What Determines Corporate Cash Holdings in Kazakhstan? Evidence from Publicly Traded Non-Financial Companies

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Abstract

This study investigates the determinants of corporate cash holdings in publicly listed non-financial firms in Kazakhstan over the period 2017-2024. Using hand-collected financial data from KASE and AIX, and following the empirical approach of Bates et al. (2009), I examine how investment intensity, growth opportunities, liquidity generation, ownership structure, and macroeconomic conditions shape firms' cash-holding behavior. The results show that market-to-book ratios and operating cash flow are consistently associated with higher cash balances, reflecting precautionary motives and the financing of future investment. In contrast, firms with higher capital expenditures tend to hold less cash. Other variables including firm size, profitability, and leverage display weaker or mixed effects. State ownership, while generally linked to higher cash levels, does not have a statistically significant relationship. The findings remain robust when controlling for year effects, macroeconomic conditions, and when alternative measures of cash holdings are used. Overall, the cash-holding patterns of Kazakhstani listed firms largely mirror those observed in international markets, providing one of the first systematic views of liquidity management practices in a frontier Central Asian economy.

Keywords: corporate cash holdings, precautionary savings, investment opportunities, emerging markets, Kazakhstan

1. Introduction

Corporate cash holdings are one among the central topics in corporate finance, indicating firms' capital management choices, funding flexibility, as well as reactions to macroeconomic uncertainty. A substantial amount of research, starting with Opler et al. (1999) and further developed by Almeida, Campello, and Weisbach (2004) and Bates, Kahle, and Stulz (2009), suggests that companies' cash policies are determined by precautionary motives, agency problems, access to external finance, and macroeconomic factors. Businesses all over the world have been accumulating more cash over the past 20 years; this trend was first noted in the United States (Bates et al., 2009) and then studied in a number of emerging markets.

The factors influencing corporate cash holdings in Kazakhstan, a frontier market with concentrated ownership, a large number of state-owned enterprises (SOEs), and little capital market liquidity, have not been thoroughly studied despite a wealth of global evidence. In Kazakhstan, publicly traded companies often work in industries that use a lot of resources and have to deal with unstable macroeconomic conditions caused by changes in policy rates, changes in exchange rates, and shocks to commodity prices. Because of these differences in institutions and economies, their liquidity behavior may be different from that of businesses in developed markets.

This thesis investigates the firm-specific factors that contribute to differences in cash holdings among publicly traded non-financial firms in Kazakhstan from 2017 to 2024. The analysis employs pooled OLS and fixed-effects regressions to assess the correlation between cash holdings and significant financial variables such as leverage, net working capital, capital expenditures, profitability, operating cash flow, firm size, dividend policy, and market-to-book ratios, using the empirical approach of Bates et al. (2009). The study modifies the Bates et al. model in light of the unique institutional context by introducing a

State-Owned Enterprise (SOE) dummy as a governance proxy. Since comprehensive shareholder-rights indices (like the GIM index) are not available for Kazakhstan, a State-Owned Enterprise (SOE) dummy is used as a governance proxy. In order to determine whether macroeconomic factors affect firms' liquidity behavior beyond firm-level fundamentals, the thesis also takes into account macroeconomic indicators like GDP growth, inflation, the policy rate, and unemployment.

Current studies show a nonpositive link between cash and leverage or working capital (Opler et al., 1999), and positive link between cash, cash flow, and investment opportunities (Almeida et al., 2004; Bates et al., 2009). Notwithstanding, it is still under investigation how these correlations are applicable to the Kazakhstani context given its emerging market nature. As it's common for firms in emerging economies to rely more on internally generated funds since credit markets are not as advanced, it's difficult to get access to the capital from outside and they tend to be more exposed to undesirable shocks. SOEs potentially require more cash due to bureaucratic governance structures, risk-averse decision-making, or financial policies that are based on politics.

This paper brings new insights into the corporate finance field in several different ways. First, it is a fresh and novel empirical work that investigated the nature of cash holding behaviour in Kazakhstan, using manually extracted financial statements' data of companies listed in both KASE and AIX. Second, it extends the Bates et al. (2009) framework by adding country-specific factors like SOE ownership and macroeconomic factors. Adding a new variable as SOE helps us learn about how institutional context impacts the policies regarding liquidity. Third, it replaces the main dependent variable with other alternative measures (log cash, net cash, changes in cash), year fixed effects, and macroeconomic controls to confirm strength and consistency of results.

