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| RESEARCH ARTICLE

Determinants of Stock Pledge Risk, ESG and Firm-specific Financial Factors. A novel model to measure Risk associated with Stock Pledges

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| ABSTRACT
The study aims to present a theoretical model indicating the factors influencing stock pledge risk and the different aspects constituting each factor. For this purpose, it collects recently published articles investigating stock pledge risk and employs qualitative content analysis techniques. The authors run different queries like “word tree“, “word frequency map“, and “word tag“. The study observes that ESG and firm-specific variables influence the stock pledge risk. The study also finds determinants of ESG, stock pledge risk and firm-related financial factors. Finally, the study offers a theoretical model and recommends that future researchers use the model to assess the stock pledge risk under the umbrella of ESG and firm-specific financial factors. Moreover, the study named the model as Fin-ESG-SPR model of Li et al. (2024).

| KEYWORDS
ESG; Stock Pledge Risk; ROA; Financial Health; Ownership Structure

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1. Introduction

In the capital market, the stock pledge has become a preferred financing method for many listed companies due to its high efficiency, comparatively simple process, and versatile transaction approach (Huang et al., 2022). Alternatively, a stock pledge allows shareholders to unlock the value of their assets, expand financing options, and diversify funding sources while maintaining control and decision-making rights (Jang et al., 2022). However, in a competitive fixed-income market, Investors are offered a stock pledge, higher yield, and debt assets of non-standard, enabling financial institutions to enhance their investment and wealth management services and target higher returns (Ni et al., 2023). To lower the risk of stock pledges, listed companies' shareholders have a strong incentive to maintain share prices by natural surplus management (Deng et al., 2023). Furthermore, listed companies frequently employ capital market tools—like stock trading suspension, dividend payments to shareholders, beneficial ownership alteration, and executing buybacks of shares to lower risks like control changes (Gao et al., 2022). Performance of ESG should not be taken as a method of assessment which only focusing corporate governance, environment and society; rather, it is an investment strategy aligned with sustainable development. ESG evaluations provide a thorough assessment of a company's performance, giving stakeholders insights beyond conventional financial metrics. This enables better evaluation of investment risks, returns, and overall investment value (Qian et al., 2023). Previous research primarily emphasizes the relationship between corporate share pledges and shareholder behavior and the resulting economic outcomes. Most studies investigating share pledge risk concentrate on macroeconomic factors, corporate financial indicators, and the behavior of shareholders. Limited explorers focus on the influence of social responsibility, corporate environmental protection, and some more aspects of the performance of corporations on share pledge risk. ECG is a thorough assessment system that comprehensively determines a company's performance mainly in three environmental areas: corporate governance, commitment at the micro level to sustainable development, and social responsibility. Finance institutes and policymakers are paying more attention to ESG concepts due to the worldwide focus on environmental issues like climatic temperature rise. So, ideas focusing on investment in ESG themes are rapidly growing.

Taking this as a base, the paper explores the determinants of stock pledge risk. The study also offers the different aspects of the stock pledge risk and ESG and firm-specific variables. The risk of stock pledges can be reduced by better performance of ESG and financial variables identified in the current paper. Existing studies primarily revolve around the economic outcomes of stock pledges. Further, studies investigating influencing factors often begin by analyzing conventional financial performance and corporate governance aspects. However, the current study uses a qualitative content analysis approach in the scenario of sustainability (ESG) and financial variables to assess their influence on the risk associated with corporate stock pledges. The study broadens the research scope regarding impacting factors in a firm's stock pledges. It addresses the gap in understanding the relationship between ESG performance, financial aspects and stock pledge risk. This study bridges the gap in research regarding the influence of governance (ESG) performance on the risk of stock pledges and contracts, a new theoretical model. The model is presented based on different determinants used in the existing literature to measure the stock pledge risk. In connection with achieving the target of zero carbon, sustainability and financial performance, the model developed in this research can serve as a foundation for regulators to enhance ESG evaluation and systems of information disclosure. Further, the findings offer guidance to institutes in mitigating stock pledge risks. Investors can also use this research to manage stock pledge-related risks. The remainder of the study is organized as follows: The next section offers relevant content used to measure stock pledge risk, ESG, and financial factors in the existing literature. Section 3 presents the relevant qualitative methodology. Section 4 provides a discussion, while the last segment concludes the paper.

