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# *Understanding the Importance and Profitability Impact of Debt to Equity Ratio on Companies*

**Xiaolan Zhang**[1,a,*]

[1]*City University of Hong Kong, Kowloon Tong, HK*
*a. xzhang2286-c@my.cityu.edu.hk*
**corresponding author*

***Abstract:*** The progressive debate on the capitalist system of capitalism has been one of the most important institutional topics in the literature since Modigliani and Miller (M-M theorem 1958 and 1963) incorporated it into origin and education. Financial impact on company value. To address this issue, it relied on an international agency that has evaluated the performance of large and low-debt companies since 2004. December. until 2018 The findings showed the performance of large debt capital companies. significantly lower than the low debt-to-equity ratio. We noticed tall companies. Businesses are designed to be financially stable and therefore cheaper than their peers, as higher debt leads to less bankruptcy losses. Interestingly, our research focuses on specific areas: cross-border, cross-sectoral, added value and long-term analysis. These empirical data later contradicted M. M.'s recommendations on the principle of inequality in the capital system (1958; 1963).

***Keywords:*** profitability impact, debt to equity ratio, company

## 1. Introduction

### 1.1. A Subsection Sample

In the corporate finance article, the choice of financial structure is an important business structure that evaluates the excellent capital base and resilience with which a company continues to achieve its goal. In short, the capital structure theory suggests a methodical conception of the costs of business projects through the consolidation of equity and debt. In a more comprehensive interpretation, the capital structure consists of current earnings, common stock, preferred stock and common stock [1-5].

Between debt and equity, debt financing becomes a larger amount of debt financing, especially when interest rates are lower, and debt financing enjoys an enhancement known as a tax shield [2,6,7].

In this discussion, Modigliani-Myers (2001) notes that corporate interests have evolved through higher leverage correlations than corporate tax shields. The idea is that interest on debt loans can be deducted through after-tax limits. So, MM (1963) sounds as if he understands that leveraged firms (in an ideal world) earn more profits than unleveraged firms.

We understand that there is an ongoing debate and academic need regarding the choice of corporate financing mechanisms. In this paper, it is normal experience that the greater the leverage, the

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more sensitive the firm is (Breuer & Gürtler, 2008; Cumming & Groh, 2018; Fama, 1998; Zender, 2019).

In fact, high leverage indicates that a company is highly leveraged, but it doesn't mean that the company's finances are not very good, or that it has poor creditworthiness. Therefore, a higher debt-to-shareholder ratio exposes a company's investors to greater risk. Therefore, investors need to choose an appropriate capital structure. Different countries have different financial and financial barriers.

From the current article, it's hard to guess which companies are looking to introduce high leverage ratios. Therefore, the research question in this article is whether high leverage actually brings more value to the company or shareholders. (Abor, 2005; Demirgüç-Kunt, Peria, & Tressel, 2020; Fama & French, 2002; Grassa & Miniaoui, 2017; Nagano, 2017; Vo, 2017).

A survey of the financial performance of listed companies in 10 countries in the 15 years since 2005 shows that low-leveraged companies have low price-to-earnings ratios and low price-to-earnings ratios, based on Tobin's Q data. However, high debt companies have lower earnings per share than low debt companies. In my research, I looked at variables such as: B. Duration, differences between countries, differences in industry. According to statistics, companies with high debt ratios are relatively weak. We also use quantiles to ensure that highly leveraged companies are at high risk of default, even if they come from different countries or sectors. The company is exposed to this high risk due to the low credit rating of the additional debt. Therefore, according to our research, the company does not fully meet the theoretical characteristics of MM2. The study concludes that high levels of debt can lead to reduced corporate profits.

## 2. Literature Review

The purpose of corporate financing is to combine equity and debt to maximize the company's interests. Debt-to-equity ratios vary from company to company. There is already a lot of literature explaining and results for optimizing the company's debt-to-equity ratio. Nassar (2016); Appiadjei (2014); Salim and Yadav (2012)

While there are so many theories for optimizing corporate financing structures, none of them are mutually exclusive. However, we found that, in so much literature, the underlying reasons why firms choose high or low debt-to-equity ratios are not explained. Existing literature only shows that a high debt-to-equity ratio affects firm performance.

