

Emerging Science Journal

(ISSN: 2610-9182)

Vol. 9, No. 2, April, 2025



The Impact of Financial Structure on Financial Security in an Emerging Market

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Abstract

This paper aims to understand the extent and trend of the impact of financial structure on the financial security of companies in an emerging economy. The paper uses panel data collected from 2010 to 2023 at Vietnamese real estate companies. OLS, FEM, REM regression models and necessary tests are applied in turn. GMM regression is used to overcome the shortcomings of the model. The research results show that financial security will be high in companies with high debt ratios and return on assets. In contrast, financial stability will be low in companies with high fixed asset ratios, inventory ratios, return on equity, and years of establishment. The findings also show that financial safety will decrease in companies with high receivables ratios, cash and cash equivalents ratios, return on equity, and large size. To our knowledge, this is the first quantitative study to examine the effect of financial structure on financial security from two aspects: financial safety and stability. This is also the first study to address financial structure from three perspectives: capital structure, asset structure, and the relationship between assets and capital.

Keywords:

Asset Structure; Capital Structure; Financial Safety; Financial Security; Financial Structure; Financial Stability.

Article History:

Received:	30	August	2024
Revised:	14	February	2025
Accepted:	06	March	2025
Published:	01	April	2025

1- Introduction

Financial security is considered the foundation for corporate success. It helps companies avoid financial risks, conduct normal business operations, and monitor the organization's continuous development [1]. Corporate financial security represents meeting the business's needs and payment obligations, maintaining financial balance, ensuring resilience against adverse impacts, and ensuring the ability to reverse the expansion of external finance and preserve and enhance financial sustainability, operational efficiency, and economic growth [2]. Financial security is a general factor that affects a country's internal and international competitiveness. It reflects the country's investment attractiveness through the attractiveness of its components, such as enterprises, industries, regions, risk levels, and profitability [3].

Financial safety and stability are the foundation for a country's stable and healthy economic development [4]. Only when finances are safe and stable do companies have the conditions to survive and develop, have the conditions to implement business plans and strategies, and improve business efficiency. Without financial security, companies cannot maintain and control normal business operations and will inevitably collapse. Ensuring financial security is not only a matter of survival for each country but also a matter of survival for each business, especially in the context of the internationalization of the financial economy. Establishing a safe and sound financial structure is essential to ensure financial security. That financial structure must be expressed through the capital structure, asset structure and relationship between assets and capital of the enterprise [5].

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DOI: http://dx.doi.org/10.28991/ESJ-2025-09-02-04

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Compared with previous publications, our study has fundamental differences. To our knowledge, this is the first quantitative study to address the impact of financial structure on financial security. Most previous publications have focused on the effects of financial structure on financial performance [6-9] or on risk management [10, 11]. In contrast, our study focuses on examining and measuring the impact of financial structure on financial security. Second, when referring to financial structure, most studies only address capital structure [12-14]. Westgaard et al. [12] conceptualize capital structure by describing the distribution of short-term and long-term debt, common stock, and preferred stock that firms use to finance their assets. Chadha & Sharma [13] used a measure of financial leverage to proxy for capital structure. Li et al. [14] emphasizes that capital structure is the combination of different financial resources a firm maintains that determines its support. Meanwhile, our study addresses financial structure from the perspective of capital structure, asset structure, and the relationship between assets and capital. Third, previous studies often approach corporate financial security by evaluating and analyzing different sets of financial indicators to assess the financial security position of the enterprise. From there, they approach the enterprise's financial security level based on financial stability and profitability factors.

Kayzer et al. [16] compares and evaluates the financial security of Poland's small and medium-sized renewable energy companies according to sustainable development goals based on financial ratios, including canonical variate analysis. Dokienko et al.'s [17] approach to financial security is based on the consideration of essential factors affecting the leading performance indicators of the enterprise: financial stability, liquidity, profitability, and risk. In contrast, our study uses quantitative methods with the help of Stata software and the Generalized Method of Moments (GMM) to overcome the shortcomings in the regression model. Fourth, many previous studies focused on state financial security [18, 19]. Zhuravka et al. [18] determined the impact of the main macroeconomic determinants of defense spending, nonperforming bank loans, exchange rates, foreign debt, and state reserves (gross) on the financial security of Ukraine. van Duuren et al. [19] found that financial stability transparency increases a country's financial stability level using a fixedeffects panel model on 110 countries over the period 2000-2011. In contrast, our study goes deeper into identifying factors affecting corporate financial security, especially emphasizing the impact of financial structure. We recommend appropriate management solutions and strategic directions to increase businesses' financial security levels based on the research results. Fifth, hardly any studies in Vietnam or around the world have mentioned the impact of financial structure on the financial security of real estate companies. Real estate is a field with operating characteristics that are very sensitive to financial structure and security. Finally, in addition to considering the impact of financial structure on financial security, our research also addresses other factors that have an essential decisive influence on the financial security of businesses. That is a factor that reflects financial performance, company size, and company age. Using quantitative analysis to assess the financial security of an enterprise is an essential basis for making correct management decisions to optimize financial risks and achieve the financial stability of the enterprise [20]. The purpose of consolidating and enhancing a company's financial security is to achieve maximum efficiency and stabilize the company's operations. This can be achieved through timely detection of threats to help the company overcome them [21].

Although there are not many published studies on the direct and indirect impact of financial structure on financial security, the results of the studies are inconsistent. These different results may be due to other studies regarding approach, research criteria and methods, research conditions, economic development level, and research data. On the one hand, the limitation of these studies is that examining the impact of financial structure on financial security mainly uses variables representing financial structure, such as the ratio of short-term debt to assets, the ratio of long-term debt to assets, the ratio of liabilities to assets, and the proportion of fixed assets to total assets [22-27]. These variables only partially represent the financial structure and do not clearly describe the enterprise's financial structure. On the other hand, the financial security mentioned in the studies only represents one aspect. It does not reveal the nature of the enterprise's financial security. Furthermore, most studies have not tested the model's defects, leading to inconclusive estimation results.

The purpose of our article is to answer the questions: Does financial structure affect financial security in real estate companies in an emerging market? If yes, what is the trend and level of impact? To answer those questions, we have collected data from all real estate companies officially listed on the Vietnam stock market from 2010 to 2023. With the help of Stata software, the study conducted tests for multicollinearity (through VIF coefficient), autocorrelation test (Wooldridge test), heteroskedasticity test (Modified Wald test for groupwise heteroskedasticity in fixed effect regression model, Breusch and Pagan Lagrangian multiplier test for random effects), Hausman test to select appropriate research model, and endogeneity test through 2SLS 2-stage regression (Wu-Hausman test). The study used the GMM regression model to overcome the phenomena of heteroskedasticity, autocorrelation, and endogeneity.

The motivation for our research comes first from the real estate industry's role. Real estate is one of the vital business sectors of each country, making an essential contribution to the country's socio-economic growth. The following driving force is the real estate "rescue" story in Vietnam, which has forced Vietnam's public authorities to get involved. The Vietnamese real estate market has recently fallen into a quiet state. Vietnamese real estate businesses are struggling with

liquidity, the most prominent problem being real estate bonds. Since the end of 2022, the government of Vietnam has issued many policies to remove difficulties for the real estate market [28]. The final motivation for this study is recent debates about the consequences of an economy that is too dependent on real estate in Vietnam [29]. Although real estate contributes significantly to the overall growth rate of the economy, if the economy is too reliant on real estate, especially a distorted real estate market, it can cause the economy to fall into a "hostage" trap. If not handled promptly, difficulties in the real estate market will cause serious situations, even paralyzing the entire economy.