2. Literature

ESG performance often serves as an indicator of sustainable development. Stakeholders rely on this signal to assess the uncertainty surrounding a company's operations and evaluate credit risk, cash flow, and future profitability (Shen et al., 2023). ESG can reduce Asymmetry of information, mitigating shareholders' risk expectations. It also enhances the credit value and accessibility of financial firms. Increased capacity and Improved availability for debt financing lower bankruptcy risk and enhance investment confidence in stock pledges. Further, it conveys an ethical and responsible message to external stakeholders, contributing to a positive perception of the company's image (Huang et al., 2023). Thus, this approach can enhance customers' subjective psychology, boost product assessment and satisfaction, sustain purchase intent, and enhance the company's profitability (Li et al., 2022). Simultaneously, corporate branding is also enhanced by the strong performance of ESG. It fosters differentiation from the same institutes and products, reinforces competitive advantages, boosts profitability, and contributes to corporate performance.

Figure 1: Word Tag Cloud

These factors collectively support stock price stability and reduce the risk associated with stock pledges (Fernandez, 2022). Companies demonstrating strong ESG performance contribute to consistent development and enhance their competitive edge and profits. It optimizes decision-making processes. By fostering strong relations with stakeholders, giving them good messages, reducing conflicts and increasing the legitimacy of institutes, the flexibility of finance and cash position can be enhanced (Lin et al., 2023). In such a way, strong ESG performance is enhanced. It mitigates a company's stock to pledge holders and mitigates the risk of a corporate stock pledge. Thus, the prevailing literature suggests that “Stronger ESG performance of an institute can reduce the corporate stock pledging risk”. From an institutional legitimacy standpoint, companies can enhance their ESG performance and legitimacy by embracing environmental responsibility, creating employment opportunities, and unveiling additional ESG-related knowledge. These actions render faith, positive assessment from government entities, and a favorable relationship between the organization and the regulators (Colenbrander et al., 2023). ESG factors contribute to a political benefit over creditors, leading to increased creditor faith, further financing prospects, debt maturity structure optimization, and improved capacity of debt financing (Galletta et al., 2023).

Additionally, information on ESG helps create better relations with investors, lowers the company financing costs, increases the capacity of financing equity, and enhances the trust and recognition of investors. As a result, it increases the attraction of business of stock pledges and lowers risks (Sharma, 2023). Moreover, in many countries, political and business relations substantially influence social resource allocation, and government and non-government institutes exhibit distinct responses to the risks of stock-pledging despite engaging in similar behavior of stock-pledging (Rahat et al., 2022). Due to the loss of state asset implications associated with government firms' equity business, countries enforce stringent laws on shareholders of such entities' stock-pledging behaviour. Consequently, government organizations are more susceptible to the influence of the national legal system and may be less impacted by ESG ratings (Wang et al., 2023). Thus, the literature suggests that an organization's strong ESG performance positively impacts lowering the risk of stock pledges in non-government firms.

Further, because of energy and time constraints, market participants frequently require assistance to concentrate on all firms in the capital market. Nevertheless, they can allocate their energy and time to the most attractive institutes (Dogru et al., 2022). So, attention to the market improves the effectiveness of transmission of ESG performance in the capital market, increases the efficiency of the performance of ESG and enhances investment possibility to increase the reduction effect of the performance of ESG on the risk of stock pledge (Mu et al., 2023). Hence, the literature suggests that the positive impact of an organization’s strong ESG performance on mitigating the risk of stock pledges is more evident in institutes with a high market focus.