The findings are useful for potential investors and policymakers alike in order to learn about cash movements, the resilience of financial markets in Kazakhstan, investment activity and the quality of governance. Investors, based on information about cash holdings, can make decisions regarding their future investments, and whether they should expect any dividends, or if they are exposed to certain risks. Policymakers can use information about liquidity trends to help make the financial market infrastructure stronger and make companies more open about their finances.

2. Literature Review

Most studies have been conducted so far mainly focused on the amount of cash in companies' balance sheets. Early works stressed the importance of how liquidity strengthens investment opportunities and reduces financial anxiety. The foundational framework is derived from Keynesian principles: transaction, precautionary, and speculative demand for cash, subsequently formalized and expanded in contemporary empirical research.

2.1 Theories of Corporate Cash Holdings

The primary theoretical explanations are founded on two principal factors: precautionary and agency-related considerations. The precautionary motive holds that businesses keep cash reserves to protect themselves from possible future cash flow problems or to take advantage of investment opportunities, especially when getting outside financing is hard or expensive. Companies may keep cash on hand to avoid problems with getting loans or not knowing what will happen next (Pinkowitz and Williamson, 2002). Myers and Majluf (1984) show that when information asymmetry exists, it makes it harder for companies to access new capital, which makes them prefer to use their own money instead of borrowing it. This viewpoint asserts that businesses facing increased uncertainty or cash flow variability should uphold a more substantial cash reserve.

On the other hand, Jensen (1986) focuses on agency theory, which is mainly about why managers might accumulate extra cash to gain more power, especially in places where ownership is dispersed or governance is weak. Agency theory points out that managers might stockpile cash reserves and seize in exorbitant investment (Harford, 1999). This raises a critical issue that cash holdings might not only serve a purpose to protect business needs, but also on personal goals of managers who act on their own interests.

2.2 Empirical Determinants of Cash Holdings

Opler et al. (1999) did groundbreaking empirical research that showed systematic firm-level factors that affect cash holdings. They find that companies that have more volatile cash flow, more chances to invest, and do more research tend to keep more cash. Companies that can easily get outside funding or have more working capital, on the other hand, tend to keep less cash. Their research shows that the most common signs of cash reserves are leverage, net working capital (NWC), company size, profitability, and capital expenditures. Almeida, Campello, and Weisbach (2004) further illustrate that financially constrained firms display heightened sensitivity of cash holdings to cash flow, underscoring the significance of internal funding for investment. These results support the hypothesis that companies operating in riskier or more credit-restricted contexts amass more substantial precautionary reserves. Bates, Kahle, and Stulz (2009) demonstrate that U.S. companies significantly increased their cash reserves in recent decades. They say that falling capital spending, rising cash flow risk, and changes in the intensity of R&D are the main causes. Their empirical specification, which has been widely copied, is the basis for the model used in this thesis.

2.3 Evidence from Developed Markets

Research in developed markets typically identifies consistent determinants: cash is inversely correlated with leverage and working capital, and directly correlated with operating cash flow and investment opportunities. Companies that have more growth options (as measured by the

market-to-book ratio) tend to have more cash. On the other hand, bigger companies tend to have less cash because they can receive capital from the capital markets more easily. Companies that pay dividends usually have less cash on hand because they don't have as many financial problems.

Cash policies are also affected by macroeconomic conditions. Studies indicate that companies augment their cash reserves in times of increased uncertainty, restrictive credit conditions, or macroeconomic recessions. But most of this evidence is about big, liquid stock markets.

2.4 Evidence from Emerging Markets

Companies in emerging markets are very different from those in developed economies when it comes to ownership structures, access to outside financing, and macroeconomic instability. International evidence shows large cross-country variation in cash policies (Dittmar et al., 2003). Research on Asian and Eastern European markets indicates that companies frequently depend significantly on internal financing and sustain larger cash reserves due to insufficiently developed financial systems and more volatile economic conditions. Chinese firms tend to hoard cash because of financing constraints evidence says (Chen et al., 2011).

State ownership is more important in emerging markets. State-owned companies often have different governance structures that affect their decisions about liquidity (Khanna and Yafeh, 2007). SOEs might have too much cash because of bureaucratic decision-making, cautious financial policies, or political goals that make them less likely to use their cash. Even though there is a lot of research on emerging markets, there is almost no real-world evidence on cash holdings in Central Asia, and no published study looks at publicly traded companies in Kazakhstan.

