

ESG and Leverage Adjustment: Based on Stakeholder Theory and Signaling Theory

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Abstract: Many of today's firms are suffering from leverage imbalance. A company's debt can negatively impact its performance when it deviates from its target leverage. Thus, this paper discusses adjusting the firm's capital structure to an optimal one. Combining stakeholder theory and signaling theory, this paper discusses how and under what circumstances ESG may have an impact on capital structure, from which the paper proposes the following conjectures: whether ESG can have a significant impact on a firm's target leverage; how ESG can affect a firm's capital structure when the firm has an asymmetry of information; and whether ESG can be tailored to economic environments that can have an impact on a firm's capital structure changes have an effect. After the inference of this paper, ESG can effectively influence firms' capital structure and accelerate the adjustment speed of firms' leverage to target leverage under the state of firms' information transparency. ESG will be more effective in regulating firms' target leverage in the downturn of the economic environment. The analytical framework of this paper may also be effectively applied to other research directions, such as corporate investment decisions, cash holdings, and dividend policies.

Keywords: capital structure, leverage adjustment, ESG; stakeholder theory, signaling theory

1. Introduction

Researchers have been searching for the optimal capital structure of enterprises for many years.

The optimal capital structure was first proposed by Modigliani and Miller [1] in The Cost of Capital, Corporation Finance, and the Theory of Investment. Usually, the optimal capital structure refers to a capital structure that can minimize the weighted average cost of capital of a company, maximize its value, and maximize the enthusiasm of all stakeholders. The optimal capital structure of a company is the ratio when the marginal cost and marginal return of debt capital are equal, in other words, the core is finding the point of optimal debt. Jensen and Meckling [2] argue that a firm reaches an optimal capital structure when the reduced agency cost of equity from debt financing is precisely equal to the agency cost of debt. However, according to Mokhovaa and Zinecker [3], while firms can manage internal factors and their effects, managers have no control over macroeconomic factors. Both determinants have a significant impact on the firm's capital structure. So, it is difficult to determine an optimal capital structure applicable to all types of enterprises, and only a basic optimization state can be described.

For this reason, many companies have excessive debt or insufficient leverage ratios nowadays. The excessive debt of enterprises is manifested in the following aspects: the income obtained can not guarantee the payment of interest; the current ratio and quick ratio are far below the standard; and the poor ability to repay long-term debts. Specifically, excessive debt reduces the company's revenue; it could lead to financial risks related to payment, expenditure, and cash, affecting its operational performance. Pindado, Requejo and Rivera [4] are of the opinion that the decrease in revenues is associated with a monetary policy that is overly lenient. Such a policy may result in higher inflation in the future, putting the profitability of highly leveraged companies at risk and causing them to encounter issues with refinancing and continuing as a going concern. In extreme cases, this may even lead to business failure. Lv, Wang and Li [5] argue that overcapacity in the industry may cause excessive debt for a company by reducing its income. Other reasons may be blind expansion of the enterprise, forming ineffective assets, and reducing the overall operational efficiency of the enterprise. The enterprise has agency issues, Overconfidence, and insufficient managers' abilities.

A low level of debt may prevent a company from fully utilizing its financial leverage to achieve higher returns. Because there is a negative correlation between profitability and debt level, meaning that companies with stronger profitability should have higher debt levels than companies with lower profitability. Therefore, Barton and Gordon [6] believe that a low level of debt reduces the firm's profitability. The studies of Nishihara and Shibata [7] suggest that higher leverage mitigates losses from information asymmetry. Heng [8] shows that the combined effects of information asymmetry, agency problems, and transaction costs lead to differences in the cost of financing between insider and outsider firms, thus creating constraints on corporate debt financing. Therefore, insufficient debt may prevent companies from diversifying or reducing risks through debt. Due to information asymmetry, the company's assets are mainly concentrated in the hands of shareholders, and if financial risks occur, they may suffer more losses. The reason for insufficient debt may be the impact of financing constraints, which may be caused by the following situations: Xiang, et al. [9] indicate that due to asymmetric corporate information, each investor does not have complete information about the company's current production and operations, leading to increased uncertainty and risk, whereas Song and Chen [10] argue that uncertainty and the degree of information asymmetry have the opposite effect on investment, it leads to an increase in the risk premium required by investors, Wang, Tu, Li and Song [11] believe that increasing the cost of corporate finance and enhancing the financing constraint, lowering the cost of finance, and optimizing the channels and quality of external finance can effectively regulate the financing constraint. In addition, issues such as agency costs may also lead to increased financing constraints.