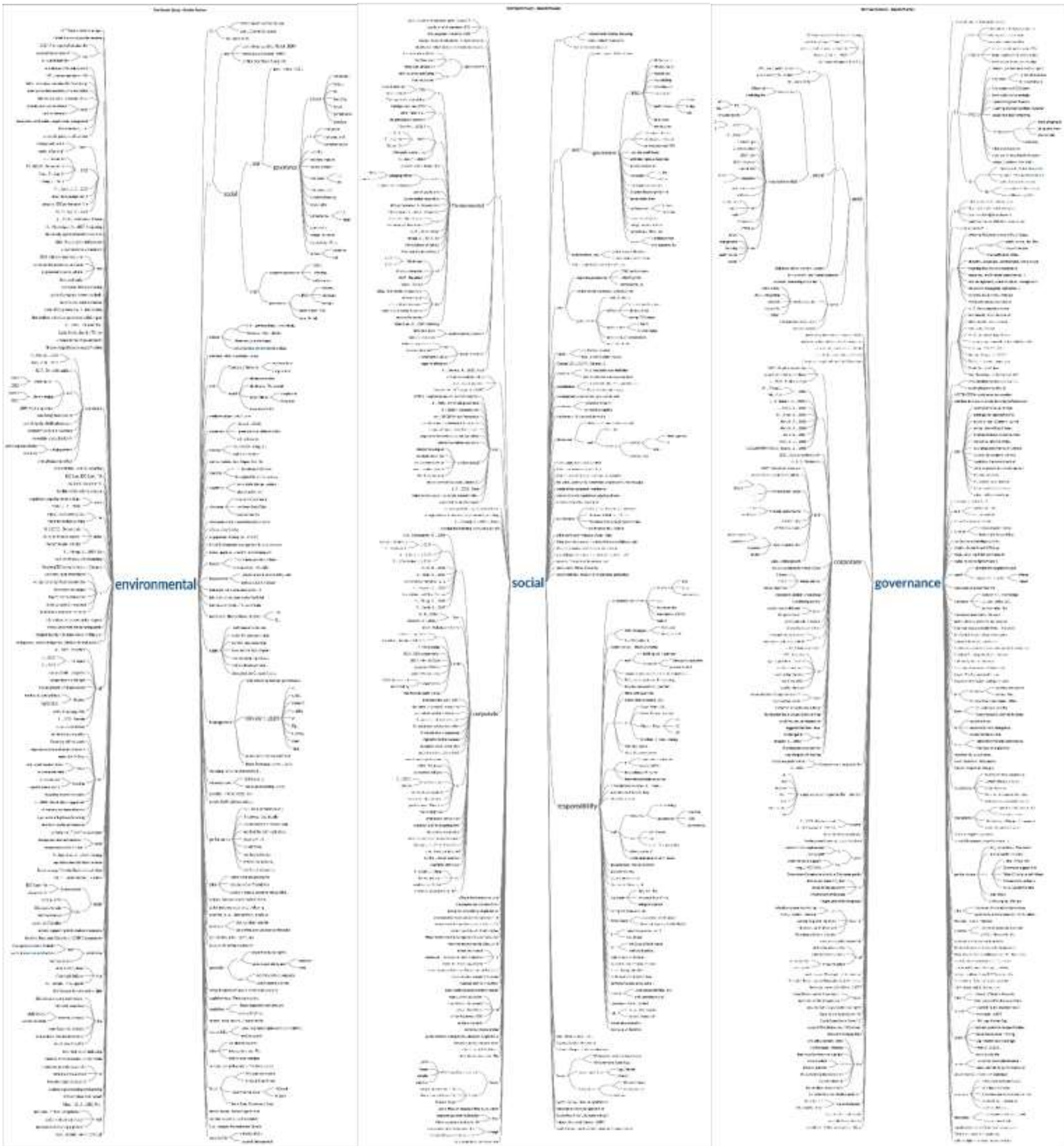

Figure- 2: Word Tree for ESG indicators

Figure 3: Word Tree for Stock Pledge Risk

3. Methodology

Cooper and Schindler (2006) suggest applying a qualitative research strategy to create a complete picture of interactions, situations, and events. This strategy is more appropriate when investigating interactive relationships (Shahid, 2017). For information analysis, the current study applies the qualitative contact analysis technique to explore the determinants of stock pledge risk, ESG, and financial factors to construct a novel theoretical relationship. Paul et al. (2000) suggest that content analysis is the most popular literature analysis technique. The study explores the word, i.e., "influences of environmental, social, governance, and financial factors on stock pledge risk" on Google and different databases. Therefore, 16 documents were selected and transcribed using N-Vivo 15 software, and different queries were run.

4. Analysis & Discussion

Figure 1 indicates the different words that facilitate the thematic analysis. The size of each word represents the repetition frequency of words. The literature frequently indicates the different aspects of stock pledge risk. These aspects range from environmental, social and governance to the firm's financial factors used to measure the stock pledge risk in firms. Figure 2 represents the word tree map. The map indicates that prevailing research (articles) frequently depict the different facets of ESG (environmental, social, and governance) linked with stock pledge risk. All the factors have subdomains. Figure 3 presents the same for stock pledge risk. These figures are normally used to explore novel themes. Figure 4 presents the tree map as an outcome for hierarchical information for the association between stock pledge risk, financial and ESG factors. Each word's size represents each factor's volume and the extent of association between the different concepts. In this case, the figure represents that stock, firm financial factors, environmental, social, governance, volatility, legal and market factors are related to stock pledge risk.

