



# The Impact of Capital Structure on Stock Returns: Evidence from Egyptian Stock Exchange

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## Abstract

This paper aims to assess the impact of capital structure on the stock returns of Egyptian firms with the purpose of providing assistance to investors when deciding between alternative investment choices. Data were collected for 75 firms listed on the Egyptian Stock Exchange over the period 2017–2022, excluding financial firms such as banks and insurance companies. Statistical techniques were conducted using the Statistical Package for Social Science (SPSS) version 20. The results revealed a significant positive impact of capital structure measured by the debt-to-equity ratio on stock returns and an insignificant impact on capital structure measured by the financial leverage ratio on stock returns.

## Subject Areas

Finance

## Keywords

Capital Structure, Debt-To-Equity, Financial Leverage, Stock Returns, Weighted Least Squares Regression, Egyptian Stock Exchange

## 1. Introduction

Since the ultimate goal for any investor is to maximize their wealth, stock returns have been the focus of all finance researchers as well as investors. Firms always try to adopt strategies that assist in increasing their profit and therefore their stock returns, which in turn increase the firm's value and overall economic growth. According to [1], the stock return shows the gain or loss that happens to a stock over a specific period of time. It is considered an important basis and motive in the investment process, as investors consider it a key determinant in deciding between alternative investment options.

Researchers categorized stock returns into two main types: realized return and expected return. The expected return is the return an investor expects to receive in the future and is always uncertain, while the realized return is the return an investor actually receives in reality. The difference between both is what creates the risk of uncertainty. Therefore, investors seeking a high return must accept the high risk associated with it, and vice versa [2].

Since one of the well-known sources of risk is the level of debt, this research aims to investigate how debt levels in the capital structure impact stock returns. In recent decades, the finance literature has consistently focused on investors' decision-making and how to assist them in selecting the optimal investment strategy to maximize shareholders' wealth [1] and [2]. However, the most important aspect of a firm's balance sheet is the combination of debt and equity that the company utilizes to fulfill its corporate requirements.

According to [3], the capital structure describes how the firm finances the right-hand side of its balance sheet; normally, firms tend to increase both sides of their balance sheet with a targeted debt and equity mix in order to maximize the firm value; and there are multiple ways used by firms when financing their capital structure, which are borrowing, issuing shares, or using retained earnings. Additionally, [1] argued that the capital structure has a crucial role in the firm's sustainability; hence, being aware of the changes that happen in the capital structure is important. Taking into account that these changes impact the firm's performance, when financial leverage increases, the bankruptcy risk also increases, and accordingly, shareholders will require a higher rate of return on their investments.

## 2. Literature Review

### 2.1. Theoretical Framework

This section reviews the most important theories that have been established for the purpose of examining stock returns and capital structure.

#### 2.1.1. Stock Return

##### 1) Portfolio Selection Theory (1952)

This theory was developed by Harry Markowitz, who achieved a Nobel Prize based on his contribution to the corporate finance field with his article "The Portfolio Selection". According to [4], he used geometric representations to show relationships between beliefs and portfolio selection using the "expected returns-variance of returns" rule. According to the rule, an investor should diversify his holdings across all securities that offer the highest expected return. Furthermore, the E-V rule claims that the investor would (or should) select one of the portfolios that generate the E-V combinations illustrated as efficient, *i.e.*, those with the lowest V for a given E or greater and optimum E for a given V or even less.

##### 2) Capital Asset Pricing Model

William Sharpe (1964) and John Lintner (1965) were the first to introduce the

CAPM, which is based on Harry Markowitz's (1959) portfolio selection model. Moreover, this theory was based on some assumptions, which are: 1) There is a single pure rate of interest at which all investors can borrow or lend money on equal terms. 2) Investor expectations are all the same. 3) Trading takes place in a market that is purely competitive. 4) There are no transaction costs or taxes in the market. 5) Borrowing and lending interest rates are the same as risk-free rates. 6) Investors are risk-averse and prefer mixtures with lower variance or higher expected returns [5] and [6].

