DOI: https://doi.org/10.70616/BGE.2025.001

Doctoral (PhD) dissertation

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BUDAPEST BUSINESS UNIVERSITY

DOCTORAL SCHOOL OF ENTREPRENEURSHIP AND BUSINESS

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Measurement and Determinants of Integrated Reporting Quality in EU-listed Firms: Balanced Scorecard Perspectives.

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BUDAPEST, October 2024

DECLARATION

Hereby I certify that the Ph.D. thesis entitled “Measurement and Determinants of Integrated Reporting Quality in EU-listed Firms: Balanced Scorecard Perspectives” is solely my own work. It contains no material that has been previously written or /and published by any other academic degree or diploma. Any previously published materials that have been used in this thesis are for bibliographical reference.

Date: 07 octeber 2024

Nada Omar Hassan Ali

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signature

To

My Mother and Father, may God have mercy on them; they will never be forgotten.

My Mother and Father in law, may God grant them long life.

My beloved Husband, Elhassan

My darling daughters, Assya and Yousr

My dear brothers and sisters.

Published work during PhD journey.

Nada, O. H. A., & Győri, Z. (2024). Integrated reporting adoption in SMEs: incentives and disincentives. *Journal of Financial Reporting and Accounting*.

Nada, O. H. A., & Győri, Z. (2023). Measuring the integrated reporting quality in Europe: balanced scorecard perspectives. *Journal of Financial Reporting and Accounting.*

Nada, O. H. A. (2022). Assessing human rights disclosure: An empirical analysis of the oil and gas sector. Prosperitas.

Nada, O. H. A., RADWAN, E. K. A., & GYŐRI, Z. (2021). Sustainable Development Goals Disclosure Practices through Integrated Reporting: An Empirical Analysis on European Financial Institutions. *Education of Economists & Managers/Edukacja Ekonomistow i Menedzerow,* 62(4).

Nada, O. H. A. (2021). Integrated reporting in the public sector–case study. *Prosperitas,* 8(1), 56-72.

Nada, O. H. A. (2021). The Economic Consequences of the Global Financial Crisis (2008-2009) and COVID-19 crisis on the Economy: Evidence from Egypt. III. International Conference of Economics PhD Students and Researchers in Komarno : Conference Proceedings

Radwan, E. K. A., & Hassan Ali, N. O. (2023). Web-Based Corporate Risk Disclosure Practices in Islamic Banks: Empirical Evidence from Listed Islamic Banks in Egypt. In Islamic Accounting and Finance: *A Handbook* (pp. 281-315).

Radwan, E. K. A., Ali, N. O. H., & Mohamed, M. K. A. (2023). Do free-floated shares and board characteristics influence corporate risk disclosure? An empirical analysis on conventional banks in a developing country. *Journal of Financial Reporting and Accounting*.

Radwan, E. K. A., Omar, N., & Hussainey, K. (2023). Social responsibility of Islamic banks in developing countries: empirical evidence from Egypt. *Journal of Sustainable Finance & Investment*, 13(3), 1334-1353.

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Abstract

Integrated reporting (IR) is a growing corporate reporting tool that integrates financial and non-financial aspects, enhancing stakeholder engagement, decision-making, and risk management. So, the study's goals are to look at how EU-listed companies use integrated reporting (IR), suggest a new way to measure IR quality, and investigate the effect of characteristics of board directors, audit committees, free-floating shares, and the type of external audit firm on IRQ. To achieve these objectives, firstly, the researcher created a disclosure index based on the balance scorecard framework that reflects the information content of integrated reports based on the IR Framework's content elements, guiding principles, and fundamental concepts. Secondly, quantitative analysis was adopted to analyze the content of 147 integrated reports from 27 European Union countries from 2013 to 2020 using content analysis based on the constructed index (IRQBSC). Lastly, a multiple regression model was utilized.

The analysis reveals that the adoption of integrated reports (IRs) in the EU generally improved from 2013 to 2020, although not all listed companies use the IR as a framework for non-financial reporting (less than 5% adopt IR). Additionally, the findings show that the quality of these reports has improved, but their IRQ remains moderate. Additionally, the results showed that firms prioritize financial and learning and growth information over internal or stakeholder data. Additionally, the results show that Spain, France, the Netherlands, Italy, and Poland are the top adopters of integrated reports. Moreover, the study found that IRQ is positively correlated with board size, independence, diversity, and meeting frequency, but not with board expertise. IRQ is also positively associated with audit committee size, independence, diversity, and frequency, but not with audit committee expertise. The analysis also found no significant association between IRQ and free-floating shares or external audits by Big 4 companies. These findings offer crucial theoretical, methodological, and practical insights and implications for various stakeholders (e.g., policymakers, investors, regulators) on the adoption status, quality status, and internal and external governance determinants of IR quality.

JEL codes: M14, M41

Key words: Integrated reporting quality (IRQ), Integrated Reporting Adoption, Balances Scorecard (BSC), IIRC, Corporate Governance, EU listed firms.

Acknowledgements

In the first place, I would like to thank Almighty Allah (God), the most gracious and merciful, for providing me with the knowledge, good health, endurance, and aptitude to complete this thesis. I recite Shalawat and Salam to Muhammad Peace Be Upon Him, the messenger of humanity.

My deepest and sincere gratitude goes to my supervisor, Professor Zsuzsanna Gyori, for her assistance, encouragement, suggestions, and enthusiasm throughout the previous years. Her invaluable suggestions and insightful advice substantially enabled me to improve the quality of my research. I respect her high professionalism and humaneness; without her continuous guidance and constant encouragement, this thesis could not be a reality on time.

Special thanks go to all academic and administrative staff at Budapest Business University in Hungary and Assuit University in Egypt for their appreciative academic and administrative support during my study period in Hungary. Their effort could not be denied. I would like to note my special appreciation to the Culture Affairs and Missions Sector in Egypt and the Stipendium Hungaricum Scholarship for their financial and administrative support and for giving me this great opportunity to complete my studies at the Budapest Business University.

I am also grateful to Professor Khaled Hussainey at the University of Portsmouth, UK, for his constant support since my master studies until completing this thesis through his insightful, helpful, and constructive comments. I would also like to thank my beloved family, the most precious treasure in my life, for their emotional and moral encouragement during my PhD journey. My parents, Omar and Huda, may God have mercy on them; they will never be forgotten, and I truly believe I was blessed with the greatest parents ever. My beloved husband, Elhassan Radwan, has helped me overcome difficult moments with his enthusiasm and unlimited love, support, and sacrifices. My lovely daughters, Assya and Yousr, are to be thanked for giving me enough strength to endure the hardships of study and life together. My heartfelt thanks go to my sisters and brothers (Mohammed, Ahmed, Salsabil, Amira, and Doaa), their families, and my husband's parents and brothers for all their continuous heartfelt encouragement during my PhD journey.

I would like to extend my thanks to all my friends, colleagues, relatives, and others who may have contributed in one way or another to this work.

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List of Abbreviations and Acronyms

CDSB	Climate Disclosure Standards Board
CSRD	Corporate Sustainability Reporting Directive (CSRD)
CSR	Corporate Social Responsibility
CSRR	Corporate Social Responsibility Reporting
EFRAG	European Financial Reporting Advisory Group
et al.,	et alia (Latin: and other)
FASB	Financial Accounting Standards Board
GDP	Gross Domestic Product
GRI	Global Reporting Initiative
IASB	International Accounting Standards Board
IFRS	International Accounting Standard Reporting
IFSB	Islamic Financial Services Board
IIRC	International Integrated Reporting Council
SASB	Sustainability Accounting Standards Board
SDGs	Sustainable Development Goals
TFCD	Task Force on Climate-Related Disclosures
USA	United States of America
UK	United Kingdom
TBL	Triple bottom line
GRI	Global Reporting Initiative
CERES	Coalition for Environmentally Responsible Economies
UNEP	United Nations Environment Program
TFEU	Treaty on the Functioning of the European Union
KPIs	key performance indicators
CSRD	Corporate Sustainability Reporting Directive
ESRS	European Sustainability Reporting Standard
VFR	Value Reporting Foundation
ISSB	international Sustainability Standards Board.

Chapter One: Introduction

1.1 Background

In today's globe, the business sector is being subjected to an increasing amount of pressure from the outside because of a variety of short-term and long-term challenges. The credibility of organizations and the failure of corporate governance are two problems that were shared by the financial and nonfinancial crisis, which was followed by subsequent business scandals worldwide owing to fraud and poor control systems. As a result, there is greater pressure than ever on all businesses to provide information about their operations and how they may affect the economy, society, and environment, either positively or negatively (Saraite-Sariene et al., 2019; Krasodomska et al., 2020).

According to Healy and Palepu (2001), there is no one who can dispute the fact that financial reporting and disclosure contain the potential to be extremely important ways of communicating the performance of a company and its governance to shareholders and other individuals. Nevertheless, in light of the continuous advancement of an indisputable global economy that engenders heightened public scrutiny regarding the performance of corporations, specifically the positive and negative externalities produced by them (Busco et al., 2013), there has been a significant reconsideration of accounting disclosure practices. In this regard, the financial reporting model is limited in the current operating environment because the creation of value is not primarily driven by physical assets but rather by other intangible assets and non-financial factors (Agyei-Mensah, 2017 and Győri et al., 2021). Consequently, there has been discussion about the significance of providing non-financial information to a larger range of stakeholders about the social and environmental impact of corporate activities (Adams and Zutshi, 2004; Ntim et al., 2017). In light of this, stakeholders such as investors, managers, business partners, and others are increasingly in need of a complete picture of the company's health in order to make better decisions and have a comprehensive grasp of the company's overall performance.

A number of external pressures have been linked to this development and transition, necessitating a comprehensive readjustment of the entire company accounting system and procedures. These pressures include Directive 2014/95/EU on non-financial information, which is now mandatory for large public interest entities, as well as government initiatives such as the Sustainable Development Goals (SDGs), Sustainability Accounting Standards Board (SASB), Climate Disclosure Standards Board (CDSB), Corporate Sustainability Reporting Directive (CSRD), Task Force on Climate-Related Disclosures (TFCD), European Financial Reporting Advisory Group

(EFRAG), and the International Integrated Reporting Council (IIRC) (Busco et al., 2018; Rossi et al., 2020).

As a consequence of this, new forms of non-financial reporting that are voluntary in nature have gradually emerged (de Villiers & Sharma, 2017). Some examples of these forms are social, environmental, and governance (ESG) reporting, corporate social responsibility (CSR) reporting, and sustainability reporting (GRI). In accordance with Cohen et al. (2012), companies have either produced reports that are independent of one another or incorporated the information into their yearly financial reports. However, these reports have been kept distinct from financial reports, which has made it difficult for stakeholders to comprehend how these are connected to the production of value. As a result, it was necessary to consolidate these reports with the financial statements in a single report (Briem and Wald, 2018).

Amidst the diverse array of mandatory and voluntary approaches to corporate reporting, "integrated reporting" (IR) has rapidly surfaced as an emerging accounting practice aimed at assisting organizations in comprehending their value creation processes and conveying this information to external stakeholders in an effective manner. Integrated Reporting (IR) goes beyond just merging financial reporting with sustainability reporting inside a unified document since it entails the inclusion of both financial and non-financial information, as well as environmental, social, and governance data, inside in an integrated manner. It encompasses the interdependencies between the financial and non-financial factors that influence a company's performance, based on a comprehensive notion of integration.

The concept of integrated reporting (IR) and its focus on capital are currently gaining significant interest. Several pioneering companies and initiatives initiated the integrated reporting trend throughout the early 2000s (Eccles et al., 2015a). First, the Global Reporting Initiative (GRI) and the Prince of Wales-supported Accounting for Sustainability Project created the International Integrated Reporting Council (IIRC) on August 2, 2010. To specify guiding principles and content elements that manage an integrated report's full content and explain the main concepts that underpin them (IIRC, 2013a, b). Subsequently, on September 12, 2011, a discussion paper titled "Towards Integrated Reporting: Communicating Value in the 21st Century" was released. The public was solicited to offer their thoughts on this matter. About a month later, the (IIRC) released a roster of the initial organizations participating in the IIRC Pilot Project Business Network. The objective of this two-year initiative is to facilitate the exchange of knowledge, experiences, and ideas among the participating organizations regarding integrated reporting.

The Integrated Reporting (IR) movement underwent a major sea change with the creation of the IIRC, which received strong support from numerous organizations, businesses, and authorities. Consequently, more than a hundred organizations worldwide participated in the IIRC pilot initiative, which helped to shape the IR Framework (IIRC, 2013a). As of right now, more than 2,500 companies in more than 70 countries have adopted integrated reporting (IR) concepts to mold their thought processes, actions, and communication plans related to value creation (IIRC, 2022). Many nations have put in place laws that either mandate the use of IR or, at the very least, actively encourage and reward businesses that do so.

As integrated reports become more popular, IR adoption studies like Jensen and Berg (2012), Mervelskemper & Streit (2017), and Vitolla & Raimo (2018) have increased. Although IR information quality is more important than quantity (Songini et al., 2020). Previous research in the field of IR has examined samples from various nations. However, a significant portion of these studies have specifically concentrated on South Africa. Examples of such studies include Du Toit et al. (2017), and Ahmed Haji and Anifowose (2017). As a result, there is a significant dearth of studies on the quality of integrated reports, specifically in Europe, despite the region's growing acceptance of these reports. Therefore, our investigation is to concentrate on European Union companies that are publicly listed. Additionally, transparency and disclosure methods implemented by companies are a crucial aspect and a reliable measure of the quality of corporate governance (Aksu and Kosedag, 2006). Corporate governance is a set of internal rules that are established with the purpose of protecting the interests of shareholders in a corporation. Corporate governance, as defined by O'Donovan, is an internal system comprising processes, policies, and individuals that aim to meet the needs of shareholders and other stakeholders. It achieves this by effectively controlling and directing the activities of the firm's management with sound business judgement, shrewdness, and honesty (O’Donovan, 2003). Therefore, corporate governance systems and practices, which determine how corporate entities are managed and supervised, are crucial in establishing connections between various aspects that add to value creation, as anticipated in the context of IR. It discharges the responsibility of a company by showing the interconnectedness of its value creators and offering the supervision necessary for the value creation process. Therefore, it is clear that companies that incorporate IR in their annual reports provide a higher level of transparency in terms of both financial and non-financial information regarding an organization (Pavlopoulos et al., 2017). Hence, implementing a well-functioning corporate governance framework will result in enhanced value generation within organizations while also serving as a foundation for delivering high-quality information.

In contrast to other voluntary disclosure formats, integrated reporting (IR) is not predicated on company practices like managing intellectual capital, corporate social responsibility, or climate change. In order to produce value over time, it actually impacts the entire organization, including its strategy, performance, and related stakeholders, through a variety of capital forms (IIRC, 2013). Given that they are anticipated to play a crucial role in fostering integration among the various factors that lead to value creation, it is critical to comprehend how a company's governance practices facilitate the reporting of that organization’s capacity to generate value. Prior research has examined governance as a factor that influences the adoption or quality of integrated reports in different contexts. Nevertheless, there remains a dearth of agreement regarding the comprehension of the influence that various governance components have on integrated reporting quality (IRQ). Therefore, this study conducts a thorough investigation of disclosure practices, ranging from financial disclosure to integrated reporting, in order to examine the many interpretations of quality in integrated reporting. Second, because the information in integrated reports is more important than just thinking about using them, this study creates a complete framework for evaluating IRQ in companies listed in the European Union. Third, in order to give a thorough understanding of the organization’s value creation process, this study broadens the conversation regarding the effects of corporate governance mechanisms on integrated businesses by identifying the internal and external governance factors that have the greatest influence on integrated report quality.

1.2. Problem statement, research gaps and research questions

The study problem's key academic and practical causes pertain to the quality of integrated reporting, its measures, and their determinants. To illustrate, both scholars and practitioners are interested in integrated reporting (IR), but its quality remains a critical aspect since IR information quality is more important than quantity (Songini et al., 2020). Added to this, the quality of integrated reports significantly impacts capital providers and their associated economic benefits (Moloi and Iredele, 2020). Simultaneously, notwithstanding academic research's growing focus on the IRQ, it remains understudied (Songini et al., 2022), especially in Europe (Simona et al., 2017). The second reason is related to internal and external corporate governance variables. Despite its monitoring, regulatory, and supervisory role and its significant impact on disclosure, the committee's role has gained little interest in IR practices (Raimo et al., 2021). Meanwhile, the South African King III Report on Governance and the IIRC state that corporate governance mechanisms enhance the quality and credibility of integrated reports (Wang et al., 2020). Given the relevance of quality integrated reports to stakeholders, it necessitates further research to fill the following gaps in the EU-listed enterprise contexts:

i. To the best of the researcher's knowledge, currently there is a scarcity of studies on the quality of integrated reports and their determinants in EU-listed enterprises because most studies are based in South Africa, where IR adoption is mandatory for their counterparts.
ii. Since the IR framework is widely employed in measurement methods, there are no standardized methods for measuring the IRQ in prior studies.
iii. Previous studies on IRQ have not yet adopted new and standardized methods for measuring IRQ, such as using the Balance Score Card, especially in EU-listed firm contexts.
iv. The research on IR literature has limitations due to the sample used, as multiple authors analyze integrated reports from organizations in the IIRC Pilot Program Business Network or listed in the IIRC.
v. IR theoretical framework lacks clear rules for assessing quality.
vi. The literature on IRQ lacks a precise analysis of the impact of board directors' characteristics (including size, independence, diversity, experience, and meeting number) on IRQ, leaving the issue under-researched.
vii. As far as the researcher recognizes, the impact of audit committee characteristics (size, independence, diversity, experience, and meeting quantity) on integrated reporting quality is understudied in the IRQ literature.
viii. Based on what the researcher knows, the IRQ literature lacks investigation of how IRQ is affected by external corporate governance mechanisms, like free float share percentage and external audit type.

Given the above, it can be stated that further research is needed to measure and assess IRQ using new approaches and identify the main determinants, as EU-listed firms lack this type of analysis.

Consequently, this study aims to address existing gaps in measuring IRQ in the European context by adopting a balanced score card to assess IRQ and examining factors determining its quality. It uses empirical evidence to answer the following main question: "What Corporate governance factors determine the IRQ in the European context?" focusing on the following sub-questions to provide valuable insights into the quality of integrated reporting in the EU:

a) To what extent is IR adopted in the countries of the European Union?
b) What is the level of integrated reporting quality in the European Union from 2013 to 2020? Is there a difference between nations? Does it vary depending on the industry? Does it vary over the years?
c) Do board directors' characteristics as an internal governance mechanism affect the IRQ of EU-listed firms?
d) Do audit committees' characteristics as an internal governance mechanism affect the IRQ of EU-listed firms?
e) Does free float share percentage as an external governance mechanism affect the IRQ of EU-listed firms?
f) Does external audit type as an external governance mechanism affect the IRQ of EU-listed firms?

To address these research questions, twelve hypotheses have been formulated to examine the relationship between IR and corporate governance mechanisms. These twelve hypotheses are

H1: The IRQ and board size are positively correlated.

H2: The IRQ and the board of directors' independence are positively correlated.

H3: The IRQ is positively associated with the proportion of female board members.

H4: The IRQ and the board's experience are positively correlated.

H5: The IRQ and frequency of board meetings are positively correlated.

H6: The IRQ and audit committee size are positively associated.

H7: The IRQ and audit committee's independence are positively correlated.

H8: The IRQ and AC gender diversity have a positive correlation.

H9: The IRQ and AC expertise have a positive correlation.

H10: The IRQ and the frequency of AC meetings have a positive correlation.

H11: The IRQ and free float shares are positively correlated.

H12: The IRQ and auditing by Big 4 auditing firms are positively correlated.

1.3. Research Objectives

This work primarily aims to: (1) evaluate to what levels (extent) the EU-listed firms adopt IR from 2013 to 2020; (2) suggest and use a new advanced method for measuring IRQ, like a balanced score card. (3) assess the quality of IR in the context of EU-listed companies; (4) investigate the effects of board directors' characteristics, such as size, independence, diversity, experience, and meeting frequency; (5) investigate the effects of audit committee characteristics, such as size, independence, diversity, experience, and meeting frequency; and (6) examine how free market forces affect IRQ. (7) investigate the impacts of external audit types as an external corporate governance mechanism on IRQ.

1.4. Summary of research methodology

This study focuses on the integrated reports among publicly listed companies on stock exchanges within the 27 European Union from 2013 to 2020, resulting in a total of 4,122 listed companies. The initial analysis excluded 656 companies due to a lack of reports or language differences, resulting in 3466 companies. 3319 failed to release integrated reports or adhere to IIRC's framework, resulting in an unbalanced sample. Therefore, the study adopted a final sample of 147 publicly listed companies in 27 European Union countries from 2013 to 2020 to analyze their integrated reports. Additionally, this study employs the Balanced Scorecard (BSC) to assess IRQ in a European context, a comprehensive set of metrics encompassing financial, customer, internal, and learning and growth perspectives. The research has developed a comprehensive disclosure checklist called the integrated reporting quality balanced scorecard (IRQBSC), based on prior studies and the IIRC Framework's eight content pieces, guiding principles, six capitals, and value creation process. The checklist is divided into 31 variables from four main perspectives. The study uses weighted and unweighted scoring methods to assess the quality of integrated reporting, assigning each report a total score of 115. Moreover, quantitative content analysis was employed to collect and organize data from integrated reports. The study used multiple regression analysis to examine the correlation between corporate governance and integrated reporting, utilizing various dependent, independent, and control variables.

1.5 Study contributions

This thesis significantly enhances accounting literature, research methodologies, and practice by providing valuable theoretical, methodological, and practical insights to all interested parties.

1.5.1 Contribution to the literature

This study's findings will significantly contribute to the IRQ literature in various ways. To illustrate, the thesis is unique in its focus on evaluating the adoption of IRQ in EU-listed firms across various sectors and nations over time. Further, this thesis aims to fill a significant gap in the IRQ literature by conducting a comprehensive analysis of IRQ and its determinants within EU-listed firms. Additionally, this study expands IRQ literature by incorporating agency, signaling, stakeholders, legitimacy, institutional, and resource dependence theories, and identifying additional determinants of integrated reporting quality across different nations, sectors, and times. In a broad sense, this thesis examines, how internal (size, independence, diversity, experience, and meeting quantity of board directors and audit committee) and external (free floated shares and external audit type) corporate governance mechanisms affect IR quality.

1.5.2 Contribution to Methodology

In numerous regards, this thesis significantly improves the methods used in accounting research to evaluate the quality of IR. To start with the adopted sample, this thesis focuses on 147 EU-listed firms from 27 EU countries across various sectors, making it unique in its scope. In terms of data collection, this thesis is unique in its focus on integrated reports prepared from 2013 to 2020 based on the IIRC framework as its primary analysis tool. Moving to IRQ measurement, this thesis is pioneering in utilizing the balanced score card as a new comprehensive tool for assessing the quality of IR, which could significantly enhance future research on IR quality.

1.5.3 Practical Contributions

This study provides stakeholders with comprehensive insights into adoption status, quality status, internal governance determinants, and external governance determinants of IR quality, assisting them in making accurate economic and investment decisions. It benefits policymakers, creditors, professional bodies, customers, financial analysts, auditors, investors, and other users. Meanwhile, the study suggests that EU professional bodies, regulators, and policymakers should establish mandatory regulations for IR adoption and IR quality standards for listed firms. What is more, this thesis recommends that EU-listed firm managers should enhance the quality of their IR to improve their marketing practices, attract new stakeholders, and boost existing stakeholder confidence.

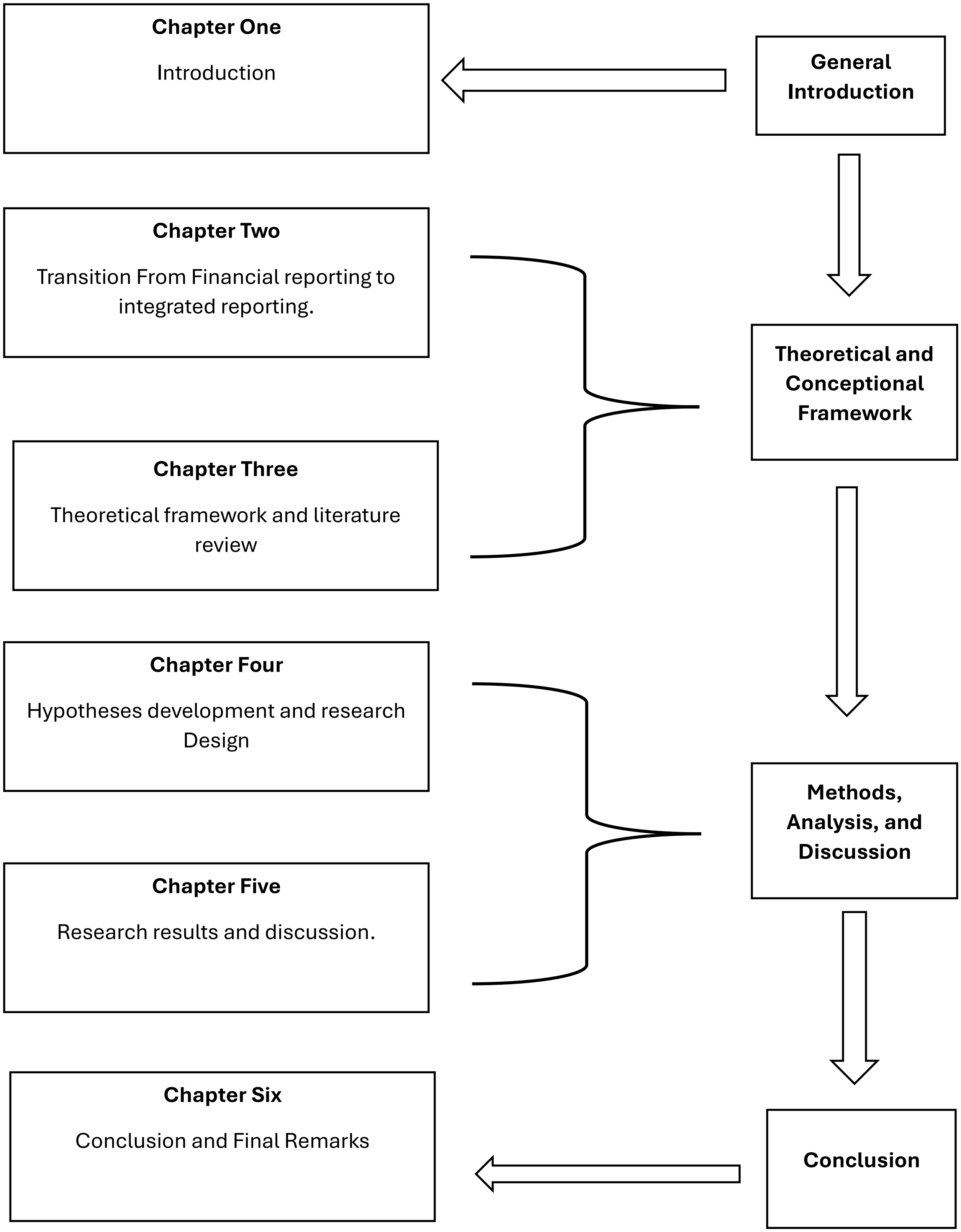
1.6. Study Relevance and Motivations

The study's relevance and motivation stem from its focus on integrated reporting adoption and quality, as well as its examination of the factors influencing this quality. In more detail, Integrated reporting (IR) is a new and efficient corporate reporting tool that integrates financial, social, and environmental aspects of a firm, focusing on short-, medium-, and long-term value creation by offering comprehensive reports on the six capitals. Recently, several businesses have adopted it, and it is receiving attention from both professional and academic bodies. Furthermore, this study is significant as it aims to investigate the quality of IR as quality is considered more important than quantity. The current study focuses on investigating the impacts of internal and external corporate governance mechanisms because corporate governance plays a significant role in producing high-quality integrated reports and enhancing credibility, as highlighted by the IIRC and the South African King III Report on Governance. Additionally, this study is relevant due to its focus on EU-listed firms and highlights the need for further research to measure and assess IRQ using new approaches and identify key determinants, as this environment lacks such analysis. Besides that, in the context of EU Directive legislative reforms, integrated reporting is growing due to its significance in stakeholder conversations, integrated thinking, decision-making, and risk management.

1.7 Study structure

The thesis structure comprises six chapters, as illustrated in the table of content. Moreover, the thesis framework is presented in Figure 1. This chapter introduces the thesis, outlining its background, problem statement, research gaps, questions, objectives, methodology summary, relevance, motivations, contributions, and structure. Chapter two discusses the transition from financial reporting to integrated reporting; it summarizes the history of corporate disclosure, presents the non-financial reporting standards and frameworks, outlines the development of European non-financial reporting regulations, and finally reviews the history, development, and frameworks of integrated reporting. Chapter three provides the theoretical framework and literature review; it presents the theoretical foundation for the empirical analysis based on stakeholder, legitimacy, agency, institutional, signaling, and resource dependency theories. Moreover, it examines the literature related to the contents, incentives, disincentives, determinants, and consequences of IR adoption. In addition, it reviews the literature on measures, determinants, and consequences of integrated reporting quality. Finally, it addresses the existing gaps in literature and the focus of the current study. Chapter four is allocated to the hypothesis's development, methodology, and research design; it begins by presenting the research questions and the development of the twelve hypotheses of the study. Then it presents the methodology and procedures that were adopted to conduct the empirical analysis; it includes the sample selection, its criteria, data collection, the approach that was employed, variable measures and details, and the adopted model specification. Chapter five indicates research results and discussion; it reviews the descriptive analysis assessing the IRQ in the EU-listed firms, in addition to the results of the analysis of examining IRQ determinants, including descriptive statistics, Pearson correlation analysis, and multivariate regression analysis. Finally, it provides a comprehensive discussion of the results. Finally, chapter six provides a comprehensive summary of the thesis, outlining its main findings, contributions, practical and theoretical implications, recommendations, limitations, and suggestions for future research.

Figure 1: Thesis Theoretical and Conceptional Framework



Chapter Two: From Financial Reporting to Integrated Reporting

2.1 Introduction

This chapter provides a comprehensive analysis of the evolution of corporate disclosure, beginning with obligatory financial disclosure and culminating in the advent of integrated reports. The chapter commences by providing a definition of corporate disclosure and tracing its historical background. It then moves on to look at required financial disclosure before looking into the factors and incentives that have contributed to the rise of non-financial disclosure. The term "corporate social responsibility" and the concept of sustainability are examined, along with their evolution. Furthermore, the chapter explores the fundamental norms and organizations that promote and mandate non-financial disclosure for firms. Subsequently, the chapter shifts its attention to the primary subject of the investigation, namely integrated reporting. This text thoroughly examines the evolution of integrating financial and non-financial information, starting with the inception of the concept to the complete implementation of the theoretical framework for integrated reporting established by the International Council for Integrated Reporting. Thus, this chapter tries to provide a comprehensive background on the development of corporate disclosure, specifically focusing on integrated reporting.

2.2 History of Corporate Disclosure

According to the terms of the business agreement, managers of resources are supposed to keep owners of those resources informed on their progress on a regular basis. This process is accomplished by means of yearly disclosure. In this regard, an organization possesses two distinct options for disseminating information to its stakeholders in order to reduce informational asymmetry: mandatory and voluntary disclosure. Mandatory disclosure is the most significant form of publishing variant. The requirement for reporting is mandated at the national or regional level by professional organizations or government bodies and is observed by enterprises of all sizes and legal operations in most countries.

In this regard, corporate disclosure, as defined by Gibbins et al. (1990), encompasses the intentional dissemination of both financial and non-financial information by corporations. This disclosure can be either mandatory or optional and can occur through either official or unofficial methods. This can be achieved by utilizing different forms of communication, such as annual reports, conference calls, analyst presentations, integrated reporting activities, interim reports, prospectuses, news releases, and corporate websites. Grüning (2011) states that the purpose of corporate disclosure is to inform interested parties about a company's financial and business status as well as its operating activities. Thus, reviewing the structure and content of corporate reporting has become necessary due to shifts in the global business landscape.

Consequentially, according to Dumay et al. (2019) and Rowbottom & Locke (2016), many stakeholders consider traditional annual reports, which are mostly directed at capital providers, to be confusing, outdated, and devoid of information regarding an organization’s potential for future value generation. Consequently, in order to satisfy the more extensive information needs of stakeholders, a number of distinct reporting initiatives have emerged. According to De Villiers et al. (2014), Deegan (2019), and other authors, these more recent reporting formats acknowledge that companies are accountable to more parties than just their shareholders and must be more transparent. For this reason, there are some movements and initiatives that have been taken to develop corporate reports. These movements encompass social and environmental accounting, which is sometimes referred to as corporate social responsibility (CSR) reporting, environmental, social, and governance (ESG) reporting, and sustainability reporting. Furthermore, a noteworthy development in the field of reporting pertains to the integration of both financial and non-financial information into one report. This practice was introduced by the International Integrated Reporting Council in 2010, prompting companies to embrace a more transparent stance towards non-financial aspects and their contribution to value creation. Hence, the primary subject matter of this thesis revolves around the contemporary phenomenon of integrated reporting in the field of reporting.

2.2.1 Mandatory Financial disclosure

Mandatory disclosure seeks to reduce the information asymmetry that exists between investors and managers. In the absence of coercive disclosure requirements, managers could potentially manipulate the information they divulge to secure funding, surpassing the informational advantage held by investors. This prejudice could potentially lead to market inefficiencies and the ineffective allocation of resources. In the current era, mandatory disclosure continues to primarily focus on financial metrics and is directed towards shareholders. Furthermore, these financial data can exhibit significant variations depending on how large the organisation is. The International Accounting Standard Board (IASB) issued the International Financial Reporting Standards (IFRS) to become the most widely used set of guidelines for preparing financial statements.

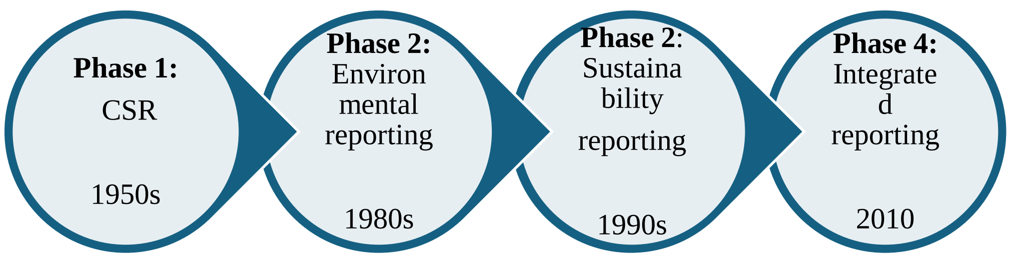
The International Financial Reporting Standards (IFRS) mandate the inclusion of both qualitative and quantitative information, with a particular focus on the concepts of materiality. Materiality, as defined by the International Financial Reporting Standards (IFRS), pertains to information that, if excluded, would have a significant impact on the decision-making process of investors. The act of disclosing financial information is crucial to effectively expressing the performance of a firm to external stakeholders. It serves the purpose of recruiting further external funding for companies that demonstrate strong performance. Furthermore, financial disclosure plays a significant role in fostering economic development in emerging nations (Ball, 2006; Kvaal & Nobes, 2010).

However, it has been argued by Kvaal and Nobes (2010) that the presence of unstable economies, financial crises, and corporate scandals consistently prompts inquiries on the necessity for enhanced reporting and disclosure obligations, as well as the imperative for improvements in securities regulation. In recent times, these matters have garnered significant significance on a global scale owing to the prevailing financial challenges (Soderstrom & Sun, 2007). As a result, both internal and external stakeholders have put a lot of pressure on institutions to shift their focus from focusing mostly on financial reporting to focusing more on their role in society and achieving sustainability. Moreover, there is a growing demand for the integration of this information with financial data in a cohesive manner. External pressures urging a reorientation of the corporate accounting system and its practices towards a more holistic viewpoint are linked to this process. The aforementioned consequences have resulted in an increased call for the incorporation of non-financial data in reports, whether on a voluntary or obligatory basis. Hence, the development of reports underwent a transformation, leading to changes in both the nomenclature and substance of these reports, which will be elaborated upon in the subsequent section.

2.2.2 Non-financial disclosure: History and Development

Non-financial disclosure has a lengthy historical trajectory, characterized by a progression from voluntary publication of basic non-financial data to obligatory disclosure in some nations. Approximately one hundred years ago, the concept of firms acknowledging their societal responsibilities and the importance of effectively conveying these responsibilities came to prominence (Bowen, 1953). The author of the Buallay (2020) study said that non-financial disclosure has gone through four main stages, starting in 1950 with the introduction of the idea of corporate social responsibility. Companies first concentrated on their social responsibility (social dimension), but later, stakeholders started to pay more attention to how businesses affected the environment, particularly in the wake of past pollution scandals. As a result, voluntary disclosure of a company's social and environmental aspects began to emerge. Following this, the concept of sustainability emerged, encompassing aspects of social, environmental, and economic transparency. This is achieved by the production of separate reports that highlight the responsibilities of corporations and their overall impact on society. Finally, the concept of integrated disclosure, which entails the consolidation of financial and non-financial disclosure into a unified report, materialized during the concluding phase. Figure No. 2 illustrates the historical progression of non-financial disclosure. It is noteworthy to mention that there has been progress in the establishment of disclosure requirements at every phase as well.

Figure (2): Development of non-financial disclosure



Source: Own framing based on Buallay (2020).

2.2.2.1 Phase 1: History of corporate social responsibility

Since its inception, corporate social responsibility, or CSR, has been a topic of discussion. The idea was presented by Bowen in 1953, and it was defined as businessmen's duties to seek choices, policies, and activities that support the goals and ideals of the community. However, Friedman (1962) defined social responsibility as maximizing profits while minimizing harm by utilizing the resources of business and society. Furthermore, in order to prevent erosion, organizations should combine their social power with social responsibility, according to Davis (1960), who established the managerial perspective on socially responsible behaviour. From a stakeholder viewpoint, Johnson (1971) introduced CSR and stated that businesses should take into account the needs of their local community, suppliers, dealers, and employees. In parallel, Sethi (1975) presented the progressive notion of corporate social performance (CSP), which connected CSR to an organization's tactics and goals. Carroll (1979) underlined that CSR is about a company's behavior being economically profitable, with the main prerequisite being compliance with the law when talking about ethics and how much a company contributes to society in the form of cash, labor, and talent. Carroll's definition, nonetheless, has come under fire for failing to make a distinction between companies that behave responsibly and those that do not. The "pyramid of social responsibility," which Carroll created in 1991 in response, covered four business responsibilities: economic, legal, ethical, and charitable.

Peter Drucker developed the idea of CSR in the 1980s by emphasizing how business opportunities and a company's obligations may coexist. Research has concentrated on the marketing components of corporate social responsibility (CSR), including cause-related marketing, social sponsorship, environmental marketing, and informing customers about CSR concerns (Crouch, 2006). In the 1980s, researchers and practitioners shifted their focus to measuring CSR disclosures and their impact on firms' businesses. The exploration stage of CSR development occurred between 1980 and 1989, when researchers explored the content of CSR information in firms' communications (Wang et al., 2016). Therefore, corporations have turned their focus in recent years not just on carrying out their social obligations but also on openly disclosing and expressing their contributions to society. As will be discussed later, there has been a noticeable increase in the efforts made by international organizations to create laws requiring businesses to fulfil their social responsibilities and adequately inform their stakeholders of these obligations (Radwan et al., 2023). As a result, there is now an emphasis on socially conscious corporate practices that attempt to balance the requirements of a larger society with the goal of maximizing shareholder income.

2.2.2.2 Phase 2: Environmental Disclosure

Although the idea of CSR emerged and was accepted as a well-established issue in the 1960s, and companies recognized that it is not only important for protecting society but also for business growth, this is what prevents companies from environmental violations such as pollution, land degradation, and oil spills (Deegan, 2014). Due to all of this, by the early 1980s, stakeholders were more conscious of the necessity for businesses to disclose not only their social role but also their environmental impact (Kolk & Van, 2010). The scope of corporate reports was broadened to encompass environmental reports in conjunction with social reports. Hence, starting in the 1970s, the incorporation of environmental conduct has emerged as a significant facet of CSR. In response, developed nations have mandated firms to publicly declare their environmental initiatives and undertakings (Wang et al.,2023). According to the study conducted by Murdifin et al. (2019), China's government has implemented standardized regulations for corporate environmental management. These regulations include the Guidelines on Environmental Information Disclosure for Listed Companies in 2010 and the Environmental Protection Law in 2015. Nevertheless, the current state of corporate environmental information disclosure by firms remains unsatisfactory, mostly attributed to inadequate government oversight, limited public engagement, and voluntary compliance measures. Numerous corporations lack awareness regarding the ramifications of disclosing environmental information, specifically the possible escalation of environmental expenditures.

