands on the traditional Fraud Triangle by adding a fourth element, capability, to the existing elements of pressure, opportunity, and rationalization. This theory suggests that for fraud to occur, the individual must not only have the motivation, opportunity, and rationalization but also the ability or capability to carry out the fraudulent act.

**Figure No. 12: Fraud Diamond**



- **Benford's Law:** This statistical principle states that in many naturally occurring datasets, the leading digits are not uniformly distributed but follow a specific logarithmic



distribution. Also known as the First Digit Law, this is a mathematical theory that predicts the frequency distribution of the first digit in many real-life sets of numerical data. According to this law, the digit 1 appears as the first digit about 30%

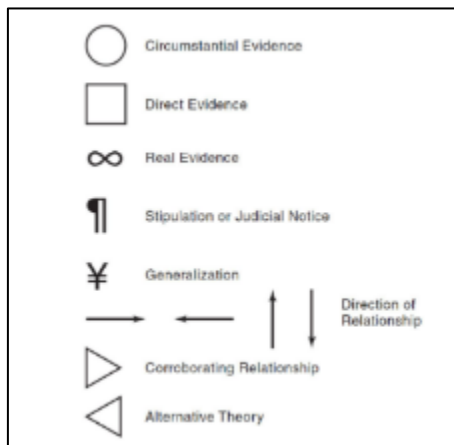
of the time, while larger digits appear less frequently, with the digit 9 appearing as the first digit less than 5% of the time. This distribution is counterintuitive because one might expect all digits to appear with equal frequency. This method is particularly effective in

<sup>110</sup> Wolfe, D. T., & Hermanson, D. R. (2004). The Fraud Diamond: Considering the Four Elements of Fraud. The CPA Journal, 74(12), 38-42.

large datasets and can be applied to various types of financial records, such as invoices, tax returns, and expense reports.

- **Red Flags:** These are warning signs or indicators that suggest the possibility of fraudulent activities or irregularities in financial statements. Forensic accountants are trained to identify and investigate these red flags, which can include unusual transactions, significant changes in financial ratios, or inconsistencies in documentation.

**Figure No.14: Standard shapes for plotting investigative**



- **Inferential Analysis:** This involves deconstructing the situation through simple language. Constructing a key list underpins the implementation process. Using investigative inferential charts, the ultimate and penultimate probanda is connected to all the parts of the puzzle.

- **Chain of Custody:** This concept refers to the documentation and handling of evidence in an investigation. Maintaining a proper chain of custody is crucial in forensic accounting to ensure that the evidence collected is admissible in court and has not been tampered with or altered.

- **Confidentiality:** Above all, maintaining absolute confidentiality is critical for any forensic and fraud investigation. Confidentiality standards and policies have to be adhered to for successful investigations.

A few legal interventions made to prevent frauds:

- (v) **Foreign Corrupt Practices Act (FCPA) of 1977:** The FCPA was introduced in response to a wave of corporate scandals in 1970 in which many US companies were found to have been engaged in bribery and corruption overseas.

(vi) **Sarbanes-Oxley Act (SOX) of 2002:** Post the Enron and Worldcom scandals, the famous SOX Act was enacted to reinforce and improve the reliability of financial reporting through more robust internal controls and auditing procedures. This law also requires the Chief Executive and Chief Financial Officers of public companies to certify the accuracy of their company's financial reports personally.

(vii) **Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act) of 2010:** The 2008 financial crisis led to the enactment of the comprehensive economic reform law called the Dodd-Frank Act of 2010

(viii) **COSO Internal control integrated framework and COSO ERM Frameworks:** The COSO ERM framework is one of the most widely used risk management frameworks. It is a comprehensive framework for managing risks in organizations and provides guidance on risk assessment, risk response, and risk monitoring.