Additionally, this theory sheds light on two different types of risk: systematic risk and unsystematic risk. Systematic risk is a form of risk brought on by market dynamics that impacts the market as a whole instead of a single company. It is correlated with economic changes, particularly economic factors and natural disasters, but it cannot mitigate these risks through diversification; rather, it must predict and hedge them. On the other side, non-systemic risk can also be referred to as firm-specific risk or diversification risk; this form of risk is caused by the financial and operational choices made by the company itself, including the financial risks associated with financial leverage and capital structure, as well as the operational risks associated with administrative and competitive activities [7].

Therefore, when examining the previous two theories on the stock return, it can be observed that both theories aim to reduce the associated risk, *i.e.*, variance, in order to increase the expected return. Hence, decisions regarding capital structure can significantly impact the level of risk associated with an investment and, consequently, the stock return. Therefore, it is essential to analyze the capital structure strategies employed by firms and their debt management practices, as this results in increased non-systematic risk.

### 2.1.2. Capital Structure

These are the most popular capital structure theories, but not all of them. Various theories on capital structure demonstrate the significance of capital structure and how decisions regarding capital structure can have a significant impact on a firm's value and an investor's investment decisions.

#### 1) The Irrelevance Theory

In 1958, Modigliani and Miller developed a theory about a capital structure called "the irrelevance theory of capital structure". This theory is considered a breakthrough from which many relevant theories have developed. In their perfect world with external operating decisions, there are no taxes, no bankruptcy costs, and no transaction costs, and they argued that decisions on capital structure are irrelevant to firm value [8]. Furthermore, [9] stated that the irrelevance theory of capital structure of Modigliani and Miller (1958) is considered the basis of the capital structure's modern theory; based on supposition derived from the investors' behavior and the capital structure market, [10] explained that the capital structure has no impact on the firm value, and they further described the capital structure market as a perfect market where securities are traded with no

hidden relevant information for firm insiders and outsiders to ease the decision-making process for them, *i.e.* there's no information asymmetry, no bankruptcy cost, or transaction cost, and there's no existence for taxation.

Adding to that, the financial theory of Modigliani and Miller (1958) clarifies that the firm value is determined by the firm's earning power and the risk associated with its assets; the method used by the firm to finance its investment or payout dividends is independent of the firm value. Hence, the capital structure is considered irrelevant to firm value [11].

In that way, [10] stated that if investors utilized arbitrage opportunities, the overpriced value of shares would drop and the value of underpriced shares would increase; consequently, discrepancies between firms' market values would be eliminated. Hence, the basis of this argument, according to [8], is the ideal arbitrage, where any fluctuations in the share value of two firms, one with appreciating shares and the other with depreciating shares, would be removed. Consequently, the capital structure is irrelevant to firm value.

Examining the original work of Modigliani and Miller (1958), it is possible to conclude that this theory is a summary of results obtained through which it was intended to illustrate the irrelevance of financial decisions under perfect capital market conditions. Moreover, we can say that, despite the efforts of Modigliani and Miller and the time spent by various researchers developing concepts for this theory, it is still unclear and faces various objections; two assumptions were criticized: (i) individual people and firms can borrow with the same market rate, and (ii) there is no such thing as bankruptcy cost; however, the practice has demonstrated that there are, or at least can appear to be, limitations on the market interest rates for individual borrowers relative to firm borrowers; in addition, bankruptcy is significantly more violent and problematic for firms than the Modigliani and Miller's proposition assumed [12].

## **2) Trade-off theory**

According to [13], the trade-off concept evolved directly from the debate surrounding the capital structure irrelevance theorem of Modigliani and Miller (1958); In 1963, Modigliani and Miller introduced interest tax deductions as the initial step, which implied that companies should be entirely debt-financed; since firms are not exclusively debt-financed, additional resources are required; so, the second step was the introduction of bankruptcy cost.

Ref [14] stated that the subtraction of interest when calculating taxable corporate earnings will prevent the arbitrage activity from correlating the value of all firms together in a specific class to the anticipated returns generated on their physical assets; also, while one firm's expected return after taxes may be double that of another firm of the same risk-equivalent class, if the two firms have different levels of leverage, the actual return after taxes of the first firm will not always be twice that of the second; and because the distribution of after-tax returns of the two firms will not be equal, there is no "arbitrage" activity that may push their values to be comparable to their expected after-tax returns.

