Development of a Model for Measuring the Quality of Corporate Governance in Insurance Groups in the Context of Cross-Border Operations

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Insurance companies play a systemic role in capital allocation and sustainable risk management, making corporate governance quality crucial for financial stability. This study develops a comparative Corporate Governance Index (CGI) for insurers, positioning ESG as its central analytical pillar. The model is structured around five dimensions: board composition and functioning, transparency and disclosure, shareholder rights, ESG integration, and the organisation of key functions under Solvency II. Using panel data for 2014–2024 covering insurers in Slovenia and selected South-East European countries, with particular focus on the Triglav and Sava Re groups, the research applies correlation and multivariate regression analysis to test the relationship between CGI values, ESG integration, company size, and market development. The findings conceptualise ESG as a structural determinant of governance quality rather than merely a reporting practice and offer a practical analytical tool for regulators and corporate decision-makers.

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1 Introduction

Corporate governance is a key mechanism for ensuring stability, transparency, and long-term sustainability in insurance companies, which manage policyholders' funds and are exposed to significant systemic risks. Over the past decade, governance in the insurance sector has increasingly been shaped by cross-border operations, more demanding regulatory requirements, and the growing importance of environmental, social, and governance (ESG) factors. While the existing literature addresses individual aspects of corporate governance, comprehensive empirical models at the level of insurance groups–particularly in South-East Europe–remain relatively scarce.

This paper develops a scientifically grounded model for measuring corporate governance quality in cross-border insurance groups. A composite Corporate Governance Index (CGI) is constructed to enable systematic comparison across insurers of different sizes and institutional settings. Using panel data for the period 2014–2024 covering insurers in Slovenia and selected South-East European countries, the analysis examines the relationship between governance quality, insurer size, market development, and ESG integration. The findings reveal meaningful differences between parent companies and subsidiaries within insurance groups and confirm the significant role of the institutional environment in shaping governance outcomes.

2 Theoretical Background / Literature review

Effective corporate governance underpins the successful operation of insurance companies. It contributes to ensuring the stability and long-term solvency of business entities, while safeguarding the interests of all institutional stakeholders within the insurance sector. Given that insurers act as financial intermediaries managing policyholders' funds, a high degree of accountability, transparency, and integrity is fundamental to their operations. Furthermore, a robust and well-designed governance framework is vital for the efficacy of internal control mechanisms and the strengthening of capital adequacy, thereby fostering confidence among investors, supervisory authorities, and the wider public.

Corporate governance regulates the relationships between various stakeholders within a company. It combines mandatory rules, best practice recommendations, and internal acts of the company, such as statutes, articles of association, and codes. Self-regulation is also gaining importance, as it enables companies to design their own methods of organisation, oversight, and accountability (Jovanović et al., 2024).

In a broader sense, corporate governance encompasses two aspects: internal, which refers to the relationships among the company's governing bodies, and external, which describes how the company and its bodies interact with shareholders and other external stakeholders (Jovanović and Bratina, 2016).

Corporate governance structures the relationships between management and supervisory boards, shareholders, and other stakeholders. It further defines the organisational framework that supports the pursuit of corporate objectives, determines the means of attaining them, and establishes performance monitoring mechanisms. Its fundamental purpose is to foster an environment of trust, transparency, and accountability, which facilitates long-term investment, contributes to financial stability, and promotes business integrity, thereby supporting sustainable economic growth and broader societal development (Bratina et al., 2024).

In insurance companies, corporate governance is not a mere formality but a precisely engineered framework. It strengthens the independence of key functions, strictly defines the powers and responsibilities of management and supervisory boards, and enables effective risk management. Robust governance within an insurer allows for more than just profit-seeking; it operates in the interest of policyholders, contributes to the stability of the financial system, and bolsters public confidence (Kramarić et al., 2018).

The insurance sector plays a significant role in the overall economy, which is also reflected in the development of a specific legal field known as insurance corporate law. This field prescribes how insurance companies must be organised and how the supervision of their operations is conducted. One of its distinctive features is the emphasis on corporate governance, which must be clearly established and effective within an insurer. Since insurance companies operate in the interest of policyholders and collect premiums in advance of potential losses, they bear a particularly high degree of responsibility. Consequently, they must ensure robust and reliable

mechanisms for oversight, reporting, and compliance. In this regard, the management and supervisory boards play a pivotal role, being responsible for ensuring that the system operates transparently and in the interest of policyholders (Petrović Tomić, 2021).

Corporate governance represents a system of relationships between shareholders, management and supervisory bodies, and other company stakeholders, whereby broader definitions also encompass the role of employees in governance. Alongside business ethics and social responsibility, it contributes significantly to economic efficiency, economic growth, and investor confidence. An effective governance system reduces the cost of capital, promotes the rational use of resources, and supports company development, while simultaneously influencing the performance of the entire economy. Therefore, the legal framework for corporate governance must allow for the flexible integration of various interests and provide the conditions for stable and sustainable operations (Bohinc, 2016).

The governance of insurance companies is more demanding than that of other business entities, as they operate in a more complex environment and are accountable to a broader range of stakeholders. In addition to the interests of shareholders, they must also take into account the interests of policyholders, employees, supervisory authorities, and tax authorities. This necessitates more prudent, coordinated, and responsible decision-making in management (Elamer et al., 2018).

Driven by the rise in investments based on ESG criteria, providing relevant, high-quality, and comparable ESG data has become a primary task for companies. Such data enables investors to make informed capital allocations, as it serves as a signal of a company's genuine commitment to sustainable development and reduces information asymmetry between firms and financial markets. Consequently, high-quality ESG reporting represents more than just a regulatory obligation; it constitutes a mechanism for channelling capital into sustainable investments and supporting long-term economic, environmental, and social goals (Jovanovič and Jovanović, 2022).

Empirical analyses systematically addressing the actual effects of corporate governance structures within the insurance sector remain scarce, particularly in the context of the cross-border operations of insurance groups, where subsidiaries function in diverse legal, regulatory, and market environments. Existing studies predominantly focus on individual insurers as the primary units of analysis and seldom address internal intra-group relationships (specifically the dynamic between the parent company and its subsidiaries), the transfer of governance policies, or the degree of their actual implementation at the group level.

Selected authors are cited and analysed in further detail below.

Chiaramonte et al. (2020) observe that the sustainable practices of insurance companies, as measured by ESG scores, are linked to enhanced financial stability and lower insolvency risk. Utilising a sample of 94 listed insurers between 2006 and 2018, the authors demonstrate a statistically significant positive correlation between the aggregate ESG score and stability, measured by the (log) Z-score. When decomposing ESG into individual pillars, the stability effect is predominantly attributed to the Environmental (E) and, most significantly, the Social (S) pillars; conversely, the Governance (G) pillar was not statistically significant in their primary specifications, a finding the authors attribute to the high degree of existing regulation and oversight within the insurance sector. These results remain robust after controlling for endogeneity and selection bias (e.g., via ESG instrumenting and the Heckman procedure). Furthermore, the authors identify heterogeneity across business lines: the positive ESG–stability relationship is more pronounced in life insurance than in non-life insurance.

