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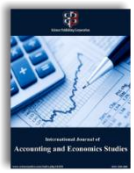

Financial Capacity for Sustainable Growth of Listed Agricultural Enterprises in Vietnam

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Abstract

In the context of Vietnam facing common challenges in both global and domestic economies, achieving sustainable development for businesses has become a pressing concern for managers and investors. This article selects listed companies in the agricultural sector for analysis and evaluation. Agricultural companies are an indispensable part of the farm modernization process, playing the role of a bridge between farmers and the consumer market. However, agrarian companies show low sustainable growth. The difficulty is basically financial problems, especially financial capacity. Based on the sustainable growth models proposed by scientists Higgin (1977) [1] and Van Horne (1987) [2], the article evaluates the impact of financial capacity on the sustainable growth of 23 agricultural companies listed on the Vietnam Stock Exchange, secondary data collection period from 2017 - 2024. By using quantitative modeling research methods of OLS, FEM, REM, and GLS models. There is evidence that financial capacity has a strong impact on the growth of agricultural companies, with a coefficient of determination (R2) of 0.528 in the entire sample. Profitability is an important factor that positively affects the sustainable growth of listed agricultural companies. Meanwhile, the factor of operating efficiency, measured by operating expenses over total sales and service revenue, has a negative impact. The new findings show that the factors of enterprise size, level of financial leverage, investment project portfolio, and payment capacity are not statistically significant for the model. Finally, the paper gives some recommendations for improving the financial capacity associated with the sustainable growth of agricultural companies.

Keywords: *Sustainable Growth; Agricultural Enterprises; Enterprise Size; Profitability; Operating Efficiency; Financial Leverage.*

1. Introduction

Sustainable growth is the state that an enterprise can achieve at its maximum with a limited resource that the enterprise can maintain without any problem. Or, sustainable growth of companies can be achieved by coordinating real growth with their financial resources. [3]. This is really difficult because when companies grow, it means that their market share, revenue, and profits all increase while still ensuring financial obligations to related parties. [4]. The growth of companies can be measured in different aspects, such as the increase in the size of total assets or capital, the increase in the size of total revenue, or the increase in total profit. To grow assets, companies need to operate effectively by investing in high-yielding assets. Good quality assets will bring profits, and the rate of retained earnings is maintained with low risk.

Agricultural companies not only provide people with food and clothing, but also provide energy, chemical raw materials necessary for industrial development, and high-quality agricultural products to meet domestic and export market needs. This is a basic industry, contributing greatly to economic development and social stability, and is an important bridge between people and the market. However, due to the nature of their operations, agricultural companies often face more difficulties than companies in other fields, especially in developing countries like Vietnam. [5].

They are not only influenced by factors such as the macro environment (economic, political and legal, socio-cultural, natural conditions and technology); micro factors (competitors, customers, suppliers, employees).

Under the influence of these factors, agricultural companies may face difficulties in control, increasing the risk of bankruptcy and insolvency of companies if their financial capacity is not high. Therefore, agricultural companies often face more serious financial problems. Funding from the Government, the Ministry of Agriculture and Environment, is considered an effective measure to improve financial capacity for agricultural companies.

However, government funding is often limited. It is necessary to improve the financial capacity of agricultural companies themselves. Previous studies have mainly focused on agricultural financial policies. [6], [7] or Fintech for agriculture [8], [9]. However, there are few publications regarding the financial capacity for sustainable growth of agricultural companies.

Financial capacity is a concept to indicates the financial strength of companies. According to Professor Darrell Duffie (2010) of Stanford University in the US, "The financial capacity of a business has a scale and complexity that depends on the business efficiency and the ability to use capital of the enterprises." [10].

Thus, according to the author, studies on the financial capacity of agricultural companies can be divided into three main aspects: capital capacity (capital size, capital structure, and capital efficiency); solvency and profitability of agricultural enterprises. At the same time, most of the recent empirical studies analyzing the relationship between sustainable growth are based on the research of Higgins (1977) and Van Horne (1997).

Vietnam's agricultural sector is currently experiencing a number of positive changes and notable challenges. Below is an overview of the current situation of our country's agricultural sector.

Agriculture still plays a key role in Vietnam's economic structure. Agriculture contributes a large part to the national GDP and employs more than 40% of the working population. Shift to modern agriculture: Vietnam is shifting from traditional agriculture to a more modern model, aiming to increase productivity and product quality.

