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Substitution Financial and Operating Leverage and Its Distress and Performance Effects

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Abstract

The main goal of managing for-profit companies is to maximize shareholders' wealth, and to achieve it, management needs to make decisions regarding the sources and uses of capital. Different theories have been tried to explain the

relationship between capital structure and performance, and have estimated a different relationship for financial leverage and company performance in different conditions. Financial leverage and operational leverage are two factors that influence the performance and macro policies of the company in terms of the profitability process. This research examines the effect of operational leverage and financial leverage on the company's profitability and financial distress, and finally examines the effect of replacing these two Leverages to maximize the profitability process and reduce the risk of financial distress. The sample includes 263 companies listed in the Tehran Stock Exchange and the Iran OTC Company from 2011 to 2021, which have passed the four screening factors of this study. The fixed effect panel regression method was used to test the first and second hypotheses. The results indicate a positive relationship between operational leverage and the profitability of companies, while the relationship between financial leverage and the profitability of companies is negative. On the other hand, both Leverages increase the risk of financial helplessness. To improve profitability, operational leverage can be replaced by financial leverage. Increasing operational leverage and reducing financial leverage can be used as a tool to grow the company's profitability; however, to reduce the helplessness of the companies and improve the profitability process, operational leverage can be replaced with financial leverage. Flexibility in financing companies is more than flexibility in the operational sector; that is why replacing operational leverage with financial leverage is more appropriate to improve profitability and reduce the risk of financial helplessness.

Keywords: Operating leverage, Financial Leverage, Profitability, Financial Distress, Financial Performance

JEL Classification: G32, G33, O16

Introduction

The main goal of managing for-profit companies is to maximize shareholders' wealth. To achieve it, management needs to make decisions regarding the sources and uses of capital. According to Rajan and Zingales (1995), the debt or leverage ratio has been critical in the financial research of the company (Davallou & Bastami, 2017), and many researchers have investigated their relationship with performance (Chen et al., 2019; Kartikasari & Merianti, 2016; Gatsi et al., 2013; Basri et al., 2016; Gard et al., 2013; Sajjadi et al., 2010).

Different theories, such as balance (exchange) theory, free cash flow

theory, hierarchical theory, and agency theory, have tried to explain the relationship between capital structure and performance and have estimated different relationships for financial leverage and company performance in different conditions. Because of the tax savings and the lower cost of debt than equity, there is often expected to be a positive relationship between the use of financial leverage and performance (in profitable firms). The theory of balance, based on the tax benefits resulting from the use of financial leverage in profitable companies and the theory of free cash flows, predicts a positive relationship between financial leverage and company performance, considering the role of debts in preventing the loss of company resources (Mehrani & Rasaiian, 2018). However, the results of empirical research conducted in this regard are contradictory and often indicate a negative relationship between financial leverage and performance (Chen et al., 2019).

According to the balance theory, the business unit has a predetermined goal in the capital structure, which is to create a balance between benefits (tax shield and reduction of free cash flow problems) and financing costs (debt costs including financial crises, bankruptcy costs agency fee) which is caused by jeopardizing the credit of the company in obtaining a loan. According to this theory, the optimal debt ratio of a company is determined based on the parallelism of borrowing costs and benefits. In other words, a balance must be struck between the tax savings of interest and the various costs of bankruptcy. Of course, it is debatable how much the tax savings are worth or which costs of financial issues are more important. However, the company should generally move debts and shares until its value is maximized to reach the correct ratio. Operating leverage has a positive effect on the company's profitability. It will also reduce the optimal level of financial leverage, so operating leverage will create a negative relationship between financial leverage and profitability. Of course, these findings are incompatible with the theory of equilibrium (exchange) (Chen et al., 2019; Chung et al., 2017).

After the capital formation, the company incurs various operating costs that can be divided into fixed, variable, and semi-variable costs. Due to the high dependence of operating leverage on fixed operating costs, Chung et al. (2017) and Chen et al. (2019) have considered the extent to which companies use fixed costs in the cost structure as a proxy for operating leverage. Fixed costs are costs that are not related to the volume of production. In favorable economic conditions, because the fixed and semi-fixed costs of companies do not grow at the same rate as income, the presence of operating leverage leads to an increase in profit leverage. On the other hand, because operating costs are paid before taxes, and the company has to pay contractual obligations, it will

be very difficult to reduce fixed operating costs in unfavorable economic conditions. In this situation, because fixed operating costs do not decrease with a decrease in production level (at least in the short term), it reduces the ability to pay debt and may cause financial distress. As a result, the existence and bearing of the mentioned costs may accelerate the distress or bankruptcy of companies (Chen et al., 2019; Chung et al., 2017).

The hierarchical theory, which is based on information asymmetry, states that using resources outside the organization and debts increases the information asymmetry. For this reason, companies first use internal resources to provide the resources needed for their projects. Moreover, if these resources are insufficient, they use debt. Based on this, companies with a suitable financial status are expected to have less financial leverage (Mehrani & Rasaiian, 2018; Nabiei Borojeni & Noroozi, 2014).

In addition to the aforementioned theoretical approaches, Chen et al. (2019) in a new argument portray the role of operating leverage in explaining the relationship between financial leverage and performance, and this is the approach that was the basis of action in this research. In order to further explain the issue, explanations regarding the role of operating leverage in the company's performance and the relationship of its replacement with financial leverage are given below.

In short, financial leverage and operating leverage both have a dual relationship with performance, because on the one hand they increase risk and on the other hand they improve performance or profitability. However, the important feature related to the exogenous nature of operating leverage and the endogenous nature of financial leverage can be easily changed in financial distress conditions. As a result, there is expected to be an effect or a substitution relationship between the two; In other words, to achieve the appropriate capital structure and adjust the risk, the management may decrease the financial leverage while increasing the operating leverage and vice versa. Chen et al. (2019) argue that the relationship's direction is from operating leverage to financial leverage, because operating leverage has been influenced by the structure of production costs and the technology used in production, and management depends on the industry or the type of manufactured goods. It does not have much ability to change; based on this, operating leverage can be considered an exogenous variable on which companies adjust their financial leverage. As a result, when analyzing financial leverage, operating leverage can be an important factor and influence it; A subject that has been neglected in most of the previous research.

Literature Review

Identifying operating fixed costs in sales forecasting and profit planning, such as depreciation of property and long-term assets, fixed administrative costs, advertising and marketing, taxes, and insurance, is considered in operating leverage. The existence of these costs means that if the for-profit unit increases its sales, the profit of the for-profit unit increases proportionally more than the increase in sales, because at a certain level of sales, fixed costs are covered. These costs do not change with the increase in sales; in other words, they do not depend on the volume of activity (sales). Therefore, the profitability of the for-profit unit will increase in a greater proportion than the increase in sales, in other words, with a one percent change in sales, the operating profit of the for-profit unit will increase by more than one percent, according to the measure that measures these changes, the degree It is called operating leverage (Minoyi et al., 2015).

If the sales are above the break-even point, the degree of operating leverage is more than one, and as the sales volume increases, its value decreases and approaches one. If the sale is below the break-even point, the degree of operating leverage becomes negative, and if the sale becomes equal to zero, this degree tends to zero (Vélez et al., 2011). Financial leverage rate is the total liabilities divided by the total assets. The larger this ratio is, the higher the degree of financial leverage of a company. ModiGiliani and Miller (1958) presented their first theory on the assumption that, assuming no income tax, the value of a company with debt (leverage) is equal to the value of a company without debt (non-leverage). Although the theories of ModiGiliani and Miller seemed logical from a theoretical point of view, the existence of taxes in the real world made the theories of these two scientists seem a little unrealistic (Ebrahimpour et al., 2015). Financial leverage is considered one of the main profitability indicators of companies. Financial leverage happens when a company finances its borrowing with interest. The purpose of analyzing the company's financial leverage is to determine whether the management can acquire more funds from debt than the costs incurred from it (Nawaz et al., 2015).