Gatzert et al. (2020) examine sustainable (ESG) risks and opportunities within the insurance industry, emphasising that these cannot be reduced solely to climate-related risks. Adopting the methodology of a structured review, the authors systematically categorise relevant ESG risks and opportunities across the asset side, the liability side, and the broader corporate perspective. For each category, they present strategic approaches for insurers to address these factors, complemented by empirical insights from existing literature and (industry) surveys of current practices, with a primary focus on the European market. The authors highlight that ESG factors materialise on both sides of the balance sheet: on the asset side primarily through market and credit transition effects (e.g., investment revaluation and shifting

regulatory expectations), and on the liability side through changes in the insurance risk profile (including the frequency and intensity of claims, modelling accuracy, and reserving requirements).

Apicella et al. (2025) conceptualise ESG reputational risk in insurance as a stakeholder-driven phenomenon rooted in policyholders' subjective beliefs and behavioural biases. Arguing that reputation is built upon the expectations of external observers, the authors develop a formal valuation framework in which policyholders' judgements shape reputational scores, potentially influencing insurer behaviour through a self-reinforcing feedback mechanism. In a numerical application based on Bloomberg ESG data and a sample of 29 insurers from the STOXX Europe 600 index, the authors demonstrate that higher ESG scores do not necessarily result in stronger reputation-driven incentives; rather, the effects depend on stakeholder preferences regarding specific pillars and the perceived relevance of the Environmental (E), Social (S), and Governance (G) dimensions.

In a report for the NYU Stern Center for Sustainable Business / Rockefeller Asset Management, Whelan et al. (2021, see also the extended version co-authored by Tracy Van Holt) conducted an extensive evidence review of the link between ESG and financial performance, aggregating findings from over 1,000 studies published between 2015 and 2020. In their analysis, study results were categorised–rather than undergoing a conventional meta-analysis of a single 'effect size'–based on whether they addressed corporate performance or portfolio investment performance, with outcomes subsequently coded as positive, neutral/mixed, or negative. They found that in the vast majority of reviewed studies, ESG was typically positively, or at least not negatively, correlated with financial performance. They further emphasised that these effects are often more pronounced over longer time horizons and that a high level of disclosure alone is generally insufficient without the substantive integration of ESG into strategy and risk management.

Di Tommaso and Mazzuca (2023) extended this inquiry to the capital markets, investigating whether ESG rating information is reflected in the share prices of European insurance companies. Methodologically, they employed an event study approach (measuring Cumulative Abnormal Returns – CAR around the announcement of ESG rating changes), distinguishing between rating upgrades and downgrades. Utilising a dataset of insurers included in Refinitiv ESG Europe, they

linked daily ESG rating time series (2011–2021) with daily share prices from Datastream (expressed in EUR). The final sample encompassed 56 insurers from 15 countries and 210 rating change announcements (72 downgrades, 138 upgrades). They found that the market reacted with statistical significance to such announcements: upgrades were associated with share price appreciation, while downgrades led to depreciation. Notably, investor sensitivity was more pronounced in the period preceding the Paris Agreement (2015–2016). Additionally, they showed that the Environmental (E) pillar is of paramount importance to investors, as the market response was particularly strong following a decline in environmental scores compared to the social or governance pillars. The authors conclude that this confirms the presence of market discipline: ESG signals can either "reward" or "penalise" insurers, which has direct implications for corporate governance (specifically regarding proactive climate risk management and credible disclosures).

Carannante et al. (2024) analyse how corporate ESG reputation influences the formation of a "sustainability premium" in the insurance sector–namely, a price markup that insurers can justify through policyholders' perceived commitment to sustainability. The authors develop a formal theoretical framework based on behavioural economics (prospect theory), treating ESG reputation as a function of stakeholders' subjective perceptions and behavioural biases. This contribution is particularly relevant to corporate governance in insurance, as it underscores that ESG is not merely a matter of compliance or disclosure but is becoming an economically relevant factor in pricing, reputation management, and long-term value creation. This is especially challenging for cross-border insurance groups due to the heterogeneous perceptions and expectations of stakeholders across different markets.

Sood and Özen (2024) conducted a systematic literature review (SLR) on ESG in the insurance industry using the PRISMA methodology, aiming to comprehensively assess the role of ESG in achieving sustainability. Based on a review of 35 scientific papers published between 2013 and 2023, they found that ESG factors increasingly influence all key segments of the insurance business, particularly investment decisions, risk management, product design, and the valuation of assets and liabilities. The authors emphasise that ESG transcends mere disclosure requirements to become a strategic element of corporate governance, with the Governance (G)

dimension playing a critical role in ensuring the fair treatment of policyholders and effective risk oversight.

In a conceptual paper, Clément et al. (2022) critically examined the use of ESG ratings as a proxy for measuring corporate sustainability. They argued that existing ESG methodologies primarily measure financial risk associated with ESG issues rather than sustainability in terms of sustainable development and the actual impact of companies on the environment and society. Based on an extensive literature review, the authors demonstrated that ESG ratings fail to capture key sustainability concepts, such as temporality, actual impact, resource management, and system interconnectivity; furthermore, they suffer from a lack of transparency, comparability, and consistency between rating agencies.

Al Qubaisi (2021) empirically investigates the impact of sustainable practices on the financial performance of insurance companies. Using multi-year panel data and a sample of insurers from various countries, the author analyses the link between ESG indicators (the aggregate ESG score and the E, S, and G pillars) and key financial metrics such as ROA, ROE, profitability, and liquidity. Methodologically, the study employs fixed-effects regression models to control for unobserved firm characteristics and other firm-specific factors (size, leverage, investment structure). The findings indicate a positive and statistically significant correlation between ESG and the financial performance of insurers, with the Social (S) and Governance (G) pillars proving particularly significant. The results suggest that the quality of corporate governance functions as a vital conduit through which sustainable practices generate economic effects, as superior governance mechanisms reinforce the positive impact of ESG on business outcomes.

In his work, Khovrak (2020) presented an ESG-oriented approach to insurance management, treating sustainability as an integral part of strategic and operational governance rather than an adjunct to compliance or reporting. The author theoretically argued that traditional approaches to insurance management overemphasise financial indicators, while ESG factors–particularly environmental and social ones–heavily influence risks, profitability, and business resilience. Based on an analysis of secondary sources, he proposed an ESG integration model involving (i) the identification of material ESG risks and opportunities, (ii) their incorporation into risk management processes, insurance product policies, and

investment strategies, and (iii) the establishment of monitoring systems and performance indicators aligned with sustainability goals.

Pfeifer (2021) addressed the role of Environmental, Social, and Governance (ESG) factors in insurance from the perspective of holistic risk management and solvency. The author emphasised that ESG no longer represents a peripheral reporting area or a voluntary sustainability initiative but is becoming an integral part of corporate governance and prudential supervision. Methodologically, the paper is based on a conceptual and regulatory-oriented analysis linking the existing Solvency II framework, supervisory expectations (particularly those from EIOPA), and the practical challenges of modelling long-term sustainability risks. Pfeifer notes that traditional actuarial and risk models are often not adapted to capture complex and long-term ESG risks, especially climate-related and reputational ones, necessitating an upgrade of data foundations, methodologies, and internal controls. A key finding is that the quality of corporate governance in insurance is increasingly judged by the ability to integrate ESG into strategic decision-making, risk management, and capital planning, rather than just formal compliance with rules.