Participating in the global supply chain and signing trade agreements helps Vietnamese agricultural products access international markets and create important sources of income for organic production and smart technology application.

Vietnam is rapidly developing organic agriculture and applying smart technology to create quality products and protect the environment. Food security and quality management. Focus on food security and product quality control to ensure consumer health and enhance export potential.

Although Vietnam's agricultural sector is making progress, there are still many challenges to face, such as water resource management, climate change, and competition in the international market, as well as integration and competition issues, which have had an unfavorable impact on the sustainable growth of many companies. Table 1 shows that the profitability of manufacturing companies in the period from 2017 to 2024 is low, even with many years of losses and negative profits, which shows the unsustainability of most of these businesses.

Table 1: Return On Assets of Agricultural Enterprises in 2017 – 2024 Unit: %

No	Year / Enterprises	2017	2018	2019	2020	2021	2022	2023	2024
1	HAG	0,700	0,013	(4,682)	(6,396)	0,692	5,681	8,523	4,758
2	HNG	1,643	(2,149)	(10,500)	0,085	(7,986)	(28,228)	(7,793)	(7,678)
3	VIF	19,120	14,350	9,448	5,473	-	8,624	5,038	6,553
4	DRG	-	0,939	1,138	1,155	4,472	2,906	2,089	4,593
5	SEA	8,735	6,998	10,833	8,175	5,574	8,695	8,919	6,483
6	NSC	15,026	16,186	11,736	10,814	11,679	11,200	10,361	10,468
7	SEP	3,806	3,834	4,998	6,143	4,742	2,589	2,870	0,734
8	SSC	15,970	19,400	15,580	8,308	10,584	9,615	10,018	8,073
9	HSL	13,933	17,219	19,146	4,622	4,961	3,219	2,512	1,486
10	LNC	-	0,648	0,450	0,332	0,332	0,348	0,334	0,468
11	SVN	(0,768)	0,424	0,034	0,051	0,295	0,434	0,303	0,200
12	NSS	(8,074)	17,984	10,697	47,028	23,389	10,586	4,793	0,525
13	APT	(19,794)	(20,950)	(62,731)	(123,389)	(85,238)	(87,400)	(79,830)	(114,493)
14	PSL	(11,400)	12,211	(18,975)	43,421	13,192	4,073	4,595	3,302
15	BHG	3,322	0,801	1,191	0,415	0,102	0,328	0,727	0,589
16	FRM	4,394	5,137	2,864	5,249	3,150	4,428	7,337	3,419
17	CTP	11,088	3,719	4,065	0,022	0,622	0,408	0,057	0,264
18	MLS	(30,111)	3,414	(9,573)	72,950	6,057	(16,799)	(29,015)	21,963
19	FGL	(7,668)	0,515	(10,335)	(15,629)	0,226	(14,861)	(8,283)	(17,682)
20	CPA	(4,523)	(12,241)	(24,348)	(15,700)	(11,050)	(11,891)	(12,502)	(16,084)
21	HKT	1,006	0,133	0,042	0,728	0,482	0,564	0,381	0,284
22	CNA	0,441	0,425	0,004	(0,834)	(0,945)	(2,462)	(1,739)	(2,134)
23	TAN	11,911	-	0,116	0,248	8,673	6,275	5,804	17,136

Source: Author's Synthesis and Calculation Year.

Business performance varies significantly among agricultural production companies, as illustrated in Figure 1 below:

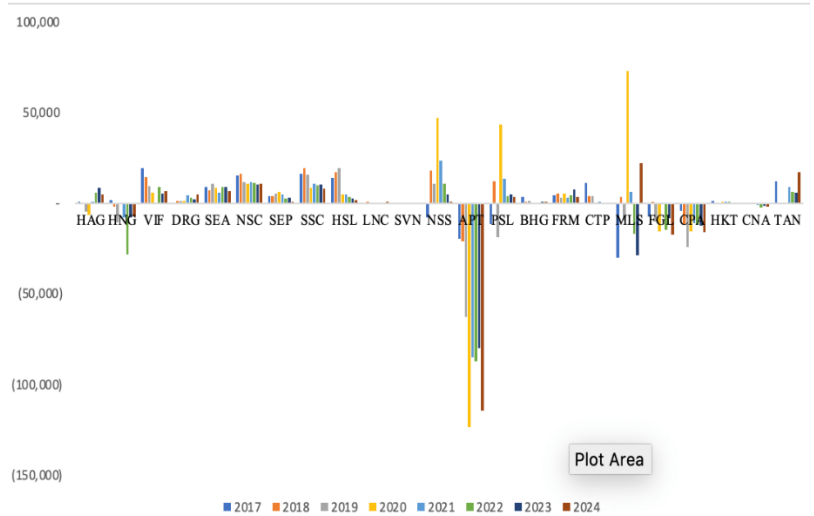

Fig. 1: Significant Differences between the Profitability of Agricultural Production Companies in Vietnam.