Our article has specific contributions. First, the article provides a deeper understanding of financial security and the impact of financial structure on the financial security of real estate businesses in an emerging market. This is achieved by evaluating the relationship between factors reflecting financial structure and financial security in terms of financial safety and financial stability. Furthermore, because there has not been any complete quantitative research in the world on the impact of factors on financial security, a study understanding the impact of financial structure on financial security in the Vietnamese context is critical. Second, our article clarifies the debate about the consequences of the economy being too dependent on real estate through real estate credit, especially in an emerging economy. Because the financial structure of most real estate businesses is quite sensitive and reacts strongly to the economic cycle, deciding to increase or decrease funding for their activities using different financial sources is extremely important. Therefore, the financial structure of Vietnamese real estate companies is no longer a problem of just the company to which it is directly related, affecting both the existence and development of the Real Estate industry and the entire economy.

2- Background Theory Review

We rely on M&M, trade-off, pecking order, and optimal capital structure theories to explain the impact of financial structure on corporate financial security. M&M theory is used as a theoretical basis to describe businesses' financing decisions [30, 31]. It deals with two critical issues: (i) firm value and (ii) cost of capital. The tax and no-tax assumptions are considered in two prominent hypothetical cases. Theory M&M asserts that the financial leverage or debt ratio is positively related to the cost of equity (in the absence of tax) and the expected return on equity (in the presence of tax). Using the "tax shield" properly will help increase the company's value because interest payments are tax-deductible, while dividends are not. Therefore, it encourages firms to increase debt to increase return on equity. However, as the debt ratio increases, financial distress costs also increase. At a certain point, when the cost of financial distress increases beyond the benefit of the tax shield, the company's value begins to decline, and financial security is also reduced.

The trade-off theory of capital structure explains why businesses are often financed partly by debt and partly by equity. Accordingly, the capital structure of a business is determined based on the trade-off between the benefits of tax shields (because interest is tax deductible) and the costs of financial distress [32]. Businesses cannot be entirely funded by debt because, in addition to the advantages of tax shields, the use of more debt also increases the costs of financial distress. Therefore, the financial structure of a business usually includes a part of debt and a part of equity. Corresponding to each percentage increase in the debt ratio, the benefits of tax shields and other financial costs also increase. At a certain point, when for each debt ratio, the present value of tax shield benefits is less than or equal to the present value of other financial costs, at this time, borrowing does not benefit the business and the value of the business. This forces companies to optimize their total enterprise value based on the trade-off principle to determine the optimal capital structure. At the point of optimal financial structure, the company's value will reach its maximum, and the bankruptcy cost will equal the benefit of the tax shield. If the company continues to increase debt, the cost of bankruptcy will be greater than the benefit of the tax shield, and the company's value will decrease, reducing financial security. This forces companies to strive to achieve an appropriate balance of capital weights to maximize the company's value and create positive value for stakeholders.

The pecking order theory emphasizes using financing sources for the enterprise's assets [33]. The pecking order theory suggests that companies will not try to find a way to minimize the average cost of capital. Still, they will seek additional sources of capital in a priority order. Accordingly, they prioritize internal financing, followed by debt and equity. This comes from internal funding, such as retained earnings, which does not incur any costs associated with its use. Next is the use of debt, which incurs interest payments. Finally, raising equity is the type of financing that affects profits and is the most expensive option. Investors perceive that issuing shares indicates an upcoming stock price decline. This fatal misunderstanding occurs due to asymmetric information and knowledge imbalance between investors and managers. Managers know more about a company's performance, prospects, risks, and future outlook than creditors, investors, creditors, or shareholders. If shares are undervalued when issued, the company will incur more debt. Conversely, it will increase equity if shares are overvalued. Therefore, issuing shares is riskier than borrowing, leading managers to prefer borrowing over issuing shares. Thus, the capital structure decision is not based on the optimal debt ratio but on the priority of using funds from internal sources of finance, especially using retained earnings, followed by debt and issuing shares. In this context, using internal financing (retained earnings) from the company is the cheapest, cost-free, and information-asymmetry-minimizing source of finance. If the company finances through external sources (debt or equity), creditors and investors have less information about the company; therefore, a higher return is required. Since the cost of debt is lower than the cost of equity, managers prefer debt over equity in terms of external financing.

The optimal capital structure involves a trade-off between the costs and benefits of a firm. It reflects the best combination of debt and equity that maximizes the firm's market value while minimizing the cost of capital. The theory of optimal capital structure posits the existence of an optimal capital structure when a firm has the lowest average cost of capital and the highest firm value [34-37]. The optimal capital structure theory also points out that using more debt will increase the enterprise's risk but lead to a high expected rate of return. Increased risk tends to reduce stock prices, but high rates of return tend to increase stock prices. Therefore, the optimal capital structure must balance risk and profit, thereby maximizing the enterprise value or stock price of the enterprise with the lowest cost of capital. Capital structure is characterized by the debt ratio, or the level of financial leverage, which will significantly affect the profit margin for shareholders. Although using debt provides a low cost of capital due to the ability to deduct taxes, using too much debt will increase financial risk and reduce shareholders' expected return. Since announcements made regarding corporate borrowing are considered positive news, companies with good prospects will try to raise debt instead of equity. However, this theory also emphasizes that determining the optimal capital structure is complex and only suitable at a specific time and stage.

3- Literature Review and Hypotheses Development

Businesses all want to maximize profits and company value. To do so, companies must first ensure financial safety and stability. Therefore, businesses constantly seek solutions, from capital mobilization to capital use policies, to provide financial security and sustainable development. From there, they gradually improve business efficiency and enhance corporate value. The financial structure has been mentioned quite a lot in research. First, financial structure is conceived as capital structure [14, 38]. From this perspective, the financial structure allows for assessing the level of independence, the financial security of the enterprise, and the reasonableness of the structure of the enterprise's asset financing sources. Some studies focus on the combination of debt and equity that a company uses to finance its business activities and the relationship between medium- and long-term sources of capital.

Financial structure is also considered in a broad sense. Accordingly, financial structure not only reflects the capital structure and asset structure but also the relationship between assets and capital [14, 39, 40]. Considering financial structure from this perspective provides information about capital and asset structure and, more importantly, the business's policy of using mobilized capital. Fekadu Agmas [40] measures capital structure using indicators such as the ratio of liabilities to equity, the ratio of long-term debt to total assets, and the ratio of liabilities to assets. Zaman et al. [39] use indicators reflecting capital structure (debt-to-equity ratio), asset structure (proportion of fixed assets to total assets), and the relationship between assets and capital (ratio of liabilities to total assets, ratio of long-term debt to total assets, ratio of long-term debt to total assets, and ratio of short-term assets to short-term debt).