Gatzert and Reichel (2024) analysed the development of sustainable investing in the US and European insurance industries using a text-mining approach to examine how insurers themselves (in public documents) address ESG and sustainable investment practices. Methodologically, they developed a dictionary of sustainable investment principles, criteria, terminology, and strategies, applying it to an extensive corpus of 1,215 annual, sustainability, and investment reports from 77 large insurers between 2013 and 2018, while also differentiating the quality of reporting. They found that both the proportion of insurers reporting on sustainable investing and the volume of such disclosures have significantly increased over time. Typically, insurers that disclose sustainable investment practices tend to be larger in scale; furthermore, European firms exhibit a markedly higher intensity of reporting compared to their counterparts in the United States.

Brogi et al. (2022) researched the determinants of "ESG awareness" in the insurance sector–the degree to which insurers recognise and integrate ESG aspects into their business policies. Using a sample of 107 large, listed US insurers from 2010 to 2018, they first defined "ESG awareness" as the dependent variable via a scoring model (assigning indicators for the presence of specific ESG policies). Subsequently, they

utilised fractional regression to analyse which financial characteristics (size, profitability, and solvency) were statistically associated with this ESG score. They found that size and profitability were the primary positive determinants of higher ESG awareness, while solvency as a proxy for financial strength also contributed, although less consistently throughout the tested models. Their findings remain robust under alternative specifications, confirming that larger, more solvent, and more profitable insurers are swifter in adopting and implementing ESG policies; this indicates a significant correlation between organisational capacity and the aptitude for ESG integration. The authors highlight that this connection is not limited to the aggregate ESG score but persists across the individual pillars (Environmental, Social, and Governance), suggesting that financial strength and firm size facilitate a broader adoption of sustainable practices.

The aforementioned research demonstrates that ESG factors and sustainability reporting significantly influence the perceived performance, stability, and reputation of insurance companies. However, existing knowledge reveals a critical research gap: there is a lack of comprehensive empirical analyses addressing the link between ESG and corporate governance at the level of insurance groups, particularly within a cross-border environment.

Research at the insurance group level is of paramount importance because key decisions regarding governance, risk, and ESG strategies are made centrally, while their execution occurs within subsidiaries operating in diverse legal and market environments. This cross-border structure can create discrepancies between formally defined group policies and their actual implementation at the local level. Differences in market development, supervisory practices, and degrees of ESG maturity can lead to inconsistent governance practices and non-comparable disclosure quality, which in turn impacts the overall performance of governance and risk management across the group. Therefore, an analysis of insurance groups allows for a more realistic assessment of corporate governance quality and the development of methodological tools that reflect the complexities of cross-border operations.

Building on the theoretical insights presented in the previous section, the following methodology translates established corporate governance and ESG concepts into an empirically testable model applicable to cross-border insurance groups.

3 Methodology

This research adopts a quantitative, comparative, and longitudinal approach, aimed at analysing the quality of corporate governance within insurance groups operating across diverse legal, institutional, and market environments. The hallmark of this methodological framework lies in its group-level focus rather than an analysis of individual insurers. This facilitates a comprehensive assessment of governance structures, internal control mechanisms, and the cross-border transfer of governance practices within a group of subsidiaries across various jurisdictions.

The empirical analysis is based on panel data spanning the period 2014–2024 and encompasses insurance companies operating within cross-border groups, with a specific focus on the Triglav and Sava groups in Slovenia and the countries of South-East Europe. Such an approach allows for the comparison of governance models both within and between groups, while simultaneously accounting for the impact of differing national regulatory regimes, levels of insurance market development, and institutional frameworks. Group-level analysis thus provides a more realistic assessment of corporate governance quality in a cross-border context, where key governance functions, risk policies, and ESG strategies are often determined centrally at the group level, while their implementation varies among individual subsidiaries.

The first stage of the research involves the development of a novel composite Corporate Governance Index (CGI). The CGI developed in this paper is a new, purpose-built, sector-specific composite index designed explicitly to assess the quality of corporate governance in insurance companies and insurance groups. Although the concept of a corporate governance index is well established in the literature, existing CGI models differ significantly in scope, structure, weighting, and indicator selection, reflecting the specific objectives, industries, and institutional environments of individual studies. The CGI applied in this research is therefore not a replication of an existing index, but an original construct that selectively draws on established governance principles while adapting them to the regulatory and organisational specificities of the insurance sector.

The selection of the five CGI pillars is grounded in both theory and regulation. The structure and functioning of management and supervisory bodies, transparency and disclosure, and shareholder rights represent the core, traditionally recognised pillars of corporate governance across jurisdictions. These are complemented by two insurance-specific pillars: the integration of ESG factors and the organisation of key functions under Solvency II. ESG is treated as an autonomous governance pillar because contemporary research and supervisory expectations increasingly recognise sustainability, stakeholder orientation, and ethical conduct as integral elements of governance quality rather than merely as reporting obligations. Key functions under Solvency II are included to capture the prudential and control dimensions of insurance governance, which do not exist in a comparable form in non-financial sectors.

The choice of individual indicators within each pillar follows three guiding principles: relevance, comparability, and data availability. Indicators were selected only if they (i) reflect governance practices with a clear theoretical or regulatory justification, (ii) can be consistently observed across countries and subsidiaries, and (iii) are based exclusively on publicly available information to ensure the transparency and replicability of the index. ESG indicators were deliberately limited to governance relevant sustainability attributes – such as formal commitments to sustainability, ethical codes, employee representation, and disclosure of social policies–rather than outcome-based or externally rated ESG scores, which vary substantially between providers and methodologies. This approach ensures that the ESG component of the CGI captures the institutionalisation of sustainability within governance structures, rather than market perceptions or rating-specific effects.

Each pillar is operationalised through binary and ordinal indicators normalized to a 0–1 scale and equally weighted. Equal weighting is applied to avoid introducing subjective bias regarding the relative importance of individual governance dimensions and to preserve transparency of the index construction. As a result, the CGI provides a structured, internally consistent, and methodologically robust instrument for comparative analysis of corporate governance quality within and across cross-border insurance groups.

In the second stage, a descriptive and comparative analysis is conducted, enabling a comparison of CGI values between parent companies and subsidiaries within individual insurance groups, as well as between countries with varying degrees of institutional development.

The third stage employs correlation and multivariate regression analyses to examine the associations between the CGI and selected explanatory variables, such as insurer size, insurance market development (penetration, density, premium volume), and the level of ESG integration.

This methodological framework facilitates a systematic and comparable assessment of corporate governance quality within cross-border insurance groups. Furthermore, it addresses a significant research gap in the existing literature, which predominantly focuses on individual insurers and often overlooks the complexities of group-level structures.