Figure 4: Tree Map

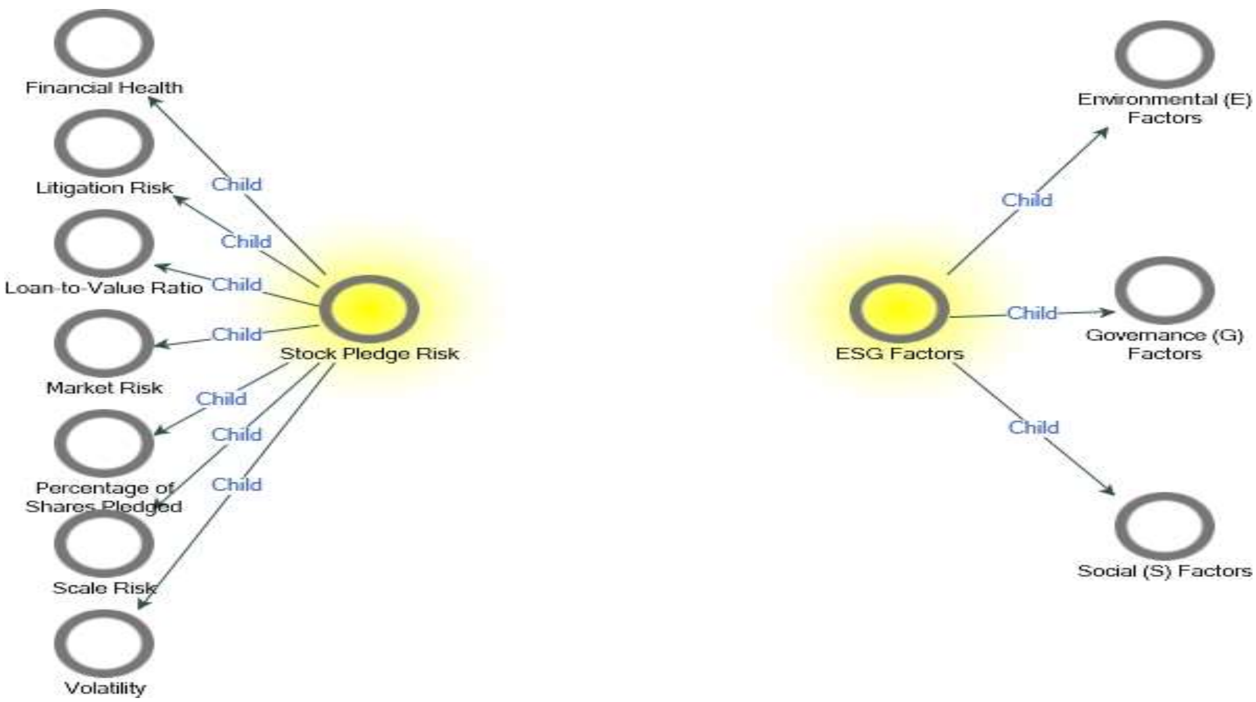

Figure-5: Determinants of Stock Pledge Risk and ESG

Based on the frequency and size of each word, we draw a diagram using nodes explored in figures 1 to 4. The existing literature shows different determinants of stock pledge risk, ESG and firm's financial factors. The literature also shows that firms' financial health, litigation risk, loan to value ratio, market