An-Najah National University
Faculty of Graduate Studies

THE IMPACT OF CAPITAL STRUCTURE ON SUSTAINABILITY OF INDUSTRIAL COMPANIES LISTED ON THE PALESTINE AND AMMAN STOCK EXCHANGES FOR THE PERIOD 2013-2023

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Dedication

الحمد لله والصلاة والسلام على رسول الله

﴿ وَءَاخِرُ دَعۡوَىٰهُمۡ أَنِ ٱلۡحَمۡدُ لِلَّهِ رَبِّ ٱلۡعَٰلَمِينَ ﴾[يونس:10]

الحمد لله الذي بنعمته تتم الصالحات

الروح من فرط السعادة توهجت

لحظة لطالما انتظرتها وحلمت بها وزرعت أفكاري ورودا لها

لحظة تعبت حتى نلتها، اجتهدت، ثابرت، وصلت بها أبث فرحي

في حكاية اكتملت فصولها وخيوط انتهى غزلها

تم بفضل الله تخرجي من كلية الدراسات العليا قسم المحاسبة بفضل الله تعالى

وأشكر كل من ساعدني وكان يد عون لي في مسيرتي التعليمية من عائلة ودكاترة

أهدي هذا النجاح الى نفسي أولا، والى عائلتي ووطني

اللهم اجعله علما ينتفع به

الحمد لله الذي يسر لي البدايات

وأكمل لي النهايات وبلغني الغايات

ما انتهى درب ولا ختم جهد ولا تم سعي إلا بفضل الله

فالحمدلله عند البدء وعند الختام

Declaration

I, the undersigned, declare that I submitted the thesis entitled:

THE IMPACT OF CAPITAL STRUCTURE ON SUSTAINABILITY OF INDUSTRIAL COMPANIES LISTED ON THE PALESTINE AND AMMAN STOCK EXCHANGES FOR THE PERIOD 2013-2023

I declare that the work provided in this thesis, unless otherwise referenced, is the researcher's own work, and has not been submitted elsewhere for any other degree or qualification.

Student's Name	**Itaf "Mohamad Saed" Berah**
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Date:	**09/12/2025**

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Abstract

The main goal of this study is to investigate the influence of Capital Structure (CS) on sustainability in industrial companies listed in the Palestine Exchange (PEX) and Amman Stock Exchange (ASE) from 2013 to 2023. It employs a number of controlling variables including company size, company growth, company liquidity, and board size. CS is one of the key strategic financial decisions in companies since it includes both debt and equity employed to finance activities and its direct influence in financial and non-financial performance as well as achieving strategic aims which ensures sustainability and creates more value for themselves and other stakeholders.

It depends on an integrated theatrical framework depending on many economic and managerial theories including economic and agency theory, trade-off theory, and pecking order theory, to clarify the relationship between financing decisions and sustainability requirements in its three dimensions: environment, society, and governance. It adopts qualitative approach by gathering information of (41) financial and non-financial companies listen in PEX and ASE analyzing their data using advanced statistical regression models using STATA.

It has been found that there has been an increase in equity financing which increased governance disclosure transparency as well as the negative relationship with sustainability with environmental and social one. This confirmed their ability to reduce their debt and adopt e

confirming the ability of companies that tend to reduce their debt to adopt more stable and transparent policies. However, debt financing showed that higher total long-term debt has a positive impact on environmental sustainability and a negative impact on social sustainability and governance. Higher short-term debt is associated with better social and

environmental performance, and there is no clear significant evidence of the impact of short-term debt on governance.

The study included a set of control variables and showed that the size and growth of institutions are strongly positively correlated with their level of governance and environmental and social sustainability, while liquidity has a negative impact on the dimensions of sustainability, and the size of the board of directors has a positive impact on sustainability, indicating the role of governance in promoting sustainability practices.

It is concluded that capital structure is not merely an internal financing decision, but also represents a strategic tool that affects the ability of industrial companies to align their financial objectives with social and environmental commitments. It also recommends adopting balanced financing structures that reduce excessive reliance on debt and increase reliance on equity, while enhancing disclosure and transparency in financial and non-financial reporting. This will increase investor confidence and enhance companies' competitiveness in a challenging and volatile economic environment.

Keywords: Sustainability, capital structure, Palestinian and Amman industrial companies, firm size, liquidity, growth, bord size.

Chapter One
General Framework

1.1 Introduction

Recently, global companies have become increasingly interested in sustainable development to enhance their long-term strategies, which in turn improve their environmental, social and governance performance, thus meeting the needs of stakeholders in investing in socially responsible activities. Customer service decisions and strategic decisions are important for shareholders, investors, lenders and creditors, as the company makes a decision on the sources of capital on which it builds its operations based on a comparison between costs and benefits and achieving the maximum value for the company at the lowest cost (Villarón-Peramato, García-Sánchez, & Martínez-Ferrero, 2018).

Customer service decisions have a significant impact on the company's various policies, and the decision to use shares or debt affects the company's performance and practices Amosh, Khatib, Alkurdi, & Bazhair (2022). The characteristics of the board of directors, the senior management team, the type of audit used, governance, ownership structure, and company characteristics are among the determinants of sustainable management for companies that care about it. Financial decisions and capital structure are among the most important strategic decisions for the company, which in turn affect the financial performance and profitability of the company that capital owners are aware of (Javed, Younas, & Imran, 2014).

Companies choose financial policies appropriate to the company's goals and strategies by management through financing and investments that enhance shareholders' wealth to maximize the company's value, improve performance in a sustainable manner, and achieve its financial goals in maximizing profit and non-financial goals that serve the interests of stakeholders .

The capital structure is one of the most important determinants of the level of disclosure in the financial statements to judge the extent of the company's success, as the company must form the capital structure in the best possible way to achieve the greatest value for the company. These sources are either external through borrowing or internal through

financing from shareholders' rights, such as preferred shares, common shares, and retained earnings (Villarón-Peramato, García-Sánchez, & Martínez-Ferrero, 2018).

The Amman economy witnessed major financial crises at the beginning of the Gulf War in 1990 due to the asylum of many refugees to Amman. There were major financial crises in the Middle East as a whole, the Gulf War in 2003, and the Arab Spring revolutions, which led to the destruction of many companies and the significant decline in the performance of companies, followed by weak corporate lending, weak financing sources, an increase in the credit ceiling, and a move away from investment. Amman companies resorted to financing their banking services to enhance their investment activity, as the State of Amman is a country characterized by the concentration of ownership in its companies due to the low tendency to choose equity financing, as investment behavior is important in determining the ownership structure in choosing to borrow through shares or from commercial banks Amosh, Khatib, Alkurdi, & Bazhair (2022) Amman companies prefer short-term debt to reduce the agency problem and refinancing. Hence, the idea of the sustainability project in Amman came to set social, economic and environmental goals to activate the economic situation and achieve sustainability in the country. The importance of this study in these years stems from the increase in global debt problems recently, as the global debt ratio has reached $100 trillion, which stems from the problems of the increasing financial deficit in the United States and China and the increase in taxes in some countries, which leads to an increase in borrowing costs for economies, as the US Treasury Department announced in October 2024 that the budget deficit reached $1.833 trillion, which is its highest level in history, so it is important to choose a correct monetary policy that helps to continue and achieve the company's goals, especially in companies in Arab and developing countries, as the level of public debt of the Jordanian government until August 2024 reached $47.7 billion, which is its highest level, at 89.5% of the nominal gross domestic product .

The importance of this study comes in clarifying the situation in Palestinian industrial companies in the unstable environment of the Palestinian economy, with the necessity of maximizing profits and preserving the rights of shareholders in companies Palestinian and Amman companies drive economic stability and business continuity (Za‘rab, Shaheen, & Abu Saif, 2022).

1.2 Problem statement

Given the recent global interest in sustainability, the scarcity of studies that link the variables of this study, particularly in Arab and developing countries, and the presence of numerous studies that have examined the determinants of sustainable performance, such as board characteristics, ownership structure, governance, audit type, and company characteristics. Furthermore, there are few studies that have examined the impact of capital structure on corporate environmental and social engagement, particularly in Palestine. Furthermore, the importance of capital structure formation for users and company value, and consequently for user decisions and the company's market value, it is important to analyze capital structure to increase the confidence of financial statement users and its impact on corporate sustainability.

A study by Amosh, Khatib, Alkurdi, & Bazhair (2022) demonstrated that capital structure decisions have a direct impact on the environmental and social disclosure of industrial companies. Many companies also suffer from poor management of asset utilization in an efficient and effective manner to obtain the highest and best return on price, thus achieving the greatest benefit for investors and stakeholders. Maintaining a balanced capital structure that supports a company's goals sustainability and competitive advantage is essential. High public debt liquidity constraints and erratic funding sources are some of the difficult economic circumstances that industrial companies in Palestine and Amman must deal with. These factors make financial decisions more delicate and have an impact on the profitability and continuity of these businesses. Abu Alhassan, et al. (2024) claim that Palestinian industrial firms' efforts to achieve sustainability are hampered by severe financial limitations and a lack of transparency. In addition the study identifies flaws in the banking and financial systems that further limit their capacity to finance sustainable projects such as high interest rates and restricted access to long-term loans.

In the Amman context, public debt has risen to nearly 90% of GDP (IMF, 2024) due to several political factors and a decline in foreign investment. This increases the cost of lending and reduces companies' ability to obtain long-term financing, forcing them to resort to short-term financing to avoid agency problems and reduce costs. However, this exposes them to liquidity problems and reduces long-term sustainability.

In addition, governance and environmental and social disclosure mechanisms in these companies still need to be developed and more transparent practices adopted to address local and international challenges and create value and benefit for the company.

Accordingly, the research came to study and analyze the impact of capital structure on sustainability in its three dimensions (environmental, social, and governance) in industrial companies listed on the Palestine and Amman Stock Exchanges during the period (2013–2023), and to clarify whether the characteristics of the financing structure (debt and equity) actually affect the level of commitment to these dimensions.

1.3 Study Questions

The main question in this study is:

Q: Is there a statistically significant positive relationship between capital structure and sustainability in industrial companies listed in the Palestine and Amman Stock Exchanges?

The following sub-questions branch out from it:

Q1: Is there a statistically significant positive relationship between capital structure and environmental performance in industrial companies listed in the Palestine and Amman Stock Exchanges?

Q2: Is there a statistically significant positive relationship between capital structure and social performance in industrial companies listed in the Palestine and Amman Stock Exchanges?

Q3: Is there a statistically significant positive relationship between capital structure and governance performance in industrial companies listed in the Palestine and Amman Stock Exchanges?

1.4 Importance of the study

The importance of this study lies in examining the impact of capital structure, consisting of debt (long-term and short-term) and equity, on sustainability in industrial companies in Amman and Palestine for the period 2013-2023. It also examines the impact of capital structure diversity on companies and the extent to which industrial companies in Palestine and Amman adopt sustainability disclosure in their reports. This is one of the latest

accounting topics and global developments that the world is seeking to achieve, including long-term sustainability in accordance with the Sustainable Development Goals (SDGs).

