DOES THE INSTITUTIONAL ENVIRONMENT AFFECT SUSTAINABILITY REPORTING? WORLDWIDE EVIDENCE[*]

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ABSTRACT

This study aims to examine the association between the institutional environment and the adoption of Global Reporting Initiative (GRI) guidelines. The research sample covers the largest 500 companies in the world, based on *Fortune* magazine's 2020 ranking. A logistic regression is conducted to examine the relationship between the institutional environment and GRI adoption. The findings reveal that companies from countries with high environmental development and social progress and strong governance are more likely to release GRI-based sustainability reports. This study implies the significant role of country-level institutional factors in corporate reporting.

Keywords: Institutional Environment, Institutional Factors, Sustainability Reporting, GRI

JEL Classification: G34, M40, M48

KURUMSAL ÇEVRE SÜRDÜRÜLEBİLİRLİK RAPORLAMASINI ETKİLER Mİ? DÜNYA ÇAPINDA BİR ARAŞTIRMA

ÖZ

Bu çalışma, kurumsal çevre ile Küresel Raporlama Girişimi (Global Reporting Initiative-GRI) ilkelerinin uygulanması arasındaki ilişkiyi incelemeyi amaçlamaktadır. Çalışmanın örneklemi, Fortune dergisinin 2020 yılı sıralaması doğrultusunda belirlenen dünyanın en büyük 500 işletmesini kapsamaktadır. Kurumsal çevre ve GRI uygulaması arasındaki ilişki lojistik regresyon yöntemi ile

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analiz edilmiştir. Çalışmanın sonuçları, yüksek çevresel gelişme ve sosyal ilerleme ve güçlü kurumsal yapıya sahip ülkelerdeki işletmelerin GRI çerçevesi ile uyumlu sürdürülebilirlik raporu yayınlama eğiliminin daha yüksek olduğunu göstermiştir. Bu çalışma, ülke düzeyindeki kurumsal faktörlerin şirket raporlamasındaki önemli rolünü ortaya koymuştur.

Anahtar Kelimeler: Kurumsal Çevre, Kurumsal Faktörler, Sürdürülebilirlik Raporlaması, GRI

JEL Sınıflandırması: G34, M40, M48

GENİŞLETİLMİŞ ÖZET

AMAÇ VE MOTİVASYON

Son yıllarda, iklim değişikliği, küresel ısınma, karbon emisyonları ve hava kirliliği gibi çevresel konular, gelir adaletsizliği, yoksulluk ve cinsiyet eşitsizliği gibi sosyal konular ülke yönetimleri, işletmeler ve toplum açısından çok önemli bir hale gelmiştir. İşletme paydaşlarının çevresel ve sosyal konular hakkında daha duyarlı olması, işletmelerin faaliyetlerinde çevresel ve sosyal konulara hassasiyet göstermesi ve bu konularda gerçekleştirdikleri faaliyetleri raporlaması hususunda yoğun bir baskı hissetmesi sonucunu doğurmuştur. Sürdürülebilirlik raporlaması, işletmelere paydaşlarla ilişkilerin geliştirilmesi, kurumsal saygınlık ve imajın güçlendirilmesi ve toplumsal güvenin kazanılması gibi birçok fayda sağlamaktadır. Sürdürülebilirlik faaliyetleri ile ilgili bilgi sunumu hala birçok ülkede yasa veya standartlarla düzenlenmediğinden, sürdürülebilirlik raporlaması işletmeler tarafından isteğe bağlı bir uygulama olarak gerçekleştirilmektedir. Bu durum, işletmelerin sürdürülebilirlik raporlaması isteğini hangi faktörlerin etkilediği konusunu ilgi çeken bir araştırma alanı haline getirmiştir.

İşletmelerin sürdürülebilirlik raporlama eğilimini büyüklük, karlılık, borçluluk, sahiplik yapısı ve yönetim kurulu yapısı gibi işletme düzeyinde faktörler etkileyebileceği gibi, kurumsal çevre, ekonomik gelişmişlik seviyesi ve kültür gibi ülke düzeyinde faktörler de etkileyebilir. Ülke düzeyinde olan faktörler işletmelerin yönetiminde ve kontrolünde olmasa da işletmelerin sürdürülebilirlik faaliyetleri ve raporlaması üzerinde önemli bir etki oluşturabilmektedir. Örneğin, çevresel gelişimi ve sosyal gelişmişlik düzeyi yüksek olan ülkelerde, paydaşlar çevresel ve sosyal konulara daha fazla ilgi göstermekte ve işletmeler üzerinde de bu yönde daha fazla baskı uygulayabilmektedirler.

Sürdürülebilirlik faaliyetlerini raporlamak için dünya genelinde kabul görmüş bir standart seti olmasa da Küresel Raporlama Girişimi (Global Reporting Initiative-GRI) bu anlamda en yaygın kullanılan ve bilinen bir raporlama çerçevesi olmuştur (Legendre & Coderre, 2013). Bu bağlamda, bu çalışma kurumsal çevrenin işletmelerin GRI standartları ile uyumlu sürdürülebilirlik raporu yayınlama eğilimine etkisini incelemeyi amaçlamaktadır.

Çalışmanın literatüre önemli katkılar sağlayacağı düşünülmektedir. İlk olarak, literatürde yer alan çalışmalar daha çok işletme düzeyindeki faktörlerin sürdürülebilirlik raporlamasına etkisini incelerken, bu çalışma ülke düzeyinde kurumsal çevrenin sürdürülebilirlik raporlamasına etkisini incelemektedir. Ayrıca, sürdürülebilirlik raporlamasını etkileyen faktörleri inceleyen çalışmalar genellikle belirli bir ülke veya bölgeye ve tek bir sektöre odaklanmışken, bu çalışma çeşitli sektörlerde faaliyet gösteren işletmelerden oluşan uluslararası bir örneklem kullanmaktadır. Son olarak bu çalışma, kurumsal çevreyi çevresel gelişim, sosyal ilerleme ve kurumsal yönetim olarak üç farklı değişken ile değerlendirerek kurumsal çevre ve sürdürülebilirlik raporlaması arasındaki ilişkiyi ele alan literatüre önemli bir katkı sunmayı hedeflemektedir.

ARAŞTIRMA STRATEJİSİ VE YÖNTEMİ

Kurumsal teori, kurumsal çevrenin işletmelerin sürdürebilirlik faaliyetlerini ve raporlamasını etkileyebileceğini ileri sürmektedir (Campbell, 2007). Bu teoriye göre, paydaşların kurumsal çevrenin etkisiyle oluşan ihtiyaç, talep ve beklentileri, işletmelerin sürdürülebilirlik faaliyetlerini ve sürdürülebilirlik raporlaması gerçekleştirme eğilimlerini etkilemektedir. Örneğin, çevresel ve sosyal gelişmişlik düzeyi yüksek olan ülkelerde paydaşların sürdürülebilirlik ile ilgili farkındalıklarının yüksek olması ve işletmelere sürdürülebilirlik faaliyeti gerçekleştirmeleri ile ilgili daha yoğun baskı uygulamaları beklenmektedir (Jensen & Berg, 2012). Ayrıca, güçlü kurumsal çevreye sahip ülkelerde işletmelerin gerçekleştirdikleri faaliyetler ile ilgili daha şeffaf ve gerçekçi bilgi sunması beklenmektedir. Gelişmişlik düzeyi düşük olan ülkelerde ise halk ekonomik ve güvenlik gibi daha temel sorunlara öncelik vereceği için sürdürülebilirlik ile ilgili konulara daha az duyarlı olacaktır (Jensen & Berg, 2012). Bunun sonucu olarak, bu ülkelerde işletmelerin sürdürülebilirlik faaliyeti gerçekleştirmeleri ve gerçekleştirdikleri faaliyetleri raporlamaları hususunda hissettikleri paydaş beklentisi ve baskısı daha düşük olacaktır.