The main goal of company management is to maximize the wealth of shareholders. There are various tools to achieve this goal, including financial leverage. Financial leverage is a tool that is related to the wealth of shareholders. In general, institutions' primary goal is to maximize shareholders' wealth. Since the increase of shareholders' wealth is possible in two ways: dividends paid per share and changes in the price of each share, the optimal

financial structure shows its importance in increasing wealth. A company's capital structure is a combination of debt and equity. The manager's task is to optimize the structure of assets, liabilities, and equity to maximize the shareholders' wealth. In general, there is a relationship between financial leverage and shareholders' wealth. Among the theoretical reasons for the relationship between these two variables is that the debt-to-equity ratio is one of the scales for measuring the company's financial leverage. This ratio shows the percentage of equity and debt the company has secured to finance its assets, obtain loans, and borrow from financial institutions and banks. With the increase of the leverage, the equity ratio decreases, and the decrease of this ratio shows the desire and tendency of the company to finance through financial institutions. A high debt-to-equity ratio can lead to paying excess interest and usually means that the company has used more debt in financing.

On the other hand, various empirical studies have shown conflicting results regarding the relationship between financial leverage and shareholders' wealth. Among them, Chibuzor and Okwudili (2022) found that leverage impacts shareholders' profits and increases their assets. Also (2019) & Yagil, Y. Aharon, D.Y. also emphasized the importance of financial leverage on the stability of investors' income and concluded that financial leverage affects the stability of shareholders' wealth.

One reason for this conflict is the relationship between operating leverage and financial leverage. Therefore, according to the role of operating leverage in the activities of companies, operating leverage is related to performance. On the other hand, operating leverage affects financial leverage. One of the main reasons is that one of the ways to maximize shareholders' wealth, which is done by providing dividends and increasing the stock market price, is to minimize the cost of all data, including the cost of capital. If a significant relationship is observed between capital structure and cost of capital, operating leverage can influence financial leverage. Therefore, it is expected that the substitution of financial leverage and operating leverage will provide a convincing reason for the relationship between financial leverage and shareholder wealth (Vélez et al., 2011).

Gordon has defined distress as a decrease in the company's profitability, which causes the inability to repay the interest and principal of debts. Consider financial distress as a situation that has caused more debt, and at the same time, the interest paid on long-term debt is realized. On the other hand, financial distress can also be interpreted as the company's loss. Financial distress indicates a negative situation in the company, during which the value of its

debts exceeds its assets' normal value. This situation may be temporary or lead to complete bankruptcy (inability to continue the activity). In other words, financial distress and bankruptcy of companies lead to waste of resources and non-use of investment opportunities. Financial distress occurs when the investment return rate is lower than the expected return rate or the cost of capital. Since financial distress causes the risk to be transferred to investors, in these companies, financial security decreases with the increase in the cost of capital. Therefore, management uses different strategies to reduce financial distress (Soloski, 2013).

One of the important issues that all financial experts and managers agree on is the issue of financial structure (financial leverage). A company with no debt is a company with a fully capital structure, but in the real world, there is no such company, and all companies use leverage in different proportions. Therefore, for interested individuals and institutions, it is significant that the company uses a combination of capital structures to finance its assets. The combination of debt and equity in financing shows the capital structure. The capital structure policy establishes a balance between risk and return. On the one hand, using more debt increases the company's profitability flow risk; on the other hand, it leads to a higher expected rate of return. The risk related to using more debt reduces the stock price; on the other hand, its expected rate of return increases the stock price. Therefore, the optimal capital structure creates a favorable balance between risk and return, and as a result, it leads to an increase in stock prices.

The ability of companies to determine appropriate financial resources is one of the main factors of survival and growth of any company. When choosing the financing method, the management should pay attention to the goal of maximizing the wealth of the shareholders and considering the different costs of financing, the effects of these high-yield sources, and the risk of the company, it should turn to the selection of sources that minimize the cost of financing. For this reason, the capital structure that can maximize the company's performance or minimize the total cost of capital is called an optimal capital structure. They have examined the equity as performance criteria with the capital structure and have concluded that the capital structure had a negative and significant relationship with the rate of return on assets. However, it has no relationship with the rate of return on equity(Bui, T.N. et al,2023).

Return on equity (ROE) is a percentage of profit over equity. A high ROE means that each company has earned a higher profit per dollar of equity, which is the source of the increase in net income growth relative to operating

expenses. A company with a high degree of operating leverage means the growth of net income compared to operating costs, which expresses a direct and linear effect between the relationship of operating leverage and equity. Identifying operating fixed costs in sales forecasting and profit planning, such as long-term property and assets, administrative fixed costs, advertising and marketing, taxes, and insurance, is considered in operating leverage. The existence of this cost means that if the for-profit unit increases its sales, the profit of the for-profit unit will increase in proportion to the increase in sales. Because at a certain level of sales, fixed costs are covered. These costs do not change with the increase in sales; in other words, they are not dependent on the volume of activity (sales). Therefore, the profitability of the for-profit unit will increase proportionately to the increase in sales. In other words, with a one percent change in sales, the for-profit unit's operating profit (EBIT) increases by more than one percent. The degree of operating leverage on different sales amounts depends on the combination of fixed and variable costs. The company's business risk, which is influenced by the company's fixed and semi-variable operating costs, is adjusted according to the sales volume. In other words, according to each level of sales, a certain amount of operating profit and commercial risk is expected. The relationship between operating leverage and shareholders' wealth at the production level is higher than the amount of direct operating profit.

Financial and operating leverage can be compared to their influence on the independent variable. Operating leverage is affected by sales changes when it is affected by production technology, industry characteristics, and product sales rates. Therefore, the company cannot change the parameters of the operating environment. However, financial leverage is related to the capital structure and the amount of loans and debt used in the capital structure. Therefore, the company often decides what ratio of debt to use. The conclusion that can be taken is that the company has more control over financial leverage than operating leverage. The common denominator of financial and operating leverage is the presence of operating and financial fixed costs. In such a way, leverage predicts the growth of income and earnings higher than the fixed costs incurred. However, it should be remembered that systematic and unsystematic fluctuations will cause fluctuations in the income sector. For this reason, both levers are prone to creating the possibility of defaulting on obligations and creating distress for the company. In a situation where both levers can create added value for equity and there is a possibility of distress for the company, there is the ability to replace financial leverage with operating leverage (Tan, H et al, 2023).

Financial leverage has been introduced as a factor determining the company's financial ability, and it is believed to increase the degree of financial distress. Financial leverage increases the company's risk. In their models, many researchers also used the company's financial leverage as a variable indicating its risk or costs related to the capital structure. Such as Ahmed, A.M et al (2023) that evaluated The Relationship between Capital Structure and Firm Performance by considering The Moderating Role of Agency Cost. Also, AL Hawatmah, Zaid, & Shaban, Osama. (2023). Also, their research evaluated the effect of financial leverage on a company's capital structure in developing markets. Also Arhinful, R., & Radmehr, M. (2023). Their research mentioned the effect of Financial Leverage on the Financial Performance of the Firms Listed on the Tokyo Stock Exchange.

Various studies have evaluated the effect of financial leverage on company performance as negative, which shows that the financial leverage of companies increases their risk (Nii et al., 2019). Financial leverage includes using financial resources with a fixed cost, such as debt and preferred shares, in exchange for common shares. Financial leverage indicates the use of financial debt. Debt capital is a weak source of financial security and riskier. Predicting financial distress or designing suitable indicators and patterns can make companies aware of the occurrence of financial distress and bankruptcy so that they can adopt appropriate policies according to these warnings. On the other hand, capital and money market activists need awareness and knowledge about existing companies' financial status and efficiency (Akhtar et al., 2012).