With the recent growing global interest in sustainability and companies' efforts to develop themselves, achieve the greatest possible benefit, and gain the trust of customers, users, and stakeholders, it is important to disclose capital structure in financial reports to give investors and stakeholders an insight into the company's financial position and enable them to make sound investment decisions that fulfill the company's obligations and repay creditors. This is reflected in the company's sustainability, development, and continuity of operations, improving the gross domestic product, and thus reducing the inflation that companies have recently been suffering from (Villarón-Peramato, García-Sánchez, & Martínez-Ferrero, 2018).

A study of capital structure diversity provides financial managers in industrial companies in Palestine and Amman with scientific indicators and analytical tools that help them develop balanced financing policies between external and internal sources of funding. This results in better financial performance and lower risk, resulting in lower costs and higher returns, while maintaining the company's long-term competitiveness.

The study also highlights the importance of adopting a sound financial policy that aligns with sustainability objectives (environmental, social, and governance). A company structure that relies on excessive debt increases the burden on debt and reduces investment in high-cost sustainability projects. Therefore, a mix in the capital structure of companies is preferable (Abu Alhassan, et al., 2024).

In environments with political and economic instability, such as Palestine, or economies with limited resources, such as Amman, reliance on short-term financing sources with high interest rates leads to fragility in adopting sustainable projects, whether social, environmental, or long-term governmental. Therefore, it is important to understand capital structure to help better define sustainable practices, reduce risks, improve corporate reputation, and increase disclosure transparency to attract financiers (banks, green finance institutions, social investment institutions, local and foreign investors) and align industrial investments with sustainability in Palestine and Amman (Bogusława & Surowiec, 2021).

This study is also distinguished from others in that it provides scientific evidence that benefits decision-makers at the institutional level in adopting a balanced and sustainable financing structure, and at the external level for financial markets and regulatory bodies in developing legislation that supports sustainability. This type of study has not been presented before in the Arab environment in Palestine and Amman with these variables, and it is more comprehensive than previous studies.

1.5 Objectives of study

Sustainability plays an increasingly important role in the industrial corporate sector, as companies seek to integrate environmental, social, and governance (ESG) considerations into their operational and financial strategies. Capital structure—the balance of debt and equity financing—is linked to a company's ability to achieve long-term sustainability. In addition, it influences the strategic investments of the company as well as risk management, and its ability to finance environmentally in socially friendly projects (Yi Lee & Heng Yeo, 2016).

Tackling the relationship between CS and ESG dimensions as companies, companies, stakeholders, investors, customers, regulators, and the local community will benefit from it. Also, understanding the relationship between financial decisions and ESG sustainability leads to improved organizational performance and long-term sustainability. Hence, Its goal is to provide sustainable projects by enhancing environmental performance, such as reducing emissions and pollution and using natural resources efficiently, or improving social performance, such as enhancing employee and local community well-being, or good governance practices that ensure transparency, accountability, and compliance with laws and standards within the company (Yu, 2024).

Given the scarcity of research on this relationship in Palestine and Amman, this study aims to fill this gap by analyzing the impact of capital structure on sustainability during the period 2013-2022, with a focus on the industrial sector as a pivotal and fundamental sector in economic development and job creation in the market. This study uses statistical methods and the statistical analysis program STATA to clarify and assist companies in choosing the appropriate capital structure for them, and to assist investors, creditors, and all stakeholders in making decisions.

Specific objectives of the study:

1. Understanding and clarifying the reality of the capital structure in industrial companies in both Palestine and Amman.
2. To determine the relationship between capital structure and sustainability in industrial companies listed on the Palestine and Amman Stock Exchanges.
3. To determine the relationship between capital structure and environmental performance in industrial companies listed on the Palestine and Amman Stock Exchanges.
4. To determine the relationship between capital structure and social performance in industrial companies listed on the Palestine and Amman Stock Exchanges.
5. To determine the relationship between capital structure and governance performance in industrial companies listed on the Palestine and Amman Stock Exchanges.

Chapter Two
The Theoretical Background, Literature Review & Hypotheses Development

2.1 Introduction

Stakeholders and investors in companies are interested in the financial performance of companies, which reflects the value, performance and ability of companies to achieve the greatest benefit from their financial policies to enhance profits and raise financial performance, in addition to interest in non-financial matters such as environmental, social and sustainable development activities. Companies with high control capacity provide better performance in terms of sustainable development and environmental and social activities, which in turn improve the continuity of companies' operations and the company's reputation and better confront potential risks.

2.2 Related Theories

The capital structure of institutions lacks a unified theory, as all theories are useful and interpretive as an analytical tool for empirical results, but do not fully explain the decision to choose the capital structure, as each theory has a specific interpretation aspect (Abu Alhassan, et al., 2024).

We discuss some theories that explain the capital structure:

Agency theory

Agency theory defines the relationship between owners (managers) and company management (agents), with divergent objectives that separate ownership from control. As defined by Jensen and Meckling in 1976 (Mansour, Saleh, Alodat, FAlshouha, & Zaid, 2021), agency theory defines the relationship between owners (managers) and company management (agents). Owners must appoint managers to manage the company, and this theory focuses on the board's primary and oversight role over agents to ensure that the company operates in the owners' best interests without bias toward management's personal interests. Information must be provided with credibility and transparency, and thus agency costs are borne by management's behavior toward owners and stakeholder pressure. According to agency theory, companies tend to avoid investing in high-return projects due to their high debt. Therefore, sound and balanced financial resource

allocation decisions within companies must be made that reflect environmental and social initiatives and minimize agency costs. Companies make decisions about financing structures based on their financial and future strategies, which are reflected in stakeholders. Disclosure of sustainability practices also reduces information asymmetries between the company and creditors, creating value for the company. Therefore, companies work on financing options that are compatible with environmental, social, and corporate governance (ESG) to address agency problems and provide better options for stakeholders (Amosh, Khatib, Alkurdi, & Bazhair, 2022).

Undoubtedly, maintaining a balance between debt and equity financing sources in corporate finance is one of the major challenges facing firms. Conflict between managers and agents will increase when agents' actions focus more on profit-making objectives. These profit-oriented actions conflict with the priorities of managers who prioritize social objectives (Yang, Gao, & Huang, 2025). A firm's capital structure also affects future financing sources, the cost of capital, the nature of risk, liquidity position, investor returns, and firm valuation. As a fundamental financing decision, it is an area of intensive research, with key contributions from prominent researchers in the form of capital structure theories.

ESG acts as a non-financial governance mechanism that helps control manager behavior and reduce waste or unjustified investments by increasing transparency and disclosure and reducing information asymmetry between managers and investors. Conflict often leads to inefficient behavior such as over- or underinvestment, especially when information asymmetries exist or governance mechanisms are weak. Overinvestment occurs when managers pursue private interests (expanding influence, unviable projects) rather than maximizing value. ESG reduces this by highlighting performance and increasing oversight.

Investments may become less once management avoids financing profitable projects because of financial constraints or risk aversion. Bilyay-Erdogan, Danisman, & Demir (2023) discovered that applying ESG criteria leads to easing these constraints by increasing cash flow as there will be investments in high-return projects. It copes with agency theory which highlights greater disclosure and oversight to minimize conflict

between shareholders and managers urging them to balance financing strategies incorporated with ESG goals.

Still, once stakeholders lack access to reliable company information, ESG performance decreases leading to a great need for strong mechanism to reduce information asymmetry (Yang, He, Zhu, & Li, 2018). As a result, companies make CSR and financing decisions according to ESG aims to solidify stakeholders' relationships (Weber & Saunders-Hogberg, 2020).

Pecking Order Theory

Understanding how capital structure affects environmental social and governance (ESG) performance in businesses—especially industrial companies in Palestine and Amman — has become crucial as interest in sustainability grows globally. An appropriate framework for examining this relationship is capital pecking order theory which aids in comprehending the connections between various levels of the corporate system.

According to studies industrial firms in Palestine and Amman both rely significantly on outside funding which hinders their capacity to carry out sustainable business plans. Nonetheless according to one study Amman industrial firms would rather finance themselves than take out loans which limits their capacity to make investments in environmentally friendly initiatives (Abughniem, Alsmady, Al Aishat, & Tawfik, 2021).

On the other hand, external financing may improve environmental and social performance if effective corporate governance strategies are implemented and adopted within companies. One study demonstrated that corporate governance plays a significant role in determining a company's capital structure, which impacts the environmental and social performance of industrial companies in Amman and Palestine (Abu Alhassan, et al., 2024).

Prioritization theory is based on the assumption that firms prioritize internal sources of financing first, then external sources (retained earnings, debt, then equity), to mitigate costs and information asymmetries. Therefore, managers must follow a specific hierarchy when selecting a firm's financing sources, prioritizing internal financing, followed by external sources when sufficient internal financing is difficult to obtain. The pecking order theory also assumes that managers of firms with high growth opportunities and

financing needs prefer to issue debt, as it is less affected by information asymmetries and is tax-protected (Ellili, 2020).

Companies that disclose sustainability-related information, such as social and environmental activities, reduce information asymmetry and provide financial and moral returns. Therefore, non-financial objectives such as environmental, social, and governance (ESG) help identify the best capital options to help companies achieve their long-term goals (Amosh, Khatib, Alkurdi, & Bazhair, 2022).

Trade-off theory

Developed in the early 1970s, the capital structure trade-off theory states that corporate leverage is determined by balancing the tax-saving benefits of debt (the higher the debt, the greater the interest tax deduction) with the fixed costs of bankruptcy (the higher the debt, the greater the interest tax deduction) (Ai, Frank, & Sanati, 2020). That is, the cost of debt must be lower than the cost of equity to benefit from the tax and interest deductions due on debt. Firms with stable earnings and cash-generating capacity can bear a greater debt burden than companies with high risks and irregular cash flows, which tend to use equity financing to avoid bankruptcy (Aibar-Guzmán, García-Sánchez, Aibar-Guzmán, & Hussain, 2021). The choice of financing source is made after comparing the costs and benefits of the choice, which depends on the company's strategies and plans for creating value and achieving its objectives (Nishihara, 2023).

At moderate debt levels, companies may improve financial discipline and efficiency, enabling greater investment in product responsibility and enhancing the company's reputation. Exceeding the optimal debt level causes financial stress and crises, lower costs, and reduced information exchange with stakeholders, which negatively impacts the company's reputation in the market and reduces its market value. Companies that maintain an optimal capital structure are better able to allocate resources effectively to manage product liability and reputation. Larger companies with strong governance systems are often better positioned to manage trade-offs in capital structure decisions, leading to greater investment in product responsibility and a stronger corporate reputation (Mensah, 2025). Environmental, social, and corporate governance protects the company from risks and enhances its ability to maintain value.