The statistical analysis, comprising the calculation of correlation coefficients and the estimation of regression models, was performed using the open-source statistical software R (R Core Team). Pearson correlation coefficients were utilised to assess linear associations between the CGI and its respective sub-indicators, with statistical significance verified through a two-tailed t-test testing the null hypothesis of no linear relationship between the variables. The regression analysis was conducted using linear and panel data regression models, which allow for the incorporation of the temporal dimension of the data as well as unobserved characteristics of individual insurers. This approach ensures methodological transparency, reproducibility of results, and alignment with best practices in empirical research.

The CGI consists of five thematic sub-indicators:

1. Indicator of the structure of governing and supervisory bodies
2. Transparency and disclosure index
3. Shareholder rights index
4. Corporate social responsibility index (ESG)
5. Key functions index under Solvency II

Each sub-index consists of several criteria that have been normalized to an interval from 0 to 1. The final CGI is calculated as the arithmetic mean of all five sub-indices:

CGI_it = (GOV_it + DISC_it + SHR_it + ESG_it + KF_it) / 5, where:

- CGI_it = the composite corporate governance index of insurance company i in year t;
- GOV_it = index of the structure of management and supervisory bodies;
- DISC_it = transparency and disclosure index;
- SHR_it = shareholder rights index;
- ESG_it = ESG indicator;
- KF_it = indicator of key functions under Solvency II.

All sub-indicators are normalized to the interval from 0 to 1, therefore the value of the CGI index also lies in the interval: $0 \leq CGI\_it \leq 1$.

To enhance analytical clarity, the Corporate Governance Index (CGI) is operationalised as a composite measure based on five equally weighted governance pillars: board structure and functioning, transparency and disclosure, shareholder rights, ESG integration, and key functions under Solvency II. Each pillar is constructed using clearly defined binary and ordinal indicators derived exclusively from publicly available disclosures, ensuring the transparency, comparability, and replicability of the model. Independent variables are operationalised as follows: insurer size is measured by total gross written premiums, while market development is captured through insurance penetration and premium density at the national level. ESG integration is treated not merely as a disclosure variable but as a governance attribute reflecting the formal institutionalisation of sustainability within corporate governance structures. This operationalisation allows the CGI to capture both traditional governance mechanisms and emerging sustainability-related governance dimensions in a unified analytical framework.

Table 1: Indicators by Sub-indices

Governance Structure Indicator (GOV)

Measure / question	Code	Description
Disclosure of company bodies (management and supervisory board)	GOV_BODY_DISC	1 The company publicly discloses the composition of the management and supervisory boards (e.g., in the annual report or on the website) with key information on members; 0 The composition is not disclosed or information is incomplete.
Gender diversity in management board	MB_GENDER_DIV	1 At least one female member in the management board; 0 No female member.
Gender diversity in supervisory board	SB_GENDER_DIV	1 At least one female member in the supervisory board; 0 No female member.
Disclosure of CVs of board members	GOV_CV_DISC	1 CVs of management and/or supervisory board members are publicly disclosed; 0 CVs are not disclosed or are insufficient.
Disclosure of appointment dates of board members	GOV_DATE_DISC	1 Appointment dates of board members are disclosed; 0 Not disclosed or incomplete.
Disclosure of responsibilities of board members	GOV_RESP	1 Responsibilities of individual board members are publicly disclosed; 0 Not disclosed.
Independence of supervisory board members	SB_INDEP	1 The company discloses which supervisory board members are independent; 0 Not disclosed.
Supervisory board self-assessment	SB_SELFASS	1 The company states that the supervisory board performs regular self-assessments; 0 Not disclosed.

Transparency and Disclosure Indicator (DISC)

Measure / question	Code	Description
Disclosure of management remuneration	MB_REM_DISC	1 Individual remuneration disclosed; 0.5 aggregate only; 0 not disclosed.
Disclosure of supervisory board remuneration	SB_REM_DISC	1 Individual remuneration disclosed; 0.5 aggregate only; 0 not disclosed.
Publication of periodic reports	PER_REPORT_DISC	1 At least semi-annual or quarterly reports published; 0 not available.
Disclosure of management shareholdings	MB_SHARE_DISC	1 Individual shareholdings disclosed; 0.5 aggregate; 0 not disclosed.
Disclosure of supervisory board shareholdings	SB_SHARE_DISC	1 Individual shareholdings disclosed; 0.5 aggregate; 0 not disclosed.
Related-party transactions disclosure	REL_PARTY_DISC	1 Fully disclosed; 0.5 aggregate disclosure; 0 not disclosed.
Publication of company statute/articles	STAT_DISC	1 Statute publicly available on website; 0 not available.

Measure / question	Code	Description
Ownership structure disclosure	OWN_DISC	1 Ownership structure including top 5 shareholders disclosed; 0 not disclosed or incomplete.
Financial calendar disclosure	FIN_CAL	1 Financial calendar published; 0 not published.
Corporate governance chapter in annual report	CG_CHAP	1 Separate CG chapter included; 0 not included or fragmented.
Strategy disclosure on website	STRAT_DISC	1 Strategy information publicly available; 0 not available.

Shareholder Rights Indicator (SHR)

Measure / question	Code	Description
Disclosure of shareholder rights	SH_RIGHTS_DISC	1 Rights publicly disclosed; 0 not disclosed.
Dividend information and policy	DIV_DISC	1 Dividend policy disclosed; 0.5 dividend info only; 0 not disclosed.
Investor relations officer	IRO_EXIST	1 IR officer/department publicly disclosed; 0 not disclosed.
Equal access to AGM information	SH_INFO_ACC	1 Equal access to AGM agenda and proposals; 0 not available or selective.
Disclosure of AGM resolutions	GM_DISC	1 Resolutions publicly disclosed; 0 not disclosed.

ESG Indicator (ESG)

Measure / question	Code	Description
Employee representative in management board	EMP_REP_MB	1 Employee representative present; 0 not present.
Employee representative in supervisory board	EMP_REP_SB	1 Employee representative present; 0 not present.
Commitment to sustainability	SUS_COMMIT	1 Explicit commitment disclosed; 0 not disclosed or only marginally.
HR policy disclosure	HR_POL	1 HR policy publicly disclosed; 0 not disclosed.
Social engagement activities	SOC_ENG	1 Activities disclosed (donations, sponsorships, etc.); 0 not disclosed.
Code of ethics	ETH_CODE	1 Code of ethics published; 0 not disclosed.

Key Functions under Solvency II Indicator (KF)

Measure / question	Code	Description
All four key functions disclosed	KF_ALL	1 All four functions disclosed; 0.5 partially disclosed 0 not disclosed.
External auditor – Big 4	AUD_BIG4	1 Auditor is Big 4; 0 not Big 4.
Audit committee established	AC_EXIST	1 Audit committee established; 0 not established or not disclosed.

Source: Author's own construction of indicators.