In that way, because of the criticism Modigliani and Miller's theory received

in 1963, Modigliani and Miller added the tax effect on the cost of capital as well as firm value in order to be more accurate; Modigliani and Miller (1963) added to the literature another study that included corporate taxes; with the effect of tax added, they came to the conclusion that a firm's value can be increased by the leverage effect; this happens because debt interest is tax-deductible, therefore higher operating income will be received by the investors [11].

#### Static Trade-off Theory (1984)

There are two sub-theories under the tradeoff theory, namely static trade-off and dynamic tradeoff. Ref [15] introduced the static trade-off hypothesis, stating that firms should set a targeted debt-to-value ratio and gradually work their way towards it.

According to [16], the static tradeoff theory affirms the existence of an optimal capital structure, which can be achieved through a trade-off between the benefits of taxes and the cost of debt, taking into consideration other constant variables; firms substitute between debt and equity until they achieve the ideal mix that maximizes their firm's value. Moreover, [17] stated that firms achieve the optimal capital structure by balancing the costs of debt and equity against their benefits, that the debt tax shield is a major advantage of using debt, and that the cost of possible financial distress may be one of the disadvantages of debt, especially when a company acquires large debts.

Furthermore, the tradeoff theory of capital structure states that firms decide upon their capital structure by balancing the benefits of borrowing with the costs of borrowing; the key benefit is tax savings, while the most crucial cost is the bankruptcy cost; this theory suggests that there has to be a target leverage that maximizes firm value, and firms should adjust for any deviation from that target leverage [18].

#### Dynamic Trade-off Theory (1989)

The dynamic tradeoff theory was first introduced by [19], who stated that even minor recapitalization costs cause large swings in a company's debt ratio over time; and that large adjustment costs may account for the observed large variations in actual debt ratios by forcing firms to deviate from their targeted debt ratios.

The literature about the dynamic adjustments firms make to their capital structure is large. It can be noticed that the common idea is that the optimal capital structure and the real one cannot be equal, as market conditions such as transaction costs and the imperfection of the financial market can fend off the immediate adjustment of real debts at the targeted level [16]. Moreover, [18] stated that the dynamic tradeoff theory suggests that deviations may occur from the targeted capital structure, but firms will make adjustments to achieve that target; the theory clearly explains the adjustment behavior firms make to the leverage ratio. These adjustments occur when the deviation from the target cost exceeds the adjustment cost to achieve that target.

Similar to the first theory conducted by Modigliani and Miller, theories are always subject to criticism. According to [20], Modigliani and Miller's Hypothe-

sis was criticized mainly for its hypotheses and to a minor extent for its quality; its most significant flaw is that it assumes the presence of ideal financial markets; in Modigliani and Miller's second version, the authors introduce the concept of taxes while leaving all other hypotheses unchanged; in this instance, the optimal capital structure is one in which the firm is nearly exclusively financed by debt, which is not normal because the cost of debt increases when leverage increases; and that the rise in a company's leverage is a short-term fix because a firm cannot continuously increase its debt.

In addition to that, [21] argued that the assumptions of Modigliani and Miller (1963) about how firms that use more debt in their capital structure will have a higher firm value than those that don't are not realistic because, in reality, when debt increases, risk increases, so the positive effect of increasing debt on firm value will no longer be beneficial for the firm; higher levels of debt make the firm face a higher risk of default, and thus the firm's value will decrease.

### **3) The Signaling Theory**

The signaling theory was developed by [22], who argued that choosing the right incentive policy for managers and the right mix of financial structure can send signals to the market. Additionally, he hypothesized that the manager has some confidential information about the firm's operations and is therefore prohibited from trading in his or her own instruments. In a competitive equilibrium, where investors are aware of the manager's incentive system, the manager's financial decisions will indicate the value of the firm [8].

Ref [22] and other authors developed the capital structure signaling theory at the end of the 1970s based on the problems of information asymmetry between managers and investors. These concepts are based on the assumption that the firm's top executives, who have access to confidential information, have the motivation to share this information with external investors in order to increase the stock price. However, managers can't just tell investors about the good news because investors will be suspicious [20].

In order to further explain the theory, [23] stated that Ross (1977) introduced asymmetric information to the research of capital structure for the first time; he assumed that corporate executives possess internal information about the firm's potential earnings as well as investment risks, whereas investors do not; however, investors are aware of the incentive system for executives; therefore, investors can only evaluate the market value of the firm indirectly based on the information sent by the manager. The debt ratio or asset-liability structure of a firm is a market-communicating signal that communicates internal information.

