

Influence Of Capital Structure On Firm Performance: Evidence From India

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Abstract

This research study lays a primary emphasis on studying the relationship between the performance of a firm and the capital structure of the organization. Specifically, the focus is on the relationship between return on equity and return on assets. Throughout the course of this inquiry, a representative sample of 36 Indian companies that were trading on the Bombay Stock Exchange at some point between 2017 and 2022 was analyzed. These companies had been listed on the BSE at some point. These businesses exemplified a diverse cross-section of India's economic landscape. As dependent variables, we employed Earnings per Share (EPS), Return on Equity (ROE), Return on Assets (ROA), and Tobin's Q. On the other hand, Short-Term Debt Ratios, Long-Term Debt Ratios, and Total Debt Ratios were used as Independent Variables. The organization's capital structure is integrally tied to each of these several performance metrics, which in turn all influence one another. After applying the pooling panel data regression method, we arrived at the conclusion that EPS has a significant positive relationship with short-term debt, but a significant negative relationship with long-term debt. This result led us to the conclusion that EPS has a significant positive relationship with short-term debt. As a result of this, we arrived at the realization that EPS had an important positive association with short-term debt. ROA has a large and inverse relationship with the capital structure of the company, and this link is rather robust in its relationship. On the other hand, there is no association that can be established through statistical analysis that is statistically significant between the company's capital structure and its performance as measured by ROE and Tobin's Q. This conclusion can be reached because there is no correlation between the two factors. Due to the fact that there is no link between the two variables, one might arrive at this conclusion. In spite of the fact that there is a positive correlation between EPS and STDTA, we are still able to arrive at the conclusion that the capital structure of the company has a negative influence on the performance of the company. This is the case even though there is a positive correlation between EPS and STDTA. The Pecking Order Theory makes an assertion, which is supported by these facts, which indicate that the theory is consistent with them. These findings show that the theory is consistent with them.

Keywords: capital structure, firm performance, panel data

1. Introduction

A company's long-term debt, particular short-term debt, common equity, preferred equity, and retained earnings all make up what is referred to as its "capital structure." The word "capital structure" refers to the composition of a company's finances. This merger is utilized to finance the entirety of the company's activities as well as its growth in the market. The capital structure of a company is a highly crucial decision in terms of how the company's finances will be organized. This is due to the fact that the capital structure of a company is directly tied to the risk and return of the firm. If decisions about the capital structure of the company are taken too early, this could result in a greater cost of capital, which would then have an effect on the value of the company. Delaying the process of decision-making is one way to get around this problem. On the other hand, an intelligent choice about the composition of the capital could have the opposite impact. Weston and Brigham (1979) provided a definition for the phrase "capital structure," in which they described it as the permanent financing of the company, which was represented by long-term debt, preferred stock, and net worth. This definition was provided in the context of explaining how the phrase "capital structure" came to be. The meaning of the phrase "capital structure" has been analyzed from a variety of different angles by a variety of different academics. According to Van Horne and Wachowicz, a company's "capital structure" can be defined as the combination of a firm's permanent long-term financing that is represented by debt, preferred stock, and common stock equity. In other words, the capital structure of a company includes all three types of equity (1995). This aspect of the organization is referred to as the "capital structure" of the business. The above explanation makes it abundantly evident that the primary components of the capital structure are a mixture of long-term debt and equity, and the fact that this is the case is immediately obvious. In the past, analyzing capital structure did not take into account short-term debt; however, in our research, we did take this into mind because we found that it was crucial. In the past, capital structure did not take into account short-term debt.

At this point in time, researchers and academics have already spent a large number of years undertaking study on capital structure that is both theoretical and empirical in nature. However, financial economists did not begin paying attention to the topic until Modigliani and Miller published their "irrelevance theory of capital structure" in the year 1958. (hereafter referred to as MM theory). The findings of all of the studies indicate that there is one capital structure that is superior to all others. This is the structure that optimizes the value of the company while simultaneously minimizing the cost of capital and, as a result, maintaining a healthy equilibrium between risk and return. Optimal value is achieved when these three factors are all present. It is not possible to provide financial managers with a precise method at this time for building an acceptable capital structure for an organization. This is because there is not a sufficient amount of data to support this conclusion (Gitman & Zutter, 2010). Following the recommendations made by MM, a considerable amount of research was conducted in order to identify the capital structure that would show to be the most effective in the long run. Despite the fact that it is founded on a number of assumptions that are not realistic, such as the assumption of ideal capital markets, this theory offers us a framework that we can use to conduct research on capital structure. This is because the theory is organized around the capital market efficiency hypothesis. The trade-off theory, the agency costs theory, the pecking order theory, and the market timing theory are the four fundamental theories of capital structure that have been developed up to this point in time. Each of these ideas places its primary emphasis on a distinct aspect of the process through which capital structure is established.

According to Modigliani and Miller (1958), the capital structure of a company has no bearing on the value of the business as long as all components of the capital markets are functioning effectively. This is based on the assumption that all aspects of the capital markets are efficient. Although later they revised their earlier theory by incorporating tax benefit and argued that under market imperfection where interest payments are tax deductible, firm value will increase with the level of financial leverage, this theory has been criticized by many researchers who argue that in reality there are no perfect capital markets. Although later they revised their earlier theory by incorporating tax benefit and argued that under market imperfection where interest payments are tax deductible, firm value will increase with the level of financial leverage. Despite the fact that they later revised their earlier theory by including a tax benefit and argued that under conditions of market imperfection in which interest payments are deductible from taxes, firm value will increase with the level of financial leverage, it should be noted that this theory was developed after the fact (Modigliani & Miller, 1963).