2.2.2.3 Phase 3: Sustainability

As the concept of social responsibility gained increased attention, both individuals and organizations started making attempts to effectively implement social responsibility into practice (Van Bommel, 2014). Hence, Elkington (1994) introduced a conceptual framework known as the "triple bottom line" (TBL). Triple Bottom Line (TBL) incorporates both social and environmental aspects alongside financial considerations. This triple-line concept served as the foundation for interested international organizations to prepare social, environmental, and economic reports by the 1990s. From that time on, sustainability became more widely recognized, especially after the Global Reporting Initiative (GRI) was established and CERES began working in the fields of financial reporting and social responsibility. Subsequently, organizations have embraced the word sustainability to encompass the dimensions of social, environmental, and economic performance (Montiel & Delgado-Ceballos, 2014). During that period, there were variations in the amount of understanding pertaining to the notion of sustainability across different countries. The recognition of sustainability was profoundly influenced by political, social, and economic variables, which either attenuated or augmented the level of attention given to environmental and social sustainability issues (Van Bommel, 2014; Pan et al., 2014).

Furthermore, the concept of sustainability has been embraced by companies and broadened to include all non-financial reporting on their economic, social, and environmental performance (Bebbington et al., 2014). Nonetheless, there is now more external pressure from stakeholders to establish guidelines and requirements for drafting legally binding rules pertaining to sustainability, governance, social, and environmental reporting so that they can be incorporated into the yearly financial report (Ioannou & Serafeim, 2017). This is due to the fact that these reports are voluntary, have various titles and contents, and are becoming more difficult, especially after the increase in sustainability challenges (Hohnen, 2012). Consequently, many nations, such as Finland, have endeavored to mandate the disclosure of social responsibility by firms. Additionally, other countries have implemented legislation pertaining to the inclusion of companies in stock markets, which necessitates the disclosure of sustainability practices by listed entities (Adams & Whelan, 2009; Pan et al., 2014). Notwithstanding these endeavors, challenges persist in the realm of sustainability reporting practices, encompassing the nature and quality of the information disclosed as well as its governance and evaluation (Hohnen, 2012). To tackle this issue, a number of initiatives have been launched with the intention of offering recommendations to improve stakeholder confidence and the transparency of sustainability reporting such as (GRI), which involved the active involvement of both the Environmentally Responsible Economies (CERES) and the United Nations Environment Programme (UNEP).

2.2.2.4 Phase 4: Integrated Reporting

The International Reporting Council (IRC) was created in 2010 to promote independent environmental and social disclosures in line with corporate reporting trends. The IR Framework systematically explains how a corporation creates value throughout the short, medium, and long term. It integrates financial performance and sustainability by examining how the six capitals—financial, manufactured, natural, human, intellectual, social, and relationship—affect corporate performance. This thesis focused on integrated reports and their influences, since they are a new corporate reporting trend. A specific section will examine integrated reporting and its standards.

2.3 Non-financial Reporting Standards and Frameworks

In recent years, there has been a notable increase in the prevalence of stakeholder initiatives and guidelines aimed at promoting CSR, sustainability, and the disclosure of non-financial information. Given the primary focus of this study on the integrated reporting approach, it will provide a concise overview of the key global initiatives that aim to promote sustainability and non-financial disclosure. The UN Global Compact advises organizations on social and governance duty, environmental responsibility, and economic accountability to encourage socially responsible and sustainable practices (Rasche and Kell, 2010; Singh et al., 2009). The framework has four principles: anti-corruption, labor, human rights, and environment.

The most important and popular initiative is GRI. Created in 1997, *the Global Reporting Initiative (GRI)* aims to address social and environmental crises in organizations (Ioannou & Serafeim, 2017).. GRI's efforts have made valuable contributions to the advancement of nonfinancial reporting practices (KPMG, 2013; KPMG, 2008). This, due to the GRI framework, was the only one that really worked for businesses. Following the GRI guidelines, the reports must keep a strong focus on many areas, such as the company's vision, strategy, profile, governance framework, management systems, GRI content index, and performance indicators that include economic, social, and environmental factors. These criteria are classified into two groups: core criteria, which pertain to generally applicable criteria and are deemed material for the majority of organizations, and another criteria, which pertain to emerging practices and are significant for certain companies but not for others (GRI, 2023). The first generation of GRI's sustainability reporting rules was released in 2000. The second iteration of the sustainability reporting rules was introduced in 2002, two years later. GRI unveiled its initial taxonomy for the third-generation standards in 2006. The fourth generation of guidelines, which provide reporting standards, was released in 2013. These guidelines can be categorized into four segments: GRI 1 (Foundation), GRI 2 (General Disclosures), GRI 3 (Material Topics), and GRI 4, collectively referred to as universal standards (Györi & Szigeti, 2023).

The launch of the *Sustainability Accounting Standards Board (SASB)* in 2011 aimed to improve the level of openness and interaction between firms and their stakeholders with relation to their environmental, social, and governance (ESG) impacts (Santi, 2023). Through reporting on sustainability and raising awareness of a company's influence on the environment and society, the SASB framework seeks to reduce the potential of undermining a company's market value. Moreover, a comprehensive worldwide baseline of sustainability disclosures is being created by *the International Sustainability Standards Board (ISSB)* through the integration of the Climate Disclosure Standards Board (CDSB) and the Voluntary Reporting Framework (VRF). The forthcoming standards will integrate the recommendations of the Task Force on Climate-Related Financial Disclosures with industry-specific standards derived from SASB Standards (IFRS, 2022).

The Task Force on Climate-Related Financial Disclosure (TCFD) is an additional regulatory framework that provides support for the inclusion of non-financial information in corporate reports. The Financial Stability Board established a framework for TCFD in 2015 with the aim of assessing the impact of firms' operations on the changing climate. A global non-profit organization called the *Carbon Disclosure Project (CDP)* ***was*** founded in 2000 to assist businesses in creating a voluntary framework for sustainability reporting. According to Lopez (2022), the evolution of the CDP can be traced from its humble beginnings as a small non-governmental organisation to its current status as a globally acknowledged framework. This is attributed to the encouragement of enterprises to integrate environmental impact topics into their sustainability reports, resulting in an annual participation of over 13,000 in the project. To provide more clarity on CSR-compliant practices, the International Standards Organization (ISO) released ISO 26000:2010, a set of standards and criteria for public and private companies' socially responsible business practices (Moratis & Cochius, 2017; Pan et al., 2014). According to ISO 26000:2010, there are seven main areas of social responsibility that make up this framework: labor practices, consumer issues, human rights, the environment, fair operational practices, community development and involvement, and organizational governance. These facets of CSR (CSR), commonly referred to as the acronym ESG (Environmental, Social, and Governance) (ISO, 2010). Biondi and Cracci (2018) and Moratis and Cochius (2017) provide evidence that ISO 26000 serves as a guiding framework for organizations to effectively incorporate socially responsible practices, involve stakeholders, and acknowledge the importance of social responsibility practices. The AA1000 framework was introduced for the first time in 1995. The standards are entirely open-source and non-prescriptive guidelines that support public assurance, responsiveness, materiality, and completeness, as well as the disclosure of the disclosing entity's impartiality regarding environmental, economic, and social performance (Accountability, 2008; Sarraj, 2018). According to Katsioloudes and Brodtkorb (2007) and Vinke (2009), the AA1000 framework is advantageous due to its promotion of a culture focused on ongoing improvement through stakeholder participation and response.

2.4 Development of European non-financial reporting regulations

The objective of the present research is to assess the quality of integrated reports and their determinants in European Union countries. To provide context, we will briefly examine developments in European standards that have facilitated non-financial disclosure in a broader sense. The European Union (EU) has consistently placed a high emphasis on sustainability, as seen by the integration of social and environmental aspects within its treaties. Article 11 of the Treaty on the Functioning of the European Union (TFEU) stipulates the obligatory inclusion of environmental protection prerequisites within European Union (EU) policies and undertakings, with the aim of advancing sustainable development. The European Union has also taken measures to address fundamental social rights, including the European Social Charter. The European Union (EU) has been actively engaged in addressing the challenges of climate change and resource depletion, with a particular focus on the ongoing COVID-19 problem. This has been achieved through the promotion of sustainable development practices and the establishment of novel employment prospects. The aforementioned developments have given rise to many policy initiatives, such as the Action Plan for Financing Sustainable Growth, the European Green Deal, and the Strategy for Financing the Transition to a Sustainable Economy (Niculescu & Burlaud, 2023).

Hence, the debate and criteria pertaining to non-financial disclosure as a whole, and specifically sustainability disclosure, have seen significant development in recent times. Directive 2014/95/EU was adopted by the European Parliament on October 22, 2014. This directive mandates that major firms and business groups are obligated to report non-financial information. Organizations are mandated to provide information pertaining to six primary domains, namely bribery and corruption, human rights adherence, environmental concerns, social matters, and employee-related aspects. Furthermore, it is imperative for them to provide transparency on the manner in which these themes are approached within their organizational strategy, policies, outcomes, potential hazards, and key performance indicators (KPIs). According to the European Parliamentary Research Service (EPRS) in 2021, it has been identified that the NFRD and its implementation exhibit certain shortcomings. The researchers discovered a dearth of public awareness regarding the interplay between sustainability concerns and their impact on companies, as well as the reciprocal influence of enterprises on the environment and society.

Directive (EU) 2014/95 was first put into effect, and the European Commission promised to examine its terms shortly after. In response to the limitations that have been previously highlighted, Directive (EU) 2022/2464 was introduced in December 2022, and the Corporate Sustainability Reporting Directive (CSRD) is another name for it. The European Financial Reporting Advisory Group (EFRAG) assumes the responsibility of developing new directive requirements on behalf of the European Commission. EFRAG, a privately funded association principally supported by the

European Union (EU), provides guidance to the European Commission for the adoption of international reporting standards for legislation within the EU. The CSRD refers to the legislation of the European Union (EU) that has been in operation since January 5, 2023. It mandates EU businesses, including eligible EU subsidiaries of non-EU companies, to disclose information regarding the environmental and social consequences of their business operations. Additionally, they are required to report on the effects of their environmental, social, and governance (ESG) endeavors and initiatives on their business activities.

The Accounting Directive 2013/34/EU38 was modified by this recent directive concerning corporate sustainability reporting. This modification specifically pertains to the provisions related to the disclosure of non-financial information, which were initially adopted by Directive 2014/95/EU39. The CSRD seeks to promote lower-cost sustainability reporting through the use of the European Single Market to support an inclusive and sustainable financial and economic system. This would enhance the distribution of financial resources among businesses that deal with environmental, social, and health issues. Harmonizing worldwide sustainability reporting standards and lowering the cost of sustainability reporting are the main goals of the Commission's CSRD. The proposal, which amends the Accounting Directive, Audit Directive, Audit Regulation, and Transparency Directive, is issued as a directive in the European Union.

Comparing Directive (EU) 2022/2464 to the Non-Financial Information Directive, significant modifications are made to the reporting boundary. The scope of sustainability reporting duties encompasses a wide range of entities, including but not limited to large corporations, both European and non-European companies listed on a regulated market, credit institutions, investment firms, insurance and reinsurance undertakings, as well as third-country undertakings with substantial operations. According to the new regulation, businesses must submit details about their sustainability strategy and business model, including additional elements on opportunities, risks, and resilience. In addition, businesses have to disclose how they incorporate intangible resources into strategic choices outside of financial statements and incorporate sustainability concerns into business planning. Furthermore, the CSRD is making significant strides in establishing a unified European Sustainability Reporting Standard (ESRS) (EFRAG, 2022). This implies that enterprises that were previously required to report under the NFRD would also be obligated to report on a broader range of indicators starting in 2024. Thus, it can be said that enhancing comprehension of sustainability and company performance is the goal of this shift (and Szigeti, 2023)

2.5 Integrated reporting: History, Development, Frameworks.

2.5.1 Integrated reporting: From the creation phase to the global adoption phase.

Years ago, a few trailblazing businesses launched the integrated reporting trend in the first decade of the 21st century (Eccles et al., 2015a). This is particularly true for NovoNordisk, a Danish firm that opted to release a single report that included mandatory financial statements and sustainability data after reporting on the Triple Bottom Line for a number of years. First, the (IIRC) was founded on August 2, 2010, through a collaboration between the Global Reporting Initiative (GRI) and the Accounting for Sustainability Project, which is under the patronage of the Prince of Wales. The objective is to define guiding principles and content elements that control the comprehensive content of an integrated report and to elucidate the essential concepts that form the basis for these principles and elements (IIRC, 2013a, b). Then, on September 12, 2011, a discussion paper with the title "Towards Integrated Reporting: Communicating Value in the 21st Century" was published. The public was asked to provide their opinions on this issue (IIRC, 2011). The (IIRC) published a list of the first organizations involved in the IIRC Pilot Project Business Network around a month later. The goal of this two-year project is to help the participating organizations share knowledge, experiences, and ideas about integrated reporting. This initiative is covered in more detail in reports that the IIRC issued in 2013a and 2013b.After that, the International IR Framework Prototype was released by the IIRC in November 2012, along with a request for enterprises to begin testing and assessing the principles of IR in terms of their application and relevance. In April 2013, a consultation draft of the Integrated Reporting (IR) Framework was released, incorporating various elements such as answers to the 2011 Discussion Paper, feedback on the prototype framework, and input from the business and investor networks participating in the IIRC Pilot Programme. In response to feedback from stakeholders on the consultation draft in 2013, the (IIRC) implemented a principle-based reporting framework for integrated reporting. This framework was designed to address the issue of a lack of shared understanding of integrated reporting and to clarify the varied practices of integrated reporting globally.

Several corporations, regulators, and organizations supported the (IIRC), which changed the Integrated Reporting (IR) trend. Thus, over 100 organizations worldwide participated in the (IIRC) pilot phase, which helped build the IR Framework (IIRC, 2013a). Currently, over 2,500 firms in over 70 countries use integrated reporting (IR) to influence their cognitive processes, behaviors, and communication strategies for value creation (IIRC, 2022). Several nations require or aggressively encourage businesses to utilize IR. Important associations, including TCFD, IFAC, B20, and IASB encourage corporations to implement IR by emphasizing its short-, medium-, and long-term value creation benefits (IIRC, 2021a). South Africa, Malaysia, Japan, the Netherlands, Brazil, Singapore, Denmark, India, China, New Zealand, and Australia changed their stock market listing and reporting rules to promote integrated reports.

Another important initiative is done in South Africa, starting in 2010, Johannesburg Stock Exchange (JSE) businesses must present integrated reports using the "apply or explain" strategy (IDSA, 2009). Additionally, EU Directive 2014/95/EU, which revolutionized nonfinancial reporting, provides another important incentive. The order required publicly listed corporations to publish non-financial information, a major step forward in IR (Barth et al., 2017; Howitt, 2016). In 2021, the (IIRC) and the Sustainability Accounting Standards Board (SASB) formed the Value Reporting Foundation (VFR). Providing integrated thinking principles, the IR Framework, and SASB Standards is the foundation's main goal. These materials help firms and investors understand a company's lifecycle worth, including its generation, maintenance, and degradation. The VRF simplifies company disclosure with "comparable, logical, and accurate data, facilitating comprehensive choice-making among companies and stakeholders" (IIRC, 2021a).

2.5.2 Integrated Reporting Frameworks.

2.5.2.1 King report I, II, III, IV

The commencement of South Africa's Integrated Reporting endeavour can be traced back to the year 1994, which marked the transformation of the nation into a fully democratic state. President Nelson Mandela appointed Mervyn King with the objective of establishing the *King Committee on Corporate Governance (King I)***,** aiming to enhance public trust in the business sector. The inaugural King report was published in 1994, whereby it proposed that firms should provide non-financial matters and embrace an integrated strategy. *King II, which was released in 2002*, pushed businesses to take an all-encompassing perspective and extend their accountability beyond financial performance to encompass social and environmental aspects. According to Wachira et al. (2020), the economic collapse that occurred in 2008 brought attention to the shortcomings of conventional annual reports in effectively addressing risks. Although the King I and II findings did not impose mandatory compliance on listed corporations, the ideas outlined in these recommendations were indeed embraced by the Johannesburg Stock Exchange (JSE). Hence, *in 2009, the King III report***,** which exhaustively examined the lack of trust between investors, businesses, and society, provided a definition for integrated reporting as "a comprehensive and cohesive portrayal of the business's operations encompassing both its financial aspects and its sustainability."

The differentiation between King II and III lies in their respective approaches. King II required listed firms to disclose sustainability-related information, but this was done within a distinct chapter or annual report (Eccles et al., 2015, p. 30). However, in accordance with the King III Report on Corporate Governance, publicly traded companies are required by the JSE to create integrated reports on "report or explain" (Solomon and Maroun, 2012). Hence, JSE-listed firms are obligated, as of March 1, 2010, to either implement integrated reporting (IR) as described in King III or provide a clear justification for their decision not to adopt it (Wulf et al., 2014). Another year later, in 2010, South Africa's Integrated Reporting Committee (IRC) was founded. The primary objective of the Integrated Reporting Committee (IRC) in South Africa was to establish a set of rules for the preparation of integrated reports, drawing upon the ideas outlined in King III. Mervyn King, the inaugural chairman of the International Regulatory Committee (IRC), was appointed to the position of chairman.

The King Report III underwent revision in 2016, resulting in the *launch of King IV***,** which became implemented in 2017. The International Reporting Committee (IRC) made the decision to harmonize the King Report with the guidelines outlined by the (IIRC) (Demartini & Trucco, 2017). The King IV report largely adheres to the standards outlined in the Integrated Reporting (IR) framework developed by the (IIRC), while there are some notable differences in certain foundational notions between both. The significance of integrated thinking, corporate citizenship, a stakeholder-inclusive strategy, and sustainable development in an organization’s management are the four fundamental themes that King Report IV highlights. It highlights the necessity of integrated thinking in day-to-day management as well as the interdependencies between variables influencing an organization’s ability to create value over time (Pitchot, 2020).

2.5.2.2 International Integrated Reporting Council (IIRC)

The (IIRC) is a non-profit organization established in 2010 that has significantly contributed to the global dissemination of integrated reporting. It is an international alliance of regulatory bodies, shareholders, corporations, standard-setting organizations, accountants, and non-governmental organizations. The IIRC's framework, created in 2013, has become the de facto standard for integrated reporting regulations

2.5.3 Integrated reporting framework.

2.5.3.1 Definition and purpose.

Integrated reporting is a recently established framework that aims to facilitate the amalgamation of both financial and nonfinancial data into a single comprehensive report. Hence, the outcome of this procedure commonly takes the form of an annual "integrated report," as defined by the (IIRC), which is a succinct statement detailing how an organization’s strategy, governance, performance, and future prospects contribute to the generation of value throughout the short, medium, and long term. According to the (IIRC), integrated reporting (IR) is a structured approach that is based on integrated thinking. It involves the production of a comprehensive report by an organization, that focuses on the creation of value during a specific period. Additionally, this report includes relevant communications pertaining to various elements of value creation. The IR technique involves demonstrating the interconnectedness of various capitals, where a corporation experiences a sequence of favorable or unfavorable trade-offs during the process of value generation. The primary objective of IR is to effectively communicate the narrative of the firm, encompassing its value creation, business strategy, as well as the associated risks and opportunities inherent in its business model.

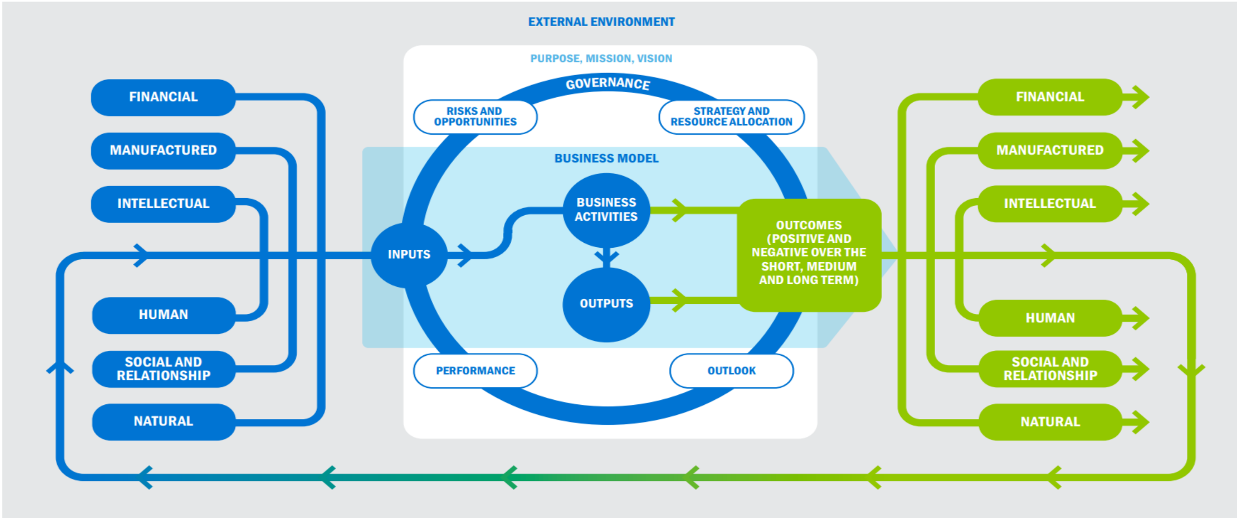
2.5.3.2 Fundamental concepts.

Integrated reporting includes two basic concepts: the value creation process and the six capitals model. The integrated report explains how the organization creates, maintains, or erodes value over time. Of course, this value is created through a group of important elements such as the external environment that affects the organization and the resources and relationships used and affected by the organization, which are collectively referred to in the <IR> framework as capitals and are classified in the section as financial, industrial, intellectual, human, social, relationship, and natural. Therefore, these two concepts seek to clarify the relationship and how value is created through the six capitals, and this is clearly displayed in Figure 3. The value that an organization has created, maintained, or eroded over time is defined by the increases, decreases, or shifts in capital resulting from the organization's business activities and outputs. An organization's ability to create value for itself is linked to the value it creates for others. The creation of value is a complex process that occurs over varying time periods and involves several stakeholders and diverse forms of capital. It is improbable to achieve value creation by solely focusing on maximizing one form of capital while disregarding others. Hence, integrated reports prioritize the consideration of several forms of capital, encompassing both inputs and outputs, while acknowledging that the relative significance of these capitals may fluctuate among organizations.

The integrated reporting framework relies on the second fundamental concept, known as the six-capital model. The success of all organizations is contingent upon the acquisition and utilization of various forms of capital. According to the Integrated Reporting (IR) paradigm, the various forms of capital encompass financial, manufactured, intellectual, human, social, relationship, and natural capital. In the given framework, capital is conceptualized as a collection of assets that undergo changes in value, either by increasing, decreasing, or transforming, as a result of the organization's activities and outputs. Therefore, over time, this entire capital stock varies. There exists a perpetual exchange among and among capital cities as they undergo fluctuations, either in terms of growth or decline, or as they undergo spatial relocations. Table 1 displays the definitions derived from the integrated report framework pertaining to various forms of capital.

Note that the <IR> framework does not mandate the use of these capitals in their current form. The organization's vision, however, may have an impact on how capital is classified. For instance, social and relational capital includes intangible assets linked to brand and reputation as well as relationships with external stakeholders. However, some organizations view them as either independent capitals or as a component of other capitals. Therefore, the capitals model should be followed as a guide to make sure that an organization does not ignore or have any influence over the capital it utilizes, regardless of how it classifies capital for its own purposes.

Figure 3: Process for generating, maintaining, or degrading value.



Source: IIRC (2021), p.32.

Table (1): Six Capital description.

	Description of six capitals in the IIRC Framework
Capital name	Description
Financial capital	The financial resources that an organization can utilize to produce goods or render services, both through internal funding sources and outside funding sources.
Manufactured capital	Manufactured physical items, such as infrastructure, machinery, and buildings, that are employed in the supplying of services or the manufacturing of commodities.
Intellectual capital	Intangibles based on organizational expertise, such as intellectual property and "organizational capital" like tacit knowledge.
Human capital	Individuals' competences, capabilities, and experience, as well as their incentives to engage in innovation, encompassing their aptitude for strategy implementation, loyalty, and drive.
Social and relationship capital	Mutual standards, trust, and reputation, as well as the structures and interactions that exist within and among communities and stakeholder groups.
Natural capital	The term "environmental resources" encompasses both renewable and non-renewable resources, as well as the associated processes that contribute to the provision of products or services. These resources include air, water, land, and the overall health of ecosystems.

Source: IIRC (2021).

2.5.3.3 IR guiding principles.

The IR's theoretical framework encompasses seven guiding concepts. The objective of these principles is to offer guidance to individuals responsible for preparing reports, with the intention of enhancing the clarity of the report's substance and the manner in which information is presented. Despite their significance, these concepts can be employed singly or in combination, and their implementation calls for a high level of judgement. This is because there is occasionally conflict between some principles—for instance, completeness and conciseness. One of the fundamental principles pertains to strategic focus and future orientation. The integrated report is expected to offer a comprehensive understanding of the organization’s strategy and its alignment with the ability to generate value over different time horizons, namely the short, medium, and long term. Additionally, the report should elucidate the utilization of resources and the subsequent impact on the organization’s capital. Furthermore, the connectivity of information is a fundamental principle that preparers of integrated reports are required to adhere to. Furthermore, it is imperative to establish a connection between the organization’s strategy and business model and alterations in its external environment, including a shift in the speed of technical advancements. In addition, the report must explain how various capitals relate to one another and how variations in their quality, price, and availability affect the organization’s ability to generate value. One of the basic principles underlying integrated reporting is stakeholder engagement, as value generation is not just attributed to or confined within the organization itself but rather emerges from collaborative interactions with its stakeholders. Consequently, the integrated report ought to offer a comprehensive understanding of the organization’s interactions with crucial stakeholders, elucidating the manner and degree to which the organization comprehends, acknowledges, and addresses their valid requirements and interests. The conceptual framework places significant emphasis on the concept of materiality. The integrated report should disclose pertinent information regarding factors that significantly impact the organization’s capacity to generate value throughout the short, medium, and long-term periods. The process of ascertaining materiality entails the identification of pertinent factors that possess the capacity to impact the development of value. There are a number of factors taken into consideration when determining their impact on the organization’s strategy, management, performance, or prospects.

Conciseness, reliability, and completeness principles are all consistent with the materiality principle. The integrated report should provide an adequate amount of contextual information to facilitate comprehension of the organization's strategy, governance, performance, and future prospects, while avoiding unnecessary and less significant details. Hence, it is imperative for the organization to strive for equilibrium in its integrated report through the comprehensive disclosure of all pertinent issues, both favorable and unfavorable, in a fair and accurate manner, devoid of any significant inaccuracies. Furthermore, a high level of credibility for the information disclosed is required by the integrated reporting approach. This is because the organization must adhere to mechanisms like robust internal control and reporting systems, stakeholder engagement, internal audit or related functions, and independent external assurance. In the same vein, consistency and comparability are the primary principles upheld by the integrated reporting framework. The presentation of information in an integrated report should adhere to a consistent approach over time, unless modifications are necessary to enhance the quality of the given information.

2.5.3.4 Content elements.

The eight elements that make up an integrated report define the report's content and convey the organization's distinctive value-creation story. An integrated report can weave together information from each of these elements to tell the story of the company, starting with a fundamental overview of the business model and progressing through the external variables influencing the company and management's approach to managing them and growing the company. These aspects exhibit unique qualities that are intrinsically interconnected and do not exist independently of each other. Therefore, a consistent and effective strategy for corporate reporting will be made possible by these components, guaranteeing that all variables that have a significant impact on the organization's capacity to generate value over time will be covered in the report.

The organizational overview and external environment make up the first content element. As in the IR framework, the following question should be addressed in an integrated report: What does the organization do, and under what conditions does it operate? In response to this inquiry, an organization's goals, objectives, and markets should all be outlined in an integrated report, with special attention paid to the organization's values, ownership, competitive environment, location, and value chain position. Moreover, the influence of the external environment on value generation is of utmost significance. The subsequent element under consideration pertains to governance. The element of governance inquiries about the extent to which an organization's governance structure facilitates its capacity to generate value throughout several time horizons, including the short, medium, and long term. The inquiry aims to ascertain the impact of internal organizational mechanisms, including leadership structure and diversity, ethical standards, cultural norms, and core values, on both the organization itself and its stakeholders.

An essential element for creating integrated reporting is the business model. The integrated report needs to provide a clear response to the following query: What is the business model of the organization? The IR framework delineated the organization's business model as a mechanism for converting inputs, via its business operations, into outputs and outcomes with the purpose of attaining the organization's strategic goals and generating value over the short, medium, and long run. Hence, the model encompasses four primary components, namely inputs, business operations, outputs, and results.

The content element pertaining to opportunities and risks inquiries about the integrated report's role in identifying the primary opportunities and threats that could impact the organization's long-term value creation capabilities. The content aspect pertaining to strategy and resource allocation examines the manner in which an organization generates value for itself, as well as the necessary measures to be undertaken in order to achieve its short-term, medium-term, and long-term objectives. An integrated report often delineates the short-, medium-, and long-term strategic goals of the organization.

With regards to the performance content element, the integrated report is required to address the following inquiry: To what degree has the organization successfully attained its strategic objectives during the specified period, and what are the outcomes in relation to the impacts on the six capitals? As a result, both financial and non-financial performance data must be presented in the integrated report in a thorough and connected manner using both quantitative and qualitative methods. The purpose of the outlook content element is to offer a comprehensive understanding of the strategic planning process that the organization should undertake in order to successfully implement its chosen course of action. Hence, it is imperative for the integrated report to address the inquiry regarding the obstacles and uncertainties that the organization is expected to encounter while following its plan, as well as the potential ramifications on its business model and future performance. An essential aspect that the report must address is the basis of preparation and presentation. The integrated report is required to address the following inquiry: What are the criteria used by the organization to decide which topics belong in the integrated report, and how are they assessed?

2.6 Chapter summary.

Organizations are transitioning to alternative corporate reporting forms to enhance comprehension among investors and other stakeholders. Integrated reporting is the latest development in a new business model, specifically in the context of corporate reporting. Academic literature has recently shown considerable interest in the notion of IR and its emphasis on capitals. Nevertheless, the roots of this approach may be traced back to several past endeavors, such as triple bottom line accounting, sustainability reporting, and CSR reporting. However, substantial advancements towards integrated reporting (IR) did not occur until 2010, when the IIRC was established. The formation of the (IIRC) was a crucial milestone for the Integrated Reporting (IR) effort since it received substantial support from multiple companies, authorities, and organizations. The emerging norm of integrated reporting promotes the amalgamation of nonfinancial and financial data into a unified report. By providing a comprehensive view of an organization's business operations, it aims to enhance corporate transparency. This strategy entails discerning the interconnections among different resources that entail a sequence of either advantageous or disadvantageous compromises inside a company's process of generating value. Therefore, the purpose of this chapter is to establish a thorough understanding of the advancements in corporate disclosure, particularly in the context of integrated reporting.

Chapter Three: Theoretical framework and literature review

3.1 Introduction

This chapter examines the theoretical underpinnings of integrated reporting practice and its quality, as well as the relevant literature on the subject. The chapter is organized into three main sections: (a) an exposition of pertinent theories on integrated reporting; (b) an elucidation of the literature review; and (c) the gaps in the literature. The main theoretical frameworks utilized in integrated reporting literature include agency theory, signaling theory, stakeholder theory, legitimacy theory, institutional theory, and resource dependence theory. These frameworks are commonly employed to explain the context, extent, and quality of integrated reports. Following the theoretical discussion, the chapter provides a detailed examination of the relevant literature. To achieve this, focus on two main issues: the adoption of integrated reporting, which goes into great detail about the context, factors, and effects of integrated reporting adoption. Further, a comprehensive discussion on measures, determinants, and consequences of IRQ will objectively identify the gaps in the literature that will be addressed in this study.

3.2 Theoretical Foundation.

The business environment in which businesses operate is dynamic and does not adhere to a rigid set of established regulations. Many organisations operate beyond national borders, which introduces additional complexity to their compliance environment (Chithambo & Tauringana, 2017). Thus, the different theories were used in a substantial amount of research to explain and comprehend firm performance, disclosure policies, and surrounding environments. Various theories attempt to comprehend and explain why businesses choose to disclose information voluntarily. However, Hope (2003, p. 220) claimed that because voluntary disclosure is a multifaceted phenomenon, no single theory can fully explain it. As a result, this theoretical section aims to explain theoretically why businesses choose to use integrated reports (IR) as a form of voluntary disclosure, as well as how the board of directors and audit committee can help raise the quality of IR. Most studies on the quality of IR use a single or several theoretical frameworks, as in [Wang et al., 2020; Wahl et al., 2020; Corrado et al., 2019], but multi-theoretical frameworks offer a wider context for comprehending IR quality [Hossain et al., 2023]. Many theories have been applied to explain various aspects of integrated reporting in the literature on integrated reporting. Examples of these theories are those of impression management, resource dependency, institutional signaling, diffusion of innovation, voluntary disclosure, legitimacy, and stakeholder and agency theories. Hence, for our investigation purposes, in order to formulate our research hypotheses and then assess our results, this study relies on a variety of theories, including those related to agency, signaling, stakeholders, legitimacy, institutional, and resource dependence. Table 2 summarizes the theories that have been employed in prior research pertaining to the variables under investigation.

Table 2: Adopted theories related to studying variables.

Study variables		**Adopted Theories**	**Supported IR Literature**
Internal corporate governance characteristics			
Board factors	Size	Agency and resource dependence theories.	(Frias-Aceituno et al., 2013b; García-Sánchez &Noguera-Gámez, 2018; Girella et al., 2019; Qu et al. 2015; Vitolla et al., 2019)
	Independence	agency and stakeholder	(Frias-Aceituno et al., 2013b; Girella et al., 2019; Vitolla et al., 2019; Cooray et al., 2020; De Villiers and Dimes, 2021)
	Diversity	Agency, legitimacy and signaling theories	Chanatup, 2020; Cooray et al., 2020; Frias-Aceituno et al., 2013b; García-Sánchez &Noguera-Gámez, 2018; Girella et al., 2019; Velte&Stawinoga, 2017; Vitolla et al., 2019)
	Expertise	Agency and resource dependence theories.	Allini et al., 2016; Frías-Aceituno et al., (2012); Erin and Adegboye (2022)
	Meeting frequencies	Agency and legitimacy theories	(Frias-Aceituno et al., 2013b; Vitolla et al., 2019; Girella et al., 2021; Orshi et al., 2019
Audit committee characteristics	Size	Agency and resource dependency theories	Li et al., 2012; Ahmed Haji, 2015.
	Independence	Agency and stakeholder theories,	(Chariri et al. 2017)
	Diversity	Agency and resource dependency theories	_
	Expertise	Agency and stakeholder theories	Al Lawati et al., 2021; Ahmed Haji, 2015
	Meeting frequencies	Agency theory	Ahmed Haji, & Anifowose, 2016)
External corporate governance characteristics			
	Free float	Agency, Stakeholders Theories	(Raimo et al., 2020; Jensen & Berg, 2012, (Preuß, 2019))
	Audit firm	Agency, Stakeholder, Signaling Theories	.(Ghani et al., 2018; Al Amosh 2021; Hoang and Phang, 2021.
Control variables			
Firm control variables	Firm size	Legitimacy, Agency, Stakeholder, Signaling Theories	(Frias-Aceituno et al., 2014; García-Sánchez &Noguera-Gámez, 2018; Girella et al., 2019; Lai et al., 2016; Nicolo et al., 2020; Vaz et al., 2016; Velte&Stawinoga, 2017; Vitolla, Raimo, et al., 2020)
	Leverage	Legitimacy, Agency Theories	(Girella et al., 2019; Lai et al., 2016; Vitolla et al., 2020)
	Growth opportunity	Agency theory	(Frias-Aceituno et al., 2014; García-Sánchez &Noguera-Gámez, 2018; Girella et al., 2019)
	Profitability	Agency, Signaling, Legitimacy theories	(Frias-Aceituno et al., 2014; García-Sánchez &Noguera-Gámez, 2018; Girella et al.,

			2019; Lai et al., 2016; Vitolla, Raimo, et al., 2020)
	Liquidity	Agency, Signaling theories	Steyn 2014; Haji and Anifowose, 2017.
	Sustainability/ CSR committee	Agency theory	Raimo et al., 2020
Economic system	GDP	Institutional Thery	(Jensen & Berg, 2012; Vaz et al., 2016; Velte&Stawinoga, 2017
Cultural Factors			
	Individualism/collectivism	Institutional, Stakeholder Theories.	(García-Sánchez et al., 2013; Girella et al., 2019; Vaz et al., 2016; Vitolla et al., 2019)
	Masculinity/femininity	Institutional, Stakeholder Theories.	(García-Sánchez et al., 2013; Girella et al., 2019; Vaz et al., 2016; Vitolla et al., 2019)
	Uncertainty avoidance	Institutional, Stakeholder Theories.	García-Sánchez et al., 2013; Vitolla et al., 2019)
	Power distance	Institutional, Stakeholder Theories.	(García-Sánchez et al., 2013; Vitolla et al., 2019)
	Long-term orientation	Institutional, Stakeholder Theories.	(García-Sánchez et al., 2013; Girella et al., 2019; Vitolla et al., 2019)
	Indulgence	Institutional, Stakeholder Theories.	Vitolla et al., 2019)

3.2.1 Stakeholder Theory

The word "stakeholder" originally appeared at the Stanford Research Institute, as documented by Freeman et al. (2010). However, the foundational work on this subject in academic and management literature can be attributed to Freeman's fundamental study in 1984. According to Freeman (1984), stakeholders are individuals or organizations that can affect or have an impact on a company's goals. This includes staff, clients, vendors, investors, banks, environmentalists, authorities, and other relevant groups. Therefore, it is imperative to take into account the desires, worries, and expectations of all stakeholders while making tactical choices for the organization. This perspective is extensively embraced in academic research. Hence, in the aftermath of the worldwide economic downturn in 2008, stockholders, authorities, and other interested parties scrutinized the enduring feasibility and sustainability of corporations (S. Adams & Simnett, 2011). As a result, there is a growing expectation for firms to provide additional nonfinancial information in their yearly reports. This includes disclosing details about governance, social issues, problems with the environment, and sustainability. (Needles et al., 2016; Velte & Stawinoga, 2017).

The prevailing academic theory upon which numerous scholars built their research framework to interpret disclosure decisions was the comprehensive stakeholder theory. In the context of IR, a foundational principle is the creation of value for the organisation as well as for external parties (stakeholders and society). An integrated report, which offers insights into the value creation of the firm, is advantageous for all internal and external stakeholders (IIRC, 2013). Moreover, a company's integrated report encompasses an analysis of the firm's comprehension of stakeholders' connections, their valid desires and requirements, and the firm's corresponding actions in accordance with the guiding principles of the international integrated reporting framework (International Integrated Reporting Council, 2013; Wang et al., 2020). Thus, the idea behind the IIRC is based on stakeholder theory, which maintains that a company can operate effectively if it considers the interests of its stakeholders (Flower, 2015). Organisations may decide to implement IR in response to stakeholder duress (Farneti et al., 2019), in order to fulfil the information requirements of stakeholders (Farneti et al., 2019), or to ensure stakeholder satisfaction (Adhariani & de Villiers, 2019). Otherwise, these non-financial stakeholders can stop supporting the company if its focus is narrowed to maximising shareholder profit (Gerwanski et al., 2019; Pavlopoulos et al., 2019; Wang et al., 2020). Hence, stakeholder theory has served as the foundation for numerous investigations on <IR> (Alfiero et al., 2018; Barth et al., 2015; Eccles & Serafeim, 2013; Higgins & Coffey, 2016; Holt et al., 2015; Vaz et al., 2016). For example, the research conducted by Adhariani & de Villiers (2019), Farneti et al. (2019), Frias Aceituno et al. (2014), García-Sánchez et al. (2013), and Pavlopoulos et al. (2019) explores many factors that influence integrated reporting adoption and quality. Additionally, Farneti et al. (2019) and Rivera-Arrubla & Zorio-Grima (2016) investigate additional facets of integrated reporting based on stakeholder theory. This may be as a result of the stakeholder theory, which improves both the financial and non-financial disclosure of IR and provides a strong foundation for its adoption and quality (Gray et al., 1995; Bose et al., 2017; Lai et al., 2021).