Similarly, [20] explained Ross believes that financial leverage serves as a market signaling mechanism. One of the most well-known signals is incurring debt. This action increases the likelihood and expense of a firm experiencing financial distress. When investors observe an increase in a firm's debt, they perceive it as a sign that its managers predict future cash flows that will help stop a recession. Also, since the probability of bankruptcy is inversely correlated with the value of

the firm and positively correlated with the level of debt, external investors view a high debt ratio as an indication of high quality, *i.e.*, the value of the firm and the debt ratio are positively correlated [23].

## 2.2. Previous Studies

This section discusses past studies examining the impact of capital structure on stock return and the findings they reached.

Some of the researchers who investigated the impact of capital structure on stock returns found that capital structure impacts stock returns positively. A study considering eight Pakistani industries that are engineering, cotton, sugar and allied, chemicals, cement, fuel, energy, transport, and communications reported that leverage has a positive impact on stock returns and that a high leverage level leads to a high systematic risk level and hence leads to high volatility in stock prices [24]. Moreover, a study on the Indonesian food and beverage sector showed that leverage significantly affects stock returns positively when using the debt-to-equity ratio as a proxy for leverage; these results were obtained from a study on six of the food and beverage firms in the Indonesia Stock Exchange from 2009-2013 [2].

Some studies from the Arab world [25] examined how capital structure influenced the stock returns of 60 Jordanian industrial firms listed on the Amman Stock Exchange (ASE) from 2014 to 2018, which provides recent evidence from Jordan. They came to the conclusion that long-term debt to equity, short-term debt to equity, and leverage have a positive effect on stock returns.

This is in line with what [1] concluded after analyzing the relationship between the capital structure and stock return of 13 Jordanian commercial banks listed on the Amman Stock Exchange during the period from 2009 to 2018. The findings demonstrated that capital structure, growth, and profitability have a positive effect on stock returns. So, both studies took place in Jordan and covered almost the same time frame, and the results remained consistent even though [25] study was on industrial firms and [1] study was on commercial banks. However, additional research may yield different results.

However, other researchers who examined the association between capital structure and stock return came to the opposite result, that capital structure has a negative impact on stock return.

Ref [26] discovered that leverage and stock return have a negative, significant relationship, with the stock return effect being stronger on leverage. Researchers explained that these findings are consistent with the market timing theory, which states that when the stock return is high, managers tend to focus their financing primarily on equity rather than external financing (debt), resulting in a decrease in the firm's leverage. The study sample consisted of 100 non-financial firms listed on the Karachi Stock Exchange during the period 2006-2010 and the aim of the study was to analyze the co-determinants of both capital structure and stock return together.

While [25] and [1] found a positive impact of the capital structure on the stock return, a study conducted in Jordan with the purpose of examining the relationship between capital structure and stock return selected all industrial firms listed on the Amman Stock Exchange as a sample for the period 2007–2014 and generated different results. Capital structure was measured by leverage ratio, and researchers assigned growth, firm size, earnings per share, profitability, and liquidity as control variables. Results showed that there is a statistically significant negative impact of leverage on stock returns. Also, as for the control variables, the results showed a highly significant positive impact of turnover (liquidity) on stock return, a statistically insignificant impact of market-to-book ratio (growth), earnings per share, and firm size on stock return, and a highly significant positive impact of return on assets (profitability) on stock return [27].

When some of the researchers found either a positive or a negative association between capital structure and stock return, there were other researchers who found the association between both to be insignificant.

In a study that took place in Jordan by [28] to test the relationship between leverage, profitability, and stock return, they examined the data of 65 manufacturing firms that are listed on the Amman Stock Exchange during a period of ten years from 2001 to 2011. For leverage, they used three financial ratios to test as proxies: debt ratio (DR), debt-to-equity ratio (DER), and interest coverage ratio (CR); and as for profitability, they used five financial ratios: gross profit margin (GPM), net profit margin (NPM), return on assets (ROA), return on equity (ROE), and earnings per share. The results revealed that all profitability ratios have a significant relationship with the stock return except the net profit margin, while all leverage ratios showed no significant relationship with the stock return, which contradicts the previously mentioned findings of [27] [25] and [1].