Source: Author's Synthesis and Calculation Year.

High profitability is a measure of the ability of an agricultural enterprise to repay its debts. High profitability means that the enterprises can earn better profits and are able to repay their debts on time. Therefore, high profitability is a direct factor that affects the sustainable growth of companies.

Through Table 1, we can see that, in general, the profitability of agricultural companies tends to decrease throughout the period 2017 - 2024. Notably, the profitability of many large-scale agricultural companies is lower than that of many small companies, such as SEP, SVN, NSS, and has even been losing money for many consecutive years, such as HNG or APT. Meanwhile, the profitability of many smaller agricultural companies tends to increase and reach high levels, such as TAN JSC or MLS.

This shows that agricultural companies have not yet taken advantage of economies of scale, increased revenue, reduced capital mobilization costs, and promoted market development. The decline in profits will impact companies facing financial risks.

From the above situation, it can be seen that financial capacity plays a particularly crucial role in ensuring the sustainable growth of listed agricultural companies in Vietnam. When financial capacity is weak, enterprises find it difficult to maintain stable operations, expand production scale, and enhance competitiveness, while facing the risk of financial imbalance and even bankruptcy. Conversely, strong financial capacity enables firms to proactively mobilize and allocate capital resources, improve asset utilization efficiency, and enhance profitability, thereby establishing a solid foundation for sustainable growth. In the context of Vietnam's deep economic integration, fierce market competition, and unpredictable global financial fluctuations, studying the financial capacity for sustainable growth of listed agricultural companies is not only theoretically significant but also of profound practical value. This research will help assess the relationship between financial capacity and sustainable growth, thereby proposing appropriate solutions to enhance competitiveness and ensure the stable, long-term development of Vietnam's agricultural enterprises.

2. Literature Review and Theoretical Framework

The study is based on the fundamental theoretical framework of financial capacity for sustainable growth of companies proposed by Higgins (1977) [11] and Van Horne (1987) [12].

According to Higgins (1977), 4 factors strongly influence the growth capacity of companies: Profitability, dividend policy, capital structure, and asset turnover. According to Van Horne (1987), financial ratios related to sustainable financial capacity include profitability, asset turnover, retained earnings, and equity growth coefficient.

In recent years, numerous international studies have continued to expand and deepen the understanding of the relationship between financial capacity and the sustainable growth of enterprises, particularly in the agricultural sector. The study by Md. Toaha and Laboni Mondal (2023) in Bangladesh demonstrated that agricultural credit plays a positive role in enhancing firms' financial capacity, thereby promoting sustainable economic growth in developing countries. [13]. Similarly, Mike Hernandez-Romero and Germà Coenders (2025) found that agricultural companies with high profitability and liquidity tend to exhibit stronger financial resilience against global economic shocks, enabling them to maintain stability and sustainable development. [14]. Moreover, Grecu et al. (2025) provided evidence that factors such as food security, climate change, access to credit, and capital diversification have a direct impact on the financial capacity and growth efficiency of agricultural enterprises. These findings collectively indicate that recent global research trends emphasize that strong financial capacity not only helps agricultural enterprises sustain operational efficiency but also serves as a crucial foundation for achieving long-term sustainable growth. [15].

Based on the fundamental theories, according to the author, the financial capacity for sustainable growth of agricultural companies must ensure capital, sufficient capital for business operations, an appropriate capital structure, improved operating efficiency, solvency, and investments that bring high profitability. The article clarifies the following relationships:

- The Relationship between Enterprise Size and Sustainable Growth of Agricultural Enterprises

Escalante et al. (2009) analyzed the actual and sustainable growth rates of U.S. agricultural firms using data from 1981 to 2001. The results indicated that sustainable growth has either a positive or a negative relationship with firm size. The tendency of firms to achieve balanced growth appears to be more strongly influenced by asset productivity and leverage decisions, which are emphasized differently across firms due to variations in organizational structures and operational constraints. [16].

Njuguna (2016) analyzed the impact of firm size on sustainable growth and found that firm size, measured by total assets, has a positive and statistically significant effect on the financial performance (measured by ROA, ROE, and EPS) of agricultural companies. [17].