Stakeholder theory suggests that effective governance structures are crucial for the meaningful application of integrated reporting (IR). The board of directors and audit committee, as the principal representative of stakeholders, can enhance the openness and quality of reports. Strong corporate governance reduces the likelihood of symbolic IR use and enhances the likelihood of IR as a conduit for integrated thinking methodology. Country-specific governance characteristics, such as cultural systems, can also affect management's readiness to adopt and improve the quality of IR. Effective governance encourages a firm to create integrated reports and enhances overall quality. Hence, our inquiry incorporates stakeholder theory as one of the theories to interpret the quality of integrated reporting (IR) and its drivers.

3.2.2 Legitimacy Theory

Organizations are man-made entities that were established artificially within society. Therefore, it is imperative for them to adhere to the standards and principles of the society in which they operate and to guarantee that their activities and decisions are regarded as valid and acceptable. Organizational legitimacy refers to the alignment between an organization's actions and the accepted norms of behaviour within the social system it operates in. When there is a discrepancy between these two, it poses a threat to the organization's legitimacy (Dowling & Pfeffer, 1975). The legitimacy theory suggests that genuine financial worth and balanced equity often diverge due to standard disclosure practices not providing a wide range of relevant non-financial information. This leads to the introduction of nonfinancial reporting as a supplement to financial reporting as an initial measure towards achieving legitimacy. However, following the 2008/2009 financial crisis, there has been a heightened susceptibility to deceptive environmental claims and excessive information in nonfinancial reporting (Mahoney et al., 2013).

Therefore, stakeholders anticipate enhanced interconnectivity between a company's different financial and non-financial resources, such as social or intellectual capital. and this is the major objective of integrated reporting (IR), as outlined in the IIRC framework (2013), which is to foster a coherent and comprehensive approach to strategic decision-making and a comprehensive understanding of the company's value creation. Similarly, according to Erin and Adegboye (2022), businesses that operate in environments where their operations have a major influence on the social and environmental domains typically offer integrated reporting (IR) in greater detail in order to justify their activities compared to businesses that have a smaller impact. Therefore, IR can be used as a disclosure medium to communicate changes in business activity to enhance low legitimacy (Mans-Kemp and van der Lugt, 2020). As a result, IR is a reporting technique used to manage corporate legitimacy (Lai et al., 2016) and can be recognized as a tool for communicating the organization's legitimacy actions (Velte & Stawinoga, 2017). Furthermore, it is an unavoidable consequence for organizations that embrace IR to adhere to the IIRF, which offers a passive avenue for the legitimization of the institution (Camilleri, 2019). A lot of research has used legitimacy theory to investigate what makes firms adopt and value IRs (Frias-Aceituno et al., 2013b; Lai et al., 2016; Nicolo et al., 2020; Corrado et al., 2019; Dumitru & Guse, 2017; Rivera-Arrubla & Zorio-Grima, 2016; van Bommel, 2014).According to IR research, governance structure—such as board effectiveness—has a major influence on IR methods based on legitimacy theory (Velte & Stawinoga, 2017a). According to Velte (2021), strong corporate governance variables, such as the characteristics of the board and other committees, as well as the ownership structure, are considered determinants that should encourage top management to adopt Integrated Reporting (IR) and improve its quality. These determinants enhance the legitimacy of firm's ability to meet stakeholders' demands by connecting financial and nonfinancial reporting. Furthermore, widespread awareness of IR is associated with country-related governance (Gerwanski et al., 2019). According to legitimacy theory, these factors—such as the presence of a civil law system, the level of legal enforcement, shareholder rights, and cultural considerations—should have an impact on the acceptance and quality of IR in order to acquire legitimacy. Thus, our study adopts legitimacy theory in our investigation of the quality of IR and its determinants.

3.2.3 Agency theory

The concept of agency theory developed during the 1960s and 1970s with the aim of determining the most advantageous degree of risk distribution among people (Frias-Aceituno et al., 2014). According to the theory, owners are considered principals, while managers are seen as agents. This relationship leads to an agency loss, which ultimately reduces the returns received by the claimants. This theory also deals with the issue of information asymmetry, which gives rise to problems like ethical risk and bias when one person has access to more accurate information than the other. Thus, as per agency theory, the limited perspective on performance offered by conventional financial statements is inadequate in addressing the issue of information asymmetry (Ruiz-Lozano & Tirado-Valencia, 2016). Hence, voluntary disclosure stands as one of numerous approaches to augment and fortify reporting transparency. Voluntary disclosure is the act of providing pertinent information about a company, which serves to lessen the imbalance of information and mitigate the issue of agency. It also serves as a sign of improved operational quality and contributes to a stronger economy (Sehar & Tufail, 2013).

Accordingly, based on the literature on integrated reporting, IR can be defined as a voluntary approach aimed at mitigating disparities in information between a company's internal stakeholders and external parties. Recent developments in IR have centered increasingly on information connections. Also, a company's value creation process can help overcome transparency issues, prevent information asymmetries, and satisfy stockholder demands (IIRC, 2013; Ruiz-Lozano &

Tirado-Valencia, 2016). This suggests that employing this disclosure tool as a guide can help reduce agency issues, streamline the process of making business decisions, and enhance stockholders' access to accurate data. As a result, agency theory served as the theoretical basis for earlier IR studies that identified the causes (Frias Aceituno et al., 2013b; Frias-Aceituno et al., 2014; Girella et al., 2019; Raimo et al., 2020; Vitolla et al., 2019), effects (Barth et al., 2017), and other IR-related factors (Adhariani & de Villiers, 2019).

For more illustration, integrated reporting (IR) can enhance market liquidity by delivering pertinent information to stakeholders in an increasingly succinct and valuable manner (Carvalho & Murcia, 2016). Additionally, increased IR transparency contributes to a decrease in information asymmetry, which lowers the cost of equity and the company's cost of capital (Carvalho & Murcia, 2016). Hence, in our study, agency theory explains the quality of integrated reporting and helps elucidate the correlation between corporate governance and integrated reporting.

3.2.4 Institutional Theory

According to institutional theory, a set of social conventions, laws, customs, beliefs, and standards instruct businesses on how to behave in a way that is acceptable to the community controls them. It looks at how companies become legitimate by following societal rules and conventions. In addition, the theory examines how businesses behave, plan, and operate in various institutional contexts. Despite their real efficacy, the theory presupposes that businesses are homogeneous and adopt comparable management structures, procedures, rules, and practices to mimic other businesses in a comparable industry (Glover et al., 2014). One of the primary theories utilized to develop new insights about integrated reporting is institutional theory (Camilleri, 2019). (Adhariani & de Villiers, 2019; Dragu & Tudor, 2013; Frias-Aceituno et al., 2013a; Girella et al., 2019; Jensen & Berg, 2012; Katsikas et al., 2017; Vaz et al., 2016) adopted institutional theory to investigate the factors that influence IR adoption and quality. Also, Katsikas et al. (2017; Stubbs & Higgins (2014) applied it to explore alternative viewpoints on integrated reporting practice. To be more specific, institutional theory states that a country's financial, educational, labor, and economic systems are just a few of the many factors that influence the adoption of integrated reporting (IR), which in turn affects businesses by creating unofficial pressure to demonstrate their social responsibility. For example, integrated annual reports are more common in businesses with a strong market orientation and less ownership concentration (Jensen & Berg, 2012). Further factors influencing a company's adoption of IR are cultural institutions that exert unofficial pressure on them to demonstrate their social responsibility. Businesses that operate in comparable cultural contexts typically use comparable corporate reporting formats (Jensen & Berg, 2012). Furthermore, firms set up in nations with solid oversight mechanisms are more likely to use IR as a complementary procedure to guarantee the utility of information about the business (Frias-Aceituno et al., 2013a). Consequently, the practices of IR firms in a given nation are governed by various legal frameworks, including civil law, safeguarding investor guidelines, and employee protection regulations. (Dragu & Iron Tudor, 2013; Frias-Aceituno et al., 2013a; Jensen & Berg, 2012; Velte & Stawinoga, 2017). Hence, it can be asserted that institutional theory serves as a foundation for elucidating the quality of integrated reports and the influence of internal and external governance elements on said quality, owing to the institutional constraints placed by the surrounding environment on the organizations that adopt them.

3.2.5 Signaling Theory

The primary focus of signaling theory, originally developed by Spence in 1973 and further elaborated in 2002, is to minimize the imbalance of information between two parties. According to Connelly et al. (2011), the main components of signaling theory are the signaler—an insider who obtains information about a person, thing, or organization that is not available to the public—the receiver—an outsider who watches and deciphers signals—and the signal—a signal about whether and how to transmit information. While signaling theory was initially established to explain labor market data asymmetries (Spence, 1973), it is now used to illustrate voluntary firm reporting (Ross, 1977). According to signaling theory, voluntary reporting lowers the likelihood of negative decisions since it sends a clear signal about a company's quality (Hsiao and Kelly, 2018). Fiori et al. (2016) asserted that organizations may choose to provide additional information beyond the minimum requirements by using voluntary reporting. This serves as an indication that they distinguish themselves from other organizations, prioritize transparency, and prioritize the interests of investors and stakeholders (Campbell et al., 2001).

With reference to IR literature, several researchers that looked into integrated reports have used this theory to explain different aspects of the quality or adoption of integrated reports, as well as their drivers and outcomes. For instance, (Kılıç and Kuzey, 2018b); Girella et al. (2019); Oktorina et al. (2022); Serafeim (2015); Landau et al. (2020); Wahl et al. (2020); Maroun (2019). These studies revealed that IR, which is a signalling mechanism for providing stakeholders with specific information, can effectively lessen information asymmetry. Frias-Aceituno et al. (2014) provide further elaboration on the notion that information disclosure in IR serves as a market signal intended to reduce information asymmetry and enhance the value of a business. According to Delling and Caykoylu (2019), enterprises that experience greater profitability will willingly provide high-quality integrated reports to set themselves apart from less lucrative units. Additionally, managers employ information disclosure (IR) as a signaling strategy when aiming to control stakeholders' impressions (Chouaibi et al., 2022a). Moreover, the board of directors publishes high-quality information indicating that the business has improved both internally and externally (Fiori et al., 2016).

Signalling theory elucidates the underlying drive for the utilization of IR. Companies might utilize innovative corporate reporting formats, such as integrated reporting, to showcase exemplary reporting frameworks (Oktorina et al., 2022). In this study, utilizing the principles of signaling theory, integrated reporting can serve as a means of conveying to investors that the firm generates information of superior quality. Additionally, it signifies that the organization possesses a robust corporate governance mechanism to effectively interpret and uphold this level of quality.

3.2.6 Resource Dependency Theory

According to resource-based theory, many resources and capabilities make up an organization. These include tangible and intangible assets as well as financial, physical, human, technological, reputational, and organizational resources. Resources are identified and categorized; strengths and weaknesses are evaluated; opportunities for improved utilization are identified; the company's abilities are evaluated; revenue potential is assessed; the optimal strategy is chosen; and shortages of resources are identified to analyze the firm's strategy to identify its resources and capabilities (Grant, 1991).

Within the context of integrated reporting, this idea aligns with the fundamental substance of the integrated reporting notion. The concept of integrated reporting (IR) revolves around the six key capitals: financial, manufacturing, intellectual, human, social and relationship, and natural. These capitals are essential assets and competencies that companies utilize and impact in order to enhance their efficiency, productivity, and overall well-being (Abeywardana et al., 2021). The resource dependence theory makes the assumption that having enough financial, economic, and informational resources for the business will help it succeed by reducing dependency and uncertainty (Pfeffer and Salancik, 2003). In light of this, resource dependency theory offers an additional theoretical framework for understanding the connection between the IR strategy and corporate governance (Wang et al. 2019). For instance, Zouari and Dhifi (2021) propose that the corporate board can fulfil a resource-provisioning function to enhance non-financial reporting and integrated reporting. In addition, Qaderi et al. (2022) found that a robust board offers the organization access to superior external resources, hence enhancing the corporation's ability to make better choices and produce high-quality integrated reports. And hence, competent managers aid enterprises in enhancing their both financial and non-financial outcomes and minimizing their reliance on external factors, thereby enhancing the company's transparency, and protecting stakeholders. Hence, in integration with prior theories, the present study utilizes resource dependence theory to elucidate the correlation between the quality of integrated reports and corporate governance. In conclusion, it must be noted that these theories are complementary and must be coupled in order to provide a broader basis for understanding and explaining the relationship between IRQ and governing mechanisms and building the research hypotheses.

3.3 Literature review on IR

The adoption of the principles of the IRF by numerous companies worldwide has led to a substantial increase in the scale and thoroughness of research. This has facilitated the conduct of evidence-based research. Hence, an examination of existing scholarly works on the factors that influence, and the consequence of integrated reporting provides the basis for a thorough analysis and comprehension of the integrated reporting strategy. The study of the literature on integrated reporting adoption encompasses the contents of IR, the factors that influence the adoption of IR, and the effects of IR on several aspects. The subsequent part provides an overview of the existing body of work about the measures, determinants, and consequences of IRQ.

3.3.1 Contents of the IR

The integrated reporting framework is a document that is based on principles and contains "fundamental concepts," "guiding principles," and "content elements," as we have already explained. Therefore, several earlier studies concentrated on the integrated reporting's content elements to evaluate how well they complied with the IIRC framework. One empirical study by Stent and Dowler (2015) examined the discrepancy between the needs of the integrated reporting framework and the reporting practices already used by companies. The best-practice reporting entities in New Zealand were included in their sample. According to the findings, present reporting procedures do not adequately integrate, supervise, or pay attention to future uncertainties, according to IR. A separate investigation was carried out by Kılıç and Kuzey (2018) to examine the degree to which non-financial companies listed on the Istanbul Stock Exchange incorporate content elements in their published reports. The researchers concluded that corporate reports predominantly feature general risks rather than risks specific to the company. Furthermore, these reports tend to place greater emphasis on positive information than negative information. Additionally, financial and non-financial projects are sometimes offered independently without a strategic orientation. The reports mostly provide historical data, not prospective data.

Solomon and Maroun (2012), one of the first studies based on the content evaluation of annual reports, examined the disclosure practice prior to 2009 as well as the following (2011) about the implementation of IR in South Africa. Solomon and Maroun evaluated the annual reports of ten sizable publicly traded companies after legislative shifts in 2011 and revealed a notable improvement in the social, environmental, and ethical content. The authors concluded that integrated reporting (IR) is a dynamic process that has resulted in an increase in the amount of information as well as qualitative changes in the types of information and the manner in which various information was presented (for example, a trend towards quantification and integration of social, environmental, and ethical information into corporate governance). Nonetheless, it is said that organizations continue to be unaware of the specific composition and content requirements of an integrated report.

Concurrently, Hindley and Buys (2012) undertook a research investigation pertaining to the integrated reports of mining enterprises that are publicly traded on the Johannesburg Stock Exchange (JSE). The findings indicate that the introduction of the JSE requirement for integrated reporting has led to improved adherence to the GRI Guidelines across corporate entities. Additionally, according to Nada et al. (2021), integrated reporting encourages businesses to adopt the Sustainable Development Goals (SDGs). The most disclosed goals were SDG 13 (climate action), which was followed by SDG 7 (affordable and clean energy). Furthermore, Ahmed Haji and his co-authors studied South Africa's initial IR trends (Ahmed Haji and Anifowose, 2016; Ahmed Haji and Hossain, 2016; Ahmed Haji and Anifowose, 2017). Using content analysis, they evaluated 246 large company-integrated reports across three years. The authors stated that although most IR disclosures were generic, issues include inconsistent IR rule use and a limited focus on traditional financial success. Thus, South African IR is primarily ceremonial and legitimizes groups. The concept of integrated reports is essentially based on the diversity of capital in terms of financial, manufacturing, intellectual, human, social, relational, and natural capital. A series of studies focused on this element as part of integrated reporting. For instance, Setia et al. (2015) looked at the corporate reports of the top 25 JSE-listed companies to find out how the disclosure of four capitals had changed both prior to and following the obligatory adoption of IR (2011–2012). The results showed that general disclosure of human, social, and relational, natural, and intellectual capital information increased, but only social and relational capital disclosure increased significantly, according to statistical analysis. Thus, the author concluded that corporations are adopting IR to comply with regulations rather than change their conduct.

In a broader scope, Almășan et al.'s (2019) study compares the reporting practices and performance of European corporations in the International Integrated Reporting Council's Pilot Programme in 2013 and 2016. employing nineteen key indications for presenting the six capitals. The findings indicated that by looking their IIRC capital indicators, firms improved performance. For four of the six capitals (financial, human, natural, social, and relationship), positive evolutions in reporting practices, variety, and performance are more significant than negative evolutions for manufactured and intellectual capital. Additionally, a sample of integrated/sustainability reports for 184 listed businesses was used in Pigatto et al.'s (2023) analysis from the Integrated Reporting Examples Database. The findings indicated that the six capitals are sufficiently disclosed in form but just somewhat so in content. Consequently, based on what has already been said in prior studies about the content of integrated reports, one could say that there is still a great deal of debate about the IR framework, its contents, and the degree to which businesses comprehend and adopt it. In order to obtain a comprehensive understanding of integrated reporting, the advantages of adopting integrated reporting and the challenges that businesses have in doing so are further explored in the sections that follow.

3.3.2 Engagement and disengagement with IR

An analysis of previous research indicates that organizations may choose to engage in IR voluntarily to enhance internal processes and reap the benefits of capital market rewards. Nevertheless, it is logical to infer that a company's choice to not participate in integrated reporting is a complex decision influenced by various strategic factors. A limited amount of exploratory-qualitative research has endeavored to uncover the process by which firms make decisions regarding their involvement or disengagement in integrated reporting. Nevertheless, despite the literature discussing the advantages and disadvantages, there is currently no definitive study that addresses the specific reasons that motivate or hinder companies from adopting IR practices. This subsection presents recent research on integrated reporting, encompassing its expected advantages, criticisms, and concerns.

3.3.2.1 Incentives to adopt IR.

In general, integrated reporting (IR) is intimately associated with the idea of integrated thinking rather than being a separate reporting issue. Stubbs & Higgins (2014) is one of the prior studies in the IR field that examines how IR operates as a novel internal mechanism within companies. Its investigation of the advantages of IR for internal processes and reporting practices revealed that the introduction of a new system resulted in gradual modifications to an organization's internal processes and reporting practices, without any notable breakthroughs. In their study, Martinez & Wachira (2016) discovered that proficient preparers had elevated levels of integrated thinking in their internal procedures, indicating a more incremental transformation approach. Similarly, case studies conducted by Guthrie et al. (2017) and Chiucchi et al. (2018) have already demonstrated the significant influence of IR on managerial control and other internal transformations.

Moreover, the literature highlights that one of the benefits of integrated reporting (IR) is its impact on decision-making. However, this poses a challenge as it might potentially reveal how information obtained through integrated thinking is utilized inside the organization. Generali, a significant Italian insurer, discovered that the implementation of integrated reporting enhanced the decision-making capabilities of its managers and the management control systems (Mio et al., 2016). Furthermore, empirical research undertaken by Higgins and Steyn has demonstrated that integrated reporting (IR) confers advantages to organizations by facilitating the generation of forward-looking information and the effective management of strategic difficulties. According to

Robertson and Samy (2015), the managers of 100 firms in the United Kingdom emphasized that, while considering integrated reporting, the organization's legitimacy and image are two primary objectives. For a clearer and more realistic analysis, voluntary disclosure is sometimes thought of as a way to preserve the company's credibility when certain problems damage the organization's reputation (the so-called "betrayal gap between reports and performance").

Another advantage of adopting IR is that it provides insight into the long-term viability of organizations. The advent of integrated reporting has effectively addressed the requirement of corporate report users to comprehend the long-term wealth creation process of organizations and their governance frameworks. Eccles and Krzus (2010) argue that annual reports enable users to comprehend the sustainability of organizations and gain a comprehensive view of the organization as a whole. In addition, Zavatieri (2021) highlighted that one of the reasons for adopting integrated reports is to obtain a competitive edge. He argued that the adoption of integrated reporting may be seen as a marketing strategy that propels companies towards the global stage. He stated that small and medium-sized enterprises (SMEs) utilize integrated reports as a strategic advertising option due to their unique nature and ability to provide long-term economic benefits.

Previous studies indicate that a motivating element for businesses to participate in integrated reporting (IR) is their desire to capitalize on the advantages offered by the capital market. According to Zhou et al. (2017), organizations can utilize the <IR> framework to mitigate analyst-predicted errors, leading to decreased equity capital expenditures. In addition, Lee and Yeo (2016) found that the integration of all information leads to enhanced accuracy of analyst estimates, which in turn increases business value. Barth et al. (2017) demonstrate that the implementation of IR yields positive economic outcomes, including enhanced liquidity of inventories, increased value of the organization, and increased future operational cash flows. The authors assert that these favorable results are linked to improved decision-making and the generation of value.

3.3.2.2 Disincentive to adopt IR.

Although the benefit of integrated reporting is acknowledged, this assessment also recognises the crucial aspects, key challenges, and ramifications of IR. Certain academics (Brown & Dillard, 2014; Flower, 2015; Huggins et al., 2015; Kamp-Roelands, 2013; Ruiz, 2013; Huggins et al., 2015; Dumay et al., 2017) expressed dissenting opinions regarding the genuine value of IR practice and scope. Previous studies have examined the challenges of adopting integrated reports, but there have not yet been conclusive answers. There is agreement among most studies on some obstacles, such as the lack of regulations for preparing reports and the costs of preparation, in addition to the company's internal considerations (Steyn, 2014; Robertson and Samy, 2015; Gerwanski, 2020). Robertson and Samy (2015) discovered that, despite being aware of and supportive of IR, managers of FTSE 100 companies had not participated in the practice. While the UK managers' various corporate motivations (such as listing in social funds, corporate legitimacy, peer pressure, and accountability) support the relevance of IR, most participants expressed concerns about its voluntary nature, practical applicability, and lack of clear guidance, all of which impede its adoption and spread.

In more detail, according to Cheng et al. (2014) and Flower (2015), one of the primary criticisms of IR is that it over emphasizes the information requirements of financial capital providers while embracing the idea of "value-to-investors." For instance, the emphasis that IR places on profit-driven companies while ignoring other significant organizational types, such as the public sector and non-governmental organizations (Brown & Dillard, 2014), Consequently, investors are given precedence over stakeholder accountability and sustainable development, which is an additional criticism of IR. According to several studies (Brown and Dillard, 2014;), the limited scope of IR casts doubt on its capacity to advance sustainable business practices and educate other stakeholders. Furthermore, the accuracy and reliability of integrated reporting have been questioned by scholars. Roberts (2017), for instance, pointed out that integrated reports occasionally contained either inadequate or excessive disclosures and thus lacked structure. Thus, according to Jones and Solomon (2010), the integrated report's sections are not guaranteed.

In more detail, the lack of regulations is related to several axes. For example, there is a gap between IR as a concept and the <IR> framework through which a company can produce what it calls an integrated report without <IR> framework adoption. Many companies call any report that combines financial and non-financial data an integrated report, even though it wasn’t prepared according to IIRC guidelines. Furthermore, according to Higgins et al. (2014), the IR standard does not give preparers direction on what to disclose and how to disclose it. Moreover, some researchers documented that the voluntary nature discouraged managers from adopting IR (Robertson and Samy, 2015; Gerwanski, 2020).

The vagueness of important terms in integrated reporting, such as integrated thinking and value creation, has also been related to a lack of regulation (Dumay et al., 2017). Organizations can adjust definitions that demand expert judgement and allow for interpretation to meet their purposes, but they can create a barrier to implementation since how to apply them is uncertain. For instance, translating an integrated notion into practice necessitates behavioral adjustments, which is a difficult kind of management control known as cultural control that is not done easily. (Dumay et al., 2017; Merchant and Van der Stede, 2007). Toit et al. (2017) conducted a comparative analysis of integrated reporting between the periods of 2012–2014 and 2009–2011. There was a significant disparity in the outcomes. The study found that an integrated report addresses a reduced number of social, environmental, and ethical concerns. The poll also revealed that organizations encountered difficulties in establishing cohesive reporting practices. In a study conducted by Mashile (2015), it was found that there was no substantial change in integrated reporting by JSE-listed companies for three years (2010, 2011, and 2012). In addition, Melloni et al. (2017) examined conciseness, completeness, and balance as fundamental characteristics that support the production of integrated reports of superior quality. According to the research, companies that have had less success financially tend to generate longer, more intricate reports that are excessively optimistic and contain disclosures on governance, the environment, and social issues. This is purportedly an endeavor to shift the focus of stakeholders from financial information to non-financial information. Atkins and Maroun (2015) have provided evidence that the majority of integrated reports exceed 500 pages, which often contradicts the actual content related to sustainability.

3.3.3 Integrated reporting adoption

3.3.3.1 Determinants of IR adoption

The adoption of integrated reporting is mainly voluntary in the majority of nations, with the exception of South Africa (Steenkamp, 2018). Nevertheless, it is apparent that there has been a notable surge in the worldwide implementation of integrated reporting (Eccles & Krzus, 2010). Determinants are classified according to their level of analysis, which refers to whether they are country-specific, industry-specific, or organizational factors. A corporation's corporate culture, governance structures, and disclosures are influenced by a variety of issues at the national level, including cultural values, national laws, and economic realities. Adoption of integrated reporting

(IR) may also be influenced by industry-level considerations, particularly industry affiliation. Specific industries, for example, may experience greater pressure to offer a larger volume of information than others. The decision to implement IR within a company is also influenced by organisational characteristics such as profitability or size.

Consequently, a considerable number of researchers have conducted investigations into the factors influencing the adoption of IR in various studies. The samples used in these studies are comprised of companies that either took part in the IIRC pilot programme (Lai et al., 2016) or are included in the IIRC or GRI reports databases (Vaz et al., 2016). Certain studies use bigger, global samples as the foundation for their study, as exemplified by Frías-Aceituno et al. (2013a). In this context, the researchers solely engage in the act of observing whether a corporation possesses an integrated report or not and thereafter assign a numerical value of 1 or 0, accordingly. Although this research examined adoption determinants, the results were inconsistent. Table 3 (see in Appendices) presents a comprehensive overview of the factors that influence the adoption of integrated reports, as discussed in prior research. It also highlights the level of impact these factors have on firms' decisions to adopt integrated reports.

In terms of firm-level characteristic determinants, despite the contemporary nature of the integrated reporting approach, a substantial body of research has examined the influence of company characteristics on the adoption or non-adoption of integrated reporting. The focus of the studies varied depending on whether they were focused on the company's characteristics, the board of directors' characteristics, the audit board's characteristics, or the existence of a sustainability committee and a risk committee. Many academics have used firm attributes such as firm size, firm age, firm growth, and liquidity while discussing the determinants of IR adoption. Numerous empirical investigations have indicated that the size of a company has a significant role in shaping the inclination to embrace novel disclosure mechanisms, such as integrated reporting (Ghani et al., 2018). Larger corporations are believed to have a higher level of contact with society, which results in more political and external pressures, according to Brown and Deegan (1998). These organizations are therefore more likely to take part in extended voluntary disclosures. Integrated reporting use and company size are positively correlated, according to studies by De Villier (2014), Ghani et al. (2018), Garca-Sánchez and Noguera-Gámez (2017), and Girella et al. (2019).

However, Lai et al. (2016; Vaz et al. (2016) revealed the lack of significance of firm size on the decision to adopt (IR).

The age of a firm is a significant determinant of disclosure. Long-standing businesses have a propensity to provide more information in their reports, according to research by Haji (2015). The author suggested that older companies may have a vested interest in safeguarding their reputational heritage through adherence to regulatory statutes and guidelines. Similarly, Maroun (2017) posited that larger corporations own a greater abundance of financial and nonfinancial data that necessitates reporting. According to Brown and Dillard (2014) and De Villiers et al. (2017), it is anticipated that long-established companies will embrace IR as a means of elucidating the management of various forms of capital in order to achieve sustainable profits or returns.

Since more prosperous businesses can allocate more resources to the creation and disclosure of information, profitability may be a factor in IR at the organizational level (Fras-Aceituno et al., 2013a). Several studies have examined the relationship between profitability and the adoption of integrated reporting (IR). For instance, Vitolla et al. (2020), Girella et al. (2019), and Garca-Sánchez et al. (2013) have found evidence supporting a positive relationship between profitability and IR adoption. Conversely, Frias-Aceituno et al. (2013a) and Lai et al. (2016) have reported no meaningful relationship at all. Leverage is another company component that is covered in the literature. Leverage is frequently viewed as a factor in the voluntary disclosures of companies (Eng & Mak, 2003). Thus, whereas Girella et al. (2019) did not find a significant correlation between them, Lemma et al. (2019), Busco et al. (2019), and Vitolla et al. (2020) found a favourable link with IR adoption.

One of the elements that can influence a company's decision to implement integrated reporting is market-to-book value, also known as growth opportunity in certain earlier research. However, several studies, such as those by Frias Aceituno et al. (2014) and Garca Sanchez et al. (2013), did not detect a significant correlation between the two. In contrast, Girella et al. (2019) claimed that one important factor influencing the adoption of IR is market-to-book value. Dey (2020), on the other hand, claimed that banks with greater opportunity for growth are more inclined to adopt and practice IR. While earlier studies (Leuz and Wysocki, 2016) revealed a general connection between liquidity and disclosure, the results of integrated reporting have been contradictory. By reducing knowledge asymmetry, IR lessens the agency problem, as shown by Barth et al. (2017), Garca-Sánchez and Noguera-Gámez (2017), and Lee and Yeo (2016). Thus, the adoption of IR was found to be directly correlated with stock liquidity. However, Martinez (2016), Day (2020), and Albertini (2019) found no proof that liquidity affects IR practice. Furthermore, an important aspect to consider is company efficiency, which can be evaluated through the asset turnover rate. Previous research has demonstrated that a greater turnover rate is associated with a favorable inclination towards voluntary information sharing (Gul & Leung, 2004). However, the study conducted by Girella et al. (2019) did not find any significant impact of firm efficiency on the adoption of IR.

Moving to corporate governance determinants, numerous scholarly investigations have examined the correlation between corporate governance and integrated reporting. The body of literature now in existence focuses mostly on on-board member characteristics that could affect the effectiveness of board supervision and looks into their influence on the decision-making process regarding the adoption of integrated reporting. The size of the board of directors, diversity, independence, expertise, and meetings are among the factors that were examined. Regarding board size, in a recent empirical investigation conducted by Ahmed (2023), the focus was on a sample of firms listed in South Africa. The study revealed that the size of the board of directors significantly influences the companies' inclination towards embracing integrated reporting. In spite of this, the findings of earlier research were likewise conflicting; while some demonstrated the impact of the board of directors' size on IR adoption decisions, others refuted this effect. For instance, the authors of [Girella et al., 2019 & 2021; Alfiero et al. (2018); and Frias-Aceituno et al. (2013b)] demonstrated that, in various nations, greater board size was associated with more disclosure and the adoption of integrated reporting, depending on the different analysed samples and years. This is due to the fact that a larger board of directors offers a greater range of viewpoints and experiences, which improves oversight and raises the level of disclosure. However, the authors of [Hichri, 2022; Omran et al., 2021] found that board size did not affect the level of integrated reporting practice. Part of the study looked at gender diversity by counting the number of women on corporate boards (Kilic & Kuzey, 2018; Fasan & Mio, 2017; Alfiero et al., 2017; García-Sánchez & Noguera-Gámez, 2018; Frias-Aceituno et al., 2013b). Another part of the studies focused on analysing foreign diversity and age diversity (Frias-Aceituno et al., 2013b; Alfiero et al., 2018; Garcia-Sanchez et al., 2020).

Nevertheless, the impact of gender diversity on the adoption of IR remains a subject of debate due to inconsistent findings from research studies. For instance, several studies have indicated a positive correlation between the adoption of IR and gender diversity, as demonstrated by Frias-Aceituno et al. (2013b) and Vitolla et al. (2020). Whereas according to Isidro and Sobral (2015), there is a correlation between women and a higher inclination towards ethical and social compliance. Additionally, Raimo et al. (2020) found that women tend to exhibit greater engagement in board meetings. Furthermore, women are more likely to prioritize group goals. However, according to Fasan and Mio (2017), there is a negative association between the two variables. Frias-Aceituno et al. (2013b) emphasized the lack of effect that foreign board members have in the decision-making process regarding the publication of an integrated report, specifically in relation to foreign diversity. According to Alfiero et al. (2018), organizations that have older directors on their boards of directors are less likely to implement integrated reporting, as age diversity is a determining factor in this respect. Furthermore, some research (Stacchezzini et al., 2016; Fasan & Mio, 2017; Kilic & Kuzey, 2018) examined the degree to which the board of directors' independence influences the choice to implement integrated reporting. The empirical findings on the association between board independence and integrated reports were contradictory. Omran (2021), Ahmed (2023), and Nguyen et al. (2022) showed that the board of directors' independence further promotes improved transparency through the release of integrated reports. However, the empirical findings of other research, such as those by Busco et al. (2019) and Girella et al. (2019), did not show any evidence of a connection between the adoption of integrated reporting and the board of directors' independence.

Previous studies have explored several aspects of corporate governance, but there is a lack of detailed investigation of the specific characteristics of the audit committee, risk management committee, and sustainability committee. Even yet, according to Ahmed Haji & Anifowose (2016) and Ahmed 2023, the audit committee and the risk management committee are crucial to the procedures of risk management and reporting. In this regard, Rodrigue et al. (2013) and Hichri (2021) discovered that the audit committees significantly and favourably impact integrated reporting. Furthermore, the study conducted by Chariri and Januarti (2017) aimed to examine the correlation between audit committee features and integrated reporting by analysing a sample of 58 industrial enterprises that are officially listed in South Africa. According to the research, the degree of integration of reports was positively impacted by the audit committee's experience and the frequency of its meetings. Nevertheless, the findings of this study did not provide evidence to substantiate the correlation between independent audit committees and corporate reporting.

Likewise, and partly consistent with some of the findings, the study of Ahmed Haji and Anifowose (2016) examined a larger sample of 246 companies in South Africa and found some relationships between the practice of integrated reporting and the audit committee. Audit committee authority and meetings are shown to have a significant positive impact on IR practice. However, the authors do not find a significant association between key aspects of the audit committee function, such as audit committee independence, financial expertise, and IR practice.

Moving on to analyze the impact of the characteristics of the risk management committee on IR adoption, in summary, the literature to date has limited studies on this research point. For example, in Ahmed's 2023 study, he examined the impact of governance characteristics on the decision to adopt integrated reporting in companies registered in South Africa during the 3 years from 2019 to 2021. The results indicate that risk management committee independence has a positive effect on IR practices. However, board expertise, board activity, audit committee independence, audit committee size, audit committee expertise, audit committee meetings, risk management committee expertise, risk management committee meetings, risk management committee size, and the auditor type are negatively related to IR practices. The same applies to the impact of the presence of a sustainability committee, which is one of the characteristics of corporate governance. Although extensive research has provided evidence that the sustainability committee enhances reporting and CSR performance (Elmaghrabi, 2021; Radu& Smaili, 2021), Research examining the extent of its impact on the adoption of integrated reporting is very limited.

Regarding country-specific determinants, according to research by Frias-Aceituno et al. (2013) on integrated reporting, businesses with headquarters in countries with civil law systems are more likely to have published an IR over the period 2008–2010, utilising 750 international corporations. Further investigation is done by Kılıç et al. (2021), who focused on the Fortune Global 500 companies. He provided evidence supporting the notion that countries with civil law systems have a greater inclination towards embracing integrated reporting. These findings were at odds with those of an earlier study by Jensen & Berg (2012), who discovered that the choice to adopt integrated reporting was unaffected by the various legal systems in different nations, such as common law and civil law.

On the other side, other studies have focused on determining how much culture affects the adoption of integrated reporting, using Hofstede's national cultural system as a framework and different items. The study by Dragu and Tiron-Tudor (2013), which was performed from the perspective of institutional theory, focused on the analysis of the annual integrated reports of 58 businesses taking part in the IIRC Pilot Programme. They found that the National Corporate Responsibility Index, which serves as an example of the influence of culture, does not, however, offer a thorough justification for the adoption of integrated reporting (IR). However, Garcia-Sanchez et al. (2013) did a study on an unbalanced sample of 1,590 businesses from 20 countries over the time frame of 2008–2010. According to the findings of this research, the involvement of stakeholders is a crucial factor in determining whether or not a nation will embrace integrated reporting. According to the findings, the adoption of IR was not significantly affected by factors such as power distance, the need to minimize ambiguity, or a focus on the long term as opposed to the short term. The findings of the study also indicate that businesses located in collectivist nations, particularly those with a feminist orientation, exhibit a substantial tendency towards the disclosure of integrated information. This finding is supported by the fact that feminist organisations are more likely to be located in collectivist nations. The provision of public goods and concerns regarding environmental sustainability, ethical considerations, and efficient governance are all given a higher priority in these cultures. Furthermore, the impact of economic growth on the ability of firms to promote innovation in corporate reporting should not be overlooked. Enterprises originating from nations with higher levels of economic development exhibit a greater propensity to adopt novel management instruments, such as integrated reporting (IR), in contrast to enterprises originating from nations with lower levels of economic development. In contrast to the findings reported by Jensen and Berg (2012), a second investigation done by Vaz et al. (2016) did not yield any corroborating evidence for the aforementioned result.

3.3.2.2 Consequences of IR Adoption

An assessment of the whole effects of IR on a company's financial and sustainability operations requires a deep comprehension of both the internal and external ramifications of IR. This subsection aims to analyze the impact of adopting IR on both the financial and nonfinancial performance of enterprises. As previously referenced in IR literature, Table 4 (see in Appendices) provides a summary of the financial and nonfinancial implications of implementing integrated reports.

Companies worldwide are adopting integrated reporting (IR) to improve the scope and quality of their firm's disclosure. This involves integrating concepts such as integrated thinking, connectivity, and involvement of stakeholders into their company's business plans and models to generate value over time (Adams et al., 2016; Beattie & Smith, 2013; Devalle et al., 2021; Doni et al., 2019; Eccles et al., 2015a; Guthrie et al., 2020). Knauer and Serafeim (2014) and Parrot and Tierney (2012) both indicate that integrated reporting and thinking improve future value generation and draw in long-term shareholders. According to Eccles et al. (2015b), integrated reporting adoption communicates and clarifies in detail the possible effects on business operations and the process of creating value from material information, including financial, environmental, and social hazards. In addition, Kunc et al. (2021) discovered that IR adoption allows companies to gain a comprehensive understanding of their company's environment and strategy. However, this also requires the implementation of a methodical and comprehensive strategy for integrated thinking and management.

Similarly, Beattie and Smith (2013) discovered that there is a strong connection between business models, the process of creating value, and intellectual capital (IC) in the adoption of IR. In addition, this implementation improves ethical principles and public perception (Lodhia, 2015) and fulfils responsibility towards a wider range of interested parties (Lai et al., 2018; Silvestri et al., 2017). Moreover, Guthrie et al. (2017), Lueg et al. (2016), McNally et al., (2018), and Mio et al. (2016) confirmed that IR has the capacity to bring about significant and fundamental changes in the procedures, systems, and structures of corporate disclosure and improve the image of companies.

Some studies have found a correlation between the implementation of integrated reporting and the improvement of inter-departmental collaboration, risk administration, and processes for making decisions. This connection is seen as a way to enhance the value-creation process and promote integrated thinking. Simultaneously, Guthrie et al. (2017) discovered that the use of integrated reporting strategies improves internal procedures and integrated thinking within Italian public sector organizations by including internal stakeholders.

From an additional standpoint, the primary goal of IR is to establish a connection between a company's approach and business model and the shifts occurring in its surroundings. These shifts may include variations in the rate of technological advancements, adapting expectations from society, and shortages of resources (IIRC, 2013c, p. 16). The implementation of integrated reporting (IR) will lead to the incorporation of environmental and social issues into the overall organizational strategy (Eccles & Krzus, 2010). Mio et al. (2016) highlight that the concepts of the (IIRC can be effectively utilized in the context of internal management oversight systems.