Commercial companies operate in a highly competitive and changing environment in the current era. In this competitive environment, those companies that cannot align themselves with leading companies' growth and development process are periodically out of the competition and go bankrupt. Considering the bankruptcy costs imposed on investors, creditors, the capital market, and, in other words, the entire economy, capital owners are looking for ways to improve the company's financial situation before it reaches the bankruptcy stage. The stage before bankruptcy is called the stage of financial distress. Financial distress is when the company cannot fully fulfill its obligations towards financial providers and has problems fulfilling them. Financial distress does not necessarily lead to bankruptcy, and a set of management measures to get out of distress can save the company from the risk of entering bankruptcy. Therefore, the necessity of timely awareness of the company's managers and suppliers of financial resources has made it very important to search for methods that can detect financial distress before reaching the stage of bankruptcy (Mehrani et al., 2018).

Financial distress primarily affects the operating context of the company in such a way that the company's operating cycle is disturbed, affecting the working capital. Finally, this distress is transferred to other departments. The results of Jensen's positive hypotheses indicate that financial distress is a corrective action that improves the company's performance. The importance of operating leverage is because a slight change in the sales level creates a greater profit change before interest and taxes. The greater the degree of operating leverage, the greater the risk of forecasting error of profit before interest and tax, and as a result, the probability that the actual amount of profit before interest and tax will be negative will increase (Ninh et al., 2018). Therefore, with these interpretations, it can be said that financial distress is a type of risk for companies, and it can be said that there is a relationship between operating leverage and financial distress.

Rezazadeh et al. (2024), in a research entitled "Investigation of the impact of profitability, financial leverage, business unit size and net working capital on the quality of profit of companies listed on the Tehran Stock Exchange" stated that in the issue of quality of profit, information content The components and other factors related to it are discussed to facilitate the prediction of future cash flows and thus the determination of stock value. In determining the company's value, shareholders and investors should pay attention to the quality of the profit and quantity. The meaning of profit quality is its closeness to cash and its continuity. He pointed out that the last characteristic that affects the quality of profit is the net working capital, which is obtained by subtracting the current liabilities from a company's current assets. Net working capital can also be interpreted as the cash available to a company to finance its operating activities. Working capital can also be considered a symbol that determines a company's financial health. The higher the net working capital of a company, the better the condition of that company, but high working capital will not always have a good effect on the company. If the turnover of assets does not exceed the turnover of cash or bank accounts, it can cause problems for the company.

Mousavi and Qajar Beigi (2022), in a research entitled "Investigating the effect of operational leverage on profitability and financial leverage in companies listed on the Tehran Stock Exchange", found that operational leverage has a negative and significant effect on profitability. However, there is no significant financial impact of leverage.

Huang, J.-C et al (2022) in a research entitled "The Effect of Operating Cash Flow on the Likelihood and Duration of Survival for Marginally

Distressed Firms in Taiwan", stated that companies with more operating cash flow in the period after produce distress and have higher profitability, liquidity and growth in the pre-distress period, take significantly less time to resolve financial problems for survival. However, an economic downturn can significantly disrupt the timing and speed of a company's survival. Overall, this study found consistent and strong evidence that operating cash flow is a reliable tool for predicting financially distressed firms' survival probability and duration. The study also provides practical implications for managers, investors, policy makers, and lenders who intend to improve financial performance and corporate sustainability.

Chen et al. (2019) conducted a research titled operating leverage, profitability and capital structure in American companies from 1963 to 2016. This research investigated the effect of operating leverage on financial leverage and profitability. The results of the regression test in this research showed that operating leverage has a positive effect on profitability. On the other hand, the results indicated a negative relationship between operating leverage and financial leverage.

Yao (2019) investigated the relationship between operating leverage and systematic risk in United States airlines. The regression test results in this research showed that, taking into account other financial characteristics, the increase in operating leverage of airlines is related to the systematic risk perceived by investors.

In a research, Sen and Ranjan (2018) examined the relationship between financial, operating, and compound leverage on the profitability of motor companies in 2016-2006. Descriptive statistics tests such as mean, standard deviation, ANOVA, and GARCH were used to achieve research goals. Also, regression tests have been used to investigate the relationship between financial, operating, and compound leverage on the company's profitability. The research results showed that operating, financial, and combined leverage do not play an important role in the company's investment decisions and do not significantly affect the return on assets and the company's risk.

Dalci (2018) investigated the effect of financial leverage on the profitability of listed manufacturing companies in China. The sample of this research is from the mentioned manufacturing companies in China. For manufacturing companies, annual financial information from 2008 to 2016 is obtained from the ORBIS database. In this study, first, a simultaneous equation approach is used for potential endogenous control. Then, additional regression analysis with panel data from 2008-2016 using the OLS method, fixed effects,

first difference, random effects, and Arellano and Bond (1991) two-stage generalized method of moments (GMM) is performed. The results show that the effect of leverage on profitability is reversed in a U shape. In this inverted U-shaped relationship, the positive effect of financial leverage on profitability can be attributed to the tax shield, while the adverse effect may be due to bankruptcy cost, financial distress, severe agency problems, and information asymmetry.

Reddy et al. (2018) investigated the effect of liquidity and leverage on profitability with evidence from India. Their study was conducted to investigate the relationship between liquidity and profitability, and investigate the effect of financial leverage and liquidity on the financial performance of selected pharmaceutical companies for the period of 2007-2000. The results of the study show that the liquidity of companies, which is reflected in the continuous ability to pay financial obligations, affects the company's capital structure. An increase in the company's liquidity leads to a decrease in leverage and vice versa. Nevertheless, the present study has proven that leverage has no significant effect on profitability and capital structure.

In a research, Sarkar (2018) examined the relationship between operating leverage and financial leverage in Chinese companies. The regression test results in this research showed that when the operating leverage increases, the financial leverage decreases. In general, the results of the research indicate that when both financial and operating levers exist in the company, depending on which lever is changing, they can have a positive, negative, or irrelevant relationship; therefore, the effect of replacing the financial and operating leverage is complex and depends on the conditions.

Valian et al. (2017) conducted research from 2010 to 2014. The regression test results showed that the sensitivity variable of asset restructuring has a negative and significant relationship with the deviation of financial leverage. It was also found that the first quartile companies (with the highest sensitivity to asset restructuring) adjust their actual leverage towards the target leverage at 85% per year. The adjustment speed of the companies in the first quarter is 16% higher than those under investigation.

In Basri et al. (2016), investment and holding companies were used to determine the statistical sample, and a sample of 73 companies listed in the Tehran Stock Exchange between 2001 and 2016 was examined. The results of their research showed that risk-taking investment has a positive effect on capital return. The combined variable of financial leverage and risky investment has a negative effect on capital return, and the combined variable of

operating leverage and risky investment does not affect capital return.

The subject of the study by Pierce and Scott (2016) was China's entry into the World Trade Organization in 2001. China's entry into the World Trade Organization caused a change in the approach in the production sector, so most companies replaced machinery and productive capital assets with labor. Because of this, the employment rate decreased sharply from 2001 to 2008. The replacement of advanced production lines and machines caused an increase in fixed costs compared to variable costs; therefore, the company's high profitability is attributed to the increase in operating leverage. Chen et al. (2016) show that at the same time, during the mentioned period, the financial leverage has decreased.

The research carried out related to the 2006 financial crisis by Pierce and Scott (2016) indicates that this crisis, as a field experiment, clearly showed that the fluctuations related to the decrease in demand caused an increase in the degree of operating leverage, and this factor increased the probability of default risk—financial obligations. The behavior of companies in this situation, with different degrees of operating leverage, was to adjust their financial leverage.