risk, % age of share pledge, scale risk and volatility are the determinants of stock pledge risk. The stock pledge risk is measured via these factors in the recent-previous literature (see figure 5). The figure also indicated that ESG concept is based on environmental, Social and governance factors.

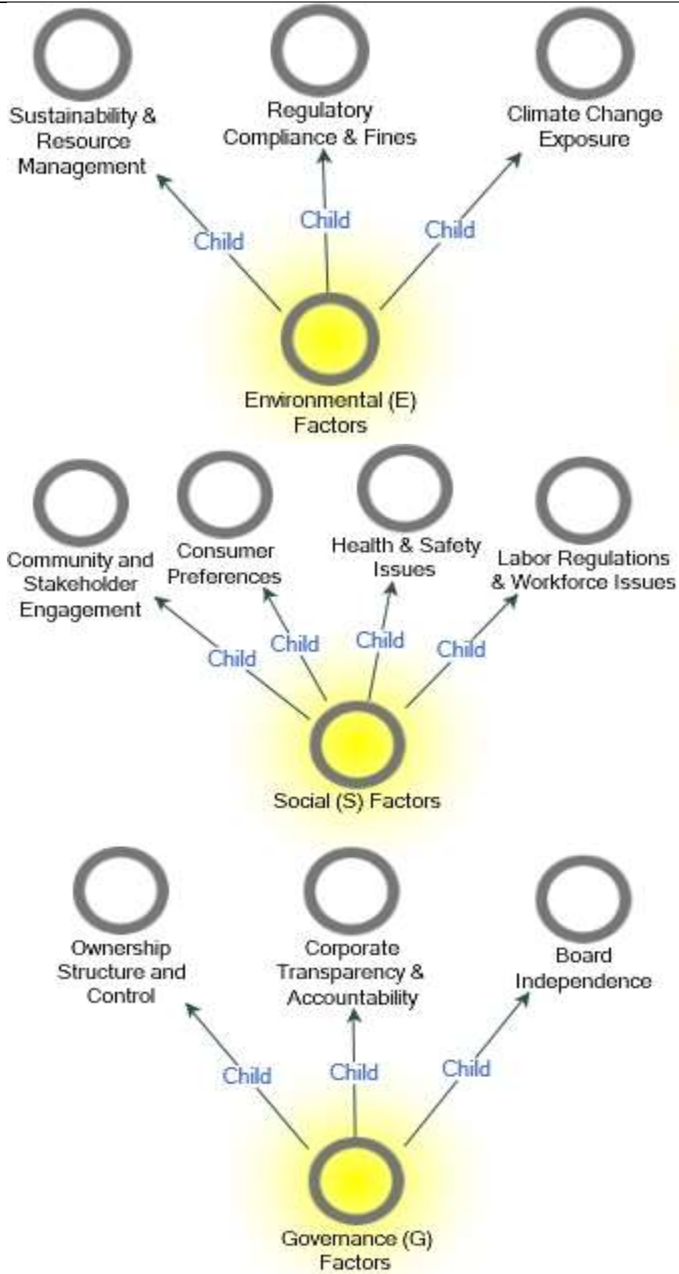

Figure-6: Determinants of Environmental (E) Social (S) and Governance (G) factors.