Moreover, a study tested the effects of liquidity (current ratio), profitability (return on assets), productivity (total asset turnover), and leverage (debt-to-equity ratio) on the stock return. The study sample was twenty firms listed in the food and beverage sub-sector on the Indonesia Stock Exchange during 2016-2020; profitability showed a positive impact on the stock return, while all other variables, including leverage, showed a negative and insignificant impact on the stock return [29].

### 3. Data and Methodology

#### 3.1. Variables Description and Calculations

This study employs stock return as a dependent variable and financial leverage and debt-to-equity as independent variables. **Table 1** presents the study variables and their calculations.

#### 3.2. Study Hypotheses

The following hypotheses were generated to assess the impact of capital structure on the stock return. These hypotheses will be tested using weighted least



**Table 1.** Study variables.

Variable	Indicators	Definition	Reference
Independent Variables			
Financial Leverage	LEV	Total Debt/Total Assets	([27] [30])
Debt-to-Equity	DER	Total Debt/Total Equity	([28] [31])
Dependent Variable			
Stock Return	SR	(Current period stock price-previous period stock price)/previous period stock price	([32] [33]; and [30])

squares regression analysis, and the results will be discussed in the following sections.

H1: The capital structure has a significant impact on stock returns.

H1a: The financial leverage ratio has a significant impact on stock returns.

H1b: The debt-to-equity ratio has a significant impact on stock returns.

### 3.3. Research Model

This study employs a multiple regression analysis for the purpose of assessing the impact of capital structure on the stock returns of Egyptian firms. So, the following regression model is developed in order to assess the impact of the independent variables on the dependent variable.

$$SR = \beta_0 + \beta_1 LEV + \beta_2 DER + \varepsilon$$

where:

$$SR = \text{Stock returns of firms } (P_t - P_{t-1})/P_{t-1} \dots$$

where:

$P_t$ : Current period stock price

$P_{t-1}$ : Previous period stock price

$\beta_0$  = coefficient of intercept

LEV = financial leverage (Total Debt/Total Assets)

DER = Debt to equity ratio (Total Debt/Total Equity)

$\beta_1 \dots \beta_2$  = regression coefficients of independent variables

$\varepsilon$  = error term

### 3.4. Sampling and Data Collection

All data used was obtained from the financial statements and annual reports that were gathered from the firms' websites and the financial website Mubasher Info, for the purpose of testing the research hypotheses. Moreover, all financial firms, such as banks and insurance firms, were excluded from the research sample because they have different leverage levels than other corporations, according to the availability of data, the study sample included 75 Egyptian firms listed on the Egyptian stock exchange, covering a period of 6 years from 2017 to 2022, which means that the total number of observations is 450.

Additionally, all statistics were done using the Statistical Package for Social Science (SPSS) version 20. In addition, descriptive statistics were applied in order to display the data statistically; these statistics include the mean, minimum, maximum, and standard deviation for all the variables included in the study.

Furthermore, multiple regression analysis is conducted in order to assess the significance and direction of the association between financial leverage and debt-to-equity and the stock return. The method chosen for the current study is weighted least squares regression (WLS). This method was used by [34] in analyzing the impact of capital structure on the stock return in a study conducted in Indonesia.

### **Weighted Least Squares Regression**

This study employs weighted least squares regression in analyzing the data; the reason why is that the standard linear regression model ( $y = a + bx$ ) implies that all random error components are distributed similarly and independently with constant variance. When this assumption is broken, the ordinary least squares estimator of the regression coefficient loses its property of minimal variance in the class of linear and unbiased estimators; in such cases, the generalized or weighted least squares method is employed to estimate the model's parameters [35]. The assumption underlying the classical linear regression model is that the error term  $e_i$  has equal variance across all observations and is homoscedastic. Nonetheless, heteroscedasticity (unequal variance) occurs when the assumption of homoscedasticity, or equal variances, can't be met [36].

## **3.5. Measurements**

### **3.5.1. Stock Return**

According to [3] [34] [37] and [39], the return on stock can be calculated by dividing the current period stock price minus the previous period stock price by the previous period stock price.