Bu tartışmalar doğrultusunda, çevresel ve sosyal gelişmişlik seviyesi yüksek ve kurumsal yönetim sistemi güçlü olan ülkelerde, işletmelerin sürdürülebilirlik ile ilgili faaliyet gerçekleştirme ve bu faaliyetleri şeffaf bir şekilde sunma isteklerinin daha yüksek olması beklenmektedir. Buna göre, aşağıdaki üç hipotez geliştirilmiştir:

Hipotez 1: Yüksek çevresel gelişme düzeyine sahip ülkelerde bulunan işletmelerin GRI ile uyumlu sürdürülebilirlik raporu yayınlama olasılıkları daha yüksektir.

Hipotez 2: Yüksek sosyal ilerleme düzeyine sahip ülkelerde bulunan işletmelerin GRI ile uyumlu sürdürülebilirlik raporu yayınlama olasılıkları daha yüksektir.

Hipotez 3: Güçlü bir kurumsal yönetim sistemine sahip ülkelerde bulunan işletmelerin GRI ile uyumlu sürdürülebilirlik raporu yayınlama olasılıkları daha yüksektir.

Çalışmanın örneklemini 2020 yılı Fortune Küresel 500 listesinde yer alan işletmeler oluşturmaktadır. Çalışmada, kurumsal çevrenin işletmelerin GRI ile uyumlu sürdürülebilirlik raporu yayınlama eğilimine etkisi lojistik regresyon yöntemi ile incelenmiştir. İşletmeler sürdürülebilirlik faaliyetlerini faaliyet raporlarında veya ayrı bir kurumsal sosyal sorumluluk (KSS) veya sürdürülebilirlik raporunda yayınlayabilir ve paydaşlarını çevresel ve sosyal konular ile ilgili gerçekleştirdikleri faaliyetler hakkında bilgilendirilebilirler. GRI ilkeleri sürdürülebilirlik raporlaması için işletmeler tarafından en yaygın kullanılan bir raporlama çerçevesi olmuştur. Bu çalışmada işletmelerin sürdürülebilirlik raporlama eğilimi GRI ile uyumlu ayrı bir sürdürülebilirlik raporu yayınlamış olmaları ile ölçülmüştür. Kurumsal çevre ise ülkelerin çevresel gelişme, sosyal ilerleme ve kurumsal yönetim düzeyi olarak üç farklı değişken ile değerlendirilmiştir. Ayrıca, işletme büyüklüğü, karlılık, faaliyet gösterilen sektör ve bulunulan ülkenin gayrisafi yurt içi hasılası (GSYİH) analize kontrol değişkenleri olarak dahil edilmiştir.

BULGULAR VE TARTIŞMA

Çalışmanın sonuçları, kurumsal çevre ile ilgili belirlenen çevresel gelişme, sosyal ilerleme ve kurumsal yönetim gibi tüm alt faktörlerin işletmelerin GRI ile uyumlu sürdürülebilirlik raporu yayınlamasına istatistiki olarak anlamlı ve pozitif etki yaptığını ortaya koymuştur. Bu doğrultuda, Hipotez 1, Hipotez 2 ve Hipotez 3 kabul edilmiştir. Çalışma sonuçlarına göre, yüksek çevresel gelişme ve sosyal ilerleme düzeyine ve güçlü kurumsal yönetime sahip ülkelerde faaliyet gösteren işletmelerin sürdürülebilirlik raporlaması gerçekleştirme ve bu raporlarında GRI ilkelerini kullanma eğilimleri daha yüksektir. Bu sonuçlar, yüksek çevresel gelişme ve sosyal ilerleme düzeyine sahip ülkelerde paydaşların sürdürülebilirlik konusu ile ilgili daha hassas oldukları ve işletmelere sürdürülebilirlik faaliyeti gerçekleştirmeleri ve gerçekleştirdikleri faaliyetleri şeffaf bir şekilde sunmaları hususunda daha yoğun baskı uyguladıkları görüşünü doğrulamıştır. Ayrıca, ifade özgürlüğü ve hesap verebilirlik, siyasal istikrar, hükümet etkinliği, yasal uygulamaların etkinliği, hukukun üstünlüğü ve yolsuzluğun kontrolü gibi faktörlerle ölçülen kurumsal yönetimin güçlü olduğu ülkelerde işletmelerin sürdürülebilirlik faaliyetleri ile ilgili daha şeffaf oldukları tespit edilmiştir.

SONUÇ VE ÖNERİLER

Çalışma sonuçları, yüksek çevresel gelişmişlik ve sosyal ilerleme düzeyine ve güçlü kurumsal yönetime sahip ülkelerde faaliyet gösteren işletmelerin GRI ile uyumlu sürdürülebilirlik raporlaması yapma eğilimlerinin daha yüksek olduğunu göstermiştir. Buna göre, kurumsal çevre, sürdürülebilirlik raporlamasını etkileyen önemli bir faktördür. Bu sonuç, güçlü kurumsal mekanizmaların bulunduğu ülkelerde faaliyet gösteren işletmelerin çevresel ve sosyal konulara hassas olmaları ve bu konular ile ilgili gerçekleştirdikleri faaliyetlerini şeffaf bir şekilde raporlamaları hususunda daha yoğun bir baskı hissettikleri görüşünü doğrulamaktadır. Hesap verebilirlik ve şeffaflığın yüksek olduğu, siyasi

istikrarın sağlandığı, güçlü bir hukuki çerçevenin oluşturulduğu ve yolsuzluğun etkin bir şekilde kontrol edildiği ülkelerde, işletmeler sosyal sorumluluklarına daha çok önem verecek ve bu sorumluluklarını yerine getirmek için yaptıkları faaliyetler hakkında daha güvenilir ve ayrıntılı bilgi sunacaklardır. Sonuç olarak, güçlü bir kurumsal çevre işletmeleri daha güvenilir ve doğru bilgi sunumu ve GRI raporlaması yapma konusunda teşvik edecektir.

Çalışmanın literatüre önemli katkılar sunması beklenmektedir. Öncelikle çalışma, işletme düzeyindeki özelliklerin yanı sıra ülke düzeyinde olan faktörlerin de işletmelerin sürdürülebilirlik raporlaması eğilimine etkisini inceleyerek literatüre katkı sunmuştur. Ayrıca, kurumsal çevre ve sürdürülebilirlik raporlaması arasındaki ilişkiyi ele alan önceki çalışmalar, belirli bir ülke ve bölgeye veya sektöre odaklanmışken, bu çalışma birçok sektörde faaliyet gösteren uluslararası bir örneklem kullanarak kurumsal çevrenin sürdürülebilirlik raporlaması üzerindeki anlamlı etkisini ortaya koymuştur. Son olarak çalışma, çevresel gelişmişlik, sosyal ilerleme ve kurumsal yönetim olarak kurumsal çevrenin değerlendirilmesinde kullandığı üç değişkenin de sürdürülebilirlik raporlamasını anlamlı olarak etkilediğini göstererek bu alandaki literatüre katkı sağlamıştır.