Ren et al. (2019) found that larger agricultural enterprises tend to achieve higher profitability. An increase in scale is associated with a significant reduction in the use of fertilizers and pesticides per hectare. Expanding large-scale farming represents an important pathway to modernizing agricultural production and ensuring socially sustainable food production. [18].

Conversely, there is also a perspective that firm size hurts sustainable growth. Bourlakis et al. (2014), by analyzing a sample of 997 firms operating in the Greek food supply chain, found that companies may perform either above or below expectations relative to their size. [19].

Thus, it can be observed that firm size has a significant impact, either positive or negative, on the sustainable growth of agricultural enterprises: [20], [21], [22], [23], [24].

Based on this theoretical foundation, the paper proposes the following hypotheses:

H1: The size of capital positively influences the sustainable growth of agricultural enterprises

H2: The debt ratio hurts the sustainable growth of agricultural enterprises

H3: The scale of long-term asset investment has a positive effect on the sustainable growth of agricultural enterprises

H4: Operating efficiency hurts the sustainable growth of agricultural enterprises

- The Relationship between Solvency and Sustainable Growth of Agricultural Enterprises

Akhtar et al. (2022) assessed the levels of leverage and solvency of 424 companies in Pakistan during the period 2001–2017. The results indicated an inverse relationship between financial leverage, solvency, and the performance of agricultural enterprises [25].

Blessing and Sakouvogui (2023) found that strong liquidity ratios, such as the current ratio and quick ratio, are associated with improved short-term financial stability. These ratios carry important implications for both businesses and investors, as they inform strategic financial planning, risk management, and investment decisions. [26].

However, there is also a view that solvency and growth are negatively related. Khalil et al. (2024), using data from agricultural companies listed on the Stock Exchange of Thailand during 2015–2023, found a positive correlation between sustainable growth and current solvency, with no significant lagged effect. [27].

Based on the theoretical foundation, this paper proposes the following hypothesis:

H5: Solvency has a positive impact on the sustainable growth of agricultural enterprises

- The Relationship between Profitability and Sustainable Growth of Agricultural Enterprises

Balezentis and Novickyte (2018) evaluated the impact of profitability on the growth of agricultural companies in Lithuania during the period 2005–2015. Their analysis of profits and sustainable growth revealed that agricultural firms need to make better use of internal

resources, apply cost control, and improve operational scale [25]. Aulová et al. (2019) assessed 3,000 agricultural companies to clarify the relationship between growth rate and profitability. The results showed that profitability has a significant effect on the sustainable growth of these companies. [28].
Cupertino et al. (2021) evaluated the relationship between short-term profitability and sustainability in 318 agricultural companies with 1,760 observations. The results indicated that firms with stronger sustainability performance tend to improve profitability in the future. Conversely, less sustainable firms should prioritize specific initiatives such as responsible products, ecological innovation, management commitment, and governance toward sustainability, as these initiatives positively affect profitability and help offset short-term financial losses. [29].
Based on the empirical studies, this research proposes the following hypothesis:
H6: Profitability has a positive impact on the sustainable growth of agricultural companies

- The relationship between macroeconomic factors and the sustainable growth of agricultural enterprises

Lipper & Neves (2011) argued that government promotion of partnerships with private agricultural enterprises is the key to realizing the potential of policy instruments in fostering sustainable agricultural development [30].
Sadłowski et al. (2021) assessed the importance of direct payment schemes as a tool to support sustainable agricultural development in Poland, and also evaluated the impact of the Agricultural Policy reform since 2015 in the country. The results indicated that the EU funding policies have not yet been effective and need to be further improved. [31].
Žičkienė et al. (2022) used panel data from 27 countries over the period 2005–2019 to evaluate EU support for the agricultural sector. The results showed that the overall impact of direct support policies on the agricultural sector across the EU-27 was positive. [32].
Okunlola & Ayetigbo (2024) evaluated agricultural finance through commercial bank loans, interest rates, and the Agricultural Credit Guarantee Scheme Fund in relation to sustainable agricultural growth in Nigeria from 1985 to 2021. The results showed that agricultural finance has both short-term and long-term impacts on the sustainability of agricultural firms and on the agricultural sector as a whole [33].
Thus, macroeconomic factors, including government funding policies and overall economic conditions, have significant impacts (positive or negative) on the sustainable growth of agricultural companies. Based on this theoretical foundation, the article proposes the following hypotheses
H7: The growth rate of gross domestic product has a positive impact on the sustainable growth of agricultural companies
H8: The price index of raw materials used for production has a positive impact on the sustainable growth of agricultural companies