Financial security is viewed at different levels (macro and micro). At the macro level, when talking about financial security, people think of national and industry financial security. At the micro level, financial security is associated with personal (including household) and organizational financial security. The financial security of an organization is a specific mechanism that ensures the financial system's stability by using financial resources. Ramskyi & Solon'ko [41] emphasize the role of financial security as a component of the economic security of enterprises. They argue that financial security reflects the provision of financial resources to meet business needs and cover existing debts, as well as the ability to resist negative internal and external influences. Lelechenko et al. [42] affirm that financial security is one of the essential components of an enterprise's economic security, along with other parts such as human resources, technology, intelligence, information, energy, and the environment. Nguyen & Nguyen [27] determine that financial security must be considered in all three aspects: safety, stability, and financial growth. A business that is supposed to have good financial security has enough money to pay all borrowing costs, ensuring the business's solvency in the short and long term. Financial security also reflects a business's resilience to potential risks and ability to develop sustainably, balance, and protect financial interests [43]. Dokiienko [44] identifies a direct relationship between an enterprise's financial security level and critical financial indicators showing financial stability, solvency, and financial risk to diagnose and forecast the enterprise's financial security level. Shohjahon [45] identifies enterprise financial security as the state of an organization's financial system that ensures the most effective use of enterprise resources, resists threats or minimizes their impact, and contributes to achieving business goals. Kvasnytska et al. [46] provide indicators to evaluate corporate financial security, including the liquidity and solvency index, financial stability index, business performance index, and performance index. Similarly, Ganushchak [47] also uses indicators that reflect long-term solvency, business performance, profitability, financial stability, and short-term liquidity to measure financial security.

There is little research on the impact of factors on financial security, especially on the effects of financial structure on corporate financial security. Based on an established sample of nine Ukrainian sunflower oil enterprises over seven years with revised financial statements, Dokiienko [44] identified a direct relationship between the level of security of enterprise finances and important financial indicators reflecting the financial stability, solvency, and financial risk. The results confirmed a direct correlation between changes in the level of financial stability of a selected group of enterprises and their level of financial security. More than half of the surveyed sunflower oil production enterprises have low levels of financial security, which is reflected in the level of risk, insolvency, and crisis risk. Only two businesses have high financial security, sufficient stability, guaranteed solvency, and optimal reliability. Enterprises belonging to this conditional group ensure the stability of financial security at a high level, ensuring even more secure financial resources for current operations and the continuity of the production cycle.

Nguyen & Nguyen [27] investigated the factors affecting financial security based on data collected over eight years, from 2012 to 2019, of 629 listed companies in Vietnam, covering four different industries (materials, industrial, health care, and consumer goods). Through descriptive statistics and fixed effects (FEM) and random effects (REM) regression model analysis, they demonstrated the impact of different internal factors on financial security. Firm size has a positive impact on sustainable growth rate and a negative effect on financial security. In contrast, debt management and profitability do not significantly impact financial security. The study also noted that increasing the asset management ratio will positively impact both sustainable growth rate and financial security, while improving cash flow will increase sustainable growth rate and decrease financial security.

Another study on factors affecting financial independence at 402 companies listed on the Vietnamese stock market from 2014 to 2017, Van Nguyen & Nguyen [26] examined two perspectives: financial autonomy and financial security. Research results confirm that the level of financial security has an inverse relationship with the proportion of tangible assets but is positively influenced by factors reflecting financial structure expressed through solvency. Besides the above studies, a few studies address the aspect of corporate financial stability. Thi Mai Nguyen et al. [25] studied the role of capital structure management in maintaining the financial stability of hotel companies during the Covid-19 pandemic. The study results show that a low debt ratio reduces and mitigates the adverse impact of the pandemic on financial stability. Also, hotel companies with less long-term debt are more financially stable and resilient during the pandemic.

Al-Absy [22] confirmed the negative relationship between financial structure and the company's financial stability by studying the relationship between the characteristics of the board chairman and the financial stability of 282 listed companies in Malaysia for three years (2013-2015). Research by Nguyen and Nguyen [27] investigating the nature and measurement of financial safety in 629 Vietnamese listed companies shows that capital structure (measured by the ratio of liabilities to total capital) has a positive and statistically significant relationship with financial security in terms of both financial stability. Previous studies also prove that the ratio of liabilities to total capital has a positive impact on the financial stability of the enterprise [22-24]. Contrary to the above research results, the study of Thi Mai Nguyen et al. [25] acknowledges that a low debt capital structure will mitigate the negative impact of the pandemic on financial stability.

In this research, capital structure is measured through three indicators: the proportion of liabilities to total capital (TD), the proportion of short-term debt to total debt (STD), and the ratio of long-term debt to total capital (LTD). Although the results of studies on the impact of financial structure on financial security are different, overall, the positive effect of capital structure on financial security cannot be denied. Therefore, the first hypothesis is:

H1: Capital structure positively impacts the financial security of Vietnamese listed real estate companies.

Due to the different nature of asset types, the impact of asset structure on financial security is also different depending on how to measure asset structure. In this study, asset structure is measured through 4 indicators: the proportion of fixed assets to total assets (FIX), the proportion of inventory to total assets (INVE), the proportion of receivables to total assets (RECE), and the ratio of cash and cash equivalents to current assets (CCE). Therefore, the impact of asset structure on financial security must be considered based on each way of measuring asset structure.

According to Akintoye & Skitmore [48], businesses with many fixed assets in their total assets will receive preferential interest rates when borrowing from banks, thereby increasing business efficiency. Research results by Nguyen & Nguyen [27] have shown a positive and significant relationship between FIX, financial safety, and financial stability. Results in another study by Van Nguyen and Nguyen [26] also show FIX's positive, statistically significant impact on financial stability. Besides, the "optimal asset structure" theory also states that when the proportion of fixed assets increases gradually within a specific limit, the profitability of assets also increases, ensuring a stable financial situation. Inventories in real estate companies are often of great value. The high proportion of inventory in total assets leads to a large amount of capital stagnation, lowering the efficiency of capital use and reducing financial security and sustainable development. Research results by Nguyen & Nguyen [27] found this indicator's vivacious and significant impact on financial safety and stability.

Similar to the proportion of inventory in total assets, the higher the proportion of a business's receivables in its total assets, the greater the capital misappropriation of the company. That causes businesses to stagnate in capital while financial risks increase, leading to financial insecurity. The larger the cash and cash equivalents accounted for in total short-term assets, the higher the liquidity, the more financially flexible the company is, and therefore, the more the company's financial security is guaranteed. Research results by Nguyen & Nguyen [27] show a positive, statistically significant relationship between CCE and financial safety. Similarly, studies by Nguyen & Nguyen [27] and Nguyen et al. [49] acknowledge a positive, significant relationship between CCE and the enterprise's financial stability level.

From the above analysis, the following hypotheses about the impact of asset structure on financial security that the study poses are:

+ H2a: The proportion of fixed assets in total assets positively impacts the financial security of Vietnamese listed real estate companies.

+ *H2b*: The proportion of inventory has a negative impact on the financial security of Vietnamese-listed real estate companies.

+ *H2c*: The proportion of receivables in total assets has a negative impact on the financial security of Vietnamese listed real estate companies.

+ H2d: The ratio of cash and cash equivalents to short-term assets positively impacts the financial security of Vietnamese-listed real estate companies.

The relationship between assets and capital represents the enterprise's capital use policy. An appropriate capital use policy will ensure that businesses always have good financial security and vice versa. This study expresses the relationship between assets and capital through a liquidity indicator: "Quick ratio" (QUI). The quick ratio reflects how well a business can meet its short-term liabilities without considering its inventory value. The greater this ratio is 1 (>1), the higher the quick payment ability of the enterprise, the higher the financial security of the enterprise and vice versa. However, in some cases, this relationship has the opposite direction. Research results by Nguyen & Nguyen [27] show that QUI has a negative relationship with financial security in terms of financial safety and stability.

