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The Impact of Financial Leverage on Earnings Before Tax, Empirical Assessment at Manufacturing Enterprises

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Abstract
Using the document research method, we have built a theoretical basis and assessed that the research situation of "the impact of financial leverage on pre-tax profits" in Vietnam has received little attention. Accordingly, documents related to financial leverage and pre-tax profits are synthesized and separated into necessary content and presented in the study. During the empirical evaluation process conducted at Vietnam's Vinamilk enterprise, we used the method of analyzing vertical and horizontal financial indicators. Results of analyzing secondary data from Vinamilk's annual financial statements in the period 2014-2022 show: that Vinamilk is a reputable enterprise in Vietnam and in the international market; The business's revenue and profits continue to grow even during difficult economic times due to the covid -19 epidemic; The corporate management board has applied financial leverage at an optimal level, resulting in the highest profit increase with the least cost. In addition, this enterprise's management board also applies financial leverage flexibly and uses leverage at a high level without affecting profits. From the results of this experimental evaluation, we have made two observations. First, using financial leverage requires careful evaluation and consideration. Second, using high or low financial leverage must be flexible and based on circumstances and economic market fluctuations.

Keywords: Earnings Before Tax, Enterprise, Financial Leverage, Optimization

1. Introduction

Financial leverage is an important concept in the field of finance and corporate management. It allows businesses to optimize capital structure and increase business efficiency. Financial leverage is widely applied in many fields of production, business and investment. This form of using loan capital to promote profit growth for high-risk businesses, if used well by administrators, can bring advantages to businesses. Financial leverage allows businesses to combine equity and debt capital to create an optimal capital structure, helping to reduce the overall cost of capital and increase the value of the company. Businesses with high levels of financial leverage can use financial fixed costs to increase earnings per share when pre-tax profits increase. Financial leverage helps businesses optimize profits and cut tax costs because loans and interest costs are deducted from operating expenses, so this part of the money will be included in non-income taxable before settlement time. In addition, financial leverage is a tool to support the balance between financial risk and profit in the capital structure of a business. It allows the manager to determine the excess of return on investment over the fixed cost of using capital. However, it also has a downside when too high a level of financial leverage can cause higher financial risk because financial borrowing costs are a fixed cost and cannot decrease when revenue decreases. The research objective of this article is to clarify the theoretical basis of financial leverage, pre-tax profit in accounting and the relationship of these two indicators. How does financial leverage impact a business's profits and is it possible to be flexible in applying this leverage?

2. Theoretical Basis

2.1 Financial Leverage

Tretina (2023) [14] states, "Financial leverage is any technique that involves borrowing capital to purchase an investment, estimating that future profits will be more than the cost of borrowing." According to Brigham (1995) [3], "Leverage allows profits to be multiplied" but conversely "losses also multiply and there is a risk that the use of leverage will lead to losses if financial costs exceed income from assets or decrease in asset value. Many authors have identified situations where financial leverage must be used, Mock *et al*. (1968) [12] argue that "securities such as options and futures are effectively bets between parties in which the principal is implicitly borrowed/loaned at the interest rate of very short Treasury bills. Capital owners of businesses leverage their investments by lending the business part of the necessary finance." Grunewald *et al*. (1970) [7] argue that "The more one borrows, the less equity is needed, so any profit or loss is divided by a smaller base and the result is proportionately larger." Lang *et al*. (1996) [10] evaluate "firms leverage their operations by using fixed input costs when revenues are expected to vary. Increased revenue will lead to larger increases in operating profits." However, using financial leverage also brings huge risks to businesses. Bodie *et al*. (2008) [2] commented, "While leverage increases profits when returns from assets more than offset borrowing costs, leverage can also increase losses." The authors believe that businesses that borrow too much finance to develop their operations may face "bankruptcy or insolvency during business downturns, while a company with little more financial leverage may exist." Risk may depend on changes in the value of the "collateral". If the value of the securities they own falls, the broker may need more capital. If the property value falls below face value, the bank may refuse to renew the mortgage. The loan may be terminated even if cash flows and profits are sufficient to maintain ongoing borrowing costs. This is especially likely to happen when there is little liquidity in the market, meaning there are few buyers and the price is being pushed down by others selling. "Leverage increases relative to the adjusted stock price as market prices decline, and losses increase as prices continue to decline," which leads to bankruptcy because "debt financing is short-term and requires an immediate return, even if the underlying asset declines slightly or temporarily." Chew (1996) [5] states that "Risk can be minimized by negotiating leverage terms, by maintaining unused capacity to borrow more and by leveraging only liquid assets that can quickly converted into cash. However, Bodie *et al*. (2008) [2] again demonstrate an implicit assumption in that account, which is that "leveraged assets are essentially the same as unleveraged assets. If a company borrows money to modernize, add to its product line, or expand internationally, the added operating profits from additional diversification can more than offset the additional risk. Supplementing from leverage". Thus, Chew (1996) [5] concludes, "although adding leverage to a given asset always adds risk, it is not the case that a leveraged company or investment is always risky." riskier than an unleveraged company. In fact, many highly leveraged hedge funds have less return volatility than unleveraged bond funds." Brigham proposed the formula to determine financial leverage as equal to total debt over total assets. Thus, we can see that Financial Leverage is a combination of equity and loans from banks or financial institutions to increase profit margins for businesses. This index helps businesses evaluate and balance their current investment and financial situation. It represents the extent to which a business uses borrowed capital for the purpose of increasing the profit margin of the business. Financial leverage depends on the company's capital in the balance sheet. If a business's liabilities are greater than its equity, financial leverage will usually be high. On the contrary, if a business's liabilities are smaller than its equity, the financial leverage index will be low.