Environmental, Social, and Governance(ESG) is an important standard for evaluating enterprises. According to Ratajczak and Mikolajewicz [12], it can affect the long-term performance and Shakil [13] argues that the firms that perform reasonably on ESG have lower total risk, is also a key factor in achieving sustainable development. With developing, ESG is increasingly valued by enterprises. Tang [14] believes that enterprises with better ESG performance can not only reduce the cost of debt financing, but also alleviate investors' expected risks, thereby reducing the cost of equity capital.

Through sorting and inference, this paper demonstrates that ESG factors can influence the target leverage of companies, aiding in adjusting their optimal capital structure. Different factors, however, influence the pace at which ESG impacts a company's target leverage. From the standpoint of information asymmetry, the paper reveals that as corporate information becomes increasingly transparent, the rate at which ESG factors adjust corporate target leverage accelerates. Additionally, this rate and its effectiveness are influenced by the prevailing market environment. The research infers that in deteriorating market conditions or during economic downturns, ESG factors expedite the adjustment of a company's leverage towards its target.

If ESG factors impact the capital structure and the speed of adjustment to target leverage, the theoretical framework of this paper would be validated once the inference is demonstrated. Given that changes in capital structure arise from a firm's financing decisions, the research framework of this paper might also be relevant to the study of other aspects related to financing decisions, such as the firm's cash holdings, investment choices, and dividend policy.

2. Literature Review

After analyzing and referring to prior literature, this paper has identified some key factors that influence capital structure. From the perspective of business operations, several elements come into play. Firstly, there's information asymmetry. According to the pecking order theory of Myers and Majluf [15], firms might prioritize internal financing, such as retained earnings, subsequently, they would opt for debt financing due to its relatively lower cost, and finally, they would consider equity financing [16,17]. However, the presence of information asymmetry can result in stricter conditions for enterprises seeking financing [18]. This can lead to a higher proportion of corporate debt financing [19,20], imposing greater financing constraints on corporations [21]. Consequently, this increases the cost of capital [22,23]. As a result, corporate financing might not always align with the pecking order theory, leading to shifts in the capital structure.

The second factor is surplus management, which can be achieved by increasing the profit in the financial report for the purpose of financing. Surplus management may have a positive impact on corporate leverage [24]. Firstly, according to signaling theory proposed by Spence [25], surplus management manipulates the profit in the financial report to increase it [26], thereby signaling high profits to attract more investment from investors [27]. This can meet the enterprise's demand for equity financing. On the other hand, the increase in the profit portion of the financial report results in higher corporate income tax. To offset the costs associated with this tax increase, the enterprise needs to increase debt financing and apply debt tax barriers [28,29,30]. This, in turn, leads to a change in the capital structure.

The third factor is agency problems, which may result in an increase in agency costs according to the trade-off theory due to potential conflicts of interest between shareholders and creditors [31, 32,33,34]. Agency problems can also lead to conflicts of interest between shareholders and corporate management [35,36], the existence of which may be related to the two elements mentioned above. The presence of information asymmetry between shareholders and management levels may make it challenging for shareholders to assess management's decisions [37]. This can lead the firm to opt for sacrificing free cash flow in favor of higher debt levels to limit management's decisions [38]. However, higher debt levels can result in over-indebtedness for the firm, restricting its sources of funding. On one hand, this could cause the firm to miss out on beneficial investment opportunities or impact investment in product research and development [39,40,41]. On the other hand, it may compel the firm to sell key assets to meet short-term debt requirements, potentially jeopardizing shareholders' interests and affecting the company's capital structure [42]. Conflicts of interest between shareholders and management can also lead to management prioritizing its own interests at the expense of the company's interests, such as through surplus management [43,44], thereby affecting the firm's financing structure.

From a market perspective, this paper also incorporates several elements. The first is monetary policy [4]. Under loose monetary policy, firms experience a decrease in short-term and long-term interest rates [45], resulting in lower borrowing costs. This may incline firms towards debt financing [46,47,48]. Loose monetary policy also stimulates economic activities for firms, potentially leading to increased investments and, consequently, a greater need for financing [49]. Conversely, a tight monetary policy reduces investment activity [50] and may raise the cost of debt financing due to higher interest rates [45]. This could cause firms to rely more on equity financing or reduce their

financial leverage. Another factor is the market environment, where firms tend to secure more financing during economic booms[51] . However, they may exercise caution in fundraising during recessions due to heightened economic uncertainty [52, 53] , thus influencing their capital structure decisions.

