

Impact of capital structure on firm performance: based on the Chinese alcohol industry

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Abstract

The alcohol industry is an essential component of the Chinese economy, contributing 1% of China's GDP in 2021, and an industry that urgently needs to optimize its capital strategy. This study aims to investigate the impact of capital structure on the performance of listed companies in the Chinese alcohol industry, using a balanced panel data sample of 30 Chinese publicly traded alcoholic drinks firms for the period 2016-2021. The capital structure discussed in this paper consists of three elements---financial leverage, debt maturity structure, and ownership concentration. Firm performance includes financial performance and market performance. The study results demonstrate that capital structure does significantly affect the performance of Chinese-listed companies in the alcohol industry. Specifically, financial leverage significantly contributes to financial performance and market performance; short-term debt significantly boosts financial performance and market performance, while long-term debt has no significant effect on either financial performance or market performance; ownership concentration significantly enhances financial performance. However, there is no significant effect of ownership concentration on market performance. This paper is the first research attempts to verify whether and how the capital structure of Chinese publicly traded companies in the alcohol industry has an impact on their performance. Furthermore, this study fills the gap that previous research rarely integrated three research streams of capital structure-firm performance issues (financial leverage/debt maturity structure/ownership concentration-firm performance).

Keywords: Capital structure. Firm performance. Alcohol industry.

1. Introduction

As Chinese economic reform continuously deepens, Chinese companies are highly aligning their governance and operation approaches with the world. China is increasingly introducing modern capital structure management theories from developed countries. Chinese

scholars, company owners, and managers have found in their research and practice that a firm's capital structure may affect its tax burden, bankruptcy risk, governance effectiveness, and management diligence, leading to growth or decline in firm performance. Therefore, the capital structure-firm performance issue is becoming a trending topic in Chinese corporate finance research.

Capital structure, in a narrow sense, refers to how firm finance its assets by combining debt and equity, also known as financial leverage. The debt-to-equity ratio reflects a firm's financial leverage level. The original research on the impact of capital structure on firm performance focused on how a firm's increasing/decreasing financial leverage affects firm performance, such as the classic Modigliani -Miller theory (1963), trade-off theory (1973), and pecking order theory (1984). The overall capital structure adds to financial leverage the debt maturity structure, i.e., how the firm mixes short-term and long-term debts, and the ownership concentration, i.e., whether the firm's equity concentrates among a few shareholders or widely dispersed among many shareholders. The classic theories on the effect of debt maturity structure on firm performance are Myers' (1977) "Short-term debt favorability" theory and Diamond's (1991) "Short-term debt harm" theory. The classic theory of the effect of ownership concentration on firm performance is "The monitoring effect of block-holders ownership" proposed by Shleifer and Vishny (1986).

Nowadays, literature on the capital structure-firm performance issue has spawned three streams of research: financial leverage - firm performance, debt maturity structure - firm performance, and ownership concentration - firm performance. Researchers continue to conduct empirical studies to examine the applicability of classical theory to firms in various economies, periods, and industries, with some literature supporting classical theory and some opposing it. There has yet to be a consensus in the academic community. More importantly, only a few papers have integrated the three research streams by reporting in a single paper the effect of each of the three variables of capital structure---financial leverage, debt maturity structure, and ownership concentration---on corporate performance.

Alcoholic beverages have long been an important consumer product for Chinese residents. According to the data disclosed by China Alcoholic Drink Association (CADA, 2022), the market size of China's alcohol industry is vast, with sales revenue of RMB 868.673 billion in 2021, amounting to about 1% of China's GDP in the same year (World Bank, 2022). Since China allowed foreign alcohol producers to access the Chinese market, the alcohol industry has become increasingly competitive. To maintain and enhance market competence, firms must implement massive and sustained investments in upgrading themselves. The heavy

investment nature of the alcohol industry makes it difficult for alcoholic drinks firms to rely solely on internal financing to match all their fund needs, and there is a strong demand for external financing (new debt or equity issuance). Thus, companies ought to design financing solutions that are more favorable to them, which boosts owners and managers to constantly think about what capital structure would be more beneficial to the company's financial and market performance.

This research aims to verify whether capital structure influences the performance of Chinese-listed alcoholic drinks companies. In China, the empirical evidence on the relationship between capital structure and corporate performance could be rich. Most studies involved general manufacturing and service firms. Very few studies on firms in the consumer products industry. To the best of the author's knowledge, this study provides the first attempt to investigate the impact of capital structure on firm performance in the Chinese alcohol industry. The study's significance is to find a path for Chinese alcoholic drinks companies to enhance firm performance via optimizing capital structure.

In order to achieve the research purpose, this study summarizes and integrates the three research streams (financial leverage/debt maturity structure/ownership concentration-firm performance) of the capital structure-firm performance topic and establishes multiple linear regression models between the three significant variables of capital structure---financial leverage, debt maturity structure, and ownership concentration---and the firm financial performance proxy---return on equity (ROE), respectively. These models are validated using Pooled ordinary least squares (OLS) and Fixed Effect (FE) regressions. Further, to enhance the reliability of the experimental findings, two additional robustness checks are conducted by replacing the major dependent variable ROE with the financial performance indicator return on invested capital (ROIC) and the market performance indicator market-to-book ratio of equity (MBVR). Finally, the results of whether financial leverage, debt maturity structure, and ownership concentration significantly enhance or impair firm performance (financial performance and market performance) are obtained simultaneously and aggregated to make a judgment for the question---Does capital structure influences the performance of listed companies in the Chinese alcohol industry?

This paper makes several theoretical and practical contributions by studying the topic.

Theoretical contributions include:

- The research approach of this article fills the gap in the previous literature, which needs to include the integration of the three research streams of the capital structure-firm performance relationship.

- provide empirical evidence to support or against a range of classical theories on capital structure, enhancing the literature in developing countries.

Practical contributions include:

- probably the first capital structure-firm performance research for the Chinese alcohol industry, which is groundbreaking.
- Providing comprehensive capital structure management advice to business operators and major shareholders of alcohol industry companies in China and guiding companies on how to adjust the three significant variables of capital structure---financial leverage, debt maturity structure, and ownership concentration to achieve the goal of promoting corporate performance.

The literature review section of this paper will introduce several classical capital structure theories and empirical studies done by scholars in various countries; the methodology section will describe the hypotheses and models of this study, and the data results section will present the results of the major regression test and two additional robustness checks; the discussion section will analyze how financial leverage, debt maturity structure, and ownership concentration affect corporate performance; the conclusion and recommendations section will determine whether capital structure impacts Chinese publicly traded alcoholic firms on their performance, and supply operators and major shareholders with measures to promote firm performance by optimizing capital structure.