Based on many literatures, it has been proved that the company's financing structure will affect the company's profitability and performance. Unlike MM2's point of view, there are some literatures that believe that the higher the debt-to-equity ratio, the more it will lead to a decrease in the company's profitability. That is to say, the debt-to-equity ratio is negatively correlated with performance. Because debt financing will give companies tax shield benefits. However, there is also literature that the tax shield benefits are sometimes less than the risks and financial distress brought by companies choosing a high debt-to-equity ratio. There is also some literature showing that companies prefer internal financing, rather than issuing stocks or bonds for financing.Le and Phan (2017); Yapa (2017); Saputra, Achsani, and Anggraeni (2015); Deesomsak et al. (2004) Mouna, Jianmu, Havidz, and Ali (2017) (Le & Phan, 2017).

There is also some literature showing that their research is consistent with the theory of MM2. Companies choosing a high debt-to-equity ratio will improve the company's profitability. Yasmin and Rashid (2019) There is also literature showing that no matter what financing structure a company chooses, it will not affect the company's performance. Caglayan and Rashid (2014)

Neither a high debt-to-equity ratio nor a low debt-to-equity ratio affects a company's profitability.Stone et al. (2018) There is also literature showing that a firm's financing structure is designed to use a high debt-to-equity ratio or a low debt-to-equity ratio in order to achieve the firm's target

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productivity. Some literature also emphasizes the use of high debt-to-equity ratios or low debt-to-equity ratios when structuring financing with the goal of maximizing corporate value and shareholder value.Hasan, Ahsan, Rahaman, and Alam (2014); Chadha and Sharma (2015)

Unlike other earlier studies, there is a later literature showing that a firm's financing structure, using a high or low debt-to-equity ratio, does not proportionally increase or decrease a firm's profitability and performance levels. Caglayan and Rashid (2014) There is also literature that a reasonable company's financing structure can raise the company to a critical level, and no amount of debt or no amount of debt will make the company's value fall.Suzuki and Zushi (2020) However, there is no specific literature on the relationship between a company's financing structure and its level of profitability.

Panigrahi, Azizan, Sorooshian, & Thoudam (2020) It is necessary for future generations to carry out further research.Cheng, Liu, and Chien (2010)

There is some literature showing that the company's financing structure can measure the stability of the company's performance level. That is to say, a high debt-to-equity ratio leads to a higher level of risk for investors (Pellegrino & Piva, 2020) Caglayan and Rashid (2014)

There is also some literature showing that companies with low performance capabilities are difficult to raise externally, raising their financing barriers. There are also some literatures that show that it is because the debt financing enables the company to enjoy tax benefits and the company value increases. But in real life, companies with high debt-to-equity ratios may have lower creditworthiness and ability to repay principal than companies with low debt-to-equity ratios. The company's financing cost will rise with WACC, so when the company's financing cost is the lowest, it is time to maximize the company's value and shareholder value. Chang (2016) and Villamil (2008),

Understand study the financing Framework in Capital Construction without taxes in an ideal business, and discover the consequences of financial leverage on company profit and expenditures on financing. Barnea et al. [7] declares to characterize the Perfect business originally, there are no taxes and no liquidation, no market resistance implies no transaction charges; no knowledge inequality implies everybody realizes all, no department issues.

Hurdle says leverage boosts the risk and returns to stockholders [6]. Modigliani and Miller accept a credible claim that a company cannot shift the overall amount of its important securities by adjusting the portion of its business framework. In other terms, the profit of the company is constantly constant under distinctive business frameworks [8].

Expect to consider the financing Framework in the Business Framework with taxes in an ideal business, and discover the consequences of commercial leverage on firm amount and charges of financing. Fischer says the The amount of the levered company is the amount of the benefit of the debt and the benefit of the equity [5]. In deciding between the binary financing frameworks, an economic administrator should single out the one with the greater benefit.

Considering that the overall benefit is the same for both companies, value is maximized for the business framework offering the most bottom in taxes. In other terms, the administrator should adopt a business framework which the company compensates less reimburses. The business framework that maximizes company profit is the one that advances the significances of the venture capitalist.