1. INTRODUCTION

Over the past few decades, environmental issues such as carbon emissions, climate change, and air pollution and social issues such as income inequality, poverty, and gender inequality have become increasingly important for regulators, firms, and civil society. As corporate stakeholders have become more conscious about social and environmental issues, the disclosure of credible and reliable sustainability information is now a significant factor in maintaining strong relations with stakeholders, enhancing corporate reputation, gaining public trust, and improving public image. Companies publish corporate social responsibility (CSR)[1] accomplishments to signal that they act responsibly. Since the disclosure of sustainability issues is not mandated by law in most countries, sustainability reporting (SR) remains a voluntary practice for firms.

Although firm-level characteristics can have a significant role in influencing companies' decisions to engage in SR, the institutional environment can also impact companies' willingness to manage sustainability-related issues and report sustainability practices (Hahn & Kühnen, 2013; Rosati & Faria, 2019; Hamrouni et al., 2023). Corporate reporting can be associated with internal factors such as size, profitability, industry, and board structure as well as external factors such as national socio-economic environment, political system, and culture that are related to the company's country of origin. The

[1] The concepts CSR and sustainability are used interchangeably in the whole paper, referring to a wide variety of corporate activities such as environmental strategies, labor policies, principles addressing human rights, programs supporting sportive and cultural activities, donations, and explicit policies that mitigate corruption.

investigation of the impact of external factors on corporate activities is important since such factors cannot be easily controlled and managed by firms.

Institutional theory provides an appropriate framework to understand how and why institutional forces drive sustainability practices (Campbell, 2007). According to this theory, companies tend to act in a more responsible way when operating in an environment with strong regulations, institutionalized norms regarding acceptable corporate behavior, nongovernmental and other independent social movement organizations monitoring corporate activities and policies, and robust communication between companies and stakeholders (Campbell, 2007). As sustainability performance and reporting can depend on the institutional factors that vary across countries, it is essential to examine the link between institutional environment and SR. However, most prior research examined firm-specific characteristics affecting SR while neglecting the impact of country-level institutional factors on SR (e.g., Yasser et al., 2017; Oh et al., 2019; Gallego-Álvarez & Pucheta-Martínez, 2020). Furthermore, studies on the link between the institutional environment and SR mostly focused on a single country or a specific region (e.g., Fifka & Pobizhan, 2014; Khan et al., 2020; Gerged & Almontaser, 2021). The primary motivation for this study is to explore the role of institutional factors in impacting companies' decisions to undertake CSR practices and report their CSR activity in an international setting.

Firms are subject to increasing pressure from various stakeholder groups to act responsibly and be transparent about their sustainability practices. Stakeholder theory argues that firms must consider the needs and demands of their stakeholders (Freeman, 1984). The demands, needs, and concerns of stakeholders can be shaped by country-level factors, which ultimately affect firms' activities. For instance, in a country with higher environmental and social development, stakeholder pressures about sustainability issues may be stronger, which may lead companies to be accountable and transparent about their sustainability performance. In this context, the investigation of institutional factors that impact SR may also shed light on the role of stakeholder expectations on companies' CSR policy and transparency at the macro level.

Although there is no globally accepted framework for documenting sustainability practices, the Global Reporting Initiative (GRI) has been the most widely used and popular framework for SR (Legendre & Coderre, 2013). This study measures companies' tendency for SR as the presence of a standalone sustainability report in compliance with GRI guidelines. Therefore, this study aims to investigate the impact of national institutional factors, namely environmental development, social progress, and governance structure on the adoption of GRI guidelines. In doing so, it examines how country-level environment, social, and governance (ESG) performance affects firm-level corporate reporting behavior.

The research sample references the 2020 list of Fortune Global 500 companies released by *Fortune* magazine. A logistics regression is conducted to examine the association between institutional factors and GRI adoption by Fortune 500 companies. The research findings demonstrate that companies originating from countries with high environmental and social development and strong governance have more willingness to release GRI-based sustainability reports. The results reveal that countries with low environmental and social development and weak governance should prioritize improving institutional quality to enhance corporate transparency related to sustainability commitments.

This study advances prior literature through several important contributions. First, it analyzes the association between institutional environment and SR, while most previous research has investigated the impact of firm-specific characteristics on sustainability performance and reporting (e.g., Yasser et al., 2017). This study enriches this stream of research by documenting that the institutional environment is one of the significant factors that can motivate companies to engage in GRI-based SR. Second, prior research has primarily focused on a single country (e.g., Fifka & Pobizhan, 2014; Khan et al., 2020; Gerged & Almontaser, 2021) or region (e.g., Tran & Beddewela, 2020) or a particular industry (e.g., Kılıç et al., 2019; Gerged & Almontaser, 2021; Uyar et al., 2021; Yuan et al., 2023). This study enhances our understanding of the effect of macro-level factors on corporate reporting practices as it examines the relationship between institutional environment and SR in an international setting using a set of companies that operate in several sectors such as apparel, chemical, financials, food and beverages, industrials, materials, pharmaceuticals, retailing, tourism, transportation, etc. Third, it measures institutional quality with three indicators, namely environmental development, social progress, and governance structure, providing more comprehensive insights.

The rest of this paper is set out as follows. Section 2 summarizes the literature review on the link between the institutional environment and SR. Section 3 explains the theoretical framework and develops hypotheses. Section 4 describes the sample and methodology, which is followed by section 5 discussing the results. Finally, the last section presents the conclusions, implications, and limitations of the study and provides some suggestions for future research.

2. LITERATURE REVIEW

Corporate reporting practices can be impacted by firm-specific characteristics as well as factors associated with firms' country of origin. A strand of research concentrated on the effects of country-level factors such as political and legal systems, economic development, financial market systems, sustainable development, and culture and norms on sustainability performance and reporting (e.g., Li et al., 2010; Legendre & Coderre, 2013; Rosati & Faria, 2019; Tran & Beddewela, 2020; Yuan et al., 2023), suggesting that national institutional factors can drive firms' decisions to address

environmental and social issues and report about sustainability efforts. For example, examining the association between the governance environment and CSR reporting in emerging countries, Li et al. (2010) found that the governance environment is the most significant factor impacting CSR reporting. Using a sample of Fortune 500 companies, Legendre & Coderre (2013) found that a country's business culture significantly impacts firms' tendency to adopt the GRI guidelines. Rosati and Faria (2019) documented that national CSR performance, vulnerability to climate change, labor laws, and cultural factors are significant drivers of firms' willingness to report on the sustainable development goals (SDGs) in sustainability reports. Tran and Beddewela (2020) analyzed the relationship between institutional factors (i.e., regulative, cultural-cognitive, and normative) and sustainability disclosures in the Southeast Asian region, documenting that pressures emanating from these institutional factors result in greater sustainability disclosure and transparency. Furthermore, Kılıç et al. (2019) examined the relationship between the institutional environment and SR in the global aviation industry and found that the institutional environment is an important driver of GRI adoption. With a focus on the global tourism industry, Uyar et al. (2021) and Yuan et al. (2023) documented that the institutional environment significantly impacts companies' SR practices.

Another strand of research examined whether and how the institutional environment influences stakeholder expectations about CSR-related issues, which will in turn impact organizational CSR practice and disclosure (e.g., Doh & Guay, 2006; Kim et al., 2018; Singh & Mittal, 2019). For instance, Doh and Guay (2006) analyzed how institutional differences between Europe and the United States impact expectations about CSR. They found that different regulatory frameworks and institutional structures are important factors in impacting government policy, organizational strategy, and non-governmental organization (NGO) activism regarding CSR issues. Singh and Mittal (2019) documented an insignificant impact of secondary stakeholders (i.e., nongovernmental organizations and community groups) on the implementation of CSR activities by companies in India. They stated that weak institutional mechanisms impair secondary stakeholders' power and legitimacy, and thus limit their influence over organizational CSR policy and activity. Drawing on stakeholder influence and institutional duality arguments, Kim et al. (2018) analyzed the effect of stakeholders on Korean subsidiaries' CSR practices. In line with Singh and Mittal (2019), they documented that the stakeholder impact on companies' CSR practices is weaker in a country characterized by institutional voids.