Even when there are flaws in the market, such as taxes, bankruptcy charges, and agency expenses, businesses are still able to "trade off" the benefits and costs of debt and equity financing in order to find a capital structure that is best for them. This allows them to discover a capital structure that allows them to operate most effectively. They do this in order to determine the most effective capital structure. Because of this, the companies are able to arrive at the optimal capital structure for their particular circumstances. Companies that are profitable can borrow more money up to a certain limit, but after that point, the company's value and profitability will begin to decline as a result of the interaction between the costs of bankruptcy and the costs of agency. This is because bankruptcy costs and agency costs are both costs that the company must pay. This is due to the fact that the corporation is required to pay costs associated with both filing for bankruptcy and working with agencies. On the other hand, Jensen and Meckling (1976) established the agency costs theory as a means of broadening the MM theory. They did this so that they could better understand the relationship between agency and costs. This was done with the intention of broadening the scope of the theory. According to the agency costs hypothesis, the agency problem is the result of a conflict of interest between shareholders and managers (agency cost of stock) or between shareholders and loan holders. Alternatively, the agency problem may be the result of a conflict of interest between shareholders and loan holders. There is also the possibility that the agency problem is brought on by a conflict of interest between the shareholders and the loan holders. There is also the possibility that the shareholders and the debt holders are the ones at odds with one another (agency cost of debt). So, the utilization of debt will lead to a reduction in the cost of the agency, as the payment of interest will result in a reduction of the additional cash that is available. This is because the consumption of debt will result in a reduction of the surplus cash that is available (Suleiman, 2013).

The Pecking Order Theory was proposed by Myers and Majluf (1984), and it states that there is no such thing as an ideal capital structure. This idea stands in opposition to another one that was published earlier called the trade-off theory. They stated that the financial pecking order, which is also known as the hierarchy of financial institutions, should be utilized in order to lessen the impact of the issue of asymmetric knowledge between the managers of companies and the investors in those companies. The hierarchy of financial institutions is also known as the financial pecking order. In an effort to mitigate the effects of the problem, this measure would be taken. e. The use of a company's accumulated earnings in the form of retained earnings is at the very pinnacle of the hierarchy of financing, which also includes the utilization of debt and culminates with the issuance of new shares as the final type of financing. Recent investigations on capital structure, such as those carried out by Baker and Wurgler (2002), have led to the development of a novel theory on the subject. This new theory, which has been given the name "market timing theory of capital structure," postulates that managers can increase the wealth of existing shareholders by timing the issue of securities on the market. The theory was given the name "market timing theory of capital structure" earlier this year. As

a result of this, companies plan their equity issues by selling new stocks at times when the price of existing stocks is considered to be overpriced and buying back their own shares at times when the shares are considered to be undervalued. This allows the companies to maximize the value of their equity offerings. To put it another way, when firms perceive that the price of a stock has been unfairly inflated, they will sell fresh stocks in order to reduce their holdings.

The prior discussion has shed light on a number of important points, one of which is the fact that the fundamental motivation behind all of the theories of capital structure is to determine whether or not the capital structure has any influence at all on the performance of the firm. This is one of the important points that has been brought to light as a result of the prior discussion. Because of the discussion that took place before this one, this is one of the most important topics that has been brought to light. There have been a great number of empirical studies conducted to investigate the connection that exists between the capital structure of a firm and the level of performance that it achieves. In spite of the fact that India has only contributed a negligible amount to this body of knowledge, this is the case. As a direct result of this, we are going to give this endeavor the highest amount of effort that we are capable of. The purpose of this study is to investigate the connection that exists between the various options for the firm's capital structure and the success of the business. In order to accomplish this goal, the research will make use of a sample size of 36 companies that were traded on the Bombay Stock Exchange between the years 2017 and 2022. In order to accomplish this, we are going to use a selection of businesses that were actively traded on the BSE. After doing a panel data regression analysis on their relationship, we discovered certain findings that are in conflict with one another. These findings pertain to the character of their relationship with one another.

After this, the other components of the investigation are arranged in the following order: The previous research that has been done is dissected in Part 2, which follows on from Part 1. The consequences of the findings presented in parts 1 and 2 are discussed in the third section. Methodologies and data are at the forefront of the conversation throughout the entirety of Part 3. The findings of the research are analyzed as well as discussed in the fourth section of the report, which is the concluding section. The investigation is finally brought to a close in Part 6.

2. Literature Review

Since the publication of Modigliani and Miller's "irrelevance theory of capital structure" in 1958, the theory of capital structure has been a subject of study that is of interest to finance economists ever since. This interest is likely due to the fact that the theory of capital structure explains a phenomenon that was previously unknown. There have been a lot of studies done to study the connection between the capital structure of firms and the success of such businesses in a variety of nations, but India has not contributed all that much to the research that has been conducted on this issue in any significant way. It is not completely impossible for businesses established in wealthy nations to function in a manner that is distinct from that of their contemporaries in underdeveloped countries. In view of the fact that India is currently considered to be a developing nation, it would make a lot of sense to look into previous initiatives that have been done in other countries that are considered to be impoverished.

While some academics found a positive association between the structure of a company's capital and the success of the company, other researchers found a connection between the two that was unfavorable. Some, on the other hand, came to the conclusion that there was either a convoluted or nonexistent connection between the two. In the paragraphs that are to follow, we will be talking about some of the most important things that have been said or written about this subject in the past. These can be either direct quotes or paraphrases from longer works.

Roden and Lewellen (1995) analyzed a sample of 48 American companies that were in operation between the years 1981 and 1990 and discovered that there is a positive link between the profitability of a company and its capital structure. The sample included businesses that were operating in the United States. Champion (1999), Ghosh, Nag, and Sirmans (2000), and Hadlock and James (2000) all reported findings that were comparable to this one (2000). All of these studies came to the same conclusions after observing results that were comparable to these (2002). They came to the same verdict, which was that companies that have high levels of profitability use significant amounts of debt to finance their operations. This verdict was reached after they considered the evidence.

Margaritis and Psillaki (2010) found that the relationship between a company's use of leverage and its overall success was one that was both statistically significant and positively associated. Moreover, this relationship was found to be causal. They used a sample of French companies that had experienced both low growth and significant growth over the course of the period 2003-2005 and discovered that leverage had a positive effect on the overall efficiency of businesses that were included in the sample. This was discovered by using a sample of French companies that had experienced both low growth and significant growth.

Samuel (2013) carried out an investigation in order to assess the extent to which the capital structure of a firm is responsible for the level of performance of that company. This research was carried out with the assistance of panel data, which included 257 unique businesses that were active in South Africa during the years 1998 and 2009. The time period covered in this study was from 1998 to 2009. He used the GMM regression method to analyze the correlation,

and the findings indicated that there was a positive and significant connection between financial leverage and the success of a company. This conclusion was reached after he determined that there was a correlation between the two variables. He arrived at the conclusion that the GMM regression approach was an appropriate technique for doing the analysis of the correlation. Aliakbar, Seyed, and Pejman (2013) discovered yet another strong positive correlation between firm performance and capital structure on the Tehran Stock Exchange. It has been found that there are advantages to maintaining this link.