## 3. Methodology

This research is a dynamic system. This is the final description of this method of investigation, estimation of the method, and total number. Completion of a single-series norms, an economic research model, a same-time study model, and the ordinary least square method (OLS).

To apply our experimental analysis, we define a value variable with a value of 1 if the observation is a highly leveraged partnership (HGF) and the firm is a corporation (LGF). Due to the bidirectional study of correlated variables, we used logistic recursive analysis. As mentioned above, MM believes

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that the market value of a company can be increased by maximizing leverage at the highest level. We start with basic research and conduct experimental research at every level. In the first case, we look at the very strong performance of the low-voltage leverage line in the GMM (Yit = + Pyi, t - 1 + Xit + ui + Eit) method, which predicts partial direction and dynamics. Solve the internal problem of the correlation coefficient. To test key assumptions, we strongly test whether highly leveraged firms have lower credit risk than less leveraged firms based on bankruptcy risk and different drawdowns and different z-scores.

Table 1 details the distribution of State and Sectoral Sample. Analysis in Table A shows that 48 of the 100 companies in debt are located in four countries: the United States, the United Kingdom, Australia and the United States, Germany, and 52 companies in the other six countries. Panel A also shows that 100 low-income companies are located in four countries and 49 low-income companies are in six countries. Similarly, the distribution of labor among Group B companies includes a survey sample of high- and low-debt companies in industries such as transportation and logistics. Consumer goods IT industry, planting, mining, industrial products, services, pharmaceuticals, leasing, real estate and construction.

Table 1: High Geared Firm (HGF) and Low Geared Firm (LGF) of the study.

| Group A: Country Perspectives | | | Group B: Areas/Industry Perspectives | | |
|---|---|---|---|---|---|
| Country Names | HGF | LGF | Industry sectors | HGF | LGF |
| Australia | 11 | 11 | Real Estate sector | 9 | 8 |
| United Kingdom | 11 | 14 | Trade-service sector | 11 | 11 |
| Germany | 12 | 13 | Fuel & Power sector | 7 | 8 |
| United States | 14 | 13 | Construction sector | 10 | 9 |
| Japan | 9 | 9 | Industrial sector | 14 | 16 |
| China | 7 | 6 | IT related sector | 9 | 8 |
| New Zealand | 9 | 8 | Agro. & Plant. Sector | 8 | 7 |
| Singapore | 10 | 9 | Transportation & Logistics | 11 | 12 |
| Hongkong | 8 | 9 | Pharmaceutical sector | 12 | 12 |
| Canada | 9 | 8 | Consumer sector | 9 | 9 |
| Total Sample Firms | 100 | 100 | Total Sample Firms | 100 | 100 |

From a brief overview, we examined a number of large and small companies divided into four industries, such as transportation and supply chain. While there is a large and small range of industrial products, pharmaceuticals and commercial services, we recognize that it is not appropriate to combine business models with six other industries, such as banks, leasing companies and companies in the financial sector. Insurance companies must have, among other things, different investment systems than companies operating in other industries. Therefore, we did not include any financial institutions in this study. After improving the Outlier and the missing data in the next step, all statistics are displayed in Table 2.

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Table 2: Test variables summary statistics.