3. Research Methodology and Model

This paper aims to clarify the impact of financial capacity on the sustainable growth of agricultural companies. By using Stata 14 [34] To test the model and conduct the analysis, the study seeks to provide empirical evidence.
The author selected agricultural companies listed in Vietnam from 2017 to 2024 through the Hanoi Stock Exchange and the Ho Chi Minh City Stock Exchange. After data cleaning and excluding observations with incomplete information, a final sample of 23 companies, corresponding to 180 observations, was used for empirical analysis. The number of observations meets the standards of Bollen (1989) [35], Tabachnick and Fidell (2007) [36].
The research equation has the form:

$$SGR = \beta_0 + \beta_1 * X1 + \beta_2 * X2 + \beta_3 * X3 + \beta_4 * X4 + \beta_5 * X5 + \beta_6 * X_{6.} + \beta_7 * GDP_7 + \beta_8 * I_{p8}$$

Where:
: Intercept
$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8$: Slope coefficient
The paper uses the dependent variable SGR, measured as the ratio of retained earnings to equity from 2017 to 2024 for agricultural producers. The independent variables included in the model are calculated and coded as follows:

Table 2: Summary of the Independent Variables in the Research Model

No	Independent Variable Name	Symbol	Công thức tính	Source
1	Size of Agricultural Production Enterprises	X1	Log of Total Capital	Escalante et al (2009) [16], Njuguna (2016) [17], Ren et al (2019) [18], Bourlakis et al (2014) [19]
2	Debt Ratio of Agricultural Enterprises	X2	Debt/Equity Ratio	
3	Scale of Long-term Asset Investment of Agricultural Enterprises	X3	Long-term Assets/ Total Assets Ratio	

4	Operational Efficiency of Agricultural Enterprises	X4	Operating Expenses/Total Revenue Ratio	
5	Solvency of Agricultural Enterprises	X5	Current Assets/Current Liabilities Ratio	Akhtar et al (2022) [25], Blessing & Sakouvogui (2023) [26], Khalil et al (2024) [27]
6	Profitability of Agricultural Enterprises	X6	Net Profit/ Total Assets Ratio	Balezentis & Novickyte (2018) [25], Aulová et al (2019) [28], Cupertino et al (2021) [29]
7	Growth Rate of Gross Domestic Product	GDP	General Statistics Office	Lipper & Neves (2011) [30], Sadłowski et al (2021) [31], Žičkienė và cộng sự (2022) [32], Okunlola & Ayetigbo (2024) [33]
8	Price In-dex of Produc-tion Mate-rials	I_p	General Statistics Office	

Source: Compiled by the author based on the literature review.

The article uses STATA 14 to analyze the selection of regression models, test, and estimate regression models for panel data.
For panel data, regression can be conducted using the following methods: Ordinary Least Squares Regression (OLS-Ordinary Least Squares), Fixed-Effects Model (FEM - Fixed-Effects Model, Covariance model, Within Estimato, Individual Dummy Variable Model, Least Squares Dummy Variable Model- Fem), Random-Effects Regression (REM - Random-Effects Model, Random Intercept, Partial Pooling Model-REM), Hausman test, to select the appropriate model. The selected model continues to be tested for defects and corrected for defects in the generalized least squares optimization model (GLS - Generalized Least Squares).

4. Regression Model Testing and Discussion of Results

Model testing techniques include: Descriptive statistical analysis of variables, Multicollinearity testing of variables, Autocorrelation testing, and Heteroscedasticity testing. Estimation model selection. In addition, the study uses the Hausman test to choose between the regression model (FEM) and (REM) for the panel data of the research sample and tests for defects, and finally uses the GLS model to overcome them.
The experimental results are listed in Table 3 below:

Table 3: Regression Results of Financial Capacity Models for the Sustainable Growth of Agricultural Enterprises