Although the above-mentioned studies make a significant contribution to the understanding of factors driving SR, they mostly focused on a specific country or region or a particular industry, limiting the generalizability of their findings. This study aims to fill this gap in the previous literature examining the impact of the institutional environment on firms' propensity to report their sustainability performance using the GRI guidelines in an international context. Most prior studies

have also evaluated the quality of the institutional environment using a single dimension. This study measures the quality of the institutional environment with three dimensions, namely environmental development, social progress, and governance structure.

3. THEORETICAL BACKGROUND AND HYPOTHESES

Prior research used the institutional theory and stakeholder theory perspectives to explain the role of external pressures in CSR activity and reporting (e.g., Doh & Guay, 2006; Kim et al., 2018; Singh & Mittal; 2019; Simoni et al., 2020). While the institutional theory perspective highlights the role of the institutional environment in driving organizational CSR policies and decision-making, the stakeholder theory perspective emphasizes the significance of considering stakeholders' demands and expectations in making CSR decisions (Vashchenko, 2017). As institutional and stakeholder theories commonly argue that external factors are important drivers of CSR-related decisions, the relationship between the institutional environment and SR can be analyzed by combining the arguments of both theoretical perspectives.

The institutional theory provides a framework to understand the impact of national formal and informal settings on sustainability performance and reporting (Campbell, 2007). DiMaggio and Powell (1983) suggest that institutions exert three types of isomorphic pressures on firms: coercive, normative, and mimetic. *Coercive isomorphism* is defined as "resulting from both formal and informal pressures exerted on organizations upon which they are dependent" such as the regulatory and legal systems (DiMaggio & Powell, 1983, p. 150). *Normative isomorphism* refers to "pressures stem from professionalization" that is established by universities and professional training institutions and networks (DiMaggio & Powell, 1983, p. 152). *Mimetic isomorphism* refers to imitating successful organizations when there is a situation of uncertainty that makes companies doubtful about which strategy to choose (DiMaggio & Powell, 1983, p. 151).

Stakeholder management focuses on the actors who affect, or in turn are affected by the company (Freeman, 1984). The stakeholder theory argues that firms are responsible not only to their shareholders, but also to other stakeholders, such as employees, customers, suppliers, and the community (Doh & Guay, 2006). This theory emphasizes the significance of investing in the management of stakeholder relations to identify the relevant stakeholder groups, understand the expectations and demands of each stakeholder group, and effectively respond to stakeholder needs and concerns (Singh & Mittal, 2019). The institutional theory perspective assumes that the social context significantly affects human behavior (Pedersen et al., 2013). In this sense, variations in institutional environments lead to differences in the demands and perceptions of stakeholders regarding the development and implementation of CSR policies (Doh & Guay, 2006). In other words, responsible

corporate behavior is affected by the demands and expectations of stakeholders, which are shaped by the national formal and informal institutions (Amor-Esteban et al., 2019).

A strong institutional environment refers to a strong legal environment, effectively enforced laws and regulations, and supportive government policies and strategies (Han et al., 2022). This can result in considerable regulatory pressure on companies, leading them to act more responsibly and report sustainability accomplishments accordingly (Karmani & Boussaada, 2021). Furthermore, in a developed institutional environment, stakeholders may put more pressure on companies to adopt CSR practices and publish credible CSR information. Conversely, companies that operate in countries with weak institutional environments are less likely to report environmental and social initiatives due to the lack of institutional and stakeholder pressure. This argument suggests that while a strong institutional environment promotes SR, a weak institutional environment impedes it. In this context, this study analyzes whether and how GRI adoption is impacted by three components of the institutional environment: environmental development, social progress, and governance structure.

3.1. Environmental Development and Social Progress

A country's sustainable development may affect firms' sustainability performance, which ultimately impacts SR and GRI adoption. The stakeholder theory argues that companies should consider their stakeholders' demands and concerns when making corporate decisions and determining organizational policies and strategies. According to this theory, companies can implement CSR activities and report their CSR accomplishments to seek the approval and support of their stakeholders (Simoni et al., 2020). In this context, companies publish SR as a reaction to the demands of stakeholders for greater involvement in public welfare and more transparency about environmental and social performance (Li et al., 2010). The institutional environment can shape the attitudes, values, and interests of stakeholders, and thus their expectations and concerns about CSR. Hence, in countries with high environmental development and social progress, citizens may give more priority to sustainability-related issues, which may create intense pressure on companies to act environmentally and be socially responsible and publish credible sustainability information. On the contrary, in developing and less developed countries, citizens may put more importance on survival issues like economic and physical security (Jensen & Berg, 2012). This may limit the pressure on firms to undertake sustainability practices, resulting in low sustainability performance and transparency. In support of these theoretical discussions, Rosati and Faria (2019) documented that firms in countries with higher national CSR performance have more propensity to engage in SDG reporting. Likewise, the results of Kılıç et al. (2019), Uyar et al. (2021), and Yuan et al. (2023) denoted that national environmental development and social performance significantly impact firms' tendency to adopt the GRI guidelines.

Based on the above discussion, a strong institutional context with high environmental development and social progress is expected to prompt firms to release standalone sustainability reports and adopt the GRI guidelines. Thus, the following hypotheses are proposed:

Hypothesis 1: Companies originating from countries with high environmental development are more likely to publish a sustainability report using the GRI guidelines.

Hypothesis 2: Companies originating from countries with high social progress are more likely to publish a sustainability report using the GRI guidelines.

3.2. Governance Structure

The regulatory environment is an important factor that may affect SR (Pedersen et al., 2013). When laws are fairly made and effectively enforced in a country, the checks and balances system would be strong (Li et al., 2010), prompting the government to put more emphasis on environmental and social issues. As the institutional environment impacts the expectations and demands of stakeholders (Doh & Guay, 2006), in cultures with greater transparency, society demands more information from firms about their activities (Nikolaeva & Bicho, 2011). Hence, in countries where corruption is low and corporate and government transparency is highly valued by citizens, firms would have higher propensity to engage in reporting to enhance corporate legitimacy (Nikolaeva & Bicho, 2011). Under this institutional environment, firms may face intense institutional and stakeholder pressures (Pedersen et al., 2013; Singh & Mittal, 2019; Li & Ramanathan, 2020), greater competitive pressures, and less uncertainty (Li & Ramanathan, 2020), which may induce them to act more responsibly and be more transparent about their sustainability performance. On the contrary, in countries experiencing a high level of corruption and government instability, sustainability-related activities may not be valued by stakeholders (Karmani & Boussaada, 2021), preventing firms from implementing sustainability strategies and reporting sustainability efforts. Karmani and Boussaada (2021) documented that strong institutional quality strengthens the link between CSR and firm performance. More specifically, the results of Li et al. (2010) found that firms that operate in countries with a strong governance environment have a higher propensity to publish CSR information. In a similar vein, Kılıç et al. (2019) and Uyar et al. (2021) determined that a strong national-level governance structure enhances the firms' propensity to adopt the GRI guidelines. In a recent study, Yuan et al. (2023) documented that an effective governance structure promotes the adoption of the GRI framework among companies. In line with these arguments, it is predicted that a strong institutional governance environment may lead companies to release standalone sustainability reports using the GRI guidelines. Thus, the following hypothesis is posited:

Hypothesis 3: Companies originating from countries with a strong governance structure are more likely to publish a sustainability report using the GRI guidelines.