According to Xu, Xu, & Yu (2021), voluntary corporate disclosure practices, such as environmental and social responsibility, are part of the trade-off between the marginal costs and benefits of engaging in these activities. Therefore, many companies are trading off ESG activities to assess their usefulness. As companies today operate in a highly turbulent environment, they need flexibility so that they can quickly adapt to environmental changes, thus gaining an advantage over their competitors (Bajaj, Kashiramka, & Singh, 2020).

2.3 Literature review and hypotheses development

Many studies have discussed the topic of capital structure in companies with different dependent variables, as companies' financial policies include financing and investment operations that achieve the company's financial goals (maximizing shareholders' wealth and increasing profits) and non-financial goals (achieving sustainable development and environmental and social activities), thus achieving the greatest benefit and increasing the company's value (Amosh, Khatib, Alkurdi, & Bazhair, 2022). Barakzai's (2025) study also confirmed that capital structure is one of the most important financial management decisions in a company, enabling it to achieve its goals and increase its value. It affects short-term performance and long-term sustainability. To achieve the optimal debt-to-equity ratio, the company must study its sector dynamics, business climate, and financial objectives to achieve sustainable growth and shareholder value. The study by Miranti & Oktaviana (2022) also showed a direct and indirect impact of capital structure on a company's financial sustainability. The higher the level of capital structure, the higher the level of equity. Capital increases profitability, which leads to increased financial sustainability in the company.

Studies conducted by Ghoul, Guedhami, Kim, & Park (2016) have shown that companies with a high level of control and accountability perform better in the field of environmental and social governance, as these are tools for the continuity of the company's business and encouraging investors and stakeholders, especially in light of volatile economic conditions and potential risks. A study by Wu, Li, Du, & Li (2022) demonstrated the positive impact of ESG on company value. The study by Mohammad, Nour, & Al-Atoot (2024) also showed the positive impact of the sustainable growth rate on the validity of financial information and increasing its profitability and efficiency, as sustainable growth

indicates the company's ability to increase its revenues without depleting its financial resources.

Companies tend to use debt as a tool to improve corporate governance and reduce the agency problem between shareholders and managers, which leads to better corporate performance and thus corporate growth (Mansour, Saleh, Alodat, FAlshouha, & Zaid, 2021). Managers also use debt to cover the costs of social responsibility activities at the expense of shareholders, and companies that innovate sustainable projects tend to use debt financing versus self-financing in their projects (Tekin & Polat, 2024; Aibar-Guzmán, García-Sánchez, Aibar-Guzmán, & Hussain, 2021), found that highly sustainable companies enjoy higher leverage during the COVID-19 pandemic because ESG activities serve as a signal of company performance, mitigate financial constraints, and limit conflicts of interest. In addition, Nishihara's (2023) study found that companies with weak sustainability It chooses higher leverage because it does not care about the disadvantages of debt, as high taxes discourage sustainable investment. A study by Vătavu (2015) showed that Romanian companies perform better when they avoid debt and rely on equity, resorting to debt when facing financial difficulties, business risks, and the inability to repay their debts due to a lack of cash flow, and as for the status of banks in Amman, Taani's study (2013) showed that banks in Amman are institutions with high debt that rely on long-term loans rather than capital, and in joint-stock companies, Saad's study (2020) found a positive relationship between long-term and short-term debt in increasing the tax burden in Amman and Palestine, in addition to financing through equity and its positive relationship with the tax burden. Therefore, the researcher recommended the necessity of harmonizing the financing structure, and Ismail's study (2024) showed that there is a positive effect of liquidity and profit margin on financial performance, and the size of the company has an average effect on the financing structure on financial performance. The study recommended increasing the ratio of debt financing to shareholders' equity, increasing the level of liquidity, and reducing operating and financing expenses for investment companies listed on the Palestine Stock Exchange, in addition to the study by Visconti (2021), which showed a positive relationship between environmental, social and governance factors and financial performance of companies with the cost of capital in the company. As for financing through equity, which is in the form of common shares, preferred shares or retained earnings, the study by Nosheen, Naveed-Ul-Haq, & Sajjad, (2018) showed a negative relationship between the cost of

equity and the quality of disclosure in financial statements, as investors' demands for a return on their investments increase when the information disclosed in the financial reports is insufficient. The study by Mohammad, Nour, & Al-Atoot (2024) showed a positive relationship between share price, financial leverage, company size and sustainable growth of the company, and Palestinian industrial companies tend, according to the study by Abualhassan et al. (2024), to finance through shares and reduce debt financing.

A study by Barakat (2014) showed a direct relationship between capital structure and return on equity, which positively impacts company value. A study by Upaa, Okoror, Iorlaha, & Tyungu (2024) showed a positive impact of ownership structure on the preparation of sustainability reports for listed industrial goods companies in Nigeria.

A study by Salem, Jarrar, Abdelhaq, Al-Sartawi, & Nour (2025) showed a statistically significant negative correlation between board size and corporate social responsibility disclosure in Palestine for the selected period 2014-2023, and a statistically significant positive effect for company size. A study by Alslaibi & Abdelkarim (2024) also showed a significant impact of environmental, social, and governance disclosures on the return on equity of listed Palestinian companies for the period 2016-2022. A study by Alabdullah (2018) in Amman demonstrated that company size has no impact on company performance. It also demonstrated that good corporate governance is essential for all organizations to serve the interests of all stakeholders. While a study by Adeniyi & Fadipe (2018) showed no statistical significance between board size and corporate sustainability. A study by Alhamdan & Almatarneh (2024) demonstrated an impact of capital structure on the application of corporate governance in Amman industrial companies. They recommended increasing compliance with corporate governance requirements and disclosing them in their reports to enhance their reputation and market value, thereby increasing their ability to attract investment, achieve high returns, and sustain the company over the long term. A study by Ibad & Oktaviana (2024) also showed a significant impact of a company's capital structure on its value (Adeniyi & Fadipe, 2018).

Previous studies show that the best option for capital structure is to create a mix of debt and equity, which maximizes the company's return on capital and thus maximizes its value.

2.4 Definition of concepts

This section discusses the basic concepts underlying this study, including capital structure, sustainability in its dimensions, and control variables: firm size, firm growth, firm liquidity, and board size.

2.4.1 Capital structure

A company's capital structure is the mix of debt and equity that companies use to finance their long-term operations. Capital structure, in essence, reflects the distribution of a company's total value between creditors and owners (shareholders). Liabilities play a vital role in determining a company's total debt, distinguishing between long-term debt, short-term debt, and loan debt.

When companies seek external capital to finance their projects, they must determine the type of securities to issue and establish an appropriate capital structure. To analyze capital structure, the authors use the Total Debt (which includes short-term and long-term debt)/Equity ratio (Abba, Said, Abdullahi, & Mahat, 2017).

The main components of capital structure are equity, which includes shareholder capital, common and preferred stock, and retained earnings. Equity represents the primary long-term source of financing, and its returns are considered an imputed cost because owners demand a return that reflects the level of risk associated with their investment in the company. The higher the risk of the company, the higher the return required by investors to protect their rights. The capital structure also consists of debt, divided into two parts: long-term debt and short-term debt. Bonds bank loans for more than a year and real estate loans are examples of long-term debt which spans more than one fiscal year. Financial distress is a risk associated with these loans and they frequently require relatively high collateral. On the other hand, it benefits big businesses and lessens the tax burden of long-term debt interest. Conversely short-term debt is an obligation that lasts for less than a fiscal year. Compared to long-term debt it is less costly easier to handle more flexible and frequently depends on the company’s cash flows and reputation. In addition to lowering the long-term interest burden this debt offers rapid liquidity to meet the company’s immediate needs (Rahayu, Suhadak, & Saifi, 2019). Businesses with significant growth potential favor long-term financing over short-term financing according to a study

(Mabandla & Marozva, 2025). The preference of shareholders for businesses with promising futures and minimal refinancing risk is reflected in this.

This is consistent with trade-off theory, which assumes that companies balance the costs and benefits of debt financing, and agency theory, which suggests that long-term debt mitigates the agency problems associated with underinvestment. Based on the Pecking Order theory, companies prefer internal financing over borrowed capital. That is, companies use their own funds first, then issue external debt, and then issue equity financing from external sources. The pecking order theory also explains that companies seek more external financing when their internal resources are insufficient to meet their investment requirements (Alhajjeah & Besim, 2024).

Companies aim to achieve the optimal capital structure for their companies to maximize corporate value and minimize the overall cost of capital, consistent with the company's objectives of maximizing share value in the market, maximizing shareholder welfare, achieving maximum utilization of funds, and being able to adapt to changing circumstances. This is easily achieved by balancing the risks of bankruptcy and financial distress with the expected return to investors (Prasad, et al., 2022). However, various market factors and internal factors, such as taxes, financial constraints, agency costs, information asymmetry, company profitability, asset structure, company size, and board size, affect the achievement of the optimal capital structure (Taani, 2013).

Capital structure indicators in a company are based primarily on the debt-to-total-assets ratio, which is a key indicator of capital structure. It shows the proportion of assets financed by borrowed capital and the extent of the company's reliance on borrowed capital sources. It is calculated by calculating total debt, or long-term debt, and short-term debt, over total assets. A low debt-to-total-assets ratio indicates a high level of financial independence from creditors, meaning less reliance on debt. A high ratio indicates a heavy reliance on debt and a greater likelihood of facing difficulty in repaying debt or the risk of bankruptcy. The second way to assess financial independence is to look at the equity financing ratio. If the ratio is high it means that the company can sustain losses without affecting its creditors and that it finances its assets using shareholders equity than debt. When cash flows fall a low ratio suggests that the business depends more on debt financing raising the risk of financial distress or bankruptcy (Bui et al. 2023).

The capital structure of a business affects sustainability in all three areas (social environmental and governance). Strong corporate governance and sustainability practices frequently translate into reduced risk increased transparency and increased investor and creditor trust. This may have an effect on the financing costs and the company's debt-to-equity ratio. Therefore, there may be a balance to shape the capital structure: should more debt be used to finance sustainable projects, or should equity be relied upon to avoid debt obligations and enable better transparency? (Newton, Ongena, Xie, & Zhao, 2024).

H1: Is there a statistically significant positive impact of capital structure on sustainability in industrial companies listed on the Palestine and Amman Stock Exchanges during the period 2013-2023?

2.4.2 Sustainability

In recent years, corporate officials, governments, and stakeholders, including customers, suppliers, employees, and shareholders, have increasingly focused on the impact of corporate social responsibility (CSR). CSR refers to the presentation of non-financial information about a company's environmental, social, and governance performance, allowing investors to assess a company's sustainability and risk profile. Interest in CSR disclosure has grown recently, as investors, customers, employees, and local communities consider it an indicator of long-term management and risk management (Tawfiq, Tawaha, Tahtamouni, & Almasria, 2024). Regulatory institutions have also become increasingly interested in regulatory measures such as the European Union's Sustainable Finance Disclosure Regulation (SFDR), which requires financial market participants to disclose sustainability-related information (European Commission, 2021).