2.2 Earnings before Tax

Arnold (2001) studies profits in economics. He said that "profit is the difference between the revenue an economic entity receives from the output and the total cost of inputs, also known as surplus value". However, profit in economics is different from profit in accounting. According to Mankiw (2013) [11], accounting profit "relates only to the explicit costs that appear on a company's financial statements. An accountant measures a company's accounting profit as the company's total revenue minus the company's current expenses. An economist includes all costs, both explicit and implicit costs when analyzing a company. Therefore, economic profit is smaller than accounting profit. "Normal profit" is often viewed together with "economic profit". Profit in business is a company generating "revenue" through "total costs incurred" in its operations. Profits allow the company to stay afloat in a competitive industry. Businesses must achieve a minimum profit level to maintain their operations. To determine the profit level, businesses will consider "the company's total revenue and total costs, the company's economic profit". "Normal profit occurs when resources are used most efficiently at their highest and best use. Normal profit and economic profit are economic considerations while accounting profit refers to the profit a company reports on its financial statements each period. In accounting, "net profit before taxes is equal to sales revenue minus cost of goods sold and all expenses except taxes. It is also known as pre-tax book income, pre-tax net operating income, or simply pre-tax income.

2.3 Overview

Research by Hanh (2017) [8] on the impact of financial leverage on the profits of tourism businesses in Vietnam. The author collected data from financial statements of tourism businesses listed on the Vietnam stock exchange during the period (2009-2015). The sample size includes 14 businesses and 98 observations. The author's research results have shown that financial leverage and profitability have an inverse relationship. Specifically, the higher the financial leverage a business uses, the lower its profits will be and vice versa. This result is evaluated with a 99% confidence level (p.12). Research by the author group Hong & Dung (2021) [9] on the impact of financial leverage on profits when trading stocks. The research was conducted at companies listed on the Vietnamese stock exchange. Using quantitative research methods, the authors came up with the result that "overall financial leverage has a negative and significant impact on profits when trading stocks". However, the analysis results also show that "two factors in total financial leverage including short-term debt and long-term debt have a positive impact on profits when trading stocks". In addition to the above results, the two authors also believe that "factors related to corporate operations such as growth level and return on assets provide good signals for stock profits, while the size of the business shows the opposite effect" (p.57). Butt's (2020) [4] research on corporate governance with profits and financial leverage. The purpose of this study is to evaluate the impact of profits and financial leverage on corporate governance structure. The author uses the "instrumental variable (IV) technique to control for endogeneity and proposes a new approach to control for multiple endogenous regressors". The results of the study show that "firms operate under good governance, verifying the predictions of the capital structure trade-off theory, and evidence of the negative relationship in the theory is a subset of poor effective in management". The author believes that the research results are consistent after controlling for endogeneity, balancing financial leverage will make profits stable. Research by Shahzad *et al*. (2015) [13] on the impact of financial leverage on corporate financial performance. The study was conducted in enterprises of the Pakistani textile industry from 1999-2012 with analysis of panel data. The study examined “The Leverage-Performance Relationship Examined with a Special Focus on the Global Financial Crisis of 2007-2008”. The results show that "financial leverage has a negative impact on business performance when measured by ROA". The authors state that the ineffective use of financial leverage is due to “the high cost of borrowing in Pakistan and the less developed capital market, companies are forced to use banks as a source of debt financing and therefore had to pay a huge amount of principal and interest, causing heavy losses." At the same time, the financial crisis is also the reason why financial leverage is no longer effective, and the operating efficiency of businesses decreases negatively when using this financial measure (p.67). Research by Daruwala (2023) [6] states that “Debt is an