Since the calculation of stock return involves the price of the stock, the stock price for the 75 firms included in the study is obtained from the financial website Mubasher Info in order to derive the stock return equation.

$$SR = (P_t - P_{t-1}) / P_{t-1}$$

where:

SR: Stock Return;

$P_t$ : Current period stock price;

$P_{t-1}$ : Previous period stock price.

### **3.5.2. Capital Structure**

Researchers commonly employ two measurements to assess the impact of the capital structure: the financial leverage ratio and the debt-to-equity ratio. While other researchers have subdivided the ratio into long-term debt and short-term debt, this study focuses only on the total debt to assess its impact on the stock return.

### Financial Leverage

The first independent variable of the study is financial leverage; according to previous research, financial leverage (also called the debt-to-asset ratio) can be calculated by dividing the total debt of the current period by the total assets of the current period ([27] [38] and [37]).

$$\text{Financial Leverage} = \text{Total Debt/Total Assets}$$

### Debt-to-Equity

Moving to the second independent variable of the study, which is the debt-to-equity ratio, based on previous studies by [29] [2] and [39], can be calculated by dividing the total debt by the total shareholder's equity.

$$\text{Debt-to-Equity} = \text{Total Debt/Total Equity}$$

## 4. Findings and Analysis

### 4.1. Descriptive Statistics

**Table 2** illustrates the minimum, maximum, mean, and standard deviation of the study's variables. The dependent variable of the study is the stock return, while the independent variables are the debt-to-equity ratio and financial leverage.

The table shows that the average level of stock return in the sample used is 0.25; this goes in line with [40]. Additionally, it shows that the minimum stock return is -1, which is consistent with the minimum stock return value in [28] analysis, and the maximum is 6.61, which is in line with [37], with a standard deviation of 0.76, close to the standard deviation of [40], which is 0.65.

As for the debt-to-equity ratio, the table indicates that it has an average of 1.16, which is in accordance with [29], a minimum of -17.80 that is close to [40] minimum of DER, which is -16.14, a maximum of 71.72, and a standard deviation of 4.38.

### 4.2. Regression Analysis

**Table 4** shows that the P-value of the model is 0.00, which means that the model is significant and the association being tested between capital structure and stock return is highly important and significant as it is lower than 0.01.

Additionally, **Table 3** demonstrates an R-value of 0.443, which represents the correlation coefficient. This coefficient indicates the proximity of the actual

**Table 2.** Descriptive statistics.

N	Minimum	Maximum	Mean	Std. Dev.	
SR	450	-1.00	6.61	0.25	0.76
DER	448	-17.80	71.72	1.16	4.38
LEV	448	0.00	11.43	0.61	1.02

values to the estimated values. A higher R-value is preferable. In this case, the R-value is close to 0.5, indicating a positive correlation between the actual and estimated values.

Moving to one of the most important measures, which is the R-square, the table shows an R-square of 19.6%, which means that 19.6% of the variance that occurs in the stock return can be explained by a change in the capital structure, while there are 80% left to be explained by other variables outside of the study's model. Moreover, the value of the adjusted R-square is

19.3%, which is too close to the R-squared. This means that the capital structure is impacting the stock return significantly.

Moving to the regression results for each variable and how positively or negatively the stock return can be affected by the independent variables. The study employs two independent variables, the financial leverage and the debt-to-equity ratio, to see their effect on the stock return, which is the study's dependent variable.

**Table 5** shows that the financial leverage has an insignificant level of 0.509, which means that the financial leverage has an insignificant impact on the stock return, and the study's hypothesis H1a is rejected. This matches the findings of [28], who conducted a study on the Amman Stock Exchange for the period 2001-2011 and reported an insignificant impact of financial leverage on the stock return. Consistently, [41] found that capital structure, as measured by financial leverage, has no effect on the stock return in the study that took place in Indonesia from 2014 to 2018.