On the other hand, Rajan and Zingales (1995) conducted a comprehensive study on the capital structure of forty-eight companies that had their headquarters in the United States over the years 1981–1990. Their findings were published in the journal *Financial Management*. These findings were presented in an article that was printed in the journal *Financial Management*. According to the findings of that study, there is a correlation that runs in the other direction between the amount of debt that a company maintains and its level of profitability. The researchers who carried out that study anticipated that the magnitude of this association would become more readily apparent as the company in question grew in size. They also stated that a negative association exists between performance and leverage in scenarios in which returns on stocks and investments are guaranteed for a limited amount of time and debt is the primary source of financing obtained from outside sources. In these scenarios, leverage is the primary source of financing obtained from outside sources. In circumstances in which leverage is the principal source of financing derived from external sources, this is the condition that exists.

According to the research that was conducted by Gleason, Lynette, and Ike (2000), the efficiency of a company will be negatively affected if its capital structure has an excessive amount of debt. This will have a detrimental impact on the efficiency with which the organization performs. They made the observation that the capital structure of a company has a statistically significant and negative impact on the performance matrices of that company, specifically return on assets (ROA), growth in sales (Gsales), and pretax income. This was the conclusion they came to after conducting research into the topic. After carrying out the research, they came to the realization that this was the outcome (Ptax).

Both Fama and French came to the conclusion that a firm's capital structure had a negative relationship with the performance of the company (2002). The conclusion that highly lucrative businesses that have a lesser likelihood of suffering financial troubles are actually less levered is an observation that runs counter to the trade-off argument that was presented earlier on in the conversation.

Nor and Fatihah (2012) made an effort to investigate the effect that the use of debt and equity financing has on the overall performance of the companies that are listed on the Bursa Malaysia exchange. Their findings showed that the use of debt and equity financing has a positive effect on overall performance. According to their findings, making use of both debt and equity funding has a beneficial effect on an organization's overall success. They conducted a multiple regression analysis on a sample of 130 different companies between the years 2001 and 2010, and the findings demonstrated that there is a statistically significant inverse association between the performance of enterprises and the capital structure of the companies in question. The research was carried out between the years 2001 and 2010.

According to the research conducted by Manawaduge, Zoysa, Chowdhury, and Chandarakumara (2011), the vast majority of Sri Lankan businesses opt for short-term loan capital rather than long-term debt. According to the findings of the researchers, the utilization of debt had a detrimental effect on the performance of the enterprises; hence, the vast majority of businesses in Sri Lanka rely on capital provided by short-term loans. According to Amos and Jeremiah, the people they met in Nigeria had experiences that were comparable to one another in terms of the outcomes (2013). In addition, they generated evidence to support the thesis that the use of a company's retained earnings comes first, followed by its debts, and then finally by its equity. This evidence was produced to support the thesis that the use of a company's retained earnings comes first.

Anup and Suman (2010) investigated the connection between the capital structures of Indian businesses and their overall values by employing a cross-sectional tie series fixed effect model in their research. The data they obtained were later published in the academic journal known as *Business Research Journal*. They came to the realization that having the appropriate ratio of debt to equity was important in order to achieve the desired goal of maximizing the wealth of the owners. On the other hand, the cost of capital is associated with this alternative in a manner that is unfavorable; hence, it is vital that the cost of capital be maintained at a minimum whenever it is at all possible to do so. According to the research that was conducted by Khairul (2013), there is a significant negative correlation between profitability and leverage in businesses that are situated in India.

On the other hand, a few of the authors reported coming to findings that were diametrically opposed to one another. Kinsman and Newman (1998) conducted research along these lines and found a variety of results from their investigation into the connection between the level of a company's debt (including three different measures of debt level) and the performance of the company. Kinsman and Newman's findings can be found in the following paragraph. The findings that Kinsman and Newman came to can be found in the paragraph that is located below. According to the findings of this investigation, there is a correlation between profits and short-term debt that is inverse, although a correlation between earnings and long-term debt is positive. Mesquita and Lara (2003) conducted research in Brazil and came to a conclusion that was comparable to this one. Mesquita and Lara (2003) in Brazil.

Tianyu (2013) carried out study in order to identify how the capital structure of a firm affects the performance of the company in both mature and developing markets. Specifically, he was interested in how this relationship played out. For the purpose of his research, samples were taken from a total of 1200 publicly traded corporations in Germany and Sweden, in addition to 1000 publicly traded enterprises in China. His studies were carried out during the years 2003 and 2012, inclusively. He was able to prove, through the use of the OLS regression method, that the capital structure of a corporation had a significant negative effect on the firm's performance in China, but a significant positive effect in two European countries, namely Germany and Sweden, prior to the occurrence of the global financial crisis in 2008. He found that the capital structure of a corporation had a significant negative effect on the firm's performance in China, but a significant positive effect in Germany and Sweden. This was the situation prior to the financial crisis that started in 2008, though.

In order to investigate the relationship that exists between business success and the composition of a company's capital, Salim and Yadav (2012) conducted research on a sample population consisting of 237 Malaysian businesses that were active between the years 1995 and 2011. According to the findings of their investigation, the ratios of return on assets, return on equity, and earnings per share (EPS) have a negative association with the capital structure, whereas Tobin's Q has a significantly positive link with STD and LTD. This is the case even though Tobin's Q has a significantly positive link with STD and LTD. In spite of the fact that Tobin's Q has a large positive connection with STD and LTD, this is still the case. Between the years 1989 and 2003, Zeitun and Tian (2007) conducted research on 167 Jordanian enterprises using a sample that was meant to be representative of the entire population. The results of their study led them to a conclusion that was quite comparable to this one.

However, Ali and Iman (2011) found that there was a negative link between the capital structure and ROA. EPS and Tobin's Q are two metrics that are utilized to evaluate the success of a firm. On the other hand, they did not find any evidence to support the idea that ROE and capital structure are significantly connected to one another. This led them to reject the hypothesis as being invalid. In addition to this, Ebrati, Farzad, Reza, and Ghorban all independently arrived to the same conclusion (2013).

Abor (2005) conducted research on whether or not there was a correlation between a company's capital structure and its level of profitability throughout the period of time that the company was traded on the Ghana Stock Exchange, which was between the years of 1998 and 2002. This study covers the time during which the corporation was available for purchase by the general public. He found, through the use of regression analysis, that return on equity (ROE) had a significant positive correlation with both overall debt ratio and short-term debt, but that it had a significant negative correlation with long-term debt. The overall debt ratio had a substantial positive correlation with ROE.

