

Determinants of Capital Structure in Emerging markets: evidence from Kazakhstan

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1. Introduction

In the corporate finance world, the value of capital structure plays a critical role. This structure that comprises the mix of debt and equity financing, as the funding side of a company's balance sheet, influences firm value, risk exposure, cost of capital, and even strategic decisions for long-term sustainability of a company. That is why capital structure has been a primary subject in both theoretical and empirical literature for the past several decades, building upon the foundational contributions of Modigliani and Miller's (1958, 1963) theorem.

While the determinants of capital structure have been extensively explored in developed economies, the empirical validation based on emerging economies continues to be limited, and often inconclusive. Emerging markets are inherently distinct from developed counterparts, marked by less robust and established legal frameworks (particularly when it comes to operating a capital market), underdeveloped and nascent financial markets, and the often significant state involvement in businesses, which makes the financing strategies of firms uniquely intricate (Booth et al., 2001). Furthermore, much of the existing research on developing economies is confined to a small number of countries, and extending their findings to other cases is challenging because of the country-specific variations and features. These distinct attributes challenge the direct application of conventional financial theories. In such distinctive environments, corporate decisions might be shaped by elements that Western focused models do not sufficiently account for. For instance, in countries with considerable state ownership influence like Kazakhstan firms might depend on state subsidies and financial support, which may not appear as typical liabilities on financial statements, thereby distorting standard metrics of capital structure. In addition to those limitations and gaps,

many current investigations have primarily concentrated on the private sector, trying to replicate the existing frameworks for building a research model, with little attention paid to state owned companies, despite their critical importance in the context of transitioned and emerging markets like Kazakhstan.

This paper studies the case of Kazakhstan, a country with its significant government engagement in key sectors that provides a compelling and unique setting for examining the factors influencing capital structure. Kazakhstan provides a setting with its transformation from a planned economy to a market-oriented one, alongside a relatively immature corporate bond market and a financial system largely dominated by banking sector and governmental financial institutions. High levels of state ownership in Kazakhstani market are another aspect of this country's corporate sector, especially its vital industries like natural resources extraction, energy, and telecommunications, where institutions on a national level such as Samruk-Kazyna Fund have a critical role and impact on businesses' structure and practices. Thus, this case offers a unique chance to understand how companies in terms of developing markets arrive at their financing decisions.

The motivation for this paper derives from this belief that debt financing choices within Kazakhstan are likely determined by both conventional financial theories as well as unique institutional factors like the role of state ownership. So, this empirical research intends to address this central research question: what are the firm-specific determinants of capital structure decisions for listed non-financial companies in Kazakhstan? How does state ownership influence this choice? In investigating these inquiries, this research work builds its hypotheses upon the main financial theories: Trade-off Theory and Pecking Order Theory. These hypotheses seek to verify if the conventional predictors of leverage such as profitability, company size, asset tangibility, liquidity, and dividends are applicable in an

emerging market of Kazakhstan with its substantial government presence. Furthermore, this study analyzes the impact of state ownership on the financial practices of firms as well.

This thesis paper can contribute to extending the empirical literature by testing both the well-established Trade-off and Pecking Order theories to Kazakhstan, an under-explored institutional context. The results will reveal whether firm level decisions in developing markets are consistent or deviate from the theoretical predictions. Moreover, policymakers, business managers, and financial advisors in Kazakhstan might find these findings helpful and valuable for building financial strategies, developing more effective regulations that support market growth along with better understanding their economy's particular dynamics.

The rest of this paper is structured as follows: section 2 reviews existing literature and discusses various financial theories that lay foundation for the variable selection; section 3 outlines the proposed empirical research model and theoretical framework; the methodology and data description are presented in section 4; section 5 and 6 provides regressions analysis and empirical results, concluding the findings of the thesis.

2. Literature Review

Corporate leverage research has grown substantially since Modigliani and Miller's (1958, 1963) pioneering studies, which proposed that a firm's financing choices have no bearing influence on its value under perfect market scenarios. Subsequently, later academic works recognized the imperfections of these initial premises, incorporating real-world frictions like taxation, bankruptcy costs, and information asymmetry (Myers, 1984; Myers & Majluf, 1984; Kraus & Litzenberger, 1973; Jensen & Meckling, 1976, as cited in Chen et al.,

2021). This theoretical evolution culminated in the two leading paradigms guiding modern capital structure analysis: the Trade-off Theory (TOT) and the Pecking Order Theory (POT).

According to the first theory, TOT, companies decide on their optimal leverage by offsetting the tax benefits derived from debt against the prospective costs associated with financial hardship and agency problems (Kraus & Litzenberger, 1973; Jensen & Meckling, 1976). Under this framework, entities demonstrating steady profitability, considerable firm size and tangible assets, and higher liquidity are likely to maintain increased debt, given their diminished risk of bankruptcy and enhanced capacity to utilize tax shields.