**Table 3.** Model summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.443 <sup>a</sup>	0.196	0.193	1.872

**Table 4.** ANOVA model.

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	378.048	2	189.024	53.923	0.000 <sup>c</sup>
1 Residual	1545.893	441	3.505		
Total	1923.941	443			

**Table 5.** Regression results.

Model	Coefficients <sup>a,b</sup>				t	Sig.
	Unstandardized Coefficients		Standardized Coefficients Beta			
	B	Std. Error				
(Constant)	0.193	0.042		4.552	0.000	
1 LEV	-0.018	0.028	-0.029	-0.662	0.509	
DER	0.039	0.004	0.436	9.982	0.000	

Although this result is in accordance with many previous studies, other researchers have had other contradicting results. [42] reported a significant positive impact of leverage on stock returns in firms listed on Borsa Italiana (Milan Stock Exchange) and NYSE Euronext Lisbon for the time period 2000-2010. Also, a study in Indonesia found that financial leverage has a positive effect on stock returns in firms listed on the Indonesia Stock Exchange for the period 2016-2018 [37].

On the other hand, the debt-to-equity ratio showed a high level of significance of 0.00, which means that the debt-to-equity ratio has a significant impact on the stock return; moreover, the table shows a positive relationship between the debt-to-equity ratio and stock return, that is, for every 1% increase in the debt-to-equity ratio, the stock return will increase by 3.9% and vice versa. Hence, this supports hypothesis H1b that the debt-to-equity ratio has a significant impact on the stock return.

This result goes in line with the findings of [38], who reported a significant positive impact of debt-to-equity on stock returns in 10 oil and gas Pakistani firms from 2005-2014. Also, [43] found a significant positive effect of the debt-to-equity ratio on stock returns for manufacturing industrial firms listed on the Indonesia Stock Exchange from 2011 to 2016. Moreover, [1] and [25] both reported a positive impact of the capital structure on the stock return in the Jordanian market and the Amman Stock Exchange. **Table 6** shows the summary of the hypotheses results.

## 5. Recommendations

The impact of capital structure on stock return has been found to be significant and positive, which means that any change in a firm's debt levels can affect the price of the stock and thus the stock return. Firms in Egypt should pay close attention to the strategy they use to manage their debt and equity mix.

Based on the study findings, it is recommended that firms modestly increase their borrowing levels. This action would signal to external investors about the expected future earnings, subsequently leading to an increase in shareholders' returns. However, firms should understand the substantial risk associated with excessive debt such as the bankruptcy risk and try to develop a risk management strategy to minimize the potential consequences of increased debt levels. While risk is an inherent characteristic of debt, it is widely recognized in finance that

**Table 6.** Summary of hypotheses results.

Variables	Hypotheses	Results	Findings
Dependent Variables			
Capital Structure	H1	Partially Supported	
Financial Leverage	H1a	Not Supported	Insignificant
Debt-to-Equity	H1b	Supported	Significant Positive

higher risk is usually associated with higher returns. Consequently, investors will be compensated for taking on the additional risk associated with investing in such stocks.

So, when investors are evaluating different investment options in Egypt, it is recommended that they consider the capital structure ratios of the firm. A higher debt-to-equity ratio leads to a higher stock return for investors.

## 6. Limitations

One of the major limitations of the study is the scarcity of prior studies conducted in Egypt for the purpose of examining the influence of capital structure on stock returns. Definitely, more studies adopted in the market being tested could've been more beneficial and given a broader picture of the Egyptian market situation.

Moreover, gathering financial data in Egypt is a challenging mission. Consequently, it has been managed to collect financial data for only 75 firms listed on the Egyptian Stock Exchange (EGX) for a period of six years, from 2017 to 2022, after excluding financial sector firms due to their unique characteristics. Undoubtedly, a larger sample size would yield more accurate outcomes.

## 7. Conclusions

By reviewing previous capital structure theories, it is clear that various theories support these findings. In 1963, Modigliani and Miller proposed the trade-off theory, which states that when leverage levels increase, firm value also increases. When debt interest is eligible for the tax deduction, it leads to increased levels of operating income and, hence, higher returns for investors.

Moreover, the signaling theory by Ross (1977) confirmed the impact of capital structure on stock returns. He argued that capital structure changes serve as signals to the market; when a firm increases its debt level; investors consider this an indication that managers anticipate future cash flow to cover that debt. In this way, managers help increase the stock price of the firm, leading to an increase in the stock return.

In conclusion, there is a significant positive impact of the debt-to-equity ratio on the stock returns of Egyptian firms listed on the Egyptian Stock Exchange (EGX), and Egyptian firms tend to prefer funding their activities through debt, as this leads to an increase in the stock price and consequently the stock return.

## Conflicts of Interest

The authors declare no conflicts of interest.

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