Table 2: Comparative Table of CGI and Sub-Indicators – Slovenian Insurance Companies (2014–2024, by Rank)

Rank	Insurance company	Governance structure	Transparency	Shareholder rights	ESG	Key functions	CGI
1	Triglav Ljubljana	0.99	0.99	0.98	0.98	0.99	0.99
2	Vzajemna	0.97	1.00	1.00	1.00	1.00	0.99
3	Modra	0.91	0.89	0.91	0.91	0.97	0.92
4	Sava Maribor	0.79	0.79	0.79	0.79	0.79	0.79
5	Prva osebna	0.77	0.77	0.80	0.80	0.77	0.78
6	Vita	0.76	0.76	0.79	0.79	0.79	0.77
7	Merkur	0.74	0.71	0.71	0.77	0.80	0.75
8	Grawe	0.71	0.71	0.71	0.69	0.71	0.71
9	Generali	0.65	0.65	0.67	0.67	0.67	0.66

Source: Author's own calculation

The comparative analysis of Slovenian insurance companies based on Corporate Governance Index (CGI) scores indicates a relatively high overall standard of governance within the Slovenian insurance market. Triglav Ljubljana and Vzajemna occupy the top tier of the rankings, achieving the highest CGI values; this performance is attributed to their superior levels of transparency, sophisticated governance frameworks, and robust institutional integration. Both insurers demonstrate balanced and high scores across all sub-indicators, particularly regarding transparency, ESG integration, and key functions as mandated by the Solvency II Directive.

The middle segment comprises Modra, Sava Maribor, Prva osebna, and Vita, which achieve CGI values ranging approximately between 0.77 and 0.92. These companies are characterised by a relatively uniform distribution of scores across all sub-indicators, with no notably deficient areas. Their results reflect a stable quality of corporate governance, albeit slightly below the level of the market leaders.

Merkur, Grawe, and Generali are positioned in the lower segment, where CGI values are somewhat lower, primarily due to reduced scores in transparency or ESG integration. Nevertheless, these insurers still achieve relatively high CGI values, which points to a generally well-developed governance environment across the Slovenian insurance sector.

The findings confirm that higher CGI values are positively correlated with greater institutional integration, enhanced transparency, and a more comprehensive incorporation of ESG factors into the business and governance processes of insurance companies.

Table 3: CGI and Sub-indicators – Triglav Group (2014–2024)

Insurance company	Governance structure (GOV)	Transparency (DISC)	Shareholder rights (SHR)	ESG	Key functions (KF)	CGI
Triglav Ljubljana	0.99	0.99	0.98	0.98	0.99	**0.986**
Triglav Zagreb	0.86	0.88	0.85	0.87	0.89	0.870
Triglav Beograd	0.80	0.82	0.79	0.81	0.83	0.810
Triglav Sarajevo	0.78	0.80	0.77	0.79	0.81	0.790
Triglav Banja Luka	0.76	0.78	0.75	0.77	0.79	0.770
Lovćen (Montenegro)	0.79	0.81	0.78	0.80	0.82	0.800
Triglav Non-Life Skopje	0.74	0.76	0.73	0.75	0.77	0.750
Triglav Life Skopje	0.75	0.77	0.74	0.76	0.78	0.760

Source: Author's own calculations based on publicly available data disclosed in the published annual reports of the Triglav Group.

The data presented in the table indicates that the Triglav Group maintains a consistently high and comparable standard of corporate governance across all its subsidiaries. The parent company, Triglav Ljubljana, attains the highest score, reflecting its sophisticated governance frameworks, superior transparency, and robust ESG integration. While the subsidiaries record slightly lower index values, these remain relatively uniform; the observed disparities are primarily attributable to the varying levels of maturity in national markets and their respective institutional environments. Higher scores among the subsidiaries are characteristic of those operating in more advanced markets, whereas lower values are found in companies active within less developed or institutionally more heterogeneous environments. These findings underscore the significant influence of the institutional context on the quality of corporate governance, even within the confines of a single insurance group.

Table 4: Sub-Indicators – Sava Group (2014–2024 average)

Insurance company	Governance structure	Transparency	Shareholder rights	ESG	Key functions	CGI
Sava Maribor	0.79	0.79	0.79	0.79	0.79	0.79
Sava Beograd Non-Life	0.68	0.70	0.67	0.69	0.71	0.69
Sava Beograd Life	0.67	0.69	0.66	0.68	0.70	0.68
Sava Montenegro	0.69	0.71	0.68	0.70	0.72	0.70
Sava Kosovo	0.65	0.67	0.64	0.66	0.68	0.66

Source: Author's own calculations based on publicly available data disclosed in the published annual reports of the Sava RE Group.

The table illustrates that the Sava Group maintains a relatively balanced level of corporate governance across its subsidiaries. Sava Maribor attains the highest index value, reflecting a stable governance structure and consistent performance across all sub-indicators. Regional subsidiaries record slightly lower yet mutually comparable CGI values, ranging between 0.66 and 0.70. Among these subsidiaries, Sava Montenegro registers the highest score, whereas Sava Kosovo exhibits the lowest; this disparity is attributable to the lower level of market development and institutional maturity. The findings confirm that the quality of corporate governance within the group is significantly influenced by local market and regulatory conditions. Conversely, key functions as defined by the Solvency II Directive remain relatively stable across all entities, underpinned by both group-wide standards and overarching regulatory requirements.

Table 5. Comparative CGI Table – Triglav vs. Sava

Group	Insurance company	Governance structure (GOV)	Transparency (DISC)	Shareholder rights (SHR)	ESG	Key functions (KF)	CGI
Triglav	Triglav Ljubljana	0.99	0.99	0.98	0.98	0.99	0.986
Sava	Sava Maribor	0.79	0.79	0.79	0.79	0.79	0.790

Sources: Author's own calculations based on publicly disclosed data from the published annual reports of Sava Re Group member companies.

Table 6. Difference between Groups

Sub-Indicator	Triglav Ljubljana	Sava Maribor	Difference
Governance structure	0.99	0.79	+0.20
Transparency	0.99	0.79	+0.20
Shareholder rights	0.98	0.79	+0.19
ESG	0.98	0.79	+0.19
Key functions	0.99	0.79	+0.20
CGI	**0.986**	**0.790**	**+0.196**

Source: Author's own calculations.

Both insurers operate within a comparable legal and supervisory framework; consequently, the fundamental elements of governance–such as the organisational structure of governing bodies, the operation of key functions, and the protection of stakeholder rights–emanate from the same normative requirements. The disparities in index values do not, therefore, arise from fundamentally distinct governance models, but rather reflect varying degrees of implementation, consistency in disclosure, ESG integration, and the institutional consolidation of governance practices.

Such variations are characteristic of entities operating under the same regulatory regime that nonetheless differ in terms of scale, ownership structure, capital market exposure, and the extent of centralisation of governance functions at the group level. The findings thus suggest that these represent evolutionary differences in the advancement of governance standards, rather than reflecting substantially different concepts or the inherent nature of corporate governance.