On the other side, the second is Pecking Order theory, proposed by Myers and Majluf (1984), positioning that businesses pursue a hierarchical structure for financing options based on a specific order, shaped by information asymmetry. Businesses first opt for internal capital, debt financing next, and only the issuance of equity as a final recourse when other alternatives are exhausted. As a result, companies with higher profitability and liquidity tend to depend less on external funds, while those with shortages would raise their leverage.

The current empirical investigations have extensively examined these paradigms, analyzing how firm-specific attributes shape the capital structure choices. From the many factors that the literature suggested, this study specifically examines the most crucial ones identified, such as profitability, size asset tangibility, liquidity, and dividend payouts (Watson & Wilson, 2002; López-Gracia & Sogorb-Mira, 2008; Daskalakis & Psillaki, 2008; Hovakimian & Li, 2011; Aybar-Arias et al., 2012). While studies in developed economies largely confirm the significance of these firm-specific factors, findings in emerging markets frequently diverge due to unique institutional environments, such as state ownership traits (Booth et al., 2001; Abor, 2008; Handoo & Sharma, 2014; Chen et al., 2021).

Evidence of state ownership effects on leverage is not unambiguous from previous studies. The Trade-off Theory proposes that state-owned enterprises (SOEs) may perceive a

lower probability of bankruptcy and have easier access to credit, leading to greater leverage. To support this assertion, Liu et al. (2011) found that SOEs in particular tend to have higher leverage ratios than their non-state counterparts in China, and this pattern is mainly pronounced in areas where institutions have weaker institutional quality based on a large sample size. The authors credit this to implicit guarantees and soft budget constraints in the SOEs that lower the cost of financial distress and therefore, enhance the availability of debt. Likewise, Dereeper and Trinh (2015), in their study of Vietnamese companies, further note that state ownership is a determinant of a firm's financial behavior beyond whether the capital structure is based on the Trade-off and/or the Pecking Order framework.

3. Theoretical Framework

This study utilizes two main theoretical frameworks for investigating the determinants of capital structure of Kazakhstani non-financial companies: Trade-off Theory and Pecking Order Theory, which provide differing perspectives on how companies determine their debt and equity financing proportions.

I. Profitability

Trade-off Theory (TOT) considers that profitable businesses are expected to be taking on additional debts for taking advantage of the tax shield benefits, which allows them to lower their taxable annual profits which grants a considerable tax benefit. In contrast, the Pecking Order Theory (POT) suggests more profitable firms prefer internal funds over external financing, which results in a negative association between profitability and leverage (Myers, 1984). This idea is further discussed by Vo (2017), who discovered that highly

profitable Vietnamese firms tended to avoid short-term debt, preferring retained earnings to outside borrowing.

H1: profitability will have a positive (TOT) or negative (POT) relationship to the leverage ratio.

II. Size

The Trade-off paradigm also recognizes very well the relationship between firm size and leverage, suggesting large firms run lower bankruptcy expenses and possess more scale, and financial resilience due to their reputation and being treated in a less hazardous manner by lenders, they find it easier to get into debt markets, thus helping them to (Diamond, 1989; La Rocca et al., 2009).

Some empirical studies, in line with the Pecking Order Theory, suggest that larger companies are likely to have more debt than smaller ones because they have diversified projects and less information asymmetry, while the small-sized ones count more on their internal funds accrued from their high profits structure (Sultanov, 2018; Myers & Majluf, 1984; Chen et al., 2021).

H2: size has positive influence on the leverage ratio.

III. Asset tangibility

The TOT and POT both expect a positive relationship between the tangibility of assets and the level of leverage, though their rationales differ. According to the TOT, tangible assets like property and machinery can serve as collateral, lowering the agency costs of debt and mitigating the risk of financial distress (Myers & Majluf, 1984; Titman & Wessels, 1988). The POT proposes that companies possessing more tangible assets are better positioned to

secure outside funding due to decreased information asymmetry and a reduced perception of risk among creditors.

H3: tangibility will have positive relationship to the leverage ratio.

IV. Liquidity

Companies that are highly liquid, according to the TOT, might resort to debt to enhance leverage efficiency by weighing tax benefits against financing costs as well as meeting short-term financing requirements (Al-Najjar & Taylor 2008, as cited in Anuar & Chin, 2016). In terms of the POT, however, these companies are less likely to borrow, because they have ample internal capitals to fund their investment projects. For example, findings by Mazur (2007) showed that higher liquid assets resulted in lower debt and equity structure, which supports a negative correlation between liquidity and debt.

H4: liquidity will have positive (TOT) or negative (POT) relationship to the leverage ratio.

V. Dividends

Another determinant that will be tested in this study is dividend policy. For the Pecking Order perspective, distributing dividends dilutes a companies' own resources, which makes it necessary to secure external financial support such as raising debts. On the other hand, the Trade-off Theory explains that even firms paying dividends might also need debt for financing their projects as long as less capital is left for reinvesting business. Yet, Fama and French's (2002) study, under the TOT framework, explores that steady dividend payments signal stable profits of a company, which posits a negative correlation between dividends and leverage.