Andarzian (2015) researched "Relationship between accounting profit, degree of operating leverage, degree of financial leverage and degree of total leverage with systematic risk" in companies listed in the Tehran Stock Exchange in the ten years from 2005 to 2014. The regression test results showed a direct relationship between accounting profit and the degree of financial leverage with systematic risk, and there is no significant relationship between the degree of operating leverage and systematic risk.

Sabouri et al. (2015) researched "The relationship between profitability, non-debt tax shield and collateral value of assets with financial leverage of companies". Their research aims to investigate the relationship between profitability, non-debt tax shield, and collateral value of assets with financial leverage of matured companies in the Tehran Stock Exchange. The data includes a composite sample of 531 companies in the Tehran Stock Exchange from 2007 to 2012. A multivariate linear regression model was used using the combined data method to analyze the data and test the hypotheses. The results of the research hypotheses test indicate a significant relationship between profitability, non-debt tax shield, and the collateral value of assets with the financial leverage of companies listed in the stock exchange, which is a direct (positive) relationship. Also, the size and growth of the company affect the level of financial leverage of the companies. However, the effect of the age of the companies on the financial leverage in different periods of their life cycle is

not significantly different from each other.

Farsai and Aghajan Nishtani (2014) researched "Effect of operating leverage and financial leverage on the cost of capital in companies listed on the Tehran Stock Exchange". The results of the survey of 80 companies during the period of 2011-2017 using combined data showed that there is a significant relationship between the ratios of the capital structure and the cost of capital; That is, by increasing the use of debts in the capital structure of companies, it is possible to reduce the cost of capital and increase the value of the company's shares. In addition, there is no significant linear relationship between financial and compound leverage ratios with the weighted average cost of capital. However, the relationship between operating leverage and weighted average cost of capital is significant.

Gatsi et al. (2013) investigated insurance companies' financial and operating leverage and profitability. Using the panel data method, this study investigated the effectiveness of insurance companies' profitability from working capital management, financial leverage, and operating leverage. The research results showed that liquidity and financial leverage have an inverse relationship with profitability, while operating leverage is positively related to profitability. This research aims to investigate the relationship between operating leverage and financial leverage on profitability and distress risk of companies. It also examines the possibility of substitution between financial and operating levers to maximize profitability and reduce risk, which is one of the most basic goals of financial managers of companies. The first step of the research examines the relationship between profitability and financial and operating leverage. Considering the difference between sales growth and fixed and semi-fixed costs in the price section of all manufactured products, the relationship between operating leverage and profitability is expected to be positive. However, according to the research, the relationship between profitability and financial leverage should be direct, considering that the increase in debt at the optimal level reduces the cost of capital. However, often, due to the lack of use of the optimal amount of debt, it causes an increase in the company's capital cost. Therefore, the relationship between profitability and financial leverage is expected to be negative. The next step examines the relationship between financial and operating leverage with the proxy of research risk (i.e., financial distress). It is positive with financial distress and finally, the behavior of company managers in the time domain of the research is examined to examine the relationship between the two financial and operating levers of the company to replace the two levers, which according to the positive relationship between profitability and operating leverage as well as

the relationship negative relationship between profitability and financial leverage, and on the one hand, due to the increase in the risk of distress of both levers and the flexibility of managers in the capital structure department, they replace financial leverage with operating leverage, so the relationship between the two levers is expected to be negative. On the other hand, the behavior difference between profitability and financial leverage is expected in different degrees of operating leverage.

Ansari et al. (2013) conducted research titled "Evaluation of the effectiveness of capital cost from operating leverage and financial leverage". This research showed that in the Tehran Stock Exchange, the relationship between the cost of capital, operating leverage, and financial leverage is different from one industry to another. In other words, the relationship between the cost of capital and operating leverage does not give the same results because the coefficient of financial leverage is positive in some industries. Negative in others, also in the discussion of significance, it can be said that the coefficient of financial leverage is significant in some industries and not significant in others. Also, the findings of this research showed that the relationship between the cost of capital and the capital structure (the amount of debt and equity) is a negative linear relationship until it reaches the (optimal point); In such a way that with the increase in the amount of debts, the cost of capital decreases and after passing the optimal point (due to excessive use of the amount of debts and the possibility of facing the risk of bankruptcy), the relationship between the cost of capital and the capital structure is a positive linear relationship. Of course, the intensity of its correlation is different in each company.

Fakhari and Saber (2012) conducted research entitled "Investigation of the effect of operating leverage on the future return on equity of companies listed on the Tehran Stock Exchange" from 2013 to 2018. The statistical method of the research was descriptive, based on regression analysis using the combined data analysis method. The findings showed a significant positive relationship between operating leverage and contractual debt leverage with companies' future return on equity, and total leverage also moderates the relationship between operating leverage and future return on equity.

Darabi and Saidi (2008) conducted research titled "Evaluation of the relationship between operating leverage with systematic risk and returns in Tehran Stock Exchange," in which 41 companies were selected as a sample from 2000 to the end of 2007. Moreover, using the regression and correlation model, the relationship between operating leverage and risk and return was investigated in all industries and 6 industries. According to the results obtained

from the research, there is a positive relationship between operating leverage and systematic risk. However, there is no positive relationship between operating leverage and returns in companies listed on the Tehran Stock Exchange.

Research hypotheses

1- In the Iranian capital market, operating leverage has a positive effect on the profitability of companies.

2- In the Iranian capital market, financial leverage negatively affects companies' profitability.

3- In the capital market of Iran, operational leverage has a negative effect on the financial leverage of companies.

4- In the Iranian capital market, operating leverage has a positive effect on companies' risk of financial helplessness.

5- In the capital market of Iran, financial leverage has a positive effect on the risk of financial helplessness of companies.

6- In the Iranian capital market, the relationship between financial leverage and the profitability of companies with high operating leverage differs from those with low operating leverage.

Research Methodology

The sample includes companies listed in the Tehran Stock Exchange and the Iran OTC Company during the years 2011 to 2021 which have the following characteristics: 1) Their financial year should end at the end of March every year so that the comparison between annual data can be established, 2) It should not be among the financial intermediation, investment and banks industries so that they are not heterogeneous in terms of the nature of the business and its characteristics, 3) Their required data should be available for the years 2011 to 2021 and they should not have changed their financial year during the period under review.

A change in fiscal year causes seasonal effects to interfere with comparisons between company years, and 4) The company is profitable in the year under review. The reason for the mentioned condition is that the relationship between operating leverage and financial leverage is different with profitability in the profitable and loss-making periods of the company. In order to avoid the conflicting effect of leverage on performance (and considering that the majority of companies listed in the stock exchange are profitable, and by

Chen et al. (2018)), research hypotheses are tested based on the data of profitable companies. Therefore, according to the above limitations, 263 companies were selected as samples.