On the other hand, the results of a number of research indicated that there was either a very weak link or none at all. Phillips and Sipahioglu (2004) investigated publicly traded hotel companies in the United Kingdom and found no indication of a substantial connection between the capital structure of those companies and the performance of those companies. It would appear that hotel companies prefer to obtain money from outside sources. This is likely due to the relatively poor rate of return on their capital.

In addition, Ibrahim (2009) investigated the ways in which the type of capital structure utilized by a company in Egypt had an impact on the level of success that was achieved by the business as a whole in that country. His study was conducted by using multiple regression analysis, and it was based on a sample of non-financial companies that were listed on the stock market between the years 1997 and 2005. The sample was taken from the entire stock market during that time period. The sample was compiled from the years 1997 all the way through 2005. According to the data, there is at best a weak connection between the success of an organization and the type of capital structure that it employs. This is the conclusion that can be drawn from the findings. In a study that arrived at the same conclusions as the one presented here, Khalaf (2013) discovered a negative and insignificant association between short-term and long-term debt ratios, in addition to return on assets and profit margin. Since the publication of Modigliani and Miller's "irrelevance theory of capital structure" in 1958, the theory of capital structure has been a subject of study that is of interest to finance economists ever since. This interest is likely due to the fact that the theory of capital structure explains a phenomenon that was previously unknown. There have been a lot of studies done to study the connection between the capital structure of firms and the success of such businesses in a variety of nations, but India has not contributed all that much to the research that has been conducted on this issue in any significant way. It is not completely impossible for businesses established in wealthy nations to function in a manner that is distinct from that of their contemporaries in underdeveloped countries. In view of the fact that India is currently considered to be a developing nation, it would make a lot of sense to look into previous initiatives that have been done in other countries that are considered to be impoverished.

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In order to investigate the relationship that exists between business success and the composition of a company's capital, Salim and Yadav (2012) conducted research on a sample population consisting of 237 Malaysian businesses that were active between the years 1995 and 2011. According to the findings of their investigation, the ratios of return on assets, return on equity, and earnings per share (EPS) have a negative association with the capital structure, whereas Tobin's Q has a significantly positive link with STD and LTD. This is the case even though Tobin's Q has a significantly positive link with STD and LTD. In spite of the fact that Tobin's Q has a large positive connection with STD and LTD, this is still the case. Between the years 1989 and 2003, Zeitun and Tian (2007) conducted research on 167 Jordanian enterprises using a sample that was meant to be representative of the entire population. The results of their study led them to a conclusion that was quite comparable to this one.

However, Ali and Iman (2011) found that there was a negative link between the capital structure and ROA. EPS and Tobin's Q are two metrics that are utilized to evaluate the success of a firm. On the other hand, they did not find any evidence to support the idea that ROE and capital structure are significantly connected to one another. This led them to reject the hypothesis as being invalid. In addition to this, Ebrati, Farzad, Reza, and Ghorban all independently arrived to the same conclusion (2013).

Abor (2005) conducted research on whether or not there was a correlation between a company's capital structure and its level of profitability throughout the period of time that the company was traded on the Ghana Stock Exchange, which was between the years of 1998 and 2002. This study covers the time during which the corporation was available for purchase by the general public. He found, through the use of regression analysis, that return on equity (ROE) had a significant positive correlation with both overall debt ratio and short-term debt, but that it had a significant negative correlation with long-term debt. The overall debt ratio had a substantial positive correlation with ROE.

On the other hand, the results of a number of research indicated that there was either a very weak link or none at all. Phillips and Sipahioglu (2004) investigated publicly traded hotel companies in the United Kingdom and found no indication of a substantial connection between the capital structure of those companies and the performance of those companies. It would appear that hotel companies prefer to obtain money from outside sources. This is likely due to the relatively poor rate of return on their capital.

In addition, Ibrahim (2009) investigated the ways in which the type of capital structure utilized by a company in Egypt had an impact on the level of success that was achieved by the business as a whole in that country. His study was conducted by using multiple regression analysis, and it was based on a sample of non-financial companies that were listed on the stock market between the years 1997 and 2005. The sample was taken from the entire stock market during that time period. The sample was compiled from the years 1997 all the way through 2005. According to the data, there is at best a weak connection between the success of an organization and the type of capital structure that it employs.

This is the conclusion that can be drawn from the findings. In a study that arrived at the same conclusions as the one presented here, Khalaf (2013) discovered a negative and insignificant association between short-term and long-term debt ratios, in addition to return on assets and profit margin.

3. Data and Methodology

3.1 Data and Sample

In developing nations such as India, the collection of data can be a difficult and time-consuming process. Much of our attention is directed toward businesses that are listed on the Bombay Stock Exchange (BSE) (BSE). We did not include any financial institutions, banks, or insurance companies in our sample because these types of companies operate their businesses in unusual ways and manage their capital in different ways. Also, we do not include any companies that have lately gone public. Because there is a shortage of data available, we have no choice but to dismiss a few more companies from consideration. In conclusion, our sample consists of 36 different enterprises, the majority of which are headquartered in the cement, food, fuel & power, medicines, and other industries. We were able to aggregate 216 individual observations into a panel of data as a result of maintaining track of these businesses during the course of the period 2017-2022. The entirety of the information was gathered through secondary sources, notably the annual reports of the businesses that served as a sample. In developing nations such as India, the collection of data can be a difficult and time-consuming process. Much of our attention is directed toward businesses that are listed on the Bombay Stock Exchange (BSE) (BSE). We did not include any financial institutions, banks, or insurance companies in our sample since these types of companies operate their businesses in distinctive ways and manage their capital in distinct ways. Also, we do not include any companies that have lately gone public. Because there is a shortage of data available, we have no choice but to dismiss a few more companies from consideration. In conclusion, our sample consists of 36 different enterprises, the majority of which are headquartered in the cement, food, fuel & power, medicines, and other industries. Because we have been following these businesses over the course of the years 2017-2022, we have been able to collect 216 individual observations into a panel of data. The entirety of the information was gathered through secondary sources, notably the annual reports of the businesses that served as a sample.