Furthermore, Adams et al. (2016) determine that the implementation of integrated reporting (IR) affects the connection between firms' social disclosures. Additionally, Beck et al. (2015) discovered that integrated reporting (IR) can increase managers' inclination to incorporate non-financial factors into their strategy portfolio. Churet and Eccles (2014) examined the connection between IR and the effectiveness of environmental, social, and governance (ESG) management and found a positive link. Likewise, Terblanche and de Villiers (2019) state that South African companies provide a greater amount of information linked to intellectual capital compared to a group of similar cross-listed companies as a result of their integrated reporting procedures. In a similar vein, Guthrie et al. (2020) discovered that companies divulge a broader range of hazards, encompassing environmental and social concerns, using integrated reports as opposed to conventional annual reports.

For instance, Stacchezzini et al. (2019) discovered that integrated reporting (IR) improves the exchange of information among company stakeholders for the purpose of presenting intellectual capital (IC)-related details in integrated reports. In addition, Beck et al. (2015), Lodhia (2015), Mio et al. (2016), and Steyn (2014) saw a higher level of involvement from stakeholders after the implementation of IR. This resulted in the establishment of credibility and acceptance through the adoption of IR. Furthermore, Al-Htaybat and von Alberti-Alhtaybat (2018) discovered that the process of integrated thinking leads to growth over time by involving stakeholders from the inside as well as the outside. Moreover, IR enhances the involvement of stakeholders and increases stakeholders' ability to acquire data pertaining to social capital, according to Farneti et al. (2019).

One of the most focused research areas in our literature evaluation examines the effects of adopting IR on corporate value. It is hypothesized by academics that the implementation of IR will have a favorable influence on company valuations over an extended period (Muttakin et al., 2020). In light of this, IR may have several effects on the financial markets. According to a recent study conducted by García-Sánchez and Noguera-Gámez (2017), after observing 995 companies for five years, they discovered a negative correlation between information asymmetry and integrated reporting (IR). It is generally beneficial for a company to minimize information imbalances by providing comprehensive disclosures to investors. And this led to potentially decreasing the costs of capital for the firm and mitigating the information risk that investors face when predicting future returns (Healy & Palepu, 2001). Further, Vena et al. (2020) discovered that the adoption of IR is linked to a decrease in a company's weighted average cost of capital. Furthermore, according to Muttakin et al. (2020), the researchers who were the first to look into how IR adoption affects the company's debt side found that South African companies that release integrated reports have lower debt costs. Likewise, it is noteworthy to emphasize that Lai et al. (2018) investigated how firms used IR to enhance the information environment for debt stakeholders, who are seen by companies as extremely knowledgeable recipients of IR.

For instance, studies by Arguelles et al. (2017), Martinez (2016), and Cortesi & Venay (2017) have discovered a favorable correlation between the stock market value of the company and the release of an integrated report. Each study uses a different proxy for firm value; for instance, Martinez (2016) used the market-to-book ratio, Arguelles et al. (2017) used return on assets, and Cortesi & Venay (2017) adopted the earnings per share ratio to estimate firm value. Simultaneously, Akisik and Gal (2019) documented a favourable correlation between the use of IR and the rise of stock prices, return on equity, and return on assets. The adoption of integrated reporting (IR) in the required South African scenario is associated with lower firm risk (Conway, 2019) and leverage (Lemma et al., 2019), which is anticipated to have a beneficial impact on firm value.

3.3.4 Integrated reporting quality (IRQ)

This review specifically concentrates on research that investigates the IRQ. The existing literature on IRQ proposes three inquiries that require further elaboration to consolidate current understanding: Firstly, the metrics of IRQ are discussed. Then, IRQ determinants are presented and organized based on their characteristics. Furthermore, the consequences of IRQ.

3.3.4.1 IRQ measures

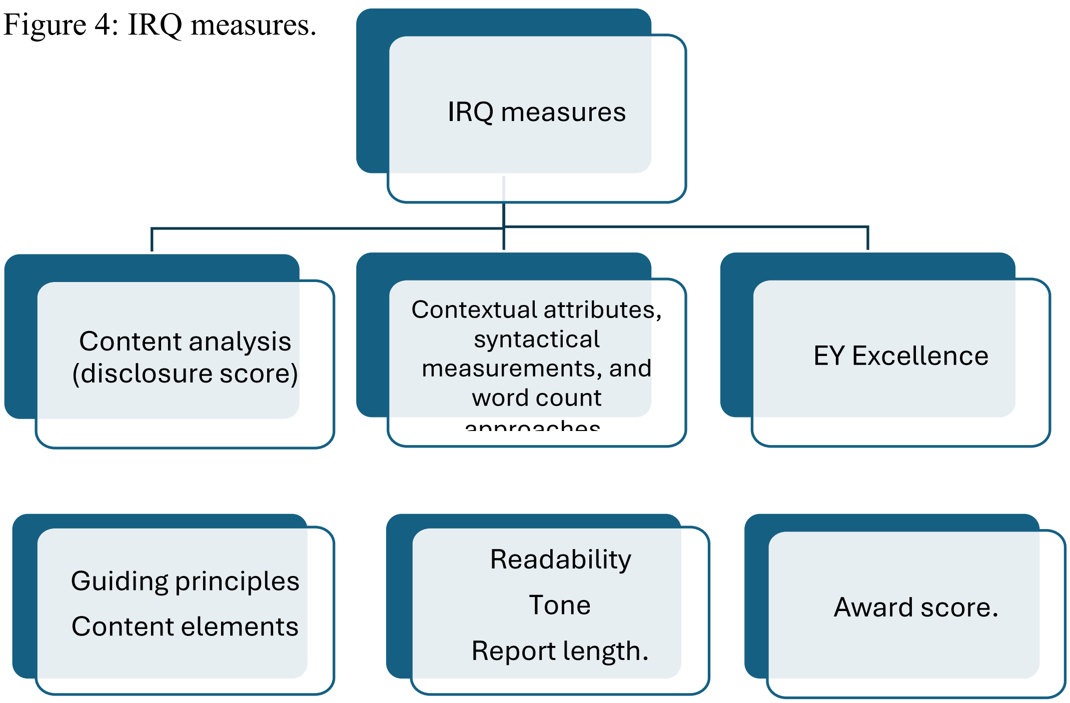
Even with the IR framework, there are no particular metrics to gauge the quality of reports. The firm's integrated reports have changed as a result of this. For instance, PWC (2013) discovered that the data offered by the integrated reports for the top 40 JSE businesses differs significantly. According to Barth et al. (2017), "integrated reporting quality" (IRQ) is a measure of how well reports adhere to the theoretical framework. Nonetheless, the IR framework served as the foundation for the majority of earlier research looking at the IRQ. Figure 4 provides an overview of the methodologies employed by studies to assess the quality of integrated reports, based on findings from earlier research on the subject.

The assessment of the information contained in the <IR> is provided through three main methods. The first method is content analysis based on the <IR> Framework content elements, guiding principles, and fundamental concepts. It is worth noting that these studies may focus on the entire integrated report with all content elements, guidelines, and basic concepts such as Havlova (2015), Lipunga (2015), and Pistoni et al. (2018) Or focused only on one or more of these elements, such as materiality; for example, Fasan and Mio (2017) and Rivera-Arrubla et al. (2017) studies. The second IRQ assessment method uses contextual attributes, syntactical measures, and word count techniques, which is consistent with previous financial disclosure quality measures (Li, 2008; Loughran and McDonald, 2014). Building on the idea that high-quality integrated reports are written in an objective, balanced, and plain way (which should increase decision usefulness), established measures include report readability, tone, length, and key term word counts (Mio and Fasan, 2017). EY's annual Excellence in Integrated Reporting Awards score, based on the <IR> Framework, is the third established IRQ measure for the top 100 JSE-listed firms (Barth et al., 2017; Wang et al., 2019).

Making a disclosure index by content analysis of integrated reports is the most popular method of measuring IRQ. However, there is no single checklist or coding methodology for evaluating integrated report disclosures because they are created based on the study designs and aims of the researchers. Leuz & Wysocki (2016) and Li (2010) say that these self-made disclosure indexes have a number of problems. For example, coding is subjective and only records the presence of certain disclosures rather than their quality. Also, the weights given to disclosures are generally the same, which does not take into account differences in how important and informative they are.

Finally, the scores are additive, which does not take into account the nature of disclosures. It is worth noting that previous studies, of course, had different objectives and therefore measured the quality of integrated reports in different ways, whether they relied on all content elements as a proxy for the quality of integrated reports or only one of the content elements, such as the business model. Some studies relied only on all guiding principles or one of these principles as well. Some of them focused only on the six capital models or the value creation process as a proxy for the quality of integrated reporting (Songini, 2022).

Figure 4: IRQ measures.



Source: Own framing based on Gerwanski, (2020).

A few studies concentrate on evaluating the whole integrated report quality. The Liu et al. (2018) study is one of them that concentrated on IRQ assessment and produced the integrated reporting disclosure index (IRDI). The findings showed that although businesses perform more favourably when they address guidelines, they frequently perform badly when it refers to capital and content factors. Also, Pistoni et al. (2018) also created one of the most thorough IRQ metrics. Four primary aspects were considered while evaluating the integrated report as a whole in their study:

background, content, form, assurance, and reliability. The IR framework and previous studies that focused on assessing quality, including Botosan (1997), and Hammond & Miles (2004), were consulted in the development of this scoreboard. The main finding highlights how inadequate IR is. Furthermore, corporations follow the IR structure, but they don't provide much information, and they focus more on the IR form than the IR content.

Other studies, like Malola & Maroun (2019), used a quality scorecard to measure integrated reports as a whole, which can be used to assess IRQ trends. In order to analyse IRQ, one must consider (1) the quantity of information reported to stakeholders. (2) a density index that compared integrated report content to stakeholder information. (3) Quantitative and qualitative disclosure measuring indicators. (4) relevance indicator to explain symbolic or substantive disclosures. (5) an indication of stakeholder information interpretation ease. While integrated reporting is well-established in South Africa, the results reveal space for improvement. Most disclosures are symbolic rather than quantifiable.

Many studies have measured integrated report quality using content aspects within the IR framework. Pavlopoulos et al. (2019) used 82 international nonfinancial corporations from 2011 to 2015 to quantify the IRQ using a disclosure index that includes all nine content analysis components in the King III report and the IR framework-supported King III. The authors found substantial differences in IR data quantity, specificity, and accuracy throughout the research. These investigations concurred with Kilic and Kuzey's (2018) study, which created a disclosure index by concentrating on the IIRC's (2013) integrated reporting framework's content aspects. The authors concluded that current company reports lack a strategic focus, primarily present generic risks rather than company-specific risks, present beneficial data while discounting undesirable data, present financial and non-financial initiatives separately, and include information that is looking backward rather than forward.

The second IRQ measure uses context, syntactical metrics, and word counts. This method is consistent with previous financial disclosure quality assessments (Li, 2008; Loughran and McDonald, 2014). These criteria are based on the premise that well-written integrated reports are unbiased, fair, and straightforward, which should improve decision-making. The IRQ literature measured these criteria using various methods (Melloni et al., 2017; Velte, 2018a; Roman, 2019).

Assess the report's readability, tone, length, and frequency of important terms like "material" and "materiality." Fasan & Mio (2017). To provide further elaboration, The study undertaken by Melloni et al., (2017) analyzed the unique aspects of the <IR> disclosures in order to investigate their quality of disclosure. The authors utilised textual analysis to conduct content analysis. The variables encompassed in this context are the extent to which the information is comprehensive, succinct, and presents an impartial perspective on the disclosures. It was discovered that the company's financial failure led to a boost in the length of the report. This longer report was less clear and succinct and had more positive wording, resulting in a less objective assessment of the organization's performance.

Since 2011, the professional accounting firm Ernst & Young (EY) has offered assessments on the quality of integrated reports for the top 100 JSE-listed enterprises (Barth et al., 2017; Wang et al., 2019). The EY IRQ metric is more thorough and captures actual IR practices. EY ratings represent cross-sectional variations in integrated report disclosure quantity and quality, but their IR scoring system is subjective and varies by adjudicator (Ernst & Young, 2013). Three expert arbitrators evaluate the quality of this sample's integrated reports based on the IIRC framework, which measures how well content elements are incorporated according to guidelines and consider fundamental concepts. EY ranks corporations' integrated reports but does not disclose score sheets. These vary from 1 (improvement needed) to 5 (top 10 reports) (EY, 2017; 2016). Caglio et al. (2020) said that the EY ratings are "black box" because the three EY coders don't divulge their rating criteria.

However, practitioners and users use EY scores to evaluate South African integrated reports (King, 2016). A lot of researchers have looked at these scores. The most important one was Barth et al. (2017), who looked at how reliable adjudicator scores are between coders and showed that the EY scoring method meets the IIRC's integrated reporting structure. Furthermore, Zhou et al.'s independent analysis of report quality and EY's findings concurred generally (2017). This was based on the IIRC's 2012 discussion paper, which included 31 quality indicators organized under 8 thematic areas, such as opportunity and risk, business model, and outlook for the future. Zhou et al. (2017) offer an additional indication of the dependability of EY's quality assessment, even if it is not meant to be used as a calibration of EY scores.Thus, the quality of integrated reports utilising the EY excellence evaluation was the subject of several research, including those by Tankiso M. and Oluwamayowa I. (2020), Barth et al. (2017), Maroun (2019), and Wang et al. (2019).

3.3.4.2 Determinants of IRQ

Previous studies have explored numerous determinants, both at the firm level and particular to countries. Hence, this section offers an elaborate elucidation of the factors that influence the quality of integrated reports. Table 5 (see in Appendices) provides a concise overview of the determinants of IRQ.

In terms of firm attributes and integrated reporting quality, corporate characteristics have been extensively examined in the academic literature of accounting and finance. Numerous scholars have employed firm attributes, such as firm size, firm age, firm growth, and firm profitability, in their disclosure quality studies. With regard to firm size, according to Ghani et al. (2018), it has been suggested that the size of a corporation is a significant determinant of the quality of integrated reporting. This finding aligns with previous research that has also found a positive relationship between IRQ and firm size (García-Sánchez and Noguera-Gámez, 2017; Ahmed Haji and Anifowose, 2016; Ghani et al., 2018; Kilic and Kuzey, 2018; Vitolla et al., 2020). These studies argue that larger firms are more likely to prioritize financial and nonfinancial reporting issues. This phenomenon might be attributed to reputational considerations, the need to meet the expectations of various stakeholders, and the financial burden associated with preparation. On the other hand, according to the findings of Malola and Maroun (2019), it was concluded that the quality of integrated reports is not always influenced by the size of the firm.

Moreover, the organization's age and the quality of its integrated reports have been extensively investigated in previous studies. For illustration, according to Maroun (2017), literature suggests that large enterprises are prone to heightened scrutiny and are obligated to provide more comprehensive information to their stakeholders through their integrated reports. In addition, according to Ahmed Haji's (2015) study, it was shown that established companies have a tendency to provide a greater amount of information in their integrated reporting. Established organisations may have a vested interest in safeguarding their reputational legacy through adherence to regulatory standards and laws.

Financial leverage is one of the characteristics that has been identified in prior studies as having an impact on disclosure practices. According to the findings of Kilic and Kuzey (2018), Eng and Mak (2003), and Dilling & Caykoylu (2019), it may be inferred that enterprises with high levels of leverage tend to produce integrated reports of lower quality. However, Vitolla et al. (2020) present contrasting results, suggesting that firms with higher leverage exhibit higher scores in terms of IRQ. Furthermore, Lai et al. (2017) found no statistically significant correlation between the two variables under investigation.

According to Frías-Aceituno et al. (2014), the recruitment of competent staff and the acquisition of accurate information might incur significant financial costs, particularly when an organisation places a high emphasis on the quality of the report. Nevertheless, previous research (Fasan and Mio, 2017; Maroun (2019); Grassmann et al., 2019; Vitolla et al., 2020; Frías-Aceituno et al., 2014; and Malola and Maroun (2019)) shows a favourable connection between company profitability and IRQ. In contrast, a considerable body of empirical research has demonstrated a lack of statistically significant association between the aforementioned variables (Eng and Mak, 2003; Lai et al., 2016).

Previous studies have also observed that industry has an impact on voluntary disclosures. Organizations operating in socially or ecologically sensitive industries, for instance, are expected to submit more comprehensive integrated reports since they have more information to provide to their stakeholders (de Villiers et al., 2017). Moreover, environmentally conscious industries place a greater emphasis on environmental data, and companies in these sectors—as well as the financial sector—generally produce integrated reports of higher quality, as stated by Ahmed Haji and Anifowose (2016), Rivera-Arrubla et al. (2017), and Roman et al. (2019). In contrast, Grassmann et al. (2019) suggest that organizations characterized by elevated levels of business model sophistication and those working within highly competitive contexts tend to provide integrated reports of inferior quality.

Based on the firm's growth impact as a determinant of IRQ, Steyn's (2014) study shows that companies that experience rapid growth in market share, share price, and industry competition place a high value on integrated reporting. According to Ahmed Haji and Anifowose (2017), companies with high integrated reporting quality typically have stronger firm growth in terms of sales and share price, which is consistent with Steyn's (2014) findings. Prior research has conducted a few investigations on the correlation between the quality of earnings and integrated reporting. It was found that integrated reporting and profit quality are positively correlated in a study on publicly traded Indonesian mining companies [Shanti et al., 2018]. Nonetheless, Dilling and Caykoylu's 2019 analysis discovered no meaningful correlation between IRQ and earnings quality.

Publication on the IIRC website has been identified as a significant element in determining the quality of integrated reports, as addressed in prior studies. For instance, Lai et al. (2014) discovered that those who have adopted have notably higher disclosure scores compared to those who have not adopted. Another research study examined the extent to which integrated reports issued by members of the IIRC's Pilot Programme disclosed information. The study indicated a strong correlation between the quality of disclosure and the reports that were published on the IIRC website [IIRC, 2013]. Furthermore, the research conducted by Dilling and Caykoylu (2019) suggests that organizations that participate in the examples database of the International Integrated Reporting Committee (IIRC) are more inclined to release integrated reports of higher quality. Furthermore, Gerwanski et al. (2019) discovered that the learning experience leads to an augmentation in the quality of integrated reporting in succeeding reporting periods, specifically in terms of materiality disclosure. Pistoni et al. (2018) demonstrate that companies featured in the Getting Started portion of the IIRC database experience a notable rise in the amount of information they reveal in their Integrated Reporting (IR). Moreover, a few studies have looked into the integrated report's length as a factor in determining its quality. However, regarding integrated reporting, Dilling and Caykoylu (2019) observed a noteworthy negative link between the quality of integrated reports and previous report experience, as well as report length.

The impact of sustainability performance, the separate release of a sustainability report, or firm inclusion in the DJSI integrated on integrated reporting quality was one of the factors that earlier research in the field of IRQ concentrated on. According to Hsiao et al. (2022), for instance, organizations are more likely to voluntarily embrace high-quality integrated reporting when sustainability reporting practices are well-established but integrated reporting is not yet widely used in those nations (Mauro et al., 2020 and Appiagyei and Donkor, 2023). Furthermore, the effect of listing in the Dow Jones Sustainability Index on IRQ has only been investigated in a few studies. Previous research has indicated that companies included in the Dow Jones Sustainability Index (DJSI) attract a larger number of socially responsible investors (SRI) and other stakeholders that prioritize the firm's corporate social responsibility (CSR) performance (Serafeim, 2015).. Nevertheless, the research conducted by Gerwanski et al. (2019) found that being listed in the Dow Jones Sustainability Index does not have an impact on the quality of materiality disclosure in integrated reporting.

Moving to corporate governance and integrated reporting quality, categories extensive research has been conducted on the association between corporate governance and the disclosure practices of firms (Eng & Mak, 2003; Healy & Palepu, 2001). The governance components are separated into two distinct Categories, : the country-specific variable and the firm-specific variable. For firm-specific governance, the internal variables encompass the board and audit firm characteristics. Since the board of directors has a growing responsibility for ensuring the accuracy of the provided financial and non-financial information (Fiori et al., 2016), it is thus accountable for portraying and safeguarding the many stakeholders' concerns (Fras-Aceituno et al. 2012).

Regarding the literature on IR, there is a suggestion that board characteristics may play a role in determining the adoption of IR. However, there is a lack of research specifically examining the relationship between the board and the quality of IR, and there is a discrepancy in its findings. A recent study conducted by Dragomir and Dumitru (2023) has established a substantial correlation between director independence and IRQ. Conversely, the presence of a diverse gender composition on the board has a beneficial effect on IRQ, but this effect is not statistically significant. The presence of both a chairperson and a chief executive officer does not appear to have an effect on the quality of reports. In an investigation conducted by Chouaibi (2022), it was established that there is a direct correlation between board independence, variety on boards, effective corporate governance, and IRQ.

Moreover, Hichri, A. (2022), did a study on French organizations and discovered that integrated reporting is positively and significantly impacted by both audit committees and board gender diversity. Integrated reporting is positively and marginally impacted by the chief executive officer's duality and the size of the board, nevertheless. Additionally, a different investigation conducted by Chouaibi (2022) discovered that the size, independence, and diversity of the board have a notable and beneficial impact on the quality of integrated reporting in European corporations. Another noteworthy finding is that firms with non-independent chairs have a favourable correlation with integrated reporting-related quality when an independent, non-executive chairman is appointed. More specifically, studies on the size of boards have demonstrated that larger boards are better able to carry out their monitoring role, reduce information asymmetry, and lead to high-quality IR (García-Sánchez and Noguera-Gámez, 2017; Kılıç and Kuzey, 2018; Raimo et al., 2020; Vitolla et al., 2020).

In terms of gender diversity, having females on the board can improve the choices made by bringing fresh viewpoints, abilities, morals, and beliefs that may improve the quality of IR, according to studies by Erin and Adegboye (2022), Chouaibi et al. (2022b), Vitolla et al. (2020), Wang et al. (2020), and Gerwanski et al. (2019). However, Songini et al. (2022) discovered contrasting outcomes, indicating that the inclusion of women had a detrimental impact on the quality of IR. This last investigation by Songini et al. (2022) focused on the board's age and educational attainment diversity. Their research revealed a favourable correlation between education level and the quality of IR. Previous research has investigated the relationship between board independence and IRQ, yielding inconsistent results. As per Raimo et al. (2020), Vitolla et al. (2020), Chouaibi et al. (2022), Qaderi et al. (2022), Orshi et al. (2019), and Stacchezzini et al. (2016), board independence has a favourable correlation with IRQ due to its ability to lessen the imbalance of information between management and stakeholders (Ahmed Haji, 2015). According to Erin and Adegboye's (2021) findings, independent directors have the potential to improve the quality of IR by acting as a reliable oversight instrument that safeguards the interests of every stakeholder involved. Conversely, several other empirical studies (Busco et al., 2019; Cooray et al., 2020) have not been able to establish any connection between the autonomy of non-executive directors and the quality of integrated reporting.

Furthermore, research indicates that board meetings are synonymous with board activity. The conclusions drawn from the IR literature regarding this relationship were also conflicting. Several studies (Girella et al., 2021; Orshi et al., 2019; Tiron-Tudor et al., 2020) have found that there is not a statistically significant connection between the frequency of board meetings and the adoption of IR. Conversely, a frequent occurrence of board meetings can indicate that the board is more proficient in overseeing the operations of the organisation. Consequently, empirical findings from

Raimo et al. (2020), Busco et al. (2019), Vitolla et al. (2020), Wang et al. (2020), and Qaderi et al. (2022) revealed that holding regular board meetings improved the IRQ and indicated well-governed enterprises.

CEO duality is another board trait that might impact the quality of integrated reporting and has been studied in the literature. Numerous studies have discovered a notable inverse correlation between CEO dualism and IRQ (Hichri, 2022; Pavlopoulos et al., 2017). According to Garcia-Sanchez et al. (2020); Pavlopoulos et al. (2017) and Chouaibi et al. (2022a), the CEO's control over information shared with other board members may impede the disclosure of voluntary information like IR, which is why having a dual function reduces transparency in IR. However, a separate study conducted by Qaderi et al. (2022) concluded that holding numerous directorships had no impact on the disclosure of information related to IR.

According to Sharma et al. (2009), one internal governance aspect that influences disclosure is the members of the Board of Directors' level of expertise. Despite this, the relationship between board expertise and integrated reporting quality has not been the subject of many empirical studies. According to Frías-Aceituno et al. (2012) and Erin and Adegboye (2022), IR necessitates the participation of board members with diverse skills due to its unique aims and nature. An additional feature of internal corporate governance is the presence of an audit committee. Regarding integrated reporting, there aren't many studies in the accounting literature that examine audit committee characteristics as a factor in determining the quality of integrated reporting (Ahmed Haji and Anifowose, 2016b; Kilic and Kuzey, 2018). In their investigations into the impact of audit committee features (size, expertise, frequency of meetings, and independence) on IR quality, Chariri and Januarti (2017), Erin and Adegboye (2022), and Raimo et al. (2021) discovered a favorable correlation. They contended that larger audit committees are better able to regulate and supervise because they draw on the ideas, skills, and experiences of each individual member. Therefore, a broader audit committee tends to be more inclined to detect and resolve reporting problems as a result of the presence of diverse perspectives, specialized knowledge, and varied viewpoints (Permatasari & Tjahjadi, 2023).

It was contended that audit committees with a diverse membership are less susceptible to management control. Alfiero et al. (2018) conducted a study that supports the perspective of

Ahmed Haji and Anifowose (2016b) by stating that audit committee members have a responsibility to maintain the quality of integrated reporting because they are stakeholders in the organization. Concerning the independence of the audit committee, The research conducted by Marx and Mohammadali-Haji (2014) investigates the correlation between the independence of audit committees and the accepted practice of integrated reporting. They maintained that managers and boards are more likely to reveal pertinent information in their integrated reports when there are strong and capable independent directors on the audit committee.

Furthermore, the literature has investigated a correlation between the quality of integrated reporting and other features of the audit committee, such as the frequency of audit committee meetings and the level of expertise possessed by the committee. However, as discovered by Cooray et al. (2020), audit committees can lack the knowledge required to handle the increased risks connected to a dynamic corporate environment, which would have a detrimental impact on IRQ. Regarding the expertise of the audit committee, Velte (2018) discovered that having both financial and sustainability experience positively impacts the reading of integrated reports. On the other hand, Ahmed Haji and Anifowose (2016) discovered no discernible impact of the audit committee's financial knowledge on IR practices. Furthermore, according to Raimo et al. (2021), the audit committee members' financial backgrounds have little bearing on the quality of the integrated reports that the corporations produce.

According to Guthrie et al. (2017) and Hsiao et al. (2022), establishing a committee for sustainability, social responsibility, and risk management is a good place to start when developing and implementing a sustainability strategy. This will also enable the reporting of high-quality nonfinancial information. It is, however, optional to establish a sustainability committee and a risk committee but doing so enhances other governance components (Raimo et al., 2020). According to Wang et al. (2019) and Velte (2018), the independence, diligence, size, and expertise of the board of members, audit committee, and sustainability committee are all factors that influence IRQ in a positive way. Haji and Anifowose (2016) are consistent with this result by confirming that IRQ and the existence of a sustainability committee are positively related. In addition, Qaderi et al. (2022) demonstrated the same positive association with confirmation that the sustainability committee had a moderating role in the link between the board and IR disclosure.

In the case of the risk management committee, Cooray et al. (2020) analyse the impact of governance mechanisms on the quality of integrated reporting (IR) in a risk management committee context. They studied 132 integrated reports from Sri Lankan public-listed businesses over a three-year period. The findings indicate that board size and the existence of a distinct risk management committee facilitate the provision of high-quality information to stakeholders about the value creation process through integrated reporting (IR). In a recent study conducted by Yanto and Hajawiyah (2022), the researchers indicate that the risk management committee has a favourable impact on the disclosure of information risk in integrated reporting.

Ownership structure is one of the internal governance aspects that prior research has examined as a driver of the quality of integrated reports. However, there has been limited empirical research that has explored the relationship between IRQ and ownership structure. As described in the literature, various forms of ownership exist, including concentrated, institutional, governmental, family, and managerial ownership. For example, Ahmed Haji and Anifowose (2016) and Qaderi et al. (2022) have discovered that there is a positive correlation between ownership concentration and IRQ. However, Raimo et al. (2020) employ agency theory and are grounded on a sample of 152 multinational corporations that have implemented integrated reporting (IR). The findings demonstrate that a considerable reduction in IRQ is caused by ownership concentration, management ownership, and state ownership. The results, however, showed a positive correlation between IRQ and higher levels of institutional ownership, which can be explained by monitoring pressure. Zouari and Dhifi (2022) conducted a study to examine how ownership structure affects integrated reporting (IR) in a sample of 431 European businesses listed on the Eurostoxx 600 between 2012 and 2019. The findings indicate that there is a positive and statistically significant correlation between ownership concentration and IR for all European companies and those operating under common law.

For the external corporate governance factors, previous research has acknowledged the significance of external assurance as a factor of external governance. Despite their limited studies, these studies have yielded inconsistent results. Stakeholder theory asserts that external entities possess the ability to exert influence on the organization, compelling it to furnish comprehensive and accurate information pertaining to environmental, social, and economic dimensions (Manes-Rossi et al., 2021). In the literature on the quality of integrated reporting, Rivera-Arrubla et al.

(2017), Malola and Maroun (2019), Gerwanski et al. (2019), and Maroun (2019) have found that external assurance has an impact on the quality of integrated reporting. These findings indicate that external auditing influences the reliability of integrated reporting by enabling organizations to demonstrate to important stakeholders the trustworthiness of their reports.

Also, Gerwanski et al. (2019), Donkor et al. (2021), Hoang and Phang (2021), and Baboukardos et al. (2021) say that external auditing could be a key sign of the quality of a report and reveal any problems with the company's governance or investor protections. Another factor that previous studies have examined in corporate governance is stakeholder pressure. Vitolla et al. (2019) examined the relationship between the quality of integrated reporting (IR) and the influence of stakeholder pressure within the IRQ setting. Their findings confirmed this relationship and illustrated how the quality of IR is impacted by pressure from the government, workers, stockholders, environmental protection organizations, and customers, using the framework of stakeholder theory.

With regard to country-specific variables, while the aforementioned studies focused on firms' corporate governance, the literature assumes that country-specific governance factors may also have a huge impact on the management decision to conduct IR and to increase IR quality (Fuhrmann 2019). We differentiate between five main subgroups in our analysis: (1) the legislative framework of a nation (civil or code) law; (2) the degree of legal enforcement; (3) the range of investor protection (shareholder rights); and (4) cultural aspects. and five regions. Firstly, regarding the legislative framework of a nation, A classical differentiation amongst each country's orientation can be made between common (case) or civil (code) law regimes (Vaz et al., 2016).

Regarding integrated reporting quality literature, there are also heterogeneous results. (Vitolla et al., 2020; Kılıç et al., 2021) argue that a well-developed legal system protecting stakeholders leads to high legislation and coercive pressure. Thus, their analysis stated that firms domiciled in civil law countries are more likely to provide high-quality integrated reports. However, Fasan & Mio (2017) and Rivera-Arrubla et al. (2017) found insignificant impacts of civil law on IR quality. Also, legal enforcement is one of the determinants that have a relationship with IRQ, based on the literature. The literature assumes that legal enforcement leads to a higher managerial willingness to fulfil the information demands of their stakeholders, which in turn leads to IR adoption and better IR quality (e.g., Frias-Aceituno et al., 2013a; Garcia-Sanchez & Noguera-Gamez, 2018). However, a negative relationship between these two variables was established by Fasan and Mio (2017).

The second country's governance determinant is the country's financial system. According to the degree of market coordination, financial systems can be distinguished between market-based economies and bank-based economies. Thus, Fasan & Mio (2017) found a positive relation between higher quality of IR in countries with a higher level of market coordination. The third category of country-specific governance determinants is the educational and labor systems in the country. Fasan & Mio (2017) stated that IR quality is higher in countries with higher education and a higher density of trade unions. It is argued that companies from countries with high involvement in education show a strong interest in research findings and new management practices (including IR). Furthermore, the study by Oktorina et al. (2022)' results show that when a country's accounting competence is higher, there will be an increase in <IR> disclosure quality.

The fourth category dealt with the nation's economic structure, which is based on a number of factors including GDP per person, GNI, and the Economic Freedom Index (EFI) as reported in integrated reporting literature. It is believed that variations in the degree of economic conditions among nations may have an impact on a company's disclosure practices (Oktorina et al., 2022). Companies based in more developed nations appear to disclose a higher quality of integrated reportings (IR), claim Fasan & Mio (2017). On the other hand, Oktorina et al. (2022) shown that there is no significant relationship between the GDP per capita variable and IR quality. Transparency International's annual corruption perception index is the fifth governance indicator. Transparency International calculates a country's public sector corruption perception on a scale from 0 (extremely corrupt) to 100 (lack of corruption perception). It is a composite indicator of expert and business surveys. Few research examined corruption's influence on IRQ, however the results were equivocal.

Category six is culture. IRQ archive research has included Hofstede's cultural dimensions—collectivism, indulgence, long-term orientation, feminism, power distance, and uncertainty avoidance. According to the literature, a country's culture affects organizations and their IR approach (Garcia-Sánchez et al., 2013; Vaz, 2016). The culture of a regime can motivate or demotivate top managers to improve IR. According to Vitolla et al. (2019), IR quality negatively affects Hofstede dimensions power distance, individuality, masculinity, and indulgence and positively affects uncertainty avoidance. Another study by Raimo et al. (2019) found distinct effects of country culture on IRQ. The authors found that assertiveness, institutional collectivism, uncertainty avoidance, and humane orientation improve IR quality, while performance orientation and future orientation decrease it.

3.3.4.3 Consequences of IRQ

In addition to listing the factors that determine IRQ in the previous section, this section goes over several empirical studies on its consequences, as presented in Table 6(see in Appendices). The presence of IRQ could have significant strategic ramifications both internally and externally for the organization, potentially impacting its financial performance as well as its environmental, social, and governance (ESG) performance. While prior research has not extensively explored the impact of integrated reporting quality, it has analysed certain components. Concerning the value relevance of IRQ, Regarding this, some academics focus on specific components of business value, such as Tobin's Q, liquidity, cost of capital, and stock market return, for a more detailed study rather than relying on proxies for overall financial success. Churet and Eccles (2014), for instance, discover no meaningful correlation between IRQ and financial performance as measured by return on invested capital (ROIC); the only industries showing a favorable correlation are information technology (IT) and healthcare. In this regard, several studies use Tobin's Q to measure firm value and IR's influence over market valuation. For instance, Lee and Yeo (2016) shows a positive correlation between Tobin's Q and IRQ. They found that integrated reports give adopting organizations a competitive edge by noting that firms with high-quality integrated reports had greater stock market returns and return on equity. This finding aligns with what was found by Appiagyei et al. (2016), who discovered that IRQ has a beneficial influence on company performance and value.

In addition, Conway (2019) investigates the potential influence of <IR> quality on financial results, risk, and institutional holdings of listed businesses, as well as on the scores of environmental, social, and governance (ESG) disclosure. The authors discovered a correlation between improved ESG scores, larger institutional ownership, lower financial performance and risk, and a higher-quality integrated report. In a similar vein, Barth et al. (2017) expanded the scope of valuation studies by breaking down firm value into three distinct elements: liquidity, cost of capital, and anticipated future cash flows. The study analyzed data from the top 100 businesses listed on the JSE and concluded that integrated reporting had a positive impact on the market value of firms by increasing liquidity and predicting future cash flows.

As a result, liquidity is another indicator of business value that may be calculated using bid-ask spreads. According to Barth et al. (2017), when information asymmetry is minimal, investors are more likely to grade a firm, which should be related to lower bid-ask spreads. Similarly, Zuniga et al. (2020) discovered that, in a South African setting, IR quality had a favorable effect on liquidity. Nonetheless, a correlation between bid-ask spreads in South Africa and IR quality (readability, tone bias) was found to be statistically insignificant, according to Caglio et al. (2020). Furthermore, Arguelles et al. (2015) stated the negative association between IRQ, and bid-ask spread using a worldwide sample.

In the literature, another proxy for corporate performance is the market value of equity. For instance, Pavlopoulos et al. (2019) and Arguelles et al. (2015) investigated the quality of the data provided in the integrated reporting. They found that firms with high IR quality tend to have higher market values overall. Additionally, the authors contend that businesses with a higher IRQ are less likely to engage in earnings control. The same findings were proposed by Cosma et al. (2018), who also noted that IRQ is positively associated with market values across all industries, but stakeholder responsiveness is stronger in the nonfinancial industry. Furthermore, financial performance and IR quality were investigated in studies conducted by Ciubotariu et al. (2021), Matemane and Wentzel (2019), and Cosmulese et al. (2019). These researchers discovered that a positive correlation was exclusively observed with earnings per share, as firm value and profitability exhibited no such association.

In addition to that, future cash flows are mentioned in the literature as another metric for financial performance because investors have a particular interest in predicting future cash flows. For instance, Barth et al. (2017) and Arguelles et al. (2015) discovered a direct correlation between IRQ and the anticipated future cash flows. The findings imply that while integrated reporting improved the investor's view of the company's potential cash flows, the information environment within the company did not improve. Apart from the previously discussed aspects of business value, certain literature claims that the cost of capital, which includes the cost of debt and equity, is an indirect component of the value of the firm. As an illustration, Barth et al. (2017) discover no correlation between IRQ and the cost of equity in South African companies. On the other hand, Zhou et al. (2017) and Vitolla et al. (2019, b, c) discover that there is a negative correlation between IRQ and the cost of shares for firms with little analyst following. Regarding the cost of debt, a negative correlation was identified by Raimo et al. (2022) with respect to IR quality. Consequently, companies that provide superior integrated reporting benefit from enhanced accessibility to external financial resources

Additionally, Pavlopoulos et al. (2019) and Zúñiga et al. (2020) discovered that market values per share are generally greater for companies with a high quality of IR in their annual reports. This can lead to cheaper capital costs and herald a new era of reporting that is backed by integrated thinking. Leukhardt et al.'s (2022) differing findings indicate that, particularly in a voluntary setting, there is no meaningful correlation between the accuracy of analysts' profit forecasts and the quality of their intellectual property. They argue that high-quality integrated reports don't seem to improve a business's information environment or provide financial markets with more relevant information voluntarily. The literature indicates that IRQ may also have implications for reporting and nonfinancial performance, in addition to its effects on financial performance. Churet & Eccles (2014), for instance, used RobecoSAM's ratings for IR capture and discovered that IR has a positive impact on the firm's non-financial performance (as evaluated by ESG performance). In addition, Mervelskemper and Streit (2017) observe that the market assigns a greater incremental value to ESG performance when it is included in integrated reports as opposed to standalone reports.

Similarly, Omran et al. (2020) documented that environmental performance was positively impacted by IR quality. Grassmann (2021) presents evidence indicating that IR has a positive moderating effect on the relationship between environmental expenditures and business value. Furthermore, Conway (2019) investigates the possibility that the quality of <IR> also influences the environmental, social, and governance (ESG) disclosure scores. The authors discovered that better ESG scores, larger institutional shareholding, lower financial performance and risk, and higher-quality report output are all related.

Furthermore, apart from the aforementioned investigations, additional studies have examined a range of topics, including the influence of integrated reporting's aspects on information asymmetry, taxation, the investor base, and analysts' earnings forecasts. In this regard, García-Sanchez and Noguera-Gamez (2017) and Zúñiga et al. (2020) examined the potential correlation between IR quality and asymmetric information and discovered a negative correlation. This suggests that IR has the potential to serve as a mechanism to mitigate agency problems, support corporate decision-making, and augment investor information. In a related vein, Obeng et al. (2021) report that companies that engage in greater integrated reporting (IR) activity have lower agency costs; this correlation is stronger in nations that prioritise stakeholder interests. In a recent study, Donkor et al. (2022) investigated the correlation between the quality of integrated reporting and the practice of corporate tax avoidance, revealing a negative association between the two. Despite being within the bounds of the law, tax avoidance has garnered significant scrutiny due to its capacity to yield tax advantages. Additionally, numerous research papers have concentrated on the effects of IRQ on analyst forecasts.