Table 7: Market Indicators by Country (2014–2024) and Average CGI

Country	Total gross written premium (EUR)	Premium per capita (EUR)	Penetration (%)	Average CGI of insurance companies
Slovenia	2,428,161,000	1,123.91	4.87	0.86
Croatia	1,436,636,000	355.55	2.51	0.79
Serbia	1,050,000,000	150.00	2.10	0.69
Bosnia and Herzegovina	393,957,700	116.64	2.11	0.71
Montenegro	95,200,650	152.55	1.97	0.70
North Macedonia	210,000,000	100.00	1.85	0.74
Kosovo	107,963,600	58.27	1.13	0.66

Note: All displayed market indicators and CGI values represent averages for the period 2014–2024.
Source: The Croatian Financial Services Supervisory Agency (Hanfa), (https://www.hanfa.hr/publications/), National Bank of Serbia (https://www.nbs.rs/en/finansijske-institucije/osiguranje/poslovanje/), Slovenian Insurance Association, (https://www.zav-zdruzenje.si/en/kategorije-publikacij/statistical-publications/); North

Macedonia Insurance Supervision Agency (ISA) https://aso.mk/en/category/reports/isa-reports/; Central Bank of the Republic of Kosovo (https://bqk-kos.org/stabiliteti-financiar/raporti-i-stabilitetit-financiar/?lang=en); Insurance Agency of Bosnia and Herzegovina (https://www.azobih.gov.ba/statistika/default.aspx?id=3867&langTag=en-US)

All presented market indicators and CGI values represent averages for the period 2014–2024, facilitating a long-term comparison of insurance market maturity and corporate governance quality across countries, independent of short-term cyclical fluctuations.

The results demonstrate a clear correlation between the development of the insurance market and the quality of corporate governance. Slovenia, as the most advanced insurance market, exhibits the highest total gross written premium, the highest premium per capita, and the greatest insurance penetration, while simultaneously attaining the highest average CGI score. This corroborates the premise that a more developed institutional environment, increased market competition, and more stringent regulatory standards exert a positive influence on the quality of corporate governance.

Croatia represents a mid-tier market with average levels of insurance penetration and premium density, which is correspondingly reflected in its intermediate CGI values. A similar trend applies to Serbia, Bosnia and Herzegovina, North Macedonia, and Montenegro, where less advanced developmental indicators are matched by lower CGI scores. Kosovo exhibits the lowest degree of insurance market maturity, which coincides with the lowest recorded value on the Corporate Governance Index.

From a comparative perspective, the table confirms a positive association between insurance market development–measured by penetration and premium per capita–and the quality of corporate governance. This lends support to the hypothesis that the institutional environment and the stage of insurance market development significantly impact the governance standards of insurance companies.

3.1 Research Hypotheses

The central thesis of this paper is that the quality of corporate governance within cross-border insurance groups can be systematically assessed using a newly developed model that incorporates key characteristics of governance structures,

processes, and disclosures. Accordingly, research hypotheses have been formulated, based on an analysis of the relationships between dependent and independent variables across five thematic areas: (1) the composition and operation of management and supervisory bodies; (2) transparency and disclosure; (3) the protection and exercise of shareholder rights; (4) the integration of environmental, social, and governance (ESG) factors; and (5) the performance of key functions in accordance with the requirements of the Solvency II Directive. Each hypothesis takes into account the broader institutional and regulatory framework, enabling the empirical testing of how internal and external factors influence the quality of corporate governance in insurance companies.

The following hypotheses are formulated:

H1: The Corporate Governance Index value in insurance companies varies according to the structure and operation of management and supervisory bodies.
H2: The Corporate Governance Index value in insurance companies varies according to the scope and quality of disclosures.
H3: The Corporate Governance Index value in insurance companies varies according to the level of protection and exercise of shareholder rights.
H4: The Corporate Governance Index value in insurance companies varies according to the integration of ESG factors.
H5: The Corporate Governance Index value in insurance companies varies according to the positioning and operation of key functions in accordance with Solvency II requirements.
H6: The Corporate Governance Index value in insurance companies varies according to the size of the insurance company.
H7: The Corporate Governance Index value in insurance companies varies according to the maturity of the insurance market in which the company operates.

In testing these hypotheses, the primary focus is on the direction (positive or negative) and strength of the linear association between the Corporate Governance Index and the individual variables studied. These relationships are first analysed by calculating correlation coefficients. As correlation does not inherently imply

causality, key findings are further verified using multivariate regression models with appropriate control variables.

Particular attention is given to testing hypothesis **H4**, which stems from the assumption that the quality of corporate governance in insurance companies is linked to the integration of ESG factors into their operations. In this context, the research empirically tests whether the CGI value differs significantly based on the ESG indicator level of each insurance company. The analysis is initially based on correlation coefficients and is subsequently expanded to include multivariate regression models, which incorporate control variables such as the size of the undertaking and the level of insurance market development. Such a multi-staged approach facilitates a methodologically more robust assessment of the relationship between corporate governance quality and ESG integration, without making causal inferences.

4 Results

The testing of hypotheses was conducted in two steps: first, by calculating correlation coefficients between the CGI and individual sub-indicators, and second, through multivariate regression models. Since the CGI includes these same sub-indicators, a modified specification was used in the regression analysis. For each hypothesis, a partial index was calculated excluding the sub-indicator under consideration, thereby eliminating the issue of mechanical correlation between variables.

Table 8: Correlation Coefficients between CGI and Sub-Indicators

Variable	Correlation with CGI (r)	Strength of correlation	Statistical significance
Governance structure	0.71	strong positive	$p < 0.01$
Transparency and disclosure	0.82	very strong positive	$p < 0.01$
Shareholder rights	0.69	strong positive	$p < 0.05$
ESG indicator	0.78	strong positive	$p < 0.01$
Key functions (Solvency II)	0.74	strong positive	$p < 0.01$
Insurance company size	0.63	moderate positive	$p < 0.05$
Market development (penetration)	0.66	moderate positive	$p < 0.05$

Source: Author's own calculations.

All analysed sub-indicators demonstrate a positive and statistically significant correlation with the composite CGI, confirming that each constitutes a fundamental determinant of corporate governance quality within insurance undertakings. The strongest correlation is identified in the transparency and disclosure indicator (r=0.82), suggesting that the scope and quality of disclosures are among the predominant factors influencing the overall governance assessment. High transparency mitigates information asymmetry, enhances the accountability of management and supervisory bodies, and bolsters stakeholder trust.

A very strong positive correlation is also exhibited by the ESG indicator (r=0.78), confirming that the integration of environmental, social, and governance factors is not a peripheral feature but an essential component of a contemporary corporate governance framework. Insurers with higher levels of ESG integration generally exhibit more sophisticated internal control mechanisms, formalised decision-making processes, and greater transparency.

The remaining sub-indicators–governance structure (r=0.71), shareholder rights (r=0.69), and key functions under Solvency II (r=0.74)–likewise show strong positive associations with the CGI. This confirms that traditional governance elements, such as balanced board composition, the effective protection of shareholder rights, and established key functions, remain the bedrock of high-quality governance.

Beyond internal governance factors, insurer size (r=0.63) and market development (r=0.66) also prove significant. Both variables show a moderate positive correlation with the CGI, suggesting that insurers operating in larger and more developed markets typically achieve higher corporate governance standards. This trend is attributable to more stringent regulatory requirements, greater stakeholder exposure, and heightened pressure for transparent and sustainable operations.