essential component in the capital structure of a business. Companies use leverage to influence the returns expected by equity shareholders.” The author tried to establish a "random relationship between the use of leverage and profits" of cement manufacturing companies in the world. The purpose is to “assess whether leverage affects a company's profitability.” Additionally, the author extends the study to “examine whether debt levels affect the return on equity, return on assets, and net profit margin in similar ways, since they all represent profitability.” Panel data is taken from 2012 to 2018 with a scale of 13 businesses and 91 observations. The panel data regression method is used in this study. The results show that “financial leverage has a statistically significant inverse impact on profitability in the cement industry worldwide”. The author expands on the research and states that “not all profit measures are affected in the same way. The really important profit variables include return on assets which shows measured profits concerning the efficient use of resources and net profit margin which measures profit from sales and by minimizing costs” (p.37).

3. Research Methods

Build a theoretical basis using the document research method. The author searches for studies related to financial leverage and pre-tax profits and classifies and evaluates the content to help clarify the content that needs to be researched to include in the article. Through documents, the author has presented the theoretical basis of financial leverage, pre-tax profit and the impact of these two indicators on each other. Empirical research using horizontal and vertical financial index analysis methods to review indicators on the financial statements of Vinamilk Vietnam company. Financial ratio analysis is the most basic and important analysis technique of financial statement analysis. Analyzing financial ratios involves verifying and using financial ratios to measure and evaluate a company's financial situation and performance. There are different types of financial ratios. Based on how data is used to determine, financial ratios can be divided into three types: financial ratios determined from the balance sheet, financial ratios determined from the income statement, and financial ratios determined from the income statement. Finance determined from both reports mentioned above. Based on the analysis objective, financial ratios can be divided into the solvency ratio; Activity coefficient; Financial leverage ratio; and Profitability coefficient. Index analysis or horizontal analysis of financial statements is "comparing each item in the financial statement with the base year data, in order to determine the level of development of each item in the general context". Index analysis will “highlight the fluctuations of a certain item over time”. Analysis over time helps to "generally evaluate the fluctuations of financial indicators and thereby evaluate the financial situation. The evaluation goes from general to detailed. After evaluating, we link the information to evaluate potential capabilities and risks, identify which items have fluctuations and focus on analyzing and determining the cause. Vertical analysis is "comparing items in the total of financial statements, to determine the proportion or structure of items in financial statements". Using the relative numerical comparison method of vertical analysis of structures helps us to come up with a comparison condition, "it's easy to see how the structure of each part detail increases or decreases compared to the overall index". From there, evaluate the overall financial situation of the enterprise."

4. Results of Experimental Research

4.1 Determine Earnings before Tax

Pre-tax profit is the profit earned by an enterprise after deducting costs for production and business activities but does not include corporate tax costs. This indicator is considered an important indicator to measure a company's business performance because it includes all types of costs incurred in business, thereby providing a complete and comprehensive view more about the company's operations. The Board of Directors is the person who directly participates in managing the company and is responsible for the company's business results, which can be based on pre-tax profit goals over periods of time, depending on the value of the company. Indicators, relative and absolute fluctuations between periods to provide comments and assessments on the current situation and fluctuating trends of pre-tax profits in the analysis period, combined with current business strategies and business results to evaluate the level of compatibility of business results with the set strategic goals, thereby making appropriate adjustments. The data to determine the pre-tax profit of the experimental enterprise Vinamilk is shown in Table 1.