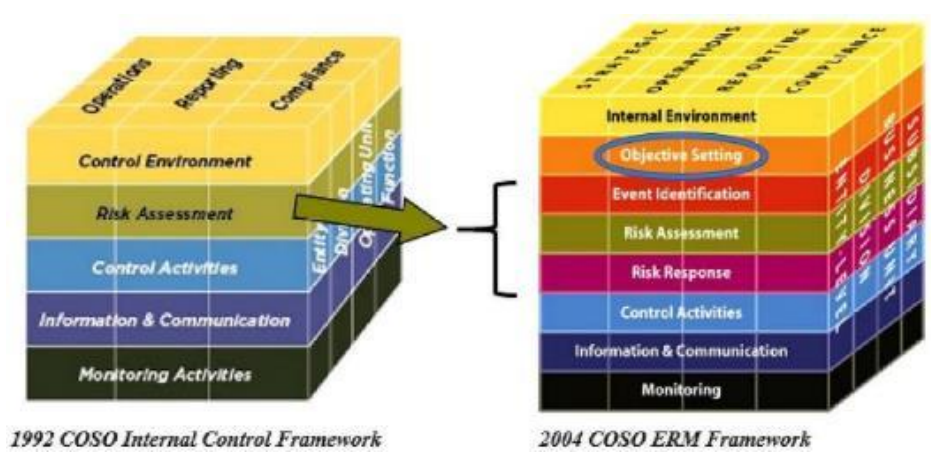
COSO was formed in response to the increasing number of financial scandals in the 1980s, which eroded public trust in the financial reporting system. The Treadway Commission was established in 1985 to investigate the root causes of these financial scandals and make recommendations for improving the financial reporting process. The goal of COSO was to provide organizations with a framework for managing and controlling risk to improve the reliability of financial reporting and help restore public trust in the financial reporting system. COSO was formed as a collaboration between five sponsoring organizations: the American Institute of Certified Public Accountants, the Financial Executives Institute, the Institute of Management Accountants, the Institute of Internal Auditors, and the National Association of Accountants.

There are two types of the COSO frameworks:

**COSO Internal Control Integrated Framework:** This was first introduced in 1992 and was later updated in 2013. This framework provides a systematic approach to designing,

implementing, and monitoring internal controls to achieve an organization's objectives related to operations, financial reporting, and compliance. It consists of five interrelated components, including control environment, risk assessment, control activities, information and communication, and monitoring. The framework got further authority based on the reference in the Auditing Standard No. 2 which was introduced by the Public Company Accounting Oversight Board in 2004. This standard has not been superseded by Auditing Std. No. 5.

**COSO Enterprise Risk Management Framework:** This framework was first introduced in 2004 and later updated in 2017. This provides a comprehensive approach to managing and structuring an organization's approach to risk management. It covers the eight components of internal control, including control environment, risk assessment, control activities, information and communication, and monitoring activities.



**Figure No.15: COSO Internal Control Framework and ERM Framework**

The COSO ERM 2017 update proposed the following:



**Figure 16: COSO Enterprise Risk Management**

Both frameworks are widely recognized and widely used as best practices for managing risk and improving internal controls. Organizations can choose to use either or both frameworks, depending on their specific needs and risk management goals.

**A few other popular risk management and internal control frameworks adopted by various companies are as follows:**

- (ix) **ISO 31000:** ISO 31000 is a risk management standard developed by the International Organization for Standardization (ISO). It provides a framework for managing risks in organizations of all types and sizes.
- (x) **NIST Cybersecurity Framework:** The NIST Cybersecurity Framework is a risk management framework developed by the National Institute of Standards and Technology (NIST) to help organizations manage cybersecurity risks.
- (xi) **OCEG GRC Capability Model:** The OCEG (Open Compliance and Ethics Group) GRC (Governance, Risk, and Compliance) Capability Model is a framework for managing risks related to governance, risk, and compliance.
- (xii) **AS/NZS 4360:** AS/NZS 4360 is a risk management standard developed by the Standards Australia and Standards New Zealand. It provides a framework for managing risks in organizations.

- (xiii) **FAIR (Factor Analysis of Information Risk):** FAIR is a risk management framework for managing information and cybersecurity risks. It provides a quantitative approach to risk analysis.
- (xiv) **PMI Risk Management Framework:** The Project Management Institute (PMI) Risk Management Framework is a framework for managing risks in project management. It provides guidance on risk planning, risk identification, risk analysis, risk response, and risk monitoring.
- (xv) **CMMI (Capability Maturity Model Integration):** CMMI is a process improvement framework that includes a risk management component. It provides guidance on managing risks in software development, engineering, and project management.
- (xvi) **RIMS Risk Maturity Model:** The Risk and Insurance Management Society (RIMS) Risk Maturity Model is a framework for assessing an organization's risk management maturity and identifying areas for improvement.
- (xvii) **ERM Framework for Nonprofit Organizations:** The ERM Framework for Nonprofit Organizations was developed by the Nonprofit Risk Management Center. It provides guidance on managing risks in nonprofit organizations, including governance, financial management, and operational risks.
- (xviii) Sujana, E., Yasa, I., & Wahyuni, M. (2019). *Testing of fraud diamond theory based on local wisdom on fraud behavior*. In Proceedings of the International Conference on Tourism, Economics, Accounting, Management, and Social Science (TEAMS 2018). <https://doi.org/10.2991/teams-18.2019.3>:

This paper examines the influence of cultural value like 'Tri-Kaya-Parisudha' on the four parameters of 'Fraud Diamond theory.' The research uses a quantitative method by using 40 finance department employees in all Universities in Buleleng Regency as respondents. The result of the study is that introduction of variable 'Tri-Kaya-Parisudha' altered the

effect of pressure and capability on fraud behaviour. Also it, decreased the effect of opportunity and rationalisation on fraud behaviour. In a subsequent study, we can check the effect of such intervention and its impact on accounting scams like Enron and Satyam.

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### **C) History of Accounting and Corporate Governance:**

**1. "A History of Accounting and Accountants" by Richard Brown:** First published in 1905, this text explores the evolution of accounting practice and theory from ancient times to the turn of the 20th century. Brown begins with the earliest known records of accounting in ancient civilizations, citing examples from around 3500 B.C. in Mesopotamia. He then discusses the advancements during the Greek and Roman empires and the Middle Ages.

The pivotal moment in accounting history, according to Brown, is the development of double-entry bookkeeping, systematized by Luca Pacioli in 1494, which revolutionized how businesses tracked their finances. Brown tracks the diffusion of this system across Europe and its impact on trade and commerce during the Renaissance. The industrial revolution in the 18th and 19th centuries demanded more sophisticated accounting methods due to increased business complexity. This period saw the growth of the accounting profession, culminating in the establishment of the Institute of Chartered Accountants in England and Wales in 1880. Brown also recognizes the globalization of accounting practices and the beginnings of standardization in the late 19th and early 20th centuries, acknowledging the formation of various accounting bodies across the world and discussing the rising need for uniform accounting standards.

However, this book does not delve into any of the Indian concepts of Accounting or Finance and India's contribution to the evolution of the economic thoughts.

## **2. History of Accounting by John.R.Alexander<sup>111</sup>:**

John R Alexander rightfully starts by stating that, history of accounting invariably has only one milestone, which is the 'Summa' work by Luca Pacioli in 1494. However, this cannot be sprung from a single event and must have been a long evolution through multiple civilisations.

John lists the following contributions:

- i. **Accounting in Mesopotamia:** The oldest known records of commerce date back to around **3500 B.C.** in the Mesopotamian Valley, where the Sumerian civilization flourished.
- ii. **Accounting in Ancient Egypt:** In ancient Egypt, bookkeepers kept meticulous records for royal storehouses, and irregularities disclosed by royal audits were punishable by fine, mutilation, or death.
- iii. **Accounting in Ancient Greece, and Rome:** During the Roman Empire, an elaborate system of checks and balances was maintained for governmental receipts and disbursements by the quaestors, who managed the treasury and supervised governmental books.
- iv. **Medieval Accounting:** In medieval times, accounting was centered on the specialized institutions of the feudal manor, with systems of exchequer and manor necessitating numerous delegations of authority over property.
- v. **Italian Renaissance (14th-16th century)** is acknowledged as the birth of modern accounting, with the use of Arabic numerals and the development of double-entry bookkeeping. Luca Pacioli, a Renaissance man, published "Summa de Arithmetica" in 1494, which included 36 chapters on bookkeeping, laying the foundation for modern accounting practices.
- vi. **Scotland - Birthplace of the Modern Profession:** The modern profession of

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<sup>111</sup> Alexander, J. R. (2002). History of Accounting. Association of Chartered Accountants in the United States.

accountancy originated in Scotland, where the Chartered Accountant designation was first used, and the profession has since spread worldwide. In 1904, there were about 6,000 chartered accountants, a number that grew to 38,690 by 1957, and in 2002, the Institute of Chartered Accountants in England and Wales alone had over 120,000 members worldwide.