Although some studies show different impacts of the relationship between assets and capital on financial security in businesses, the role of this relationship in financial security cannot be denied. Therefore, research hypothesis H3 is proposed as follows:

+ H3: Quick ratio positively impacts the financial security of listed real estate businesses in Vietnam.

4- Research Methodology

4-1-Research Data and Process

To meet the research objectives, answer the research questions, and ensure the validity and reliability of the research results, our research is conducted according to the following process:

Step 1: Determine the scope and research subjects

The study selected listed enterprises on the Vietnamese stock market in the Real Estate industry for the following principal reasons: (1) Real estate is one of the key economic sectors, contributing a considerable amount to the budget and accounting for a significant proportion of the gross domestic product, (2) The real estate market is an essential market of the economy, playing a role in attracting resources and creating fixed assets, promoting the development of many other sectors, (3) The capital demand for the real estate market is very large and diverse, including equity capital, bank credit capital, capital from the stock market, and foreign direct investment capital, (4) The capital market has become an essential long-term common capital channel for real estate enterprises, and reduced capital supply from the bank credit channel, (5) The Vietnamese Real Estate Industry receives special attention from the Vietnamese Government, (6) The Real Estate Industry is directly affected by the Government's monetary policy.

The period 2010-2023 was chosen for research because this is the period in which the Vietnamese real estate industry experienced different ups and downs: a difficult period (2009 - 2012), a growth period (2013 - 2019), a fluctuating period (2020 - 2021) and challenging period (2022 - 2024) [50, 51].

Step 2: Collect research data

Based on GICS (Global Industry Classification Standard), the authors first searched for companies in the real estate industry that were currently listed on the Hanoi Stock Exchange (HNX) and Ho Chi Minh City Stock Exchange (HOSE).

As of December 31, 2023, there are 86 listed real estate companies in Vietnam, of which HNX has 25 companies, and HOSE has 61 companies. Next, the authors collected data from the companies' audited financial statements and annual reports from 2010 to 2023. After excluding companies with insufficient data (due to late listing or insufficient reporting), the remaining 61 companies were eligible for inclusion in the research sample. The total number of observations for 14 years for these 61 companies is 854. Next is determining the values of the dependent variables (SGR and FSR) and the independent variables (TD, STD, LTD, FIX, INVE, RECE, CCE, QUI, ROA, ROE, SIZ, AGE.

Step 3: Conduct analysis

In this step, with the help of Stata version 15 software, the study conducts necessary analysis and testing steps such as descriptive statistics, correlation analysis, multicollinearity testing, FEM regression, REM and Hausman test to select the appropriate model, autocorrelation and heteroscedasticity testing. Finally, GMM regression is applied to handle model defects.

Step 4: Comment on research results, conclusions and recommendations

Based on the results obtained, the study makes necessary comments and conclusions. From there, appropriate recommendations are made to improve and enhance financial security for Vietnamese real estate companies. Step 4 also highlights the study's limitations and suggests future research directions.

The research process is summarized in Figure 1:



Figure 1. Research process

4-2-Research Models

Based on background theory, research overview and research hypotheses, we propose the following regression model:

 $FS_{i,t} = \alpha + \beta_1 STD_{i,t} + \beta_2 LTD_{i,t} + \beta_3 FIXi, t + \beta_4 INVEi, t + \beta_5 RECE_{i,t} + \beta_6 CCE_{i,t} + \beta_7 QUI_{i,t} + \beta_8 ROA_{i,t} + \beta_9 ROE_{i,t} + \beta_{10} SIZi, t + \beta_{11} AGE_{i,t} + \epsilon_{i,t}$ (1)

$$FSi,t = \alpha + \beta_1 TD_{i,t} + \beta_2 FIX_{i,t} + \beta_3 INVEi,t + \beta_4 RECE_{i,t} + \beta_5 CCE_{i,t} + \beta_6 QUI_{i,t} + \beta_7 ROA_{i,t} + \beta_8 ROE_{i,t} + \beta_9 SIZ_{i,t}$$

$$+ \beta_{10} AGE_{i,t} + \varepsilon_{i,t}$$
(2)

In there, α , β 1, β 2, ... are regression coefficients and ε is random error.

Dependent variable: The dependent variable FS reflects the level of financial security. FS is measured through two indices, FSR and SDR.

+ FSR: Financial safety ratio. The financial safety ratio represents the ability to repay debt with profit after tax and retained depreciation. The larger this coefficient, the higher the financial safety level of the business and vice versa.

+ SDR: Sustainable development ratio. This ratio is used to measure financial stability. Sustainable development is necessary for a business to stabilize its operations and, from there, stabilize its finances. On the contrary, financial stability has a positive impact on business stability because, with financial stability, new businesses have the conditions to stabilize and develop their operations. Sustainable development is measured through net revenue growth over the years.

From there, Equations 1 and 2 above can be rewritten as follows:

 $FSR_{i,t} = \alpha + \beta_1 STD_{i,t} + \beta_2 LTD_{i,t} + \beta_3 FIX_{i,t} + \beta_4 INVE_{i,t} + \beta_5 RECE_{i,t} + \beta_6 CCE_{i,t} + \beta_7 QUI_{i,t} + \beta_8 ROA_{i,t} + \beta_9 ROE_{i,t} + \beta_{10} SIZ_{i,t} + \beta_{11} AGE_{i,t} + \epsilon_{i,t}$ (1-a)

 $SDR_{i,t} = \alpha + \beta_1 STD_{i,t} + \beta_2 LTD_{i,t} + \beta_3 FIX_{i,t} + \beta_4 INVE_{i,t} + \beta_5 RECE_{i,t} + \beta_6 CCE_{i,t} + \beta_7 QUI_{i,t} + \beta_8 ROA_{i,t} + \beta_9 ROE_{i,t} + \beta_{10} SIZ_{i,t} + \beta_{11} AGE_{i,t} + \epsilon_{i,t}$ (1-b)

 $FSR_{i,t} = \alpha + \beta_1 D_{i,t} + \beta_2 FIX_{i,t} + \beta_3 INVE_{i,t} + \beta_4 RECE_{i,t} + \beta_5 CCE_{i,t} + \beta_6 QUI_{i,t} + \beta_7 ROA_{i,t} + \beta_8 ROE_{i,t} + \beta_9 SIZ_{i,t} + \beta_{10} AGE_{i,t} + \epsilon_{i,t}$ (2-a)

 $SDR_{i,t} = \alpha + \beta_1 TD_{i,t} + \beta_2 FIX_{i,t} + \beta_3 INVE_{i,t} + \beta_4 RECE_{i,t} + \beta_5 CCE_{i,t} + \beta_6 QUI_{i,t} + \beta_7 ROA_{i,t} + \beta_8 ROE_{i,t} + \beta_9 SIZ_{i,t} + \beta_{10} AGE_{i,t} + \epsilon_{i,t}$ (2-b)

The model also includes independent variables and control variables. Table 1 shows the descriptions and measurements of the variables.