Table 1: Earnings before Tax of experimental enterprises in the period 2014-2022

Unit: billion

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022
Revenue (Sales of Goods & Rendering Services)	35,187	40,223	46,965	51,135	52,629	56,400	59,723	61,012	60,075
Cost of Goods Sold	23,680	23,818	24,459	26,807	27,951	29,746	31,968	34,640	36,059
Interest expenses	40	31	47	30	51	109	144	89	166
Selling Expenses	3,684	6,258	10,759	11,537	12,266	12,889	13,447	12,950	12,548
Administrative Expenses	795	1,233	1,053	1,268	1,133	1,396	1,958	1,567	1,596
Earnings Before Tax	7,613	9,367	11,238	12,229	12,052	12,796	13,589	12,922	10,945

Source: Compiled from Vinamilk's Consolidated Business Results Report for the years 2014-2022

According to the assessment of Plimsoll - UK organization, Vinamilk ranked 36th largest dairy company globally by revenue. According to the results of voting for the 100 strongest brands in Vietnam, Vinamilk is Vietnam's No. 1 food brand with the leading market share, achieving a growth rate of 20 - 25%/year, trusted and trusted by consumers. Continued to be voted as the TOPTEN product of high-quality Vietnamese goods for many years in a row. Domestic revenue increases by an average annual rate of about 20% - 25%. Vinamilk has maintained its leading role in the domestic market and competed effectively with foreign milk brands. One of Vinamilk's successes is diversifying products to meet the needs of all customers from infants, children, teenagers, adults, and people with special needs. Table 1 data shows us that the Earnings before Tax of the experimental research enterprise increased continuously in the period 2014 to 2020. From 7,613 billion VND in 2014, Vinamilk company pushed its profit before tax to nearly double to 13,589 VND. Billion VND in 2020. From 2021, pre-tax profit has gradually decreased due to the impact of the COVID-19 pandemic and will be only 10,945 billion VND in 2022. However, with this profit level, Vinamilk enterprise is still one of the bright spots of Vietnam's economic market when facing the context of crisis and supply chain disruptions worldwide. This result is because Vinamilk has four competitive advantages including a "Sustainable integrated value chain; Leading the domestic market in terms of product portfolio and brand heritage; Exported to more than 50 countries around the world; The leadership and corporate governance system are highly appreciated" (Sustainable Development Report, 2022) [15].

4.2 Determine Financial Leverage Index

Financial leverage helps increase liquidity for Vinamilk. The Board of Directors has continuously expanded the scale of the business through the use of financial loans. Financial leverage has helped Vinamilk increase the company's profits. Because using debt can bring multiple profits to the company when the cost of debt is often lower than the profit rate the company is aiming for. With Vinamilk's growth rate of 20 - 25 %/year and debt costs only ranging from 8 to 15%, financial leverage is a great support tool for the production and development activities of the business. The use of financial leverage has helped Vinamilk mobilize capital effectively without diluting ownership.

Table 2: Results of analyzing the financial leverage index for the period 2014-2022

Unit: billion

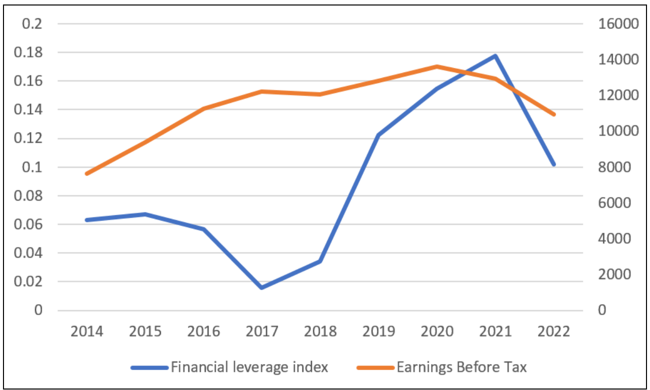
Year	2014	2015	2016	2017	2018	2019	2020	2021	2022
Short-term financial debt	1,280	1,475	1,332	268	1,060	5,351	7,316	9,382	4,867
Long-term financial debt	346	368	327	275	216	123	167	76	66
Total assets	25,770	27,478	29,379	34,667	37,366	44,700	48,432	53,332	48,483
Financial leverage	0.063	0.067	0.056	0.016	0,034	0,122	0,154	0,177	0,102