The regression method was used to test the first and second hypotheses, i.e., the effect of operating leverage and financial leverage on profitability based on the study of Chen et al. (2019).

$$\text{Profitability}_{i,t} = \beta_0 + \beta_1 \text{OPERLEV}_{i,t} + \beta_2 \text{FINLEV}_{i,t} + \beta_3 \text{LOGSALES}_{i,t} + \beta_4 \text{TANGIBILITY}_{i,t} + \beta_5 \text{MTOB}_{i,t} + \beta_6 \text{RD}_{i,t} + \beta_7 \text{RDDUMI}_{i,t} + \beta_8 \text{CFV}_{i,t} + \beta_9 \text{LEVMED}_{i,t} + \beta_{10} \text{DIV}_{i,t} + \beta_{11} \text{DIVDUMI}_{i,t} + \beta_{12} \text{CASH}_{it} + e_{i,t} \quad (1)$$

The first hypothesis of the research is confirmed if β_1 is significant, and the second hypothesis is confirmed if β_2 is significant in Model 1. Model 2 is used to test the third hypothesis, i.e., the effect of operating leverage on financial leverage based on the study of Chen et al. (2019).

$$\text{FINLEV}_{i,t} = \beta_0 + \beta_1 \text{OPERLEV}_{i,t} + \beta_2 \text{LOGSALES}_{i,t} + \beta_3 \text{TANGIBILITY}_{i,t} + \beta_4 \text{MTOB}_{i,t} + \beta_5 \text{RD}_{i,t} + \beta_6 \text{RDDUMI}_{i,t} + \beta_7 \text{CFV}_{i,t} + \beta_8 \text{LEVMED}_{i,t} + \beta_9 \text{DIV}_{i,t} + \beta_{10} \text{DIVDUMI}_{i,t} + \beta_{11} \text{CASH}_{it} + e_{i,t} \quad (2)$$

The third hypothesis is not rejected if β_1 is significant in equation 2. Equation 3 tests the fourth and fifth hypotheses, i.e., the effect of operating and financial leverage on financial distress.

$$O - \text{SCORE}_{i,t} = \beta_0 + \beta_1 \text{OPERLEV}_{i,t} + \beta_2 \text{FINLEV}_{i,t} + \beta_3 \text{LOG} - \text{SALES}_{i,t} + \beta_4 \text{TANGIBILITY}_{i,t} + \beta_5 \text{MTOB}_{i,t} + \beta_6 \text{RD}_{i,t} + \beta_7 \text{RDDUMI}_{i,t} + \beta_8 \text{CFV}_{i,t} + \beta_9 \text{LEVMED}_{i,t} + \beta_{10} \text{DIV}_{i,t} + \beta_{11} \text{DIVDUMI}_{i,t} + \beta_{12} \text{CASH}_{it} + e_{i,t} \quad (3)$$

The fourth hypothesis is not rejected if β_1 is significant, and the fifth hypothesis is not rejected if β_2 is significant. Finally, equation 1 is used to test the sixth hypothesis, which compares the role of financial leverage in profitability between companies with high and low operating leverage. The investigated companies are classified based on operating leverage to test the above hypothesis. Then, equation 1 is estimated for each portfolio, and β_2 is compared for the portfolios with high operating leverage with the portfolios with low operating leverage. The intensity of the negative relationship between financial leverage and profitability is expected to be higher in portfolios with high operating leverage.

The financial distress of a company is measured with the help of Eltman's modified model, and according to Kurdestani et al.'s (2014) research, whose

estimation accuracy is estimated at 95%, based on equation 4:

$$TA_{i,t} = 0.291\left(\frac{WC}{TA}\right)_{i,t} + 2.458\left(\frac{RE}{TA}\right)_{i,t} - 0.301\left(\frac{EBIT}{TA}\right)_{i,t}) - 0.079\,(BVE/TL)_{i,t} - 0.05\left(\frac{TS}{TA}\right)_{i,t} \quad (4)$$

where TA is total assets, TL is total liabilities, WC is working capital (the difference between current assets and liabilities), RE is retained earnings (loss), EBIT is earnings before interest and taxes, BVE is the book value of equity, and TS is net sales.

The independent variable of the research is OPERLEV (operating leverage), which is calculated by dividing general administrative and sales expenses by the total assets of the first period. Chen et al. (2019) showed in their research that the mentioned ratio is superior to other common ratios. FINLEV (Financial Leverage) is calculated according to Chen et al. (2019) based on the ratio of the book value of debt to the value of the company's assets.

According to the research of Chen et al. (2019), the variables LOG-SALES, TANGIBILITY, MTOB, RD, CFV, LEVMED, DIV, and CASH were used, which are respectively the natural logarithm of the company's sales and a measure of the company's size, tangible assets. , the market value is the book value of the company, the ratio of research and development costs to sales, the standard deviation of the operating profit time series for ten years period, the average financial leverage in the relevant industry, the ratio of cash profit to total assets and the ratio of cash to total assets. The dividend data are taken from the Bourse View database.

DIVDUMI is a two-valued variable and takes the value of one if cash interest has been paid and zero otherwise. Also, RDDUMI is a two-valued variable, and if the research and development costs are zero, it takes the value of one, and otherwise it takes the value of zero.

Results

Descriptive statistics of research variables are reported in Table 1.

Table 1. Descriptive statistics of research variables

Variable	Average	Median	Maximum	Minimum	Standard Deviation	Skewness	Kurtosis
Profitability	0.2092	0.1494	0.7189	0.0002	0.1562	1.0716	2.1507
O-SCORE	0.2306	0.1964	1.6623	-0.5623	0.3755	0.0633	2.4690
FINLEV	0.6085	0.5395	0.9937	0.0613	0.1678	-0.1502	2.4556
OPERLEV	0.0847	0.0687	0.9155	0.0076	0.0868	2.4337	2.4406
LOG-SIZE	5.3780	6.3669	7.7019	3.6467	0.8357	0.4946	2.4034
TANGIBILITY	0.1797	0.1903	0.9134	0.0018	0.1227	1.0777	2.7929
MTOB	0.4936	0.3885	1.6589	0.0230	0.2554	-0.0650	1.7462
RD	0.2405	0.2419	0.5538	0.0240	0.2045	-0.0718	2.0264
CFV	1.6158	1.3347	1.8277	2.8804	2.4761	0.0149	1.5147
LEVMED	0.3628	0.4008	0.7161	0.0275	0.1976	-0.0306	1.9713
DIV	0.1817	0.1808	0.5082	-0.3869	0.1924	0.7915	3.2563
CASH	0.0482	0.0304	0.4183	0.0001	0.0558	3.2830	1.2736
DIVDUMI	0.5972	0.0000	1.0000	0.0000	0.4487	-0.2659	1.0503
RDDUMI	0.6771	0.0000	1.0000	0.0000	0.4427	-0.3876	1.1174

According to the results of Table 1, the average profitability is equal to 0.2092, and its median is 0.1494. This number shows that half of the profitability values are lower than the average value, and half of the values are higher than the average value. The maximum and minimum numbers related to this variable are 0.7189 and -0.0482, respectively. The standard deviation of profitability is equal to 0.1562. The average financial distress is equal to 0.2306. The mean of this variable is equal to 0.1964. The maximum and minimum numbers related to this variable are 1.6623 and -0.5623, respectively, and its standard deviation is 0.3755. The average financial leverage and operating leverage are 0.6085 and 0.0687, respectively. Table 2 shows the correlation between research variables. The results of this table show the degree of correlation between the variables, which fluctuates between -1 and +1, and shows how much correlation there is between the variables.