On the other hands, Figure 6 presents the determinants of Environmental, Social and Governance factors. The child nodes indicate that sustainability & resource management, regulatory compliance & fines and climate change exposure measure the Environmental (E) aspect of ESG. Community & stakeholder engagement, consumer preferences, health & safety issues and labor regulations & workforce issues are the determinants of Social (S) facet of ESG. On the other hand, ownership structure & control, corporate transparency & accountability and board independence determines Governance (G) aspect of ESG. Figure 7 indicates the prevailing literature suggests that Year, Industry, ROA, ROE, property rights, market-to-book value of shares, leverage, income growth rate, fixed assets, firm size, and EBIT are the significant firm-specific aspects that have an impact on stock pledge risk of firms.

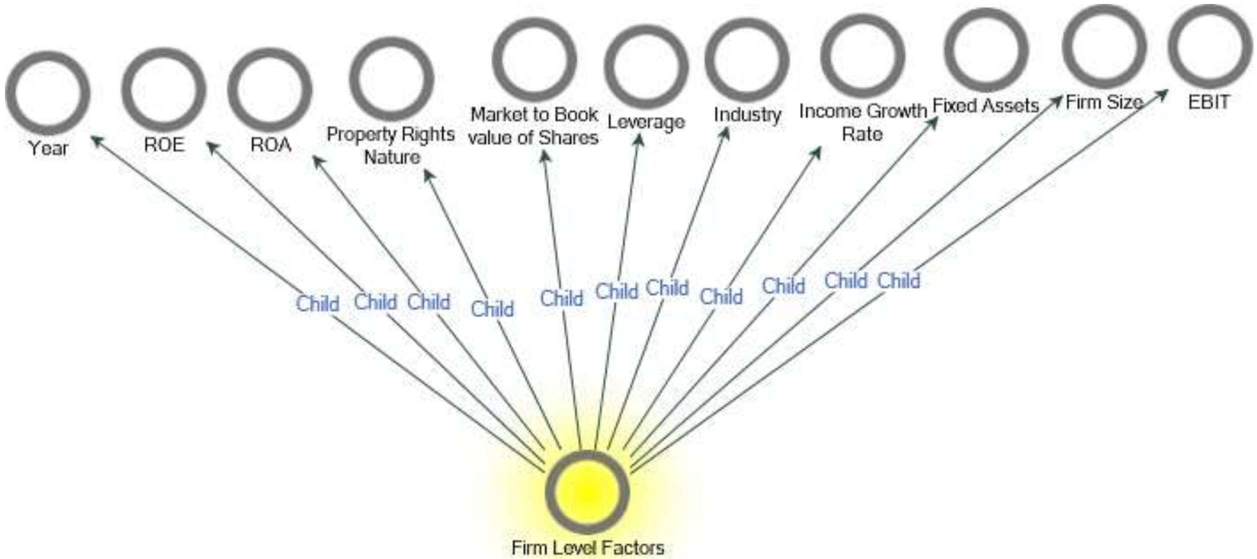

Figure 7: Determinants of Firm-specific indicators

The study draws a novel theoretical model based on the factors identified in the prevailing literature for each main concept. We named the model as "Fin-ESG-SPR model" of Li et al. (2024). The model is presented in Figure 8. The study suggests that future researchers should investigate this model to explore the impact of firm-level and ESG factors on Stock pledge risk. The model indicated that the stock pledge is influenced by multiple factors as it requires more participants and has equity and bond characteristics. In this study, the authors propose that stock pledge risks can be measured through and classified into many factors, i.e., financial health, litigation (legal) risk, loan-to-value ratio, market risk, % age of shareholding, scale risk and volatility. Moreover, all these risks have been taken as dependent variables. Researchers in the recent era have used similar factors to measure stock pledge risk. For instance, Bai et al. (2024) measure the stock pledge risk with 1) Scale Risk i.e., the ratio of the cumulative number of shares pledged by the company's major shareholders to the total share capital at the end of the period, 2) Market Risk i.e., the standard deviation of the daily return on the company's stock during the period, 3) Legal Risk i.e. whether the overall percentage