2.5 Recent Research in Cash-holding Literature

While it's unmistakably true that existing literature in corporate cash-holding builds the foundational theory, the newer studies focus on an increase in uncertainty due to recent events and post-Covid behaviour of corporations. Gormley and Matsa (2022) says that one of the reasons corporations strengthen, and increase their cash holdings is because of rising policy uncertainty, which supports the earlier studies regarding precautionary motives. Another influential paper, Alfaro, Bloom, and Lin (2020) shows that COVID-19 impact created huge uncertainty, urging companies across the world to hold more cash buffers in their balance sheets to hedge against uncertain liquidity issues. Additionally, Opler and Titman (2023) note that despite ameliorations in most capital markets, many companies depict strong preference to accumulate and maintain high cash levels, which is more pronounced in emerging economies.

2.6 Research Gap and Contribution

Despite enormous research has been done about developed and other developing economies, Kazakhstan has never been a target of this topic. This is significant considering the country's distinctive combination of concentrated ownership, substantial state-owned enterprise presence, commodity-driven revenues, and restricted capital market depth, all of which may influence cash-holding behavior.

This thesis contributes to the body of work in three ways: First, it presents the novel empirical examination of corporate cash reserves in Kazakhstan, utilizing meticulously gathered panel data from KASE and AIX. Second, it builds on the Bates et al. (2009) framework by adding a State-Owned Enterprise (SOE) dummy and macroeconomic controls that are important for Kazakhstan's institutional environment. Third, it provides comparative evidence regarding the applicability of established determinants of cash holdings in a frontier market context.

3. Data

3.1 Sample Selection

The sample comprises publicly traded non-financial corporations in Kazakhstan for the years 2017 to 2024. The Kazakhstan Stock Exchange (KASE) and the Astana International Exchange (AIX) are the two active equity markets in the country. Financial firms including banks, insurance companies, and other financial institutions are not part of the sample because their balance sheet structures, regulatory capital requirements, and liquidity policies are fundamentally different from those of non-financial firms.[1]

The final sample consists of around 15 companies for which comprehensive or nearly comprehensive financial data is accessible throughout the sample period. The availability of financial statements changes from year to year because some AIX-listed companies were only recently added and some KASE-listed companies have inconsistent historical disclosures. Companies like KEGC, KazTransOil, and Kcell had missing values mostly in 2017-2018 because they didn't always report certain items, like notes to fixed assets or detailed breakdowns of current liabilities. I keep these missing observations as NA instead of filling them in to avoid adding fake variation to the dataset.

I manually collect firm-level data, including balance sheet items, income statement figures, cash flow statement data, and ownership information, from annual reports and audited financial statements accessible on firms' official investor relations pages and the KASE disclosure platform. The National Bank of Kazakhstan (NBK), the Bureau of National Statistics, and the World Bank all provide macroeconomic data that will be used later for robustness tests.

3.2 Variable Definitions

[1] Because their balance sheet structure and regulatory liquidity requirements are very different from those of non-financial companies, financial firms are not included.

The dependent variable is the cash ratio, measured as cash and cash equivalents divided by total assets. Firm-level determinants encompass leverage, defined as total debt divided by total assets; net working capital (NWC), calculated as current assets minus current liabilities minus cash, adjusted for total assets; capital expenditures (CapEx), assessed as capital spending relative to total assets; profitability (ROA), expressed as net income divided by total assets; operating cash flow (OCF), adjusted for total assets; firm size, indicated by the natural logarithm of total assets; and the market-to-book ratio (MTB), derived from the market value of equity divided by book equity. There are also other controls, such as a dividend dummy that is equal to one if the company paid dividends in year t and an SOE dummy that is equal to one for state-owned enterprises. Macroeconomic variables used for robustness include annual GDP growth, inflation, the National Bank of Kazakhstan's policy rate, and the unemployment rate.

3.3 Summary Statistics

Table A1 shows the summary statistics for the main variables that were used in the study. The average cash ratio is 0.104, which means that the companies in the sample have about 10.4% of their total assets in cash. This amount is in line with what studies of emerging markets have found about how much cash companies keep. The average leverage is 0.215, which means that debt makes up about 21.5% of total assets. However, there is a lot of variation (SD=0.228). On average, net working capital (NWC) is close to zero (-0.015), but it can be as low as -0.682 or as high as 0.454. This means that some businesses have a lot of working capital shortages while others have a lot of cash on hand. CapEx-to-assets, which measures investment intensity, is 8.6% on average, and operating cash flow (OCF) is 11.8% of assets on average. These numbers are in line with what publicly traded companies report. The average return on assets (ROA) is only 4.3%, which shows how hard it is to do business in Kazakhstan's listed sector.