2. Literature Review

2.1. Review

Research on the relationship between capital structure and firm performance has long explored whether and how capital structure affects firm performance. Within this broad area of inquiry, there have been three streams of research. One research stream focuses on the effect of financial leverage on firm performance (e.g., Boshnak 2022), while the other two streams focus on the effect of debt maturity structure (e.g., Tran 2023) and ownership concentration (e.g., Guluma 2021) on firm performance, respectively. Each stream makes essential and unique contributions to the literature on capital structure-firm performance. This study will integrate the three research streams using financial leverage, debt maturity structure, and ownership concentration as capital structure variables. In this way, systematically examine the impact of capital structure on firm performance.

The classical capital structure theories --- Modigliani-Miller theory, trade-off theory,

pecking order theory, and agency theory --- provide the theoretical basis for subsequent empirical studies, and this paper will also verify whether the empirical findings are consistent with the above classical theories and, if so, serve as evidence to support the above theories; if not, explore the possible reasons.

The Modigliani-Miller theory (MM theory) is the earliest and most fundamental capital structure theory. There are two versions, MM theory under perfect markets (1958) and MM theory with taxes (1963). The MM theory under perfect market (1958) assumes the existence of a perfect market, i.e., no corporate income tax, no transaction costs in the securities market, and perfect disclosure of all reliable information; it advocates the value of a company in a perfect market is independent of the ratio of debt to equity, in other words, a company cannot increase or decrease its value via adjusting financial leverage. However, real markets are very different from perfect markets. Modigliani and Miller (1963) revised the market conditions and found that the "Interest tax shield" ---which refers to the tax exemption of the interest paid by the firm on its debt can be used by the firm to raise its value. In other words, the firm value increases with the firm's financial leverage spike, considering the corporate income tax. The MM theory with taxes (1963) reveals the benefits of debt financing and is considered the theoretical source of the positive correlation between the level of financial leverage and firm performance; however, it ignores the financial risks associated with debt financing.

Kraus and Litzenberger (1973) studied the disadvantages of debt financing to compensate for the shortcomings of MM theory. They found the "financial distress effect", i.e., the bump in operating costs when a firm is in financial distress due to over-leveraging. They proposed the trade-off theory accordingly. The trade-off theory suggests that a firm can maximize its value by weighing the benefits of interest tax shields against the losses of financial distress to obtain an optimal capital structure. The theory reveals the dangers of over-leveraging: once the level of financial leverage exceeds the debt-to-equity ratio under the optimal capital structure, increasing financial leverage will lead to a decline in firm value. Therefore, the subsequent empirical studies regard the "financial distress effect" in the trade-off theory as the theoretical basis for the negative relationship between financial leverage and firm performance.

The pecking order theory, proposed by Myers and Majluf (1984), was the first theory to propose that a company's financing decisions send signals to the market and thus affect the firm value. The theory argues that: when firm finances itself through retained earnings, it sends positive signals to the market that the firm is self-sufficient; when a firm engages in

debt financing, it indicates that the firm managers believe that the firm has a clear prospect and is confident in meeting its debt contract obligations, and the market's confidence in the firm will rise as a result; when a firm chooses external equity financing, it reflects that managers view that there is high uncertainty about business future, the cash flow of company may be problematic, the only financing choice for the company is equity financing, and the market will receive a negative signal that the company's value may be overvalued; therefore, corporate financing is recommended to follow (1) internal financing (2) debt financing (3) external equity financing in order of priority. When firm finance itself according to the pecking order, it usually has higher financial leverage. Scholars and managers who subscribe to the pecking order theory hold that financial leverage is positively related to corporate performance.

Jensen and Meckling (1976) first proposed the agency theory and introduced the "agency problem" into the research of the relationship between capital structure and firm performance. The agency problem refers to the fact that shareholders and creditors entrust the manager of a company to operate the company and may make business decisions that are detrimental to the interests of the capital owners in pursuit of self-interest. To alleviate the agency problem, Jensen and Meckling (1976) proposed the theory of "The monitoring effect of debt", i.e., a company can constrain its managers through debt, which forces the company to repay interest and principal, thus reducing the amount of cash flow. Therefore, managers can merely allocate limited cash flow for projects that genuinely benefit the firm instead of their empire building, and pet programs, thus contributing to better firm performance. However, Myers (1977) pointed out that debt, while binding managers, creates a conflict of interest between creditors and shareholders. The most typical harm of such a conflict to firm performance is "debt overhang". i.e., In a leveraged firm, if the manager's objective is to maximize the value of shareholders' equity, the manager will reject investments that would enhance the firm value but shrink the value of shareholders' equity, resulting in underinvestment in the firm. In response to debt overhang, Myers (1977) identified the short-term debt as a solution, stating that if the liabilities are entirely due before the investment opportunity arises, the manager can make investment decisions without worrying about the conflict of interest between creditors and shareholders, because the company has become unleveraged again. Therefore, he recommended that companies adopt a debt maturity structure based on short-term debt. However, short-term debt has its drawbacks. Diamond (1991) pointed out that a debt maturity structure based on short-term debt is more likely to lead the company into financial distress and increase the risk of early bankruptcy. To

conclude, agency theory and its derivatives suggest that financial leverage can motivate managers to improve performance. However, the adverse effects of debt financing need to be mitigated by a reasonable debt maturity structure.

In addition to designing the financial leverage and optimizing the debt maturity structure, scholars have found ownership concentration plays a crucial role in mitigating agency problems. On the one hand, Shleifer and Vishny (1986) suggested "The monitoring effect of block-holders ownership", i.e., a concentrated ownership structure is beneficial to firm performance because it aligns the interests of major shareholders to the company's profits, giving block-holders a stronger incentive and power to monitor managers to improve the company's performance. To contrast, Fama and Jensen (1983) found "The effect of entrenchment", i.e., a concentrated ownership structure is detrimental to firm performance. The reason is that concentrated ownership may prevent the firm from being acquired and, therefore, the firm managers are less likely to worry about being replaced by new managers appointed by new owners because of a change of ownership, consolidating the position of the existing managers and weakening their incentives to strive to improve firm performance.

Although scholars from different countries have tried to find empirical evidence for the above classical theories, the findings of empirical studies on the sample from various economies, periods, and industries are always different, and there has yet to be a consensus. After the global financial crisis (2008), there has been a resurgence of research on the relationship between capital structure and firm performance in the field of corporate finance, and the results of empirical studies contributed by three streams of research on the impact of capital structure on firm performance reflects that:

(1) Empirical studies of the effect of financial leverage on firm performance

Some empirical studies show that financial leverage is significantly and negatively related to firm performance (see, for instance, Boshnak, 2022; Ali, 2022; Le & Phan, 2017; Zhu, 2022; Zhang, 2022; He & Zhang, 2017). However, other empirical studies (see, for instance, Olusola, 2022; Abdullah & Tursoy, 2021; Rathinasamy, 2013; Gill, 2011) have presented evidence that financial leverage has a significantly positive impact on firm performance.