Variable name	ariable name Symbol Formula		Supported studies	
		Dependent Variables		
Financial safety ratio	FSR	(Profit after tax + Depreciation of fixed assets)/Total liabilities	[27]	
Sustainable development ratio	SDR	[(Net revenue yeart - Net revenue year(t-1)]/Net revenue year(t-1)]) [25-27]	
		Independent Variables		
Debt ratio	TD	Liabilities/Total capital	[22-24]	
Short-term debt ratio	STD	Short-term debt/Total debt	[25]	
Long-term debt ratio	LTD	Long-term debt/Total capital	[25, 26]	
Fixed asset ratio	FIX	Fixed assets/Total assets	[26, 27]	
Inventory ratio	INVE	Inventory/Total assets	[27]	
Ratio of accounts receivable	RECE	Accounts receivable/Total assets	[52]	
Cash and cash equivalent ratio	CCE	Ratio of cash and cash equivalents/Short-term assets	[49]	
Quick ratio	QUI	(Short-term assets - Inventory)/Short-term debt	[27]	
		Control Variables		
Return on assets	ROA	Net income \times 100/Total assets	[22, 26, 27]	
Return on equity	ROE	Net income \times 100/Equity	[22, 26, 27]	
Firm size	SIZE	Logarithm of total assets	[26, 27]	
Company age	AGE	Logarithm of the number of years the company was founded	[53-55]	

Table 1. Description and measurement of variables in the model

5- Results and Discussion

5-1-Descriptive Statistics

Table 2 reflects the results of descriptive statistics. Accordingly, the variables reflecting financial security are FSR and SDR with average values of 0.1156 and 2.7627, respectively; the smallest values are -3.0650 and -63.0216, respectively, and the maximum values are 4.6735 and 1943.9010, respectively. The minimum values are all negative, and the maximum values are exceptionally high. This result shows that real estate companies' financial safety and financial stability in 2010-2023 are quite different, with many years of negative net revenue growth and negative economic growth - business loss.

- The variables reflecting capital structure are TD, STD and LTD, with the smallest values being 0.0044, 0.0032 and 0.000, respectively, and the largest values being 1.000, 0.9880 and 0.8007. That proves that at least one company does not borrow long-term debt in a year. This fact also shows that listed real estate companies operate mainly with liabilities. There are even companies like ITA and FDC, where liabilities sometimes account for 100.0% of total capital, primarily short-term debt (accounting for 98.8%).
- The variables reflecting asset structure are FIX, INVE, RECE and CCE with average values of 0.0904078, 0.3292347, 0.2048005 and 0.1100913, respectively. This result shows that a real estate company's inventory accounts for a relatively high proportion of total assets, while the value of fixed assets accounts for a small proportion.
- The variable reflecting the relationship between assets and capital is QUI, with an average value of 1.645041. The smallest value (0.0724938) and the most significant (73.75357) differ significantly. This shows that the quick payment ability of real estate companies in 2010-2023 varies significantly. In general, real estate companies can meet the need for fast payments.

Variable	Obs	Mean	Std. Dev.	Min	Max
FSR	854	0.115608	0.3373076	-3.064958	4.673538
SDR	854	2.762652	66.85188	-63.02164	1943.901
TD	854	0.5357551	0.1964213	0.0044002	1.00000
STD	854	0.3625631	0.1968038	0.0031815	0.9879927
LTD	854	0.173192	0.1754214	0.00000	0.8007291
FIX	854	0.0904078	0.140886	5.61e-06	0.8886572
INVE	854	0.3292347	0.2551693	0.00000	2.011289
RECE	854	0.2048005	0.1526323	0.0062464	0.7659771
CCE	854	0.1100913	0.1405712	0.0004182	0.9610173
QUI	854	1.645041	3.972304	0.0724938	73.75357
ROA	854	0.0401362	0.0604088	-0.3697484	0.4444053
ROE	854	0.0971691	0.1471098	-0.9993302	0.7874175
SIZE	854	28.13092	1.339396	25.43911	34.02273
AGE	854	1.206757	0.249308	0.4771213	1.716003

Table 2. Descriptive statistics

5-2- Correlation and Multicollinearity Analysis

Table 3 reflects the results of the correlation analysis between variables in the research model. The correlation coefficients between variables differ from 0; the most significant correlation value is 0.8446. This shows the possibility of multicollinearity in the model. Continue checking for multicollinearity between regression models. Multicollinearity test results show that all variables have VIF coefficients less than 5. The variable with the highest VIF is ROA (4.67), and the variable with the lowest VIF is AGE (1.08), so it can be concluded that no phenomenon of multicollinearity occurs. After checking for multicollinearity, we continue to check for heteroskedasticity and autocorrelation of the OLS model. The results show that all equations 1-a, 1-b, 2-a and 2-b have heterogeneous variance.

The relationship between the factors on financial security is shown in Figures 2 and 3.



Figure 2. Relationship between independent variables and financial safety

Var.	FSR	SDR	TD	STD	LTD	FIX	INVE	RECE	CCE	QUI	ROA	ROE	SIZE	AGE
FSR	1,000													
SDR	-0.0373	1,000												
TD	-0.2710***	0.0151	1,000											
STD	-0.2122***	0.0218	0.6020***	1,000										
LTD	-0.0654*	-0.0075	0.4444***	-0.4479***	1,000									
FIX	0.1303***	-0.0231	-0.1037***	-0.2838***	0.2023***	1,000								
INVE	-0.1167***	-0.0389	0.3083***	0.3720***	-0.0722**	-0.3673***	1,000							
RECE	-0.0763**	0.0258	0.0687**	0.3697***	-0.3379***	-0.1938***	-0.1282***	1,000						
CCE	0.1586***	0.0063	-0.1163***	-0.3336***	0.2441***	0.2413***	-0.3998***	-0.2724***	1,000					
QUI	0.1479***	-0.0061	-0.2271***	-0.3461***	0.1339***	0.1938***	-0.2596***	0.0023	0.1088***	1,000				
ROA	0.6184***	-0.1258***	-0.1523***	-0.1879***	0.0402	0.0176	-0.0894***	-0.1365***	0.2509***	0.0775**	1,000			
ROE	0.3627***	-0.1589***	0.1118***	-0.0677**	0.2011***	0.0243	-0.0558*	-0.1279***	0.2113***	0.0587*	0.8446***	1,000		
SIZE	-0.0933***	-0.0252	0.2208***	0.0320	0.2113***	-0.0862**	0.2225***	-0.0322	-0.1673***	-0.1387***	-0.0311	0.0165	1,000	
AGE	-0.0150	-0.0246	0.1156***	0.1222***	-0.0076	-0.1455***	0.0414	0.0580*	-0.0453	-0.1231***	0.0002	-0.0471	0.1391***	1,000

Table 3. Correlation coefficient matrix between variables

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



Figure 3. Relationship between independent variables and financial stability

5-3- Select the Analysis Model and Check the Defects of the Selected Model

To select the appropriate analysis model for each regression equation, the authors continued to perform the Hausman test. The Hausman test results obtained Prob>chi2 = 0.0001 (equation 1a) and 0.0000 (equation 1b). Therefore, the FEM model is suitable for these two equations. Similarly, the results obtained for equations 2a and 2b are Prob>chi2 values of 0.8965 and 0.8662, respectively. These Prob>chi2 values are all >0.05. That shows that equations 2a and 2b are suitable for REM. We use the Wooldridge test method to check the autocorrelation phenomenon. The test results show that the Prob>F values of the variables belonging to equations 1a, 1b, 2a, and 2b are 0.1182, 0.1182, 0.0639, and 0.0622, respectively. These values are all > 0.05, proving that these equations do not have autocorrelation. To test the phenomenon of heteroskedasticity, we use the Modified Wald test for the FEM model and the Breusch and Pagan Lagrangian test for the REM model. The results of these tests all had Prob>chi2 = 0.0000 <0.05. This shows that all four equations (1a, 1b, 2a and 2b) have heteroskedasticity. Finally, to determine endogeneity, the study conducted the Wu-Hausman test using 2-stage 2SLS regression (Two- Stage Least Squares). The results showed that some variables had p values < 0.05, thus concluding that the model had endogeneity.