3.2 Variables

This piece of research seeks to answer the question of whether or not the capital structure of a company has any influence on the overall success of the company. For the purposes of this inquiry, the variables known as earnings per share (EPS), return on equity (ROE), return on asset (ROA), and Tobin's Q are being utilized as the representatives of the many measurements of a company's level of performance. Return on equity (ROE), earnings per share (EPS), and return on assets (ROA) are each abbreviations that are derived from their respective acronyms. EPS stands for earnings per share. ROE and ROA both stand for return on equity. The earnings per share (EPS) is the most fundamental of a company's performance measures, and it is determined by dividing the company's net profit after taxes by the total number of shares that are currently in circulation. EPS is an abbreviation for "earnings per share." "earnings per share" (EPS) is an abbreviation for "earnings per share per share," which can also be written out as "earnings per share per share." Return on equity, sometimes referred to as ROE, is a crucial profitability metric that may be calculated by dividing a business's net profit after taxes by the total amount of equity the company has. ROE is also known as ROE. The term "ROE" refers to the return on equity. Just dividing the company's net profit after tax by the total assets is all that is required to get at the return on assets, which is more commonly referred to as ROA. In 1969, James Tobin was the first person to propose a performance metric that would later become known as Tobin's Q. This metric is still in use today. The total book value of all of the company's assets is then subtracted from the current market value of the entire company. This is what it means to have value for an enterprise. Tobin is the one who originally brought this efficiency metric to widespread attention.

On the other hand, in order to accurately describe capital structure, we require three variables that are independent of one another and are not dependent on any of the others. The factors at play here are the ratio of total debt to total assets (TDTA), the ratio of short-term debt to total assets (STDTA), and the ratio of long-term debt to total assets (LTDTA) (TDTA). In addition, the size of the company, which can be found by taking the logarithm of the total assets, is considered to be a controllable variable that is taken into account. The value is calculated by taking the logarithm of the total assets in the company.

3.3 Model

This study employs pooling panel data regression models in order to evaluate the influence that capital structure has on the performance of firms. The ordinary least square (OLS) regression model for basic pooling panel data is presented as follows:

$$Y_{it} = \alpha + X_{it}\beta + \varepsilon_{it}$$

Here, $i = 1, 2, \dots, N$; $t = 1, 2, \dots, T$

In this instance, the performance of the company over the duration of the *t*th period will act as the dependent variable, and *Y_{it}* will show how well the company did over that time period. The entire time period is covered by the independent variable *x_{it}*, which reflects the capital structure of the company *I* at the given time *t* and extends over the full time range. The value that is represented by is known as the error term, whilst the number that is given by is called the regression coefficient. Both of these terms allude to the relationship between and.

When doing an analysis of panel data, a number of publications relied solely on a pooled ordinary least square (OLS) estimate model. Nevertheless, the issue with this model is that it does not take into consideration time-invariant firm specific heterogeneity. This phenomenon is also known as unobserved fixed effect. This is the root of the problem that needs to be solved. This directly contributes to the possibility that the model would generate findings that are not just inaccurate but also unreliable. On the other hand, the fixed effects model has a disadvantage in the sense that it makes the assumption that the intercept of each cross-section will not change over the course of time. This is a restriction that cannot be removed from the model. In the field of statistical analysis, this is a quite limiting assumption to make. It would be inappropriate to use only one of the models for pooling resources because each one has certain confines of its own to work within. These are the models, and you can find them here. On the other hand, we conducted our research by utilizing a wide array of alternative pooling models. The pooled OLS model, the fixed effects model, and the random effects model were among these models.

Both the F-test and the Hausman test were employed by our group in order to aid in the selection of the pooling models that are likely to be deemed the most acceptable. To get started, we are going to run an F-test to determine whether or not we should employ models with pooled or fixed effects. The results of this test will help us decide how to proceed. After that, a Hausman test is carried out in order to evaluate if a fixed or random effects specification should be applied to the data. This decision is made in order to improve the accuracy of the analysis. Both White's test and the Wald test are carried out in order to determine whether or not the model displays any of the characteristics of heteroskedasticity. In addition to that, the Durbin Watson statistic is used within the context of the regression model in order to carry out an autocorrelation research. This is done in order to determine whether or not there is a correlation between the variables. In addition to this, the test that was developed by Levin, Lin, and Chu (2002) is carried out in order to determine whether or not all of the variables are stationary.

In spite of this, we are going to employ the following regression models in this investigation to see how the firm's performance is affected by the choice of capital structure:

$$EPS_{it} = \alpha_{it} + STDTA_{it}\beta_0 + Size_{it}\beta_1 + \varepsilon_{it} \tag{1}$$

$$EPS_{it} = \alpha_{it} + LTDTA_{it}\beta_0 + Size_{it}\beta_1 + \varepsilon_{it} \tag{2}$$

$$EPS_{it} = \alpha_{it} + TDTA_{it}\beta_0 + Size_{it}\beta_1 + \varepsilon_{it} \tag{3}$$

$$ROE_{it} = \alpha_{it} + STDTA_{it}\beta_0 + Size_{it}\beta_1 + \varepsilon_{it} \tag{4}$$

$$ROE_{it} = \alpha_{it} + LTDTA_{it}\beta_0 + Size_{it}\beta_1 + \varepsilon_{it} \tag{5}$$

$$ROE_{it} = \alpha_{it} + TDTA_{it}\beta_0 + Size_{it}\beta_1 + \varepsilon_{it} \tag{6}$$

$$ROA_{it} = \alpha_{it} + STDTA_{it}\beta_0 + Size_{it}\beta_1 + \varepsilon_{it} \tag{7}$$

$$ROA_{it} = \alpha_{it} + LTDTA_{it}\beta_0 + Size_{it}\beta_1 + \varepsilon_{it} \tag{8}$$

$$ROA_{it} = \alpha_{it} + TDTA_{it}\beta_0 + Size_{it}\beta_1 + \varepsilon_{it} \tag{9}$$

$$Q_{it} = \alpha_{it} + STDTA_{it}\beta_0 + Size_{it}\beta_1 + \varepsilon_{it} \tag{10}$$

$$Q_{it} = \alpha_{it} + LTDTA_{it}\beta_0 + Size_{it}\beta_1 + \varepsilon_{it} \tag{11}$$

$$Q_{it} = \alpha_{it} + TDTA_{it}\beta_0 + Size_{it}\beta_1 + \varepsilon_{it} \tag{12}$$

Tobin's Tobin's Tobin's

In this case, the performance of the company during the course of the *t*th period will serve as the dependent variable, which will be indicated by *Y_{it}*. The independent variable *x_{it}* depicts the firm *i*'s capital structure at the given time *t* and spans the entire time period. The number shown by is referred to as the regression coefficient, whilst the value indicated by is referred to as the error term.