Figure 1 demonstrates the study's theoretical framework and hypothesized relationships.

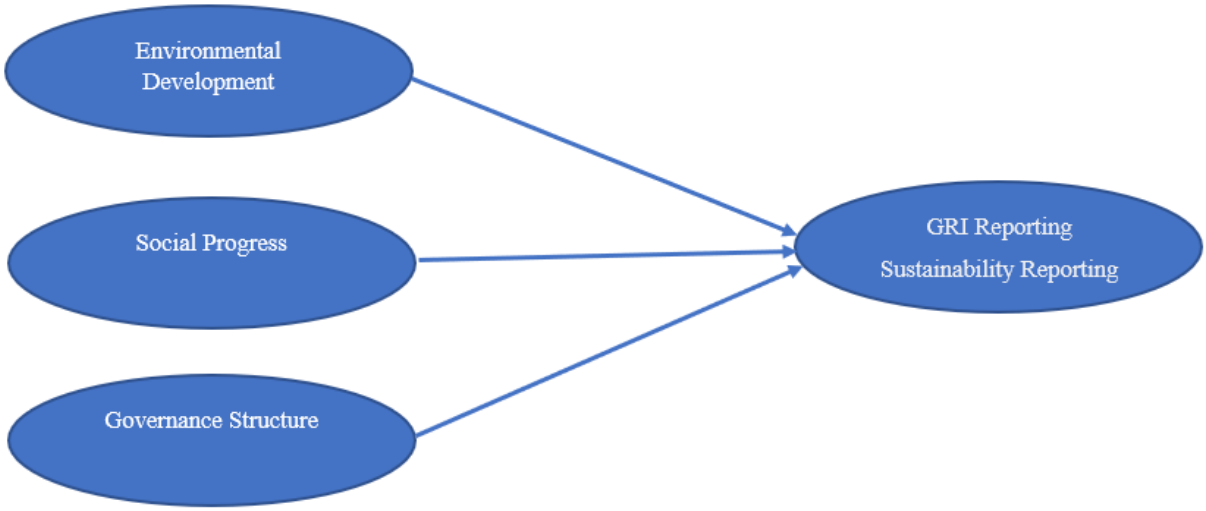

Figure 1. Theoretical Framework and Hypothesized Relationships

4. MATERIALS & METHODS

The materials and methods section includes the description of the variables and sample and formulation of the empirical research model.

4.1. Dependent Variables

GRI has become the most common and prominent framework for publishing sustainability disclosures around the world (Nikolaeva & Bicho, 2011; Legendre & Coderre, 2013). A recent survey by KPMG (2022) reported that 78% of the top 250 global companies[2] used the GRI framework for SR. To ensure the quality and proper presentation of sustainability information, GRI identifies certain principles for the quality of SR (GRI, 2021, p. 20)[3] and requires companies to apply these principles in the presentation of sustainability reports. Thus, despite the concerns about the reliability of the accuracy of sustainability data, GRI-based SR remains a more accurate and reliable way of sustainability communication (Migdadi & Omari, 2019).

Following the studies of Nikolaeva and Bicho (2011), Legendre and Coderre (2013), and Uyar et al. (2021), this study measures the dependent variable as the adoption of the GRI guidelines to determine a company's willingness to engage in GRI-based SR. The GRI's sustainability disclosure database (SDD) and corporate websites are examined to determine firms that release GRI-based sustainability reports. A binary coding is used and a value of 1 is assigned if a firm releases a stand-

[2] The largest 250 global companies were determined based on the 2021 Fortune 500 ranking.
[3] The GRI principles for the quality of SR are "accuracy, balance, clarity, comparability, completeness, sustainability context, timeliness, and verifiability" (GRI, 2021, p. 20).

alone sustainability report using the GRI guidelines, a value of 0, otherwise. Furthermore, this study measures firms' SR tendency as the existence of a stand-alone sustainability report (SASR). If a firm publishes a separate sustainability report, a value of 1 is assigned, and a value of 0, otherwise.

4.2. Independent Variables

The quality of the institutional environment is measured by three indicators, namely, environmental development, social progress, and governance structure. The environmental development score (ENVPI) is retrieved from the Environmental Performance Index (EPI), which was developed by Wendling et al. (2020). This index provides a quantitative basis for determining country-level environmental performance, covering the main dimensions of ecosystem vitality, health, and climate policy. The social progress score (SOCPI) is derived from the Social Progress Imperative (SPI) (2020). The SPI ranks countries based on social performance, which is measured as the average score of main dimensions, including foundations of wellbeing, basic human needs, and opportunity. Furthermore, this study evaluates governance performance (GOVPI) using the Worldwide Governance Indicators (WGI), which was developed by Kaufmann and Kraay (2020). The WGI computes a country's governance performance as the average score of six indicators: voice and accountability, political stability and absence of violence and terrorism, government effectiveness, regulatory quality, and rule of law.

4.3. Control Variables

This study includes several control variables to complete research models. First, it controls for firm size (SIZE), computed as the natural logarithm of total assets. Previous research suggests a positive relationship between firm size and SR because larger companies are under more scrutiny and pressure from the stakeholders to be transparent about their sustainability performance (Khan et al., 2020). Furthermore, large-sized companies have more resources to engage in sustainability practices and reporting, suggesting a positive relationship between firm size and GRI adoption. Second, this research controls for profitability (return on assets-ROA) by using the ratio of net income after tax to total assets. According to Legendre and Coderre (2013), high-profit companies are more likely to adopt the GRI framework to legitimize their activities. In support of this argument, prior research documented a positive relationship between profitability and SR (e.g., Haniffa & Cooke, 2002; Ali & Frynas, 2018). Third, affiliated industry (INDUST) is used as a control variable. If a company operates in an environmentally sensitive industry, a value of 1 is assigned, and a value of 0, otherwise. Following the study of Hackston and Milne (1996), industries such as chemicals, petroleum, automobile, agriculture, tobacco, and transportation are categorized as environmentally sensitive industries, whereas other industries (e.g., financials, telecom, food, healthcare, hotels, and wholesalers) are considered as environmentally non-sensitive. Firms operating in environmentally

sensitive industries may use SR as a legitimation tool (Gerged & Almontaser, 2021). Fourth, this study controls for economic development (LN_GDP), measured as the natural logarithm of a country's gross domestic product (GDP). Prior studies documented a positive relationship between economic development, usually measured by the logarithm of GDP or GDP per capita, and CSR performance (e.g., Baughn et al., 2007) and reporting (e.g., Li et al., 2010). The main argument for the positive relationship between economic development and CSR is that a higher level of wealth allows a country's citizens to be more concerned about sustainability-related issues (Baughn et al., 2007), putting more pressure on firms to act responsibly and publish credible CSR information. The list of variables and definitions is presented in Table 1.