Likewise, Bernardi and Stark (2018) conducted a study to examine the correlation between IRQ and the precision of analyst predictions in South Africa. The findings indicated that integrated reports offer valuable insights to analysts for effectively predicting future earnings. The authors also determined that the impact of integrated reports will be greater when there is increased disclosure about environmental, social, and governance (ESG) information. . Leukhardt et al. (2022) found that, particularly in a voluntary situation, there is no substantial correlation between the accuracy of analysts' earnings forecasts and the quality of their IR. According to their assessment, current integrated reports of high quality do not seem to enhance a company's information environment and do not offer additional pertinent information to capital markets in a voluntary context. In the same regard, Caglio et al. (2020) discovered a negative correlation between IR tone bias and analyst forecast dispersion in the mandated IR environment in South Africa, but they did not identify any correlation between IR readability and analyst forecasts.

3.4 The gap in current literature and the focus of the current study

Following an analysis of the corpus of scholarly work on integrated reporting, the conclusions that follow can be drawn. The practice of integrated reporting is gaining momentum and is supported by recent legal changes, including the EU Directive on the disclosure of non-financial and diverse information. Additionally, integrated reporting assumes an influential position by incorporating stakeholder discussion that leads to integrated thinking, integrated decision-making, and improved risk management. It also assumes an information function to meet the information needs of every stakeholder and notify them of the process of making decisions. Existing studies provide empirical evidence regarding various managerial viewpoints on the advantages and disadvantages of integrated reporting in current reporting practices. Nevertheless, it is important to note that despite the existence of several studies discussing the advantages and disadvantages of adopting IR practices, there is presently no conclusive research that specifically examines the factors that drive or impede firms from adopting such practices. Furthermore, scholars clearly emphasize the necessity for additional practical study in the field of the internal execution of integrated reporting (Mio et al., 2016; de Villiers, 2014).

From a different perspective, there are limitations to the research on the samples utilized in the IR literature. For instance, multiple authors analyze the integrated reports of organizations that have participated in the IIRC Pilot Program Business Network or are registered in the IIRC database. Furthermore, there has been considerable interest in examining the South African context due to the compulsory obligation for companies listed in JSE to publish integrated reports since 2011, as demonstrated by the works of Ahmed Haji and Anifowose (2016), Ahmed Haji and Hossain (2016), Du Toit et al. (2017), and Ahmed Haji and Anifowose (2017). Furthermore, only a few studies have focused on evaluating integrated reporting in European Union nations, for example, Loprevite et al. (2018), Almășan et al. (2019), Chouaibi (2022), and Zouari and Dhifi (2022). As a result, there is a significant dearth of study regarding the use of integrated reports, specifically in Europe, despite the region's growing acceptance of these reports. Consequently, this study aims to address these research deficiencies by examining all the companies listed in the European Union. As previously mentioned, existing empirical research has concentrated on several fundamental themes in the field of integrated reporting (IR). One approach in the literature involves utilising content analysis of corporate reports to get insights into the characteristics, adoption, and quality of integrated reports. However, a significant amount of research has been dedicated to examining various facets of IR adoption. While the quantity of data is important, the quality of the data is even more vital, as stated by Songini et al. (2020). However, there is a lack of academic work that specifically addresses the issue of data quality, as noted by Pistoni et al. (2018).

In the IRQ literature, the authors have created a content checklist for assessing the present state of IR practices. While the majority of measurement approaches are based on the IR framework, it can be argued that there is no standardized method for measuring the IRQ. Furthermore, these investigations revealed significant disparities and incongruities in the implementation of IR practices globally, including within companies operating within the same jurisdiction. Therefore, the second category of studies expanded the existing body of literature by examining the factors that influence the quality of IR practices. The primary focus of this research was to analyse the influence of cultural and legal factors at the country level, as well as business features at the organizational level, such as company size, industry affiliation, profitability, and corporate governance variables, on the choice to embrace integrated reporting (IR).

In conclusion, the primary objective is to address these research deficiencies by prioritising the assessment of integrated reports' quality rather than just embracing them. Previous research has indicated that the quality of information holds greater significance than its quantity. Moreover, most of the research has concentrated on the adoption of integrated reports, mostly because of the challenge of establishing a precise method for assessing the quality of such reports. While a theoretical framework exists for integrated reports, it lacks clear rules for assessing quality. Hence, this study aimed to fill this research gap by creating a comprehensive metric for assessing the quality of integrated reports. This metric draws upon both the theoretical framework of integrated reports and past research that has examined the disclosure of financial and non-financial information in a broader context. Furthermore, this indicator was constructed using the balanced scorecard, a method that offers a thorough and comprehensive classification of information. Furthermore, prior research has endeavoured to examine the reasons that drive firms to embrace integrated reports. However, only a few of these studies have specifically concentrated on these determinants within the framework of integrated report quality. Nevertheless, these investigations revealed substantial variations and inconsistencies in the implementation of integrated reporting globally, including within companies operating in the same country. Therefore, these studies attributed this variation in the nature of integrated reports to numerous reasons, encompassing governance characteristics, whether specific to the company itself or to the country. Thus, this study aimed to address this research void by conducting a thorough examination of how internal and external corporate governance influence the quality of integrated reports. The investigation specifically focused on 28 European Union countries.

3.5 Chapter Summary

This section centers on the domain of study that explicitly pertains to integrated reporting (IR), which has been undertaken by prominent scholars, industry professionals, and regulators since the publication of the International Integrated Reporting Framework (IRF) in 2013. The initial research primarily focused on normative analysis of the principles, benefits, and challenges of IR rather than conducting empirical investigations into its different elements. Several studies continue to yield contradictory findings about the efficacy of <IR> as a comprehensive model for future reporting. After that, in the past years, the adoption of the principles of the IRF by numerous companies worldwide has led to a substantial increase in the scale and thoroughness of research. This has facilitated the conduct of evidence-based research. Many researchers have performed comprehensive evaluations of the various aspects of IR in order to consolidate the expanding body of knowledge in the field. Previous studies have examined the adoption of integrated reporting (IR). Another area of research in recent literature is focused on IRQ. Hence, our examination of previous literature on IR concentrated on scrutinizing the content, exploring and comprehending the reasons behind the adoption of <IR>, and evaluating the quality of IR, in addition to investigating the potential connections between the implementation of <IR> or IRQ and enhancements in business image, organizational well-being, earnings, or firm value. The study of the literature on integrated reporting adoption encompasses the contents of IR, the factors that influence the adoption of IR, and the effects of IR on several aspects. The subsequent part provides an overview of the existing body of work about the measures, determinants, and consequences of IRQ.

Chapter Four: Hypotheses development and Research Design (Balanced Scorecard Perspectives)

4.1 Introduction

A methodology, as defined by Crotty (1998), refers to a strategy or process that is implemented to collect and evaluate data in support of a particular research inquiry or hypothesis. The current chapter shows the methodology that was used to carry out the underlying study to successfully satisfy the research objectives and provide answers to the questions being investigated. This part provides a comprehensive overview of the methodology employed in the present study. The first stage in addressing the research issue is developing research questions and hypotheses based on relevant theories and literature. The research then covered the sample under investigation and data collection. After that, in order to obtain the disclosure index for evaluating the quality of IR, the researcher constructed the study research design based on the correlation between BSC and the IR framework. Lastly, that section discusses and measures the study variables and statistical model to ascertain the influence of governance on IR quality.

4.2 Research questions

Within this subsection, the researcher ascertained the study's focus in accordance with its objectives, which were predetermined through the formulation of research questions. The research questions fulfil two essential roles: they ensure the focus of the investigation and provide direction for its execution (Maxwell, 2008). Therefore, as indicated in the literature review, despite the increasing attention given to the IRQ in academic research, it remains inadequately explored (Songini et al., 2022), particularly within the European context (Simona et al., 2017). Therefore, the primary research question of our endeavor is:

What Corporate governance factors determine the IRQ in the European context?

In more detail, despite the widespread use of the IR framework in most measurement approaches, it can be argued that there is no standardized approach for measuring the IRQ. This study aims to address the existing research gaps by investigating the adoption and quality of IR practices in European Union countries. Specifically, it focuses on answering research questions related to the identification of IR adoption and quality from the year of the introduction of the IR framework in 2013 until 2020. Thus, there are several subsidiary questions that are derived from the primary research question.

Q1: How widely adopted is IR in the countries of the European Union?

Q2: What is the level of integrated reporting quality in the European Union from 2013 to 2020? Is there a difference between nations? Does it vary depending on the industry? Does it vary over the years?

Although the literature study extensively discusses the determinants and consequences of IR for both internal and external stakeholders, the precise influence of corporate governance mechanisms on IR quality IRQ remains uncertain. Consequently, the researcher examined the impact of corporate governance on IRQ. In this study, the effects of internal governance factors on the board and audit committee were looked at in detail. These included the size, independence, diversity, experience, and number of meetings of the board and audit committee, as well as external governance factors like the percentage of free float shares and the type of external audit. Therefore, this study aims to address the second part of sub-research question:
Q3: Do board directors' characteristics as an internal governance mechanism affect the IRQ of EU-listed firms?
Q4: Do audit committees' characteristics as an internal governance mechanism affect the IRQ of EU-listed firms?
Q5: Does free float share percentage as an external governance mechanism affect the IRQ of EU-listed firms?
Q6: Does external audit type as an external governance mechanism affect the IRQ of EU-listed firms?

4.3 Hypothesis development.

Through a comprehensive examination of existing literature and relevant theories, we have identified a specific group of factors that are believed to have an association with the IR quality. These factors are determinants of corporate governance. Figure 5 illustrates the incorporation of both internal and external governance variables to emphasize the interconnectedness of information in the field of integrated reportings (IR), and it will be discussed in depth in this subsection.

4.3.1 Board Size

Board size is defined by Wang and Hussainey (2013) as the entire number of directors, including executive and non-executive directors, that possess the authority to influence the board's governance and effectiveness (Melloni et al., 2017) and the volume of voluntary disclosures (Lone et al., 2016). There is controversy over the nature of the correlation between voluntary disclosure (IR) and board size because previous studies offered a variety of explanations for whether there was a positive, negative, or no association between them (Songini et al., 2021).In accordance with agency theory, a small board allows for effective interactions and control among its members and lessens conflicts of interest between directors and shareholders, all of which improve management supervision (Ling and Sultana, 2015). The larger board, however, also offers a wider diversity of member expertise and experience (Nursimloo et al., 2020). This last attitude is consistent with the resource dependence theory, which claims that larger boards offer more skills and abilities to improve disclosure (Hidalgo et al., 2011). This is in line with stakeholder theory, in which larger boards made up of representatives from various stakeholder groups attempt to enhance corporate transparency to appease stakeholders by raising the number and quality of financial and non-financial reports (Qu et al. 2015). Empirically, Lakhal's study from 2005 indicates the negative effect of board size on voluntary corporate disclosures, although other studies (Sartawi et al., 2014) have found no significant correlation. Meanwhile, some studies have claimed that board size is positively related to disclosure quality (Majumder et al., 2017). In the context of integrated reporting, Vitolla et al. (2020) indicated a positive association between board size and IR adoption, and Frias-Aceituno et al. (2013) and Dey (2020) demonstrated a positive relationship with IR quality. This significant association can be explained by the larger board of directors' propensity to pay closer attention to social expectations (Suttipun and Bomlai, 2019), including the reporting of financial and non-financial information (Dalton and Dalton, 2005). The first hypothesis can be the following in light of these arguments:

H1: The IRQ and board size are positively correlated.

4.3.2 Board independence

The board independence of the directors, which is defined as the independent directors proportion on the board, is one of the crucial aspects of internal governance. Independent directors are seen as a privileged monitoring tool by the board due to their lack of administrative responsibilities within the firm and any meaningful financial ties to it or a connected party (De Villiers and Dimes, 2021). Therefore, according to agency and stakeholder theories, having more independent board members aids in protecting stakeholder interests, ensuring effective board practise, and resolving agency issues (Fiori et al., 2016). That is since non-executive members are qualified to provide unbiased evaluations of a company's administration and operations (Liao et al., 2015) and are more aware of the informational demands of diverse stakeholders (Cooray et al., 2020). Hence, the independent directors adopt a more transparent approach to safeguard stakeholder interests (Ntim et al., 2013). Consequently, there is theoretically an obvious connection between the disclosure level and the board of directors' independence, but earlier studies' empirical findings on this association were mixed. According to Al-Najjar & Abed (2014) and Elzahar & Hussainey (2012), the association between independent directors and disclosures is negligible. However, Barako and Brown (2008) offer proof that independent directors at a higher level significantly enhance CSR disclosures. Regarding how the board's independence and the IRQ are related, numerous empirical studies (Busco et al., 2019; Songini et al., 2021; Cooray et al., 2020; Girella et al., 2019) show no evidence of a connection between the board's independence and the IRQ. However, Omran et al. (2021; Erin and Adegboye 2022) discovered that the directors' independence improved the quality of the disclosed IR data. Aligned with these opposing empirical findings and with the claims made by agency and stakeholder theories, it is predicted that businesses with independent boards will be more likely to improve their disclosure of integrated reporting. Consequently, the following hypothesis was put forth as a second hypothesis:

H2: The IRQ and the board of directors' independence are positively correlated.

4.3.3 Gender diversity

Board diversity, according to Robinson and Dechant (1997), refers to the variety of characteristics that make up its members. The study used the percentage of female directors as a proxy for board diversity. It is one of the governance mechanisms that was previously examined in relation to disclosure quality. Women are believed to make a big effort to enhance the reputation of a business by focusing on social concerns (Masud et al., 2019). As a result, mostly female managers tend to provide higher-quality, more voluntary reporting (Girella et al., 2019). In line with stakeholder theory, women tend to be more sensitive, sympathetic, and transparent, which makes them more motivated to forge strong bonds with their stakeholders (Frias-Aceituno et al., 2013b). Additionally, the legitimacy and signalling theories suggest that having a sufficient proportion of women on a board might show that a company is sensitive to the needs of underrepresented groups. This could send the message to stakeholders that the company values non-financial and ethical issues highly and thinks that by being transparent about these issues, its reputation and legitimacy will improve (Bear et al., 2010). Likewise, according to agency theory, gender-diverse boards are more independent and have more effective monitoring, which reduces knowledge asymmetry and the consequent agency concerns (Elzahar & Hussainey, 2012). In this regard, there were mixed empirical results; for example, according to certain empirical studies on IR, neither the adoption of IR (Girella et al., 2019) nor the quality of IR (Cooray et al., 2020) were significantly correlated with gender diversity. However, Chanatup (2020) showed that companies with high board diversity adopt IR more successfully because of their additional viewpoints on making choices and resources. Additionally, Vitolla et al. (2020, 2020) demonstrated that boards with more women is positively associated with IR quality. In light of this, we suggest the following third hypothesis:

H3: The IRQ is positively associated with the proportion of female board members.

4.3.4 Board expertise

One internal governance factor that affects the disclosure is thought to be the expertise of the Board of Directors members (Naiker and Sharma, 2009). The presence of highly qualified and experienced members within the board will strengthen the control mechanisms and result in the production of valuable and trustworthy financial and non-financial reports (Hillman and Thomas, 2003). Consistent with agency theory, agency problems can be decreased if the board of directors has a varied range of expertise since it will act as a strong oversight mechanism (Allini et al., 2016). Similar to this, the resource dependence theory argues that having experts on the board improves the company's competitiveness and enables it to access outside resources and make better decisions (Kakanda et al., 2017). Empirically, Agrawal and Chadha (2005) confirmed that a board of directors with members who have strong financial and accounting expertise is better able to publish reports with high-quality information. Additionally, Ismail and Rahman (2011) discovered that the risk disclosure level is positively related to the directors' expertise. Despite that, there are limited empirical investigations that have looked at the connection between board expertise and integrated reporting quality. For example, Frías-Aceituno et al. (2012) contended that IR necessitates the participation of board members with diverse backgrounds in order to enlighten a larger spectrum of stakeholders and offer data on various topics and themes. Also, Erin and Adegboye (2022) discovered a direct correlation between the financial expertise of a board and the quality of integrated reportings. Therefore, this study relies on theories of resource dependence and agency and studies that examined the connection between disclosure and board expertise to predict the following fourth hypothesis:

H4: The IRQ and the board's experience are positively correlated.

4.3.5 Board meeting frequency.

The Board of Directors' meetings are regarded as one of the crucial governance techniques since these meetings demonstrate the Board of Directors' diligence and the scope of its time commitment (García Martín and Herrero, 2020; Hu and Loh, 2018). Agency and legitimacy theories support the fact that the frequency of board meetings influences both performance and disclosure (Qaderi et al., 2022). These theories contend that regular board meetings promote greater shared knowledge among board members (Laksamana, 2008). These meetings also offer managers more time to fulfil their oversight responsibilities effectively, which improves corporate reporting (Busco et al., 2019). The findings for the IR literature were contradictory. According to some studies (Frias-Aceituno et al., 2013; Girella et al., 2021; Orshi et al., 2019), there is no statistically significant correlation between the number of board meetings and IR adoption. As opposed to Iredele (2019), which provided empirical support for a negative association between these two variables. On the other hand, it was discovered that regular board meetings enhanced the IRQ and that a high quality of IR revealed better-governed businesses. As a result, the following fifth hypothesis is made:

H5: The IRQ and frequency of board meetings are positively correlated.

4.3.6 Audit Committee Size

Although there isn't an ideal size for the audit committee, it is one of the crucial internal governance mechanisms that has been extensively researched in the literature in relation to disclosure (Anis et al., 2016). In this regard, two perspectives are adopted. Agency and resource dependency theories contend that audit committees with higher sizes may mitigate agency concerns through more efficient oversight (Mangena and Pike, 2005). Additionally, the presence of more knowledgeable and experienced individuals will enable the organization to utilize its resources in a more effective manner, which will enhance the reporting process and its quality. However, it also makes the assumption that people behave in the most beneficial way for themselves. As a result, a larger committee size may result in bad connections among members and make it more difficult for the AC to accomplish its intentions (Buallay and Al-Ajmi 2020). Similarly, empirical research revealed that some studies showed a significant association between audit committee size and non-financial reporting (Li et al., 2012; Ahmed Haji, 2015), but other studies revealed an insignificant relationship (Bedard et al., 2004; Mangena and Pike, 2005). Considering the divergent theoretical perspectives and the mixed empirical facts on the size of the audit committee and reporting quality, we present the following sixth hypothesis:

H6: The IRQ and audit committee size are positively associated.

4.3.7 Audit Committee independence

According to theories of stakeholder and agency, and similar to the discussion around the independent directors on the board, independent audit committee members are assumed to be more impartial as well as less inclined to fail to recognize potential flaws in company reporting. This is because audit committee independence in businesses enables greater transparency and monitoring for interested parties (Chariri et al., 2017). Along with this, Ling and Sultana, 2015) contends that the inclusion of independent directors on the audit committee lowers agency expenses and strengthens corporate oversight, opening the door to high-quality disclosures. But the empirical findings were conflicting. The audit committee's independence and non-financial reporting have been found to have a strong positive relationship in certain research (e.g., Ahmed Haji, 2015), but not in others (e.g., Li et al., 2012). Considering the conflicting empirical data and paucity of research that particularly looks at the relationship between IR quality and independence of audit committee, we formulate the following seventh hypothesis:

H7: The IRQ and audit committee's independence are positively correlated.

4.3.8 Audit committee gender diversity

The gender diversity of the Audit Committee is one of the governance mechanisms that affects transparency and disclosure (Appuhami & Tashakor, 2017). Thus, governments and professional organisations issued laws or published guidelines to promote gender diversity on the board of directors and the audit committee in response to changes in global corporate governance systems (Appuhami & Tashakor, 2017). Since it is one of the strategies by which female managers can favorably affect monitoring and so lessen agency difficulties and information asymmetry, as stated by agency theory (Zalata et al. 018), Also, in line with the resource dependence theory, female AC members may contribute strategic supplies to the ACs on which they operate (Campbell and Mnguez-Vera 2008). This might lead to creative thoughts and a rise in moral consciousness, which would enhance the practice of voluntary disclosure (Tejedo-Romero et al., 2017). Empirically, several studies have studied how gender diversity in the AC and disclosure are related. These studies, such as Bravo and Reguera-Alvarado's (2019) and Gul et al.'s (2011), found a strong correlation between the two. However, empirical research has not yet investigated the connection between gender diversity on the AC and integrated reports. In accordance with the research above and backed by theories of agency and resource dependency, the following is our eighth hypothesis:

H8: The IRQ and AC gender diversity have a positive correlation.

4.3.9 Audit committee expertise

The audit committee has come under intense pressure to perform better and be more trustworthy in the wake of recent corporate scandals. Thus, there is an increasing call for the audit committee to have at least one financial or accounting professional (Sil Kang et al., 2011). In this context and according to the agency theory, having members with enough financial and accounting knowledge in the AC leads to better oversight of management's reporting practises, generates a greater level of internal control, and enhances the quality of reports (Al Lawati et al., 2021). Further, in line with stakeholder theory, the audit committee's presence of seasoned members is a strong indicator of the system's effectiveness, which encourages positive capital market feedback and improves both financial and non-financial disclosures to satisfy stakeholders. (Ahmed Haji, 2015; Mangena and Pike, 2005; Bedard et al., 2004). Empirically, the impact of having experienced members in the AC on the financial and non-financial reports was the subject of several investigations, the conclusions of which were contradictory. For instance, some studies, such as those by Ahmed Haji (2015) and Enache et al. 2020, have revealed a favorable link between both. Nevertheless, other studies have discovered a negative correlation, such as those by Al-Maghzom et al. (2016) and Buallay and Al-Ajmi (2020). Even so, studies (such as Raimo et al. 2020 and Al Lawati and

Hussainey 2020) show no connection between the expertise of AC's members and their level of voluntary disclosure. Regarding its impact on IR adoption, Ahmed Haji and Anifowose (2016) discovered that there is no significant correlation. Despite this mechanism's significance as one of the internal governance mechanisms, the literature hasn't looked closely enough at how it affects the IRQ. This leads to the ninth hypothesis, which is:

H9: The IRQ and AC expertise have a positive correlation.

4.3.10 Audit Committee Meeting Frequency

The frequency of AC meetings is one of the internal governance mechanisms that assesses the AC's commitment to its responsibilities and efficiency. This is a result of the likelihood that frequently assembling audit committees serves a more effective oversight role in addressing the internal control system's fundamental defects and improving performance (Gebrayel et al., 2018). In line with what was previously discussed regarding the frequency of board meetings, the agency theory supports the impact of the frequency of AC meetings on disclosure quality, as the frequency of AC meetings allows sufficient time to carry out its oversight role, which reduces agency costs and enhances internal control (Ahmed Haji & Anifowose, 2016). Many scholars have conducted research investigations on this mechanism to determine how it affects the level of financial and non-financial disclosure. According to several empirical investigations (e.g., Li et al., 2012; Ahmed Haji, 2015), the frequency of AC meetings significantly affects non-financial disclosures. However, some research (such as Bedard et al., 2004; Abdul Rahman and Ali, 2006) showed no correlation between AC meetings and disclosure quality. Additionally, Ahmed Haji and Anifowose (2016) discovered a significant statistical association between the frequency of AC meetings and the integrated reporting practice. Hence, according to agency theory and mixed empirical results, our tenth hypothesis is.

H10: The IRQ and the frequency of AC meetings have a positive correlation.

4.3.11 Free Float

Ownership structure is one of the external governance mechanisms that has been discussed in prior studies in relation to its effect on disclosure (Preuß, 2019). Our research, however, only takes into consideration the free float shares element, which is more accurately defined as the proportion of all shares issued to ordinary investors (i.e., the entire number of shares minus strategic shares). In that context, and in accordance with the theories of agency and stakeholders, agency problems increase with a rise in the percentage of free-float shares because investors exert less control over the company. Thus, to decrease large-small investor information asymmetry, managers turn to voluntary disclosure as a good strategy for minimizing these issues and ensuring the satisfaction of all stakeholders (Radwan et al., 2023). Empirically, some studies have looked at how free float affects disclosure. For instance, Gamerschlag et al. (2011) and Radwan et al. (2023) discovered that businesses with a high proportion of free-float shares release additional information to keep stakeholders satisfied. Additionally, Kiliç et al. (2015) notice a considerable favorable impact of ownership diffusion on bank CSR disclosure. Despite this research, there is a very scarcity of studies that look at how free float affects integrated reporting. Except for one study (Preuß, 2019), which found no connection between free-float shares and the IRQ, for our investigation into the impacts of free float on the IRQ, we derive the following eleventh hypothesis from these findings:

H11: The IRQ and free float shares are positively correlated.

4.3.12 External audit firm size

There are two categories of external audit firms. The first category consists of the Big 4 auditing companies: Deloitte, PWC, EY, and KPMG. Non-Big-4 auditing firms make up the second category. In this regard, external auditing is one of the external governance strategies managements can use to improve disclosure and transparency (Fernandez-Feijoo et al., 2018). This is because big auditing firms are often concerned with their reputation and image; thus, they are keener to work with companies that disclose more information in their annual report (Ghani et al., 2018). It is theoretically in line with stakeholder theory because increasing transparency strengthens stakeholders' expectations for information disclosure (Al Amosh, 2021). Additionally, according to the resource dependence theory, big audit firms have more resources and expertise working with various corporations from various cultures and locations, which lends them a high level of assurance (Mawardani & Harymawan, 2021). Empirically, previous studies have found that the companies audited by the four major audit firms reveal more information (Fernandez-Feijoo et al., 2018; Sial et al., 2018). In contrast, Barako et al. (2006) revealed no association between voluntary disclosure level and external audit firm.

Studies on IRQ have indicated inconsistent relationships about external assurance effects on the quality of integrated reports. For example, Gerwanski et al. (2019), Rivera-Arrubla et al. (2017), Maroun (2019), Hoang and Phang (2021), and Malola and Maroun (2019) discovered that external assurance serves as a signal of report quality and demonstrates the trustworthiness of integrated reports to stakeholders. Additionally, it functions as a replacement for deficiencies in corporate governance or investor protection regimes. Furthermore, research conducted by Chouaibi et al. (2022b) indicates that auditor specialization and ethical considerations have a beneficial influence on the quality of internal reporting. This suggests that audit companies should embrace an ethical approach and allocate resources towards corporate social responsibility. The audit committee oversees the activities of management assurance, internal assurance, and external assurance, thereby bolstering the trustworthiness of reporting procedures. Nevertheless, Mawardani and Harymawan (2021) discovered that there was no statistically significant correlation between the disclosure of information related to IR and the involvement of external audit firms. These justifications lead to the following 12th research hypothesis:

H12: The IRQ and auditing by Big 4 auditing firms are positively correlated.

4.4 Sample and data collection.

This part will cover the procedures used to choose and gather the data, as well as a detailed discussion of the sample used in the study. Information extraction from secondary data sources is the focus of this study. Consequently, the records examined are not from official interviews but rather the organization's yearly reports. The shape and structure are preset, and the content is not subject to the researcher's control as it will be discussed in depth.

4.4.1 Sample selection.

Various methods have been used in prior integrated reporting studies to choose their sample. For instance, several scholarly investigations primarily concentrate on corporations that have a legal need to produce integrated reports, specifically those situated in South Africa (Wang et al., 2020; Moloi & Iredele, 2020; Marrone & Oliva, 2020; Ngcobo, 2020). Along with that, numerous research has concentrated on examining the official integrated reporting (IR) website or the companies that were included in the pilot programme. One such study is Songini et al. (2020), which examined businesses listed in the Integrated reportings website's "Getting Started" section.

Furthermore, the study conducted by Nicolò et al. (2020) examined the European organizations that were among the IR early adopters on the IIRC website.

Another line of research examined corporations that were featured in external rankings or indices, such as the Fortune 500. For instance, the study conducted by Busco et al. (2019) examined the IR of the STOXX Europe 600 firms. Also, Kılıç et al. (2021) examined IR adoption among Fortune 500 organizations. In another study, Samy and Deeb (2019) specifically examined companies that are included in the EGX30 index within the Egyptian setting. A second series of research looked at best-practicing businesses that had won awards from outside organizations like Mans-Kemp & Van der Lugt (2020). Therefore, it can be argued that most of the research have concentrated either on integrated reports in South Africa due to their mandatory nature or on the official website of integrated reports owing to its perceived reliability. This study is notable due to its comprehensive analysis of all publicly listed companies on stock exchanges within the European Union. Its objective was to ascertain the extent of IR adoption among these businesses and identify the specific year in which they commenced publishing their initial integrated reports.

When contemplating the time frame of a study, there are primarily two alternatives. A cross-sectional study focuses solely on a single point in time. Longitudinal studies, as opposed to other types of studies, focus on examining data from numerous time points (Quinlan et al., 2018; Saunders et al., 2019). The research duration for the study goals was determined based on the publication date of the IIRC frameworks and to ensure consistency in the data. Hence, the reporting framework's date of incorporation played a crucial role in obtaining the pertinent data. Therefore, we will begin our analysis from 2013, as this is the year when the IIRc framework was launched. The availability of data was a crucial factor in driving the analysis, therefore, the analysis includes data up until 2020. As a result, the years 2013–2020 were selected for the investigation in order to allows researchers to observe the same variable of interest over an extended period of time. Consequently, the study's focus was on the 27 nations that make up the European Union. The researcher conducted an analysis of the listed firms on the respective stock exchanges of each country. The study involved determining the number of firms listed on the stock exchange in each country, resulting in a total of 4,122 registered companies.

However, a total of 656 companies have been eliminated from the first analysis due to either the absence of published reports on the company's website or the presence of reports published in a language other than English. In spite of this, we attempted to reach the reports by emailing these companies but received no response. Consequently, 3466 companies make up the final sample whose reports were investigated. Following an initial analysis of the reports provided by the companies, it was observed that 3319 of them were eliminated from the study due to their failure to release an integrated report or adhere to the theoretical IR framework of the IIRC. Consequently, a mere 147 out of the total 3,466 organizations included in the final sample have been found to employ an integrated reporting (IR) framework in their reporting practices. This figure corresponds to around 4.42% of the overall sample, as evidenced in Table 7.

Table 7: Final sample per country

Country	Number of listed companies	Not available	Final examined sample	companies don't adopt IR	Companies adopt IR per country (analyzed IR)
1. Austria	69	18	51	50	1
2. Belgium	140	20	120	113	7
3. Bulgaria	188	58	130	130	0
4. Cyprus	108	30	78	78	0
5. Czechia	54	8	46	45	1
6. Denmark	125	23	102	100	2
Baltic countries **7. Estonia** **8. Latvia** **9. Lithuania**	56	0	56	55	1
10. Finland	135	10	125	122	3
11. France	439	57	382	350	32
12. Germany	481	89	392	386	6
13. Greece	165	20	145	141	4
14. Hungary	133	30	103	102	1
15. Ireland	43	2	41	40	1
16. Italy	212	15	197	186	11
17. Luxembourg	120	15	105	100	5
18. Malta	30	0	30	30	0
19. Netherlands	171	13	158	135	23
20. Portugal	39	4	35	32	3
21. Slovakia	51	15	36	36	0
22. Slovenia	31	5	26	26	0
23. Spain	277	32	245	208	37
24. Sweden	362	36	326	325	1
25. Croatia	103	20	83	83	0
26. Romania	82	21	61	61	0
27. Poland	508	115	393	385	8
Total	4122	656	3466	3319	147

As shown in Table 7, which classifies the adoption of integrated reports across different nations, it can be observed that Spain, France, and Italy have emerged as the countries with the most extensive representation in the sample of organizations that have produced integrated reports. However, it should be noted that certain countries, including Croatia, Romania, Cyprus, Bulgaria, Slovakia, Slovenia, and Malta, currently lack listed companies that offer integrated reports. In several nations, like Hungary, Ireland, and the Czech Republic, there is just one listed firm that publishes an integrated report. Consequently, there are 20 European nations represented in the sample.

Table 8: Final Sample classified per year.

Country	2013	2014	2015	2016	2017	2018	2019	2020	Total reports
Austria	1	1	1	1	1	1	1	1	8
Belgium	0	0	1	3	3	3	4	7	21
Czechia	0	0	0	0	0	0	1	1	2
Denmark	1	1	1	1	1	1	1	2	9
Estonia	0	0	0	1	1	1	1	1	5
Finland	0	1	1	2	2	2	3	2	13
France	2	3	10	14	20	27	27	29	132
Germany	2	2	2	3	3	4	5	6	27
Greece	2	2	2	2	2	3	4	4	21
Hungary	0	0	0	0	0	0	0	1	1
Ireland	0	1	1	1	1	1	1	1	7
Italy	2	4	6	7	8	9	10	11	57
Luxembourg	0	0	2	2	4	5	4	4	21
Netherlands	2	8	12	15	17	18	21	23	116
Portugal	0	0	0	1	1	2	2	3	9
Spain	7	12	17	23	27	29	30	35	180
Sweden	0	0	0	0	1	1	1	1	4
Poland	0	2	2	3	5	5	5	7	29
Total reports	19	37	58	79	97	112	121	139	662
The report adopts IR but not in the English language	1	1	0	1	1	1	2	0	7
Final analyzed reports	18	36	58	78	96	111	119	139	655

The study's scope encompasses the adoption of integrated reports from 2013 to 2020. It should be noted that not all of the 147 companies included in the study adopted IR over the entirety of the eight-year period. Consequently, various corporations have implemented and published integrated reports at varying time points, with certain entities having commenced the practice as early as 2013, while others have only recently released their reports in 2020. Hence, it can be posited that the composition of the study sample is unbalanced, indicating that each year of the study encompasses a varying number of reports that were scrutinized and analyzed, as depicted in Table 8. Thus, according to Table 8, the integrated report analysis includes a total of 662 reports obtained from a sample of 147 organizations. However, it is worth noting that out of these reports, seven have been implemented in the IR framework but have not been published in the English language, so they are excluded. As an illustration, suppose a corporation implemented an IR in 2017 and has been included in the sample ever since. However, since only the 2020 report is in English, the reports from 2017 through 2019 are once again disregarded. Furthermore, Table 9 displays the progression in IR adoption from 2013 to 2020. As an illustration, the adoption of integrated reports by corporations in 2013 was limited to a mere 18 entities. However, this figure experienced substantial growth, reaching 139 companies by 2020 that embraced IR practice.

Furthermore, the study classified these companies into several sectors, as illustrated in Table 9, with the aim of ascertaining the sectors that exhibit the highest levels of adoption of integrated reporting. Based on the information in Table 9, which shows how the different sectors are spread out in the European Union sample, the most entities that have adopted integrated reports are from the industrial sector (33) and the financial sector (27%). The health industry and the real estate sector exhibit the lowest levels of representation within the sample, with 7 and 8 companies, respectively.

Table 9: Final Sample per sector.

Sectors	Number of firms adopt IR
Industrials	33
Financials	27
Consumer Discretionary	16
Energy	11
Technology	9
Telecommunications	9
Consumer Staples	9
Basic Materials	9
Utilities	9
Real Estate	8
Health Care	7

4.4.2 Data Collection

Organizations have multiple ways to disseminate information: blogs, newspapers, press releases, annual reports, websites, independent sustainability reports, and other reports. Every publicly available piece of information is a part of the organization’s accountability-discharging operations, but it is practically impossible to find every communication that an organization has made publicly available (Gray et al., 1995). Annual reports, then, can serve as a very helpful stand-in for narrowing the focus. Numerous studies pertaining to disclosure have mostly concentrated on the annual reports issued by organizations, either as a representation of their financial, social, and environmental responsibility endeavors or as a subject of particular significance (Milne & Adler, 1999, p. 237). Thus, according to Guthrie and Petty (2000), annual reports are a highly helpful reporting tool for firms to provide all the important financial and non-financial information that management wishes to share with stakeholders both inside and outside the company. The frequent production of annual reports allows for the comparison of management policies and attitudes across reporting periods, which is helpful (Niemark, 1992).

For this reason, the annual integrated reporting serves as the primary instrument for our analysis. For the purpose of assembling integrated reports, the study mostly uses the official business websites as its primary source, especially for those reports that are exclusively accessible online in interactive format. Moreover, ascertaining the implementation of integrated reporting by a corporation poses challenges due to the inconsistency in the usage of the IR framework. Some organizations may label their reports as integrated reporting despite not adhering to the IR framework, while others may produce integrated reports and refer to them as sustainability or annual reports.

Hence, a comprehensive compilation of yearly reports spanning from 2013 to 2020 was undertaken by gathering data from the official websites of 147 companies. Initially, an analysis was conducted on the foundation upon which these reports were formed. The report must follow IIRC's framework to be included, regardless of whether it is explicitly labelled as an integrated report. Any reports that do not adhere to the IR framework are omitted from the sample. Hence, the sample encompasses various reports, such as the annual, CSR, and sustainability reports, as their inclusion is contingent upon the underlying basis of their preparation. The second primary goal of the current study is to assess the factors that influence IR quality. To fulfil the objective, relevant corporate governance data, including the quantity of board of directors and independent directors, as well as data pertaining to the audit committee, such as the number of independent committee members and the level of gender diversity, are obtained from the Bloomberg database. The database in question is a comprehensive and resilient repository that encompasses extensive data and well delineated parameters, hence facilitating the assessment of corporate governance by scholars. The data pertaining to the Gross Domestic Product (GDP) was obtained from the official website of the World Bank. Culture Hofstede-insights was also the source of the data pertaining to culture.

4.5 Research methods.

4.5.1 Preparation of Disclosure index

The disclosure index is a frequently employed tool for investigation in a majority of disclosure articles. It was Cerf (1961) and Buzby (1975), who originally introduced the idea of the disclosure index. According to Marston and Shrives (1991), the disclosure index is a commonly used tool for evaluating, contrasting, and explaining variations in the breadth and depth of disclosure in the yearly reports. There exist two distinct forms of indices: the first being an established disclosure index, and the second being a researcher-constructed index. As stated by Beattie et al. (2004), many countries release their disclosure evaluations, which are determined by experts' assessments or, in certain instances, are determined by an outside grading organization using particular standards. By using these ratings, the investigator can rate the disclosures without having to spend effort reading the annual report and scoring each one. The presence of these scores motivates researchers to undertake investigations pertaining to disclosure practices. One illustrative rating is the ESG Ratings provided by Bloomberg. The aforementioned ratings assess the environmental, social, and governance practices of firms, but with a proprietary approach. Thus, ESG performance is frequently employed by researchers as a index. Also, The Dow Jones Sustainability indicators (DSJI) are a set of indicators that monitor and evaluate the sustainability performance of prominent multinational corporations. While these assessments have garnered scholars' attention in their studies, they are not without drawbacks. One significant drawback associated with these indicators is their limited availability among enterprises within a given jurisdiction. Furthermore, it should be noted that the technique employed for rating or ranking purposes may vary from one year to another, and the availability of ratings may not be consistent over time.

Moreover, these ratings are assigned by experts and are predicated on their subjective assessment of disclosure practices rather than objective measurements of disclosure effectiveness. Thus, the subjective nature of these ratings has been acknowledged by Lang and Lundholm (1996), who argue that they are subject to individual interpretation. Additionally, criticisms have been raised regarding the lack of transparency and correct process in selecting the companies for evaluation, as noted by Healy and Palepu (2001). The aforementioned constraints prompted the increased adoption of the 'researcher-constructed disclosure index'. As described by Srinivasan (2006), the self-constructed disclosure index is a comprehensive list of disclosure elements that are thought to be pertinent to information users. According to the study purpose, the number of items that constitute the index varies throughout studies, as does the process used to compile the list of elements (Marston & Shrives, 1991). Narasimhan and Vijayalakshmi (2006) said that the index may be created, for instance, in accordance with the recommendations of one or more bodies that mandate or suggest that specific data be disclosed such as GRI. Moreover, certain scholars employ an adapted iteration of the metrics encompassed in widely recognized agency evaluations, such as the Transparency and Disclosure scores provided by Standard & Poor's.

The present study utilized a self-developed disclosure index methodology, which incorporated the use of the IR framework that was established by the (IIRC). Additionally, certain components from prior research on financial and non-financial disclosure were incorporated, as outlined in the subsequent section. Another issue in index building is using an unweighted or weighted index. Initially, the scoring process for the unweighted disclosure index is more straightforward, as it operates on the assumption that all items hold equal significance. If an item is disclosed, it is assigned a score of 1; conversely, if it is not disclosed, it is assigned a score of 0. Unweighted indexes have been utilized in various studies, such as those conducted by Hossain et al. (1994), Raffournier (1995). The approach employed in these studies is commonly referred to as the "dichotomous / binary " method, wherein the overall score achieved by a company serves as an indicator of its level of disclosure. In tests involving statistics, relative scores are employed in lieu of numerical values, as absolute values do not contribute to the efficacy of these tests. In contrast, the weighted disclosure index is predicated on the assumption that every constituent element within the index possesses varying degrees of significance and is consequently assigned corresponding weights (Benjamin & Stanga, 1977). Firms that choose to share a limited number of highly significant items would receive higher scores compared to those who release a larger quantity of less significant data.