5-4-Results of Model Error Handling

The study uses the GMM regression estimation model to overcome model defects and handle endogeneity. The GMM estimation model solves the endogeneity problem well and overcomes other model defects, such as heteroskedasticity or autocorrelation. The results of GMM analysis for the dependent variables FSR and SDR in equations 1a, 1b, 2a and 2b show that the number of groups is larger than the number of instruments. At the same time, the Arellano-Bond test for AR(1) in first differences values is all <0.05, the Arellano-Bond test for AR(2) in first differences values are >0.05 and the and the Prob value > chi2 of Hansen test of overid restrictions >0.05. This result shows that autocorrelation, heteroscedasticity, and endogeneity have been handled in GMM, and the appropriate tool to handle them is used. Therefore, the GMM model is highly reliable for analysis.

The results of OLS, FEM, and REM regression and the results of model error treatment by GMM regression are reflected in Table 4 (Equations 1-a and 2-a) and Table 5 (Equations 1-b and 2-b). Column (4) in each table reflects the GMM regression results of each equation.

The results in Table 4 and Table 5 confirm the significant impact of financial structure on the financial security of Vietnamese real estate companies. Accordingly, the factors reflecting capital structure (TD, STD, and LTD) all positively impact financial security in terms of financial stability and safety, with a significance level of 1%. These results are consistent with hypothesis H1; therefore, hypothesis H1 is accepted. This result also supports the findings of previous

studies [22-24, 27] when they found that capital structure has a positive impact on financial security. This finding is also supported by the studies of Al-Absy [22] and Orazalin et al. [56] when they found a positive effect of capital structure on financial stability. However, the results using LTD are contrary to the study of Thi Mai Nguyen et al. [25], in which their study demonstrated that increasing the use of long-term debt will have a negative impact on financial security. This research result is also inconsistent with the study of Van Nguyen & Nguyen [26], when they admitted that increasing the use of long-term debt will have a negative impact on the financial security of the enterprise. Our empirical results indicate that real estate companies can improve and enhance financial stability and safety by increasing liabilities, including both short-term and long-term debt.

Regarding the impact of asset structure on the financial security of the enterprise, Table 4 shows that FIX has a positive impact on financial safety at the 1% significance level. Hypothesis H2a is accepted. This result shows that, in real estate companies, increasing investment in fixed assets will promote business progress and shorten construction time, thereby shortening the capital recovery period. This research result supports the finding of Nguyen & Nguyen [27] that companies that increase investment in fixed assets will increase financial security.

Table 5, on the other hand, shows a negative impact of FIX on financial stability (at the 1% significance level). This result is similar to the research of Van Nguyen & Nguyen [26] and Nguyen & Nguyen [27] when they discovered a negative relationship between the ratio of fixed assets and financial security. The reason is that fixed assets are often valuable assets that have been used for a long time, and their value is less likely to fluctuate. Therefore, when the ratio of fixed assets to total assets increases, the company's financial stability will also increase. To some extent, when the ratio of fixed assets is too high, the company will be constrained by fixed assets. Because fixed assets are challenging to convert into cash to meet financial needs, it reduces the company's financial flexibility, affects the ability to manage finances effectively and can cause financial risks.

Regarding the impact of the inventory ratio on total assets on financial security, Tables 4 and 5 show that INVE has a negative effect on financial stability (at the 1% significance level) and no impact on financial safety. Hypothesis H2b is accepted. This means that the more the inventory of real estate companies increases, the more financially unstable the company becomes. Increased inventory leads to capital stagnation and damage to finished products (projects, apartments, condominiums, etc.) due to not being put into use and high maintenance costs. This finding is not the same as the study by Nguyen & Nguyen [27], which found that INVE is positively related to financial stability.

Regarding the ratio of receivables to total assets, Table 4 shows that RECE has a negative impact on the financial stability of listed real estate companies in Vietnam at a significance level of 5%. Hypothesis H2c is accepted. This result also implies that real estate companies need to reduce the amount of receivables to the lowest possible level and apply measures to collect receivables quickly and promptly. Then, the company's financial security will be more stable. In addition, Table 5 records the positive impact of RECE on the company's financial security at a significance level of 1%. When receivables increase, short-term liquidity decreases, leading to short-term financial imbalances. On the contrary, financial stability is related to the ability to maintain long-term operations, including ensuring revenue and resilience to fluctuations. When receivables increase, long-term revenue is guaranteed because, in the real estate industry, most receivables come from customers buying real estate in instalments, representing future cash flows and helping to increase long-term stability.

Table 4 shows the positive impact of the ratio of cash and cash equivalents to short-term assets on financial stability (at the 1% significance level). Hypothesis H2d is accepted. On the contrary, the results in Table 5 show a negative impact of CCE on financial safety at the 1% significance level. A high cash and cash equivalents ratio can bring long-term benefits (financial stability) but also pose short-term challenges (financial security) if not used effectively. An increase in cash often reflects inefficient investment of cash flow. It may be a sign that the business is not developing new projects, leading to reduced profitability, delaying project implementation, or difficulty finding investment opportunities. When large amounts of cash are not reinvested, ROA and ROE will decrease, making the business appear less efficient and affecting financial security. However, ample cash and cash equivalents increase the company's financial stability. It is a "financial cushion" that helps the business be ready to deal with unexpected fluctuations, improve the ability to make strategic investments and limit long-term liquidity risks.

The regression results in Tables 4 and 5 also show that QUI has a positive relationship with financial safety (at the 1% significance level) and no relationship with financial stability. Hypothesis H3 is accepted. This result contradicts the study by Nguyen & Nguyen [27] and Nguyen et al. [57], which found that QUI negatively affects financial security. This is because QUI reflects the ability to pay short-term debts using highly liquid assets, i.e. excluding inventories. In the real estate industry, inventories are usually real estate under construction or unsold, which have low liquidity. Financial stability focuses on maintaining long-term sustainability in operations and finances. When QUI increases, the company will reduce its dependence on inventories, optimize cash flow and short-term assets, ensure the ability to cope with unforeseen fluctuations in short- term debt and improve the confidence of investors and banks. Unlike financial stability, financial safety mainly focuses on the ability to pay debts and maintain liquidity in the short term. Determining QUI excludes inventories but still includes receivables and cash, so the increase or decrease of QUI has little impact on financial stability. In particular, for the real estate industry, cash flow from customers paying in instalments or making progress payments is the primary source, and receivables are often more liquid than inventories. Therefore, even if QUI increases, financial stability is not significantly affected.