Table 1. The List of Variables and Definitions

Variable	Definition	Source
GRI	A binary variable that is assigned a value of 1 if a company releases a stand-alone sustainability report using the GRI guidelines, and a value of 0, otherwise	GRI's SDD and corporate websites
SASR	A binary variable that is assigned a value of 1 if a company releases a stand-alone sustainability report, and a value of 0, otherwise	GRI's SDD and corporate websites
ENVPI	A country's environmental performance score, ranging from 0 (lowest) to 100 (highest)	Wendling et al. (2020)
SOCPI	A country's social progress score, ranging from 0 (lowest) to 100 (highest)	SPI (2020)
GOVPI	A country's governance score, ranging from 0 (lowest) to 100 (highest)	Kaufmann and Kraay (2020)
SIZE	Natural logarithm of total assets	Fortune (2020)
ROA	The ratio of net income after tax to total assets (%)	Fortune (2020)
INDUST	A binary variable that is assigned a value of 1 if a company operates in an environmentally sensitive industry, and a value of 0, otherwise	Fortune (2020)
LN_GDP	Natural logarithm of a country's Gross Domestic Product (at constant 2015 US$)	The World Bank (2020)

4.4. Sample

The sample used in this study is the list of 2020 Fortune Global 500 companies ranked by total revenue (Fortune, 2020). The *Fortune* magazine list has been commonly used in previous studies to investigate corporate sustainability performance and reporting (e.g., Shabana et al., 2017; Amini et al., 2018; Kılıç et al., 2021). The sample distribution based on country is presented in Table A1 (Please see the Appendix section). Accordingly, there are 33 countries, 24.4% from China, 24.2% from the USA, and 10.6% from Japan. Also, information on the existence of a mandatory SR regulation in

countries is provided in Table A1.[4] In the research sample, 23 of 33 countries have a mandatory regulation on CSR disclosure. The sample distribution based on industry is reported in Table A2 (Please see the Appendix section). There are 27 sectors ranging between 23.4% in the financial sector and 0.2% in tobacco, textiles, business services, and beverages.

The raw data is retrieved using several sources. Initially, the raw data is cleaned, subject to purification phases, transferred to the analysis software environment, and prepared for the forthcoming analysis steps. The data-screening phase is the crucial step before testing the research hypotheses (Hair et al., 2019). First, some of the research variables are winsorized. Initial descriptive statistics results show that ENVPI, SOCPI, GOVPI, SIZE, ROA, and LN_GDP have variability around the mean values. Second, multivariate outliers are investigated. As a result, no multivariate outliers are detected. Moreover, the missing value analysis is performed. The preliminary summary statistics indicate that ENVPI has 0.40% missing observations and LN_GDP has 1.8% missing observations, which are significantly less than 5% or less than 10%. Finally, although the ratios are significantly low, ENVPI and LN_GDP are imputed using the Markov chain Monte Carlo method.

4.5. Research Model

The research model incorporates linear associations between a binary categorical dependent variable and independent variables. The research models are formulated in the following equation using logistic regression analysis.

$$\Pr (Y = 1 \mid X_{i1}, X_{i2}) = F(\beta 0 + \beta 1.\ X_{i1} + \beta 2.\ X_{i2})$$

where F is the logistic distribution function $F(z) = \exp(z)/(1+\exp(z))$.

GRI is the binary dependent variable, denoted by the Y term; ENVPI, SOCPI, and GOVPI are the independent variables, denoted by X_{i1}; and SIZE, ROA, INDUST, and LN_GDP are the control variables, denoted by X_{i2}.

5. RESULTS & DISCUSSION

The results and discussion section presents descriptive statistics of the research variables, univariate and multivariate analysis results including the baseline analysis and robustness tests, and discussion of findings.

[4] The information on countries' SR regime is retrieved from Krueger et al. (2023). Krueger et al. (2023) explored SR policies and implications around the world and provided a list of countries that released a regulation on sustainability disclosure.

5.1. Descriptive Statistics

The research variables are subjected to fundamental descriptive statistical and frequency analyses (Table 2). The mean value of ENVPI is 62.86, SOCPI is 79.81, and GOVPI is 69.23. The results reveal that the average SIZE is 11.58, ROA is 0.03, and LN_GDP is 15.55. Finally, the results demonstrate that 78.00% of the firms adopt GRI guidelines, and 86.80% publish a stand-alone sustainability report. In addition, 50.20% of the firms operate in environmentally sensitive industries while 49.80% operate in environmentally non-sensitive industries.

Table 2. Descriptive Statistics

Variable	**Obs.**	**Mean**	**Std. Dev.**	**Min**	**Max**
ENVPI	500	62.86	16.70	27.60	82.50
SOCPI	500	79.81	15.91	0.00	92.63
GOVPI	500	69.23	16.33	26.19	96.75
SIZE	500	11.58	1.29	8.31	15.28
ROA	500	0.03	0.04	−0.06	0.17
LN_GDP	500	15.55	1.19	11.10	16.78
Variable	**Category**	**Frequency**	**Percent**		
GRI	Non-exist	110	22.00		
	Exist	390	78.00		
	Total	500	100.00		
SASR	Non-exist	66	13.20		
	Exist	434	86.80		
	Total	500	100.00		
INDUST	Sensitive	251	50.20		
	Non-Sensitive	249	49.80		
	Total	500	100.00		

5.2. Correlation Analysis

The correlation analysis is performed by reporting the Pearson Correlation coefficients (Table 3). The bivariate linear correlations are reported. The results show that ENVPI, SOCPI, and GOVPI do not have a significant linear correlation with GRI.

Table 3. Correlation Analysis

		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1	**GRI**	1							
2	**ENVPI**	0.087	1						
3	**SOCPI**	0.082	0.676*	1					
4	**GOVPI**	0.086	0.891*	0.522*	1				
5	**SIZE**	0.071	0.063	0.091*	-0.002	1			
6	**ROA**	-0.043	0.107*	0.065	0.093*	-0.240*	1		
7	**INDUST**	0.037	-0.099*	0.014	-0.125*	-0.324*	-0.064	1	
8	**LN_GDP**	-0.016	-0.426*	-0.216*	-0.343*	-0.023	0.099*	-0.076	1

*Note: * $p < 0.05$*

Further analysis is performed to check if there is any multicollinearity among the independent variables (Table 4). The research model is tested separately for each institutional factor, including ENVPI, SOCPI, and GOVPI. The Variance Inflation Factor (VIF) values are calculated for each

research model. The findings show that VIF values range between 1.07 and 1.29 which are significantly less than the recommended cut-off value of 10 (Neter et al., 1996; Hair et al., 2019). Thus, there is no multicollinearity between the independent variables employed in the research models.

Table 4. Multicollinearity Analysis

Variable	VIF	Variable	VIF	Variable	VIF
ENVPI	1.29	SIZE	1.23	SIZE	1.21
LN_GDP	1.27	INDUST	1.15	GOVPI	1.18
SIZE	1.21	ROA	1.11	INDUST	1.18
INDUST	1.16	SOCPI	1.07	LN_GDP	1.17
ROA	1.13	LN_GDP	1.07	ROA	1.11
Mean VIF	1.21	Mean VIF	1.13	Mean VIF	1.17

5.3. Baseline Analysis

The baseline research model is tested using logistic regression analysis (Table 5). The results show that ENVPI ($p < 0.05$), SOCPI ($p < 0.10$), and GOVPI ($p < 0.05$) have a significant positive association with GRI. Accordingly, Hypothesis 1, Hypothesis 2, and Hypothesis 3 are accepted, implying the significant role of the three country-level institutional factors, environmental development, social progress, and governance structure, on the adoption of GRI-based SR. This result suggests that the institutional environment is a significant determinant of GRI adoption in support of the findings in Kılıç et al. (2019), Uyar et al. (2021), and Yuan et al. (2023). This finding implies that in countries with strong institutions, firms face more pressure to publish more credible and reliable CSR information, leading them to publish standalone SR using the GRI guidelines.