H5: dividends will have positive relationship with the leverage ratio.

VI. State ownership

Firms that are state-owned frequently receive implicit guarantees or subsidies from the government, diminishing their so-called perceived financial distress risks and improving their ability to secure outside funds. Under the Trade-off paradigm, we can argue that state ownership contributes to increased leverage ratio resulting from the lenient budget constraints and potential governmental backing in case of bailout moment (Liu et al., 2011). The other theory, Pecking Order, might lead us to believe that the state owned enterprises might opt for less borrowing, as they can afford the national budget (funds). This opportunity might help them to lessen their reliance on outside sources like debt.

H6: state ownership has positive (TOT) or negative (POT) influence on the leverage ratio.

4. Data and methodology

This part will discuss the research design of the study, including data collection and description (of variables), and the research models utilized to analyze the factors affecting capital structure in non financial firms in Kazakhstan. This empirical work specifically examines the interplay between firm-specific attributes, including state ownership, and leverage decisions, drawing on a panel dataset of Kazakhstani publicly traded firms.

Data and sample selection

This study is grounded in a unique hand-collected panel data comprising 17 non-financial, publicly listed companies in Kazakhstan for the period between 2017 and 2024.

The selection specifically of this timeline is tied to a major institutional development in the state's capital market: the formal establishment of the Astana International Exchange (AIX) in 2017. The launch of AIX's ushered in a new epoch of enhanced transparency, regulatory conformity, and capital accessibility for Kazakhstani businesses. These trading platforms now offer systematically organized, publicly available financial disclosures, thereby facilitating uniform and comparative analysis across companies and years.

The database makes up the list of companies from various strategically important and vital industries, including mining, telecommunications, oil and gas, airlines, and manufacturing. These industries are characterized by high capital demands and represent a substantial portion of Kazakhstan's GDP and exports, making them highly pertinent for an inquiry into capital structure dynamics. Focusing on these segments additionally allows the study to observe how firms with considerable financing needs balance their debt and equity in the context of a developing financial infrastructure.

To preserve the comparability and integrity of the regression analysis across companies, financial firms were excluded from the sample, as financial institutions like banks and insurance companies function under fundamentally distinct capital structure regulations, including specific capital adequacy requirements and leverage standards, which would otherwise introduce bias and regulatory noise.

Data sources

The data was carefully and meticulously hand-collected through accessing the official consolidated financial statements and information published and reported by companies or their corresponding auditors on their websites. These reports were subsequently cross-checked against financial information and records on KASE and AIX for consistency. This manual data collection method not only ensured robust data integrity but also facilitated the

identification and correction of inconsistencies across sources, guaranteeing the data's precision and reliability. In Kazakhstan, where complete automated databases are often unavailable, this hand-collected information offers a significant contribution to empirical research world of corporate finance m especially in emerging markets like Kazakhstan.

Methodology

For the purpose of empirically investigate and determine how firm characteristics and the presence of state ownership influence the capital structure decisions made by companies in Kazakhstan, this research study utilizes an econometric approach involving several steps, beginning with Ordinary Least Squares (OLS) regressions as a starting point and then moving to more sophisticated panel-data methods such as Fixed Effects (FE) to control for unique, unobserved firm-specific factors. First, I run the following OLS regression model, following the formulation by Ysmailov (2022), to analyze the statistical relationship between leverage and determinants specific to each firm, by adding additional factor of state-ownership:

$$\text{Book leverage}_{it} = \alpha + \beta_1 \text{ROA}_{it-1} + \beta_2 \text{Size}_{it-1} + \beta_3 \text{Tangibility}_{it-1} + \beta_4 \text{Liquidity}_{it-1} + \beta_5 \text{Dividend}_{it-1} + \beta_6 \text{State-ownership}_{it} + \varepsilon_{it}$$

Where Book leverage_{it} is book leverage, the dependent variable, which is defined as the proportion of total debt (short term and long term debts) to total assets of firm *i* at time *t*:

$$\text{Book leverage} = \frac{\text{short term debt} + \text{long term debt}}{\text{total assets}}$$

This measure, following the formulation by Ysmailov (2022), is very commonly used in capital structure literature and reflects the actual financing structure present on the firm's

balance sheet. In the regression model, ROA_{it-1} represents return on assets as a proxy for profitability (calculated using the ratio of operating income to total assets), $Size_{it-1}$ represents the natural logarithm of total assets (for firm size), $Tangibility_{it-1}$ is asset tangibility captured by fixed assets to total assets, $Liquidity_{it-1}$ is derived from the ratio of current assets to current liabilities, $Dividend_{it-1}$ is a dummy variable indicating whether a firm i paid dividends for the given time t , and, finally, $State-ownership_{it}$ indicates another dummy variable that denotes if the given firm is owned by state or not.