| Test Variables | 1. High Geared Firms (N = 100) | | | | 2. Low Geared Firms (N = 100) | | | | 4. Variation (1–2) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | Std. Dev. | Min | Max | Mean | Std. Dev. | Min | Max | Deviation | t-Stat |
| Return on asset | 0.024 | 0.073 | -.61 | 0.48 | 0.047 | 0.11 | −2.28 | 0.71 | -.024*** | −5.15 |
| Return on equity | 0.019 | 1.50 | −40.95 | 8.43 | 0.0956 | 2.23 | −115 | 28.06 | -.075* | −1.96 |
| Earnings per share | 0.203 | 0.468 | -.89 | 2.89 | 0.267 | 1.40 | −54.0 | 35.1 | -.064** | −2.19 |
| Tobin's Q-M/B | 0.351 | 0.361 | 0.012 | 4.21 | 0.651 | 0.51 | 0.054 | 12.40 | -.305*** | −6.26 |
| Price earning-P/E | 20.98 | 38.07 | 1.14 | 295.6 | 25.49 | 53.37 | 0.15 | 875.9 | -.504 | −1.56 |
| Price per unit | 3.815 | 0.594 | 0.17 | 455.50 | 2.863 | 36.40 | 0.135 | 405.1 | .952** | −1.98 |
| Firm growth rate | 0.38 | 11.97 | 0.009 | 29.6 | 1.06 | 16.4 | 0.003 | 27.4 | −0.68** | −2.12 |
| Firm NWC | 0.65 | 11.95 | −0.9 | 25.15 | 0.96 | 14.1 | -.03 | 27.5 | -.69* | 2.10 |
| Firm Leverage | 0.808 | 0.476 | 0.55 | 0.962 | 0.187 | 0.62 | 0.095 | 0.25 | 0.621* | 1.69 |
| Cost to sales | 0.84 | 4.51 | 2.35 | 74.9 | 1.22 | 11.07 | 1.534 | 501.4 | −0.37 | −1.17 |
| Asset turnover | 0.26 | 0.31 | 0.061 | 2.26 | .806 | 3.05 | 0.023 | 88.17 | -.545*** | −8.9 |
| Price to sales | 0.56 | 7.51 | 0.011 | 54.4 | 1.19 | 10.17 | −35.5 | 161.5 | −0.63** | −2.11 |
| Firm profit | 0.22 | 13.97 | −606.9 | 205.1 | 1.16 | 16.1 | −55.3 | 271.3 | −1.38 | 1.62 |
| Firm age | 28.7 | 19.01 | 4.01 | 113 | 36.24 | 22.48 | 3.05 | 190 | −4.12** | −11.7 |
| Free cash stream | 0.052 | 0.43 | 3.66 | 4.31 | 0.071 | 1.82 | −53.0 | 26.8 | −0.021* | −2.03 |
| Firm size | 2.70 | 0.812 | 0.01 | 4.81 | 2.49 | 1.04 | 1.37 | 5.53 | 0.219 | 0.71 |
| EBITDA | 0.312 | 0.25 | -.08 | 69.26 | 0.456 | 0.203 | 0.09 | 38.25 | -.144** | −2.02 |
| Rating scale | 2.15 | 17.13 | 0.066 | 9.035 | 3.78 | 16.34 | 0.13 | 16.1 | −1.63* | 1.78 |
| Dividend per share | 0.06 | 21.5 | 0.00 | 2.13 | 0.13 | 17.21 | 0.01 | 6.89 | −0.07** | −3.56 |

## 4. Results (600-1000)

This section describes the potential impact of experimentation, discussion, and research results. Run various concept tests to see if large hardware companies are more efficient and stable than their hardware companies. From this perspective, High Gear Enterprise (HGF) and Low Geared Farm (LGF) rely on the analysis of the GMM return system. In addition, it presents a discussion to consider scientific concepts and advanced research methods.

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Building on the results of previous tests, in this section we analyze the performance of high performers versus low performers after examining the observably characteristics and influence of business and government. of the year， government and industry.

Table 3: Relative performance of HGF to LGF based on system GMM estimators.

| Group A: Size group test analysis | | | | | | |
|---|---|---|---|---|---|---|
| Variables | Market Value Performance | | | Corporate Financial Performance | | |
| | Test-1 Tobin's Q | Test-2 Price per share | Test-3 Price earning | Test-4 Return on asset | Test-5 Return on equity | Test-6 Earnings per share |
| HGF_ Large | −1.23** (−2.19) | −1.31*** (−3.79) | −0.84*** (−2.51) | −0.65*** (−5.34) | −1.43** (−2.12) | −0.437** (−2.4; 3) |
| HGF_Medium | −0.457*** (−2.87) | −1.324* (−1.71) | −0.91*** (−3.12) | −0.35*** (−3.12) | −0.679** (−2.02) | −0.86*** (−3.23) |
| HGF_ Small | −0.346 (−1.23) | −3.31 (−1.32) | −0.123** (−2.12) | −0.237** (−2.05) | −1.132** (−2.11) | −0.954** (−2.27) |
| Controls Effect | Y | Y | Y | Y | Y | Y |
| Year effect | Y | Y | Y | Y | Y | Y |
| Country effect | Y | Y | Y | Y | Y | Y |
| Industry effect | Y | Y | Y | Y | Y | Y |
| Constant | 0.435 (0.76) | 3.11 (0.98) | −0.134* (−1.72) | 0.684* (2.02) | 0.635** (2.01) | −0.561* (−1.71) |
| Wald chi-sq. | 134.55 | 153.98 | 191.45 | 251.25 | 390.67 | 193.5 |
| Observations | 2357 | 2457 | 2289 | 2355 | 2314 | 2235 |