of the company's pledges at the end of the period exceeds 50%, with a value of 1 for yes and 0 for no, and 4) Moral risk i.e., the ratio of the company's other receivables to total assets at the end of the period. Similarly, pledge ratio and pledge dummy are used to measure stock pledge ratio and these two ratios have been widely used in the recent literature (Anderson & Puleo, 2015; Li et al., 2018; Meng et al., 2018; Dou et al., 2019; Cheng et al., 2024). Moreover Wang & Zhang (2024) measure the stock pledge risk with litigation factors. The current study suggests to measure the ESG in the following ways. The Environmental (E) aspect of ESG should be measured through sustainability & resource management, regulatory compliance & fines and climate change exposure. Similarly, the Social (S) aspect should be measured through community & stakeholder engagement, health &safety issues and labor regulations & workforce issues. The Governance (G) aspect should be measured through ownership structure & control, corporate transparency & accountability and board independence. However, the recent studies measure the ESG with ESG rating of listed companies (bai et al., 2024), or with the ESG score from the respective country where from the sample is taken. Moreover, the studies used the ESG reporting released by the companies to measure ESG (Gao et al., 2024; Kartal eta al., 2024; Wang & Zhang, 2024; Ni & Sun, 2023). Similarly, the current study also suggests some firm specific variables that have a significant impact on stock pledge risk. The factors are ROA, ROE, property rights natura, market to book value of shares, leverage, income growth, fixed assets, EBIT, firm size, number of years the firm is operating in the industry, and industry effect itself. The recent studies measure firm specific aspects using the following factors, for example, Wang & Zhang, 2024; Bai et al., 2024; Cheng et al., 2024) measure the firm specific aspects using revenue growth rate (RGR), equity concentration (EC), return on net assets (ROA), gearing ratio (Lev), operating cash flow (OPCF), fixed assets (FA), size of the firm (Size), nature of property rights (PR), shareholding ratio of institutional holders (Ins), and controls for the year effect (Year) versus industry effect (Industry).