The foundational regression model is defined by regressing book leverage on firm-level attributes from the preceding year, including return on assets, company size, asset tangibility, liquidity, dividend dummy, and state ownership dummy. Introducing a one-year lag for the financial accounting variables helps minimize simultaneity bias and mitigate endogeneity issues by ensuring that these firm characteristics precede and are prior to the capital structure choices being analyzed.

In order to perform a thorough analysis and conduct tests of the robustness of the findings, further testing was conducted. First of all, the total leverage variable is decomposed into short-term and long-term, and there are two regression sets on the same set of independent variables:

Model 2: Short-Term Leverage (short-term debt / total assets) is regressed on the same independent variables:

$$\begin{aligned} \text{Short-term leverage}_{it} = & \alpha + \beta_1 ROA_{it-1} + \beta_2 Size_{it-1} + \beta_3 Tangibility_{it-1} + \beta_4 Liquidity_{it-1} \\ & + \beta_5 Dividend_{it-1} + \beta_6 State-ownership_{it} + \varepsilon_{it} \end{aligned}$$

Model 3: Regresses Long-Term Leverage (long-term debt / total assets) on the same variables:

$$\text{Long-term leverage}_{it} = \alpha + \beta_1 \text{ROA}_{it-1} + \beta_2 \text{Size}_{it-1} + \beta_3 \text{Tangibility}_{it-1} + \beta_4 \text{Liquidity}_{it-1} \\ + \beta_5 \text{Dividend}_{it-1} + \beta_6 \text{State-ownership}_{it} + \varepsilon_{it}$$

These decompositions can provide a better perspective as to how the characteristics of firms impact debt maturity structure, especially that of economies with relatively immature bond market structures including Kazakhstan where long-term financing may be more limited and firms might be more heavily dependent on short-term borrowing. Realising the institutional importance of state ownership, the dataset was subdivided into state-owned and non-state-owned firm categories. The relationship between firm characteristics and leverage is not only a function of the firm level structure of firms which is also investigated with separate regressions by doing sub-effects on each subsample. The first model, Model 4, involves only state-owned firms (with dummy StateOwnership = 1) and is organized this way:

$$\text{Book leverage}_{it} = \alpha + \beta_1 \text{ROA}_{it-1} + \beta_2 \text{Size}_{it-1} + \beta_3 \text{Tangibility}_{it-1} + \beta_4 \text{Liquidity}_{it-1} \\ + \beta_5 \text{Dividend}_{it-1} + \varepsilon_{it}$$

Model 5 involves only non-state-owned firms (with the dummy StateOwnership = 0) and is structured the same way and with the same variables. This way of comparative analysis by desperate regression on each sub sample aids in exploring whether the relationship between firm specific determinants and d capital structure varies according to ownership structure and whether classic financial theories (e.g., POT or TOT) are equally applicable in both conditions.

A series of testing procedures ensures statistical robustness of the results such as fixed effects. Acknowledging the potential limitations of OLS and the possible unobserved heterogeneity across firms, we end with the implementation of a Fixed Effects (FE)

regression model as the last step of the final segment. This approach controls for the time-invariant firm-specific characteristics that would otherwise skew the estimates. The FE model can capture individual effects of various characteristics of firms—managerial preferences, corporate culture, etc.; it isolates the effect of intra-firm differences in explanatory variables on leverage. The FE specification also incorporates industry fixed effects using SIC codes in order to control for sector-specific influences. Standard errors are clustered at both the firm and the industry level to support robust inference.

Fixed Effects (FE) Model for both firm-level and industry-level:

$$\text{Book leverage}_{it} = \alpha_i + \beta_1 \text{ROA}_{it-1} + \beta_2 \text{Size}_{it-1} + \beta_3 \text{Tangibility}_{it-1} + \beta_4 \text{Liquidity}_{it-1} + \beta_5 \text{Dividend}_{it-1} + \beta_6 \text{State-ownership}_{it} + \varepsilon_{it}$$

In this model, α_i denotes the firm-specific effect and ε_{it} is the idiosyncratic error term. Such a specification leads to a better estimation of relations between leverage and those determinants by accounting for firm-specific unobserved heterogeneity. In general, this study has a methodological framework intended to rigorously test the theoretical predictions of capital structure in the context of an emerging market. This research gives a comprehensive and empirically grounded view of how Kazakhstani firms make financing decisions in a transitioning financial environment, through a combination of static and fixed-effects panel regressions, robustness checks, and ownership-based subsample analysis.

5. Results

This section presents the main empirical results of the study. First of all, the descriptive statistics are summarized in Table 1, which shows key numbers of each variable. I will then show the main findings of my baseline model's OLS regression, Table 2, followed

by Model 2 and Model 3. The dependent variable is total book leverage in Tables 2, 5, and 6, and short-term book leverage and long-term book leverage for Table 3 and 4 respectively. Further, Tables 5 and 6 represent the results of the analysis of state-owned and private entities separately.