Within these methodologies, in order to mitigate subjectivity, certain researchers employ multiple iterations of index analysis and seek expert input on index components. Additionally, weights are determined based on the opinions of a large user group when an inclusive user community is taken into account for the study. Nevertheless, the weighted index is inherently subjective regardless of the specific approach employed for weight assignment.

4.5.2 Self-constructed index: Balanced scorecard for measuring IRQ (IRQBSC)

The current study is unique in employing the Balanced Scorecard (BSC) as a tool to evaluate IRQ within a European setting (Nada and Győri, 2023). BSC was conceptualized by Kaplan and Norton in 1992 as a comprehensive set of metrics aimed at aiding management in the assessment of organizational performance. BSC encompasses four primary viewpoints, namely the customer, financial, learning and growth, and internal perspectives. Consequently, the term "balanced" was introduced to achieve equilibrium between financial and nonfinancial metrics, as well as to reconcile short- and long-term objectives, and to incorporate both reflecting and predictive indications (Hepworth, 1998).

Kaplan and Norton (1996) assert that the BSC is essentially a strategic measuring framework. According to Nielsen et al. (2017), this framework is widely seen as a crucial tool for management in generating and evaluating disclosures, both within the organization and for external stakeholders. Moreover, the Balanced Scorecard has the potential to enhance openness and accountability by providing management with relevant information and stakeholders with more comprehensive and important information (Shergold, 1997). Because the Balanced Scorecard is considered a comprehensive tool for evaluating an organization's financial and nonfinancial performance, encompassing both internal and external aspects. Scholars such as Ling Wei et al. (2008) and Hansen and Schaltegger (2016) argued that the BSC can serve as a foundation for constructing a corporate disclosure index. Thus, The Balanced Scorecard (BSC) has been employed in scholarly literature as a tool for assessing the extent of disclosure, as demonstrated by Ling Wei et al. (2008). Furthermore, Massingham et al. (2019) employed the learning and growth perspective inside the Balanced Scorecard framework to enhance integrated thinking and the process of value creation in the field of integrated reporting.

Drawing upon the aforementioned antecedents and the concept of integrated thinking, our research has developed a comprehensive disclosure checklist for assessing the quality of integrated reporting (IR). This checklist, known as the integrated reporting Quality Balanced Scorecard

(IRQBSC) (Nada and Győri, 2023). Although the IIRC Framework adopts a principle-based approach and refrains from mandating the disclosure of specific Key Performance Indicators or individual matters. The framework of (IR) serves as the foundational basis in previous scholarly investigations for assessing the (IRQ). Thus, to construct IRQBSC, the research was primarily centered on the eight content pieces, guiding principles, six capitals, and value creation process of the IR framework as presented in table 10 (see in Appendices)(IIRC, 2021). Furthermore, this study has also used existing literature to ensure the comprehensiveness of the disclosure checklist. As an illustration, we consider the scoreboard created by Pistoni et al. (2018), which is one of the complete indices intended for assessing IRQ, as shown in table 11 (see in Appendices). The specific focus of our index construction was on this scoreboard due to its use of the IR framework, as well as its incorporation of the criteria outlined by Hammond and Miles (2004), which serve as general recommendations for assessing the quality of both financial and non-financial disclosure. Consequently, we have established a connection between the IR framework of IIRC (IIRC, 2021) and the variables of the IR scoreboard developed by Pistoni et al. (2018), while ensuring the exclusion of any duplicated items, such as content components. Consequently, our disclosure checklist aims to evaluate IR quality by incorporating the four primary perspectives of the balanced scorecard (BSC). The sources of these perspectives are the IR framework (IIRC, 2021) and the Pistoni et al. (2018) scoreboard as provided in Table 10 and Table 11(see in Appendices), respectively. Consequently, the IRQBSC is partitioned into 31 distinct variables subsequent to the removal of redundant elements from the aforementioned sources as in Table 12.

From the financial perspective, the scope encompasses all pertinent financial elements that necessitate disclosure in the integrated report, encompassing performance indicators. However, the primary emphasis lies solely on indicators of financial performance. Performance, as a constituent of the IR content element include both indicators of financial performance, such as revenues and profitability, as well as non-financial performance metrics that are assessed from other perspectives. Furthermore, the financial perspective assesses the level of transparency in reporting financial and manufactured assets. The term "manufactured capital" encompasses all tangible assets utilized by an organization in the process of producing goods or services, including but not limited to equipment, buildings, and infrastructure (IIRC, 2021). It is important to acknowledge that these criteria are not assessed in isolation, but rather in relation to other factors as outlined in the (IR) framework.

To be more inclusive, "customers" has been replaced with "stakeholders" for stakeholder perspectives. This perspective is formulated to assess twelve factors according to the primary concerns of the stakeholders, or at the very least, it is carried out under their control. Therefore, the initial step is the inclusion of the beneficiaries and the title of the report, as this serves to identify the specific individuals or groups for whom the report is intended. The report's title plays a crucial role as the initial point of engagement with stakeholders, as IR is intended for all pertinent parties. Following this, both report awards and third-party verification are external aspects conducted by independent entities and are considered essential for all stakeholders. Consequently, they are seen as vital elements in ensuring reporting quality, as demonstrated in Pistoni et al. (2018) study.

This study is predicated on the idea that that the Guiding Principles serve as the underlying basis for determining the content of each report (IIRC, 2013). Furthermore, previous research has discovered a strong correlation between the Content Elements of reports and the Guiding Principles outlined in the IIRC Framework (Wild and van Staden, 2013). Hence, in accordance with the Guidelines principles of IR Framework, various aspects such as conciseness, accessibility, readability and clarity, comparability have been incorporated in stakeholder perspectives due to their significance for all stakeholders. These aspects have also been acknowledged in previous studies on disclosure quality, such as Botosan (1997). Moreover, the stakeholder's perspective was employed in selecting these elements, as adhering to these rules during the IR preparation process facilitates comprehension of the revealed data and assessment of the corporate performance.

Finally, the inclusion of materiality in this context poses a significant challenge due to its classification as an internal concern. However, it is significant to note that stakeholder perspective is closely related to this notion, as it delineates the essential information that must be revealed and has an impact on the process of value creation. Furthermore, it is common practice to integrate materiality disclosure with stakeholder engagement.

The internal perspective involves responsibility, objectives, motivations, CEO commitment, consistency with international standards, and an internal audit of IR. Because IR is not a random decision, it relies on firm objectives and executive team decisions, requiring accurate exploration. Furthermore, it is essential to understand who is responsible for releasing the integrated reports and the motivations behind this move when evaluating the IR quality. Additionally, the CEO's commitment demonstrates the firm's comprehension of the value of non-financial information and the executive's commitment level to the integrated disclosure of both financial and non-financial information.

Another key point is that IR adoption does not violate any international disclosure standards. Therefore, the production of IR in line with the IR framework and Global Reporting Initiative (GRI) standards contributes to the improvement of IR quality. In addition, conducting an internal audit of the report contributes to its credibility to some extent and plays a vital role in assessing the level of disclosure quality. Furthermore, the internal perspective of the IR framework also encompasses the articulation of the eight content elements. These elements represent the internal and external factors that influence the firm's process of generating value. For example, under "*the organizational overview and external environmental"* factors, the company must disclose information about its mission, vision, culture, and fundamental policies in addition to the organizational structure, major operations, target markets, and rivals. Additionally, the most crucial element in assessing how successfully a firm tells its value-creation story is its business model, which IIRC (2013) indicates to as "the core of the organization." Consequently, these eight elements were taken into consideration in this perspective due to their significance for the internal operations of the organization.

In the final perspective, the perspective of learning and growth assesses the degree of intellectual and human capital disclosure. This viewpoint includes intellectual capital since it is primarily dependent on knowledge, including systems, methods, and protocols in addition to patents, software, trademarks, and licences (IIRC, 2021). This also applies to human capital, which is based on people's aptitudes, backgrounds, and creative drives. Moreover, this perspective delves into the process of value creation, which encompasses changes in the six capitals resulting from the interactions between the businesses' operations. This process provides value for all stakeholders throughout the short, medium, and long term (IIRC, 2021). It is important to acknowledge that these factors are not assessed in isolation, but rather within the framework of their interactions with other aspects and their impact on capital accumulation during value creation process over several time horizons, namely the short, medium, and long term.

Table 12. Balanced scorecard to measure integrated reporting quality (IRQBSC)

Financial perspective	Stakeholders' perspective	Internal Perspective	Learning and growth perspective
1. **Financial performance** 2. **Financial capital.** 3. **Manufactural capital.**	4. Title of report. 5. beneficiaries of the document 6. acknowledgments and awards for IR. 7. Third-party verification. 8. readability and clarity 9. conciseness 10. accessibility 11. Comparability 12. Social and relationship capital 13. Natural capital 14. Stakeholder engagement. 15. Materiality	16. Responsibility for an integrated report. 17. Motivation to apply IR. 18. Objectives pursued by IR. 19. CEO's commitment. 20. Consistency of IR with generally applied disclosure standards. 21. internal audit. 22. Outlook. 23. organizational overview& external environment. 24. basis of preparation and presentation 25. business model 26. risks & opportunities. 27. Governance. 28. strategy & resource allocation.	29. Human capital. 30. Intellectual capital. 31. Value creation process.
Maximum score = 15	**Maximum score = 44**	**Maximum score = 41**	**Maximum score = 15**

Source: own framing

4.5.3 Scoring system.

Following the completion of the IRQBSC design, it is important to develop a scoring system for each of the four perspectives. However, as was previously mentioned in relation to the challenge of assessing the quality of disclosure and the disagreement among research regarding a particular index that can be used to gauge quality, it is also noted that there is inconsistency among researchers regarding the scoring system when assessing the quality of accounting disclosure. There are two fundamental techniques for scoring systems involved in disclosure studies, according to Beattie et al. (2004). These techniques are the weighted scores (Ordinal coding) and the unweighted scores (Binary coding) covered in the previous section. In that regard, (Marston & Shrives, 1991) noted that while the unweighted scoring system does not exhibit bias in assigning a score to an item, it does convey the amount or extent of disclosure rather than its quality. Conversely, research has shown that ordinal scales assess the quality of disclosure as opposed to its amount, although they are very subjective because of the bias of the coder (Kavitha, & Nandagopal, 2011). From different standpoint, prior research indicates that there is little to no difference when using unweighted or weighted ratings (Ahmed Haji and Anifowose, 2016). As a result, this study uses a weighted and unweighted scoring method based on the element's nature to evaluate IR quality, in line with prior research such as Pistoni et al. (2018).

In relation to **the financial and the learning and growth perspectives**, a scoring system was utilized to provide a score ranging from 0 (indicating the lack of the item) to 5 (indicating a very high quality) for each of the six items. This tabulation scheme, as presented in Table 13 (see in Appendices), was adopted based on the methodology employed by Pistoni et al. (2018). As this classification assesses the component in terms of the presentation's comprehensiveness and the adoption of guiding principles (materiality, connectivity, strategic focus and future orientation, stakeholder relationships, reliability and completeness, consistency, and comparability) for the creation of integrated reports. In every perspective, there is a maximum score of 15.

The study uses both weighted and unweighted scores in reference **to the perspective of stakeholders**. The first four items (report title, document beneficiaries, acknowledgements and rewards for IR, and third-party verification) are in accordance with Pistoni et al.'s (2018) study, which is scored using binary coding. These components are rated based on whether they are reported in the IR or not; if they are, they achieve a score of 1; if not, they receive a score of 0. To evaluate the next four elements, we took into account the previous research. One way to evaluate readability and clarity is to look at how well the report uses tables, graphs, and indexes to convey information, as well as how well they fit into the whole narrative. This component receives a score of (0) for unclear reporting and a score of (5) for well-organized, well-presented reporting, as shown in table 14 (see in Appendices). According to table 15 (see in Appendices), the Conciseness item's evaluation is based on the number of reports pages, the fewer pages in the report, the higher the quality level. To evaluate the report's accessibility, we additionally follow previous studies who did so by looking at its accessibility on the company website and its use of an interactive web platform, as indicated in table 16. We evaluated report comparability using a grading system used by previous researchers, such as Pistoni et al. (2018) and Alotaibi and Hussainey (2016), to evaluate disclosure quality (see Table 17 in Appendices)). The assessment of the four following factors, namely stakeholder engagement, materiality, and social and natural capitals, is conducted using the IR framework. Each item is assigned a score ranging from 0 to 5, indicating the level of quality, as illustrated in Table 4. Hence, it can be asserted that a total number of stakeholders perspectives elements, as to the aforementioned scoring system amounts to 44.

Regarding **the internal perspective**, the first six elements (Responsibility for an IR, its objectives, motivation to use it, CEO commitment, its consistency with commonly used reporting standards, and internal audit) are assessed based on their inclusion or exclusion in the integrated reporting. A score of 0 is assigned if these elements are not disclosed in the report, while a score of 1 is assigned if they are disclosed. The remaining seven components (organizational overview and external environment, business model, presentation and preparation basis, Outlook, risks and opportunities, strategy and resource allocation, and governance) that are regarded as integral elements of the Integrated reportings (IR) framework are assessed in accordance with the information provided in Table 13. Therefore, it can be argued that the number of scores representing internal' perspectives in the aforementioned scoring system is 44.

Table 13: scoring system for items from the IR framework.

Score	Evaluation
0	Not disclosed
1	Poor disclosure: titles with little reference to the IR guiding principles.
2	Insufficient disclosure: too little information depending on a few IR guiding principles.
3	Moderate disclosure: the average amount of information depending on some IR principles.
4	Very good disclosure: detailed information depending on many IR guiding principles
5	Excellent disclosure: comprehensive and detailed information depending on all IR guiding principles

Source: own framing

Table 14. Scoring system for readability and clarity of item

Score	Evaluation
0	Not clear (only text)
1	Poor presentation: (text, no figures e.g. graphs, photos or tables, and no document index)
2	Primarily qualitative presentation: (text and one-two figure e.g., graphs and tables and document index with few details)
3	Balanced presentation: The use of graphs, tables, and the narrative flow is balanced. Additionally, eliminate information duplication by making references to other parts of the report.
4	Very good presentation: very good employ of graphs and tables, a thorough index with hypertext links, and references to outside sources.
5	Excellent presentation: The narrative flow is connected to the charts, graphs, and index.

Source: own framing

Table 15: Scoring system for Conciseness.

Score	Evaluation
0	Not applicable
1	More than 200 pages
2	From 151 to 200 pages
3	From 101 to 150 pages
4	From 51 to 100 pages
5	Up to 50 pages

Source: own framing

Table 16: Scoring system for Accessibility.

Score	Evaluation
0	Not applicable
1	hard copy document.
2	the pdf version on the website.
3	Pdf version and summary of the report on the website.
4	web report: The report can be viewed online using the firm's website's pdf version and highly interactive HTML platform.
5	Highly accessible report contents via multiple channels: pdf version, HTML report, and access via LinkedIn, Twitter, and Facebook

Source: own framing

Table 17: Scoring system for Comparability.

Score	Evaluation
0	No comparison
1	Poor comparison: Compare with only previous year (only by numbers)
2	Insufficient comparison: Compare with 2-10 previous years (only by numbers)
3	Moderate comparison: Compare with 2-10 previous years and give an explanation.
4	Very good compression: Compare with 2-10 previous years and compare with different companies in the same sector and give an explanation.
5	Comprehensive comparison: Compare with 2-10 previous years; compare with different companies in the same and different sectors and give an explanation.

Source: own framing

4.5.4 Validity and reliability

For effective data analysis, coding, and statistical analysis, it is crucial to ensure that the data collection, transformation, and creation using content analysis ideas are dependable, accurate, and capable of being replicable. The validity of a study pertains to the degree to which a test accurately assesses the intended construct. The disclosure index employed in this study is derived from the IIRC, a well-recognized and highly regarded framework for integrated reporting. The indicators encompass all domains within the IR framework. All pertinent disclosures pertaining to both financial and nonfinancial matters are encompassed by the disclosure index. Furthermore, the disclosure index measures the quality of reporting taking both the quantity and quality-enhancing characteristics of the disclosure into consideration. This aligns with the two categories of prior research in disclosure studies - those that assess quality based on the extent of reporting and those that evaluate quality based on the characteristics of the disclosure. To improve the validity, the coding system should be evaluated by multiple experts in the relevant field (Bryman and Bell, 2003). Therefore, a different independent researcher, who possesses expertise in integrated reporting and is knowledgeable in both financial and non-financial reporting, carried out this evaluation of IRBSC.

With respect to the reliability of the analysis, Kaplan and Goldsen (1965, cited in Krippendorff, 2018) emphasize that reliability is crucial because it ensures that the data collected are not influenced by the specific event, instrument, or individual involved in the measurement process. Three designs exist for assessing the reliability of data produced by content analysis, corresponding to the three forms of stability, accuracy, reliability, and replicability (Krippendorff, 2018). Nevertheless, every fluctuation in dependability quantifies the degree of coding consistency and concurrence with the content analysis investigation. A technique involves retesting the samples by swapping coding sheets with other coders. Another method advocated in the literature is assessing internal agreement and data consistency through the estimation of reliability. An estimate is calculated using either the agreement coefficient alpha or Krippendorff's alpha.

Another method employed in our analysis to assess reliability is "test-retest stability." A subsequent random sample was chosen from the population of the study after the initial results had been obtained and confirmed, and it yielded identical outcomes. Reliability primarily focuses on the trustworthiness and validity of the study's findings (Collis and Hussey, 2013). Therefore, the IRQBSC index is dependable.

4.5.5 Content analysis

The current study utilizes content analysis as a methodological approach to gather and systematize data from annual reports. Berelson's initial definition of content analysis, as referenced by Krippendorff (2004, p. 25), might be characterized as a research methodology employed to depict the explicit content of information objectively, systematically, and quantitatively. Nevertheless, Krippendorff diverges from this definition by emphasizing the importance of reliability, replicability, and validity in content analysis. When it comes to applying content analysis in disclosure studies, the process varies based on the questions and study purpose. According to (Loughran and McDonald, 2011, relevant material is retrieved and transformed into a quantitative measure, enabling the execution of a statistical analysis. Content analysis has been the approach of choice for gathering data on disclosures in the last 20 years for a large body of work on corporate financial and nonfinancial reporting (Guthrie & Abeysekera, 2006).

Using content analysis, numerous research has examined the relationship between objectively assessed quality and the performance or valuation of firms (Needles et al., 2016; Eccles et al., 2014; Baboukardos and Rimmel, 2016; Li et al., 2018). For example, according to certain content analysis investigations (Frías-Aceituno et al., 2013; Alfiero et al., 2018; Hooks and van Staden, 2011; García-Sánchez et al., 2013), reporting quality was associated with corporate governance through the employing of subjective external indicators and scores. In further investigations, others employed a calculation-based rating to assess the levels of conciseness, complexity, and readability. These studies utilized either the Fog or Flesch index scoring system (Li, 2008; Melloni et al., 2016). Primarily, Content analysis can be conducted by manual methods or by utilizing specialized software tools, such as Sustainability 2020, Wordstat 7, Nvivo, or TLab. During the process of manual content analysis, a structural index and score system are developed to facilitate the document assessment process. The selection of an appropriate index structure is contingent upon the research issue at hand and will involve the evaluation of many factors derived from the pertinent record(s). The evaluations commonly entail the participation of multiple scholars who engage in co-coding the documents using a pre-established framework of reviews, validations, and dependability (Krippendorff, 2018; Beattie, 2014).

The scoring methodologies may exhibit variability, ranging from a straightforward binary approach, where a score of one is assigned if the item is present, and a value of zero is assigned if it is not (; Holt et al., 2015). Another scoring system is a classification system that assigns ordinal scores to the extent of disclosure, encompassing factors such as level of detail, scope, and linkage to financial key performance indicators (KPIs) that augment the value of the given information. In the realm of this field of study, it is possible to discern the existence of two primary categories of rating systems. The initial category, as proposed by Wiseman (1982), employs a scoring system ranging from 0 to 3 points, advocating for the utilization of disclosure methods including monetary or quantitative information as the preferable mode of disclosure. This assertion aligns with the findings of Gray et al. (1995a), who suggest that the quality of numerical disclosure, encompassing financial as well as additional numerical data, surpasses that of declarative disclosure. The second category, as proposed by Clarkson et al. (2008), employs a scoring system that assigns a value ranging from 0 to 6 points to each disclosure element. The score is determined based on the number of aspects contained in each disclosure, without any variation in weights assigned to the dimensions.

An alternative approach to manual scoring involves the utilization of a weighted index, wherein distinct aspects of the index are assigned certain weights. The greater the weight assigned to an evaluate, it indicates how significant it is in determining the overall evaluation standards. The present study employed manual content analysis as the primary methodological approach, without utilizing any specialized tools. This is due to the intricate nature of the information pertaining to IR, which may not be effectively articulated in the report, hence posing a challenge for these tools to consistently process (Cosma et al., 2018). In content analysis, creating a goal-oriented coding tool to measure the quantity and quality of disclosure is the most significant task. According to Guthrie and Abeysekera (2006), the utilization of a well-defined coding instrument greatly improves the dependability of content analysis. The coding instrument or disclosure checklist utilized in this study is constructed using the elements of the content, fundamental concepts and guiding principles outlined in the IR Framework that was established by IIRC in 2013, as presented in the pervious sections.

4.6 Study variables and Model Specification

This subsection examines the variables utilized in the current study for its investigation. Independent, dependent, and controlling variables are outlined in Table 18 (see in Appendices) in addition to their measuring methods based on prior studies.

4.6.1 Dependent variable

Current study's dependent variable is IRQ, to obtain IR quality score, this study uses self-constructed balanced scorecard which measures quality by focusing on four different perspectives (financial, stakeholders, internal and learning and growth perspectives), that is balanced the financial and nonfinancial disclosure. Each perspective in the integrated reports is assessed independently, with its own score determined by the number of items it encompasses and the appropriate scoring system. As an illustration, the cumulative score for financial perspectives is 15, whereas it is 44 for stakeholders' perspectives, 41 for internal perspectives, and 15 for four different perspectives (financial, stakeholders, internal and learning and growth perspectives. The integrated reports' quality score is determined by the sum of the scores from the four identified perspectives, allowing each report to achieve a maximum score of 115.

4.6.2 Independent variables

The independent variables consist of 12 variables that are related to the internal and external governance mechanisms. The initial independent variable, as defined by Wang and Hussainey (2013), is the board size, which encompasses the total number of directors, both executive and non-executive, who possess the authority to impact the governance and effectiveness of the board (Chouaibi et al., 2022). The second factor is board independence, which refers to non-executive directors' proportion on the board (Cooray, et al., 2020). Furthermore, board diversity is regarded as the third independent variable in this analysis. To measure board diversity, the study employed the percentage of female directors as a proxy (Marrone, 2020). It is a governance technique that has been previously studied in connection to the quality of disclosure. According to Songini et al. (2021), women are perceived to exert significant effort in bolstering a business's reputation through their emphasis on social problems. Following that, the analysis explores the influence of the Board of Directors members' expertise on IRQ. Board expertise is determined by the ratio of board members with financial or accounting knowledge to the total number of board members (Alshirah, et al., (2022). In addition, our analysis considers the Board of Directors' meetings to be a crucial governance element. The meeting frequencies were measured by Qaderi et al. (2022) using board meetings number.

The study focused on the features of the Audit committee, specifically the Audit committee Size (AC). This variable is commonly defined in the literature as members number on the audit committee at the conclusion of the fiscal year (Al Lawati, et al., 2021; Raimo, et al., 2021). Furthermore, it is presumed that the presence of independent audit committee members is one of the corporate governance elements that have an impact on IRQ. According to Al Lawati, et al. (2021) and Raimo, et al. (2021), the composition of an audit committee is assessed based on of independent non-executive directors' proportion serving on the committee.

Moreover, the gender diversity of the Audit Committee is a governance mechanism that has an impact on transparency and disclosure, as stated by Raimo et al. (2021). Our analysis utilises the ratio of female members on the audit committee (females' number on the audit committee divided by the total number of audit committee members) as a metric for measuring gender diversity. In our analysis, we employed audit committee expertise as an independent variable and measured it as a binary variable. Specifically, we assigned a value of 1 if the audit committee possessed expertise member, and 0 otherwise (Al Lawati et al., 2021). Furthermore, the frequency of AC meetings serves as an internal governance mechanism that evaluates the AC's dedication to its duties and effectiveness (Gebrayel et al., 2018). Hence, we incorporate it into our study and quantify it based on the frequency of committee meetings conducted throughout the year. Finally, we examined two external governance variables, specifically the proportion of shares available for public trading (free float shares) and the type of external audit firm. The term "free float variable" refers to the proportion of shares that are available for trading by ordinary investors. This definition has been provided by Preuß et al. (2019) and Abdel Megeid and Abd Elmageed (2020). Furthermore, there are two distinct classifications of external audit firms. The initial group comprises the four prominent auditing firms known as the Big 4: Deloitte, PWC, EY, and KPMG. The second category consists of auditing companies that are not part of the Big-4. External auditing is an external governance strategy that management can employ to enhance disclosure and transparency (Fernandez-Feijoo et al., 2018). Consequently, we treat the type of external auditor as a binary variable, taking the value of 1 if the external auditor belongs to the big4 group and 0 otherwise.

4.6.3 Control variables.

To mitigate any biases in the association between the IR quality and independent variables, 13 control variables are incorporated into the regression analysis. The groups are categorized as company controls, which encompass Size, Leverage, growth prospects, Profitability, Liquidity, and the Sustainability / CSR committee (CSRCOM). The second category is Country Control, which encompasses the measurement of the Culture System using the six Hofstede elements, as well as the measurement of the Economic System using GDP. When determining the independent variables, the control variables are either derived from earlier research or demonstrate a strong link with IRQ. Like the independent variables, all control variables are derived from the Bloomberg database, or they are manually collected from the World Bank website or Hofstede insights. Table 18 (see in Appendices) contains comprehensive variable descriptions and origins.

Agency theory, legitimacy theory, and stakeholders' theory all indicate that **firm size** has a big impact on voluntary disclosure practices. According to de Villiers et al. (2017), larger firms tend to exhibit greater social responsibility and a better corporate image because they are more visible to the public, participate in many initiatives and activities, and have a great social impact.

Regarding the quality of IR, there have been suggestions that the size of a firm plays a significant role in determining the quality of integrated reporting (De Villier, 2014; Barth et al., 2017; Ghani et al., 2018; García-Sánchez and Noguera-Gámez, 2017; Haji and Anifowose, 2016). On the other hand, Malola and Maroun's (2019) findings indicated that the firm's size does not always influence IR quality. The firm size (S_SIZE) was determined by taking total assets' natural logarithm of the firm, as per earlier research (Kilic and Kuzey, 2018; Ghani et al., 2018; Vitolla et al., 2020).

One important aspect impacting disclosure practices is financial leverage, especially when it comes to non-financial disclosure. Studies suggest that the IRQ is impacted by financial leverage. Still, there are contradictory results. Studies by Kilic and Kuzey (2018), Eng and Mak (2003), and Dilling & Caykoylu (2019) indicate that high leverage businesses generate IR of lower quality, but Vitolla et al. (2020) indicates that these businesses score higher on the IRQ. Consequently, as demonstrated by earlier research, LEVERAGE is incorporated and measured by the ratio of total financial debt to total assets. While Cohen et al. (2012) discovered an inverse association between integrated reporting and business success, Ernst and Young (2014) identified a substantial correlation between IR quality and firm growth. Therefore, opportunities for growth are included and measured by the natural logarithm of the market-to-book ratio since it is assumed that they may have an impact on the relationship between government features and IRQ.

Higher profitability firms are thought to be more eager to divulge information, which is a key component in deciding the quality of reporting, according to signaling theory. As a result, profitability as expressed in ROE is included since previous research indicates that profitability can have an impact on how corporate governance characteristics and disclosure practices interact. (Ahmed Haji, 2015; Anifowose and Ahmed Haji, 2016) However, prior studies show a favorable relationship between improved financial performance and integrated report quality (IRQ) and corporate profitability.

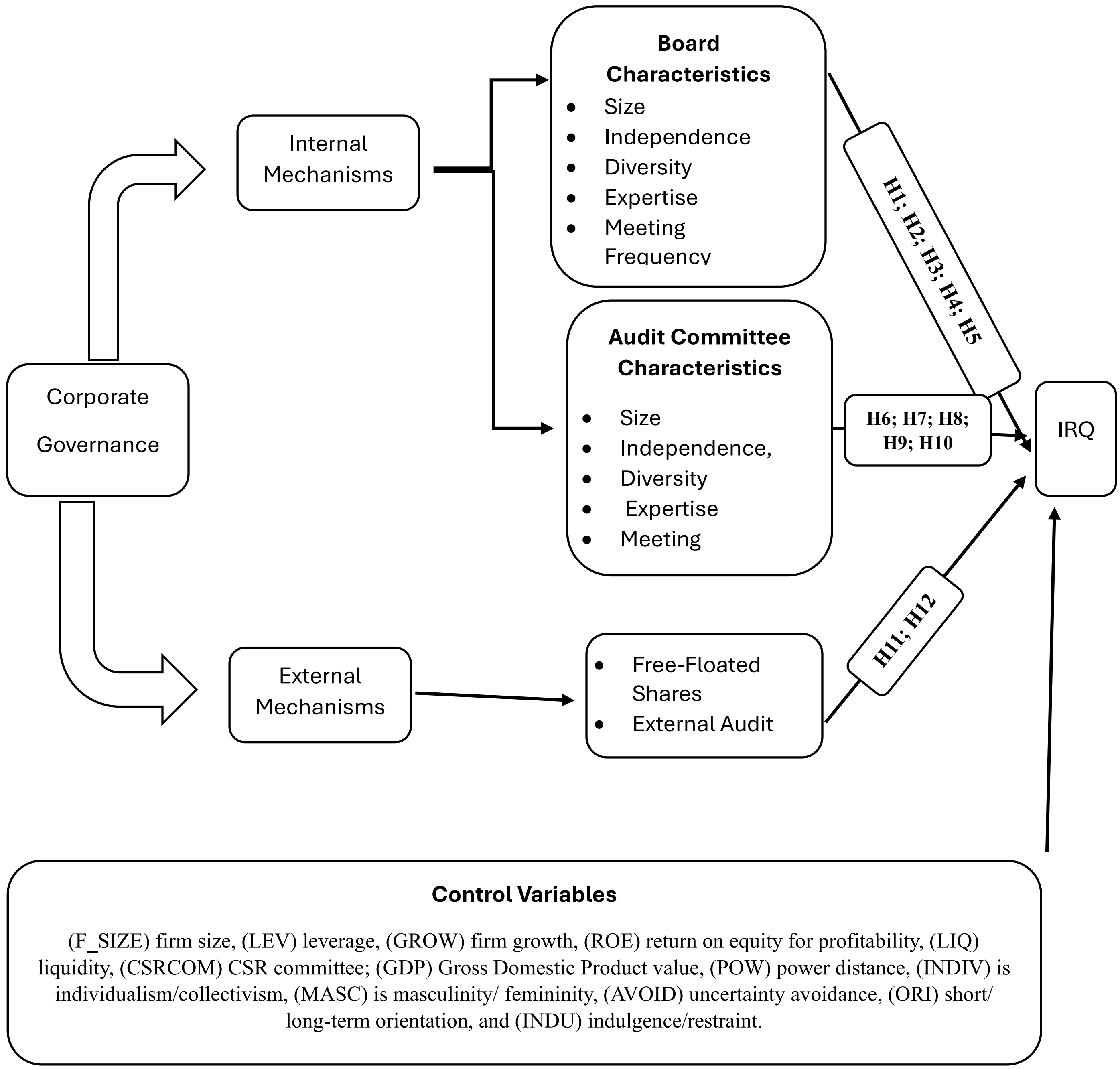
Prior research has repeatedly demonstrated that the liquidity of a corporation has a significant influence on the quality of voluntary disclosure. Fang et al. (2009). Currently, there is a lack of research that precisely investigates the impact of liquidity on IR quality. However, other studies have explored and confirmed the inverse correlation between IRQ and enterprises' liquidity, as demonstrated by Barth et al. (2017) and Caglio et al. (2020). Consequently, it is encompassed and quantified by the current ratio is calculated by dividing current assets by current liabilities. Additionally, establishing a sustainability committee is optional, but it improves other governance elements (Raimo et al., 2020). Ahmed Haji and Anifowose (2016) support this finding about IRQ by demonstrating a favorable correlation between IRQ and the presence of a sustainability committee. Lastly, a dummy variable was adopted to assess the sustainability committee existence (CSRCOM). If the organization had a sustainability or CSR committee, the value would be "1," and if not, it would be "0".

Furthermore, past research has indicated that country-level governance components have a significant influence on the association between IR quality and corporate governance. Hence, these elements were incorporated into the analysis as control variables. In this sense, the economic condition has a significant impact on the corporate behaviors of a corporation (Granovetter, 1985). The economic state is quantified by taking the natural logarithm of the Gross Domestic Product (GDP). Similarly, earlier archival research on IRQ has included Hofstede's cultural dimensions (feminist, power distance, indulgence, long-term orientation, collectivism, and uncertainty avoidance). According to the literature, a nation's culture influences business performance and shapes firms' integrated reporting strategy (Garcia-Sánchez et al., 2013; Vaz et al., 2016).

4.7 Model specification.

To evaluate the correlation between the chosen corporate governance attributes and IRQ, a multiple regression analysis was conducted. As presented in figure 6, the research hypnoses are summarized to be tested by regression analysis. Prior to doing the multiple regression analysis, diagnostic tests were conducted on the data to identify and address issues such as Normality, multicollinearity, heteroscedasticity, and autocorrelation. This was done to prevent any misleading results and to ensure the compatibility of the data.

Figure 5: Research Model.



4.7.1 Normality

Regression analysis necessitates that errors (residuals) exhibit a normal distribution. The normal distribution is symmetric and displays a bell-shaped curve. If the results demonstrate non-normal distribution of the variables, the regression analysis may yield inaccurate or deceptive outcomes. The normality of the data will be assessed by performing P-P plots and examining the histogram, with the expectation that the distribution will resemble a bell-shaped curve.

The findings of the normalcy analysis will be provided in the following chapter. This test has been widely employed by numerous researchers in studies pertaining to disclosure, as exemplified by Ibrahim (2017). The normality assumption is deemed to be met in this study for many reasons. Based on the analysis of P-P plots and histograms, it can be determined that there is no evidence of any deviation from the normality assumption for all the dependent variables, as shown in figure 6 and 7. Graphically, heteroscedasticity is tested by drawing residuals versus predicted values (Residual-versus-fitted plot). The plot confirms the existence of Homoscedasticity as shown in figure 8.

Figure 6: Histogram for Normality

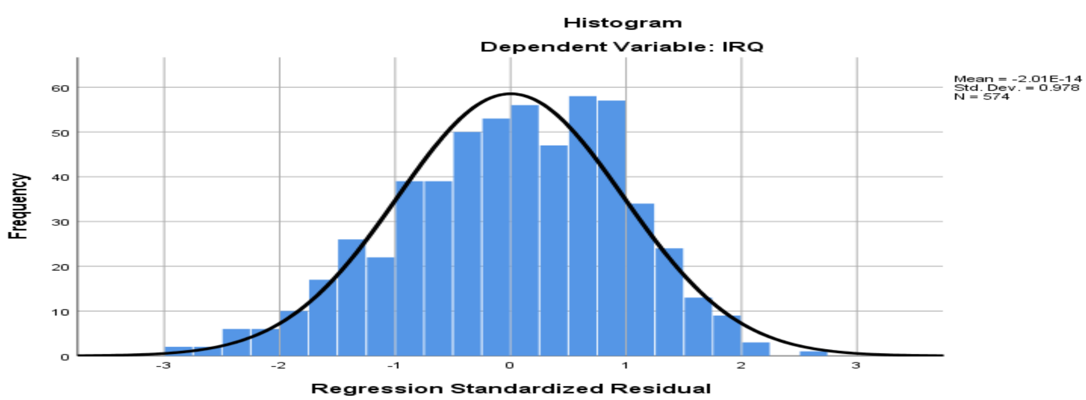


Figure 7: The P- P Plots for Normality

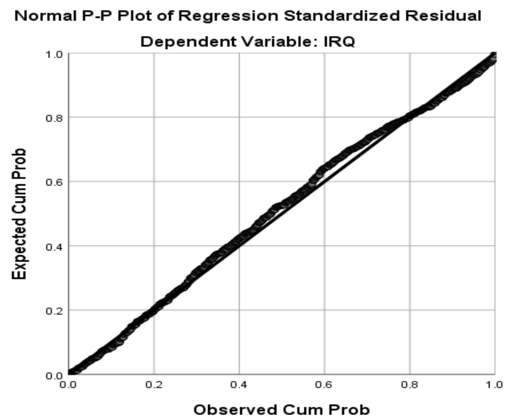
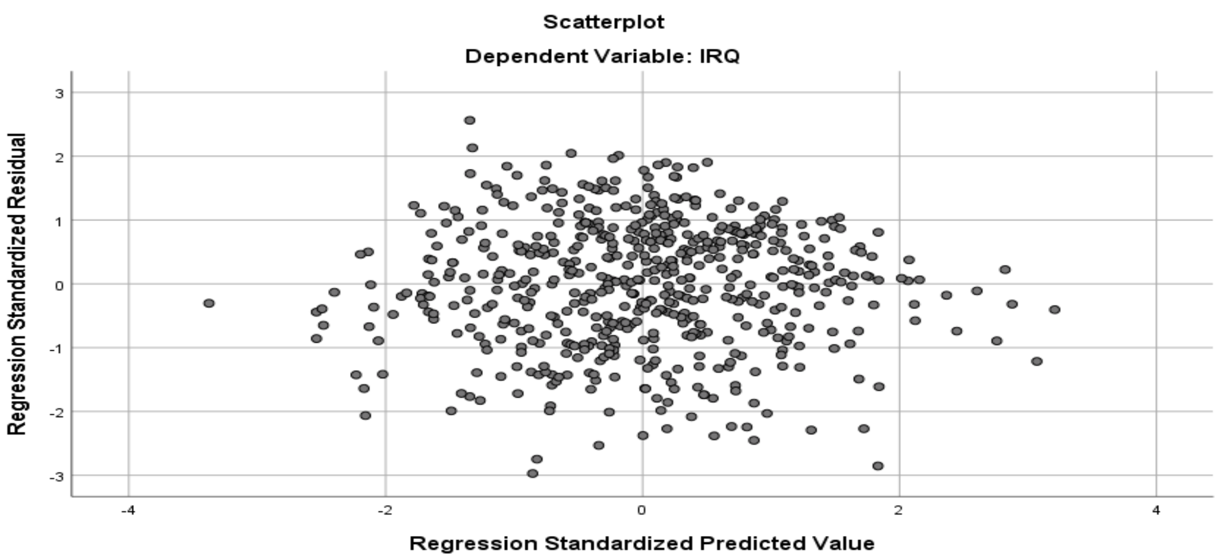


Figure 8: The Residual-versus-fitted Plot for Heteroscedasticity



4.7.2 Multicollinearity

According to Field (2009), Multicollinearity is defined as the presence of a significant association between two or more variables in a regression model. This study included Pearson Correlation to identify the issue of multicollinearity.

4.7.2.1 Pearson Correlation

A Correlation Matrix can be generated for all independent variables to assess the strongest correlation. The Pearson Correlation Test is a parametric statistical method, whereas the Spearman Correlation Test is a non-parametric statistical method. Both tests are more advanced versions of the correlation matrix, as they not only provide information about the correlations between variables, but also indicate the significance of these correlations. If the correlation between any two independent variables exceeds 80%, it indicates a significant issue of collinearity (Ho & Wong, 2001; Gujarati & Porter, 2009). Field (2009) asserts that a correlation exceeding 0.80 or 0.90 between any two predictors indicates a significant issue, while Hair et al. (2014) views a correlation of 0.90 or higher as major collinearity.