The 2015 Sustainable Development Goals address a range of global issues, such as poverty, famine, and environmental degradation worldwide (United Nations, 2015). The Sustainable Development Goals are not just goals for companies, but a guide for competitive corporate strategies that provide information that benefits investors, consumers, and all stakeholders to promote transparency and social responsibility (Adams & Frost, 2008).

ESG sustainability performance is measured using ratings or scores provided by specialized agencies (MSCI, Refinitiv, or Sustainalytics), based on global indicators such as environmental indicators (energy efficiency, gas emissions, water consumption), social

indicators (working and employee conditions, and community impact), and governance indicators (board structure, separation of powers, shareholder rights, and risk disclosure).

Previous studies on the impact of CSR on corporate performance have varied. These differences are due to changing theories, different definitions, gaps in available data, and weak control variables. Some studies have demonstrated a direct relationship and a positive impact on profitability, financial and accounting issues, and increased competitive performance, both directly and indirectly. Social responsibility, as defined by Barnett (2007), reflects the benefits it brings to a company's internal operations and decisions, improving employee relations, and saving costs. However, because social responsibility, as defined by Barnett (2007), is a discretionary activity for the company, this can be a burden that casts doubt on the company's credibility with stakeholders. Corporate social responsibility practices also reduce agency costs, mitigate risks and lower the cost of capital, leading to an increased likelihood of equity issuance and a reduction in external financing and debt, despite market demand for high levels of debt. A study by Asimakopoulos, Asimakopoulos, & Li (2023) showed that information asymmetry mitigates the agency problem when there is high ESG disclosure. Firms reallocate their financing sources from public debt (bond issuance) to private debt (bank borrowing) to avoid the problems of debt overhang and underinvestment. ESG disclosure provides a positive reflection for investors and lenders, encouraging them to access more internal financing sources, such as bank loans, instead of issuing debt. However, a study by Villarón-Peramato, García-Sánchez, & Martínez-Ferrero (2018) showed that social responsibility is enhanced by management's purposes and objectives and the pursuit of its personal interests through the sources of shareholder wealth, leading to increased debt to mitigate agency conflicts between shareholders and managers and reduce information asymmetry. Investors also pay attention to environmental, social, and governance (ESG) criteria when making their investment decisions, as they reflect the level of improvement in companies' environmental and social performance. Investors also care about financial and non-financial matters related to companies and influence internal decisions and new policies within companies through the SASB Standards, which were established in 2011 and adopted by the ISSB in 2022 (SASB Standards overview, 2023). Sustainability seeks to improve the quality of life and nature for the benefit of the public, businesses, and local communities (Prasad, et al., 2022). The concept of sustainability refers to an organization's ability to use its limited resources efficiently and effectively over time and

works to reduce intentional waste through best practices and activities (Shad, Lai, Fatt, Klemeš, & Bokhari, 2018). Sustainability not only impacts the economic, social, and environmental spheres but also positively impacts companies' competitive advantage, business risk management, and meeting stakeholder expectations. Johnson's (2020) study also showed that the number of investments based on ESG risks negatively impacts companies' financial performance, so ESG risk disclosure provides investment opportunities and the potential for additional sources of capital.

2.4.3 Environmental Sustainability

Recently, interest has increased in the issue of social responsibility and environmental sustainability. With the increasing complexity of companies' activities, there has become a need to use sustainable strategies and disclose information more widely and more reliably regarding their environmental behavior. Gray, Kouhy, & Lavers (1995) defined corporate environmental sustainability disclosure as disclosure of the company's activities and its public image in environmental sustainability issues.

Environmental sustainability refers to the ability of ecosystems and natural resources to continue to perform their functions and positively support human and environmental life over time. It also mitigates negative environmental impacts and factors, including negative gas emissions into the atmosphere, the depletion of natural resources such as water, soil, electricity, and minerals, and the loss of biodiversity. On the institutional side, in addition to the above, organizations are committed to implementing sustainable management supply chains and complying with environmental legislation and international indicators such as the GRI and CDP.

Green capital structure decisions for companies in the macroeconomic context are influenced by interest rates, public measures, and investor sentiment. This is because lower interest rates lower credit costs, which may encourage companies to invest in environmentally friendly projects. In addition, green companies' financing decisions are influenced by a demand for more diversified financing (Soundarrajan & Vivek, 2016). Corporate governance is also important for green companies to attract environmentally conscious investors, as is the need for a board of directors independent of management, which supports the agency theory that improves oversight and transparency, and the existence of risk-free systems (Friede, 2015). However, companies face challenges such

as information asymmetry, which leads to a green information gap, making it difficult for investors and stakeholders to judge a company's sustainable activities. Therefore, companies must disclose their green sustainability in their reports, due to the increasing number of investors integrating environmental, social, and corporate governance elements into their investment strategies to raise awareness of environmental threats and opportunities, which increases financing opportunities for the green environment and facilitates access to sustainable loans and green bonds at lower borrowing costs (Hasan, 2024). According to the Trade-off Theory, a firm balances the benefits of debt (tax shield) and its costs (bankruptcy risk), with good environmental performance reducing future risks and potentially making the firm more debt-tolerant (Xiao, 2022). Conversely, a study showed that less sustainable firms choose higher leverage due to their less concern with the drawbacks of debt, so debt financing and a high corporate tax rate discourage sustainable investment (Nishihara, 2023).

H1.1: Is there a statistically significant positive impact of capital structure on environmental performance in industrial companies listed on the Palestine and Amman Stock Exchanges during the period 2013-2023?

2.4.4 Social Sustainability

Global interest in sustainability issues especially social sustainability and how it affects capital structure has grown recently. In order to maintain and improve the well-being of society individuals and the social environment over time, businesses are now concentrating more on social aspects than just financial ones. This is accomplished by putting into effect laws and procedures that support human rights equal opportunity and social justice.

Building solid relationships with stakeholders such as staff clients and the neighborhood is another aspect of it. Investors interested in environmental social and governance (ESG) issues are drawn to the company as a result of its enhanced reputation decreased operational risks lower financing costs and easier access to long-term financing at lower interest rates. Hsu, Wu, Wang, & Chang (2023) conducted a study showing a negative correlation between financing costs and social responsibility. Strong social sustainability policies help businesses perform better financially be less reliant on debt and lower risk

which lowers the chance of bankruptcy. Lower equity and debt costs follow which improves the company's performance boosts its reputation and adds value to the market.

This is due to the company's efforts to improve employee productivity, enhance its reputation, increase brand value, and boost trust and competitiveness (Zahid, Saleem, & Maqsood, 2023).

From an agency theory perspective, decisions regarding capital structure and debt influence the reduction of agency costs by minimizing information asymmetry and avoiding agency problems. Therefore, a company looks to different sources to finance its operations, balancing its interests in maximizing profit with social and environmental responsibility disclosure (Amosh & Mansor, 2020).

There are studies that support the idea that corporate culture affects the strength of the relationship between sustainable performance and the cost of capital. A study by Gianfrate Schoenmaker, & Wasama (2023) showed the relationship between corporate governance, ethical commitment and the cost of cash capital in the Korean market and showed that there is a statistically significant negative relationship between corporate governance and the cost of cash capital.

H1.2: Is there a statistically significant positive impact of capital structure on social performance in industrial companies listed on the Palestine and Amman Stock Exchanges during the period 2013-2023?

2.4.5 Governance Sustainability

One of the most important aspects that research studying corporate governance, ownership structure, and board characteristics focuses on is how these practices affect ESG performance, with the growing importance of environmental, social, and environmental (ESG) corporate governance, companies are encouraged to manage their governance according to social and environmental standards to ensure long-term sustainable growth (Jayarathna, 2025).

Corporate sustainability governance consists of a set of metrics that assess the structure of the board of directors and corporate committees (the percentage of independent board members, the percentage of women on the board, the presence of specialized

sustainability committees in the company, the number of board or committee meetings), sustainability strategies and policies (the extent to which ESG sustainability plans are incorporated into the company's strategic plan, the presence of a formal sustainability policy approved by the board), management and executive structure (training of executives on sustainability topics, the presence of an ESG officer), disclosure and transparency (the level of external verification of sustainability reports, the extent of disclosure of climate or social risks), risk management and compliance (the percentage of internal audits that include sustainability criteria, the extent to which ESG risks are included in the organization's risks, and compliance or ethical violations disclosed or resolved), and stakeholder engagement (Global Reporting Initiative, 2025).

There are some studies that have linked corporate governance to capital structure in Amman and Palestine. Al-Sartawi (2018) showed that the concentration of family ownership in Palestinian companies leads to a reduction in the company's reliance on debt, consistent with (Al-Najjar & Hussainey, 2011). A study of listed Palestinian companies showed that institutional and foreign ownership in Palestinian companies is associated with a less leveraged capital structure, while family ownership is associated with a higher ratio in the short term and a lower ratio in the long term (Qawasmeh & Alhalabi, 2020). Regarding the situation in Amman, Al-Amosh & Khatib (2022) showed that board independence and large board size are associated with lower leverage ratios, and that companies with strong audit committees have a more balanced capital structure. The presence of effective audit committees reduces the debt ratio in the organization (Matar & Eneizan, 2018).

According to agency theory, one of the most important theories of corporate governance, it examines the principal-agent relationship within companies, where the board of directors and senior managers act as agents, managing the company on behalf of shareholders. Agency theory focuses on separating ownership from management, analyzing the conflict of interest that arises between managers and shareholders, and preventing managers from exploiting the company for their own personal gain. Erben Yavuz, et al. (2024) emphasized the need for companies to re-evaluate their governance structures to improve environmental, social, and corporate governance (ESG) outcomes. A study demonstrated a correlation between strong governance parameters, such as board

independence and shareholder rights, and lower agency costs and higher credit ratings (Jayarathna, 2025).

H1.3: Is there a statistically significant positive impact of capital structure on governance performance in industrial companies listed on the Palestine and Amman Stock Exchanges during the period 2013-2023?

Table 1

Summarizes the research hypotheses

Hypothesis	Content
H1:	Is there a statistically significant positive impact of capital structure on sustainability in industrial companies listed on the Palestine and Amman Stock Exchanges during the period 2013-2023?
H1.1:	Is there a statistically significant positive impact of capital structure on environmental performance in industrial companies listed on the Palestine and Amman Stock Exchanges during the period 2013-2023?
H1.2:	Is there a statistically significant positive impact of capital structure on social performance in industrial companies listed on the Palestine and Amman Stock Exchanges during the period 2013-2023?
H1.3:	Is there a statistically significant positive impact of capital structure on governance performance in industrial companies listed on the Palestine and Amman Stock Exchanges during the period 2013-2023?