Descriptive statistics

The key variables employed in this work are illustrated with descriptive statistics in Table 1 within the portfolio of 17 non-financial, publicly traded Kazakhstani companies for the period 2017 to 2024.

Table 1. Descriptive statistics of variables:

Variable	Mean	Median	Std. Dev.	Min	Max
Book Leverage	0.214	0.193	0.217	0.000	1.003
ROA	0.320	0.151	0.823	-0.721	5.080
Firm Size	16.608	16.506	4.395	7.047	23.553
Tangibility	0.483	0.447	0.239	0.000	0.893
Dividend (dummy)	0.613	1.000	0.489	0.000	1.000
Liquidity ratio	2.483	1.544	3.762	0.073	33.985

According to the table, the average book leverage has a value of 0.214 which suggests that 21.4% of assets are financed using debt, on average. The median of 0.193 indicates a slight skewness to the higher values in a few companies. This level of leverage is considerably lower than that of the normal American average book leverage (between 30% to 50% depending on studies of American firms (see Frank and Goyal 2009), demonstrating that the Kazakhstani firms in the sample are much more cautious with the debt. This might stem

from underdeveloped capital markets, rising borrowing costs or a cultural aversion to debt. On the whole, this table offers helpful context for the subsequent regression analysis, and in so doing provides an initial look at Kazakhstan's financing policy, which does appear to have conservative leverage policies and considerable heterogeneous characteristics in terms of scale, profits and liquidity.

Empirical results of Regression analysis

The first model, shown by the table 2, explores the link between leverage and firm specific variables employing OLS regression. The findings, presented in Table 2, yield a number of statistically significant associations. In accordance with the trade-off theory and the extant empirical evidence, the firm size is positively and significantly related to the leverage, having coefficient of 0.0320 and p-value that shows less than 0.01 level. Bigger companies may have lower bankruptcy costs and stronger credit reputations, which can enable them to take on debt more easily. On the other hand, profitability (ROA) does not exert a significant impact on leverage. Yet, its negative sign supports POT's prediction (Hypothesis 1). Tangibility, although expected to have the positive influence on leverage as a function of being collateral (Hypothesis 3), shows a negative and insignificant coefficient (-0.1287), meaning Kazakhstan-based companies could be unable to leverage their fixed assets to its full because of immature collateral markets or weak legal protections. The coefficient of the dividend dummy is negative, yet significant (coefficient of -0.1545 and p-value is lower than 0.05 level), opposed to the predicted assumption of the hypothesis 5. Here, we find that firms that pay dividends may already have robust balance sheets and therefore shun debt financing, in line with the note by Fama and French (2002). Liquidity is also negatively and significantly related to book leverage (-0.0197, $p < 0.01$), which is in agreement with Pecking Order theory, that firms with abundant internal resources avoid debt financing. Perhaps most

strikingly, state ownership is negatively and significantly correlated with capital structure, with the coefficient of -0.2365 ($p < 0.01$). This indication is at odds with the widely held assumption that state-owned firms are better off having more accessible debt.

This is perhaps due to the peculiarities of the Kazakhstani environment in which entities owned by government receive direct budget transfers or quasi-fiscal transfers from sovereign wealth funds, which are not included as debt on balance sheet. Thus these firms have a lower dependence on traditional debt products though are supported by government backing. Overall, the model 1 accounts for around 29% of the variation in the book leverage with the F-statistic showing strong performance at the 1% level, which shows favorable fitting.

Table 2. Baseline Regression model results (Model 1):

VARIABLE	COEFFICIENT	STD. ERROR
ROA	-0.0014	(0.0283)
FIRM SIZE (LOG ASSETS)	0.0320 ***	(0.0088)
TANGIBILITY (FIXED ASSETS)	-0.1287	(0.1024)
DIVIDEND (DUMMY)	-0.1545 **	(0.0593)
STATE OWNERSHIP (DUMMY)	-0.2365 ***	(0.0626)
LIQUIDITY	-0.0197 ***	(0.0056)
CONSTANT	-0.0008	(0.1428)

In order to have clearer and deep understandings of the structure of the debt, Models 2 and 3 divide book leverage into short-term and long-term. In Model 2, whose main focus is the short-term leverage acting as dependent variable, there is a strong and similar pattern with the baseline results. Firm size remains positive and significant, indicating that larger firms take on more short-term debt. The dividend and state ownership dummies both still have negative and significant coefficients, with the coefficients of -0.1231 and -0.1362 respectively. This paper finds that state-owned firms that paid dividends use significantly less short-term financing. Liquidity remains a robust predictor as well, again showing a

significant negative correlation, confirming the preference for internal liquidity over short-term borrowing.