When doing an analysis of panel data, a number of publications relied solely on a pooled ordinary least square (OLS) estimate model. Nevertheless, the issue with this model is that it does not take into consideration time-invariant firm specific heterogeneity. This phenomenon is also known as unobserved fixed effect. This is the root of the problem that needs to be solved. This directly contributes to the possibility that the model would generate findings that are not just inaccurate but also unreliable. On the other hand, the fixed effects model has a disadvantage in the sense that it makes the assumption that the intercept of each cross-section will not change over the course of time. This is a restriction that cannot be removed from the model. In the field of statistical analysis, this is a quite limiting assumption to make. It would be inappropriate to use only one of the models for pooling resources because each one has certain confines of its own to work within. These are the models, and you can find them here. On the other hand, we conducted our research by utilizing a wide array of alternative pooling models. The pooled OLS model, the fixed effects model, and the random

effects model were among these models.

Both the F-test and the Hausman test were employed by our group in order to aid in the selection of the pooling models that are likely to be deemed the most acceptable. To get started, we are going to run an F-test to determine whether or not we should employ models with pooled or fixed effects. The results of this test will help us decide how to proceed. After that, a Hausman test is carried out in order to evaluate if a fixed or random effects specification should be applied to the data. This decision is made in order to improve the accuracy of the analysis. Both White's test and the Wald test are carried out in order to determine whether or not the model displays any of the characteristics of heteroskedasticity. In addition to that, the Durbin Watson statistic is used within the context of the regression model in order to carry out an autocorrelation research. This is done in order to determine whether or not there is a correlation between the variables. In addition to this, the test that was developed by Levin, Lin, and Chu (2002) is carried out in order to determine whether or not all of the variables are stationary.

In spite of this, we are going to employ the following regression models in this investigation to see how the firm's performance is affected by the choice of capital structure:

4. Result Analysis

4.1 Descriptive Statistics

The dependent and independent variables are both listed in Table 1, with each of them having been broken down into their own set of descriptive statistics. For the purpose of this study, both dependent and independent variables were considered. This table presents an overall summary of the features of the data by primarily exhibiting the mean, high, and low values of the variables, as well as the standard deviation and the unit root test. This table may be found here (LLC). In addition to that, it shows the maximum and minimum values of the standard deviation. It is essential to bear in mind that the mean value of all of the variables is in the positive range, as this is an important feature. Despite this, the average earnings per share, return on equity, and return on assets for companies domiciled in India for the sample period of 2017-2022 were 9.44, 0.13, and 0.07 correspondingly. This would imply that the businesses situated in India did not achieve an especially high return or performance within the allotted amount of time. Because India's inflation rate has been relatively high, hovering about around 8% throughout the course of the previous few years, the real rate of return will be lower than it otherwise would have been. This is a consequence of the fact that India's inflation rate has been relatively high. The fact that the average value of Tobin's Q is 1.68, which is a number that is greater than one, indicates that the market value of the companies that are listed on the Bombay Stock Exchange is greater than the book value of such companies. This is because 1.68 is a number that is greater than 1. This illustrates that additional capital expenditure is required for the companies since the earnings generated are larger than the costs connected with making use of the companies' assets. Since this is the case, more capital expenditure is necessary. The reason for this is that the corporations are able to generate profits that are higher than the costs that are involved with using their assets. This is the reason why this is the case. On the other hand, the STDTA, LTDTA, and TDTA each have respective means that range from 40.36 to 16.29 to 56.65 percent, which illustrates that the vast majority of enterprises in India are highly levered. In addition to this, they place a significant portion of their financial reliance on short-term debt, which is a form of financing that is generally regarded as being associated with a high level of risk for a company. In other words, they are gambling a significant portion of their financial future on the outcome of a single event. In conclusion, if all of the variables are stable, the results of the LLC test imply that none of the variables have a unit root; an alternative interpretation of these results is that all of the variables are consistent.

Table 1. Described statistics

	EPS	ROE	ROA	Tobin's Q	STD	LTD	TD	SIZE
Mean	9.4378	0.1281	0.0649	1.6825	0.4036	0.1629	0.5665	9.3644
Median	5.0000	0.1333	0.0456	1.2991	0.3940	0.1068	0.5729	9.2350
Minimum	(5.8000)	(3.5000)	(0.1656)	0.0958	0.0432	0.0003	0.1748	7.9076
Standard Deviation	10.9680	0.3441	0.0671	1.4274	0.2267	0.1691	0.2252	0.6936
Skewness	1.5223	(4.6551)	0.5933	1.9821	0.6371	1.4665	0.3924	0.3868
Kurtosis	1.6625	60.2020	0.9692	6.1662	(0.0794)	1.5203	(0.4520)	(0.6703)
Observations	216	216	216	216	216	216	216	216
Unit Root test:	-9.3161*	-8.2177*	-6.1087*	-4.9077*	-4.3008*	-5.9447*	-7.7274*	-4.6396*
LLC Test								

Note. *Significant at the 0.01 level.

4.2 Regression Analysis

In the previous part of this article, we created a total of twelve different regression models for the purpose of investigating the connection that exists between the profitability of a company and the composition of its capital. The purpose of this inquiry was to ascertain whether or not the two things under consideration are related to one another in any way. To get started, we conducted a regression analysis using ordinary least squares on a panel for each of the twelve models that use Gretl to simplify the panel diagnosis. This analysis was done for all of the models. Because of her assistance, Gretl was successful in bringing about the desired outcome. The panel diagnosis provides us with the information we require to select the appropriate model from among pooled, fixed effects, and random effects. We use the F-test and the Hausman test to get this information. To accomplish this, select the model that provides the most convincing explanation for the facts. Instead of any of the other models that were taken into consideration, the panel strongly recommended utilizing the fixed effects model instead. Because of this, the fixed effect models ultimately became the foundation for each and every regression model that was developed. Both White's test and Wald's test, which were utilized to investigate heteroskedasticity in each of the models, arrived at the same conclusion, which was that there was no evidence of heteroskedasticity. White's test was first developed in the 1950s and Wald's test was developed in the 1960s. The findings of both tests came together to show that this is the case.