However, across all this, there is no mention of any Eastern contribution to the evolution of accounting thought. This lack of recognition has been captured well by Sriya Kumarasinghe, in her paper 'A counting History'<sup>112</sup>. With due acknowledgments, hereby sharing the deep poem which describes the overall problem statement of our research:

### **A counting history**

Beyond a thousand years  
Somewhere in the far away East  
People had carved on stones  
Their earnings, taxes, expenses  
  
Lying long under the earth  
Quadrant pillars and slabs  
Saved and secured imprints  
Survived like gold and gems  
  
Proud West tossed into the bin  
By Enrons and Worldcoms  
Pacioli wasn't brawny enough  
To make those barons liable

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<sup>112</sup> Kumarasinghe, S. (2011), "A counting history", *Accounting, Auditing & Accountability Journal*, Vol. 24 No. 1, pp. 132-132. <https://doi.org/10.1108/09513571111098081>

The wind has started blowing  
In the opposite direction  
Awakened spirits in shrines  
Unearthed the inscribed stones  
Scholars in developed nations  
Amaze with ancient hymns  
Send those slabs to the museums  
English wasn't enough to read them.

“Accounting and auditing had been used in Asia, especially in ancient Ceylon and India before "double-entry accounting" emerged in the Europe. Archaeological evidence proves that rulers in the ancient era were accountable to the people.” Across the IKS we see this aspect where rulers were accountable to the people. (Refer ancient literature review for examples)

**3. *Summa de arithmetica, geometria, proportioni et proportionalita*," written by Luca Pacioli and published in 1494<sup>113</sup>:**

Though this is primarily a book on Arithmetic, Geometry and Algebra, few concepts like barter, bills of exchange, weights and measures and debit being equal to credit have been taken as foundation for double-entry system of book-keeping. Luca Pacioli's work has been influenced by the Bahi system of double-entry book keeping maintained in India. Pacilio's book is also influenced by the work 'Liber Abaci' by Fibonacci (Leonardo of Pisa). Fibonacci's work has been heavily inspired by Indian works on Chandasśāstra (by Pingalācārya) and Meru Prastara (known as Pascal's Triangle), along with few Indian works on Mathematics. However, this link has to be re-established to unearth the contributions of

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<sup>113</sup> Pacioli, L. (1494). *Summa de arithmetica, geometria, proportioni et proportionalita*. Paganino Paganini.

IKS to the evolution of accounting thought.

**4. Nigam, B. M. L. (1986). Bahi-Khata: The Pre-Pacioli Indian Double-entry System of Bookkeeping. *Abacus*, 22(2).**

In the article "Bahi-Khata: The Pre-Pacioli Indian Double-entry System of Bookkeeping" by B. M. Lall Nigam (1986), the author explores the origins and structure of the Bahi-Khata, an indigenous double-entry bookkeeping system from India that predates the Italian method traditionally ascribed to Luca Pacioli in 1494. The system, referred to as Bahi-Khata, Mahajan, or Deshi-Nama, was sophisticated in its dual aspect of recording and its adaptability to businesses of various sizes. It has been historically resilient, still practiced among unincorporated enterprises and some modern entities within India. Nigam challenges the notion that double-entry bookkeeping was solely a medieval European invention, providing evidence of the system's Indian origins that date back to prehistoric times, alongside the evolution of the concept of wealth and the study of Varta, or National Economy, during the epic period. The system's principles are reflected in ancient Indian scriptures, such as Manu Smṛti and Kauṭilya's "Arthaśāstra," which dates back to the 4th century B.C. The article details the Bahi-Khata's structure with original records, classification, and summarization processes, paralleling the stages in Western accounting systems. The system includes various books like Kachchi Rokar Bahi (daily cash book), Pakki Rokar Bahi (fair cash book), and Nakal Bahi (credit purchase and sales book), among others. The Bahi-Khata also has provisions for final statements analogous to Western financial statements, though with simpler processes for smaller businesses.

Despite its historical depth and comprehensive nature, the author acknowledges that Bahi-Khata has not kept pace with modern accounting practices and lacks formal treatises, which hinders its integration with contemporary systems. The paper calls for modernization of the Bahi-Khata to preserve its practical virtues of simplicity, speed, and flexibility, while

enhancing its reliability and relevance in modern business and accounting practices.

### **5. 'Liber Abaci: Book of Calculations' – by Fibonacci (1202)**

"Liber Abaci," written by Leonardo of Pisa, also known as Fibonacci, in 1202, is a seminal work in the history of mathematics. The book played a crucial role in introducing the Hindu-Arabic numeral system to Europe, which is the decimal positional number system we use today. This work has been a compilation of knowledge from various Indian and Arabic works (which were translations of Indian works). The main Indian texts which were widely read, implemented, translated and which purports to have influenced Liber Abaci are:

**Āryabhaṭṭa's Āryabhaṭṭīya (c. 499 AD):** containing

- Gitikapāda: Cosmology, large units of time, sidereal rotations.
- Gaṇitapāda: Mathematics, arithmetic, geometric progression, area calculations, trigonometry.
- Kālakriyāpāda: Reckoning of time, rules for calculating the longitudes of planets.
- Golapāda: Spherical geometry, celestial globe, eclipses, moon's phases.