		Equ	ation 1-a		Equation 1-b				
	(1) OLS	(2) FEM	(3) REM	(4) GMM	(1) OLS	(2) FEM	(3) REM	(4) GMM	
TD	-	-	-	-	-0.0344 (0.0527)	-0.1505** (0.0754)	-0.0684 (0.0601)	0.2322** (0.0831)	
STD	-0.0288(0.0615)	-0.5127*(0.0813)	-0.0704(0.0681)	0.2611***(0.0884)	-	-	-	-	
LTD	-0.0405(0.0631)	-0.1460(0.0990)	-0.0674(0.0741)	0.6181***(0.1849)	-	-	-	-	
FIX	0.2919***(0.0666)	0.0140(0.0857)	0.1618**(0.0728)	0.6891***(0.0544)	0.2910***(0.0664)	0.0141(0.0856)	0.1642**(0.0725)	0.7180***(0.0480)	
INVE	0.0200((0.0430)	0.1475**(0.0573)	0.0598(0.0476)	0.0836(0.0841)	0.0216(0.0420)	0.1474**(0.0572)	0.0586(0.0468)	0.0900(0.0850)	
RECE	0.0386(0.0665)	0.0576(0.0806)	0.0340(0.0711)	-0.0144(0.1083)	0.0432(0.0610)	0.0566(0.0795)	0.0331(0.0670)	-0.1960**(0.0877)	
CCE	-0.0708(0.0714)	0.0499(0.0810)	-0.0127(0.0750)	-0.4845(0.0249)	-0.0726(0.0706)	0.0502(0.0809)	-0.0134(0.0744)	-0.4420***(0.0242)	
QUI	0.0060***(0.0023)	0.0093***(0.0026)	0.0079***(0.0024)	0.0114***(0.0028)	0.0059***(0.0022)	0.0093***(0.0025)	0.0079***(0.0023)	0.0098***(0.0027)	
ROA	5.9947***(0.2965)	5.6417***(0.3115)	5.8140***(0.2991)	17.7130***(0.2520)	5.9972***(0.2950)	5.6407***(0.3110)	5.8162***(0.2985)	17.7619***(0.2351)	
ROE	-1.2352***(0.1209)	-1.1237***(0.1302)	-1.1763***(0.1235)	-5.7806***(0.2095)	-1.2367***(0.1206)	-1.1237***(0.1301)	-1.1770***(0.1232)	-5.8177*** (0.2022)	
SIZ	-0.0080(0.0067)	0.0257(0.0158)	-0.0019(0.0087)	-0.0868***(0.0266)	-0.0083(0.0065)	0.0258(0.0157)	-0.0020(0.0085)	-0.0399**(0.0181)	
AGE	-0.0146 (0.0345)	-0.0369(0.0726)	0.0002(0.0440)	0.2756***(0.0465)	-0.0144(0.0344)	-0.0373(0.0724)	-0.0001(0.0437)	0.2923***(0.0435)	
L.FSR				0.0827*** (-0.0107)				0.0893***(- 0.0103)	
_cons	0.2131(0.1879)	-0.6817*(0.4079	0.0345(0.2402)	1.8109**(0.7111)	0.2206(0.1830)	-0.6883*(0.4070)	0.0372(0.2355)	0.5649(0.4830)	
N	854	854	854	793	854	854	854	793	
R-sq	0.495	0.442			0.495	0.442			
Arellano-Bond test for AR(1) in first differences: $z = -2.21 \text{ Pr} > z = 0.027$					Arellano-Bond test for AR(1) in first differences: $z = -2.83 Pr > z = 0.005$				
Arellano-Bond test for AR(2) in first differences: $z = -1.72 Pr > z = 0.086$					Arellano-Bond test for AR(2) in first differences: $z = -1.83$ Pr $> z = 0.067$				
Hansen test	of overid. restrictions: chil	2(33) = 30.30 Prob > chi2 =	0.602		Hansen test of overid. restrictions: $chi2(34) = 27.90 \text{ Prob} > chi2 = 0.760$				
Number of	instruments = 46. Number	of groups = 61			Number of instruments = 46. Number of groups = 61				

Table 4. Regression results on the impact of factors on financial safety

t statistics in parentheses

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

		Equa	tion 1-a		Equation 1-b				
-	(1) OLS	(2) FEM	(3) REM	(4) GMM	(1) OLS	(2) FEM	(3) REM	(4) GMM	
TD					30.5312**(14.4406)	48.9949**(22.2694)	30.5312**(14.4406)	708.5722***(63.7203)	
STD		52.706**(23.9981)		830.6142***(72.1248)					
LTD		41.1298(29.2135)		510.1896***(111.2358)					
FLX	26.0645(18.2366)	-16.6367(25.2856)	-26.0410(18.2494)	-692.9151***(183.3013)	-26.1263(18.1741)	-16.7383(25.2711)	-26.1263(18.1741)	-560.4619***(144.4464)	
INVE	-21.2666*(11.7795)	-21.8311(16.9075)	-21.2677*(11.7883)	-507.7784***(58.0344)	-21.1557*(11.5125)	-21.5809(16.8879)	-21.1557*(11.5125)	-506.0003***(50.7082)	
RECE	-6.4138(18.2028)	9.3343(23.8060)	- 6.3839(18.2136)	362.5914***(50.7559)	-6.0900(16.7141)	10.9578(23.4720)	-6.0900(16.7141)	387.9976***(45.2260)	
CCE	9.8972(19.5478)	17.4086(23.9244)	9.9211(19.5580)	9.9211(19.5580) 812.5339***(90.1998)		16.9403(23.8854)	9.7731(19.3413)	720.1872***(89.3527)	
QUI	0.0391(0.6271)	0.0816(0.7598)	0.0395(0.6274)	-2.1927(7.2197)	0.0318(0.6057)	0.0325(0.7502)	0.0318(0.6057)	-3.3883(6.0331)	
ROA	101.4743(80.9247)	166.3055*(91.9597)	101.6805(80.9493)	3422.2468***(334.5511)	101.6484(80.7845)	168.0502*(91.8156)	101.6484(80.7845)	3411.5191***(380.8191)	
ROE	-117.1221***(33.1105)	-148.8106***(38.4282)	-117.2145***(33.1223)	-1996.8538***(147.2331)	-117.2243***(33.0130)	-148.8876***(38.4075)	-117.2243***(33.0130)	-1975.5241***(159.2983)	
SIZ	-0.7163(1.8314)	0.6659(4.6565)	-0.7147(1.8341)	-3.4610(12.4688)	-0.7354(1.7806)	0.5264(4.6420)	-0.7354(1.7806)	-2.4740(11.5937)	
AGE	-12.8353(9.4384)	-13.7258(21.4319)	-12.8367(9.4516)	-905.9716***(78.8594)	-12.8227(9.4287)	-13.1274(21.3723)	-12.8227(9.4287)	-845.2338***(86.6595)	
L.SDR				-0.1822**(-0.0126)				-0.1503***(-0.0124)	
_cons	38.8033(51.4440)	-13.1239(120.4295)	38.7281(51.5157)	948.5715***(353.1127)	39.3241(50.0987)	-10.2759(120.1715)	39.3241(50.0987)	849.2260***(313.9526)	
N	854	854	854	793	854	854	854	793	
R-sq	0.037	0.032			0.037	0.032			
Arellano-Bond test for AR(1) in first differences: $z = -2.92$ Pr $> z = 0.004$					Arellano-Bond test for AR(1) in first differences: $z = -2.83 \text{ Pr} > z = 0.005$				
Arellano-Bond test for AR(2) in first differences: $z = -1.78 Pr > z = 0.075$					Arellano-Bond test for AR(2) in first differences: $z = -1.83$ Pr $> z = 0.067$				
Hansen tes	st of overid. restrictions: chi2	2(33) = 30.64 Prob > chi2 =	0.585		Hansen test of overid. restrictions: $chi2(34) = 27.90$ Prob > $chi2 = 0.760$				
Number of	f instruments = 46. Number	of groups = 61		Number of instruments = 46. Number of groups = 61					

Table	5. R	legression	results of	on the	impact	of facto	ors on	financial	stability
		0							•

t statistics in parentheses

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

In addition to the independent variables, the control variables substantially impact financial security. The research results show that ROA has a positive and significant relationship with financial safety and stability at the 1% significance level. This result indicates that if real estate companies use their assets effectively to generate profits, it will promote the company's financial safety and stability. This result supports the previous research of [22, 26, 27], who found that ROA has a positive relationship with financial security.