| Group B: Crisis period test analysis | | | | | | |
|---|---|---|---|---|---|---|
| Variables | Market Value Performance | | | Corporate Financial Performance | | |
| | Test-1 Tobin's Q | Test-2 Price per share | Test-3 Price earning | Test-4 Return on asset | Test-5 Return on equity | Test-6 Earnings per share |
| HGF- Crisis | −1.345* (−1.69) | −3.45** (−1.93) | −0.51** (−1.99) | −1.34* (−1.68) | −0.567* (−1.81) | −0.567** (−2.23) |
| HGF-Non-crisis | −0.456** (−2.17) | −2.34** (−2.04) | (-2.23) *(-1.71) | −0.57** (−1.94) | −0.356** (−2.21) | −0.675** (−2.13) |
| Controls Effect | Y | Y | Y | Y | Y | Y |
| Year effect | Y | Y | Y | Y | Y | Y |
| Country effect | Y | Y | Y | Y | Y | Y |
| Industry effect | Y | Y | Y | Y | Y | Y |
| Constant | 0.067 (0.27) | 1.45 (0.10) | −0.628* (−1.87) | 0.0412 (1.26) | 0.561* (1.90) | −0.628* (−1.87) |
| Wald chi-sq. | 211.5 | 113.9 | 410.5 | 221.80 | 116.8 | 419.76 |
| Observations | 2245 | 2322 | 2055 | 2312 | 2315 | 2025 |

Y=Yes

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### 4.1. Quantile Regression Analysis

Table 4: Performance of high debt issuing firms based on different quantile regressions.

| | | | | | | |
|---|---|---|---|---|---|---|
| AT 40% QUANTILE REGRESSION | | | | | | |
| Highdebt Proxy | −1.43** (−2.08) | −0.276** (−1.98) | −0.149** (−2.04) | −0.30** (−1.99) | −0.942* (−2.06) | −0.76** (−2.29) |
| AT 50% QUANTILE REGRESSION | | | | | | |
| Highdebt Proxy | −1.26*** (−2.76) | −0.153** (−2.27) | −0.21*** (−2.57) | −0.81*** (−2.51) | −1.86** (−2.38) | −0.97*** (−2.60) |
| AT 60% QUANTILE REGRESSION | | | | | | |
| Highdebt Proxy | −2.40*** (−2.98) | −0.261*** (−2.56) | −0.15*** (−3.12) | −0.268*** (−3.11) | −1.62*** (−2.79) | −0.145* (−2.77) |
| AT 80% QUANTILE REGRESSION | | | | | | |
| Highdebt Proxy | −1.96*** (−3.27) | −0.24*** (−3.45) | −0.23*** (−3.68) | −0.78*** (−3.85) | −2.71*** (−2.87) | −0.75*** (−3.18) |

Interestingly, this important finding is consistent and applies to various quantum regression analyzes such as 20%, 40%, 60%, and 80%. Furthermore, we found that as the quantile of the sample increased, the coefficient also gradually improved. Taken together, this means and confirms that firms with a high debt have a lower market value and the return of similar firms that emit a lower debt in the global market.

### 4.2. Addiction Test

The results of previous failures indicate that HGF providers are weaker than low-cost providers and financial performance. These results indicate that low-income companies may have lower credit risk and thus lower risk in the event of default. Let us now take a serious look at whether a well-meaning company has a higher risk standard than a low-market lender.

## 5. Discussion

Through this article, the company's financing structure will affect the company's performance, so the company should use the company's leverage reasonably. My curiosity stems from the theory put forward by MM2 that the value of a company increases with the debt-to-equity ratio. But in fact, in empirical evidence, the value of the company does not increase because the debt-to-equity ratio increases.