3. Theory

From the previous section, we understand that financial leverage can vary based on several factors. A significant factor is the agency problem, which may involve stakeholders such as shareholders, creditors, business managers, customers, suppliers, and others. According to stakeholder theory, business decisions should be made in the interests of all stakeholders or within their constraints [54]. To address this: Firstly, enhancing communication and transparency is vital. Continuous communication between management and stakeholders can increase business transparency [55] , making it easier for shareholders and other stakeholders to monitor management's actions, it indirectly reduces agency costs[56]. Secondly, building trust requires a comprehensive assessment. Managers should evaluate the impact of their decisions on all stakeholders and consider the broader consequences. This will minimize managers making decisions purely for personal benefit [57]. Furthermore, companies should redesign their reward mechanisms to ensure that managerial incentives align with both the company's long-term interests and the interests of all stakeholders [58, 59, 60] . By doing so, the agency problem within the organization can be mitigated.

According to signaling theory, firms in environments with information asymmetry often attract investors, creditors, consumers, or other stakeholders by sending signals [61, 62]. These signals can include the disclosure of financial reports, certified partnerships, and the like. When a firm is concerned not only about its shareholders but also other stakeholders (e.g., employees, customers, community), any positive signals it sends are likely to be perceived as more credible [63] . This enhanced credibility stems from the stakeholder theory, which suggests that management decisions considering all stakeholders tend to be more long-term and sustainable [54, 64, 65,] . Such decisions indicate that the firm is not merely focused on short-term economic gains but also on long-term social and environmental impacts. This, in turn, sends a positive signal to creditors and investors [66].

Good relationships with stakeholders can serve as a form of insurance for enterprises. It provides protection, allowing companies to navigate periods of economic downturn more smoothly. Decision-making that considers the interests of various stakeholders can help mitigate agency problems. By maintaining positive relationships with suppliers, customers, and other stakeholders [67] , companies can spread risks [68] , especially during economic downturns. For instance, stable relationships with multiple suppliers can reduce risks associated with the supply chain [69]. Open and transparent communication with stakeholders enables companies to identify potential problems or risks early on and take preventive measures in a timely manner [70] , leading to more comprehensive and long-term decisions. Additionally, a company that fosters good relationships within the community is more likely to receive support from governments, local communities, and other groups [71]. This support can offer additional resources or a safety net for the enterprise during times of crisis.

ESG (Environmental, Social, and Governance) factors have broadened the scope of stakeholders. With the rise of ESG, companies have begun to prioritize not only shareholders but also other stakeholders like employees, communities, and the environment. These factors are vital for a company's long-term success and sustainability [72, 73, 74]. ESG encourages businesses to evaluate the long-term impact of their activities on society and the environment [75] . Moreover, companies with strong ESG performance tend to be more competitive and adept at risk management. This strong performance can send a positive signal to investors about the company's long-term value and stability [13] . The increasing interest of investors and consumers in ESG issues compels companies to

disclose ESG-related information in their annual reports and other public documents, thereby reducing information asymmetry [76, 77, 78]. By incorporating ESG considerations, companies are better equipped to identify and manage potential risks related to environmental, social, and governance issues [79]. In summary, by addressing ESG factors, companies can more effectively solve challenges and enhance their protective measures [74].

4. Discussion

4.1. ESG factors can effectively regulate firms' target leverage

According to stakeholder theory, enterprises must balance the interests of both creditors and shareholders. ESG (Environmental, Social, and Governance) factors can help mediate between these parties, minimizing conflicts of interest. Firstly, strong ESG performance can lower the financing costs for the enterprise. When an enterprise emphasizes ESG factors, both shareholders and creditors are more inclined to engage due to the perceived lower risks and ethical practices, which subsequently reduces financing costs. Secondly, robust ESG performance can enhance the company's ability to sustain its debt, ensuring timely debt repayments and bolstering creditor confidence. This performance can also assure shareholders of the enterprise's long-term value growth, thereby reinforcing their support for management decisions, including capital structure adjustments. Lastly, by prioritizing environmental and social issues, enterprises can mitigate potential legal, reputational, and other risks. This risk reduction eases uncertainties for both shareholders and creditors, enhancing their trust in the enterprise. In these ways, ESG factors help align the interests of shareholders and creditors, paving the way for an optimal capital structure within the enterprise.