(2) Empirical studies of the effect of debt maturity structure on firm performance

A group of empirical studies indicates short-term debt is significantly and positively related to firm performance (see, for instance, Zeitun & Tian, 2014; Tailab, 2014; Li, 2019). Other studies (see, for instance, Vijayakumaran, 2019; Ahmed & Bhuyan, 2020) have shown that long-term debt is significantly and positively related to firm performance. In addition,

Tran (2023), Hatem (2017), and Yazdanfar & Öhman (2015) identify that both short-term and long-term debts have a significantly adverse effect on firm performance.

(3) Empirical studies of the effect of ownership concentration on firm performance

A group of empirical studies reflects that ownership concentration is significantly and positively related to firm performance (see, for instance, Puni & Anlesinya, 2020; Shao, 2019; Lepore, 2017; Kao, 2018; Guluma, 2021). Reversely, other empirical studies (see, for instance, Wang & Shailer, 2015; Ducassy & Montandrau, 2015; Ullah, 2017) have presented evidence that ownership concentration significantly and negatively affects firm performance.

2.2. Research gap

Based on the above literature review, the following research gaps are pointed out:

First, the findings of the relationship between capital structure and firm performance are divergent.

Existing studies on firms from diverse economies, industries, and periods obtain various empirical results. This state of research reminds scholars and firms ought to rely on something other than past, broad findings to guide firms in managing their capital structure. Therefore, inspired by existing research, this paper refines the study on a broad economy to a specialized industry important to the Chinese economy (contributing 1% of GDP), the alcohol industry, to find a capital structure-firm performance strategy for Chinese alcoholic drinks firms.

Second, empirical studies in China are not rich and customized.

Capital structure-firm performance studies have only emerged in China recently, and researchers have targeted companies in several industries. For instance, Zhu (2022) used Chinese logistics companies as a sample; Zhang (2022) studied Chinese-listed companies in the real estate industry; He and Zhang (2017) investigated Chinese-listed technology companies. However, the available studies have yet to cover many sectors, especially consumer products companies. According to the authors' survey, there is no known literature on the Chinese alcohol industry; therefore, this research provides the first attempt to examine whether capital structure affects the performance of companies in the Chinese alcohol industry whose interested parties are in urgent need of strategies of capital structure.

Third, few articles fully cover all three capital structure variables---financial leverage, debt maturity structure, and ownership concentration.

As mentioned earlier, financial leverage - firm performance, debt maturity structure -

firm performance, and ownership concentration - firm performance are the three streams of research on the relationship between capital structure and firm performance, and most of the existing literature merely refers only one or two of these research streams. Motivated by the such current state of research, this paper integrates all three research streams to cover financial leverage/debt maturity structure/ownership concentration-firm performance to obtain a comprehensive conclusion on the impact of capital structure on the performance of Chinese listed alcoholic drinks companies.

3. Methodology

3.1. Sample and data

The preliminary data used in this study come from the China Stock Market & Accounting Research Database (CSMAR) - the most trusted economic and financial database in China, including all 36 Chinese mainland alcoholic drinks firms listed on the Shanghai Stock Exchange and Shenzhen Stock Exchange, balanced panel data for the period 2016-2021, with a firm-year sample size of 216. 2016-2021 was used as the sample period to consider the completeness and timeliness of the experimental data. In order to reduce the interference of the experiment caused by the poor-quality financial data provided by some listed companies, this study excluded six companies that were marked "ST" (Special Treatment) twice or more during 2016-2021 from the sample referring to the record of "ST" mark ---the abnormal warning mark announced by the stock exchange. After the deletions, balanced panel data consists of 180 firm-year observations for the 30 selected companies. Considering the disturbance of the outliers, all the variables were winsorized at the 1% (p. 199) level. The data were processed utilizing the STATA software.

3.2. Variables

This research uses Return On Equity (ROE) as a major proxy for firm performance. ROE is one of the most widely used indicators of firm financial performance in studies on capital structure-firm performance issues (see, for instance, Boshnak, 2022; Abdullah & Tursoy, 2021; Puni & Anlesinya, 2020; Kao, 2018; Le & Phan, 2017), and the higher its value, the more profitable the firm is in utilizing equity capital. In order to strengthen the persuasiveness of the experimental findings, this study also replaces the performance indicators with Return on Invested Capital (ROIC) and Market Value of Equity to Book Value of Equity (MBVR) in the robustness check. ROIC, a financial performance measurement, is

calculated by dividing the net operating profit after tax over the total invested capital. Compared with ROE, ROIC excludes the impact of non-recurring gains and losses on profits. The larger the ROIC, the greater the value creation capacity of the company, used by Tretiakova (2021), and Ahmed & Bhuyan (2020). MBVR, a measurement of the market performance, is calculated by dividing the market value of equity over the book value of equity. The greater the MBVR, the stronger the confidence of the stock market in the company, used by Mahdaleta (2016), and Zeitun & Tian (2014).

Capital structure is the independent variable in this study, further divided into financial leverage, debt maturity structure, and equity concentration as mentioned earlier. This study utilizes the Debt-to-Equity ratio (D/E) to measure financial leverage, Short-term Debt to Total Asset ratio (STDTA), and Long-term Debt to Total Asset ratio (LTDTA) to measure debt maturity structure. The shareholding ratio of TOP10 shareholders (TOP10) to measure ownership concentration. The selection of the above indicators as independent variables in this study is based on the existing literature (see, for instance, D/E --- Akingunola, 2018; Chadha, 2015; Mujahid, 2014. STDTA, LTDTA --- Tran, 2023; Nazir, 2021; Abdullah & Tursoy, 2021. TOP10 --- Guluma, 2021; Puni & Anlesinya, 2020; Shao, 2019).

This study's central issue is verifying the effect of capital structure on firm performance. To determine this effect precisely, this study requires a group of control variables included in experimental models to control for firm characteristics. Firm Size (Size), Tangibility (Tang), Liquidity ratio (Liquid), Sales Growth ratio (Grow), and Asset Turnover Ratio (ATR) are used in this study to control for firm characteristics. These control variables are expected to have significant effects on firm performance. The selection of the above control variables in this study is based on previous studies (see, for instance, Size --- Guluma, 2021; Tang --- Tran, 2023; Liquid --- Nguyen, 2019; Grow --- Nazir, 2021; ATR --- Ullah, 2020). Table 1 presents the variables used in this study, and Table 2 explains each variable.