4.7.2.2 Regression analysis

Following previous studies in integrated reporting such as Chouaibi et al., (2022), heteroscedasticity presence was assessed using the Breusch–Pagan/Cook–Weisberg test, which yielded a negative result, indicating the absence of this issue as shown in figure 9. Hence, this study employed multiple regression as it was an appropriate methodology capable of yielding more dependable estimations and unbiased standard errors.

$$IRQ_{i,t} = \beta_0 + \beta_1 B\_SIZE_{i,t} + \beta_2 B\_INDEP_{i,t} + \beta_3 B\_DIV_{i,t} + \beta_4 B\_EXP_{i,t} + \beta_5 B\_MF_{i,t} + \beta_6 AC\_SIZE_{i,t} + \beta_7 AC\_INDEP_{i,t} + \beta_8 AC\_DIV_{i,t} + \beta_9 AC\_EXP_{i,t} + \beta_{10} AC\_MF_{i,t} + \beta_{11} FREE\_F_{i,t} + \beta_{12} EA\_SIZE_{i,t} + \beta_{13} F\_SIZE_{i,t} + \beta_{14} LEV_{i,t} + \beta_{15} GROW_{i,t} + \beta_{16} ROE_{i,t} + \beta_{17} LIQ_{i,t} + \beta_{18} CSRCOM_{i,t} + \beta_{19} GDP_{i,t} + \beta_{20} POW_{i,t} + \beta_{21} INDIV_{i,t} + \beta_{22} MASC_{i,t} + \beta_{23} AVOID_{i,t} + \beta_{24} ORI_{i,t} + \beta_{25} INDU_{i,t} + \varepsilon_{i,t}$$

Where, IRQ: Quality of Integrated reporting, B_SIZE is the board size, B_INDEP is the board independence, B_EXP is the board expertise and B_MF is the board meeting frequencies. Also, AC_EXP is the audit committee size, AC_INDEP is the audit committee independence, AC_DIV is the audit committee diversity, β_9AC_EXP is the audit committee expertise and AC_MF is the board meeting frequencies, Further, FREE is the free float shares, EA_SIZE is the external audit type. F_SIZE is the firm size, LEV is financial leverage, GROW is the growth opportunity, ROE is the profitability, LIQ is the liquidity, CSRCOM refers to the sustainability or CSR committee. Further, GDP is the Gross domestic product, POW is the power distance, INDIV is the individualism, MASC is the masculinity, AVOID refers to uncertainty avoidance, ORI is long-term orientation, INDU is indulgence,

4.8 Chapter summary

The study approach that was utilized in the current investigation was effectively discussed in this chapter, which gave a logical explanation. To begin, the research questions that our investigation is attempting to address were the starting point. The second part of the chapter was devoted to the discussion of data collection methods. This section included an in-depth examination of the procedure of sample selection as well as the sources for data gathering. Additionally, this work offers a comprehensive explanation of the self-constructed index that was used to evaluate IR quality. This study also explains how the researcher utilized the balanced scorecard in the process of index building. Additionally, the grading system that was chosen has been reviewed in depth. In conclusion, the variables that our inquiry utilized are explained in detail, together with their supporting evidence from previous studies and its measurements, as well as the appropriate statistical model that was utilized in our analysis.

Chapter five: Research Results and Discussion

5.1 Introduction

The empirical measurement of integrated reporting quality and identification of its determinants in EU-listed firms is crucial, as has been discussed in previous chapters. Thus, this study aims to contribute to existing literature and address the research gap by assessing IRQ using a balanced scorecard as a novel approach and investigating its determinants. The focus is on evaluating the quality of integrated reports in European Union-listed firms from 2013 to 2020. In this chapter, we answered the research questions and conducted an investigation to evaluate the hypotheses that have been extensively covered in previous chapters. For this purpose, the current chapter is divided into four key parts: the first part presents the results of the descriptive analysis of measuring IRQ, while the second part presents the results of descriptive analysis, Pearson correlation analysis, and regression analysis of determinants of IRQ; the third part illustrates the discussion of the results; and finally, a summary of this chapter.

5.2 Descriptive Analysis of assessing the IRQ in the European union listed firms.

The descriptive statistics of IR Quality are shown in Table 19. The statistics from 2013 to 2020 show the average, median, and standard deviations of four main perspectives for European institutions: financial, stakeholder, internal, and learning and growth. As shown in table 19, IR quality has steadily increased from 49.03 percent in 2013 to over 77% in 2020, with the highest averages recorded in 2020 (77.17%) and 2019 (74.15%), attributed to the largest number of integrated reports adopted by European institutions (139 in 2020 and 120 in 2019).

Table 19 also reveals that 2018 has the second highest mean (70%), with only 111 out of 656 IRs adopted by European institutions. Simultaneously, the table also shows that the third-highest averages (66.72% with 90 IRs and 62.31% with 80 IRs) were documented in 2017 and 2016, respectively. Meanwhile, both 2015 and 2016 had 60 and 35 adopted IRs with the fourth-highest averages of 59.83% and 52.17%, respectively, while, in 2013, 20 out of 656 IRS were adopted, with the lowest average of 49.03%, as the IIRC established the IR framework. Further, the empirical results show that the quality of financial item disclosure, stakeholder item disclosure, internal item disclosure, and learning and growth perspective disclosures have all improved over time. Financial item disclosure quality increased from 50% to 85% between 2013 and 2020, stakeholder item disclosure from 50% to 70%, internal item disclosure from 49.4% to 75%, and learning and growth perspective disclosure from 41% to 85%. Table 20 provides statistical data on the average of four major financial, stakeholder, internal, and learning and growth perspectives among European-listed institutions. Financial item disclosure quality scores 11.19 out of 15, with significant differences between nations. Italy has the highest mean, followed by Hungary, Sweden, Estonia, and Austria. This may be due to the low number of reports examined, as these countries have only one company preparing integrated reporting, resulting in a lower level of quality. The stakeholder perspective reveals an average disclosure quality of 63.6%, with Italy, Portugal, and Spain having the highest rates at 30 out of 44, while Hungary, Sweden, Estonia, and Austria have the lowest average disclosure quality. The Netherlands, Portugal, Italy, and Luxembourg exhibited the highest average quality of internal disclosure, scoring 28 out of 41, focusing on business models and corporate governance. Similarly, the Netherlands had the highest mean in learning and growth perspectives (12.362), followed by Italy and Portugal with the same averages (12.333). Hungary had the lowest averages in financial perspectives (12.362) and learning and growth perspectives (12.362). Estonia and Austria had the lowest averages in stakeholder and internal perspectives (16.8 and 20.375, respectively). As a result, the financial perspective (74.46%), learning and growth (73.2%), internal (68.29%), and stakeholder (63.6%) achieved the highest average quality.

Table (19): Descriptive results for the total scores per year from 2013 to 2020.

Years	2013			2014			2015			2016		
Perspectives	Mean	Std. Deviation	Median	Mean	Std. Deviation	Median	Mean	Std. Deviation	Median	Mean	Std. Deviation	Median
Financial perspectives	7.5556	2.52569	7	7.7778	2.28174	8	9.4828	2.0625	9	9.9487	2.16763	9.5
Stakeholder perspectives	22.1111	3.8023	23	22.8333	6.97956	22	25.466	4.5314	26	26.744	4.60501	27
internal perspectives	20.4444	5.30507	20	22.4167	7.02801	22.5	24.535	4.4296	24.5	25.359	4.71795	26
learning and growth perspectives	6.2778	2.84513	6	6.9722	2.77217	7	8.8103	3.0976	9	9.6154	3.26425	9
Total average	56.3889			60			68.2941			71.6671		
percentage	49.03%			52.17%			59.38%			62.31%		

Table (19): Descriptive results for the total scores per years from 2013 to 2020 (Continued)

Years	2017			2018			2019			2020		
Perspectives	Mean	Std. Deviation	Median	Mean	Std. Deviation	Median	Mean	Std. Deviation	Median	Mean	Std. Deviation	Median
Financial perspectives	10.979	2.2617	11	11.523	2.40396	12	12.2667	2.39303	13	12.856	2.24435	13
Stakeholder perspectives	28.094	4.4298	28.5	28.856	4.37108	29	30.1917	4.31003	31	31.281	3.9819	32
internal perspectives	26.833	4.7188	27.5	28.469	4.70362	28	30.5167	4.48898	30	31.82	4.90674	33
learning and growth perspectives	10.823	3.1322	10.5	11.64	3.14149	12	12.3083	3.00083	13	12.791	2.78317	14
Total average	76.729			80.488			85.2834			88.748		
percentage	66.72%			70%			74.15%			77.17%		

Table (20): Descriptive results for the total scores per European union countries (147 firms and 655 observations from 2013 to 2020).

	Financial Perspective			Stakeholder Perspectives			Internal Perspectives			Learning and Growth perspectives		
Country	Mean	Std. Deviation	Median	Mean	Std. Deviation	Median	Mean	Std. Deviation	Median	Mean	Std. Deviation	Median
Poland	10.7586	2.37028	11	29.2069	2.93232	29	27	5.0639	27	10.552	3.00697	11
Sweden	9.5	1	9	27	1.41421	27.5	21.25	2.0616	21	6.75	1.25831	7
Spain	11.2825	2.65205	11	29.2825	4.59735	30	28.565	5.3255	29	10.209	3.61442	10
Portugal	8.8889	1.76383	9	30.4444	2.18581	30	29.667	2.8723	30	12.333	1.87083	13
Netherlands	11.8362	2.76608	12	29.1121	5.0213	29	30.276	5.403	31	12.362	3.14407	14
Luxembourg	11.619	2.39742	11	26.5238	5.76731	29	28.191	6.0879	28	12.143	3.24478	14
Italy	13.0702	2.28238	14	30.9123	4.81545	32	31.474	4.6984	32	12.333	2.95401	14
Ireland	10.8571	2.0354	11	23.4286	3.59894	24	26.571	3.1015	28	9.4286	3.20713	10
Hungary	8	.	8	24	.	24	25	.	25	4	.	4
Greece	12.45	2.74293	13	29.65	3.26505	30.5	30.1	3.7543	30	12.6	3.51538	15
Germany	10.4444	2.22457	10	25.5185	5.98954	25	27.815	4.6825	27	9.2963	3.78067	9
France	10.4341	2.69213	11	28.6512	4.25303	29	25.07	5.513	25	11.209	3.54585	12
Finland	11.3846	2.10311	11	25.4615	3.17845	25	25.923	4.3868	27	10.923	1.84669	12
Estonia	8.8	0.44721	9	16.8	0.44721	17	24.2	0.8367	24	6.2	0.44721	6
Denmark	10.8889	2.26078	10	23.2222	3.83333	23	27.333	7.8422	26	9.5556	3.64387	9
Czechia	12.5	2.12132	12.5	35	2.82843	35	32	4.2426	32	14	1.41421	14
Belgium	9.3333	1.93218	9	23	3.94968	24	25.381	5.0048	26	8.5714	2.08738	9
Austria	8.625	1.40789	8.5	23.75	2.12132	24.5	20.375	2.5036	21	8.375	0.74402	8.5
Total	11.1908	2.68964	11	28.4595	4.95155	29	28.017	5.6358	28	10.986	3.50205	12

Table 21 presents data on the averages of four key categories of financial, stakeholder, internal, and learning and growth perspectives per sector for EU-listed firms. Despite 48 observations, only 9 companies have adopted an IR framework. Table 21 reveals that the utilities sector has the highest averages for financial perspective (11.9375), stakeholder perspective (30.667), and internal perspective (29.8542), while technology, basic materials, and real states have the lowest averages. Furthermore, the financial sector had the highest average in learning and growth, while the healthcare sector had the second lowest. Generally, the industrial sector has the highest number of businesses adopting IR and observations, but utilities have the highest average quality. The financial industry ranks second in releasing integrated reports and observations and middle in quality. The real estate and basic materials sectors have the lowest quality averages of the four perspectives.

Table (21): Descriptive results for the total scores per sectors (147 firms and 655 observations from 2013 to 2020)

	Financial perspective				Stakeholder perspective				Internal perspective				Learning and growth perspective			
Sector	Mean	N	Std. Deviation	Median	Mean	N	Std. Deviation	Median	Mean	N	Std. Deviation	Median	Mean	N	Std. Deviation	Median
Industrials	11.0195	154	2.658	11	27.7468	154	5.53605	27.5	10.6039	154	3.3498	10	28.4351	154	4.57605	29
Financials	11.5182	137	2.76826	12	28.1825	137	6.02229	29	11.9854	137	3.39763	14	28.9343	137	5.78945	30
Consumer Discretionary	10.6349	63	2.56088	10	28.2063	63	4.59017	28	10.4603	63	3.1969	10	27.9365	63	4.32872	28
Utilities	11.9375	48	2.77838	12	29.8542	48	5.57345	30.5	11.125	48	3.72242	12.5	30.6667	48	3.95901	31.5
Energy	10.9773	44	2.82422	11	29.4773	44	5.24067	29.5	10.3864	44	3.79851	10.5	29.4545	44	4.75666	29.5
Consumer Staples	11.7619	42	2.16186	12	29.1429	42	4.07593	29	11.5476	42	3.32179	12	27.0952	42	4.19529	26.5
Telecommunications	11.4474	38	2.89172	11	27.4211	38	6.7569	29	10.2368	38	3.94855	10	28.4474	38	5.451	29.5
Technology	10.6216	37	2.50944	11	27.3784	37	5.55953	28	10.7568	37	3.81084	12	27.4324	37	5.66441	29
Basic Materials	10.8286	35	2.73846	10	27.3714	35	5.59457	27	10.2	35	3.47089	9	26.8	35	4.75766	25
Health Care	11.3793	29	2.75699	12	27.6897	29	6.01251	27	11.2759	29	3.14979	12	27.2069	29	4.48314	28
Real Estate	10.6429	28	2.65573	10	23.9286	28	5.45642	24.5	11.25	28	3.5132	12	28.8929	28	4.31483	28.5
Total	11.1908	655	2.68964	11	28.0168	655	5.63584	28	10.9863	655	3.50205	12	28.4595	655	4.95155	29

As shown in Table 22, there is a positive correlation between financial perspectives and learning and growth perspectives, with a correlation of.813, and that disclosure of stakeholder-related items positively impacts financial, internal, and learning perspectives. Table 25 and Table 23 present the averages of IRQ for each category of 147 European listed firms from 11 different industries, based on 655 firm-year observations between 2013 and 2020. The results reflect that financial and learning and growth perspectives had the highest quality of disclosure (74.6% and 73.2%, respectively), followed by internal perspectives (68.3%), and the stakeholder perspective scored the lowest (64.68%), suggesting an average level of IR quality for the sampled firms.

Table (22): Correlations between Four Perspectives.

Correlations					
		Financial perspectives	Stakeholder perspectives	Internal perspectives	Learning and growth perspective
Financial perspectives	Pearson Correlation	1	.677**	.682**	.813**
	Sig. (2-tailed)		0	0	0
	N	655	655	655	655
Stakeholder perspectives	Pearson Correlation	.677**	1	.640**	.741**
	Sig. (2-tailed)	0		0	0
	N	655	655	655	655
Internal perspectives	Pearson Correlation	.682**	.640**	1	.648**
	Sig. (2-tailed)	0	0		0
Learning and growth perspective	Pearson Correlation	.813**	.741**	.648**	1
	Sig. (2-tailed)	0	0	0	

Table (23): Descriptive for total scores (147 firms, 655 firm-year observations between 2013 to 2014, unbalanced panel)

	Financial perspectives	Stakeholder perspectives	Internal l perspectives	Learning and growth perspective
Mean	11.1908	28.4595	28.0168	10.9863
N	655	655	655	655
Std. Deviation	2.68964	4.95155	5.63584	3.50205
First	13.00	32.00	26.00	15.00
Median	11.0000	29.0000	28.0000	12.0000
Last	10.00	25.00	23.00	9.00

Minimum	4.00	12.00	11.00	2.00
Maximum	15.00	39.00	40.00	15.00
Skewness	-.229	-.579	-.312	-.399

5.3 Results analysis of Examining IRQ determinants.

The hypotheses pertaining to the integrated reporting quality were tested in this section using the governance-collected data and the results acquired from the previous section. The relevant statistical tests were done for this purpose.

5.3.1 Descriptive statistics:

Descriptive statistics is a crucial analysis that aids in uncovering, delineating, and summarising the key characteristics of the gathered data, as well as identifying any potential anomalies in the data. Prior to performing any variable transformations, this analysis is more advantageous because these operations alter the primary characteristics of the data and render the modified data unintelligible. The analysis was conducted by previous studies, such as Hermann et al. (2003), Rajab (2009), Elshandidy (2011), and Ibrahim (2012), without any data alteration. Table 24 shows descriptive statistics for all variables examined in listed firms in the European Union, including number of observations, mean, standard deviations, minimum, and maximum values. For example, the dependent variable, Table 24 reveals that the mean value of integrating reporting quality (IRQ) for listed firms in the European Union is 78.53, with standard deviations of 14.885, and a maximum and minimum value of 107, 34 respectively.

Table 24: Descriptive statistics

	N	Mean	Std. Deviation	Maximum	Minimum
IRQ	574	78.53	14.885	107	34
B_SIZE	574	11.14	4.387	26	3
B_INDEP	574	56.069	25.377	100	0
B_DIV	574	28.682	14.745	66.67	0
B_EXP	574	33.68	18.207	92.86	0
B_MF	574	9.64	4.216	39	2
AC_SIZE	574	4.17	.937	8	3
AC_INDEP	574	69.78	27.19	100	0
AC_DIV	574	44.29	8.939	75	20
AC_EXP	574	.78	.418	1	0
AC_MF	574	4.41	1.492	10	2
FREE_F	574	66.5	21.871	95	10
EA_SIZE	574	.95	.216	1	0
F_SIZE	574	7.26	.929	9.73	4.35
LEV	574	26.96	19.458	183.23	0
GROW	574	2.226	4.472	57.4	-50.92

ROE	574	9.920	28.0554	214	-498.8
LIQ	574	1.37	.7009	6.32	0
CSRCOM	574	.82	.383	1	0
GDP	574	4.538	.144	4.8	4.09
POW	574	53.74	13.436	68	11
INDIV	574	64.53	12.880	80	27
MASC	574	41.91	17.512	88	5
AVOID	574	77.46	16.118	100	23
ORI	574	57.29	12.335	83	28
INDU	574	48.17	12.516	78	16

5.3.2 Pearson Correlation Analysis

The correlation test provides an indication of the direction, significance, and strength of any existing relationship, as well as the prospective correlations among all model variables. This test aids in the diagnosis of the multicollinearity issue and offers preliminary correlation data. Gujarati and Porter (2009) argue that high correlations between variables can cause multi-collinearity issues, making it difficult to trust estimates and regression significance. The Pearson correlation matrix, which evaluates the linear relationship between variables, can identify this issue (Alotaibi and Hussainey, 2016). Meanwhile, it is stated that variables with a correlation greater than 0.80 are highly correlated, while multi-collinearity is acceptable if correlation coefficients are less than 0.80 (Gujarati and Porter, 2009). All of the variables in Table 25 have Pearson coefficients less than 0.80, except for power distance POW and uncertainty avoidance AVOID (0.861), which means there are no problems with multicollinearity. Pearson correlation analysis was used to look at the correlation between the quality of integrated reporting and board variables, audit committee variables, other firm-level variables, and country-level variables for EU-listed firms. The results are shown in Table 25.

For example, the Pearson correlation matrix reveals that integrated reporting quality are statistically correlated positively with board size (B_SIZE) at 0.168, board independence (B_INDEP) at 0.351, board diversity (B_DIV) at 0.243, board meeting frequencies (B_MF) at 0.319, audit committee size (AC_SIZE) at 0.295, audit committee independence (AC_INDEP) at 0.373, audit committee diversity (AC_DIV) at 0.110, audit committee experience (AC_EXP) at 0.139, audit committee meeting frequency (AC_MF) at 0.225, firm size (F_SIZE) at 0.156, leverage (LEV) at 0.151, liquidity (LIQ) at 0.011, CSR committee (CSRCOM) at 0.223, Free floated shares (FREE_F) at 0.147, External Audit size (EA_SIZE) at 0.081, and individualism/collectivism (INDIV) at 0.005, while it is negatively associated with board experience (B_EXP), growth (GROW), profitability (ROE), GDP value (GDP), power distance (POW), masculinity/ femininity (MASC), uncertainty avoidance (AVOID), short/ long-term orientation (ORI), indulgence/restraint (INDU) at -0.050, -0.112, -0.028,-0.041, -0.018, -0.020, -0.029, -0.086, and -0.040, respectively.

Table 25: Pearson correlation matrix

Pearson Correlation	IRQ	B_SIZE	B_INDEP	B_DIV	B_EXP	B_MF	AC_SIZE	AC_INDEP	AC_DIV	AC_EXP	AC_MF	FREE_F	EA_SIZE	F_SIZE	LEV	GROW	ROE	LIQ	CSRCOM	GDP	POW	INDIV	MASC	AVOID	ORI	INDU
IRQ	1	.168	.351	.243	-.050	.319	.295	.373	.110	.139	.225	.147	.081	.156	.151	-.112	-.028	.011	.223	-.041	-.018	.005	-.020	-.029	-.086	-.040
B_SIZE		1	-.011	.257	-.066	.143	.077	.163	.064	.098	.089	.064	-.009	.463	.051	-.057	-.028	-.078	.314	-.105	.366	-.041	.401	.345	.074	-.323
B_INDEP			1	.353	-.092	.291	.056	.646	-.005	.242	.140	.488	.126	.211	.058	-.028	.041	-.065	.242	.332	-.209	.397	-.254	-.347	.278	.232
B_DIV				1	-.055	.234	-.006	.357	.028	.222	.103	.173	-.033	.193	-.035	-.013	.068	-.155	.293	.299	.245	.394	-.008	.001	.240	.076
B_EXP					1	-.063	.028	-.039	-.023	.219	.019	-.041	-.004	-.130	-.010	.135	.080	.082	.024	.069	-.001	-.067	-.108	-.016	.015	.093
B_MF						1	.118	.251	.072	.152	.091	.144	.010	.141	.115	-.094	-.005	-.021	.199	.151	-.024	.197	-.112	-.111	.099	.019
AC_SIZE							1	.056	.040	.084	.154	-.085	.058	-.029	.041	-.080	-.071	.070	.094	-.063	.002	-.099	-.043	.033	-.077	-.005
AC_INDEP								1	.086	.259	.049	.360	.086	.298	.067	.003	.009	-.066	.351	.164	-.015	.197	-.088	-.132	.153	.043
AC_DIV									1	-.025	.068	-.096	-.004	-.052	-.012	.013	-.041	.054	.071	-.017	.013	-.058	-.007	.010	-.037	-.055
AC_EXP										1	.042	.082	.072	.014	.108	.016	.066	.017	.263	.134	.043	.165	-.055	-.014	.180	.110
AC_MF											1	.091	-.035	-.006	.080	-.083	-.066	.061	.040	-.021	.062	.018	-.016	.024	-.009	-.009
FREE_F												1	.087	.414	.135	.045	.110	-.184	.204	.286	-.095	.178	-.194	-.174	.129	.209
EA_SIZE													1	.122	-.040	.012	.072	.061	.127	-.031	-.116	-.034	-.056	-.068	-.056	.036

F_SIZE														1	-.047	-.061	.004	-.236	.343	-.033	.148	.071	.115	.085	.000	-.102
LEV															1	-.035	-.152	-.244	.193	-.119	.134	-.235	.076	.217	-.116	-.110
GROW																1	.188	-.020	.019	.083	-.143	.014	-.101	-.173	-.091	.117
ROE																	1	.005	.071	.102	-.131	.089	-.074	-.173	-.008	.101
LIQ																		1	-.169	.034	-.076	-.028	-.073	-.048	.074	.065
CSRCOM																			1	-.050	.225	-.046	.161	.209	-.066	-.133
GDP																				1	-.507	.693	-.504	-.673	.627	.747
POW																					1	-.274	.349	**.861**	-.157	-.504
INDIV																						1	-.244	-.589	.701	.427
MASC																							1	.603	-.039	-.773
AVOID																								1	-.283	-.638
ORI																									1	.289
INDU																										1

(B_SIZE) refers to board size, (B_INDEP) is board independence, (B_DIV) is board diversity, (B_EXP) is board expertise, (B_MF) is board meeting frequencies, (AC_SIZE) is audit committee size, (AC_INDEP) is audit committee independence, (AC_DIV) is audit committee diversity, (AC_EXP) is audit committee expertise, (AC_FM) is audit committee meeting frequency, (F_SIZE) is firm size, (LEV) is leverage, (GROW) is firm growth, (ROE) is return on equity for profitability, (LIQ) is liquidity, (CSRCOM) is CSR committee, (FREE_F) is Free floated shares, (EA_SIZE) is external audit size, (GDP) is Gross Domestic Product value, (POW) is power distance, (INDIV) is individualism/collectivism, (MASC) is masculinity/ femininity, (AVOID) is uncertainty avoidance, (ORI) is short/ long-term orientation, and (INDU) is indulgence/restraint.

5.3.3 Multivariate Regression analysis

Table 26 displays the regression analysis results of the determinants of integrated reporting quality of EU-listed firms, with IRQ as the dependent variable. The regression analysis of determinants of IRQ in EU-listed firms reveals an adjusted R-squared value of 34.9%, indicating that the model's variables together explain 34.9% of the direct impact on IRQ, while the remaining 65.1% are due to unstudied factors. As a result, in the model, the coefficient for IRQ on board size is 0.457 and statistically significant at the 0.01 level of significance ($p < 0.01 = 0.005$). This finding reveals that IRQ is positively associated with board size, indicating that an increase in board directors leads to improved integrated reporting quality and vice versa. Therefore, the hypothesis (H1) is accepted that the IRQ and board size are positively correlated. Furthermore, as presented in the model, the coefficients for IRQ on board independence and board diversity are 0.064 and 0.241 and statistically significant at the 0.01 and 1 levels of significance ($p < 0.01 = 0.005$ and $p < 0.1 = 0.05$, respectively). This finding reveals that IRQ is positively associated with board independence and diversity, indicating that an increase in the number of independent and female directors on the board leads to improved integrated reporting quality and vice versa. Therefore, the hypothesis (H2) is accepted that the IRQ and the board of directors' independence are positively correlated, and the hypothesis (H3) is also accepted that the IRQ is positively associated with the proportion of female board members.

Additionally, the results model shows that the coefficients for IRQ on board expertise, audit committee expertise, free floated, and external audit are 0.024, -0.565, 0.015, and -0.335, respectively. These coefficients are not statistically significant at any level of significance ($p > 1 = 0.422$, 0.684, 0.632, and 0.892, respectively). This finding reveals that IRQ is not significantly associated with the board expertise, audit committee expertise, free floated shares, or external audits of EU-listed firms. Therefore, the hypotheses (H4), (H9), (H11), and (H12) are rejected. Moreover, the model reflects that the coefficient for IRQ on board meeting frequency is 0.479 and statistically significant at the 0.01 level of significance ($p < 0.05 = 0.001$). This finding reveals that IRQ is positively associated with board meeting frequency, indicating that an increase in board meetings results in improved integrated reporting quality and vice versa. Therefore, the hypothesis (H5) is accepted that the IRQ and board meetings' frequency are positively correlated. In terms of the other variables of the audit committee, the model states that the coefficients for IRQ on the size, independence, diversity, and meetings' frequency of the audit committee are 3.057, 0.106, 0.099, and 1.039, respectively, and are statistically significant at the 0.01 and 1 levels of significance ($p < 0.01 = 0.000$, $p < 0.01 = 0.000$, $p < 0.1 = 0.089$, and $p < 0.005 = 0.004$, respectively). This finding reveals that IRQ is positively associated with the size, independence, diversity, and meetings' frequency of the audit committee, indicating that an increase in the number of directors, independent directors, female directors, and meetings of the audit committee leads to improved integrated reporting quality. We are supporting the hypotheses (H6), (H7), (H8), and (H10) that the IRQ has a positive correlation with the size, independence, diversity, and meetings' frequency of the audit committee. A summary of the accepted and rejected hypotheses is presented in Table 26.

The model shows that IRQ has coefficients of 0.088 for firm leverage, -0.248 for growth, and 1.797 for liquidity. These coefficients are statistically significant at the 0.005, 0.01, and 0.005 levels ($p < 0.005 = 0.003$, $p < 0.1 = 0.040$, and $p < 0.005 = 0.025$, respectively). This finding reveals that IRQ is positively associated with firm leverage and liquidity and negatively associated with firm growth, indicating that an increase in firm leverage and liquidity and a decrease in firm growth led to improved integrated reporting quality. Furthermore, the model reveals that the coefficients for IRQ on firm size, ROE, and the existence of a CSR committee are 0.189, 0.002, and -0.95 and are not statistically significant at any level of significance. This result reflects that IRQ is not significantly associated with firm size, ROE, or the existence of a CSR committee.

Table 26: Regression results: Determinates of IRQ

		N	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
			B	**Std. Error**	**Beta**			**Lower Bound**	**Upper Bound**
	(Constant)	574	163.410	38.202		4.278	.000	88.370	238.450
	B_SIZE	574	.457	.163	.135	2.805	.005	.137	.777
	B_INDEP	574	.064	.033	.109	1.963	.050	.000	.128
	B_DIV	574	.241	.050	.239	4.865	.000	.144	.339
	B_EXP	574	.024	.030	.030	.804	.422	-.035	.083
	B_MF	574	.479	.137	.136	3.501	.001	.210	.748
	AC_SIZE	574	3.057	.567	.192	5.387	.000	1.942	4.172
	AC_INDEP	574	.106	.027	.194	3.978	.000	.054	.158
	AC_DIV	574	.099	.058	.060	1.705	.089	-.015	.213
	AC_EXP	574	-.565	1.387	-.016	-.408	.684	-3.289	2.159
	AC_MF	574	1.039	.356	.104	2.917	.004	.339	1.739
	FREE_F	574	.015	.031	.022	.480	.632	-.046	.076
	EA_SIZE	574	-.335	2.468	-.005	-.136	.892	-5.183	4.512
	F_SIZE	574	.189	.752	.012	.251	.802	-1.289	1.666
	LEV	574	.088	.030	.115	2.935	.003	.029	.147
	GROW	574	-.248	.121	-.075	-2.059	.040	-.486	-.011
	ROE	574	.002	.019	.004	.107	.914	-.036	.040

LIQ	574	1.797	.798	.085	2.252	.025	.230	3.365
CSRCOM	574	-.095	1.653	-.002	-.058	.954	-3.342	3.152
GDP	574	-30.948	8.880	-.300	-3.485	.001	-48.391	-13.505
POW	574	-.624	.185	-.563	-3.379	.001	-.986	-.261
INDIV	574	.292	.129	.253	2.269	.024	.039	.545
MASC	574	-.160	.093	-.188	-1.712	.088	-.344	.024
AVOID	574	.422	.194	.457	2.174	.030	.041	.803
ORI	574	-.196	.075	-.163	-2.627	.009	-.343	-.049
INDU	574	-.011	.102	-.009	-.105	.916	-.211	.190

Dependent Variable: IRQ
Number of observations: 574
R Square: .377
Adjusted R square: 0.349.
F test: 13.286
Value

If we look at variables at the country level, the model shows that the coefficients for GDP, power distance, individualism/collectivism, masculinity/femininity, uncertainty avoidance, short-term/long-term orientation, and -30,948 are -0.624, 0.292, -0.160, 0.422, and -0.196, and they are statistically significant at the 0.005, 0.01, and 0.5 levels ($p < 0.005 = 0.001$, $p < 0.05 = 0.001$, $p < 0.005 = 0.024$, $p < 0.1 = 0.088$, $p < 0.05 = 0.030$, and $p < 0.1 =0.009$, This finding shows that IRQ is linked to individualism and uncertainty avoidance positively and negatively with GDP, power distance, masculinity, and orientation. This means that higher levels of individualism and uncertainty avoidance lead to better integrated reporting quality, and lower levels of GDP, power distance, masculinity, and orientation lead to better integrated reporting quality.

5.4 Main and Novel Findings and Discussion

To fill in the gaps in research on evaluating IR quality and finding the main factors that affect IRQ, this study used the balanced scorecard (IRBSC) and regression analysis to answer the research questions and test the hypotheses from four different points of view. Therefore, the main results of the current study and their discussion can be presented in this section.

One of the primary contributions of this research is its index for measuring the IRQ, distinguished by its use of the Balanced Scorecard (BSC) as a framework for assessing IRQ in a European context (Nada and Győri, 2023). The Balanced Scorecard is regarded as a holistic instrument for assessing an organization's financial and non-financial performance, including both internal and external dimensions. The BSC is posited as the basis for developing a corporate disclosure index. Consequently, our research aimed to link this comprehensive tool with the notion of integrated thinking to achieve IRQBSC. This index can serve as a reference for other scholars in evaluating the quality of integrated reporting (IR) and other non-financial information, as it aligns with IIRC guidelines and general suggestions for assessing the quality of both financial and non-financial disclosures.

However, the results showed that the EU's IR issuance improved from 2013 to 2020, despite the fact that not all listed businesses do so (only 5% do), and the quality of these reports has improved with time, despite the fact that their IRQ remains in the medium range. It is possible to highlight this by pointing out that the widespread usage of integrated reports across the world, not only in Europe, in conjunction with European culture and regulation, such as Directive 2014/05/EU, which increased European interest in disclosure transparency, contributes to this conclusion. The findings of this study are consistent with those of prior research, which indicated that integrated reports from 2013 and 2014 were of poor quality (Pistoni et al., 2018). Eccles et al. (2019) revealed that EU countries had an average level of IR quality in 2017 and 2018, which supports the findings of our analysis.

Table 27: Summary of Hypotheses' results

Hypothesis	Variables	Expected Association	Obtained Association	Status
H I	IRQ and board size	+	+	ACCEPTED
H 2	IRQ and board independence	+	+	ACCEPTED
H 3	IRQ and board diversity	+	+	ACCEPTED
H 4	IRQ and board expertise	+	No Correlation	**REJECTED**
H 5	IRQ and board meetings' frequency	+	+	ACCEPTED
H 6	IRQ and AC Size	+	+	ACCEPTED
H 7	IRQ and AC Independence	+	+	ACCEPTED
H 8	IRQ and AC Diversity	+	+	ACCEPTED
H 9	IRQ and AC expertise	+	No Correlation	**REJECTED**
H 10	IRQ and AC meetings' frequency	+	+	ACCEPTED
H 11	IRQ and free float shares	+	No Correlation	**REJECTED**
H 12	IRQ and external audit	+	No Correlation	**REJECTED**

The analysis revealed that companies are slightly more interested in providing financial and learning and growth information than information on stakeholder or internal aspects. Stakeholders' growing interest in financial reporting and business development may serve as evidence of this, but understanding non-financial disclosure is insufficient to persuade them. The study reveals significant regional differences in the proportion of listed businesses adopting integrated reports across EU countries. Spain, France, the Netherlands, Italy, and Poland all have the highest adoption rates. Each one of Austria, Estonia, and the Czech Republic has only one listed firm that adopts IR, while Bulgaria, Romania, and Cyprus do not have any listed firms that adopt IR. This finding aligns with Simona et al.'s 2017 ranking of 2015 IR adopters, which included Spain, the Netherlands, Italy, and France.

Despite the EU's increasing interest in non-financial disclosure, financial disclosure remains the most prominent in integrated reports. This is due to higher average disclosure levels from a financial perspective. The learning and growth perspective, which emphasizes value creation and human capital, also shows significant importance, as pointed out by Massingham et al. (2019) and Anifowose et al. (2020). Meanwhile, the industrial sector is the most active adopter of integrated reports, followed by the financial sector, consumer discretionary, utilities, and energy sectors, with the real estate and health sectors not primarily adopting this approach. The study aligns with previous studies by Songini et al. (2022) and Pistoni et al. (2018), revealing that the financial sector adopts the most integrated reports, followed by the consumer services sector, while the real estate sector is at the bottom. The research supports previous studies showing financial and industrial sectors' interest in non-financial disclosure and integrated reports (e.g., Rivera-Arrubla et al., 2017). However, there is no clear evidence for the adoption and quality of integrated reports by specific sectors requiring further study. Finally, it is found that the perspectives of financial, learning, and growth have positive associations.

The findings of our study highlight corporate governance’s significance in the production of comprehensive and superior integrated reports, which aligns with the conclusions drawn by Velte (2022) and Vitolla et al. (2019). According to our findings, many corporate governance characteristics that are considered to be best practices have a positive impact on IR quality. This finding says that characteristics of corporate governance should always be used as IRQ correlates in future research. This is because they are likely to help explain some IRQ variation and make the suggested regression analyses more accurate. Our examination of board characteristics reveals that the empirical analysis demonstrates a positive correlation between IRQ and the following: board size, independence, diversity, and meeting frequency. Nevertheless, no significant association is observed between IRQ and the board's expertise. By analyzing audit committee characteristics, the analysis concluded that IRQ is positively associated with the size, independence, diversity, and meetings' frequency of the audit committee, whereas it is not significantly associated with audit committee expertise either. In the context of the external governance variables, the analysis indicates that IRQ is not significantly associated with free-floating shares and external audits by Big 4 companies.

Our investigation indicates a favorable and significant correlation between board size and the quality of IR. This is also in line with research conducted by Girella et al. (2021) and Suttipun and Bomlai (2019), which demonstrated that board size positively and significantly correlated with integrated reporting in Thai and European businesses, respectively. The results are consistent with prior research that has established a positive correlation between the number of directors on a board and the quality of integrated reports (Qaderi et al., 2022; Cooray et al., 2020; Mawardani and Harymawan, 2021; Erin and Adegboye, 2022). This positive correlation may be explained by the fact that larger boards have a wider range of experience, which could be beneficial for IR preparation. In particular, having additional board members might help the company gain more experience and knowledge and could enable them to keep an eye on the systems and procedures that support integrated thinking, which may eventually result in higher-quality disclosures.

Furthermore, larger companies with strong boards have more influence over management choices that enhance information disclosures and advance transparency policies than do smaller companies when it comes to integrated reporting because of the monitoring function of the board members. The assumptions of agency, resource dependence, and stakeholder theories can also provide an explanation for our results. The larger board, in accordance with agency theory, significantly improves transparency and lessens the information asymmetry between management and investors. Additionally, the resource dependence theory—which contends that larger boards have greater expertise and capacity to enhance disclosure—is congruent with our result. Stakeholder theory also supports this, with larger boards with representatives from different stakeholder groups trying to increase corporate transparency by increasing the quantity and quality of financial and non-financial disclosures in an effort to satisfy stakeholders (Qu et al. 2015).

The findings of the regression we conducted indicate that the IRQ is significantly impacted by board independence. As a result, having more independent directors significantly raised the quality of IR in European corporations. Therefore, the second hypothesis (H2) is confirmed. The results of the study suggested that companies with a greater number of independent directors released a higher quality of integrated reporting data compared to those with a smaller number of independent directors. This result is consistent with recent studies by Chouaibi et al. (2021), Qaderi et al. (2022), Marrone et al. (2020), and Cooray et al. (2020) that examine IR disclosure. The interesting result might be explained by the fact that independent directors in EU-listed companies gave enough thought to the value of adopting IR and its quality by putting in place board monitoring and oversight. This is a result of their ability to persuade the board to address stakeholders' information demands. Furthermore, they scrutinize and counteract the excessive actions of managers and upper management to ensure that they are in accordance with the overall business objective of safeguarding the needs of stakeholders.

Additionally, the postulation of agency and stakeholder theories can support this outcome. Stakeholder and agency theories suggest that having a larger number of independent board members enhances board practice effectiveness, safeguards the rights of stakeholders, and helps resolve agency conflicts (Fiori et al., 2016; Weir & Laing, 2003). This is because non-executive members possess the necessary qualifications to offer impartial assessments of a business's leadership and operations (Liao et al., 2015) and have a greater understanding of the informational needs of various stakeholders (Cooray et al., 2020). Therefore, independent directors employ a more open and clear strategy to protect the interests of stakeholders (Ntim et al., 2013).