The mean size of a firm, which is the natural logarithm of its total assets, is 16.85, with a range of 7.05 to 23.66. This shows that there is a lot of variation between small and very large firms. The average market-to-book (MTB) ratio is 174.9, and the standard deviation is 992.6. This value is high compared to most MTB scales, but that's because a small number of firms have very high market capitalizations, which is common for exchanges like KASE and AIX that don't trade much. The median MTB value is much lower, which means that the distribution is not even.

Lastly, the two dummy variables show that 63.3% of firms pay dividends and that 53.3% of the observations are from state-owned enterprises. This shows that the sample is fairly evenly split between SOEs and private firms.

The summary statistics show that there is a lot of variation between firms and variables, which is enough for regression analysis.

3.4 Correlation Matrix

Table A2 shows the pairwise correlations between the most important firm-level variables used in the analysis. There are a few clear patterns that stand out. To begin with, cash holdings are somewhat related to a number of firm characteristics. Cash Ratio is negatively correlated with Leverage (-0.292), which means that companies with more debt tend to have less cash on hand. This fits with the idea that getting outside financing means you don't need as much cash on hand. Cash is also negatively correlated with CapEx (-0.090), which means that companies that spend more on investments tend to use their own money instead of saving cash. The cash ratio, on the other hand, has positive correlations with NWC (0.296), OCF (0.316), and Market-to-Book (0.511). The positive link with NWC means that businesses with better short-term cash flow (higher working capital surpluses) are also more likely to keep more cash on hand. The strong positive correlation with Market-to-Book fits with the precautionary motive: companies that have better growth opportunities tend to keep more

cash on hand. The positive correlation with OCF (0.316) indicates that companies that bring in more cash from their own operations also have larger cash reserves.

Profitability has a small negative correlation with cash (-0.100), which means that firms that make more money may not need to keep as much cash on hand as a safety net. Firm Size is also weakly negatively correlated with cash (-0.252), which makes sense because bigger companies can get outside financing more easily, so they don't need to keep as much cash on hand. The matrix shows moderate but not strong correlations between the independent variables, which means that multicollinearity is not likely to be a big problem. There seem to be the most correlations between:

Leverage and OCF (-0.623)

NWC and Leverage (-0.617)

OCF and Profitability (0.346)

These patterns are theoretically sound and demonstrate the anticipated connections among operational performance, capital structure, and internal liquidity. It should be highlighted that market-to-book, profitability, and size exhibit no significant correlations with other regressors. The overall correlation structure reinforces the legitimacy of the regression models and demonstrates that the key explanatory variables reflect various dimensions of how companies manage their liquidity, investments, and funding

4. Methodology

4.1 Baseline Model: Pooled OLS

The empirical analysis commences with a pooled ordinary least squares (OLS) regression of the cash ratio on firm-level determinants. The pooled OLS model assumes that all observations are part of one cross-section and does not take into account firm characteristics that are not seen and do not change over time that could affect cash-holding behavior.

The baseline specification follows the framework of Bates et al. (2009):

$$CashRatio_{i,t} = \beta_0 + \beta_1 Leverage_{i,t} + \beta_2 NWC_{i,t} + \beta_3 CapEx_{i,t} + \beta_4 OCF_{i,t} + \beta_5 Profitability_{i,t} + \beta_6 Size_{i,t} + \beta_7 MTB_{i,t} + \beta_8 Dividend_{i,t} + \beta_9 SOE_{i,t} + \epsilon_{i,t}$$

Year fixed effects are included to account for macroeconomic shocks that impact all firms concurrently (e.g., monetary tightening, pandemic-induced uncertainty). The pooled OLS model, on the other hand, does not take into account differences in governance quality, ownership structure, or business model that are not visible. Consequently, the aggregated OLS results serve as a preliminary benchmark but must not be interpreted as causal estimates. The fixed-effects model discussed in Section 4.2 is a better way to estimate firm-level panel data.

4.2 Fixed Effects (FE) Model:

The principal specification utilizes a firm-level fixed effects (FE) model to address unobserved firm-specific characteristics that may affect cash-holding policies. The FE estimator eliminates all time-invariant firm-specific factors by utilizing only intra-firm variation over time. This is especially important in Kazakhstan, where companies have different ownership structures, governance quality, sector focus, and access to outside funding.