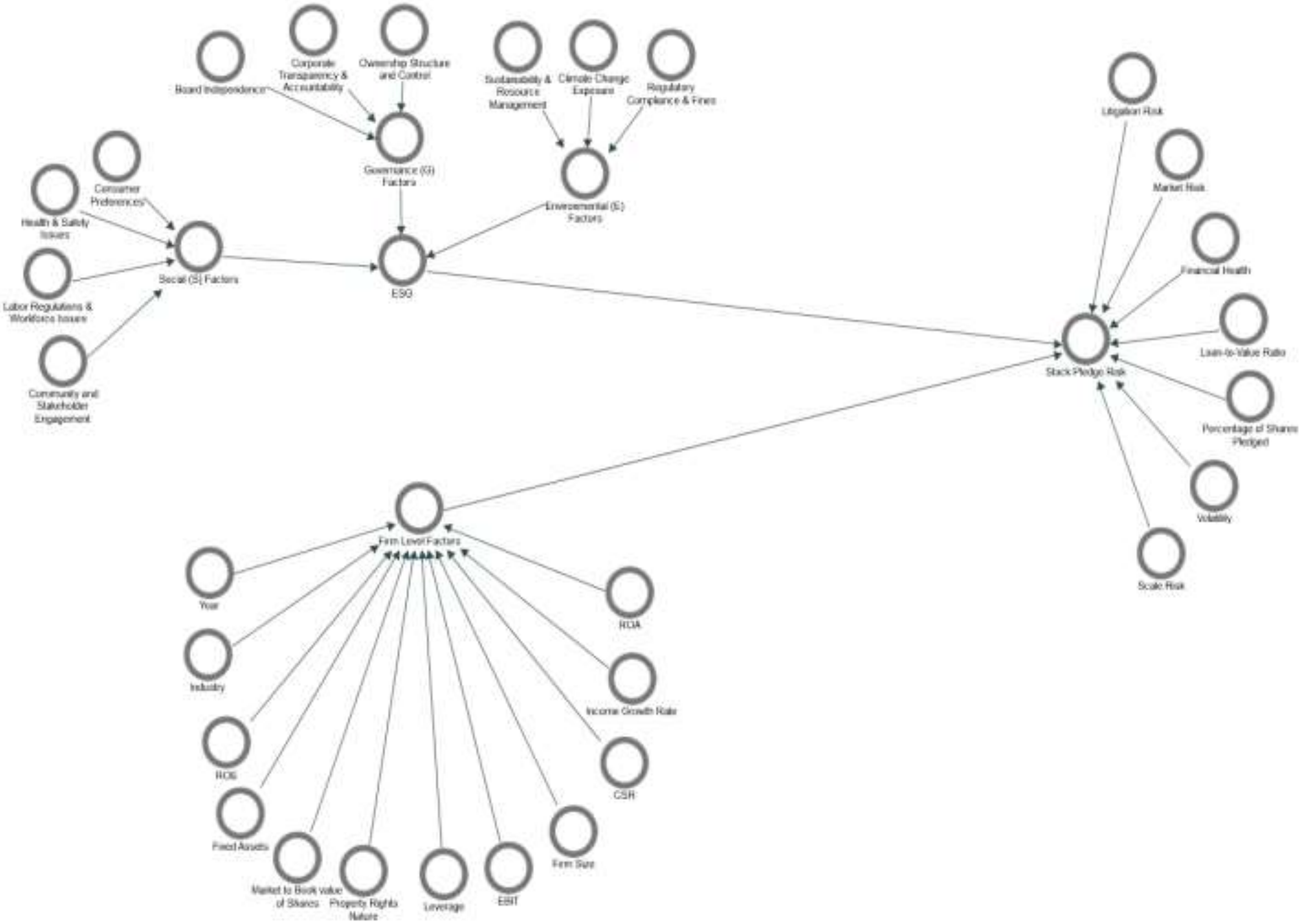

Figure 8: Theoretical model proposed by the current study to investigate the impact of Firm-specific and ECG variables on stock pledge risk.

5. Conclusion

The study aims to propose a theoretical model that identifies the elements determining stock pledge risk and the various aspects comprising each factor. The qualitative content analysis technique is applied to explore recently published articles on stock pledge risk. Nvivo-10 qualitative software is used to transcribe the information. First, the word tag and tree map queries are run to access the most repeated words in recent literature. It is observed from the outcomes of queries that the ESG and firm-specific characteristics influence stock pledge risk. Secondly, we run a word tree query to find the different aspects of ESG, stock pledge risk, and firm-related financial issues. We draw different models based on the word tree query outcomes (Figures 5, 6, and 7). Each model presents the determinants of each factor.

The study draws a novel theoretical model that suggests that firm-level and ESG factors significantly impact stock pledge risk and named the model as "Fin-ESG-SPR model" of Li et al. (2024). The model indicates that stock pledge risk can be measured using financial health, litigation (legal) risk, loan-to-value ratio, market risk, percentage age of shareholding, scale risk, and volatility. The model offers ESG as an independent variable with three aspects: environmental, social, and governance. The theoretical model offered in the current study indicates different predictors that can be used to measure each aspect of ESG. Moreover, the model suggests that ROA, ROE, property rights nature, market to book value of shares, leverage, income growth, fixed assets, EBIT, firm size, number of years the firm is operating in the industry, and industry effect itself can be used as predictors to measure the impact of firm-specific variables to on stock pledge risk. We recommend that future researchers should quantitatively investigate the viability of the model suggested in the current study. Future researchers can test the model in different companies, industries, and countries.

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