Chapter Three
Study Methodology

3.1 Study Methodology and data collection

The study aimed to examine the impact of capital structure (debt and equity) on the sustainability of industrial companies listed on the Amman and Palestine Stock Exchanges for the period 2013-2023, using control variables (company size, company growth, company liquidity, and board size), with sustainability as the dependent variable and capital structure as the independent variable.

The dependent variable, sustainability, was measured across three dimensions (environmental, social, and governance), using indicators for each dimension taken from each company's annual reports from 2013 to 2023. The Refinitiv ESG, GRI, and SASB tables were used as indicators to measure sustainability in industrial companies in Amman and Palestine, divided into environmental, social, and governance dimensions, including specific sub-indicators for each dimension. A coding method of 0 or 1 was used for each indicator (with 0 being given if the indicator was not disclosed, and 1 being given if the indicator was disclosed).

The Refinitiv ESG, GRI, and SASB databases were chosen for their comprehensiveness and accuracy in assessing the sustainability performance of companies worldwide, and their ability to provide comparable indicators across companies and sectors. They are considered reliable and academically validated sources, enhancing their applicability to the study context of industrial companies listed on the Amman and Palestine Stock Exchanges.

3.2 Control variables

Previous studies have addressed a set of control variables that affect the subject of sustainability. Company size, company growth, company liquidity and board size will be studied as control variables in this study.

3.2.1 Company size

The size of a company is measured by its assets, sales, or number of employees, It will be measured in this research by the natural logarithm of total assets, and varies according

to its capital needs. Large companies have greater capabilities than others, are more diversified, meet the obligations of creditors more, and are less exposed to risks and bankruptcy, which serves the theory of trade-off Gharaibeh & Al-Tahat (2020),Company size can be considered a fundamental element in the company's capital structure due to its ability to act as an indicator of the company's sustainability (Ahmed, Sharif, Ali, & Hágen, 223). Larger companies typically operate in more complex environments, provide clearer information to stakeholders such as investors, employees, and creditors, and are more subject to audit and compliance standards. Therefore, they may have a greater incentive to adhere to sustainability standards.

in addition to encouraging shareholders to invest in the company's shares, which leads to an increase in the market value of the company's shares, and has greater reforms than others (Asa'd, Nour, & Atout, 2022). Larger companies tend to have greater resources to take risks and invest more broadly, which drives sustainable growth. However, government policies, market conditions, and a country's economic conditions can affect the relationship between company size and a company's sustainable growth rate (Aswad & Haryono, 2023). Ismail's study (2024) in Palestine showed that the size of the company plays an important role in the impact of the financing structure in companies on financial performance, and recommended increasing indebtedness, i.e. the ratio of debt to equity in the financing structure mix, and relying on it to obtain debt financing for companies (Ismail, 2024).

3.2.2 Company growth

Corporate growth refers to a company's ability to expand its operations and increase its assets, revenues, and market share over a specific period of time. It is measured in two ways: financial (net profits, revenues, cash flows) and non-financial (geographical expansion, increased headcount, increased market share).

Corporate growth is influenced by several factors, including internal and external financing, organizational structure, and the relationship between corporate growth and sustainability. Corporate growth is characterized by a company's ability to grow while taking into account economic, social, and environmental dimensions. It is preferable for corporate growth to be long-term to avoid pressure to achieve short-term profits, thus reducing the focus on sustainability initiatives.

Previous studies Mensah (2025) have shown that companies with rapid, high growth often require additional financing, but this increases financial risk. Typically, companies with sustainable growth tend to have a balanced mix of debt and equity to avoid excessive risk, bankruptcy, and insolvency. Debt can be a means of obtaining the capital needed for business expansion and growth. However, high debt can lead to high interest expenses, which impacts profitability and hinders investment in sales-generating activities. Debt can be a means of obtaining the capital needed to expand and grow a company's business. High debt can lead to high interest expenses, which impacts profitability and hinders investment in sales-generating activities.

Faster-growing companies also tend to use internal financing first to avoid additional costs (Myers & Majluf, 1984). A study by Myers & Majluf showed a negative relationship between the debt-to-equity ratio and asset growth and earnings, and a positive effect on sales growth. Financing profitable projects using debt can boost a company's profitability; however, it can hinder profit growth due to excessive interest expenses or difficulty meeting loan obligations. Based on trade-off theory, a negative relationship is assumed between growth opportunities and debt because growing companies incur higher bankruptcy costs and face obstacles in obtaining external credit, thus reducing their debt. Shoaib & Siddiqui (2020) predict that a company's growth will lead to a reduction in leverage. A strain on financial resources is placed by high debt leading to hindering asset expansion efforts (Pandey, 2017). A study by Yazdanfar & Öhman (2015) showed that high levels of debt, both short-term and long-term, negatively impact company profitability due to increased agency costs and heightened risks associated with high debt levels. Companies with low debt-to-equity ratios act better. Hence, high debt increases costs and financial burdens, and reduces growth opportunities (Alabdullah, 2018).

3.2.3 Company Liquidity

Capital structure is a combination of debt, equity, and other sources that companies use to finance their business activities. Understanding capital structure is important for studying a company's financial position and provides an indication of the company's reputation. Excessive use of debt may expose the company to the risk of bankruptcy or liquidation if the company's long-term debt exceeds retained earnings, leading to significant losses. A study by Al-Suwaireki, Abu Shamala, & Sarhan (2025) showed that there is a negative relationship between liquidity and capital structure in non-financial

companies listed on the Palestinian Stock Exchange. (Al-Suwaireki, Abu Shamala, & Sarhan, 2025)

Liquidity is a ratio used to measure a company's ability to pay its short-term debts. A company is highly liquid when its current assets are greater than its short-term liabilities. When its liquidity is low, it means that it is facing financial problems, which reduces the confidence of investors and stakeholders, thus affecting the company's value and reputation (Purnamasari & Yuliana, 2024). Companies with a higher liquidity ratio have the ability to meet their obligations and withstand leverage (Cappa, Cetrini, & Oriani, 2020).

According to the hierarchical theory, internal financing is preferred over external financing and the provision of internal funds is done through liquidity, ESG activities increase investor confidence, thus increasing trading activity, increasing the liquidity of the company's stock, and facilitating the company's access to capital. High ESG activities also lead to lower information risk and lower costs of debt and equity, providing better financing options for companies (Chen, Liu, Jiang, & Liu, 2023). Some studies have shown that the liquidity of stocks can change the company's capital structure due to managers' incentives to raise money by issuing shares instead of debt, especially when the liquidity of stocks is high. Companies with high liquidity tend to reduce borrowing, debt burden, and interest costs, which increases financial efficiency by using internal resources to cover short-term financing (Nam & Tuyen, 2024).

According to the hierarchical theory, there must be a negative relationship between liquidity and the company's capital structure, i.e. the more liquidity, the less reliance on external debt Yusuf, Al-Attar, & Al-Shattarat (2015), while the study of Marlina, Pinem, & Hidayat (2020) showed that there is no significant effect of the company's liquidity on the capital structure.

Amosh & Mansour (2020) study also showed that the company's liquidity increases when companies increase their disclosure of their financial and non-financial information, which consequently reflects on the company's sustainability and management of its funds and sources of financing, whether internal or external, in a better and more confident manner.

3.2.4 Board Size

Board size has received significant attention for its relationship with a company's capital structure, its impact on corporate financial diversity, and its relationship with sustainability. According to agency theory, large boards help reduce agency costs by increasing social responsibility initiatives during times of crisis or organizational change. In contrast, resource dependency theory links a positive relationship between board size and sustainability. A broader board composition allows for access to broader knowledge and external relationships, enhances strategic oversight, and broadens knowledge of environmental and social issues, improving disclosure and enhancing sustainability Augier (2012).

The board of directors must make strategic decisions and manage the company's activities. The study of (Abualhassan et al., 2024; Feng, Hassan, & Elamer, 2020) showed a positive relationship between the size of the board of directors and the capital structure. The larger the size of the board of directors, the higher the level of borrowing will be and the restrictions imposed when making decisions will increase, which increases the efficiency of corporate governance mechanisms and increases financial leverage, thus improving the company's value. The study of Basalat, Koni, & Nour (2023) showed a non-significant inverse effect of the size of the board of directors on the return on equity. Anderson, Mansi, & Reeb (2004) found a negative relationship between board size and the cost of debt financing.

Quantitative analysis will be used to collect and analyze data derived from company data (financial statements and financial reports) from listed stock exchanges, using Statistical methods and the statistical program STATTA to reach the results

Table 2

Dimensions of sustainability

Dimension	Sub-indicator	Framework/Standard
Environmental	Energy Consumption	SASB-Industrial Machinery & goods
Environmental	Percentage of Electricity Used	SASB- Manufacturing and industrial equipment
Environmental	Percentage of Renewable Energy Used	SASB- Industrial Machinery & Goods
Environmental	Carbon Emissions	SASB- Industrial Machinery & Goods
Environmental	Water consumption	SASB- Manufacturing and industrial equipment
Social	Worker accident/injury rate	SASB- Industrial Machinery & Goods
Social	Work-related death rate	SASB- Industrial Machinery & Goods
Social	Vocational training/employee training hours	GRI - Training and Development Indicators
Social	Employment stability	GRI - Work and Job Indicators
Governance	Existence of an anti-corruption policy and compliance practices	GRI - Governance indicators
Governance	Transparent disclosure, such as disclosure of emissions, accidents, and legal losses	SASB + GRI
Governance	Organizational structure (percentage of independent members or the presence of a sustainability committee)	GRI - Governance indicators

This set of sustainability indicators was selected and measured because it is the most common indicator in financial literature and reflects the different dimensions of sustainability in a measurable way. Environmental indicators reflect the extent to which companies adopt a commitment to their responsibility towards the environment and reduce the negative impacts of their operational activities. Financing decisions also affect investment in clean technologies and sustainable environmental practices. For social sustainability, these indicators were adopted because they measure the extent of companies' commitment to employees and the local community in promoting institutional stability and their reputation. For sustainable governance, these indicators were adopted because good governance contributes to promoting transparency and accountability and protecting the rights of stakeholders.

The study sample consists of industrial companies listed on the Palestine Exchange and the Amman Stock Exchange for the period 2013-2023.

Table 3

The study sample

Stock Exchange Name	Number of Companies
Palestine Stock Exchange	11
Amman Stock Exchange	30

Note: One company was excluded from the Palestine OExchange (Beit Jala Company) due to the lack of sufficient information.