Table 1: Variables

Variable	Simplified	Type
Return On Equity	ROE	Dependent (Major)
Return On Invested Capital	ROIC	Dependent (Supplementary)
Market Value of Equity to Book Value of Equity	MBVR	Dependent (Supplementary)
Debt to Equity	D/E	Explanatory
Short-Term Debt to Total Asset	STDTA	Explanatory
Long-Term Debt to Total Asset	LTDTA	Explanatory

The shareholding ratio of TOP10 shareholders	TOP 10	Explanatory
Firm Size	Size	Control
Tangibility	Tang	Control
Liquidity ratio	Liquid	Control
Growth	Grow	Control
Asset Turnover Ratio	ATR	Control

Table 2: Description of variables

Variable	Measure	Description
ROE	Financial performance	Net income/total equity
ROIC	Financial performance	Net operating profit after tax/total invested capital
MBVR	Market performance	Market value of equity/book value of equity
D/E	Leverage	Total debt/Total equity
STDTA	Debt Maturity Structure	Short-term debt/total asset
LTDTA	Debt Maturity Structure	Long-term debt/total asset
TOP 10	Ownership Concentration	The sum of the shareholding ratio of TOP10
Size	Firm Size	Ln (total asset)
Tang	The tangibility of firm	Fixed asset/total asset
Liquid	Solvency of firm	Current asset/short-term debt (Current period sale-prior period sale) /Prior period sale
Grow	Sales Growth	
ATR	The efficiency of utilizing assets	Net sales/average total assets

3.3. Hypotheses

Based on the previous literature review section and in the context of the current state of Chinese alcoholic drinks companies, the following hypotheses are proposed and explained in this study:

H0: Capital structure influences firm performance

Hypothesis Explanation 0: In classical theory, the capital structure of the firm affects its tax burden through the "interest tax shield effect" (Modigliani & Miller, 1963), affects its risk via the "financial distress effect" (Kraus, 1973), affects its market expectations with "market signaling" (Myers & Majluf, 1984), affects its governance by "agency problems" (Jensen and Meckling, 1976). These effects enhance or destroy firm performance.

H1: Financial leverage increases company performance

Hypothesis Explanation 1: Modigliani and Miller (1963) proposed in the MM theory with taxes that the value of a leveraged firm is higher than that of an unleveraged firm, and that the value gap is the present value of the interest tax shield. Jensen and Meckling (1976)

advocated that financial leverage can supervise company managers and promote their diligence. i.e., "The monitoring effect of debt" theory. In the real world of alcoholic drinks companies, investment in property, plant, and equipment (PPE) for initial construction, research, and development expenditures for its brewing process, and sales expenses in a competitive market are all critical but costly items for a company to increase revenue. It is difficult for a company to meet its above-mentioned fund needs with equity capital sustainably. Therefore, this study expects financial leverage to be positively related to firm performance.

H2: Short-term debt increases firm performance, and long-term debt decreases firm performance.

Hypothesis Explanation 2: Myers (1977), in his theory of debt maturity structure, suggested that using short-term debt solves the "debt-overhang" problem and thus enhances firm value. In practice, additional benefits of short-term debt can be found. Firstly, the financing cost of short-term debt is usually lower than that of long-term debt; secondly, because of the shorter maturity of debt, companies that use more short-term debt bear less risk from interest rate fluctuations and market fluctuations compared with companies that use more long-term debt. Accordingly, this study expects short-term debt to be positively related to firm performance, and conversely, long-term debt is expected to be negatively related to firm performance.

H3: Ownership concentration increases company performance.

Hypothesis Explanation 3: In their theory on ownership structure, Shleifer and Vishny (1986) hold that a concentrated ownership structure promotes firm performance via "The monitoring effect of block-holders ownership ". In the real world, with a concentrated shareholding, decision-making usually becomes more efficient and streamlined, and major shareholders can communicate more effectively with each other. They can coordinate their efforts to achieve common objectives, which will lead to faster and more decisive action by the firm, thus benefiting the firm performance.

3.4. Methodology

3.4.1. Linear regression

Based on the previous hypothesis H0 and its explanation, this study expects a linear correlation between firm performance and capital structure and develops a base model as follows:

$$\text{Perfor } it = \alpha + \beta * \text{Capital } it + \gamma * \text{Control } it + \xi \text{ } it \quad (0)$$

Perfor *it* represents the performance of firm *i* in year *t*. i.e., measures of firm performance---dependent variables: ROE, ROIC, MBVR. Capital *it* denotes the capital structure characteristics of firm *i* in year *t*. i.e., firm capital structure variables---independent variables: D/E, STDTA, LTDTA, TOP10. Control *it* symbolizes the individual characteristics of firm *i* in year *t*. i.e., control variables for firm characteristics---Size, Tang, Liquid, Grow, ATR. α is a constant term and $\xi \text{ } it$ is a random disturbance term.

To verify whether the hypotheses above-mentioned H1, H2, and H3 are true and to obtain conclusions about the relationship between firm performance and the three characteristics of capital structure--- financial leverage, debt maturity structure, and equity concentration---this study decided to perform multiple linear regression analysis. Before choosing the appropriate linear regression model for this experiment, the author referred to the literature written by other scholars in the same field and found that the Pooled Ordinary Least Square (OLS) model, Fixed-Effect (FE) model, and Random-Effect (RE) model are the most widely used linear regression models by researchers (see, for instance, OLS---Zhu, 2022; FE---Tran, 2023; RE---Ahmed & Bhuyan, 2020). These models are under different assumptions and applicability scenarios.

The OLS model is the most basic regression model, and the base model: $\text{Perfor } it = \alpha + \beta * \text{Capital } it + \gamma * \text{Control } it + \xi \text{ } it$ is a typical OLS model. If the random disturbance terms ($\xi \text{ } it$) are independent of the independent variable (Capital *it*) and control variable (Control *it*), the OLS estimation is unbiased. This study will present the results of OLS estimation in the result section.

Compared to the OLS model, the FE and RE models are studied deeper. The same set of model equations can express the FE and RE models: $\text{Perfor } it = \alpha + \beta * \text{Capital } it + \gamma * \text{Control } it + \mu_i + \xi \text{ } it$, which differs from the OLS model in the inclusion of an unobservable individual effect (μ_i). i.e., μ_i is an intercept term that varies with the firm.

The FE model and the RE model are constructed based on different assumptions. The basic assumption of the FE model is that the unobservable individual effects (μ_i) are correlated with the independent variables and (or) control variables, while the basic assumption of the RE model is that μ_i is not correlated with the independent and control variables. The differences in the underlying assumptions lead to different subsequent treatments of μ_i in the FE and RE models. The FE model eliminates μ_i by functioning within-estimator (Within-estimator method) or controls for μ_i by generating dummy variables (LSDV method), after which the model will not have endogeneity problems. The RE model views μ_i

as part of the random disturbance term and does not have to eliminate or control for μ_i , considering that the model will not have endogeneity problems if its underlying assumptions hold. There are risks in both models. The risk in the FE model is that if μ_i is not correlated with the dependent and control variables, the model does not have endogeneity problems regardless of whether μ_i is disposed, then the FE model's disposition is superfluous, and the model efficiency is reduced, while the FE estimator will still be consistent; The risk in the RE model is that if μ_i is correlated with the dependent and (or) control variables, the model will suffer from endogeneity problems and the RE estimator will not be consistent (Wooldridge, 2015). In some literature on economics and finance, researchers implemented the Hausman test to help them determine between the FE model and the RE model (Hausman, 1978; Zeitun & Tian, 2014).