Source: Compiled from Vinamilk's Consolidated Business Results Report for the years 2014-2022

Looking at the results in Table 2, we see that Vinamilk's financial leverage index remained stable at a low level during the period 2014 to 2018. During this time, the business maintained short-term debt at a low level. On average, especially in 2017, short-term debt decreased by nearly 80% compared to 2016. The financial leverage index in 2016 also reached the lowest level in the entire research period at 0.016. The reason Vinamilk uses low financial leverage is due to the difficult economic context. Some indicators such as Debt/total assets = 0.24 times, Debt/equity = 0.31 times, Equity amplification coefficient = 1.31 times and Debt/long-term capital 0.03 times. These indicators show that businesses have appropriate capital management plans and methods, ensuring businesses can easily overcome negative effects in the economy. During the period when the economy was affected by the COVID-19 epidemic, businesses had to sharply increase loans from 1,060 billion VND in 2018 to the highest of 9,382 billion VND in 2021. The use of the financial leverage index is at a high level helps businesses resist recession and market impacts. After the economy showed signs of recovery in 2022, the business reduced its leverage index to 50% compared to 2021. This is a move by the business to stabilize profits and push up interest rates on shares usually increase again.

4.3 Assessing the Impact of Financial Leverage and Earnings before Tax in Experimental Enterprises

Financial leverage helps businesses grow profits, but it also brings risks. The higher the level of financial leverage, the greater the risk. Financial leverage will bring burdens and problems with interest costs when businesses use it beyond the optimal level. If the business has below average or normal profits, it should not use financial leverage. The reason is that the business's operations are experiencing instability. What businesses need to do is review their activities to ensure a profit level corresponding to their investment capital. Businesses with growing profits mean stable and growing business operations. They have grounds to use financial leverage to invest and expand production and business activities. In addition, the use of financial leverage causes some decisions of business leaders to be wrong because they may conduct unnecessary investment activities. Wrong decisions affect the business's cash flow and affect a series of other activities such as the payment cycle and the ability to repay short-term loans for many years. When using leverage, a business must "make regular interest payments without any delay, the company is obliged to pay interest regardless of the company's financial situation and in case at worst, it could even lead to bankruptcy." Consider the data in Fig 1 about Vinamilk's pre-tax profit and evaluate the impact of financial leverage. The Board of Management at Vinamilk has applied financial leverage to ensure optimal levels. Business results and pre-tax profits from empirical research enterprises are consistent with the observations of authors Hanh (2017) [8] and Hong & Dung (2021) [9] Data have shown that financial leverage and profitability have an inverse relationship. Specifically, the higher the financial leverage a business uses, the lower its profits will be, and vice versa. In 2017, the financial leverage index was at the lowest level of 0.016, and Vinamilk's corporate profit reached a high of 12,229 billion VND. Although in 2017, pre-tax profit was not at the highest level, due to the economic market context of 2020, there was a record low interest expense, leading to the financial leverage index used by Vinamilk being high but still achieved the highest profit increase efficiency during the entire research period. Thus, the use of financial leverage needs to be flexible, and this is true in the case of Vinamilk enterprise.



Source: Compiled from Vinamilk's Consolidated Business Results Report for the years 2014-2022

Fig 1: Impact of financial leverage on Earnings Before Tax

5. Discussion

Like other financial tools, leverage also has advantages and disadvantages that Vinamilk has carefully researched before using it in business and achieved clear benefits in promoting increased profits chief. By its nature, it is quite complex and can cause both profits and losses for businesses or investors. Understanding the advantages and limitations of leverage will help businesses decide whether the company is ready to use this financial tool or not. When using financial leverage, there are some important notes that businesses need to keep in mind such as: Understanding the costs and risks related to using leverage; Businesses need to carefully calculate the fees and interest rates associated with borrowing money to use leverage and learn how to manage risks when engaging in transactions with leverage; Businesses should have a detailed transaction plan and ensure a clear understanding of the financial products being used; Always keep leverage within safe limits; Do not use too much leverage and ensure that the business has enough equity to ensure stability and avoid loss of liquidity.

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