Table 2. Correlation between variables

Variable	RDDUMI	DIVDUMI	CASH	DIV	LEVMED	CFV	RD	MTOB	TANGIBILITY	LOG-SIZE	OPERLEV	FINLEV	O-SCORE	profitability
Profitability														1.000
O-SCORE													1.000	-0.078
FINLEV												1.000	0.068	-0.059
OPERLEV											1.000	-0.001	0.018	0.001
LOG-SIZE										1.000	-0.011	0.002	0.007	0.021
TANGIBILITY									1.000	-0.024	0.007	-0.040	-0.018	0.018
MTOB								1.000	-0.006	-0.003	0.000	-0.005	-0.002	-0.004
RD							1.000	0.006	0.005	0.000	-0.001	-0.002	0.001	0.000
CFV						1.000	0.000	-0.002	-0.004	0.005	-0.008	-0.001	0.007	0.007
LEVMED					1.000	0.003	-0.002	0.004	0.005	-0.005	-0.002	6.823	0.000	-0.004
DIV				1.000	0.001	0.004	0.002	-0.003	-0.020	0.012	-0.004	-0.058	0.008	0.008
CASH			1.000	0.020	0.001	0.002	-0.003	0.001	-0.001	0.005	0.001	0.193	0.024	0.031
DIVDUMI		1.000	0.000	0.001	-0.005	-0.002	0.001	-0.002	0.006	0.000	-0.008	-0.008	0.002	0.003
RDDUMI	1.000	0.010	-0.006	-0.001	0.003	0.000	0.006	0.001	0.006	0.005	6.005	-0.003	-0.002	-0.004

As it is clear in Table 2, the correlation coefficient between profitability ratio and distress is negative. The correlation coefficient of operating leverage is positive with profitability and negative with financial leverage. The correlation coefficient of financial distress with financial and operating leverage is positive. The research data were examined in terms of unit root (mean) in order to avoid the falsity of the estimated regression model, and the results of Levin-Lin Chu's test showed that the variables were mean. In order to check the collinearity between the variables of the model, the correlation coefficient method was used; the correlation coefficient values are given in the table below, which indicates that the coefficients are low, so there will be no collinearity problem.

An f-Limer test was performed to determine the use of a tabular pattern versus a consolidated pattern of data, and the results showed that the data was of a tabular type. That is, it has a width from different origins. Hausman test to detect fixed or random effects showed that the panel data method with fixed effects should be used for model estimation. Multiple Regression has been tested for 263 sample companies for 11 periods (2011-2021).

In the estimation of the first model, the F-Limer test statistic is equal to 5.34, which is significant at the confidence level of more than 95% and shows the use of a panel data model. Also, the statistic of the Hausman test is equal to 22.15, which is more than 95% confidence in using fixed effects in estimation.

In Table 3, it can be seen that for each variable, the coefficient, standard error, t-statistic, and finally the value of the significance level are given.

Table 3. Model 1 test, combined with the Regression of operating leverage and financial leverage on

	Variable	Coefficient	Standard Deviation	T Statistic	Significance Level
Financial Leverage	FINLEV	-0.0931	0.0288	-3.2326	0.0031
Operating leverage	OPERLEV	0.2402	0.0295	8.14237	0.0000
Size	LOG-SIZE	0.0241	0.0037	6.51351	0.0000
Tangible Assets	TANGIBILITY	-0.2165	0.0271	-7.9889	0.0000
Market Value to Book Value	MTOB	-0.0156	0.0116	-1.3448	0.0000
Research and Development Costs to Sales	RD	0.0012	0.0089	0.13483	0.5139
Research and Development Costs	RDDUMI	-0.0076	0.0040	-1.9963	0.0778
Standard Deviation of Operating Profit	CFV	0.0178	0.0110	2.3632	0.0419
Median of Financial Leverage	LEVMED	-0.0294	0.0121	2.4786	0.0271
Cash Interest on Total Assets	DIV	0.4458	0.0263	16.9506	0.0000
Paid Cash Interest	DIVDUMI	0.0073	0.0040	1.3835	0.1521
Cash on Total Assets	CASH	0.3427	0.0463	7.0979	0.0000
Fixed Coefficient	C	0.1498	0.0431	4.1569	0.0002
Coefficient of Determination	R_2	0.7241			
Adjusted Coefficient of Determination	R_2	0.6523	F Statistic	178.4121	
Durbin Watson	DW	1.9098	Significance Coefficient	0.0000	

Table 3 shows that the significance level of the F statistic up to three decimal places is equal to zero, so it can be stated that the coefficient is significant at the level of one percent error. The high value of the Fisher statistic (F) indicates a strong linear relationship between the variables. It is in this pattern. The adjusted R_2 of the model in Table 3 shows that the independent variables explain 65.23 percent of the changes in the dependent variable. The value presented by Durbin-Watson, which is equal to 1.9098, shows the lack of correlation between the disturbance factors in the mentioned pattern. Based on the results obtained in Table 3, financial leverage and operating leverage have coefficients of -0.0931 and 0.2402; both coefficients are significant at the 99% significance level. Therefore, operating leverage has a positive effect on the profitability of companies in the Iranian capital market. This means that in the Iranian capital market, if operating leverage increases, the profitability of companies will also increase (First hypothesis). In the Iranian capital market, financial leverage has a negative effect on the profitability of companies. This means that in Iran's capital market, if financial leverage increases, the profitability of companies will decrease (Second hypothesis).

Model 2 was used to examine the third and fourth hypotheses: the relationship between financial leverage and operating leverage with profitability. In Model 2, according to the F-Limer test, the data is tabular, that is, it has widths from different sources. Hausman's test showed that the panel data method with fixed effects should be used for model estimation.

In the estimation of the second model, the F-Limer test statistic is equal to 4.01, which is significant at the confidence level of more than 95% and shows the use of the panel data model. Also, the Hausman test statistic equals 59.39, which confirms the use of fixed effects with more than 95% certainty.

The regression results of Model 2 can be seen in Table 4. The coefficient, standard error, t-statistic, and significance level value are given for each variable.

Table 4. Model 2 estimation results, combined regression test of operating leverage and financial leverage on financial distress

	Variable	Coefficient	Standard Deviation	T Statistic	Significance Level
Financial Leverage	FINLEV	0.2134	0.0620	3.4419	0.0001
Operating leverage	OPERLEV	0.1744	0.0539	3.2356	0.0002
Size	LOG- SIZE	-0.0312	0.0047	-6.638	0.0000
Tangible Assets	TANGIBILITY	-0.9262	0.0553	-16.748	0.0000
Market Value to Book Value	MTOB	0.0101	0.0147	0.5837	0.6427
Research and Development Costs to Sales	RD	0.0067	0.0193	0.3706	0.7369
Research and Development Costs	RDDUMI	-0.0027	0.0090	-0.3057	0.7571
Standard Deviation of Operating Profit	CFV	0.0420	0.0180	2.1563	0.0128
Median of Financial Leverage	LEVMED	0.0168	0.0183	-1.1149	0.2757
Cash Interest on Total Assets	DIV	1.1309	0.0525	25.3048	0.0000
Paid Cash Interest	DIVDUMI	-0.0049	0.0088	-0.5389	0.6431
Cash on Total Assets	CASH	0.0460	0.0853	0.7692	0.4149
Fixed Coefficient	C	0.9851	0.0591	5.2439	
Coefficient of Determination	R_2	0.9651			
Adjusted Coefficient of Determination	R_2	0.9325	F Statistic	826.9508	
Durbin Watson	DW	2.1737	Significance Coefficient	0.0000	

Table 4 shows that the significance level of the F statistic up to four decimal places is equal to zero, so it can be stated that the statistic is significant at the level of one percent error, so it can be concluded that the pattern in general is statistically It is acceptable. The high Fisher statistic (F) value indicates a strong linear relationship between the variables in this model. The adjusted R_2 in Table 4 shows that the independent variable explains 93.25% of the changes in the dependent variable. The provided value of Durbin-Watson, which is equal to 2.1737, shows the lack of autocorrelation of the disturbance factors in the mentioned pattern. According to Table 4, the significance level of operating leverage is equal to zero up to three decimal places, that is, it is significantly different from zero at the error level of one percent. Therefore, in the Iranian capital market, operating leverage positively affects companies' financial distress risk. This means that in the Iranian capital market, if the operating leverage increases, the financial distress risk of companies will also increase. The value of the significance level of financial leverage is zero to three decimal places, that is, it is significantly different from zero at the error level of one percent. Therefore, in the Iranian capital market, financial leverage positively affects companies' financial distress risk. This means that in the Iranian capital market, if financial leverage increases, companies' risk of financial distress will increase.