4.2. ESG factors accelerate firms' adjustment of target leverage in the presence of information transparency

In an environment with information transparency, a firm's ESG performance is readily apparent to the public. Good ESG performance can enhance the firm's public image and credibility, thereby reducing financing costs and more effectively regulating target leverage. Additionally, information transparency diminishes the information asymmetry between investors and firms. As shown in the following equation:

$$I = (M - N - NESG)/M \quad (1)$$

As ESG emerges and prompts companies to disclose more information, it reduces information asymmetry between firms and investors. This transparency allows investors to more easily assess a company's true value and potential risks, facilitating faster adjustments to a company's capital structure. Firms with high information transparency often have higher ESG scores. These companies might be favored by investors since high ESG scores typically indicate lower risk and promising long-term prospects. As a result, these companies attract more investments, leading to increased capital inflows. Such inflows can help firms adjust to their target leverage more swiftly. Moreover, as government regulators enforce stricter requirements on firms' ESG practices, these firms may find it necessary to adjust their leverage more rapidly to meet these standards, indirectly accelerating the rate at which ESG factors drive adjustments to target leverage.

4.3. In the event of a downturn, ESG factors cause firms to adjust their leverage to target leverage more quickly

ESG serves a function akin to insurance, and just as "insurance" carries fixed expenses, so does ESG when acting in this insurance-like capacity. These fixed expenses can elevate a company's costs. Even when economic conditions are stable and favorable, and the insurance function of ESG isn't activated, these fixed costs remain. According to the NPV evaluation method, investors typically focus on how a company can enhance its net present value (NPV). Due to the existence of ESG expenses, the formula is shown below:

$$PG = f(k) - k - kESG > 0 \quad (2)$$

When ESG expenses result in a decrease in NPV, investors may become resistant to ESG factors. During periods of stable market conditions or economic upturns, this resistance from investors can hinder the rate at which ESG influences a firm's target leverage. However, in the event of a downturn in the economy, when corporate capital inflows are restricted, the NPV is shown below:

$$PB = -k - kESG \quad (3)$$

Since ESG has an insurance-like function, when the economy goes down, the insurance function is triggered and the ESG gives the company an additional benefit, the formula of which is shown below:

$$PB = -k - kESG + f(ESG) > 0 \quad (4)$$

In this case, as the ESG benefits increase the net present value of the enterprise, then it will make investors pay more attention to ESG investment, and adjust the enterprise's capital structure through ESG factors, is that the enterprise can be adjusted to its target leverage more quickly. Thus, the optimal capital structure is achieved.

5. Conclusion

Each stakeholder in an enterprise exerts significant influence because the enterprise must consider their interests and continuously engage in communication with them. This enhances the transparency of the company's information, addresses issues like information asymmetry, and sends positive signals, thereby reducing the company's costs. Beyond agency costs, these include the enterprise's financing costs. When financing costs decrease (whether through equity or debt financing), the financing choices of enterprises shift, influencing their capital structures. Previous research has shown that there exists an optimal capital structure for an enterprise. This optimal structure aims to balance the interests of all stakeholders.

The paper examines whether ESG can address the aforementioned issues. Due to the unique nature of ESG, its associated factors are particularly favored by stakeholders. As a result, enterprises should not only prioritize the interests of traditional stakeholders like shareholders, management, and creditors but also focus on corporate social responsibility and environmental impacts. Enhancing ESG performance not only reduces enterprise risks but also sends out positive signals. Moreover, the protective role of ESG can have profound implications for the long-term development of the enterprise.

Article establishes a theoretical framework and discussions, addressing the pertinent issues through three main facets. First, ESG factors can effectively guide a firm's target leverage, enabling them to attain an optimal capital structure. Moreover, in the context of information transparency, ESG factors expedite a firm's adjustment pace towards their target leverage, facilitating quicker

optimization of their leverage. Lastly, considering the influence of the economic environment, it can be deduced that ESG factors enable firms to adjust their leverage more swiftly towards the target leverage during economic downturns.

This paper also elucidates the influence of ESG factors on a firm's capital structure, which stems from the firm's financing decisions. ESG performance often sways these financing decisions, and a firm's ESG information is pivotal to these choices [80]. This is because financing decisions can considerably alter a firm's cash holdings based on the source and magnitude of financing [81]. Furthermore, these decisions can influence the investment strategies of enterprises through the methods of financing, associated costs, and potential financing constraints [82]. Additionally, through these financing decisions and their subsequent impact on cash holdings and investment decisions, the firm's dividend policy can be affected (as evidenced in studies like "Influence of Investment Fund on Stock Dividend Policy") [83,84,85]. Therefore, the theoretical framework presented in this paper might also be relevant to studies focused on cash holdings, investment decisions, dividend policies, and other related enterprise directions, paving the way for future research.

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