Table 5. Logistic Regression Analysis

	(1)	(2)	(3)
Independent variables	**GRI**	**GRI**	**GRI**
ENVPI	0.016**		
	(1.97)		
SOCPI		0.010*	
		(1.71)	
GOVPI			0.016**
			(2.13)
SIZE	0.15**	0.14**	0.17**
	(2.02)	(2.00)	(2.27)
ROA	-2.20	-1.57	-1.84
	(-0.86)	(-0.67)	(-0.74)
INDUST	0.35**	0.27*	0.38**
	(2.04)	(1.70)	(2.20)
LN_GDP	0.085	0.012	0.063
	(0.89)	(0.13)	(0.67)
Constant	-2.85	-1.44	-2.88
	(-1.43)	(-0.89)	(-1.50)
N	500	500	500
Pseudo R^2	0.018	0.013	0.018
χ2-statistic	12.33**	17.79***	13.48**

Note: t-statistics are in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Standard errors are clustered by industry.

5.4. Robustness Analyses

Multiple analyses are performed to check the robustness of the initial analysis results. In this regard, an alternative dependent variable is used, an alternative analysis excluding financial companies is performed, and a sub-group analysis based on the SR regime is conducted.

First, SASR is introduced into the baseline research models as an alternative binary dependent variable (Table 6). The coefficients of the ENVPI, SOCPI, and GOVPI are significantly positive, confirming the baseline analysis results. This finding suggests that firms that operate in countries with strong institutions are more likely to be transparent about their CSR performance and publish sustainability reports. More specifically, high environmental and social development and a strong governance system can induce companies to publish a standalone sustainability report. This finding is consistent with Li et al. (2010), Kılıç et al. (2019), Rosati and Faria (2019), Uyar et al. (2021), and Yuan et al. (2023) documented a significant positive relationship between the institutional environment and SASR.

Table 6. SASR as an Alternative Dependent Variable

	(1)	(2)	(3)
Independent variables	**SASR**	**SASR**	**SASR**
ENVPI	0.018**		
	(2.10)		
SOCPI		0.0087*	
		(1.76)	
GOVPI			0.016*
			(1.94)
SIZE	0.0043	0.0026	0.024
	(0.04)	(0.02)	(0.20)
ROA	-4.45	-3.30	-3.77
	(-1.18)	(-0.90)	(-0.98)
INDUST	0.016	-0.072	0.028
	(0.06)	(-0.28)	(0.10)
LN_GDP	-0.12	-0.22**	-0.17
	(-1.15)	(-2.16)	(-1.48)
Constant	2.76	4.72**	3.25
	(1.15)	(2.34)	(1.31)
N	500	500	500
Pseudo R^2	0.025	0.017	0.022
χ2-statistic	16.59***	15.13***	16.16***

Note: t-statistics are in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Standard errors are clustered by industry.

Second, an alternative analysis excluding financial companies is performed (Table 7). Financial companies may be subject to different institutional pressures regarding SR. As the percentage of financial companies is high in the sample, the model is estimated again isolating the financial companies. The results reveal that ENVPI, SOCPI, and GOVPI have a significant positive association with GRI and SASR for the non-financial group, which is compatible with the initial results.

Table 7. Logistic Regression Analysis Excluding Financial Companies

	(1)	(2)	(3)	(4)	(5)	(6)
Independent variables	**GRI**	**GRI**	**GRI**	**SASR**	**SASR**	**SASR**
ENVPI	0.021**			0.024**		
	(2.02)			(2.58)		
SOCPI		0.016**			0.013**	
		(2.50)			(2.04)	
GOVPI			0.020**			0.020**
			(2.14)			(2.07)
SIZE	0.14	0.12	0.17	-0.064	-0.074	-0.034
	(1.30)	(1.16)	(1.54)	(-0.39)	(-0.45)	(-0.20)
ROA	-1.56	-0.79	-1.01	-2.96	-1.38	-1.95
	(-0.55)	(-0.32)	(-0.38)	(-0.74)	(-0.39)	(-0.51)
INDUST	0.41*	0.30	0.45**	0.18	0.064	0.20
	(1.79)	(1.30)	(1.97)	(0.58)	(0.21)	(0.63)
LN_GDP	0.044	-0.043	0.013	-0.13	-0.26**	-0.19
	(0.38)	(-0.44)	(0.12)	(-0.98)	(-2.17)	(-1.36)
Constant	-2.46	-0.86	-2.45	3.13	5.64**	3.82
	(-0.95)	(-0.44)	(-0.96)	(1.03)	(2.20)	(1.20)
N	383	383	383	383	383	383
Pseudo R^2	0.027	0.022	0.026	0.037	0.024	0.031
χ^2-statistic	11.20**	16.53***	12.30**	14.99**	11.19**	11.85**

Note: t-statistics are in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Standard errors are clustered by industry.

Third, two alternative sub-samples are generated based on the countries' SR regimes (Table 8). The sample is separated into two groups: countries with a mandatory SR regime and countries with a voluntary SR regime. The baseline research models are re-examined using the sub-samples. The results show that ENVPI, SOCPI, and GOVPI have a significant positive association with GRI for countries with a voluntary reporting regime whereas the coefficients of ENVPI, SOCPI, and GOVPI are not significant for countries with a mandatory reporting regime. In a voluntary SR regime, countries' sustainable development level and institutional governance strength positively impact GRI adoption. This implies the significant role of the institutional environment in prompting companies to engage in GRI-based SR on a voluntary basis.

Table 8. SR Regime – Subgroup Analysis

	(1)	(2)	(3)	(4)	(5)	(6)
	GRI	**GRI**	**GRI**	**GRI**	**GRI**	**GRI**
Independent variables	**Mandatory SR regime**			**Voluntary SR regime**		
ENVPI	-0.00079			0.030*		
	(-0.08)			(1.95)		
SOCPI		-0.00041			0.045*	
		(-0.07)			(1.94)	
GOVPI			-0.0035			0.019**
			(-0.28)			(2.38)
SIZE	0.074	0.074	0.074	0.38**	0.39**	0.39**
	(0.73)	(0.73)	(0.73)	(2.39)	(2.44)	(2.45)
ROA	-1.95	-1.96	-1.85	-4.06***	-3.78**	-3.71**
	(-0.42)	(-0.43)	(-0.39)	(-3.02)	(-2.44)	(-2.42)
INDUST	0.26	0.26	0.25	0.63***	0.63***	0.63***
	(0.82)	(0.81)	(0.79)	(3.42)	(3.38)	(3.32)
LN_GDP	-0.14	-0.14	-0.17	0.071	0.059	0.034
	(-0.96)	(-1.52)	(-1.03)	(1.14)	(1.07)	(0.69)
Constant	2.32	2.18	2.98	-6.04**	-7.70**	-4.84**
	(0.75)	(1.01)	(0.80)	(-2.00)	(-2.11)	(-1.98)
N	280	280	280	219	219	219
Pseudo R^2	0.008	0.008	0.008	0.046	0.047	0.049
χ^2-statistic	9.35*	9.26*	9.62*	99.96***	198.91***	209.54***

Note: t-statistics are in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Standard errors are clustered by industry.

6. CONCLUSION

This study aims to investigate the impact of the institutional environment on companies' willingness to engage in GRI-based SR. The study measures countries' institutional quality using three indicators, namely, environmental development, social progress, and institutional governance. In this sense, it analyzes whether and how institutional quality at the macro-level impacts corporate reporting at the micro-level.