3.3 Research Model

This study is based on one model. This model is presented bellow as follows:

$$\mathbf{ESG = B0 + B1STDAit + B2LIDAit + B3TDAit + B4SERit + B5Growthit + B6Liquidityit + B7\ FSizeit + B8\ BSize + Year + Sector + \sum it} \quad \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where:

B0= Constant

ESG= Environmental, Social, and Governance Performance

STD= Short-Term Debt

LTD= Long-Term Debt

TDT= Total Debt to Total Assets

SER= Total Equity to Total Assets

FSize= Firm Size

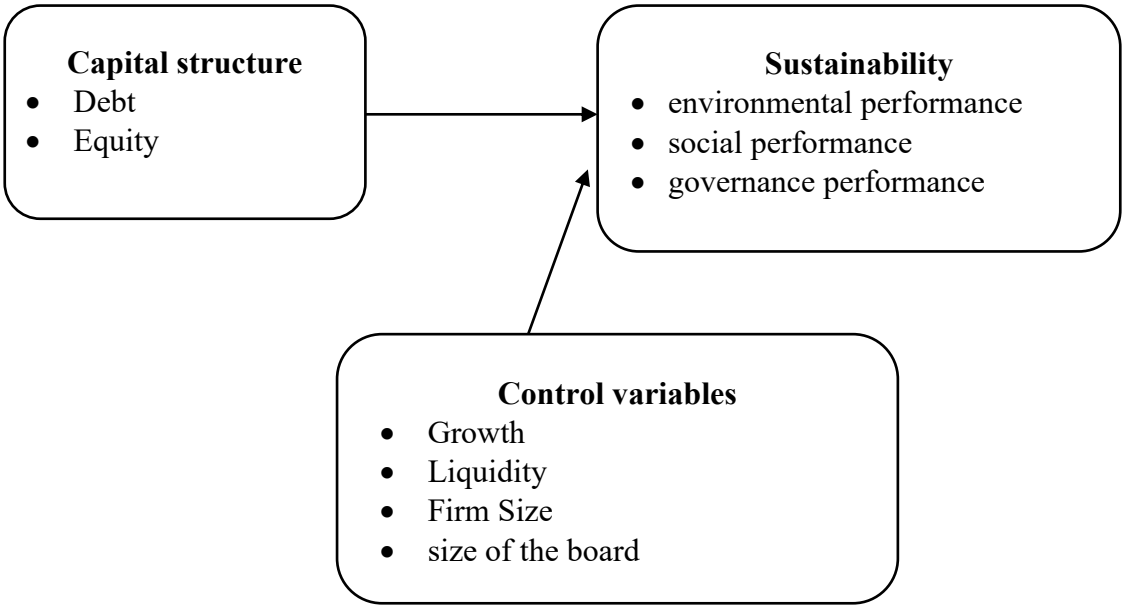
BSize= Bord Size

Growth= Company Growth

Liquidity= company Liquidity

Figure 1

Research Model



3.4 Variables Measurement

Table 4

Study variables and method of measurement

Variable	Measurement method	Definition	Reference
Dependent variables			
Sustainability (ESG)	Total sustainability performance	Meeting the needs of the present without compromising the ability of future generations to meet their own needs (Abdi, Li, & Càmara-Turull, 2020).	(Amosh, Khatib, Alkurdi, & Bazhair, 2022)
Independent variables			
SER	Total Equity to Total Assets	It is the amount of a company's assets obtained by issuing common stock instead of debt (Amosh, Khatib, Alkurdi, & Bazhair, 2022).	(Amosh, Khatib, Alkurdi, & Bazhair, 2022).
TDA	Total Debt to Total Assets	This formula determines the amount of debt a company has compared to the value of the assets it owns (Chiesa, McEwen, & Barua, 2021).	(Amosh, Khatib, Alkurdi, & Bazhair, 2022)
LTDA	Long-Term Debt to Total Assets	It is a measure that indicates the proportion of long-term debt (liabilities) that last more than one year in a company's total assets (Chiesa, McEwen, & Barua, 2021).	(Amosh, Khatib, Alkurdi, & Bazhair, 2022)
STDA	Short-Term Debt to Assets	These are current obligations that must be paid during the year and appear in the statement of financial position (Chiesa, McEwen, & Barua, 2021).	(Amosh, Khatib, Alkurdi, & Bazhair, 2022)
Control Variables			
Growth	Year-on-Year Percentage Change in Total Assets	is a key measure of company success (Vuković, Peštović, Mirović, Jakšić, & Milutinović, 2022).	(Ahmed, Eliwa, & Power, 2019)
Liquidity	Total Current Liabilities/Total Current Assets	A ratio used to determine a company's ability to pay its short-term debt obligations, to determine if a company can use its current, or liquid, assets to cover its current liabilities (Mohammad, Nour, & Al-Atoot, 2024).	(Ahmed, Eliwa, & Power, 2019)
Firm Size	Natural Logarithm of Total Assets	The size of a company is measured by the volume of sales, the company's assets, or the number of employees within the company, and It reflects the company's ability to maintain its economic position (Asa'd, Nour, & Atout, 2022).	(Gharaibeh & Al-Tahat, 2020)
Size of the bord	Number of Board Members	The responsibility for managing the company and making strategic decisions regarding the financial mix rests with the company's board of directors (Abu Alhassan, et al., 2024).	(Nour, Bouqalieh, & Okour, 2022)

Chapter Four

Results

This chapter discusses the results of descriptive and regression analysis of the data extracted for the specified period in the study, discusses them, and links them with hypothesis testing and previous studies.

4.1 Descriptive Analysis Results

This section discusses the results of descriptive statistical calculations for the study variables mentioned above for the study period, including the arithmetic mean, standard deviation, minimum, and maximum values for each variable.

4.2 Descriptive Statistics

Table 5

Descriptive analysis results

Variable	Obs	Mean	Std. Dev.	Min	Max
environmental	440	0.402	0.491	0	1
social	440	0.498	0.501	0	1
governance	440	0.975	0.156	0	1
ser	440	0.67	0.192	0.181	0.987
tda	440	0.331	0.191	0.033	0.842
ltda	440	0.071	0.099	0	0.535
stda	440	0.26	0.159	0.019	0.722
growth	440	4.014	14.54	-31.894	67.589
liquidity	440	0.658	0.554	0.025	2.761
firm size	440	17.005	1.225	13.83	19.838
size of the bord	440	8.25	2.388	5	14

The table (5) presents the descriptive statistics for the financial and non-financial variables used in the study. The table shows the mean, standard deviation, and minimum and maximum values for each variable, allowing the reader to gain a general picture of the distribution and variance in the sample. Environmental: The mean was 0.402, indicating that approximately 40% of the sample companies had environmental disclosure. The standard deviation of 0.491 reflects variation among companies, as values ranged between 0 and 1 due to the binary nature of the variable. Social: The mean for social disclosure was 0.498, close to half, with a standard deviation of 0.501. Values also

ranged between 0 and 1, consistent with the binary nature of the variable. Governance: A mean score of 0. 975 indicates that businesses have a high level of governance. The majority of businesses are near the maximum (1) according to the standard deviation which is comparatively low (0. 156). SER: With a standard deviation of 0. 192 the Social and Environmental Responsibility Index had an average of 0. 67. The range of values from 0. 181 to 0. 987 showed that the degree of corporate adoption of this indicator varied significantly. Total Debt to Assets (TDA): Standard deviation 0. 191 mean 0. 331. The values varied from 0. 033 to 0. 842 indicating that different companies have different financing arrangements. Long-Term Debt to Assets (LTDA): Values ranged from 0 to 0. 535 with a low mean (0. 071) and standard deviation (0. 099). This suggests a reduced dependence on long-term debt in contrast to short-term debt. STDA (Short-Term Debt to Assets): The range was 0. 019 to 0. 722 with a mean of 0. 26 and a standard deviation of 0. 159. This indicates that the majority of corporate leverage is derived from short-term debt. Growth: The average growth rate was 4. 014 with a very high standard deviation of 14. 54 indicating considerable variation in growth rates. The values varied from -31. 894 to 67. 589 indicating that while some businesses saw notable negative growth others saw strong growth. Liquidity: The range was 0. 025 to 2. 761 with an average of 0. 658 and a standard deviation of 0. 554. This suggests that the liquidity of some businesses is higher than that of others. Firm Size: The logarithm of total assets yielded an average firm size of 17. 005 with a standard deviation of 1. 225. The samples company sizes varied significantly with values ranging from 13. 83 to 19. 838. Board Size: There were 8. 25 members on average with a 2. 388 standard deviations. The majority of businesses have medium-sized boards as indicated by the values ranging from 5 to 14 members. In conclusion the data indicate that while governance variables exhibit a relatively high and uniform level across firms most other variables—particularly growth liquidity and leverage—show considerable variation.

4.3 Correlation matrix

Table 6

Correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) environmental	1.000								
(2) social	0.101	1.000							
(3) governance	0.131	0.159	1.000						
(4) ser	0.013	0.041	0.128	1.000					
(5) tda	-0.013	-0.050	-0.128	-0.936	1.000				
(6) ltda	0.041	-0.099	-0.036	-0.502	0.571	1.000			
(7) stda	-0.040	0.008	-0.132	-0.810	0.851	0.065	1.000		
(8) growth	-0.028	-0.014	0.019	-0.128	0.084	0.152	0.011	1.000	
(9) liquidity	-0.239	-0.218	-0.143	-0.617	0.632	0.186	0.634	-0.048	1.000
(10) firm_size	0.062	0.132	-0.228	-0.322	0.308	0.363	0.149	0.103	0.045
(11)sizeof_thebord	0.186	0.111	0.218	0.115	-0.115	-0.111	-0.070	0.033	-0.127

A set of environmental social and governance (ESG) variables and financial and regulatory variables are shown to be interrelated in the correlation matrix in Table (6). With the correlation coefficient between the environmental and social dimension reaching 0. 101 between environmental and governance (ESG) at 0. 131 and between social and governance (SG) at 0. 159 the findings demonstrated that the relationships between ESG dimensions were generally weak but positive. This suggests that businesses that show little dedication to one dimension typically follow the others. The correlation coefficients between the Social and Environmental Responsibility (SER) index and total debt to assets (TDA) and its constituents were extremely negative they were -0point 936 for TDA -0point 810 for short-term debt (STDA) and -0point 502 for long-term debt (LTDA). This indicates that businesses with stronger social and environmental responsibilities typically use less debt financing. The structural nature of these variables was reflected in the strong and positive internal relationships of debt with TDA having a close relationship with both LTDA (0. 571) and STDA (0. 851). However liquidity had a strong negative correlation with SER (-0. 617) and a positive correlation with both TDA (0. 632) and STDA (0. 634). This suggests that companies with more short-term debt have higher levels of liquidity whereas companies with more social and environmental disclosure have comparatively

lower levels of liquidity. TDA (0. 308) and LTDA (0. 363) showed a positive correlation with firm size suggesting that larger firms typically use higher levels of debt especially long-term debt. But it had a negative correlation with both governance (-0. 228) and SER (-0. 322) indicating that bigger companies may not always have better governance or higher disclosure levels. Companies with larger boards may be more dedicated to environmental disclosure and governance according to a weak positive correlation found between board size and both governance (0. 218) and the environmental dimension (0. 186). Finally, growth showed no significant relationships with the remaining variables, with correlation coefficients close to zero, indicating that growth in this sample is not directly related to other financial or non-financial indicators. Overall, the correlation matrix reveals strong relationships between SER and debt (negative relationships) and between debt components (positive relationships), while the relationships between ESG dimensions remain weak, reflecting the relative independence of each dimension in explaining corporate behavior.