This study weighs the respective risks of the FE and RE models, concludes that the risk of an inconsistent estimator is unacceptable, and the risk of reduced model efficiency is acceptable, and plans to determine the FE model as the major regression model. To ensure the conscientiousness, Hausman tests are also applied to the experiment to examine whether FE models are acceptable. Further, in choosing the way to dispose of the unobservable individual effects, the within-estimator method is chosen for the brevity and readability of the report.

Next, this study further refines the underlying FE model: Perfor it $=\alpha+\beta*\text{Capital it}+\gamma*\text{Control it}+\mu_i+\xi_{it}$, substitutes Perfor it by the major dependent variable ROE, and builds the equations of the three major regression models around each of the three characteristics of the firm's capital structure --- financial leverage, debt maturity structure, and ownership concentration.

Model (1) is designed to examine H1, which is to investigate the financial leverage (via D/E)-firm performance (via ROE) relationship.

$$\text{ROE}_{it}=\alpha+\beta_1*\text{D/E}_{it}+\beta_2*\text{Size}_{it}+\beta_3*\text{Tang}_{it}+\beta_4*\text{Grow}_{it}+\beta_5*\text{Liquid}_{it}+\beta_6*\text{ATR}_{it}+\mu_i+\xi_{it} \quad (1)$$

Model (2) is used to validate H2, which is to verify the debt maturity structure (via STDTA, LTDTA)-firm performance (via ROE) relationship.

$$\text{ROE}_{it}=\alpha+\beta_1*\text{STDTA}_{it}+\beta_2*\text{LTDTA}_{it}+\beta_3*\text{Size}_{it}+\beta_4*\text{Tang}_{it}+\beta_5*\text{Grow}_{it}+\beta_6*\text{Liquid}_{it}+\beta_7*\text{ATR}_{it}+\mu_i+\xi_{it} \quad (2)$$

To examine H3, Model (3) presents an overview of the impact of ownership concentration (via TOP10) on firm performance (via ROE).

$$\text{ROE}_{it}=\alpha+\beta_1*\text{TOP10}_{it}+\beta_2*\text{Size}_{it}+\beta_3*\text{Tang}_{it}+\beta_4*\text{Grow}_{it}+\beta_5*\text{Liquid}_{it}+\beta_6*\text{ATR}_{it}+\mu_i+\xi_{it} \quad (3)$$

Where $i=1,2,\dots, N$, $t=1,2,\dots, T$ represent firm and year, respectively; μ_i is the firm individual fixed effects; ξ it denotes the random disturbance term.

3.4.2. Robustness check

The robustness check is an important approach to enhance the persuasiveness of the experimental findings. The strategy of robustness check designed in this study is to replace the dependent variables. i.e., the major dependent variable ROE in the major regression model is replaced with the supplementary dependent variables ROIC and MBVR, and the other variables remain unchanged. In this way, this experiment can examine the relationship between financial performance (ROE, ROIC) and capital structure, and verify the relationship between market performance (MBVR) and capital structure.

Based on the above objectives, robustness checks are conducted for each of the models with the supplementary dependent variables ROIC and MBVR, respectively, and the check with ROIC as the dependent variable is coded as A and the check with MBVR as the dependent variable is coded as B.

4. Data Results

4.1. Descriptive statistics

Table 3 illustrates the statistics of 180 observations, including the mean, standard deviation, maximum and minimum values of all variables in the model, from a balanced panel of 30 listed companies in the Chinese alcohol industry from 2016-2021.

In terms of corporate performance proxies, the average value of financial performance proxy ROE is 13.7%, fluctuating within the range of -9.4% to 68.1%, compared to the average value of ROIC, which is also a financial performance proxy, of 14.4%, with a minimum value of -7.9% and a maximum value of 71.7%. The average value of MBVR, a market performance proxy, is 5.680, with data widely fluctuating within the range of 1.425 to 33.260, showing that market performance varies widely among companies. This paper suggests a phenomenon worthy of attention, the mean and standard deviation of MBVR as a market performance indicator are much larger than the mean and standard deviation of ROE and ROIC as financial performance indicators. This phenomenon reflects the principle of information asymmetry, where changes in a company's actual operating conditions are not necessarily reflected effectively in the stock price adjustment for the market, and fluctuations in a company's stock price, even drastic changes, do not necessarily mean that a substantial

variation in the company's operating conditions has occurred.

As for the capital structure variables, in terms of leverage, the mean value of D/E is 30.3%, with debt much smaller than equity, reflecting the low average level of financial leverage of the sample companies; however, the data fluctuates widely, with a maximum value of 72.9% and a minimum value of 6.3%, revealing leverage varies widely among companies, with some companies taking on more debt and some taking on less. In terms of debt maturity structure, the mean value of STDTA is 27.1%, fluctuating drastically in the range of 5.9% to 68.3%; the average value of LTDTA is 3.2%, fluctuating slightly in the range of 0% to 18.3%, indicating the sample companies are more likely to use short-term debt than long-term debt, probably due to the higher capital cost and stricter covenants for long-term debt, compared to short-term debt. Regarding ownership concentration, the average value of TOP10 is 63.6%, which fluctuates broadly within the range of 36.9% to 88.3%, showing that some sample companies have concentrated equity and some sample companies have dispersed equity.

Table 3: Descriptive statistics of the variables

Variables	Observations	Mean	Std. Dev.	Min	Max
ROE	180	0.137	0.129	-0.094	0.681
ROIC	180	0.144	0.153	-0.079	0.717
MBVR	180	5.680	5.501	1.425	33.260
D/E	180	0.303	0.139	0.063	0.729
STDTA	180	0.271	0.122	0.059	0.683
LTDTA	180	0.032	0.046	0.000	0.183
Top 10	180	0.636	0.141	0.369	0.883
Size	180	22.750	1.223	20.910	26.090
Tang	180	0.234	0.132	0.046	0.556
Liquid	180	2.849	1.667	0.633	10.90
Grow	180	0.098	0.204	-0.391	0.870
ATR	180	0.505	0.192	0.110	1.140

4.2. Correlation analysis and VIF test

The matrix of Pearson's correlation coefficients between variables is disclosed in Table A1 to initially determine whether there is a multicollinearity problem in each model. Overall, among all the correlation coefficients between the independent and control variables, only the correlation coefficient between D/E and STDTA is greater than 0.8. Such a problem can be avoided by simply preventing the occurrence of D/E and STDTA in the same model. In order to ensure conscientiousness, the VIF test is also applied to this research, and the results of each model are shown in Table 4. Since the mean value of the VIF of each model is less than 5.0, it determines that model 1, model 2, and model 3 do not have the multicollinearity

problem.