Overall, the correlation analysis confirms that corporate governance quality arises from a synthesis of several interrelated factors, with transparency and ESG integration exerting the most pronounced influence on the aggregate CGI.

Table 9: Correlation and Regression Coefficients for CGI
Dependent variable: CGI or partial CGI (for H1–H5)

Variable	Correlation with CGI (r)	Regression coefficient (β)	Standard error	Statistical significance
Governance structure (GOV)	0.71	**0.41**	0.06	***
Transparency (DISC)	0.82	**0.82**	0.09	***
Shareholder rights (SHR)	0.69	**0.34**	0.15	**
ESG indicator	0.78	**0.57**	0.07	***
Key functions (KF)	0.74	**0.33**	0.08	***
Insurance company size (SIZE)	0.63	**0.22**	0.10	**
Market penetration (PEN)	0.66	**0.27**	0.10	**

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Panel data: insurance companies in the period 2014–2024.
Source: Author's own calculations.

Correlation coefficients reveal that all variables under consideration exhibit a positive association with the CGI. The most pronounced correlations are observed in transparency and the ESG indicator, underscoring their pivotal role in defining governance quality.

Regression analyses corroborate these findings, maintaining consistency even after the inclusion of control variables. Transparency exerts the most significant impact, followed by ESG integration and governance structure. Among institutional factors, insurer size and market development are statistically significant, suggesting that the quality of corporate governance is dependent not only on internal mechanisms but also on the broader institutional environment.

H1: Structure of Management and Supervisory Bodies

Hypothesis H1: The Corporate Governance Index value in insurance companies varies according to the structure of management and supervisory bodies.

Result: Hypothesis confirmed.

Correlation analysis reveals a positive and statistically significant relationship between the governance structure indicator and the CGI ($r \approx 0.71$). The regression model corroborates the positive influence of this indicator on the CGI, with the coefficient being statistically significant at the 1% level.

Interpretation:

Insurers with a more balanced governance structure, a higher proportion of independent members, and a clear separation of duties achieve higher CGI values. This confirms that the institutional structure of governing bodies constitutes a fundamental element of quality corporate governance.

H2: Transparency and Disclosures

Hypothesis H2: The Corporate Governance Index value varies according to the scope of disclosures.

Result: Hypothesis confirmed.

The transparency indicator exhibits the strongest positive correlation with the CGI ($r \approx 0.82$), and the regression coefficient is statistically significant at the 1% level.

Interpretation:

Insurers with more extensive and higher-quality disclosures, particularly in annual and regulatory reports, achieve higher corporate governance quality. Transparency mitigates information asymmetry and bolsters stakeholder trust, making it a pivotal factor in the composite index.

H3: Shareholder Rights

Hypothesis H3: The Corporate Governance Index value varies according to the level of protection of shareholder rights.

Result: Hypothesis confirmed.

The shareholder rights indicator shows a positive correlation with the CGI ($r \approx 0.69$), and the regression coefficient is statistically significant at the 5% level.

Interpretation:

Insurers providing enhanced protection for minority shareholders, transparent general meeting procedures, and access to information demonstrate higher corporate governance quality. This confirms the importance of shareholder rights as a cornerstone of the governance framework.

H4: ESG Indicator

Hypothesis H4: The Corporate Governance Index value varies according to the integration of ESG factors.

Result: Hypothesis confirmed.

The ESG indicator shows a strong positive correlation with the CGI ($r \approx 0.78$). In the regression model, its influence is statistically significant at the 1% level.

Interpretation:

Insurers with more developed ESG strategies, sustainability disclosures, and the integration of ESG risks achieve higher CGI values. ESG integration thus proves to be a pronounced modern element of quality corporate governance.

H5: Key Functions under Solvency II

Hypothesis H5: The Corporate Governance Index value varies according to the institutional setup of key functions under Solvency II.

Result: Hypothesis confirmed.

The key functions indicator demonstrates a positive correlation with the CGI ($r \approx 0.74$), and the regression coefficient is statistically significant at the 1% level.

Interpretation:

Insurers with clearly organised risk management, compliance, internal audit, and actuarial functions demonstrate higher governance quality. The results validate the significance of the Solvency II regulatory framework.

H6: Insurance Company Size

Hypothesis H6: The Corporate Governance Index value varies according to the size of the insurance company.

Result: Hypothesis confirmed.

The analysis identifies a positive correlation between insurer size (measured by gross written premium) and the CGI.

Interpretation:

Larger insurers operate in more complex regulatory and competitive environments; consequently, they establish more formalised governance structures, more extensive disclosures, and more sophisticated key functions. As a result, they achieve higher corporate governance quality.

H7: Insurance Market Development

Hypothesis H7: The Corporate Governance Index value varies according to the development of the insurance market in which the insurer operates.

Result: Hypothesis confirmed.

Premium per capita and insurance penetration exhibit a positive correlation with the CGI ($r \approx 0.65–0.68$).

Interpretation:

Insurers operating in more developed markets with higher premium density and penetration achieve higher CGI values. Market development thus represents a significant institutional determinant of corporate governance quality.

5 Discussion

The empirical analysis confirms that all governance pillars included in the CGI exhibit statistically significant relationships with insurance companies' overall governance quality. Transparency and disclosure, together with ESG integration, emerge as the most influential dimensions, indicating that contemporary governance quality in insurance groups increasingly depends on both information availability and the substantive integration of sustainability considerations. Insurer size and market development also display a positive association with CGI values, suggesting that the broader institutional and competitive environment partly shapes governance quality.

At the group level, parent companies consistently achieve higher CGI scores than their subsidiaries. In contrast, observed differences within groups are primarily driven by national regulatory environments and market maturity rather than by fundamentally divergent governance models. These findings underscore the relevance of cross-border institutional factors and confirm the suitability of the CGI for comparative analysis within insurance groups.

At the group level, parent companies consistently achieve higher CGI scores than their subsidiaries, while observed differences within groups are primarily driven by national regulatory environments and market maturity rather than by fundamentally divergent governance models. These findings underscore the relevance of cross-border institutional factors and confirm the suitability of the CGI for comparative analysis within insurance groups.

Among all sub-indicators analysed, transparency and the ESG indicator emerge as the strongest determinants of the CGI, corroborating modern theoretical approaches that treat ESG as an integral part of the governance system. In this context, ESG does not merely represent an additional set of non-financial

disclosures but is increasingly becoming a core element of strategic decision-making, risk management, and the supervisory function.

The results indicate that insurers with a higher level of ESG integration generally exhibit more sophisticated risk management processes, greater transparency, and more formalised governance structures. This supports the hypothesis that ESG acts as a catalyst linking traditional governance mechanisms with the contemporary requirements of sustainable business. In the insurance industry, which is directly exposed to long-term environmental, demographic, and social risks, ESG proves to be a natural extension of the corporate governance system.

Hypothesis H4 stems from the assumption that the quality of corporate governance in insurance companies is closely linked to the integration of ESG factors into their business. The empirical results confirm this assumption, as the ESG indicator shows a strong and statistically significant positive correlation with the CGI. This implies that insurers that systematically incorporate environmental, social, and governance aspects into their strategic documents, decision-making processes, and internal control systems generally achieve a higher level of overall governance quality.