4.4 Regression Analysis

Table 7

Regression analysis

VARIABLES	(1) Environmental	(2) environmental	(3) environmental	(4) environmental
Ser	-4.530***			
	(1.163)			
Tda		5.021***		
		(0.972)		
Ltda			3.057***	
			(1.123)	
Stda				4.178***
				(1.263)
Growth	-0.0139	-0.0114	-0.00923	-0.00602
	(0.00966)	(0.00899)	(0.00871)	(0.00790)
Liquidity	-2.735***	-2.958***	-1.388***	-2.409***
	(0.568)	(0.516)	(0.261)	(0.492)
firm_size	0.102	0.110	0.200**	0.229***
	(0.0935)	(0.0902)	(0.0897)	(0.0872)
size_of_the_bord	0.187***	0.185***	0.208***	0.172***
	(0.0497)	(0.0500)	(0.0481)	(0.0500)
Year	Yes	Yes	Yes	Yes
Country	Yes	Yes	Yes	Yes
Constant	0.237	-4.499***	-5.726***	-6.126***
	(2.248)	(1.676)	(1.703)	(1.655)
Observations	440	440	440	440

Robust standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<.

H1.1: Is there a statistically significant positive impact of capital structure on environmental performance in industrial companies listed on the Palestine and Amman Stock Exchanges during the period 2013-2023?

The regression results reported in Table (7) examine the impact of the Social and Environmental Responsibility (SER) index, ownership structure indicators, financial leverage measures (TDA, LTDA, and STDA), and firm-level control variables on the level of corporate environmental disclosure. The results of the first model reveal a negative and highly significant relationship between SER (equity ratio) and

environmental disclosure, with a coefficient of −4.530 ($p < 0.001$), indicating that firms exhibiting higher overall social and environmental responsibility or relying more heavily on equity financing do not necessarily provide higher levels of environmental disclosure. This finding suggests that general responsibility practices may not translate directly into detailed environmental reporting within the industrial corporate context in Palestine and Amman.

Regarding financial leverage, the findings consistently demonstrate that total debt to assets (TDA), long-term debt (LTDA), and short-term debt (STDA) are positively and significantly associated with environmental disclosure, with coefficients of 5.021, 3.057, and 4.178, respectively ($p < 0.001$). This indicates that firms with higher levels of debt tend to disclose more environmental information, possibly as a strategy to enhance credibility with investors and creditors and to reduce financing-related risks. This result aligns with (Mansour, Saleh, Alodat, FAlshouha, & Zaid, 2021), who argue that debt financing can mitigate agency problems between shareholders and managers, thereby positively influencing environmental performance.

In contrast, firm growth rate exhibits a weak, negative, and statistically insignificant relationship with environmental disclosure, suggesting that growth does not play a meaningful role in explaining disclosure practices. This finding is consistent with (Marlina, Pinem, & Hidayat, 2020). Liquidity, however, shows a strong and significant negative association with environmental disclosure across all models (e.g., −2.735, −2.958, −1.388, and −2.409), implying that more liquid firms tend to disclose less environmental information. This may reflect a reduced need for such firms to signal transparency or enhance their reputation with external financiers, a conclusion supported by Alsuweirki et al. (2025), who found that higher liquidity diminishes incentives for adopting environmental sustainability practices in non-financial companies.

With respect to firm characteristics, company size exhibits a positive and significant effect in some models (0.200 and 0.229), indicating that larger firms generally provide more extensive environmental disclosure than smaller firms. Additionally, board size demonstrates a consistent, positive, and highly significant relationship with environmental disclosure across all models (ranging from 0.172 to 0.208, $p < 0.001$), suggesting that larger boards—due to greater diversity of expertise and increased

monitoring pressure—are more likely to promote transparent environmental reporting. Finally, year and country fixed effects were included in all models to control for temporal and cross-country differences, ensuring the robustness of the results.

Overall, the findings indicate that environmental disclosure is negatively influenced by SER (equity reliance) and liquidity, while it is positively associated with financial leverage, firm size, and board size. These results highlight the critical role of financial structure and governance mechanisms in shaping corporate environmental disclosure practices.

Table 8

Regression analysis

VARIABLES	Social	Social	Social	social
Ser	-1.369*			
	(0.798)			
Tda		1.592*		
		(0.813)		
Ltda			-1.813*	
			(0.982)	
Stda				4.184***
				(1.075)
Growth	-0.00383	-0.00323	0.000131	-0.00192
	(0.00735)	(0.00719)	(0.00707)	(0.00727)
Liquidity	-1.577***	-1.651***	-1.145***	-2.285***
	(0.302)	(0.319)	(0.214)	(0.387)
firm_size	0.410***	0.407***	0.518***	0.421***
	(0.0969)	(0.0958)	(0.103)	(0.0932)
size_of_the_bord	0.165***	0.165***	0.163***	0.145**
	(0.0592)	(0.0591)	(0.0608)	(0.0586)
Year	Yes	Yes	Yes	Yes
Country	yes	Yes	Yes	Yes
Constant	-7.972***	-9.330***	-10.88***	-9.569***
	(2.203)	(1.970)	(2.119)	(1.984)
Observations	440	440	440	440

Robust standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

H1.2: Is there a statistically significant positive impact of capital structure on social performance in industrial companies listed on the Palestine and Amman Stock Exchanges during the period 2013-2023?

The regression results presented in Table (8) analyze the impact of Social and Environmental Responsibility (SER), financial leverage indicators (TDA, LTDA, and STDA), and firm-level control variables on corporate social disclosure. The findings of the first model indicate a negative and statistically significant relationship between the SER index and social disclosure, with a coefficient of −1.369 at the 5% significance level. This suggests that firms exhibiting higher overall engagement in social and environmental responsibility practices do not necessarily provide higher levels of disclosure in the social dimension specifically. This result is consistent with Fuadah et al. (2022), who argue that a higher concentration of equity ownership may act as a constraint on social disclosure and transparency.

With respect to financial leverage, the results reveal a differentiated impact across debt structures. Total debt to assets (TDA) is positively and significantly associated with social disclosure (1.592, $p < 0.05$), indicating that firms with higher leverage tend to increase their level of social disclosure, possibly to strengthen trust and credibility with investors and financiers. Similarly, short-term debt (STDA) demonstrates a strong, positive, and highly significant relationship with social disclosure (4.184, $p < 0.001$), suggesting that reliance on short-term financing motivates firms to enhance social disclosure as a reputational and signaling mechanism. This finding aligns with Zhu, Liu, & Zhang (2025), who found that firms with stronger environmental and social performance tend to strategically manage their short-term financing structures. In contrast, long-term debt (LTDA) exhibits a negative and significant relationship with social disclosure (−1.813, $p < 0.05$), implying that firms with long-term financial commitments may be less inclined to engage in social disclosure due to higher perceived risks or agency costs.

Regarding the control variables, firm growth shows negligible and statistically insignificant coefficients, indicating no clear impact on social disclosure, consistent with prior evidence. Liquidity, however, displays a strong and significant negative relationship with social disclosure across all models (ranging from −1.145 to −2.285), suggesting that financially liquid firms may feel less pressure to use social disclosure as a tool for reputation-building or stakeholder assurance. This finding supports the argument that

strong internal financial positions reduce the incentive for external signaling. Conversely, firm size exhibits a positive, strong, and highly significant effect across all models (coefficients ranging from 0.407 to 0.518, $p < 0.001$), indicating that larger firms tend to provide more comprehensive social disclosure due to greater public scrutiny and regulatory oversight. Likewise, board size shows a consistent and positive significant association with social disclosure (0.145–0.165), reflecting the role of broader board representation and enhanced governance in promoting transparency. This result is in line with Ahmed, Eliwa, & Power (2019), who emphasize that larger firms and boards are more likely to adopt higher levels of sustainability and integrated disclosure.

Finally, year and country fixed effects were included in all models to control for temporal and cross-country variations and to ensure the robustness of the estimated relationships. Overall, the results demonstrate that corporate social disclosure is negatively influenced by SER, liquidity, and long-term debt, while it is positively associated with total debt, short-term debt, firm size, and board size, underscoring the importance of financial structure and governance mechanisms in explaining variations in social disclosure practices.

Table 9

Regression analysis

VARIABLES	Governance	Governance	Governance	Governance
Ser	2.299***			
	(0.818)			
Tda		-2.558***		
		(0.825)		
Ltda			-6.990***	
			(1.465)	
Stda				-0.506
				(0.948)
Growth	0.00176**	0.000797**	0.00278**	0.00258**
	(0.00695)	(0.00690)	(0.00715)	(0.00687)
Liquidity	-0.174	-0.113	-0.488**	-0.574*
	(0.278)	(0.274)	(0.231)	(0.331)
firm_size	0.0602**	0.0631**	0.106**	0.0295**
	(0.0866)	(0.0860)	(0.0933)	(0.0830)
Year	Yes	Yes	Yes	Yes
Country	yes	Yes	Yes	Yes
Constant	-2.923	-0.613	-1.421	0.590
	(1.808)	(1.483)	(1.609)	(1.452)
Observations	440	440	440	440

Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

H1.3: Is there a statistically significant positive impact of capital structure on governance performance in industrial companies listed on the Palestine and Amman Stock Exchanges during the period 2013-2023?

The regression results presented in Table (9) examine the impact of Social and Environmental Responsibility (SER), financial leverage indicators (TDA, LTDA, STDA), and firm-level control variables on corporate governance. The findings consistently indicate that the SER index is positively and significantly associated with governance, with a correlation coefficient of 2.299 ($p < 0.001$), suggesting that firms with higher levels of social and environmental responsibility tend to achieve better governance scores. This aligns with prior studies by (Abualhassan, et al., 2024; Feng, Hassan, & Elamer, 2020), which highlighted the crucial role of ownership structure in enhancing governance mechanisms. Mansour, Saleh, Alodat, FAlshouha, & Zaid (2021) similarly noted that high debt levels may limit institutional efficiency and weaken governance, a conclusion supported by the current findings.

In terms of financial leverage, total debt to assets (TDA) exhibits a significant negative impact on governance (−2.558, $p < 0.001$), while long-term debt (LTDA) shows an even stronger negative and significant relationship (−6.990, $p < 0.001$). These results indicate that reliance on debt, particularly long-term obligations, is associated with lower governance performance, consistent with Ahmed, Eliwa, & Power (2019), who observed that firms with high debt ratios tend to reduce governance disclosure to avoid revealing potential credit risks. Short-term debt (STDA), however, does not appear to have a significant effect on governance (−0.506, insignificant), suggesting that short-term financing does not strongly influence governance practices.