Variable	OLS	FEM	REM	GLS
X1	0.0674	0.0732	0.0643	-0.00174
	[0.64]	[0.21]	[0.46]	[-0.07]
X2	0.270	0.0956	0.263	0.101
	[1.04]	[0.24]	[0.90]	[0.95]
X3	-0.174	-1.669	-0.429	-0.0619
	[-0.17]	[-0.91]	[-0.35]	[-0.28]
X4	-0.0426	0.126	0.0238	-0.214***
	[-0.08]	[0.20]	[0.04]	[-3.19]
X5	0.000519	0.000263	0.000300	0.0000125
	[0.16]	[0.08]	[0.09]	[0.02]
X6	2.320	3.170*	2.737*	0.974**
	[1.42]	[1.83]	[1.66]	[2.28]
GDP	-7.696	-7.261	-7.576	-0.543
	[-0.70]	[-0.67]	[-0.71]	[-0.44]
Ip	0.0168	0.0104	0.0138	-0.00104
	[0.51]	[0.31]	[0.43]	[-0.26]
_cons	-3.361	-2.522	-2.978	0.393
	[-0.73]	[-0.24]	[-0.57]	[0.45]
N	180	180	180	180
R-sq	0.528			
t statistics in brackets				
* p<0.1, ** p<0.05, *** p<0.01				

Source: Compiled from statistical software.

Through Table 3, it can be seen that R-sq has a value of 0.528, which shows that the variables included in the model have explained up to 52.8% of the variation of the dependent variable SGR, and the model meets the testing requirements.
The research equation of the article is written as:

SGR = 0.393 - 0.214* X4 + 0.974* X_6

Variable X6 has a coefficient $\beta>0$ and is positively correlated with SGR; Variable X4 has a coefficient $\beta<0$ and is negatively correlated with SGR.

Table 3 shows that hypotheses H4 and H6 are accepted because their β_0 coefficients are non-zero and statistically significant, while the remaining hypotheses are rejected due to lack of significance. Specifically:

The performance variable hurts the sustainable growth of agricultural companies because the coefficient is (- 0.214)<0, with a very high significance level of 1%, accepting hypothesis H4.

The study is consistent with the studies of Escalante et al. (2009) [16], Njuguna (2016) [17], Ren et al (2019) [18], in contrast to the study results of Bourlakis et al (2014) [19].

Operating expenses are expenses related to the main business activities of agricultural companies. The smaller the expenses, the more efficient the use of the capital of the company, and this has a strong impact on the sustainable growth of agricultural companies.

Profitability has a positive impact on the sustainable growth of agricultural companies because the coefficient is 0.974>0, with a very significant level of 5%, accepting hypothesis H6. The study is consistent with the research of Balezentis & Novickyte (2018) [25], Aulová et al (2019) [28], Cupertino et al (2021) [29]. This is suitable for agricultural companies; the higher the profit margin, the larger the retained profit, positively affecting the sustainable growth of agricultural companies.

In addition, the study also rejected hypotheses H1, H2, H3, H5, H7, and H8 corresponding to the company size, debt ratio, long-term asset investment scale, solvency, growth rate of gross domestic product, or raw material price index used for agricultural production, is not really effective, contributing only marginally to the sustainable growth of agricultural companies. This shows that the company size, long-term investments of enterprises are not really effective, bringing high profits to companies, or debt management or short-term capital management of companies is not really reasonable.

5. Conclusion and Managerial Implications for Enhancing The Sustainable Growth of Agricultural Production Enterprises

The proposed solutions below are developed based on the results of the econometric model analysis, which indicate that financial capacity, capital management efficiency, operational performance, and the degree of technological adoption have a direct and significant impact on the sustainable growth of agricultural enterprises. These findings highlight that enhancing the internal financial health of agricultural firms is not merely a micro-level concern but a macroeconomic necessity for ensuring food security, rural development, and environmental sustainability in emerging economies like Vietnam. Therefore, a holistic approach integrating finance, technology, governance, and human capital is required to ensure long-term competitiveness.

First, it is essential to enhance the capacity for effective capital management and utilization, as this is considered a prerequisite for sustainable development. Agricultural companies should review their financial strategies, establish medium- and long-term capital investment plans, and strengthen internal financial planning capabilities. Improving the capital structure toward a balance between equity and debt is necessary to ensure financial flexibility, minimize liquidity risks, and optimize the cost of capital. Agricultural firms should also develop early financial risk warning systems using indicators such as liquidity, financial leverage, profitability ratios, and interest coverage. Moreover, to improve capital efficiency, enterprises need to adopt modern financial analysis tools such as ERP systems, Business Intelligence (BI) software, and Financial Forecasting models to make more accurate investment decisions. In addition, agricultural enterprises should diversify their funding sources by exploring alternative financing instruments such as agricultural bonds, sustainability-linked loans, and green investment funds. Strengthening relationships with financial institutions, investment funds, and international development organizations can provide access to long-term, low-interest financing for technology upgrading and sustainable production. The creation of internal audit and risk management departments is also vital to ensure compliance, transparency, and investor confidence, particularly as agricultural firms seek to list on domestic or international stock exchanges.