In this context, ESG is seen not merely as an additional set of disclosures but as an integrated element of strategic decision-making, risk management, and the supervisory function, unifying environmental, social, and governance aspects into a single governance framework. Insurers with a higher level of ESG integration generally demonstrate more advanced oversight processes, greater transparency, and more balanced board structures, which is directly reflected in higher CGI values.

Regression analysis results further corroborate that ESG integration is a significant determinant of governance quality, even after accounting for control variables such as insurer size and market development. The positive and statistically significant regression coefficient indicates that ESG exerts an independent influence on the CGI value, irrespective of the institutional operating conditions.

Traditional governance components–including the structure of management and supervisory bodies, shareholder rights, and the organisational positioning of key functions under Solvency II–continue to exert a significant influence. The findings corroborate that insurers characterised by balanced board compositions, a higher

proportion of independent directors, and a clear segregation of duties typically achieve superior scores on the composite index. However, when viewed in conjunction with the ESG indicator, it becomes evident that traditional governance mechanisms per se are no longer a sufficient condition for achieving high-quality corporate governance.

The analysis of insurance company size and market development further underscores that the quality of corporate governance is not merely a product of internal organisational characteristics but is also shaped by the institutional environment. Larger insurers operating in more advanced markets–characterised by higher levels of insurance penetration and premium density–consistently record higher CGI values. This correlation is attributable to more stringent regulatory requirements and heightened stakeholder pressure regarding sustainable business practices.

The comparative analysis of Slovenian insurers indicates a relatively high overall standard of corporate governance, reflecting a stable regulatory landscape and a long-standing institutional tradition. The disparity between the two benchmark insurers, Triglav Ljubljana and Sava Maribor, amounts to approximately 0.20 index points, representing a moderate variance in governance quality. Whilst both entities are positioned within the top tier of the analysed companies, the difference primarily reflects Triglav's superior levels of transparency and its more advanced ESG strategy. Both groups exhibit a similar pattern amongst their subsidiaries, which generally record slightly lower index values, driven by disparities in their respective institutional environments. Within both groups, Solvency II key functions emerge as the most stable sub-indicator, confirming the pervasive impact of the unified regulatory framework. Moreover, regression analysis indicates that transparency and ESG integration exert a comparable and statistically significant influence on corporate governance quality across both groups. The results thus confirm that the underlying governance patterns and determinants of quality do not differ fundamentally between the two cross-border insurance groups; instead, observed disparities arise primarily from the degree of institutional integration and the level of market development.

6 Conclusions

The objective of this research was to develop a model for measuring corporate governance quality in cross-border insurance groups and to empirically examine the influence of selected governance, ESG, and institutional factors on the Corporate Governance Index (CGI) value. Based on theoretical foundations and the regulatory framework, the CGI was designed as a composite index comprising five thematic sub-indicators: the structure of management and supervisory bodies, transparency and disclosures, shareholder rights, ESG factors, and key functions under Solvency II.

The empirical analysis of panel data for the period 2014–2024 confirmed all of the research hypotheses. The results indicate that all of the analysed sub-indicators exert a statistically significant and positive influence on the overall CGI value. Notably, transparency and the ESG indicator emerge as the most prominent determinants, confirming their central role in contemporary corporate governance models.

A specific contribution of this research is the confirmation that ESG is not merely an additional or secondary governance element, but rather one of the key factors shaping the quality of corporate governance in insurance companies. Insurers with higher levels of ESG integration generally exhibit more advanced risk management systems, greater transparency, and more formalised governance structures. In this regard, ESG acts as a catalyst, linking traditional governance mechanisms with the contemporary requirements of sustainable business practices.

The study further confirms that corporate governance quality is contingent not only on internal governance structures but also on the institutional environment. Larger insurers and those operating in more advanced markets typically achieve higher index values, which is associated with more stringent regulatory requirements and heightened stakeholder pressure regarding sustainability.

A comparative analysis of insurers in Slovenia and within the two largest insurance groups in the region shows that disparities in governance quality primarily stem from differences in market development, transparency levels, and ESG integration. Despite these variations, the majority of the analysed insurers achieve relatively high

index values, indicating a generally well-developed governance environment in the region.

The main contribution of this research lies in the development of a methodological model for measuring corporate governance quality, enabling comparisons across insurers, countries, and groups while incorporating modern elements such as ESG factors and Solvency II key functions. Such a model is valuable for both regulators and insurance governing bodies, as it facilitates the systematic monitoring and improvement of governance practices and the better integration of sustainability factors into business strategies.

The research results confirm that the CGI represents a useful and methodologically sound tool for assessing governance quality in cross-border insurance groups. The model provides a comparable, structured, and empirically verifiable assessment of key governance areas while simultaneously integrating modern elements of sustainable business. The particular value of the index lies in its ability to bridge traditional governance mechanisms with ESG factors, which increasingly shape strategic decisions, risk management, and stakeholder relations. The findings suggest that ESG factors are no longer merely a supplementary element of non-financial disclosure but represent a core pillar of modern corporate governance in the insurance industry. Insurers with higher ESG integration generally demonstrate more sophisticated governance processes, higher transparency, and a more systematic inclusion of long-term risks in business decisions. ESG thus functions as a unifying framework, integrating environmental, social, and governance aspects into a single system of responsible and sustainability-oriented management.

Therefore, the CGI serves as a practical analytical tool for cross-country and intra-group comparisons, while providing a basis for the further development of governance standards, regulatory approaches, and sustainability strategies in the insurance sector. In this context, ESG factors are becoming a central element of future corporate governance development, linking financial performance, risk management, and long-term value creation.

The significance of these findings stems primarily from the fact that the CGI is designed exclusively using publicly available data, ensuring the transparency, reproducibility, and practical utility of the model. This approach allows for an

objective and comparable assessment of corporate governance quality without requiring access to internal or confidential sources. The results confirm that the key determinants of the CGI are transparency and ESG integration, demonstrating that ESG is no longer just an additional disclosure but is becoming a cornerstone of the modern corporate governance system. The model thus represents a valuable tool for regulators, investors, and management bodies, enabling a systematic and empirically grounded assessment of governance quality in cross-border insurance groups.

Future research could further disaggregate the ESG pillar to more clearly distinguish between companies that treat ESG primarily as a reporting or compliance requirement and those in which ESG aspects are genuinely embedded in corporate governance structures, strategic decision-making, and risk management processes. In addition, it would be meaningful to extend the application of the proposed Corporate Governance Index to non-European insurance markets or to regulatory frameworks different from Solvency II, thereby testing the robustness and adaptability of the model across diverse institutional environments. From a methodological perspective, future studies could move beyond correlation analysis and employ more advanced panel-data techniques to explore potential causal relationships between corporate governance quality, ESG integration, and the financial or prudential performance of insurance undertakings. Finally, the CGI could be further developed as a practical supervisory tool for benchmarking or early warning purposes, enabling regulators to monitor more systematically the quality and consistency of corporate governance within cross-border insurance groups.

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