Regarding control variables, company growth demonstrates a weak positive relationship with governance ($p < 0.05$), indicating that firms experiencing higher growth may adopt slightly better governance practices. Firm size consistently shows a positive and significant effect across all models, reflecting that larger companies generally maintain stronger governance structures, consistent with Foyeke et al. (2015), who found a positive relationship between company size and voluntary governance disclosure. Liquidity, on the other hand, presents a negative correlation in some models (e.g., −0.488, $p < 0.01$;

−0.574, $p < 0.05$), suggesting that highly liquid firms do not necessarily exhibit superior governance.

Finally, year and country fixed effects were included in all models to control for temporal and geographic differences. Overall, the results indicate that enhanced social and environmental disclosure positively contributes to governance, whereas higher reliance on debt, particularly long-term debt, is a negative determinant. Growth and firm size positively influence governance, while liquidity shows mixed effects, highlighting the combined importance of financial, structural, and disclosure factors in shaping corporate governance outcomes.

Is there a statistically significant impact of capital structure on sustainability in industrial companies listed on the Palestine and Amman Stock Exchanges during the period 2013–2023?

The study results showed that some capital structure indicators had a significant impact on the overall sustainability level of industrial companies listed on the Palestine and Amman Stock Exchanges during the period (2013–2023). The results showed that the equity ownership ratio (SER) was positively associated with sustainability, indicating that reliance on equity financing enhances companies' ability to achieve sustainability goals. Conversely, the results showed that the total debt-to-asset ratio (TDA) had a negative and significant impact on sustainability, which is consistent with what (Amosh, Khatib, Alkurdi, & Bazhair, 2022; Javed, Younas, & Imran, 2014) indicated, stating that high levels of debt increase the financial burden on companies and limit their ability to invest in sustainable initiatives. The study results also supported the findings of Villarón-Peramato, García-Sánchez, & Martínez-Ferrero (2018) that capital structure constitutes a control mechanism that has direct implications for disclosure in financial reports and thus for sustainability practices.

4.5 Summary of hypotheses and their results

Table 10

Summary of hypotheses and their results

Hypothesis	Result
Is there a statistically significant positive impact of capital structure on sustainability in industrial companies listed on the Palestine and Amman Stock Exchanges during the period 2013–2023?	accept
Is there a statistically significant positive impact of capital structure on environmental performance in industrial companies listed on the Palestine and Amman Stock Exchanges during the period 2013-2023?	accept
Is there a statistically significant positive impact of capital structure on social performance in industrial companies listed on the Palestine and Amman Stock Exchanges during the period 2013-2023?	accept
Is there a statistically significant positive impact of capital structure on governance performance in industrial companies listed on the Palestine and Amman Stock Exchanges during the period 2013-2023?	accept

Chapter Five
Conclusion and Recommendations

5.1 Overview

This chapter deals with the conclusion, recommendations, limitations of the study, and some suggestions for future studies.

5.2 Conclusions

This study reached a set of important findings that reflect the nature of the relationship between capital structure and sustainability dimensions in industrial companies listed on the Palestine and Amman Stock Exchanges during the period (2013–2023). The results demonstrated that capital structure plays a pivotal role in formulating financial policies and good governance, and directly impacts the level of environmental, social, and governance disclosure, as well as governance practices.

First, it was found that reliance on equity to finance activities (SER) is positively related to sustainability and governance, enhancing companies' ability to fulfill their obligations to stakeholders and confirming the role of equity as a supporting tool for balancing financial objectives with social and environmental obligations.

Second, the results showed that reliance on high debt, especially long-term debt (LTDA), weakens governance practices and limits companies' ability to engage in social responsibility initiatives, given its association with increased financial burdens and higher agency costs. The positive correlation between short-term debt (STDA) and social performance on the other hand might be the result of businesses trying to improve their reputation with investors and creditors by being more socially transparent. Third the study found that the relationship between capital structure and sustainability could be explained in large part by control variables. Larger companies are better equipped to allocate resources and implement thorough disclosure policies according to research showing a positive and significant impact of firm size on sustainability across all dimensions. However it was discovered that liquidity had a detrimental effect on environmental social and governance (ESG) disclosure. This suggests that having a lot of cash on hand does not always indicate a strong commitment to sustainability. However growth had little effect on governance while having a big impact on the other aspects. Based on the

aforementioned it can be said that capital structure is a strategic tool that affects industrial companies' capacity to strike a balance between profitability and sustainability practices rather than just being an internal financial decision. This emphasizes how crucial it is to select a financing structure that strikes a balance between objectives for growth and profitability improves transparency and governance and guarantees the viability of businesses in unstable economic climates especially in Palestine and Amman.

5.2.1 Comprehensive Conclusion

The aforementioned makes it evident that the capital structure is an unorthodox strategic tool for financial decision-making and is essential to advancing the sustainability of industrial firms and striking a balance between economic objectives and consideration of social and environmental issues. Reliance on equity contributes to establishing good governance principles and enhancing investor and stakeholder confidence, while excessive debt, particularly long-term debt, negatively impacts companies' ability to adopt sustainable practices and increases financial risks. The results also confirm that company size and its board of directors are factors that support sustainability, while liquidity and growth do not have a significant impact.

Therefore, formulating a balanced financing structure should not be viewed as a purely financial option, but rather as a strategic approach that ensures companies' ability to face the challenges of a volatile business environment, enhances their competitive position, and supports their long-term sustainability.

5.3 Recommendations

Based on the previous findings, the study recommends the following:

- Industrial companies listed on the Palestine and Amman Stock Exchanges should work to balance their capital structure, reducing reliance on debt, particularly long-term debt, and increasing reliance on equity to achieve better sustainability.
- Enhancing transparency and disclosure of environmental, social, and governance (ESG) activities, especially in companies with high levels of liquidity, as the results showed that these companies are less likely to disclose.
- Encouraging large companies to expand the scope of their sustainable practices, given the findings' positive role of company size in promoting sustainability.

- Increasing attention to the role and size of boards of directors, which contributes to adopting clearer sustainability policies, particularly with regard to environmental and social disclosure.
- Regulatory authorities and stock markets in Palestine and Amman should establish controls and standards to encourage companies to adopt a balanced financing structure that promotes sustainability practices.

5.4 Study Limitations

- The study was limited to industrial companies listed on the Palestine and Amman Stock Exchanges only, which may limit the generalizability of the results to other sectors.
- The study period was limited to the years 2013–2023, so future changes may affect the relationships found in the study.
- Data published in annual financial reports was relied upon, which may reflect gaps in the quality or comprehensiveness of disclosure.

5.5 Suggestions for Future Studies

- Expanding the scope of the study to include other sectors, such as banks or service companies, to identify sectoral differences in the relationship between capital structure and sustainability.
- Studying the impact of qualitative variables, such as ownership nature or audit quality, on the relationship between capital structure and sustainability.
- Expanding the study of the relationship between sustainability and financial performance and linking it to market indicators such as stock price or return on investment.
- Conducting comparative studies between Palestinian and Amman companies and companies in other Arab countries to identify regional differences.

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جامعة النجاح الوطنية
كلية الدراسات العليا

أثر هيكل رأس المال على الاستدامة للشركات الصناعية المدرجة في بورصة فلسطين وعمان للفترة بين 2013-2023

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قدمت هذه الرسالة استكمالا لمتطلبات الحصول على درجة الماجستير في المحاسبة، من كلية الدراسات العليا، في جامعة النجاح الوطنية، نابلس- فلسطين.
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الملخص

تهدف هذه الدراسة إلى تحليل أثر هيكل رأس المال على الاستدامة في الشركات الصناعية المدرجة في بورصتي فلسطين وعمان خلال الفترة (2013–2023)، مع مجموعة من متغيرات الضابطة (حجم الشركة، نموها، سيولة الشركة، حجم مجلس الإدارة). يُمثل هيكل رأس المال أحد أهم القرارات المالية الاستراتيجية للشركات، إذ يعكس مزيج الديون وحقوق الملكية المستخدمة لتمويل أنشطتها، وتأثيره المباشر على الأداء المالي وغير المالي، وكذلك على قدرة الشركات على تحقيق أهدافها الاستراتيجية وضمان استدامتها وخلق قيمة للشركة وجميع أصحاب المصلحة.

تنطلق الدراسة من إطار نظري قائم على عدة نظريات اقتصادية وإدارية، أبرزها نظرية الوكالة، ونظرية المقايضة، ونظرية التسلسل الهرمي، لفهم العلاقة بين قرارات التمويل ومتطلبات الاستدامة بأبعادها الثلاثة: البيئة، والمجتمع، والحوكمة (ESG). اعتمدت الدراسة منهجًا كميًا، حيث جمعت بيانات مالية وغير مالية من 41 شركة صناعية مدرجة في بورصتي فلسطين وعمان، وحُللت باستخدام نماذج الانحدار الإحصائي المتقدمة باستخدام برنامج (STATA).

أظهرت النتائج أن تمويل الأسهم يزيد من شفافية إفصاحات الحوكمة، وله علاقة سلبية بالاستدامة البيئية والاجتماعية، مما يؤكد قدرة الشركات التي تميل إلى خفض ديونها على تبني سياسات أكثر استقرارًا وشفافية. في الوقت نفسه، أظهر تمويل الديون أن ارتفاع إجمالي الديون طويلة الأجل له تأثير إيجابي على الاستدامة

البيئية، وتأثير سلبي على الاستدامة الاجتماعية والحوكمة. يرتبط ارتفاع الديون قصيرة الأجل بأداء اجتماعي وبيئي أفضل، ولا يوجد دليل واضح ذو دلالة إحصائية على تأثير الديون قصيرة الأجل على الحوكمة. أدى وجود متغيرات التحكم إلى تباينات في النتائج في كل بُعد، حيث كان لنمو وحجم المنظمة علاقة إيجابية ذات دلالة إحصائية بمستوى الحوكمة والاستدامة البيئية والاجتماعية. كان للسيولة تأثير سلبي على جميع أبعاد الاستدامة، مما يشير إلى أن توافر الموارد النقدية لا يعني بالضرورة الالتزام بمبادرات الاستدامة.

وتخلص الدراسة إلى أن هيكل رأس المال يمثل أداة استراتيجية مؤثرة في قدرة الشركات الصناعية على مواءمة أهدافها المالية مع التزاماتها الاجتماعية والبيئية، وليس مجرد قرار تمويل داخلي. كما توصي باعتماد هياكل تمويل متوازنة تُقلل من الاعتماد المفرط على الديون وتزيد من الاعتماد على حقوق الملكية، مع تعزيز الإفصاح والشفافية في التقارير المالية وغير المالية. وهذا من شأنه تعزيز ثقة المستثمرين وتعزيز تنافسية الشركات في بيئة اقتصادية صعبة ومتقلبة.

الكلمات المفتاحية: الاستدامة، هيكل رأس المال، الشركات الصناعية الفلسطينية وشركات عمّان، حجم الشركة، السيولة، النمو، حجم مجلس الإدارة.