**Brahmagupta's Brahmasphutasiddhanta (c. 628 AD):**

- Mathematics: Rules for arithmetic operations, including zero and negative numbers.
- Algebra: Solutions to quadratic equations, rules for summing series.
- Geometry: Formulas for areas and volumes of various geometric figures.
- Astronomy: The motion of celestial bodies, lunar and solar eclipses, planetary longitudes.

**Brahmagupta's Khandakhadyaka (c. 665 AD):**

- Astronomy: Methods for calculating planetary positions, conjunctions, and lunar and solar eclipses.
- Mathematics: Applications of arithmetic and geometry to astronomical calculations.

**Bhāskara II's Līlāvātī (c. 1150 AD):**

- Arithmetic: Basic operations, fractions, rule of three, interest calculation, permutations

and combinations.

- Geometry: Properties of geometric figures, measurements of surfaces and solids.

**Bhāskara's Bijagaṇita (Algebra) (c. 1150 AD):**

- Algebra: Equations, indeterminate equations, solutions to quadratic and cubic equations, use of zero.

**Bhāskara's Siddhāntaśiromaṇi (Crown of Treatises) (c. 1150 AD), Grahagaṇita**

(Planetary Mathematics): Calculations related to planets, eclipses, and conjunctions and

**Golādhyāya (Sphere):** Spherical geometry, calculations related to the celestial sphere.

**6. History of Corporate Governance:**

Modern history of Corporate Governance may be categorized based on important milestones as follows:

**(i) Early Corporate Entities and Governance Issues: 17th-19th Century BCE**

**The Dutch East India Company (1602):** Often considered the first true multinational corporation, it had a complex governance structure with shares that were traded at the Amsterdam Stock Exchange.

**The Bubble Act (1720), United Kingdom:** Passed to regulate the burgeoning number of companies, although it was more about controlling speculative bubbles rather than governance per se.

**(ii) Conceptualization and Early Models: Mid-20th Century**

**Berle and Means (1932):** Their book "The Modern Corporation and Private Property" highlighted the separation of ownership and control in large corporations, laying the foundation for modern corporate governance discussion.

Key contributions and themes of the book include:

**Separation of Ownership and Control:** Berle and Means pointed out that in large publicly traded corporations, there is a clear separation between the owners (shareholders) who

provide capital and the managers (executives) who control the capital. This separation could lead to a divergence in interests, where managers might not always act in the best interest of the shareholders.

**Managerialism:** The authors observed that the control over corporations shifted from owners to managers, giving rise to "managerialism." This term describes a situation where managers have more power in decision-making than the shareholders, potentially leading to a lack of accountability.

**Implications for Corporate Governance:** The book raised concerns about accountability and the fiduciary responsibilities of corporate managers. It laid the groundwork for the debate about how corporations should be governed to align the interests of management with those of the shareholders.

**Policy and Legal Framework:** Berle and Means argued that because corporations had become such a central part of the economy, it was essential for the legal framework to evolve to regulate the activities of these entities more effectively.

**Economic and Social Impact:** The book discussed the broader economic and social implications of corporate actions, emphasizing the need for a corporate governance framework that considers not only profit maximization but also the corporation's role in society.

**(iii) Formal Frameworks and Guidelines: Late 20th Century:**

**The Cadbury Report (1992), United Kingdom:** This is one of the first comprehensive codes of best practice aimed at corporate governance. Authored by Adrian Cadbury, it addressed the financial aspects of corporate governance and responsibilities of the board of directors.

**The Sarbanes-Oxley Act (2002), United States:** Passed in the wake of the Enron scandal, it set new or expanded requirements for all U.S. public company boards, management, and public accounting firms.

2.4 Global Adoption and Refinement: 21st Century:

**OECD Principles of Corporate Governance (2004):** These principles provided specific guidance on corporate governance practices, including the responsibilities of boards, rights of shareholders, and disclosure and transparency.

**UK Corporate Governance Code (2010):** This evolved from the Combined Code and laid down standards of good practice in relation to board leadership and effectiveness, remuneration, accountability, and relations with shareholders.