In contrast to ROA, the research results show a negative relationship between ROE and financial safety and financial stability at the same significance level of 1%. This is because real estate companies increasingly use the "tax shield" of financial leverage to increase ROE. Using financial leverage will increase financial risk and reduce the level of financial security of the company to a certain extent. This research result is in agreement with the studies of [24, 26, 27], which found a negative relationship between the profitability of equity and financial safety and financial stability.

Firm size has a negative relationship with financial safety but no relationship with financial stability. This result supports the studies of [26, 27, 56], which found that firm size has a negative effect on financial security. As a company grows, it needs more resources and capital to maintain its operations and develop its business. Therefore, it will significantly increase the cost of debt and interest, increase financial risk and reduce the company's financial stability. On the other hand, as the company's size increases, it reduces its flexibility in adapting to changes in the business environment. The company may become slow and unable to adapt to changes in the real estate market, leading to financial risks.

Regarding the number of years of establishment, the research results recorded a negative impact on financial stability but a positive impact on financial security (both at the 1% significance level). This research result did not receive consensus from the study of Orazalin et al. [56] when they found that the company's age was positively related to financial stability. As the number of years of establishment increases, it can lead to a saturated business model and reduce the flexibility of the company, increasing the pressure from operating costs and asset maintenance. At the same time, the company must bear the risk of accumulated debt over many years and the challenge of competition with new companies. However, long-standing companies often have the advantage of maintaining financial security due to the accumulation of financial management experience, a high reputation in the market, a high accumulation of liquid assets and a prudent financial strategy. In the context of Vietnam, the impact of the number of years of establishment on real estate companies is also affected by changes in legal policies and the cyclicality of the real estate market.

On the other hand, older companies often accumulate long-term debt to finance large projects. Over time, the interest costs accumulate, reducing financial efficiency, especially when capital cannot be turned over promptly. When the market fluctuates or project revenues stagnate, the burden of these loans becomes destabilizing. Meanwhile, as old projects lose value or become less effective. Older real estate companies often accumulate extensive inventories from unsold projects. Our findings suggest that long-standing real estate companies should consider solutions such as financial restructuring (reducing debt ratios, especially short-term debt, by restructuring loans; issuing shares or convertible bonds to raise equity capital), enhancing asset management (liquidating or transferring ineffective or low-commercial value projects, redeveloping old projects to suit current market demand), innovating business models (applying technology in project management and sales, investing in new real estate segments to diversify revenue sources) and developing long-term capital sources (strategically cooperating with large investors or foreign investment funds to reduce dependence on bank loans, seeking preferential capital sources or international funding for green, sustainable projects).

6- Conclusions and Recommendations

Financial security is one of the significant challenges and conditions that companies must face in their development process. However, research related to financial security has not received enough attention. The literature on the impact of financial structure in particular and other factors in general on financial security is still in its infancy. This article uses data collected over 14 years, from 2010 to 2023, to build a financial security index of the Vietnamese real estate industry. The OLS, FEM, REM and GMM models are used to determine the impact of financial structure on financial security in terms of both financial safety and financial stability. The results show a significant effect of financial structure (considering three aspects: capital structure, asset structure and the relationship between assets and capital) on financial security. Specifically, the debt ratio, short-term debt ratio, long-term debt ratio and return on assets significantly and positively impact financial safety. On the contrary, fixed asset ratio, inventory ratio, return on equity, and number of years in business negatively and significantly impact financial stability. Similarly, the accounts receivable ratio, cash and cash equivalent ratio, return on equity, and firm size significantly and negatively impact financial safety. In addition, factors such as fixed asset ratio and quick ratio also have a positive and significant impact on the company's financial safety.

The research results bring many essential policy implications to enhance financial security for real estate companies. First of all, real estate companies must establish an appropriate financial structure. That financial structure must ensure the company uses its capital resources most effectively to achieve its business goals. Next, companies must focus on improving profitability. This is one of the positive solutions that real estate companies need to apply to ensure and enhance financial statety and financial stability. Third, it is necessary to research to diversify investment portfolios, seek

investment opportunities, expand into new markets, and invest in commercial or rental real estate. In addition, measures such as increasing debt collection ability, limiting unnecessary expenses, accelerating project payment progress and effectively managing working capital can all help real estate companies increase financial security and financial stability in business activities.

Our study also has certain limitations. First of all, there is a limitation of references. As the first study to address the direct impact of financial structure on financial security, domestic and international reference sources on this topic are incredibly scarce, with only a few documents available. The following limitation that can be mentioned is the research sample. The research sample is limited to real estate companies and does not mention companies in other industries. Furthermore, the research sample only refers to listed companies in an emerging country (Vietnam) and has not been expanded to other countries. This limitation also does not allow the authors to delve into each short stage in the development process of the Vietnamese real estate market. Therefore, the coverage and significance of the study are not high. The research results do not allow the authors to conclude on the similarities or differences in the impact trends and the influence of factors reflecting financial structure on financial security in different regions and countries. Future studies could improve this study by collecting samples from emerging economies and listed and unlisted companies, delving into each short period to observe the relationships in different periods of real estate development. Further research should aim to examine the industry by comparing real estate companies with other sectors to understand the differences better. The study also needs to conduct a cyclical analysis, assessing the stability and financial security across different economic cycles in Vietnam. Another limitation of the research is that it only mentioned the capital structure in the relationship between liabilities, short-term liabilities, long-term liabilities and the total capital or total debt without being able to separate debts due to borrowing or debt appropriated during operations. This limitation more or less affects the value of the research. This also suggests future research when identifying factors of financial structure that impact financial security. Finally, the study only considered the impact of factors reflecting financial structure on financial security without considering the opposite direction, the impact of financial security on financial structure. The authors hope that shortly, there will be many in-depth and extensive studies of the effects of financial structure on financial security and vice versa

7- Declarations

7-1-Author Contributions

H.T.T.C. and C.V.N. contributed to the design and implementation of the research, to the analysis of the results and to the writing of the manuscript. All authors have read and agreed to the published version of the manuscript.

7-2-Data Availability Statement

The data presented in this study are available in the article.

7-3-Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

7-4-Institutional Review Board Statement

Not applicable.

7-5-Informed Consent Statement

Not applicable.

7-6-Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancies have been completely observed by the authors.

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