Table 2 offers a summary of the findings that were generated by the three different models that were used to research the relationship between EPS and the various capital structure ratios. These models were used to study the relationship between EPS and the various capital structure ratios. According to the findings of the inquiry, EPS has a strong positive connection with STDTA at a level of 5%, but it has a major negative connection with LTDTA at a level of 1%. Both of these connections are at the same level. In spite of this, there is some evidence to show that EPS and TDTA have a tenuous link that is in the opposite direction. All of the models have extremely high adjusted R² values (75.11, 76.36, and 74.35 percent respectively), which indicates that the models are quite capable of explaining the variation in EPS that is caused by the variation in the independent variables. This was determined by comparing the adjusted R² values of all of the models. All of the models have incredibly high R² values, which is why this is the case (debt levels and size). There is no evidence of autocorrelation in the models, as demonstrated by both the F-value and the Durbin-Watson (DW) statistics. The F-value demonstrates that the model's explanatory variables share a statistically significant relationship with one another, and the DW statistics demonstrate that the models do not exhibit any autocorrelation. The revelation that there is no correlation between the models that were utilized in the experiments lends credence to both of these discoveries. This association was employed in the studies. The profits per share (EPS) variable does not have a significant link with the variable that is acting as the control, which is the size of the company, at the significance level of 5%. The findings about STDTA are in accordance with the findings that were discovered by Ali and Iman (2011), Hadlock and James (2002), and Suleiman (2013). On the other hand, the results that were obtained for LTDTA are in agreement with the results that were obtained by Rajan and Zingales (1995) and Suleiman. These three researchers all came to the same conclusion (2013). (2013). In addition, the results obtained by TDTA are in agreement with the conclusions obtained by Salteh, Ghanavati, Khanqah, and Khosroshahi (2012).

Table 2. Relations between EPS and debt levels

Models	"Fixed Effects Model"				
Coefficient			T-ratio	P-value	
Model 1	Const		-36.6287	-1.601	0.1111
STDTA			10.8613	2.389	0.0179**
Size			4.45119	1.884	0.0612*
Adj R ²			0.7511		
F-Value			18.5378***		
Durbin-Watson			2.9351		
Model 2	Const		15.3346	0.7224	0.471
STDTA			-22.7194	-3.921	0.0001***
Size		-0.234605		-0.105	0.9165
Adj R ²			0.7636		
F-Value			19.7664***		
Durbin-Watson			2.1236	0.8449	
Model 3	Const		-5.03198	-0.1959	0.6197
STDTA			-2.16679	-0.4971	0.5195
Size			1.67627	0.6454	
Adj R ²			0.7435		
F-Value			17.8438***		
Durbin-Watson			1.5361		

Note. * significant at 0.10, ** significant at 0.05 and *** significant at 0.01 level.

The results of the investigation into the relationship between ROE and capital structure ratios are presented in table 3, which can be found here. This table, which also depicts the findings from the study, provides a summary of the findings from models 4 to 6, as well as the findings from the investigation. According to the statistics, there is a negative association between ROE and debt levels (STDTA, LTDTA, and TDTA), although this link is not statistically significant at the 10% level of significance. This could be because ROE and debt levels are highly correlated with one another. It's possible that this is due to the fact that ROE is a measure of profitability and not debt levels. There is a low value of adjusted R2, which comes to 12.82, 12.72, and 12.84 percent correspondingly. This indicates that the value is low. This suggests that the value is on the lower end of the spectrum. According to the statistics that were provided by DW, there is no evidence that the data are autocorrelated. The findings are in line with those that were found in the research done by Zeitun and Tian (2007), Ebaid (2009), and Ali and Iman (2008).

Table 3. Relations between ROE and debt levels

Models	"Fixed Effects Model"			
		Coefficient	T-ratio	P-value
Model 4	Const	1.0348	0.7705	0.4420
	STDTA	-0.1256	-0.4705	0.6386
	Size	-0.0914	-0.6590	0.5107
	Adj R ²		0.1282	
	F-Value		1.8546***	
	Durbin-Watson		2.4728	
Model 5	Const	0.7967	0.6226	0.5343
	STDTA	-0.0333	-0.0953	0.9241
	Size	-0.0708	-0.5257	0.5998
	Adj R ²		0.1272	
	F-Value		1.8467***	
	Durbin-Watson		2.4708	
Model 6	Const	1.2016	0.8089	0.4197
	STDTA	-0.1293	-0.5131	0.6085
	Size	-0.1068	-0.7111	0.4780
	Adj R ²		0.1284	
	F-Value		1.8562***	
	Durbin-Watson		2.4764	

Note. * significant at 0.10 , ** significant at 0.05 and *** significant at 0.01 level.

The results of an analysis of the correlation between ROA and various capital structure ratios using models 7 to 9 are presented in table 4, along with their associated significance levels. These models were utilized in the research process in order to investigate the connection between the two. The findings indicate that there is a substantial inverse association between ROA and STDTA at a level of 10%, as well as a significant inverse relation between ROA and LTDTA and TDTA at a level of 1%. At a rate of 1%, both of these relationships were found to be present. The value of R2 after adjustments has been on a steep ascent for some time (71.63, 72.37, and 73.34 percent correspondingly). Each model's F-value is significant at the 1% significance level, which means that the models are statistically equivalent. It has been demonstrated that the control variable, size, has a negative association with ROA across all models. On the other hand, this link is not statistically significant in models 7 and 8, but it is statistically significant in model 9 at the 5% level. The research conducted by DW statistics has shown that none of the models include any evidence of autocorrelation in their data. These results coincide with those that were discovered by Rajan and Zingales (1995), Gleason and colleagues (2000), Manawaduge and colleagues (2011), Ali and Iman (2011), Salim and Yadav (2012), Anup and Suman (2010), and Nor and Fatihah (2012). All of these experts independently came to the conclusion that there is a considerable adverse relationship between the capital structure of a firm and its performance.