When the company decides the financing structure of the company, it needs to solve the ratio of debt-to-equity. The choice can be the debt-to-equity ratio that maximizes the value of the company. If there is a larger debt-to-equity ratio, it will increase the investor's risk. As stated in the previous literature, the benefit of a high debt-to-equity ratio is that a small amount of money can be invested in a project with a large amount of money, which is likely to lead to greater growth of the company. And then the company uses debt financing, then the company can enjoy tax benefits.

This approach allows the company to continue to enjoy tax benefits. Therefore, the debt-to-equity ratio will affect the company's financing cost, which is WACC. That is, the higher the debt-to-equity, the lower the company's financing costs. MM has also pointed out that the value of the company will increase with the increase of the debt-to-equity ratio. Because the company enjoys tax benefits. But in real companies, we will find that a high debt-to-equity ratio will make the company more prone to bankruptcy or poor performance. Therefore, in numerous literatures, the relationship between debt-to-equity ratio and firm value and firm performance has not been studied.

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Therefore, in the case of studying real companies, the above data found that the value and performance of companies with high debt-to-equity ratios are actually lower than those with low debt-to-equity ratios. Companies with low debt-to-equity ratios face less debt and bankruptcy risk than companies with high debt-to-equity ratios. The above conclusions can be drawn even if the companies are from different countries and different industries. We also used z-score to verify whether every country and industry has this conclusion, structural performance, no country and industry does not follow this law. Therefore, this conclusion is the opposite of that proposed by MM.

In MM's theory, the most critical assumption is in a perfect world, but the conclusions drawn under this assumption are contrary to the conclusions drawn without this assumption. This article is based on real-world company data. In real companies, companies with low debt-to-equity ratios tend to have higher company performance and company value. Moreover, companies with high debt-to-equity ratios have more volatile performance than companies with low debt-to-equity ratios, increasing investor risk. Companies need to balance the tax benefits of debt financing with the cost of debt risk.

Therefore, for companies that realize life, the theory of MM cannot be applied in reality. Therefore, this proof can provide reference value for future research on corporate financing structure. Some literature also shows that the higher the debt-to-equity ratio, the more debt risk the company's financing structure is. Therefore, a high debt-to-equity ratio will reduce the profitability of the company.

Therefore, the value of the company depends on the company's investment decisions. In order to improve the company's performance level, the following suggestions are made. Companies can hire professionals to plan financing structures. Management needs to regularly evaluate the debt-to-equity ratio to ensure that the company does not have debt risk. The company should immediately pay off debts that are not in use. This study examines the impact of debt-to-equity ratio on firms in a real-world situation.

## 6. Conclusion

Companies can manage their sources of capital through different financing structures. Generally, companies will first take internal funds, then bond financing, then prefer stock financing, and finally equity financing. In MM's theory, the value of a company increases with the debt-to-equity ratio. But our structure shows that in real business, by studying different countries and different industries, we have come to the same conclusion, that is, a high debt-to-equity ratio will lead to a decrease in the value of the company.

According to our analysis, companies with relatively poor performance will adopt a financing structure with a high debt-to-equity ratio. Because companies with high debt-to-equity ratios have little income to invest, they need to use debt financing to raise funds. Also, companies with poorer performance will find it more difficult to raise capital in the equity market, so their debt-to-equity ratio is lower. So companies with high debt-to-equity ratios perform worse than companies with low debt-to-equity ratios. And companies with a high debt-to-equity ratio face a higher risk of bankruptcy. And in different industries and different countries, different company sizes, have the above conclusions. Therefore, the value of companies financed by issuing bonds is generally lower than that of companies financed by issuing stocks.

So based on practical analysis of global companies. We have questioned the conclusions put forward by MM, in practice business. MM proposes that companies that use leverage will have more company value, but in our research data, it is found that more debt will lead to the company's bankruptcy risk, thereby reducing the company's value. Therefore, the theory of MM is only applicable in the ideal world, but in real business, it is the exact opposite of the theory of MM. But we also believe that the company's financing structure can change the company's value. Therefore, this study studies the relationship between corporate financing structure and corporate value in an imperfect world, and selects the optimal debt-to-equity ratio to maximize corporate value.

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