For long term leverage (Model 3), results are slightly weaker. The coefficient for state ownership is still negative and significant (-0.1002), but with lower confidence (p-value < 0.1). Here, it suggests that state ownership has a stronger effect on short-term rather than long-term leverage. The liquidity variable also demonstrates significant results with negative coefficient -0.0113 ($p < 0.05$), showing that the overall borrowing behavior of highly liquid firms is relatively conservative in the long run. Though firm size remains positively and significant, at some point, to long-term debt (0.0136 indicator and p-value < 0.1), other variables are no longer significant.

Table 3. Results of Model 2 short term debt:

VARIABLE	COEFFICIENT	STD. ERROR
ROA (OPERATING)	-0.0031	(0.0135)
FIRM SIZE (LOG ASSETS)	0.0184 ***	(0.0042)
TANGIBILITY (FIXED ASSETS)	-0.0154	(0.0488)
DIVIDEND (DUMMY)	-0.1231 ***	(0.0283)
STATE OWNERSHIP (DUMMY)	-0.1362 ***	(0.0298)
LIQUIDITY	-0.0084 ***	(0.0027)
CONSTANT	-0.0658	(0.0680)

Table 4. Results of Model 3 long term leverage:

VARIABLE	COEFFICIENT	STD. ERROR
ROA (OPERATING)	0.0018	(0.0230)
FIRM SIZE (LOG ASSETS)	0.0136 *	(0.0072)
TANGIBILITY (FIXED ASSETS)	-0.1130	(0.0832)
DIVIDEND (DUMMY)	-0.0315	(0.0482)
STATE OWNERSHIP (DUMMY)	-0.1002 *	(0.0509)
LIQUIDITY	-0.0113 **	(0.0045)
CONSTANT	0.0646	(0.1160)

For the purpose of thoroughly evaluating the implications of government control, the dataset was further divided into state-owned enterprises (SOEs) and non-state-owned

enterprises (NSOEs). Model 4 presents results for SOEs. One of most significant findings is that tangibility is negatively associated with leverage (-0.2487 , $p < 0.01$), contrary to what we have previously reasoned since tangible assets typically augment borrowing ability. This might indicate inefficient state asset management or non-market collateralization. Interestingly, SOE dividend payments dummy has a positive coefficient (0.1038 , $p < 0.1$) which could be a symptom of political pressure to keep payouts. Nevertheless, this result is in line with the expectations and theories. The liquidity ratio is again negative, indicating that liquidity-rich SOEs avoid debt possibly due in part to non-debt state backing.

Table 5. Results of the regression analysis for state-owned (dummy=1) companies (Model 4):

VARIABLE	COEFFICIENT	STD. ERROR
ROA (OPERATING)	-0.0155	(0.0181)
FIRM SIZE (LOG ASSETS)	0.0004	(0.0077)
TANGIBILITY (FIXED ASSETS)	-0.2487 ***	(0.0661)
DIVIDEND (DUMMY)	0.1038 *	(0.0581)
LIQUIDITY	-0.0690 ***	(0.0186)
CONSTANT	0.3103 **	(0.1395)

Table 6. Results of the regression analysis for non-state (dummy=0) companies (Model 5):

VARIABLE	COEFFICIENT	STD. ERROR
ROA (OPERATING)	-0.0229	(0.0765)
FIRM SIZE (LOG ASSETS)	0.0569 ***	(0.0144)
TANGIBILITY (FIXED ASSETS)	0.2119	(0.2609)
DIVIDEND (DUMMY)	-0.3124 ***	(0.0930)
LIQUIDITY	-0.0120	(0.0079)
CONSTANT	-0.4753 *	(0.2747)

Model 5, which tests privately owned firms, yields more conventional results. Firm size is positively and significantly associated with leverage (0.0569 , $p < 0.01$), demonstrating that non-state firms with scale are more likely to borrow, which confirms the hypothesis 2.

The dividend dummy is strongly negative (-0.3124 , $p < 0.01$), meaning dividend-paying private firms avoid issuing debt, similar to the baseline model results. Other factors are insignificant, but the behavior of other variables mostly indicates an alignment with classical capital structure theories in the private sector.

To address unobservable, time-invariant firm, or industry, characteristics, fixed effects regressions were tested on the main baseline model. Testing for firm level fixed effects shows that although the model's explanatory power increases ($R^2 = 0.722$), the majority of the variables become less significant and state ownership is dropped due to collinearity with the fixed effects (see Appendix A), since state-ownership feature does not vary over time for firms. This indicates that within-firm changes in time do not scale to explain leverage, or firm-level factors are rather consistent over time and across the sample period.

Upon examining industry-level fixed effects, controlling for sector-specific dynamics based on the SIC codes, firm size returns to significance (0.0817 , $p < 0.01$), being in line with the expectation, while state ownership is again strongly and negatively related with leverage (-0.6174 , $p < 0.01$). This test finds that when sectoral variation is controlled for, firm size and state control are indeed strong determinants of capital structure decisions in Kazakhstan. The adjusted R^2 is reasonably strong (0.497), suggesting that the model accounts for meaningful variance across firms and industries.