In addition, businesses should strengthen revenue growth and sustainable development activities through production and business restructuring. Agricultural enterprises should reposition their product strategies toward “green agriculture,” focusing on high-value-added, environmentally friendly products that meet international standards such as GlobalGAP, Organic EU, or advanced VietGAP. In particular, establishing concentrated raw material areas with traceability, planting and farming codes, and clear geographical indications not only enhances competitiveness but also facilitates export to demanding markets such as the EU, the United States, and Japan. At the same time, enterprises should promote value-chain-based production linkages, forming strong relationships among farmers, cooperatives, processing enterprises, and distributors. This approach minimizes intermediary costs and increases the value of agricultural products. To achieve this, agricultural enterprises must also develop sustainable supply chain management systems that integrate environmental and social responsibility criteria at every stage of production. Establishing long-term partnerships with distributors and retailers in international markets will help ensure price stability and reduce vulnerability to market volatility. Furthermore, businesses should invest in brand building and marketing strategies that emphasize product quality, sustainability credentials, and origin transparency, thereby strengthening the reputation of Vietnamese agricultural products in global markets. One of the strategic priorities is developing high-quality human resources for modern agriculture. Companies need to focus on recruiting, training, and developing personnel with expertise in corporate finance, risk management, logistics, and international markets. Collaborating with domestic and international universities and research institutes to design training programs that combine theory and practice will help create a generation of “Agriculture 4.0” professionals capable of managing technology, financial systems, and data analytics effectively. Additionally, it is crucial to enhance digital literacy and financial management skills among farmers and cooperative members, as they are key participants in the agricultural value chain. Continuous professional education and leadership training programs for agricultural executives can improve strategic decision-making and innovation capacity, driving the transformation of traditional agricultural enterprises into data-driven and knowledge-intensive organizations.

Second, it is crucial to accelerate the application of science, technology, and comprehensive digital transformation in agriculture. In the context of global digitalization, technology is not only a tool but also a core driver of sustainable growth. Agricultural enterprises should prioritize applying artificial intelligence (AI) for climate data analysis, crop forecasting, and pest management; adopting the Internet of Things (IoT) for automated irrigation, fertilization, and harvesting; and implementing blockchain technology to ensure transparency and product traceability. Investment in post-harvest technology also plays a vital role. Companies should invest in advanced processing lines, cold storage systems, modern packaging, and green logistics to reduce waste, improve product quality, and extend shelf life. In addition, agricultural digitalization should be supported by a national data infrastructure, including open-access agricultural databases, cloud-based information-sharing platforms, and standardized data management protocols. This will facilitate interoperability among producers,

processors, and regulators, thereby improving policy implementation and resource allocation. Encouraging startups and technology firms to participate in the agri-tech ecosystem will foster innovation and accelerate the diffusion of digital tools tailored to local agricultural contexts. Furthermore, transforming production models from "traditional agriculture" to "smart agriculture," integrating digital data throughout the entire supply chain, from production, processing, and transportation to distribution and sales, will help businesses save costs, reduce greenhouse gas emissions, and enhance competitiveness. Developing an agricultural innovation ecosystem is also imperative. The government, businesses, and academia should collaborate to establish AgriTech Innovation Hubs that support startups, facilitate technology transfer, commercialize research outcomes, and promote public-private partnerships. This model not only fosters technological diffusion but also contributes to building a highly productive, environmentally friendly agricultural sector resilient to climate change. Moreover, international cooperation should be expanded through participation in global agricultural research networks and knowledge-sharing programs under organizations such as FAO, IFAD, or ADB. This will help Vietnamese enterprises access the latest agricultural technologies, financing models, and sustainability practices, aligning domestic production with global standards and climate goals.