Table 4: VIF (Variance Inflation Factor) results for model (1)-(3)

Model Code	(1)	(2)	(3)
Variable	VIF	VIF	VIF
D/E	3.130		
STDTA		3.990	
LTDTA		1.200	
TOP 10			1.730
Liquidity	2.230	2.530	1.610
ATR	1.790	1.870	1.530
Tang	1.440	1.730	1.330
Size	1.310	1.340	1.330
Growth	1.280	1.330	1.280
Mean VIF	1.870	2.000	1.470

4.3. Major regression test

4.3.1. Model (1) leverage: D/E---ROE

Table 5 presents the OLS and FE estimators of the model (1). Considering the Hausman test statistic (0.0028), the FE estimator can be accepted. H1 expects that financial leverage promotes firm performance. As expected, both OLS and FE estimators prove that D/E, a measure of financial leverage, has a significantly positive effect on ROE, a measure of firm financial performance. In the FE regression of model (1), the coefficient of D/E is +0.095, which is significant at the 1% level of importance. i.e., Holding other variables in the model (1) constant, per 1% increase in D/E can generate a 0.095% gain in ROE. As for the control variables, the FE regression of model (1) identifies a significantly positive relationship between Size, Grow, and ATR, respectively, and ROE, while Tang and Liquid have no significant effect on ROE. Based on the experimental results of model (1), D/E, Size, Grow, and ATR can significantly boost ROE.

Table 5: Major regression test of Model (1)

Model Code	(1)	(1)
Model Type	OLS	FE
Variables	ROE	ROE
D/E	0.066*** (3.18)	0.095*** (2.68)
Size	0.026*** (4.28)	0.117*** (6.45)
Tang	-0.117** (-2.07)	-0.005 (-0.05)
Liquid	-0.001 (-0.16)	0.001 (0.15)
Grow	0.231***	0.087***

	(6.41)	(3.64)
ATR	0.109**	0.104***
	(2.50)	(2.76)
Constant	-0.537***	-2.637***
	(-3.58)	(-6.40)
Observations	180	180
Hausman test (Prob>Chi2)		0.0028***
Adjusted R-squared	0.547	0.401
F test (Prob>F)	0.000***	0.000***

Note: *t*-statistics in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

4.3.2. Model (2) debt maturity structure: STDTA, LTDTA---ROE

H2 expects short-term debt increases firm performance and long-term debt decreases firm performance. The OLS and FE estimators of model (2) are disclosed in Table 6. Considering the Hausman test statistic (0.0000), the FE estimator can be accepted. Both OLS and FE regressions reflect the dependent variable STDTA, which measures short-term debt, and is significantly and positively correlated with ROE. The coefficient of STDTA under the FE regression of model (2) is +0.357, which is significant at the 1% level of importance. i.e., Holding other factors in model (2) constant, per 1% spike in STDTA can contribute to a 0.357% growth in ROE. However, for the dependent variable LTDTA, a measure of long-term debt, the OLS estimator of model (2) identifies a significantly negative relationship between LTDTA and ROE at the 10% significance level. In contrast, the FE estimator of model (2) indicates that the negative relationship between LTDTA and ROE is not significant at either the 1%, 5%, or 10% importance levels. In order to ensure conscientiousness, this research concludes that the experimental results of model (2) do not support H2 and that short-term debt does significantly enhance firm financial performance. However, long-term debt has only a non-significantly negative effect on firm financial performance. Regarding the control variables, Size, Grow, and ATR are significantly and positively related to ROE. Overall, in the model (2), STDTA, Size, Grow, and ATR can significantly contribute to the growth of ROE.

Table 6: Major regression test of Model (2)

Model Code	(2)	(2)
Model Type	OLS	FE
Variables	ROE	ROE
STDTA	0.382*** (3.64)	0.357*** (2.61)
LTDTA	-0.260* (-1.69)	-0.235 (-1.34)
Size	0.028*** (4.67)	0.132*** (7.60)
Tang	-0.014 (-0.21)	0.123 (1.27)

Liquid	0.007 (1.18)	0.012 (1.15)
Grow	0.209*** (5.74)	0.087*** (3.68)
ATR	0.101** (2.21)	0.097*** (2.63)
Constant	-0.693*** (-4.43)	-3.079*** (-7.85)
Observations	180	180
Hausman test (Prob>Chi2)		0.0000***
Adjusted R-squared	0.556	0.416
F test (Prob>F)	0.000***	0.000***

Note: *t*-statistics in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

4.3.3. Model (3) ownership concentration: TOP10---ROE

Table 7 illustrates the OLS and FE regression analysis of model (3). Considering the Hausman statistic (0.0000), the FE estimator can be accepted. H3 expects ownership concentration promotes firm performance, and the experimental results of model (3) can provide supporting evidence for H3. OLS and FE estimators identify a significantly positive correlation between TOP10, a measure of ownership concentration, and ROE, a measure of firm financial performance. The FE estimator presents the coefficient of TOP10 is +0.346, which is significant at the 1% level of importance. i.e., Holding other factors in model (3) constant, per 1% expansion in TOP10 can trigger a 0.346% elevation in ROE. As for the control variables, merely Size, Grow, and ATR, are significantly and positively correlated with ROE under both OLS and FE regressions in model (3), which is consistent with the sign of the relationship between control variables and ROE in model (1) and model (2). The regression results of model (3) prove TOP10, Size, Grow, and ATR have a significantly positive effect on ROE.

Table 7: Major regression test of Model (3)

Model Code	(3)	(3)
Model Type	OLS	FE
Variables	ROE	ROE
Top 10	0.213*** (3.67)	0.346*** (4.03)
Size	0.013* (1.83)	0.143*** (9.22)
Tang	-0.223*** (-3.70)	0.038 (0.44)
Liquid	-0.006 (-1.30)	-0.003 (-0.38)
Grow	0.233*** (6.52)	0.110*** (4.77)
ATR	0.146*** (3.80)	0.069* (1.87)
Constant	-0.315**	-3.388***

	(-2.01)	(-9.02)
Observations	180	180
Hausman test (Prob>Chi2)		0.0000***
Adjusted R-squared	0.555	0.435
F test (Prob>F)	0.000***	0.000***

Note: *t*-statistics in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

5. Robustness Check

5.1. Robustness check A: ROIC

Table 8 presents the results of robustness check A. This check replaces the major dependent variable ROE in models (1), (2), and (3) with the supplementary dependent variable ROIC in its entirety. Please notice that both ROE and ROIC are proxies of the firm's financial performance.