The findings reveal that companies originating from countries with high environmental development, social progress, and strong governance are more likely to release sustainability reports using the GRI guidelines in consistent with Kılıç et al. (2019), Uyar et al. (2021), and Yuan et al. (2023). This demonstrates that macro-level factors are significant drivers of corporate practices and subsequent reporting. According to the institutional theory perspective, corporate responsibility is impacted by the expectations and interests of stakeholders, which are shaped by institutional factors (Amor-Esteban et al., 2019). In this context, firms from countries with strong institutional mechanisms may encounter intense pressure to act more socially and environmentally responsible and be more accountable and transparent regarding sustainability performance. Furthermore, in countries that enhance accountability, maintain political stability, establish a strong legal and regulatory framework, and mitigate corruption, firms are more likely to demonstrate more social responsibility and report their sustainability practices in a more comprehensive and detailed way. Consequently, a strong

institutional environment may encourage companies to engage in sustainability practices and release sustainability reports using the GRI guidelines. Thus, the adoption of the GRI framework would help companies to enhance legitimacy (Nikolaeva & Bicho, 2011) and gain the approval and acceptance of stakeholders, showing their strong commitment to sustainability. The results also document a significant relationship between the institutional environment and the GRI adoption in countries with a voluntary SR regime, implying the significant role of the institutional environment in prompting companies to engage in GRI-based SR in a voluntary context.

The findings of this research may bring some notable implications for policymakers and companies. The implication of this study for policymakers is that the institutional environment is a significant factor driving SR. As the results demonstrate that the institutional environment significantly enhances the transparency of companies' sustainability information, countries with weak institutions should improve the quality of their institutions to motivate companies to engage in SR. These countries should maintain political stability, improve law enforcement, reduce corruption, and strengthen investor rights to enhance institutional quality, which in turn prompt firms to be transparent about their sustainability performance. Countries with high levels of environmental and social development and strong governance should continue to strengthen their institutional environment to induce companies to report their sustainability initiatives. Countries should develop, refine, and implement policies to enhance environmental and social development and improve institutional governance, which will prompt companies to adopt a credible SR framework, like the GRI guidelines. The three dimensions of the institutional environment examined in this study are highly correlated, implying that environmental performance, social progress, and governance quality support one another. Therefore, governments should develop policies and programs to improve these three dimensions simultaneously, which may ultimately enhance institutional quality. Certain government policies and strong regulations may lead firms to fulfill their social and environmental responsibilities effectively, positively contributing to their SR practices (Gerged & Almontaser, 2021). Furthermore, governments could induce stakeholder groups, including the media, NGOs, labor unions, academic institutions, trade associations, etc. to enhance the awareness of companies and society regarding social and environmental issues (Khan et al., 2020).

Although a growing number of countries have issued mandatory SR regulations around the world (e.g., Christensen et al., 2021; Haji et al., 2023; Krueger et al., 2023), there are unresolved issues related to the enforcement and implementation of SR regulations and standards (Christensen et al., 2021). For instance, in most countries, there are no specific penalties for non-compliance (Haji et al., 2023). Furthermore, there are substantial variations in SR disclosure regulations among countries, in terms of reporting models, enforcement level, regulator type, and stated objectives (Haji et al., 2023). For example, while in some countries SR regulations are applied based on a mandatory basis, in some

other countries they are applied on a "comply-or-explain" basis, or a hybrid basis containing both mandatory and "comply-or-explain" provisions (Haji et al., 2023). Besides, in many countries, SR regulations are required for companies operating in specific industries or include disclosure requirements on specific areas, such as the amount of greenhouse gas emissions (Haji et al., 2023; Krueger et al., 2023). These factors may hamper the effective design, implementation, and enforcement of mandatory SR regulations (Van der Zahn, 2023). To deal with issues related to the implementation of a mandatory SR system, regulators may provide clear, consistent, and comparable SR policies and regulations with the collaboration of the private sector (Cardenas et al., 2020).

Firms in countries with a weak institutional environment should report on their sustainability performance to improve corporate reputation in the international arena. Firms are encouraged to adopt GRI guidelines to maintain strong relations with stakeholders, enhance public image, and attract investors with growing social and environmental concerns. Furthermore, if a firm adopts a credible SR framework as the GRI in a weak legal environment, this may have a spillover effect on other firms in the same industry due to competitive pressures, ultimately resulting in a more transparent institutional environment at the country-level. This study provides support for institutional theory, demonstrating the significant influence of institutional factors on companies' tendency to publish sustainability reports.

There are several limitations to this study. First, the time frame of this research is limited to one year. Future studies can examine the relationship between institutional environment and SR using a large span of time. Second, although this study uses three measures to assess the quality of the institutional environment, future studies could introduce other dimensions of the institutional environment such as legal origin, investor protection rights, and culture. Third, while this study examines institutional drivers of SR, future research could focus on the impact of SR on organizational outcomes in an international context. Fourth, future studies could examine how a mandatory SR regime influences the relationship between the institutional environment and the quality of SR disclosures.

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Appendix

Table A1. Sample Distribution by Country

	Country	Frequency	Percent	Is there any mandatory regulation about sustainability reporting?
1	Australia	5	1.00	Yes
2	Austria	1	0.20	Yes
3	Belgium	1	0.20	Yes
4	Brazil	7	1.40	No
5	Canada	14	2.80	Yes
6	China	122	24.40	Yes
7	Denmark	1	0.20	Yes
8	Finland	1	0.20	Yes
9	France	31	6.20	Yes
10	Germany	26	5.20	Yes
11	Hong Kong	2	0.40	Yes
12	India	7	1.40	Yes
13	Ireland	4	0.80	Yes
14	Italy	7	1.40	Yes
15	Japan	53	10.60	No
16	Luxembourg	1	0.20	-
17	Malaysia	1	0.20	Yes
18	Mexico	4	0.80	No
19	Netherlands	11	2.20	Yes
20	Norway	1	0.20	Yes
21	Poland	1	0.20	Yes
22	Russia	4	0.80	No
23	Saudi Arabia	1	0.20	No
24	Singapore	2	0.40	Yes
25	South Korea	14	2.80	No
26	Spain	9	1.80	Yes
27	Sweden	1	0.20	Yes
28	Switzerland	14	2.80	No
29	Taiwan	9	1.80	Yes
30	Thailand	1	0.20	No
31	Turkey	1	0.20	Yes
32	United Kingdom	22	4.40	Yes
33	United States of America	121	24.20	No
	Total	*500*	*100.00*	

Table A2. Sample Distribution by Industry

	Industry	Frequency	Percent
1	Aerospace and defense	13	2.60
2	Apparel	3	0.60
3	Beverages	1	0.20
4	Business services	1	0.20
5	Chemicals	9	1.80
6	Energy	84	16.80
7	Engineering and construction	13	2.60
8	Financials	117	23.40
9	Food and drug stores	13	2.60
10	Food, beverages, and tobacco	17	3.40
11	Healthcare	22	4.40
12	Healthcare equipment and supplies	2	0.40
13	Hotels, restaurants, and leisure	3	0.60
14	Household products	3	0.60
15	Industrials	19	3.80
16	Materials	18	3.60
17	Media	3	0.60
18	Motor vehicles and parts	36	7.20
19	Pharmaceuticals	3	0.60
20	Real estate	5	1.00
21	Retailing	21	4.20
22	Technology	34	6.80
23	Telecommunications	17	3.40
24	Textiles, apparel, and luxury goods	1	0.20
25	Tobacco	1	0.20
26	Transportation	19	3.80
27	Wholesalers	22	4.40
	Total	*500*	*100.00*