Table 4. Relations between ROA and debt levels

Models	"Fixed Effects Model"			
		Coefficient	T-ratio	P-value
Model 7	Const	0.2513	1.6810	0.0945*
	STDTA	-0.0538	-1.8140	0.0714*
	Size	-0.0175	-1.1390	0.2563
	Adj R ²		0.7163	
	F-Value		15.6749***	
	Durbin-Watson		2.3902	

Model 8	Const	0.2654	1.8900	0.0603*	
	STDTA	-0.1092	-2.8510	0.0049***	
	Size	-0.0195	-1.3200	0.1880	
Adj R ² F-Value			0.7237		
Durbin-Watson			16.2215***		
			2.4350		
Model 9	Const	0.4935	3.0800	0.0024***	
	STDTA	-0.1050	-3.8620	0.0002***	
	Size	-0.0394	-2.4320	0.016**	
	Adj R ²		0.7334		
	F-Value		16.9889***		
	Durbin-Watson			2.4298	

Note. * significant at 0.10 , ** significant at 0.05 and *** significant at 0.01 level.

Table 5 provides a summary of the findings that were obtained from models 10 to 12, and it also presents the results of an examination into the impact that the capital structure has on the Tobin's Q. Additionally, Table 5 presents the findings of an investigation into the relationship between the capital structure and the Tobin's Q. According to the findings, there is a positive correlation between Tobin's Q and STDTA and TDTA, however this association is not statistically significant at the 10% level. On the other side, there is a weakly negative correlation between Tobin's Q and LTDTA at the same level. However, this correlation is not significant. These two correlations don't amount to anything noteworthy statistically speaking. Tobin's Q likewise possesses an inverse relationship with size, albeit one that is not even close to being as robust as the others in this group. According to the numbers that were shown by DW, not a single one of the models displays any kind of indication that they are autocorrelated. These findings, along with those of Zeitun and Tian (2007), Abor (2007), Salteh et al. (2012), and Ebrati et al., are compatible with one another and with those of other researchers who have conducted similar research (2013).

Table 5. Relations between Tobin's Q and debt levels

Models	"Fixed Effects Model"			
	Coefficient	T-ratio	P-value	
Model 10	Const	4.4296	1.1000	0.2728
	STDTA	0.4426	0.5530	0.5809
	Size	-0.3124	-0.7512	0.4535
	Adj R ²		0.5447	
	F-Value		7.9509***	
	Durbin-Watson		2.4731	
Model 11	Const	7.0231	1.8380	0.0677*
	STDTA	-1.3144	-1.2610	0.2091
	Size	-0.5474	-1.3610	0.1752
	Adj R ²		0.5479	
	F-Value		8.0427***	
	Durbin-Watson		2.4541	
Model 12	Const	6.4141	1.4390	0.1518
	STDTA	0.2906	-0.3843	0.7012
	Size	-0.4877	-1.0820	0.2805
	Adj R ²		0.5443	
	F-Value		7.9395***	
	Durbin-Watson		2.4408	

Note. * significant at 0.10, ** significant at 0.05 and *** significant at 0.01 level.

5. Conclusions

The purpose of this research is to analyze the effect that a company's capital structure has on its performance by utilizing a sample that is typical of 36 Indian businesses spanning the years 2017–2022. The time frame that is the subject of the study will serve as the basis for this examination, which will then be carried out. According to the findings of this study, the performance of the company, which was evaluated using EPS as the metric, has a significant and beneficial connection to the capital structure, which was evaluated using STDTA as the metric. These results provide evidence that a link of this kind does exist. The relationship between EPS and TDTA is negligible, although the

association between EPS and LTDTA is significantly negative and substantial. On the other hand, the association between EPS and TDTA is not very strong. This is because EPS has an inverse relationship with LTDTA, which explains why this is the case. In addition, it was not demonstrated in this inquiry that return on equity and capital structure have an association that is statistically significant with one another.

On the other hand, it has been discovered that there is a relationship between ROA and capital structure that has a very high level of statistical significance; more specifically, the ratio of ROA to capital. ROA has a significant negative relationship with all different types and amounts of debt, and this connection is consistent across the board (STDTA, LTDTA & TDTA). Our research indicates that Tobin's Q and capital structure do not appear to have an association that can be supported by evidence derived from statistical studies. This conclusion was reached based on the outcomes of our analysis. This is the inference that can be made based on the findings we uncovered. In addition, studies have shown that the controllable variable known as company size has a positive influence on earnings per share (EPS), but a negative influence on return on assets. This dichotomy can be attributed to the fact that larger companies tend to have more assets (ROA). This is a significant finding, and it is critical to keep in mind that LTDTA has a negative impact on all of the metrics used to evaluate a company's performance, such as EPS, ROE, ROA, and Tobin's Q. With one notable exception—the positive connection that exists between EPS and STDTA—we are able to arrive at the conclusion that the capital structure does, in fact, have a detrimental influence on the performance of the company. This is the one exception. Because of this relationship, we are able to reach the opposite conclusion. That is to say, the performance of the company will suffer in direct proportion to the number of debts that are included in the capital structure, and vice versa. In addition, the performance of the firm will suffer in direct proportion to the total amount of capital. Also, the amount of equity that is included will have a negative impact on the performance of the company in a manner that is directly proportional to the degree of the negative impact. Myers and Majluf are the ones who came up with the Pecking Order Theory, and their findings, despite the fact that they go against the trade-off theory, are in line with the statement that theory created. [Citation needed] [Citation needed] (1984). This inverse relationship is supported by a number of well-known studies, such as the ones that were carried out by Harris and Raviv (1991), Rajan and Zingales (1995), Fama and French (2002), Gleason, Lynette, and Ike (2000), Booth, Aivazian, and Demirguc-Kunt and Maksimovic (2001), Manawaduge et al (2011), and Anup and Suman (2010), amongst other researchers.

Despite this, the negative link can be explained by India's underdeveloped equity and loans (long-term) markets, which result in a higher cost of debt and strict restrictions attached to the usage of debt. In other words, the cost of debt is higher and there are more restrictions on how debt can be used. To put it another way, the cost of debt is higher, and there are more limitations placed on the ways in which it can be utilized. In addition, the findings of this research indicate that those in charge of managing finances should reserve the use of borrowing as a very last resort in their capital structure. This recommendation is supported by the findings of the study. The findings of the research have led to the formulation of this advice. In conclusion, the scope of our study might be expanded by include in the regression models other controllable factors, a larger sample size, and data covering a longer period of time. This would make it possible to have a representation of the whole picture that is more accurate. If you were to do that, you would see far more favorable results. There is a large range of additional methods and benchmarks for measuring that can be implemented.

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