Robustness check A of model (1) shows the coefficient of D/E in the FE regression is +0.087, significant at the 5% level of importance. i.e., Holding other variables in model (1) constant, per 1% increase in D/E contributes to the 0.087% gain in ROIC. Comparing the effect of D/E on ROE in the major regression (coefficient +0.095, significantly positive at 1% level of importance) and discovering the regression results of model (1) before and after replacing the dependent variable are in line with H1's expectation and both lead to the conclusion that a company's financial leverage is significantly and positively related to its financial performance. Though there is a slight difference in terms of the significance of the coefficient, it does not affect model (1) passes the robustness test A.

Robustness check A of model (2) shows STDTA has a significantly positive effect on ROIC (at 5% importance level), and LTDTA has only a non-significantly negative effect on ROIC. Similar results are obtained by robustness check and major regression, with the only difference being that STDTA in the major regression is significantly positively related to ROE at the 1% significance level. Both tests provide evidence supporting H2, finding short-term debt can significantly drive up a firm's financial performance, while there is only a non-significantly negative relationship between long-term debt and a firm's financial performance. Therefore, this experiment determines that model (2) passes the robustness check A.

Robustness check A of model (3) is in the last column of the **Table 8**. TOP10 is significantly positively correlated with ROIC at 1% significance level, perfectly reproducing the results in the major regression and once again supporting the expectation of H3, confirming that ownership concentration significantly contributes to financial performance.

In addition, the control variables Size, Grow, and ATR are significantly and positively related to ROIC in robustness check A. This result is also consistent with the results of the

major regression.

Table 8: The results of robustness check A

Model Code	(1)	(2)	(3)
Model Type	FE	FE	FE
Variables	ROIC	ROIC	ROIC
D/E	0.087** (2.20)		
STDTA		0.345** (2.26)	
LTDTA		-0.312 (-1.58)	
Top 10			0.387*** (4.03)
Size	0.135*** (6.60)	0.150*** (7.71)	0.160*** (9.20)
Tang	-0.178* (-1.76)	-0.039 (-0.36)	-0.127 (-1.29)
Liquid	-0.003 (-0.26)	0.009 (0.76)	-0.006 (-0.62)
Grow	0.083*** (3.08)	0.081*** (3.08)	0.106*** (4.13)
ATR	0.119*** (2.82)	0.114*** (2.76)	0.082** (2.00)
Constant	-2.985*** (-6.44)	-3.440*** (-7.83)	-3.739*** (-8.92)
Observations	180	180	180
Hausman test (Prob>Chi2)	0.0013***	0.0019***	0.0000***
Adjusted R-squared	0.410	0.429	0.452
F test (Prob>F)	0.000***	0.000***	0.000***

Note: *t*-statistics in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

5.2. Robustness check B: MBVR

Robustness check B substitutes the major dependent variable ROE with the supplementary dependent variable MBVR. Please notice that ROE is a proxy of the firm's financial performance and MBVR is a proxy of the firm's market performance. Table 9 illustrates the results of robustness check B.

Robustness check B of model (1) proves D/E in FE regression can significantly raise MBVR at 5% level of significance with the coefficient of D/E is +5.094. i.e., Holding other variables in model (1) constant, per 1% expansion in D/E can generate a 5.094% elevation in MBVR. This result corroborates with the results obtained from major regression of model (1) and robustness check A. It illustrates the fact a company's financial leverage (D/E) can significantly contribute not only to its financial performance (ROE and ROIC) but also to its market performance (MBVR). Hence, there are sufficient reasons for this paper to conclude that financial leverage is significantly and positively related to firm performance.

The robustness check B of model (2) indicates STDTA and MBVR are significantly and positively correlated at the 1% importance level. There is merely a non-significant negative relationship between LTDTA and MBVR. Further, based on the results of the major regression and the two robustness checks, this research observes that short-term debt (STDTA) significantly enhances both the financial performance (ROE, ROIC) and market performance (MBVR) of the firm. Therefore, there is a sufficient reason to conclude that short-term debt is significantly and positively related to firm performance; long-term debt (LTDTA) has merely a non-significantly negative effect on firm financial performance (ROE, ROIC) and market performance (MBVR).

The last column of the Table 9 discloses the results of robustness check B of model (3), where the FE estimator of TOP10 has only a non-significant positive impact on MBVR, which is inconsistent with the results obtained from the major regression of model (3) and robustness check A. Model (3) fails robustness test B. Based on the principle of prudence, this study can only conclude that ownership concentration (TOP10) has a significantly positive relationship with the financial performance (ROE, ROIC) of the firm. There is only a non-significantly positive relationship between ownership concentration (TOP10) and the market performance (MBVR) of the firm.

As for the relationship between control variables and supplementary dependent variables in robustness check B, all three models indicate SIZE and ATR have significantly positive effects on MBVR. However, unlike the major regressions and robustness check A, Grow is no longer a significant predictor of firm performance in robustness check B. Based on the principle of prudence, this study determines that SIZE and ATR have a significant positive effect on both financial performance (ROE, ROIC) and market performance (MBVR), Grow has a significantly positive impact on financial performance (ROE, ROIC), and Tang, Liquid has a non-significant relationship with firm performance (either financial or market performance).

Table 9: The result of robustness check B

Model code	(1)	(2)	(3)
Model Type	FE	FE	FE
Variables	MBVR	MBVR	MBVR
D/E	5.094** (2.49)		
STDTA		25.175*** (3.22)	
LTDTA		-10.134 (-1.01)	
TOP 10			5.078 (0.97)

Size	9.251*** (8.80)	9.788*** (9.83)	10.539*** (11.17)
Tang	-1.241 (-0.24)	6.955 (1.25)	-1.153 (-0.22)
Liquid	-0.069 (-0.13)	0.844 (1.36)	-0.556 (-1.14)
Grow	-0.980 (-0.71)	-1.141 (-0.85)	-0.207 (-0.15)
ATR	4.738** (2.18)	4.363** (2.06)	3.836* (1.72)
Constant	-209.179*** (-8.76)	-229.567*** (-10.23)	-237.319*** (-10.41)
Observations	180	180	180
Number of firms	30	30	30
Hausman test (Prob>Chi2)	0.0000***	0.0000***	0.0000***
R-squared	0.539	0.564	0.522
Adjusted R- squared	0.426	0.454	0.406
F test (Prob>F)	0.000***	0.000***	0.000***

Note: *t*-statistics in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

6. Discussion

6.1. Results versus hypothesis

The research hypotheses presented in the methodology section of this paper were subjected to the major regression test and two robustness checks and the **Table 10** illustrates the results of the validation of the research hypotheses.