In this entire History, contribution of Indian Knowledge Systems to Corporate Governance has not been recognised.

## **7. Existing rules, regulations on various components of Corporate Governance and gaps in these rules:**

### **7.1 Constitution of India:**

The Constitution of India contains several provisions related to the governance aspects, including the appointment of ministers. Some of the relevant portions are:

**Article 74:** It deals with the Council of Ministers headed by the Prime Minister to aid and advise the President in the exercise of his functions.

**Article 75:** It specifically deals with the appointment of the Prime Minister and other ministers. It states that the Prime Minister shall be appointed by the President, and the other ministers shall be appointed by the President on the advice of the Prime Minister. This article also mentions the collective responsibility of the Council of Ministers to the House of the People (Lok Sabha).

**Article 164:** It is similar to Article 75 but pertains to the appointment of the Chief Minister

and other ministers in the states. The Chief Minister is appointed by the Governor, and the other ministers are appointed by the Governor on the advice of the Chief Minister.

**Article 155 and 156:** These articles deal with the appointment and term of office of the Governor, who plays a key role in the governance of a state.

**Article 163:** It mentions that there shall be a Council of Ministers headed by the Chief Minister to aid and advise the Governor in the exercise of his functions, except in matters where he is required to act in his discretion.

**The qualifications required for appointment of ministers are as follows:**

For Union Ministers (Central Government): According to Article 75(5), a minister must be a member of either House of Parliament (Lok Sabha or Rajya Sabha) or must become a member of either House within six months of their appointment as a minister.

For State Ministers: According to Article 164(4), a minister in a state must be a member of the state legislature (Legislative Assembly or Legislative Council, if any) or must become a member within six months of their appointment as a minister.

Along with this, the candidate must be a citizen of India, meeting the age requirements (25 years for the Lok Sabha or Legislative Assembly and 30 years for the Rajya Sabha or Legislative Council), and not be disqualified under any law made by Parliament.

**We may note that there are no specific educational, skill-based, or quality-based requirements or any specific tests which are conducted for appointment of ministers.**

**This gap is being addressed through this research.**

## **7.2 Companies Act of 2013:**

Sections 149 to 172 deals with 'Appointment and Qualifications of Directors', Sections 173 to 195 provides for 'Meetings of the Board and its Powers', Sections 196 to 205 deals with Appointment and Remuneration of Managerial Personnel and Section 177 deals with Audit Committee. Section 134 of the Companies Act, 2013 defines internal financial controls (IFC)

as the policies and procedures a company adopts to ensure the orderly and efficient conduct of its business, including adherence to company policies and safeguarding of its assets. Section 134(5)(e) of the Companies Act, 2013 requires a company to have an IFC policy. For listed companies, the directors have laid down IFCs to be followed by the company and that such controls are adequate and operating effectively. The objectives of IFCs include: Efficiency and effectiveness in operations, Prevention and detection of fraud and error, Safeguarding of assets, Accuracy and completeness of accounting records, and Reliability of Financial Reporting.

### **7.3: SEBI (Listing Obligations and Disclosure Requirements) Regulations, 2015 (LODR Regulations):**

Corporate governance requirements for listed companies are primarily covered in Chapter IV, which is titled "Obligations of Listed Entity which has Listed its Specified Securities."

The key regulations within Chapter IV that pertain to corporate governance are:

Regulation 17: Board of Directors

Regulation 18: Audit Committee

Regulation 19: Nomination and Remuneration Committee

Regulation 20: Stakeholders' Relationship Committee

Regulation 21: Risk Management Committee (applicable to the top 100 listed entities determined on the basis of market capitalization, as at the end of the immediate previous financial year)

Regulation 22: Vigil Mechanism

Regulation 23: Related Party Transactions

Regulation 24: Corporate Governance Requirements with respect to Subsidiary of Listed Entity

Regulation 24A: Secretarial Audit

Regulation 25: Obligations with respect to Independent Directors

Regulation 26: Obligations with respect to Directors and Senior Management

Regulation 27: Corporate Governance Report

These regulations cover various aspects of corporate governance, including the composition and functioning of the board of directors and its committees, the role and duties of independent directors, disclosure requirements, and the governance of subsidiary companies.

**However, the overall wellbeing of the Board, confidentiality of discussions, qualities of Board of Advisors, Subject Matter experts, etc. are not detailed. Those are left to the discretion and knowledge of the Companies.** This gap can be filled by Indian Knowledge Systems.