6. Conclusion

The goal of this study was to examine the determinants of capital structure decisions of non-financial public firms in Kazakhstan, based on the theoretical paradigms of Trade-off Theory and Pecking Order Theory. By using a unique and manually collected panel database

with 17 firms for the timeframe of 2017–2024, it tried to explore if traditional firm-specific determinants such as profitability, size, tangibility, liquidity, dividend policy, and state ownership affect capital structure decisions in a developing, resource-based economy.

What we find empirically is that firm size is one of the most reliable and strongest predictors of leverage across most of the models. This is consistent with both the hypothesis and literature from around the world, which explain that larger firms with more varied working environments and enhanced credit market reputation are more likely to obtain financing by borrowing. Liquidity, however, has a strong negative relationship with leverage, supporting Pecking Order Theory's assertion that firms that are sufficiently endowed with internal resources tend to depend less on external borrowing. Interestingly, profitability lacked statistical strength with respect to leverage, contrary to what could be predicted in theory. This outcome may indicate the erratic nature of earnings in industrial and extractive Kazakhstan, which exhibit cyclical profitability and less consistency as a financing signal. Likewise, tangibility (which was supposed to help the borrowers borrow by providing collateral value) negatively or not significantly correlated with leverage in the other models. It could indicate poor enforcement of creditor rights or immature asset collateral markets, both of which are prevalent in developing economies (Booth et al, 2001). One of the more surprising (much to previous literature and theories) results is state ownership's negative and significant effect on leverage. Although its use as a premise in literature is implied that state owned companies have favourable credit status when backed by a governmental guarantee, the findings suggest the opposite. In Kazakhstan, SOEs could benefit from non-debt types of support such as equity injections, or even government subsidies, possibly by such entities like Samruk-Kazyna that may not appear on balance sheets as liabilities, but as subsidies or related support. As a result, these companies can be expected to have relatively lower levels of recorded debt on hand to continue to operate.

The local institutional context is crucial in interpreting capital structure behavior, and therefore, is much more suitable for a global theory that does not apply properly and need adjustment. Thus, this study adds more space for further exploration in this underexplored direction. Moreover, the interaction between dividend policy and leverage is also displayed. This is contradictory to what would be expected in a pecking order: dividend-paying firms have less debt, implying they are financially stronger and require less funds from outside investment. It emerges even more strongly across non-state businesses, demonstrating a signaling effect of dividend payouts, which act as a proxy sign for the level of financial health of a firm, rather than as a liquidity bleed that results from a decline in the internal funds.

There are also suggestions for future works. Qualitative exploration of SOEs' availability of non-debt financing may supplement these quantitative findings and explain the mechanisms of leverage–state ownership relationship in negative ways. Research comparing Central Asian economies may provide insight into which findings are country-specific and which indicative of a larger regional trend. Finally, this study adds to the burgeoning literature on corporate finance in developing markets research with empirical case-study evidence from Kazakhstan. The findings reveal that whilst some basic drivers of capital structure prevail, others are moderated by institutional and ownership factors. The results underscore the need to adjust theoretical framework to local environment and highlight the utility of country-specific empirical research for generating scholarly discussions on policies in financial policies.

Appendix A

Model 7: Fixed Effects Model - Book Leverage with Firm Fixed Effects of model 1

VARIABLE	COEFFICIENT	STD. ERROR
ROA (OPERATING)	-0.0350	(0.0309)
FIRM SIZE (LOG ASSETS)	-0.1102	(0.1234)
TANGIBILITY (FIXED ASSETS)	-0.0179	(0.4118)
DIVIDEND (DUMMY)	0.0025	(0.0777)
STATE OWNERSHIP (DUMMY)	Omitted (collinear)	—
LIQUIDITY	0.0026	(0.0080)
CONSTANT	2.0581	(2.0129)

Appendix B

Model 8: Fixed Effects Model - Book Leverage with Industry Fixed Effects (10

industries)

VARIABLE	COEFFICIENT	STD. ERROR
ROA (OPERATING)	-0.0040	(0.0169)
FIRM SIZE (LOG ASSETS)	0.0817 ***	(0.0102)
TANGIBILITY (FIXED ASSETS)	-0.1625	(0.2526)
DIVIDEND (DUMMY)	-0.1119	(0.1296)
STATE OWNERSHIP (DUMMY)	-0.6174 ***	(0.1517)
CONSTANT	-0.6995 **	(0.2423)

Appendix C

Descriptive Statistics - Book Leverage by Ownership Type

Ownership Type	Obs.	Mean	Std. Dev.	Min	Max
State-Owned Companies	55	0.1887	0.1381	0.0000	0.5625
Non-State-Owned Companies	56	0.2390	0.2726	0.0000	1.2270