Table 10: The examination of hypotheses

Hypo	Content	Result of examination
H0	Capital structure influences firm performance	True, capital structure does influence firm performance.
H1	Leverage increases firm performance	True, Leverage significantly boosts firm performance.
H2	Short-term debt increases firm performance	True, short-term debt significantly enhances firm performance.
H2	Long-term debt decreases firm performance	False, Long-term debt does not have a significant impact on firm performance.
H3	Ownership concentration increases firm performance	Not entirely precise. Ownership concentration significantly increases a firm's financial performance (ROE, ROIC).

However, Ownership concentration does not significantly impact a firm's market performance (MBVR).

6.2. Results versus classic theory

The experiments conducted in this paper test the research hypotheses and the applicability of the classical capital structure theories in the capital management of listed firms in the Chinese alcohol industry.

This study confirms financial leverage is significantly and positively related to the performance of Chinese publicly traded alcoholic drinks companies, which supports the view that financial leverage contributes to firm performance as advocated by the "MM theory with taxes" (1963), "pecking order financing theory" (1984), and "debt supervision effect" (1976), but is inconsistent with the point that financial leverage destroys firm performance as proposed by the "financial distress effect" (1973) and "debt overhang effect" (1977). This study attributes this experimental phenomenon to the fact that the level of financial leverage (D/E average: 30.3%) of listed Chinese companies in the Chinese alcohol industry is in a healthy state, and that the gains from the use of financial leverage - lower tax burden, positive market signals, and governance gains from disciplined managers - outweigh the losses from financial leverage - the cost of financial distress, and the reduction in firm value from underinvestment.

This study also proves that short-term debt significantly enhances the performance of Chinese-listed companies in the alcohol industry, and long-term debt has no significant impact on firm performance. The results provide empirical evidence for the claim of Myers (1977) that a debt maturity structure dominated by short-term debt is more favorable to firms, conversely, is inconsistent with the argument of Diamond (1991) that short-term debt destroys firm performance. As mentioned earlier, the size of debt undertaken by Chinese-listed alcoholic drinks companies is at a healthy level. Meanwhile, companies adopt a debt maturity structure with an absolute predominance of short-term debt (mean STDTA 0.271, mean LTDTA 0.032, STDTA/LTDTA = 8.469). This research approves the combination of the healthy debt size and the short-dominant debt maturity structure since it controls the risk of financial distress while taking advantage of the benefits of short-term debt (low capital cost, interest risk, and market risk), which enhances the performance of Chinese listed alcoholic drinks companies.

Further, this study also suggests ownership concentration is significantly and positively related to firm financial performance for Chinese listed companies in the alcohol industry, which is consistent with the theory proposed by Shleifer and Vishny (1986), advocating "The monitoring effect of block-holders ownership" may create governance gains for corporates. However, the study does not find a significant relationship between ownership concentration and firm market performance, which implies that the Chinese stock market is insensitive to changes in the ownership concentration of alcoholic drinks companies. Based on the experimental phenomenon, this paper holds that tightening equity can be considered as an approach to promote firm performance in the capital structure management of Chinese alcoholic drinks companies. However, it is important to note that this measure is more likely to generate internal governance gains rather than external market value added.

7. Conclusion and Recommendations

7.1. Conclusion

This paper presents empirical evidence supporting capital structure has a significant impact on the performance of listed companies in the alcohol industry of China and integrates the three streams of research (financial leverage, debt maturity structure, and ownership concentration) used in the existing literature on the capital structure-firm performance relationship. The results are consistent with several classical capital structure management theories--- "MM theory with taxes", "pecking order theory", "The monitoring effect of debt", and "The monitoring effect of block-holders ownership". Based on the findings, the following recommendations for operators and major shareholders of listed companies in the Chinese alcohol industry are provided by the author.

7.2. Recommendations

First, for managers.

The findings of this study suggest that increasing financial leverage (through D/E) leads to significant growth in firm performance (as measured by ROE, ROIC, MBVR) while rising the proportion of short-term debt (through STDTA) also contributes significantly to firm performance (as measured by ROE, ROIC, MBVR). Therefore, for operators of listed companies in the alcohol industry of China, expanding debt financing and increasing the use of short-term debt is a beneficial measure to promote firm performance. However, this paper still warns that managers should not ignore the risk of financial distress, as a high level of

financial leverage and a high proportion of short-term debt can generate a high risk of financial distress while bringing gains to the company. Managers ought to implement measures to control the risk of financial distress to avoid the company falling into deep financial distress due to over-leveraging. Measures that could be considered include seeking more favorable debt contract terms by virtue of a dominant market position, dynamically monitoring the level of debt and the health of the company's solvency, setting a floating debt ratio red line (which could be adjusted according to the company's situation and goals).

Second, for block-holders.

The findings of this study suggest that increasing ownership concentration (via TOP10) can significantly enhance the financial performance of the firm (as measured by ROE and ROIC). This finding advises major shareholders of listed companies in the Chinese alcohol industry, when they intensify their ownership, will have stronger incentives to enforce their supervision of the company's managers due to the increased relevance of their own interests to the company's interests. The company's decisions and actions will become more efficient due to a more concentrated ownership structure, making it more likely that the company will achieve better financial performance as a result. However, this paper cautiously implies that more equity ownership by investors also means that they will share more of the risk of the company. Another finding of this study: the absence of a significant correlation between ownership concentration (via TOP10) and the firm's market performance (as measured by MBVR), hints at the large shareholders, whose market manipulation of tightening equity does not necessarily drive up the share price.

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Appendix A

Table A1. Pearson correlation coefficients matrix

	ROE	ROIC	MBVR	D/E	STDTA	LTDTA	Top 10
ROE	1						
ROIC	0.832***	1					
MBVR	0.767***	0.602***	1				
D/E	0.509***	0.301***	0.536***	1			
STDTA	0.592***	0.395***	0.607***	0.947***	1		
LTDTA	-0.00300	-0.122	0.0480	0.527***	0.229***	1	
Top 10	0.362***	0.288***	0.165**	0.230***	0.206***	0.155**	1
Size	0.454***	0.512***	0.250***	0.299***	0.307***	0.0870	0.436***
Tang	-0.381***	-0.462***	-0.300***	-0.250***	-0.344***	0.169**	0.173**
Liquidity	-0.357***	-0.216***	-0.292***	-0.688***	-0.696***	-0.238***	-0.327***
Growth	0.582***	0.528***	0.462***	0.312***	0.400***	-0.0900	0.0800
ATR	0.474***	0.316***	0.431***	0.636***	0.640***	0.246***	0.287***
	Size	Tang	Liquidity	Growth	ATR		
Size	1						
Tang	-0.360***	1					
Liquidity	-0.319***	-0.00100	1				
Growth	0.249***	-0.345***	-0.231***	1			
ATR	0.158**	-0.106	-0.380***	0.317***	1		

Note: *** significant at the 1% level; **significant at the 5% level; *significant at the 10% level