In addition, our findings indicate that the coefficient related to board diversity indicates a substantial and favorable correlation with the standard of integrated reporting. This implies that boards with greater female participation are more inclined to exhibit a greater degree of quality in their integrated reporting. European companies that had a greater number of female directors showed a greater willingness to acknowledge the importance and pertinence of IR disclosure. Therefore, the third hypothesis (H3) is deemed valid. The outcomes we obtained align with the findings reported in some other studies, including Qaderi et al. (2022), Marrone et al. (2020), Chouaibi et al. (2021), and Cooray et al. (2020). These studies have all observed a favorable correlation between diversity on boards and the implementation of an IR approach, albeit with different sample groups. The reason for this is that boards with more directors and a higher proportion of female directors have more governance and supervision power and can help prepare integrated reports that are better suited to the IIRC framework. Furthermore, firms prioritize the active involvement of women in the decision-making process within corporate settings as a strategic measure to enhance the efficacy of corporate governance procedures among European Union-listed companies. This is due to the fact that female directors offer enhanced perspective and meticulous oversight, as they may perceive things from distinct vantage points compared to their male counterparts. As a result, women in positions of authority are regarded positively throughout the European Union.

The findings indicate a strong and positive correlation between board meetings and the quality of information disclosure pertaining to IR. This finding suggests that companies that have a greater number of board meetings may enhance the quality of their IR disclosure. Therefore, we accept our fourth hypothesis (H4). The outcome is in line with an empirical investigation conducted by Busco et al. (2019), which revealed a substantial and positive correlation between the frequency of board meetings and the extent of integrated reportings reporting in corporations spanning 18 European nations. Moreover, the results align with the findings presented by Wang et al. (2019), who determined that boards that conduct regular meetings are linked to increased information disclosure on the Johannesburg Stock Exchange (JSE). The likelihood that the board will be diligent in addressing important agenda items, such as sustainability and related issues, and engaging in discussions about them during the sessions can help to explain this outcome. This, in turn, guarantees greater transparency and diminishes information asymmetry. This aligns with the principles of legitimacy, agency, and stakeholder theories, which suggest that boards that are highly engaged will address the most critical concerns of stakeholders throughout their sessions. Furthermore, it makes the case that holding board meetings more frequently enhances the board's oversight duties and encourages the release of more financial and non-financial information.

Our findings show that there is no relationship between board members' level of experience and the quality of integrated reports. This outcome contradicts our initial predictions, leading us to reject the fourth hypothesis. Therefore, our result is contrary to some earlier research (Songini et al., 2021), which demonstrated that the presence of experienced members on the board of directors positively affects the quality of integrated reports. They mentioned that board members with managerial experience may enhance the board by providing valuable competitive resources, insightful counsel, and increased knowledge, thus enhancing the board's oversight capabilities. Enhances the quality of reports. Alternative viewpoints, however, can support our findings, indicating that the observed results may only be relevant to competence in financial and accounting matters and may not be very applicable to non-financial disclosure or integrated reporting.

Concerning the size of the audit committee, our findings indicated that an increased number of audit committee members had a positive impact on the quality of integrated reporting. Thus, the acceptance of the sixth research hypothesis is confirmed. The rationale behind this outcome can be elucidated by the fact that a larger membership in the audit committee guarantees the availability of more human resources and enhances the likelihood of diverse viewpoints, attitudes, and abilities within this group. These circumstances positively impact on the audit committee's ability to oversee and manage the processes of gathering and presenting information, resulting in a greater quality of integrated reports produced by the organization. Moreover, agency and resource dependency theories provide further support for the notion that an increased size of audit committees increases the likelihood of minimizing potential agency issues by means of more effective oversight. Moreover, the inclusion of professionals with greater expertise and experience will facilitate the organization’s ability to optimize its resources, resulting in improved efficiency and quality of the reporting process.

There is a notable positive correlation between audit committee independence and IRQ. Consequently, H7 must be approved. This implies that the autonomy of the audit committee enables an enhancement in the quality of the integrated reports furnished by the corporation. This conclusion is further corroborated by certain IR literature, including Raimo et al., 2020. The explanation is based on the assumptions of agency and stakeholder theories, which suggest that independent members have no connection to internal management and consequently fulfil their duty with heightened objectivity. Consequently, their ability to identify and mitigate erroneous and unscrupulous practices is enhanced, and they perform their overall role of overseeing and tracking the procedures of information gathering and representation more effectively.

Consequently, it is presumed that independent members of the audit committee are more unbiased and less likely to overlook possible deficiencies in business reporting. Therefore, the addition of autonomous directors to the audit committee reduces costs associated with conflicts of interest and enhances corporate supervision, facilitating the provision of accurate and reliable information.

The results of our study on the diversity of the audit committee are consistent with our previous findings on the diversity of the Board of Directors committee. It has been verified that the diversity of the audit committee also has a beneficial and substantial influence on the quality of integrated reports. Consequently, we validate the eighth hypothesis. We found some similarities between our results and other studies about voluntary disclosures, including Tejedo-Romero et al. (2017), even though empirical research has not yet explored the relationship between gender diversity on the AC and integrated reports. The findings align with the assumptions of agency and resource dependency theories, as females contribute more insight and closer monitoring, hence supporting the key tasks of the audit committee. Hence, the presence of women on the board and audit committee plays a crucial role in influencing the extent and excellence of IR disclosure. Our findings on the audit committee's expertise align with our earlier results about the expertise of the Board of Directors committee. We have now confirmed that the expertise of the audit committee likewise does not have a significant impact on the quality of integrated reports. As a result, we reject the ninth hypothesis. There is similarity between our results and some other studies, such as Raimo et al., 2020, even if this result does not align with our assumptions or some prior research showing a beneficial association between integrated reports and the audit committee's experience, such as Ahmed Haji (2015).

As indicated in the analysis of the fourth hypothesis's result pertaining to the expertise of board members, it is possible that the expertise of committee members is restricted to financial knowledge that is exclusively pertinent to financial disclosure. Given that integrated reports are both financial and non-financial in nature and contain a greater amount of non-financial information, this financial expertise has less bearing on them. Indeed, while the IRC framework delineates six capitals, only one pertains to financial aspects: the remaining five concern non-financial aspects. Additionally, the results indicate a strong positive correlation between audit committee meetings and the quality of IR. The data, thus, corroborate the tenth hypothesis (H10). Similar results have been reported in previous research (e.g., Ahmed Haji, 2015; Raimo et al., 2020), which have established a robust positive association between audit committee meetings and the integrity of financial and non-financial reporting practices. The credibility of this result is enhanced by the fact that a strong audit committee can effectively supervise management to make sure they follow regulatory guidelines for integrated reporting. The extent of this supervisory function is evident in the frequency of the audit committee's annual meetings. According to agency theory, this implies that the audit committee will provide high-quality integrated reporting since frequent meetings give them more time to address matters pertaining to integrated reporting operations, which lowers agency costs and improves internal control.

Additionally, there is no meaningful correlation between Free Float and IRQ, leading us to reject H 11. While this finding contradicts our initial anticipation regarding the favourable impact of free float on the calibre of integrated reports, it aligns with the conclusions drawn in prior research, including that of Preuß et al. (2019). The reason for this outcome can be attributed to the abundance of freely available shares, which eliminates any obligatory constraints on management or executives to enhance the quantity or quality of information disclosed. Due to the concentration of ownership, owners of concentrated shares have adequate access to information, whereas owners of autonomous shares lack the authority and capacity to exert pressure on management to increase information transparency. Furthermore, the H12 hypothesis was invalidated, indicating that there are no significant differences in the level of IRQ between companies audited by major audit firms and those audited by audit firms outside the Big 4. Contrary to our predictions regarding the positive relationship between IRQ and the type of audit firm, this outcome contradicts them. Nevertheless, it is consistent with the findings of a prior study undertaken by Omair Alotaibi and Hussainey (2016), which also found no significant correlation between the level or quality of corporate social responsibility (CSR) disclosure and the type of auditor. Our findings can be explained by the fact that integrated reporting is voluntary. As a result, the regulators' specified restrictions on the information they required limited the scope of external auditors' obligations. Simply put, external auditors hardly ever pressure or coerce their clients into disclosing more information than what is necessary to comply with accounting standards. External auditors exerted minimal influence on the inclusion of integrated reporting information in firms' annual reports.

5.5 Chapter summary

Throughout this chapter, the primary descriptive results and their detailed discussion are presented. The study reveals that integrated reports (IRs) in the European Union have generally improved from 2013 to 2020, with the quality of these reports improving over time. This is due to the widespread use of IRs worldwide and increased interest in disclosure transparency. Firms are more interested in providing financial information and learning and growth information than internal or stakeholder data. Regional differences exist in the proportion of listed businesses adopting IRs, with Spain having the highest adoption rate. Financial disclosure still dominates the IRQ, followed by learning and growth perspectives. The industrial sector is the most ardent user of IRs, followed by the consumer discretionary, utilities, and energy sectors. The real estate and health sectors have not adopted an integrated reporting approach. The study also highlights the importance of corporate governance in producing comprehensive and superior integrated reports. Independent, diverse, and active board and audit committees are expected to oversee the production of high-quality IRs and support integrated thinking.

Chapter Six: Conclusion and Final Remarks

6.1 Thesis Summary

The study's goals are to find out how many EU-listed companies use integrated reporting (IR), to suggest a new way to measure IRQ, to evaluate the quality of IR, and to investigate how the characteristics of board directors, audit committees, free-floating shares, and the type of external audit affect IRQ as internal and external corporate governance mechanisms.

Based on these objectives, the thesis is structured into six chapters, with the first chapter outlining the background, problem statement, research gaps, questions, objectives, methodology summary, relevance, motivations, contributions, and structure of our investigation. Meanwhile, chapter two explores the history of the transition from financial reporting to integrated reporting, highlighting the history of corporate disclosure, non-financial reporting standards, European regulations, and the development of integrated reporting frameworks. Furthermore, the third chapter presents a theoretical framework and literature review based on stakeholder, legitimacy, agency, institutional, signalling, and resource dependency theories. It examines the literature on measures, determinants, and consequences of IR adoption and quality and addresses existing gaps in the field. Chapter four discusses the hypothesis's development, methodology, and research design, presenting research questions and twelve hypotheses. It details the methodology for empirical analysis, including sample selection, criteria, data collection, approach, variable measures, and model specification. Chapter five discusses research results on IRQ in EU-listed firms, including descriptive analysis, Pearson correlation analysis, and multivariate regression analysis, and provides a comprehensive discussion. Finally, chapter six provides a detailed summary of the thesis, outlining its main findings, contributions, practical and theoretical implications, recommendations, limitations, and suggestions for future research.

What is more, the study analyzed 147 integrated reports of publicly listed companies in 27 European Union countries from 2013 to 2020 and used the annual integrated report as its primary analysis tool. The Bloomberg database provided corporate governance data, while the World Bank's statistics provided GDP data and Hofstede insights provided data on culture variables. The Balanced Scorecard (BSC) was used to assess IRQ in a European context. Additionally, the study developed a comprehensive disclosure checklist called the IRQBSC, based on prior studies and the IIRC Framework's eight content pieces, guiding principles, six capitals, and value creation process. Finally, the study used weighted and unweighted scoring methods to assign each report a score of 115. These findings offer crucial theoretical, methodological, and practical insights and implications for various stakeholders (e.g., policymakers, investors, regulators, professional bodies, managers, and academics) on the adoption status, quality status, and internal and external governance determinants of IR quality, significantly enhancing accounting literature, research methodologies, and practice. The study is significant as it investigates the quality of IR, as quality is considered more important than quantity. The study also examines the impacts of internal and external corporate governance mechanisms, as corporate governance plays a significant role in producing high-quality integrated reports and enhancing credibility. Furthermore, IR is a new corporate reporting tool that integrates financial, social, and environmental aspects of a firm, focusing on short-, medium-, and long-term value creation. Further, the study is relevant to EU-listed firms and highlights the need for further research on measuring and assessing IRQ using new approaches. The study's findings, implications, recommendations, and limitations are discussed in the following sections, offering valuable opportunities for future research.

6.2 Main Findings and Contribution

One of the primary contributions of this research is its index for measuring the IRQ, distinguished by its use of the Balanced Scorecard (BSC) as a framework for assessing IRQ in a European context (Nada and Győri, 2023). The Balanced Scorecard is regarded as a holistic instrument for assessing an organization's financial and non-financial performance, including both internal and external dimensions. The BSC is posited as the basis for developing a corporate disclosure index. Consequently, our research aimed to link this comprehensive tool with the notion of integrated thinking to achieve IRQBSC. This index can serve as a reference for other scholars in evaluating the quality of integrated reporting (IR) and other non-financial information, as it aligns with IIRC guidelines and general suggestions for assessing the quality of both financial and non-financial disclosures.

The EU's IR issuance has generally improved from 2013 to 2020, with only less than 5% of listed companies doing so. The quality of these reports has also improved, although their IR quality remains middle-range. This is due to the widespread use of integrated reports globally and in Europe, coupled with European cultural and legal considerations, such as Directive 2014/05/EU, which increased interest in disclosure transparency. Moreover, the analysis found that firms are more interested in providing financial and learning and growth information than information from stakeholders and internal aspects, possibly due to stakeholders' greater interest in financial reporting and business development. However, this is not enough due to the growing understanding of non-financial disclosure.

Additionally, the study reveals significant regional variations in the adoption of integrated reports among listed businesses across all EU countries, with Spain having the highest rate and France, the Netherlands, Italy, and Poland following closely behind. Despite the fact that the European Union's interest in non-financial disclosure has increased, financial disclosure remains the most prominent in integrated reports, with higher average levels than other perspectives. The learning and growth perspective, the second perspective on disclosure quality, has recently emphasized the significance of value creation and human capital. Added to this, the findings concluded that the industrial sector is the most active adopter of integrated reports, followed by the financial sector, consumer discretionary, utilities, and energy sectors, while the real estate and health sectors have not largely adopted this approach.

On top of that, the findings of our study highlight corporate governance significance in the production of comprehensive and superior integrated reports. According to our findings, the majority of corporate governance characteristics have a positive impact on IRQ. Our examination of board characteristics reveals that the empirical analysis demonstrates a positive correlation between IRQ and the following: board size, independence, diversity, and meeting frequency. Nevertheless, no significant association is observed between IRQ and the board's expertise. By analyzing audit committee characteristics, the analysis concluded that IRQ is positively associated with the size, independence, diversity, and meetings' frequency of the audit committee, whereas it is not significantly associated with audit committee expertise either. In the context of the external governance variables, the analysis indicates that IRQ is not significantly associated with free-floating shares and external audits by Big 4 companies. The results support the assumptions of the study's adopted theories in that corporate governance has a major contribution to make in reducing information asymmetry between managers and investors. For example, independent, diverse, and active board and audit committees will oversee the production of high-quality integrated reports and support integrated thinking. The two committees aim to effectively communicate with their stakeholders and fulfill their information requirements through issuing better IR. The board and management team must effectively integrate financial, human, manufactured, social, intellectual, and natural capitals to achieve holistic corporate transparency and balance stakeholder interests.

6.3 Study implications and recommendations.

The findings of this thesis offer crucial theoretical and practical implications for various stakeholders (e.g., policymakers, investors, regulators, professional bodies, managers, and academics) on the adoption status, quality status, and internal and external governance determinants of IR quality. These findings provide a detailed overview of the adoption and quality status of IR by EU-listed firms. To give more illustration, the analysis revealed that the issuance of integrated reports (IRs) in the European Union generally improved from 2013 to 2020, and the quality of these reports has also improved. Moreover, it also offers a comprehensive understanding of the internal and external governance determinants of IR quality. To illustrate, the analysis shows that the majority of internal and external corporate governance mechanisms have a positive impact on IRQ, such as board size, independence, diversity, and meeting number of board directors and audit committee. Added to this, the study recommends that EU professional groups, regulators, and policymakers should legislate mandatory IR adoption regulations and quality criteria for listed corporations. In the meantime, the thesis recommends that EU-listed firm managers should enhance the quality of their IR and establish future policies, models, and frameworks of IR adoption to fulfill stakeholders' needs of different financial and non-financial information, thereby enhancing marketing strategies, attracting new stakeholders, and boosting existing stakeholder confidence. For academics, the study introduces a new tool for assessing the quality of IR, the balanced score card, which could significantly enhance future research on IR quality. The study's limitations can also be advantageous for future investigations.

6.4 Study Limitations

This thesis has several main limitations, which can be summarized as follows:

i. The thematic focus of this study is limited to investigating the quality status of IR and identifying its determinants.
ii. The study's time frame is limited to analyzing the content of integrated reports from 2013 to 2020.
iii. This study is limited to integrated reports that adhere to the IIRC framework.
iv. The investigation has limitations in its sample size of 147 EU-listed firms.

v. This analysis is limited in its scope as it only focuses on EU-listed enterprises and does not consider unlisted EU firms. This limitation restricts the applicability of the outcomes to other areas or EU-unlisted firms.

vi. IR use by enterprises varies widely between countries. One firm in Hungary used IR for a year, while 37 firms in Spain did (180 observations). Due to this large variation, comparing the average IRQ across nations over the study period is difficult and imprecise.

vii. The investigation faced limitations in its quantitative analysis methodology because of the disadvantages of content analysis.

viii. The investigation faced limitations in assessing IR quality utilizing self-constructed index (IRQBSC) as the main evaluation tool which has some shortcuts and weak points.

ix. The study focuses on the influence of size, independence, diversity, expertise, and meeting numbers of board directors and audit committees on IRQ without considering other internal corporate governance mechanisms or other board directors and audit committees' characteristics.

x. The study examines the influence of free-floating shares and external audit types, as external governance mechanisms, on IRQ, disregarding other external corporate governance mechanisms.

6.5 Future Research opportunities

Even though IRQ is gaining more attention from academics, more study is still required. Future studies could focus on a number of topics, including investigating the IR quality for EU-unlisted firms; additionally, investigating the IRQ in other developing economies or regions, such as the Middle East; and contrasting the findings with those from industrialized economies. Subsequent research endeavors could assess the IRQ prior to and following the epidemic and juxtapose the outcomes. Future scholars should expand this study by incorporating mixed methods, including interviews, case studies, and quantitative and qualitative content analysis, to enhance the support, confirmation, and complementarity of the current findings.

Additionally, since this study focuses on examining the impact of internal corporate governance mechanisms on IR, future research should empirically examine the influence of other internal governance mechanisms, like sustainability and risk committee characteristics. In addition, future research should also explore the influence of other external corporate governance mechanisms on

IRQ, such as external audit quality, regulation quality, corruption rates, democracy, political participation, and integrity levels. Moreover, because the current work focuses on the influence of characteristics of board directors and audit committees (size, independence, diversity, expertise, and meeting numbers) on IRQ, it could be useful to examine the impacts of other characteristics like their academic qualifications, professional certificates, and age. Besides that, as the current study focuses on investigating the determinants of IRQ, future studies may be needed to investigate the consequences of IRQ (i.e., ESG scores, credit ratings, cash holdings, SDG disclosures, and risk disclosures).

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Appendices

Table 3: Determinants of IR adoption

Determinants	IR adoption	Relationship	Reference examples
Firm level determinants	firm size	+	De Villier (2014), Barth et al. (2017), Ghani et al. (2018), Garca-Sánchez and Noguera-Gámez (2017), Girella et al. (2019), and Vitolla et al. (2020)
		(-) / no correlation	(Lai et al., 2016; Vaz et al., 2016; Malola and Maroun, 2019)
	Firm age	+	Haji, 2015; Maroun, 2017; Brown and Dillard, 2014; and De Villiers et al.,2017)
	profitability	+	Frias-Aceituno et al. 2014; Garca-Sánchez et al. 2013; Girella et al., 2019; Vitolla et al. 2020)
		(-) / no correlation	Frias-Aceituno et al., 2013a; Lai et al., 2016.
	market to book value	+	Girella et al. (2019)
		(-) / no correlation	Frias Aceituno et al.,2014; Garca Sanchez et al. (2013),
	Leverage	+	Lemma et al. (2019; Busco et al. (2019), and Vitolla et al. (2020)
		(-)/ no correlation	Girella et al. (2019)
	Growth opportunity	+	Dey, 2020; Girella et al., 2019.
	liquidity	+	Barth et al., 2017; Garca-Sánchez and Noguera-Gámez, 2017; Lee and Yeo (2016).
		(-)/ no correlation	Martinez, 2016; Day, 2020; Albertini, 2019.
	company efficiency	no correlation	Girella et al., 2019
	ESG disclosure score	(+)	Lai, Melloni, and Stacchezzini (2016)
	ESG performance	(+)	Fuhrmann, 2019
	Stock exchange listing	No correlation	Vaz, Fernandez Feijoo, and Ruiz (2016)
	Analyst following Transparency score	(+)	Wachira et al., 2019
	CSR report assurance	+	Sierra García, et al., (2015)
		No correlation	García Sánchez et al.,2013)
Corporate governance determinants			
Firm Corporate governance determinants	Board size	+	Ahmed, 2023; Girella et al., 2019 & 2021; Alfiero et al. 2017; and Frias-Aceituno et al.,2013b.
		no correlation	Hichri, 2022; Omran et al., 2021.
	gender diversity	+	Frias-Aceituno et al. (2013b) and Vitolla et al. (2020)
		no correlation	Fasan and Mio 2017; Frias-Aceituno et al. 2013b.
	Board independence	+	Omran, 2021; Nguyen et al, 2022; Ahmed (2023
		no correlation	Busco et al. (2019) and Girella et al. (2019)
	Frequency of board meetings	+	Busco et al., (2019)
		no correlation	(Frias-Aceituno et al., 2013; Orshi et al., 2019; Girella et al., 2021).
	Audit committee size	+	Ahmed, 2023
	committee independence	(-)	Ahmed, 2023; Ahmed Haji, & Anifowose,2016a

	audit committee expertise,	(-)	Ahmed, 2023; Ahmed Haji, & Anifowose,2016a
	audit committee meetings,	(-)	Ahmed, 2023; Ahmed Haji, & Anifowose,2016a
	risk management committee independence	+	Ahmed, 2023
	risk management committee expertise	(-)	Ahmed, 2023
	Risk management committee meetings	(-)	Ahmed, 2023
	Risk management committee size	(-)	Ahmed, 2023
	Sustainability committee	+	Kılıç and Kuzey, (2018),
	Audit firm	(-)	Ahmed, 2023
Country specific determinants	civil law systems	+	Kılıç et al. (2021)
		no correlation	Jensen & Berg (2012
	investor and employment protection legislation,	+	Jensen & Berg (2012
	market coordination	+	Jensen & Berg (2012
	ownership concentration	No correlation	Jensen & Berg (2012
	Local, economic, social, and environmental development	+	Jensen & Berg (2012
		No correlation	Vaz et al. (2016)
	ethical and coercive systems	+	Vaz et al. (2016)
	National Corporate Responsibility Index	No correlation	Dragu and Tiron-Tudor (2013)
	involvement of stakeholders	+	Garcia-Sanchez et al. (2013)
	Stakeholder pressure	+	Sierra-Garcia et al., 2015
	collectivism	+	Garcia-Sanchez et al., 2013. Vaz et al. 2016
	femininity	+	Garcia-Sanchez et al. (2013)
	Uncertainty avoidance	No correlation	Garcia-Sanchez et al. (2013)
	Power distance	No correlation	Garcia-Sanchez et al. (2013)
	Long-term orientation	No correlation	Garcia-Sanchez et al. (2013)
	Indulgence	No correlation	Garcia-Sanchez et al. (2013)
	secular-rational values	+	Jensen & Berg (2012
	Region	No correlation	Lai et al. (2016)
		(-)	Garcia-Sanchez et al. (2013)
		+	Vaz et al. 2016

Table 4: Consequences of IR adoption

Consequences (Dependent variable)		Relationship	References examples
Non-financial consequences	improve future value generation	+	Knauer and Serafeim, 2014; Parrot and Tierney, 2012
	ethical principles and public perception	+	(Lodhia, 2015; Lai et al., 2018; Silvestri et al., 2017).
	Inter-departmental collaboration, risk administration, and processes for making decisions	+	Eccles and Krzus (2010), (Steyn, 2014; Guthrie et al. (2017)
		(-)	Del Baldo (2017)
	Incorporation of environmental and social issues into the overall organizational strategy	+	(Eccles & Krzus, 2010), Adams et al. (2016), Beck et al. (2015)

	ESG performance	+	Loprevite et al., 2018
	(ESG) management	+	(Eccles & Krzus, 2010), Adams et al. (2016), Guthrie et al. (2020), Terblanche and de Villiers (2019).
	Standalone ESG reports	(-)	Maniora, 2017
	organizational transition	No correlation	Stubbs & Higgins, 2014; Guthrie et al., 2017), Steyn 2014)
	Engagement stakeholders	+	Stacchezzini et al. (2019), Beck et al. (2015), Lodhia (2015), Mio et al. (2016), and Steyn (2014)
		(-)	(Veltri & Silvestri, 2015)
	Accountability and transparency	+	Manes-Rossi et al. (2021)
	(CSR) performance.	(-)	Conway (2019)
	Information asymmetry	(-)	García-Sánchez and Noguera-Gámez (2017)
Financial consequences	costs of capital	(-)	García-Sánchez and Noguera-Gámez (2017), Vena et al. (2020), Gerwanski, 2020
	company's debt	(-)	Muttakin et al. (2020),
	Cost of equity	(-)	Garcia Sanchez & Noguera Gamez., 2017b
	market value	+	(Arguelles et al., 2017; Martinez, 2016; Cortesi & Venay, 2017)
	return on equity (ROE)	+	Akisik and Gal (2019)
	Share price	+	Akisik and Gal (2019), Rambe and Mangara (2016)
		(-)	Landau et al. (2020)
	return on investment (ROI)		
	return on assets (ROA)	+	(Arguelles et al., 2017), Akisik and Gal (2019)
	earnings per share		(Cortesi & Venay, 2017)
	firm risk	(-)	(Conway, 2019)
	leverage	(-)	(Lemma et al., 2019),
	revenue value coefficient	+	(Baboukardos & Rimmel, 2016)
	market value of stock (Tobin's Q)	No correlation	Camodeca et al. (2018; Gal & Akisik, 2018, Landau et al, 2020, Wahl et al., 2020
	analyst coverage and prediction accuracy.	+	(Bernardi & Stark, 2018; Garcia-Sanchez & Noguera-Gamez, 2017a, b),
	Earnings quality	+	Obeng et al., 2020
	expected future cash flows	No correlation	Wahl et al., 2020
		+	Flores et al., 2019
	value relevance of organizational capital	+	Tlili et al., 2019
	Distributions to stakeholders	+	Oshika & Saka, 2017
	EBIT ratio,	+	Oshika & Saka, 2017
	net income ratio,	+	Oshika & Saka, 2017

Table 5 Determinants of IRQ

Determinants	IR quality	Relationship	Reference examples.
Firm level determinants			
	firm size	+	(García-Sánchez and Noguera-Gámez, 2017; Haji and Anifowose, 2016; Ghani et al., 2018; Kilic and Kuzey, 2018; Vitolla et al., 2020

		(-) / no correlation	Malola and Maroun (2019
	Firm age	+	Alfiero et al., 2017; Brown and Dillard, 2014; De Villiers et al. (2017
	profitability	+	Fasan and Mio, 2017; Grassmann et al., 2019; Vitolla et al., 2020 and Frías-Aceituno et al., 2014 and Malola and Maroun (2019)
		(-) / no correlation	Dilling, Caykoylu et al., 2019; Melloni et al., 2017)
	market to book value	+	Pavlopoulos et al., 2019
		(-) / no correlation	Camodeca et al, 2018
	Environmentally industries	+	Haji and Anifowose (2016), Rivera-Arrubla et al. (2017), and Roman et al. (2019.
	Liquidity	no correlation	Ghani et al., 2018
	Leverage	+	Kilic and Kuzey, 2018; Dilling & Caykoylu, 2019.
		(-) / no correlation	Lai et al. (2017)
	Growth opportunity	+	Haji and Anifowose (2017), Steyn (2014)
	earnings quality	(-) / no correlation	Dilling and Caykoylu., 2019
	Publication on the IIRC website	+	Lai et al. (2014; Pistoni, (2018)
	Experience (learning effects)	+	Gerwanski, et al., (2019)
	report length	(-)	Dilling and Caykoylu (2019)
	ESG performance	+	Graßmann et al., 2019; Beretta et al., 2019
	foreign sales	(-)	Graßmann et al., 2019
	Price volatility	No correlation	Graßmann et al., 2019
	ESG management quality	+	Churet & Eccles., 2014
	CSR report	+	Romero et al., 2019
	Audits firm	No correlation	Chouaibi and Hichri, 2020,
	Behavioral skills in the audit firm	No correlation	Chouaibi and Hichri, 2020,
	Code of ethics exists in the audit firm	+	Chouaibi and Hichri, 2020,
	sustainability performance	+	Appiagyei et al., 2022; Appiagyei, K., & Donkor, A. (2023)
	DJSI inclusion	+	Gerwanski et al. (2019)
	Reporting (transparency index)	+	Roman et al., 2019
	Employee pressure	+	Vitolla et al., 2019
Corporate governance determinants	Board size	+	García-Sánchez and Noguera-Gámez, 2017b; Kılıç and Kuzey, 2018a; Raimo et al., 2020; Vitolla et al., 2020
		(-)	Fasan and Mio (2017)
	Board average age	+	Marrone, 2020

	Board gender diversity	+	Erin and Adegboye (2022), Chouaibi et al. (2022b), Vitolla et al. (2020), Wang et al. (2020), and Gerwanski et al. (2019)
		(-)	Songini et al. (2022; Fasan and Mio (2017)
	education level	+	Songini et al. (2022)
	Board independence	+	Bowlin (2018), Raimo et al. (2020), and Vitolla et al. (2020 ; Chouaibi et al. (2022) and Qaderi et al. (2022)
		No correlation	(Busco, et al., 2019 and Cooray, et al., 2020)
	Frequency of board meetings	+	Raimo et al. (2020), Busco et al. (2019), and Qaderi et al. (2022)
		(-)	Omran et al. (2021),
	CEO duality	(-)	(Hichri, 2022; Pavlopoulos et al., 2017)
		+	Chouaibi et al. (2022a)
		No correlation	Qaderi et al. (2022)
	Audit committee size	+	Haji and Anifowose (2016b) and Raimo et al. (2021, Erin and Adegboye (2022),
	committee independence	+	Chariri and Januarti (2017), Erin and Adegboye (2022)
		(-)	Ahmed Haji and Anifowose (2016) as well as Chariri and Januarti (2017)
	audit committee expertise,	+	Erin and Adegboye (2022); Chariri and Januarti (2017), Velte (2018)
		No correlation	Ahmed Haji and Anifowose (2016), Raimo et al. (2021)
	audit committee meetings,	+	Chariri and Januarti (2017), Erin and Adegboye (2022), Raimo et al. (2021)
	risk management committee	+	Wang et al. (2019), Yanto and Hajawiyah (2022),
	CSR committee effectiveness	+	Wang et al, 2019
	CSR-related management compensation	+	Wang et al., (2019
	governance performance	No correlation	Melloni et al, 2019
	Sustainability committee	+	Ahmed Haji and Anifowose (2016), Wang et al. (2019)
	External assurance	+	Rivera-Arrubla et al. (2017), Malola and Maroun (2019), Gerwanski et al. (2019), Maroun (2019), and Hoang and Phang (2021)
		No correlation	Mawardani, & Harymawan, (2021)
	ownership concentration	+	Haji and Anifowose (2016) and Qaderi et al. (2022), Zouari and Dhifi (2022)
		(-)	Raimo et al. (2020)
	Institutional ownership	+	Raimo et al. (2020)
	Managerial ownership	(-)	Raimo et al. (2020)
	state ownership.	(-)	Raimo et al. (2020)
Country governance determinants	civil law systems	+	Vitolla et al., 2020, b, c, d and Kılıç et al., 2021)
		No correlation	(Fasan & Mio, 2017; Rivera-Arrubla et al., 2017)
	Legal enforcement	+	Garcia-Sanchez & Noguera-Gamez, 2018)
		(-)	(Fasan & Mio, 2017)

	investor and employment protection legislation,	+	García-Sánchez et al., 2019
	market coordination	+	(Fasan & Mio, 2017)
	Educational and Labor System	+	(Fasan & Mio, 2017), Oktorina et al., 2022
	Developed economies	+	(Fasan & Mio, 2017)
		No correlation	Oktorina et al., 2022
	transparency	+	Oktorina et al., 2022, Girella et al. (2019)
		No correlation	Garcia-Sanchez et al. (2019).
	collectivism	(-)	Vitolla et al., 2019)
	femininity	+	Vitolla et al., 2019)
	Uncertainty avoidance	+	Vitolla et al., 2019)
	Power distance	(-)	Vitolla et al., 2019)
	Long-term orientation	No correlation	Vitolla et al., 2019)
	Indulgence	(-)	Vitolla et al., 2019)
	secular-rational values		
	region	No correlation	Dilling, & Caykoylu, (2019)
		+	Rivera-Arrubla et al. (2017)
	Environmental protection organizations' pressure	+	Vitolla et al., 2019
	mandatory IR regime	+	Vitolla et al., 2019
	Stakeholder pressure	+	Chouaibi and Hichri, 2020,
		No correlation	Gerwanski et al., 2019

Table 6: Consequences of IRQ

Consequences (Dependent variable)		Relationship	References examples
Financial performance	Tobin's Q	+	Lee and Yeo (2016)
	Liquidity (bid-ask spreads)	+	Barth et al. (2017), Zuniga et al. (2020)
		No correlation	Caglio et al. (2020), Dey, 2020
		(-)	Arguelles, et al., (2015)
	cost of capital	No correlation	Barth et al., 2017
	cost of equity	(-)	Zhou et al. (2017), Vitolla, et al. (2019, b, c)
	cost of debt	(-)	Raimo et al. (2022)
	anticipated future cash flows.	+	Barth et al., 2017; Flores et al., 2019)
	Stock Market Return		
	return on invested capital (ROIC)	No correlation	Churet and Eccles (2014)
	market value of equity	+	Pavlopoulos et al. (2019), Arguelles, et al., (2015)
	Earnings control	(-)	Pavlopoulos et al. (2019)

	Earnings per share	+	Ciubotariu et al. (2021), Matemane and Wentzel (2019), and Cosmulese et al. (2019
	return on assets (ROA).	+	Gal and Akisik (2020)
	return on equity (ROE).	+	Gal and Akisik (2020)
	stock price	+	Gal and Akisik (2020)
	profit after taxes	No correlation in short run + in (long run)	Adegboyegun et al., 2020
	free cash flow	(-)	2020 Obeng et al
	Cumulative abnormal returns	+	Cosma et al., 2018
Non-financial performance			
	ESG performance	+	Conway (2019)
	risk	+	Conway (2019)
	environmental performance	+	Omran et al, 2020
	Sustainability inclusion.	+	(Le Roux and Pretorius, 2019)
	environmental expenditures and business value.	+	Grassmann (2021)
	asymmetric information	(-)	García-Sanchez and Noguera-Gamez (2017), Zúñiga et al. (2020).
	corporate tax avoidance	(-)	Donkor et al. (2022)
	investors' base	+	Serafeim (2015)
	relational capital and organization's reputation	+	(Casonato et al., 2019).
	disclosure of intellectual capital	+	Terblanche and De Villiers (2019)

Table 10: IIRC framework, 2021

Guiding principles	Content elements	Fundamental concepts
1. Strategic focus and future orientation. **2. Connectivity of information** **3. Stakeholder relationships.** **4. Materiality** **5. Conciseness.** **6. Reliability and completeness** **7. Consistency and comparability**	1. Organizational overview & external environment 2. business model 3. risks & opportunities 4. strategy & resource allocation 5. governance 6. performance 7. outlook 8. basis of presentation	1 Human Intellectual Financial Manufactured social and relationship natural Capitals 2. Value creation process

Source; IIRC (2021)

Table 11: Variables of the Integrated Reporting Scoreboard

Background	Assurance and reliability	Content	Form
1. **motivations underlying the choice of adopting IR** 2. **objectives pursued by the IR** 3. **beneficiaries of the document** 4. **manager in charge of IR process** 5. **CEO's commitment** 6. **title of the report** 7. **consistency of IR with generally applied disclosure standards**	8. internal audit 9. third-party verification 10. acknowledgements and awards for IR	11. organizational overview & external environment 12. business model 13. risks & opportunities 14. strategy & resource allocation 15. governance 16. performance 17. outlook 18. basis of presentation 19. capitals 20. value creation process	21. readability and clarity 22. conciseness 23. accessibility

Source; Pistoni, et al., (2018)

Table 18: Measures of Dependent, Independent and control variables.

Variable	Measures	Literature	Source
1. Dependent variable (IRO)	IRBSC focusing on four different perspectives (financial, stakeholders, internal and learning and growth perspectives), sum of scores is 115		
2. Independent variables			
Board characteristics			
1. Board size (B_SIZE)	The total number of board members at the end of the fiscal year.	Chouaibi, et al., (2022); Alfiero et al. (2017) & Songini, et al., (2021)	The Bloomberg database
2. Board independence. (B_INDEP)	The percentage of non-executive directors within the board. (Number of non-executive on board / total board size)	Cooray, et al., (2020); Chouaibi, et al., (2022). & Songini, et al., (2021).	The Bloomberg database
3. Board gender diversity. (B_DIV)	The percentage of women on the board.(Number of females on board / total board size)	Marrone, (2020); Songini, et al., (2021)	The Bloomberg database
4. Board expertise (B_EXP)	The proportion of board members with financial or/and accounting expertise to the total board members	Alshirah, et al., (2020)	The Bloomberg database
5. Board meeting frequencies (B_MF)	Number of board meetings.	Qaderi, et al., (2022).	The Bloomberg database

Audit committee characteristics			
6. Audit committee Size (AC_SIZE)	The number of members on the audit committee (AC) at the end of fiscal year.	Al Lawati, et al., (2021); Raimo, et al., (2021).	The Bloomberg database
7. Audit committee independence (AC_INDEP)	The percentage of independent non-executive directors on the audit committee. (Non-executive directors /all AC members)	(Ahmed Haji, (2015); Raimo, et al., (2021)	The Bloomberg database
8. Audit committee gender diversity (AC_DIV)	The proportions of females on the AC (Number of females on AC / total AC members)	Al Lawati, et al., (2021).	The Bloomberg database
9. Audit committee expertise (AC_EXP)	The percentage of AC members with financial and accounting expertise to the total AC members	Al Lawati, et al., (2021).	The Bloomberg database
10. Audit committee meeting frequencies (AC_MF)	The frequency of committee meetings held during the year	Raimo, et al., (2021)	Bloomberg database
External variables			
11. Free float (FREE_F)	The percentage of total shares in issue available to ordinary investors. The total number of shares less the strategic holdings. In general, only holdings of 5% or more are counted as strategic ownership.	Preuß, et al., (2019); Abdel Megeid,	The Bloomberg database
12. External audit firm size (EA_ SIZE)	Dummy variable 1 if the auditor is one of the Big 4 auditing firms and 0 otherwise.	Adel, et al., (2019);	The Bloomberg database
3. Control variables			
Firm control			
• Size (F_SIZE)	Natural logarithm of total assets.	Cooray, et al., (2020)	The Bloomberg database
• Leverage (LEV)	Total financial debt reported to total assets	Wang, et al., (2020)	The Bloomberg database
• growth opportunities (GROW)	The natural logarithm of market-to-book ratio.	Girella, et al., (2019).	The Bloomberg database
• Profitability (ROE)	ROE (Net profit after tax/total equity).	Songini, et al., 2021); Cooray, et al.,(2020)	The Bloomberg database
• Liquidity (LIQ)	The ratio of current assets divided by current liabilities	Mawardani, & Harymawan, (2021)	The Bloomberg database
• Sustainability / CSR committee (CSRCOM)	A dummy variable that takes a score of 1 if there is a sustainability or CSR committee within the company and 0 otherwise.	Raimo, et al., (2021).	The Bloomberg database
Country control			
• Culture system		García-Sánchez, et al., (2013); Vaz et al., 2016	Hofstede's insights[1]
	power distance: (POW) Hofstede's scores range from 100 (the highest) to 0 (the lowest).		

[1] Country comparison tool (hofstede-insights.com).

	Individualism: (INDIV) Hofstede's scores range from 100 (the highest) to 0 (the lowest)		
	Masculinity (MASC) Hofstede's scores range from 100 (the highest) to 0 (the lowest).		
	uncertainty avoidance: (AVOID) Hofstede's scores range from 100 (the highest) to 0 (the lowest)		
	long-term orientation: (ORI) Hofstede's scores range from 100 (the highest) to 0 (the lowest).		
Economic system (GDP)	The natural log of the country GDP.	García-Sánchez, & Noguera-Gámez, (2017).	*THE WORLD BANK database*[2]

[2] https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?view=chart