In Model 3, the F-Limer test showed that the data is of a tabular type, that is, it has widths from different sources. The Hausman test also confirmed the panel data method with fixed effects for model estimation.

In the estimation of the third model, the F-Limer test statistic is equal to 3.15, which is significant at the confidence level of more than 95% and shows the use of a panel data model. Also, the statistic of the Hausman test is equal to 118/54, which is more than 95% confidence in using fixed effects in estimation.

The results of the multiple Regression of Model 3 can be seen in Table 5. For each variable, the coefficient, standard error, t-statistic, and the significance level value are given.

Table 5. Model 3 estimation results, combined regression test of operating leverage on financial leverage

	Variable	Coefficient	Standard Deviation	T Statistic	Significance Level
Operating leverage	OPERLEV	-0.0417	0.0291	-2.3934	0.0149
Size	LOG-SIZE	-0.0030	0.0037	-1.3763	0.2325
Tangible Assets	TANGIBILITY	-0.8777	0.0192	-3.5943	0.0000
Market Value to Book Value	MTOB	-0.0067	0.0111	-0.6716	0.5117
Research and Development Costs to Sales	RD	0.0119	0.0124	1.0363	0.2336
Research and Development Costs	RDDUMI	-0.0001	0.0047	-0.0219	1.1030
Standard Deviation of Operating Profit	CFV	0.0026	0.0107	0.2265	0.6770
Median of Financial Leverage	LEVMED	0.0029	0.0120	-0.2039	0.7911
Cash Interest on Total Assets	DIV	-0.8317	0.0123	-68.2191	0.0000
Paid Cash Interest	DIVDUMI	-0.0040	0.0052	-0.6645	0.5309
Cash on Total Assets	CASH	-0.1152	0.0416	-1.9920	0.0272
Fixed Coefficient	C	0.9167	0.0274	36.4744	0.0000
Coefficient of Determination	R_2	0.7657			
Adjusted Coefficient of Determination	R_2	0.8423	F Statistic	437.9383	
Durbin Watson	DW	1.5198	Significance Coefficient	0.0000	

Table 5 shows that the significance level of the F statistic up to four decimal places is equal to zero, so it can be stated that the statistic is significant at the level of one percent error, so it can be concluded that the model is generally The statistic is acceptable. The high value of the F statistic indicates a strong linear relationship between the variables in this model. The value presented by Durbin-Watson, which is equal to 1.5198, shows the lack of autocorrelation of the disturbance factors in the mentioned pattern. According to the results in the capital market of Iran, operating leverage has a negative effect on the financial leverage of companies. This means that in Iran's capital market, if the operating leverage increases, the financial leverage of the companies will decrease.

In order to investigate the effect of financial leverage on the profitability of companies with high and low operating leverage, model 1 has been used in a detailed manner for companies with high and low operating leverage and in table 6, the results of estimation of the model with high operating leverage and in table 7, the results of estimation of the model with low operating leverage can be seen. For each variable, the coefficient, standard error, t-statistic, and the significance level value are given.

Table 6 shows that the significance level of the F statistic is equal to zero, so it can be stated that the statistic is significant at the level of one percent error, so it can be concluded that the model is generally acceptable from a statistical point of view and The high value of the F statistic indicates that there is a strong linear relationship between the variables in this model. As the adjusted R_2 in Table 6 shows, the independent variable explains 84.7% of the changes in the dependent variable. The value provided by Durbin-Watson, which is equal to 1.847, shows the lack of autocorrelation of disturbance factors.

Table 6. Model estimation results with high operating leverage

	Variable	Coefficient	Standard Deviation	T Statistic	Significance Level
Financial Leverage	FINLEV	-0.2522	0.0153	-3.9541	0.0001
Size	LOG-SIZE	0.3612	0.0138	7.0342	0.0164
Tangible Assets	TANGIBILITY	-0.1376	0.1064	-2.1636	0.0386
Market Value to Book Value	MTOB	-0.0557	0.1316	-0.6021	0.5386
Research and Development Costs to Sales	RD	0.1111	0.1381	0.9278	0.3007
Research and Development Costs	RDDUMI	-0.0948	0.1181	-0.7641	0.3426
Standard Deviation of Operating Profit	CFV	0.0267	0.0173	1.1900	0.2279
Median of Financial Leverage	LEVMED	0.3240	0.0134	5.5240	0.0143
Cash Interest on Total Assets	DIV	0.1517	0.1198	2.1527	0.0317
Paid Cash Interest	DIVDUMI	0.0470	0.0593	0.3629	0.4269
Cash on Total Assets	CASH	0.3948	0.0422	7.3345	0.0000
Fixed Coefficient	C	0.3503	0.0131	6.1943	0.0000
Coefficient of Determination	R_2	0.7770			
Adjusted Coefficient of Determination	R_2	0.8287	F Statistic	572.4120	
Durbin Watson	DW	2.1431	Significance Coefficient	0.0000	

Table 7. Model estimation results with low operating leverage

	Variable	Coefficient	Standard Deviation	T Statistic	Significance Level
Financial Leverage	FINLEV	-0.1434	0.0129	-2.2271	0.0033
Size	LOG-SIZE	0.2897	0.0115	7.1923	0.0135
Tangible Assets	TANGIBILITY	-0.2472	0.1278	-3.8888	0.0333
Market Value to Book Value	MTOB	-0.3870	0.1228	-1.8676	0.0214
Research and Development Costs to Sales	RD	0.0388	0.1383	0.3809	0.7479
Research and Development Costs	RDDUMI	-0.0937	0.1278	-0.8381	0.5178
Standard Deviation of Operating Profit	CFV	0.1617	0.1323	1.0701	0.2374
Median of Financial Leverage	LEVMED	0.0253	0.0164	1.4419	0.2244
Cash Interest on Total Assets	DIV	0.0002	0.0007	0.4565	0.5824
Paid Cash Interest	DIVDUMI	0.0501	0.0619	0.3696	0.4130
Cash on Total Assets	CASH	0.3510	0.0396	9.0080	0.0000
Fixed Coefficient	C	0.3714	0.3002	3.2046	0.0000
Coefficient of Determination	R_2	0.8340			
Adjusted Coefficient of Determination	R_2	0.6809	F Statistic	665.1196	
Durbin Watson	DW	1.7367	Significance Coefficient	0.0000	

Table 7 shows that the significance level of the F statistic is equal to zero, so it can be stated that the statistic is significant at the level of one percent error, so it can be concluded that the model is generally acceptable from a statistical point of view and The high value of the F statistic indicates that there is a strong linear relationship between the variables in this model. As the adjusted R2 in Table 7 shows, 68.09 percent of the changes in the dependent

variable are explained by the independent variable. The value presented by Durbin-Watson, which is equal to 1.7367, shows the lack of autocorrelation of disturbance factors.

Considering that the regression coefficient for financial leverage for the model that has companies with high operating leverage is higher than the regression coefficient for the model that has companies with low operating leverage, so it can be said that in the Iranian capital market, the relationship between financial leverage and profitability of companies with high operating leverage is different from companies with low operating leverage.

Discussion and Conclusion

The results of the research showed that the first hypothesis of the research, which is related to the effect of operating leverage on profitability, was confirmed at the 1% error level. Therefore, it can be said that operating leverage in the capital market has a positive effect on profitability. The claim that the profitability of companies is affected by the difference between the company's sales growth and fixed costs is confirmed. The results are in accordance with the research of Chen et al. (2019), Chang et al. (2017), Yao (2019), and Fakhari and Saber (2012). However, the result is contrary to the findings of Darabi and Saidi (2008). The results of the research showed that the second hypothesis related to the effect of financial leverage on profitability was confirmed at the 1% error level, so it can be said that the use of debt in the capital structure has a negative effect on the profitability process.