Third, the role of the government and the agricultural policy framework must be maximized. The state should continue to improve the legal framework for agricultural credit, agricultural risk insurance, and green finance to encourage investment in clean and sustainable production. The government should establish funds such as the High-Tech Agriculture Development Fund, Agricultural Innovation Fund, and Green Credit Guarantee Fund to facilitate access to preferential capital for small and medium-sized enterprises. Moreover, policies that promote public-private partnerships (PPP) in agricultural infrastructure development-particularly in cold storage, logistics, and preservation systems-are necessary to reduce the burden on the state budget and enhance investment efficiency. The government should also promote administrative reform, simplify loan procedures and investment licensing, and standardize agricultural export regulations to save time and costs for businesses. In parallel, fiscal incentives such as tax reductions, accelerated depreciation for green technologies, and import duty exemptions for agricultural machinery should be introduced to stimulate private investment in sustainable agriculture. The establishment of performance-based subsidies or sustainability certification schemes could further encourage firms to adopt eco-friendly production methods. Furthermore, integrating agricultural development policies with national green growth and carbon neutrality strategies will ensure policy coherence and long-term effectiveness. Additionally, the government should strengthen agricultural trade promotion in a professional and modern manner by connecting Vietnamese enterprises with global distribution networks, organizing international agricultural fairs, and building the brand "Vietnamese Agriculture: Green - Clean - Sustainable." Technical support programs and training in quality standards, traceability, and ESG (Environmental - Social - Governance) certification should be widely implemented. In the long term, the government should orient toward developing an "eco-agriculture and green finance" strategy, prioritizing enterprises that apply environmentally friendly, energy-efficient, and low-carbon production models. Mechanisms encouraging credit institutions to prioritize lending to circular, organic, and low-carbon agriculture projects should also be established. Equally important, inter-ministerial coordination among the Ministry of Agriculture, the Ministry of Finance, and the Ministry of Science and Technology should be strengthened to harmonize policies related to agricultural finance, innovation, and climate adaptation. Establishing monitoring and evaluation frameworks to track progress in sustainable agriculture and financial inclusion will help policymakers make data-driven adjustments.

In summary, the above solutions not only help Vietnamese agricultural enterprises strengthen financial capacity, enhance management efficiency, and improve adaptability but also contribute to building a modern, autonomous, and globally competitive agricultural sector. The integration of financial resilience, digital transformation, and sustainability-oriented governance will empower Vietnam's agricultural economy to thrive in an increasingly uncertain global environment. The coordinated efforts among enterprises, the government, research institutions, and international organizations will create a sustainable agricultural ecosystem in which economic, social, and environmental factors are balanced-thereby contributing to realizing Vietnam's goals of green growth and sustainable agricultural development in the coming decade. The limitation of the study is that it has not fully collected all agricultural companies in the industry, but only collected 23 listed agricultural companies, and the reality shows that the financial capacity of large-scale, listed companies often has significant differences from small and medium-sized companies, with non-public, unlisted companies. In addition, agricultural companies in more favorable geographical locations will have better financial capacity, due to favorable access to financial markets. According to the author's next research plan, the above-mentioned limitations of the article will be addressed.

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Appendix

Agricultural Production Companies in the Study Sample

No	Stock code	Company name	Year
1	HAG	Hoang Anh Gia Lai Joint Stock Company	1993
2	HNG	Hoang Anh Gia Lai International Agriculture Joint Stock Company	2010
3	VIF	Vietnam Forestry Corporation – Joint Stock Company	1995
4	DRG	Dak Lak Rubber Joint Stock Company	1993
5	SEA	Vietnam Seaproducts Corporation – Joint Stock Company	1978
6	NSC	Vietnam National Seed Group Joint Stock Company	1968
7	SEP	Quang Tri Trading Corporation – Joint Stock Company	1973
8	SSC	Southern Seed Joint Stock Company	1976
9	HSL	Hong Ha Food Development Investment Joint Stock Company	2015
10	LNC	Le Ninh Joint Stock Company	1960
11	SVN	Vexilla Vietnam Group Joint Stock Company	2005
12	NSS	Dong Nai Agricultural and Livestock Products Joint Stock Company	1978
13	APT	Saigon Aquatic Products Trading Joint Stock Company	1976
14	PSL	Phu Son Livestock Joint Stock Company	1976
15	BHG	Bien Ho Tea Joint Stock Company	2007
16	FRM	Saigon Forestry Joint Stock Company	1993
17	CTP	Hoa Binh Takara Joint Stock Company	2010
18	MLS	Mitraco Livestock Joint Stock Company	2004
19	FGL	Gia Lai Coffee Joint Stock Company	1985
20	CPA	Phuoc An Coffee Joint Stock Company	1977
21	HKT	QP Xanh Investment Joint Stock Company	2007
22	CNA	Nghe An Tea Corporation – Joint Stock Company	1985
23	TAN	Thuan An Coffee Joint Stock Company	1978

Source: Compiled from the financial statements of the companies.