References

- Abor, J. (2008). *Determinants of the capital structure of Ghanaian firms*. African Economic Research Consortium Research Paper No. 176.
- Aybar-Arias, C., Casino-Martínez, A., López-Gracia, J. (2012), On the adjustment speed of SMEs to their optimal capital structure. *Small Business Economics*, 39(4), 977-996.
- Booth, L., Aivazian, L., Demirguc-Kunt, A., Maksimovic, V. (2001), Capital structures in developing countries. *The Journal of Finance*, 56(1), 87-130.
- Chen, Y., Sensini, L., Vazquez, M. (2021). Determinants of Leverage in Emerging Markets: Empirical Evidence. *International Journal of Economics and Financial Issues*, 11(2), 40-46.
- Daskalakis, N., Psillaki, M. (2008), Do country or firm factors explain capital structure? Evidence from SMEs in France and Greece. *Applied Financial Economics*, 18(2), 87-97.
- Diamond, D. W. (1989). Reputation acquisition in debt markets. *Journal of Political Economy*, 97(4), 828–862. <https://doi.org/10.1086/261630>
- Fama, E., F., French, K., R. (2002). Testing Trade-O and Pecking Order Predictions About Dividends and Debt, *The Review of Financial Studies*, 15(1), 1-33. DOI: <https://doi.org/10.1093/rfs/15.1.1>.
- Frank, M., Z., Goyal, V.K. (2009). Capital Structure Decisions: Which Factors Are Reliably Important?. *Financial Management*, 38, 1-37. <https://doi.org/10.1111/j.1755-053X.2009.01026.x>
- Handoo, A., & Sharma, K. (2014). A study on determinants of capital structure in India. *IIMB Management Review*, 26(3), 170–182. <https://doi.org/10.1016/j.iimb.2014.07.009>
- Hovakimian, A., Li, G. (2011), In search of conclusive evidence: How to test for adjustment to target capital structure. *Journal of Corporate Finance*, 17(1), 33-44.

- Jensen, M.C., Meckling, W.H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360.
- Kraus, A., Litzenberger, R.H. (1973). A state-preference model of optimal financial leverage. *The Journal of Finance*, 28(4), 911-922.
- Klasa, S., Ortiz-Molina, H., Serfling, M. and Srinivasan, S., 2018. Protection of trade secrets and capital structure decisions. *Journal of Financial Economics*, 128(2), pp.266-286.
- La Rocca, M., La Rocca, T., & Cariola, A. (2009). Capital structure decisions during a firm's life cycle. *Small Business Economics*, 37(1), 107–130.
<https://doi.org/10.1007/s11187-009-9229-z>
- Liu, Q., Tian, G., Wang, X. (2011). The effect of ownership structure on leverage decision: new evidence from Chinese listed firms. *Journal of the Asia Pacific Economy*, 16 (2), 254-276.
- López-Gracia, J., Sogorb-Mira, F. (2008), Testing trade-off and pecking order theories financing SMEs. *Small Business Economics*, 31(2), 117-136.
- Myers, C. (1984). The capital structure puzzle. *The Journal of Finance*, 39(3), 574-592.
- Myers, S.C., Majluf, N.S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 13(2), 187-221.
- Michaelas, N., Chittenden, F., Poutzioris, P. (1999), Financial policy and capital structure choice in U.K. SMEs: Empirical evidence from company panel data. *Small Business Economics*, 12(2), 113-130.
- Mazur, K. (2007). The determinants of capital structure choice: Evidence from Polish companies. *International Advances in Economic Research*, 13(4), 495–514. DOI: <https://doi.org/10.1007/s11294-007-9114-y>

- Ozkan, A. (2001). Determinants of capital structure and adjustment to long run target: Evidence from UK company panel data. *Journal of Business Finance & Accounting*, 28(1–2), 175–198. <https://doi.org/10.1111/1468-5957.00370>.
- Qamar, M., Farooq, A., U., Afzal, H., Akhter, W. (2016). Determinants of Debt Financing and Their Moderating Role to Leverage-Performance Relation: An Emerging Market Review. *International Journal of Economics and Finance*, 8, 300.
- Sultanov, M. (2018). Capital structure decisions in emerging markets: Evidence from Kazakhstan. Master's Thesis.
- Titman, S., & Wessels, R. (1988). The determinants of capital structure choice. *Journal of Finance*, 43(1), 1–19. <https://doi.org/10.1111/j.1540-6261.1988.tb02585.x>
- Vo, X., V. (2017). Determinants of capital structure in emerging markets: Evidence from Vietnam, *Research in International Business and Finance*, 40, 105-113.
- Ysmailov, B. (2022). Non-Compete Agreements and Capital Structure Decisions. Nazarbayev University.
- Watson, R., Wilson, N. (2002), Small and medium size enterprise financing: A note on some of the empirical implications of a pecking order. *Journal of Business Finance and Accounting*, 29(3-4): 557-579.