The debts of companies can affect their profitability. According to the fourth and fifth hypotheses, financial and operating leverage intensify financial distress. Both hypotheses were confirmed at the 1% level. Experimental hypotheses examined the theoretical bases related to the fact that the fixed cost, due to its nature, creates a kind of commitment against an uncertain flow of income or profit, causes risk, and positively affects the company's distress. The third hypothesis is about the relationship between financial leverage and operating leverage, which is negative according to the results of the research, and on the other hand, according to the relationship between profitability and financial leverage, which was negative, in accordance with the findings of Fama and McBeth (1973) and Pierce and Scott. 2016) and is against the findings of Dalkey (2016), and also according to the theoretical concepts that consider financial leverage as an endogenous variable of the company, and on the other hand, the exogenous nature of the operating leverage, considering that

the operating environment of the company is affected by production technology. The characteristics of the industry and macroeconomic variables are such that the company cannot change this lever. Changes in the debt ratio can define the effect of replacing these two levers.

In other words, according to the findings, to build a profitable process, the company seeks to increase operating leverage and reduce financial leverage, and considering that both factors have a fixed cost structure, at an optimal level, it seeks to increase costs. Operating constant is compared to the financial fixed cost. This hypothesis is also in accordance with the theory of Chen et al. (2019) and Pearce and Scott (2016). According to the fourth and fifth hypothesis, operating leverage and financial leverage of both works They have a positive effect on the distress of companies, therefore, in the situation where the distress of the company is risky and the probability of bankruptcy is high, according to the first and second hypothesis of the replacement company policy, it is by reducing the debt ratio. The results of the research are in accordance with the findings of Chen et al. (2019), Pierce and Scott (2016), and contrary to the findings of San Varanjan (2018).

The results of the research showed that the sixth hypothesis in the Iranian capital market is that the relationship between financial leverage and profitability of companies with high operating leverage is different from companies with low operating leverage. It is confirmed at the 1% error level, so it can be said that the sixth hypothesis is confirmed. In the Iranian capital market, the relationship between financial leverage and the profitability of companies with high operating leverage differs from those with low operating leverage. The negative relationship between financial and operating leverage is stronger, which, in addition to confirming the effect of replacing the two levers, indicates that the operating leverage should be strengthened to increase the company's profitability. The results of the research are in accordance with the findings of Chen et al. (2019).

The results of the research showed that operating leverage has a positive effect on the profitability of companies in Iran's capital market. Therefore, in order to increase profitability in the company, it is suggested that company managers should always consider the amount of operating leverage as an indicator affecting profitability. Considering the negative impact of operating leverage on the financial leverage of companies, it is suggested that investors pay attention to these criteria as determining factors of profitability in their investment decisions in the capital market. Financial and operating leverage

have a positive relationship with financial distress risk. On the other hand, a positive relationship between operating leverage and profitability, and a negative relationship between financial leverage and profitability, in a situation where the company meets financial distress criteria, try to replace operating leverage with financial leverage.

In such a way, the financial leverage will be reduced by keeping the operating leverage constant and revising the financing policies. In the Iranian capital market, the relationship between financial leverage and the profitability of companies with high operating leverage differs from those with low operating leverage. Therefore, it is suggested to have a dynamic policy about the different behavior of the financial leverage compared to the profitability of the operating leverage, with a full understanding of the company's financial situation. It is suggested that in future research, due to the importance of profitability of companies for their survival and competitiveness, the factors affecting the control of the company's debt and the provision of capital to settle the debts should be investigated. During future research, the impact of the capital market on the performance of companies should be investigated about the control role of financial leverage and control tools to reduce distress risk, about the role of operating leverage on distress risk.

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ضمیمه

تخمین مدل اول

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.1498	0.0431	4.1569	0.0002
FINLEV	-0.0931	0.0288	-3.2326	0.0031
OPERLEV	0.2402	0.0295	8.14237	0
LOG-SIZE	0.0241	0.0037	6.51351	0
TANGIBILITY	-0.2165	0.0271	-7.9889	0
MTOB	-0.0156	0.0116	-1.3448	0
RD	0.0012	0.0089	0.13483	0.5139
RDDUMI	-0.0076	0.004	-1.9963	0.0778
CFV	0.0178	0.011	2.3632	0.0419
LEVMED	-0.0294	0.0121	2.4786	0.0271
DIV	0.4458	0.0263	16.9506	0
DIVDUMI	0.0073	0.004	1.3835	0.1521
CASH	0.3427	0.0463	7.0979	0

تخمین مدل دوم

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.9851	0.0591	5.2439	0
FINLEV	0.2134	0.062	3.4419	0.0001
OPERLEV	0.1744	0.0539	3.2356	0.0002
LOG- SIZE	-0.0312	0.0047	-6.638	0
TANGIBILITY	-0.9262	0.0553	-16.748	0
MTOB	0.0101	0.0147	0.5837	0.6427
RD	0.0067	0.0193	0.3706	0.7369
RDDUMI	-0.0027	0.009	-0.3057	0.7571
CFV	0.042	0.018	2.1563	0.0128
LEVMED	0.0168	0.0183	-1.1149	0.2757
DIV	1.1309	0.0525	25.3048	0
DIVDUMI	-0.0049	0.0088	-0.5389	0.6431
CASH	0.046	0.0853	0.7692	0.4149

تخمین مدل سوم

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.9167	0.0274	36.4744	0
OPERLEV	-0.0417	0.0291	-2.3934	0.0149
LOG-SIZE	-0.003	0.0037	-1.3763	0.2325
TANGIBILITY	-0.8777	0.0192	-3.5943	0
MTOB	-0.0067	0.0111	-0.6716	0.5117
RD	0.0119	0.0124	1.0363	0.2336
RDDUMI	-0.0001	0.0047	-0.0219	1.103
CFV	0.0026	0.0107	0.2265	0.677
LEVMED	0.0029	0.012	-0.2039	0.7911
DIV	-0.8317	0.0123	-68.2191	0
DIVDUMI	-0.004	0.0052	-0.6645	0.5309
CASH	-0.1152	0.0416	-1.992	0.0272

تخمین مدل چهارم

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.3503	0.0131	6.1943	0
FINLEV	-0.2522	0.0153	-3.9541	0.0001
LOG-SIZE	0.3612	0.0138	7.0342	0.0164
TANGIBILITY	-0.1376	0.1064	-2.1636	0.0386
MTOB	-0.0557	0.1316	-0.6021	0.5386
RD	0.1111	0.1381	0.9278	0.3007
RDDUMI	-0.0948	0.1181	-0.7641	0.3426
CFV	0.0267	0.0173	1.19	0.2279
LEVMED	0.324	0.0134	5.524	0.0143
DIV	0.1517	0.1198	2.1527	0.0317
DIVDUMI	0.047	0.0593	0.3629	0.4269
CASH	0.3948	0.0422	7.3345	0

تخمین مدل پنجم

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.3714	0.3002	3.2046	0
FINLEV	-0.1434	0.0129	-2.2271	0.0033
LOG-SIZE	0.2897	0.0115	7.1923	0.0135
TANGIBILITY	-0.2472	0.1278	-3.8888	0.0333
MTOB	-0.387	0.1228	-1.8676	0.0214
RD	0.0388	0.1383	0.3809	0.7479
RDDUMI	-0.0937	0.1278	-0.8381	0.5178
CFV	0.1617	0.1323	1.0701	0.2374
LEVMED	0.0253	0.0164	1.4419	0.2244
DIV	0.0002	0.0007	0.4565	0.5824
DIVDUMI	0.0501	0.0619	0.3696	0.413
CASH	0.351	0.0396	9.008	0