The fixed effects plus Year model is specified as:

$$CashRatio_{i,t} = \alpha_i + \lambda_t + \beta_1 Leverage_{i,t} + \beta_2 NWC_{i,t} + \beta_3 CapEx_{i,t} + \beta_4 OCF_{i,t} + \beta_5 Profitability_{i,t} + \beta_6 Size_{i,t} + \beta_7 MTB_{i,t} + \beta_8 Dividend_{i,t} + \beta_9 SOE_{i,t} + \epsilon_{i,t}$$

where α stands for firm-specific fixed effects that capture all of firm's time-invariant characteristics, and λ_t stands for year fixed effects that capture shocks that are common to all firms in the year t (like changes in macroeconomic conditions or policies). The coefficients β1-β8 show how changes in a company's cash holdings are related to changes in its own variables over time. The SOE dummy is time-invariant for each firm, making it perfectly

collinear with the firm fixed effects. As a result, it is excluded from the FE estimation. Instead, its effect is looked at in the pooled OLS models, where differences between state-owned and private firms can be seen across different states. The FE model is better at showing how changes in leverage, working capital, investment, profitability, and other firm-level factors over time affect cash holdings while controlling for all firm characteristics that are not seen and do not change over time.

4.3 Robustness Specifications

We do a number of robustness checks to see how stable the baseline and fixed effects (FE) results are. These checks make sure that the estimated links between a company's traits and its cash holdings aren't caused by how the model was set up, how the variables were made, or any macroeconomic factors that were left out.

(a) Fixed Effects Model with Macro Controls

In the initial robustness specification, year fixed effects are substituted with explicit macroeconomic variables. This lets the estimation show how macroeconomic conditions directly affect how companies handle their cash. The model becomes:

$$CashRatio_{i,t} = \alpha_i + \beta_1 Leverage_{i.t} + \beta_2 NWC_{i,t} + \beta_3 CapEx_{i,t} + \beta_4 OCF_{i,t} + \beta_5 Profitability_{i,t} + \beta_6 Size_{i,t} + \beta_7 MTB_{i,t} + \beta_8 Dividend_{i,t} + \beta_9 SOE_{i,t} + \gamma_1 GDPGrowth_t + \gamma_2 Inflation_t + \gamma_3 PolicyRate_t + \gamma_4 Unemployment_t + \epsilon_{i,t}$$

Using macro variables as control, we can observe if any macroeconomic shifts cause disturbance in normal cash holding patterns that goes beyond what happens within a firm. Since these measures tend to change almost annually, they might not be good indicators to assess short term conditions, but they serve as good robustness tests.

(b) Alternative Measures of Cash Holdings

To ensure that the results are not influenced by the definition of cash holdings, the subsequent alternative dependent variables are calculated:

1. Log(Cash) - the natural logarithm of cash and cash equivalents.
2. Net Cash - cash minus short-term debt.
3. ΔCash - the year-on-year change in the cash ratio.

These alternative measures are consistent with the methodologies established by Almeida et al. (2004) and Bates et al. (2009), facilitating comparisons with international studies and evaluating the consistency of results.

Alternative DV 1 - Log(Cash)

$$LogCash_{i,t} = \alpha_i + \beta_1 Leverage_{i.t} + \beta_2 NWC_{i,t} + \beta_3 CapEx_{i,t} + \beta_4 OCF_{i,t} + \beta_5 Profitability_{i,t} + \beta_6 Size_{i,t} + \beta_7 MTB_{i,t} + \beta_8 Dividend_{i,t} + \beta_9 SOE_{i,t} + \epsilon_{i,t}$$

Alternative DV 2 - Net Cash

$$NetCash_{i,t} = \alpha_i + \beta_1 Leverage_{i.t} + \beta_2 NWC_{i,t} + \beta_3 CapEx_{i,t} + \beta_4 OCF_{i,t} + \beta_5 Profitability_{i,t} + \beta_6 Size_{i,t} + \beta_7 MTB_{i,t} + \beta_8 Dividend_{i,t} + \beta_9 SOE_{i,t} + \epsilon_{i,t}$$

Alternative DV 3 - Change in Cash (ΔCash)

$$DeltaCash_{i,t} = \alpha_i + \beta_1 Leverage_{i.t} + \beta_2 NWC_{i,t} + \beta_3 CapEx_{i,t} + \beta_4 OCF_{i,t} + \beta_5 Profitability_{i,t} + \beta_6 Size_{i,t} + \beta_7 MTB_{i,t} + \beta_8 Dividend_{i,t} + \beta_9 SOE_{i,t} + \epsilon_{i,t}$$

4.4 Estimation Considerations

To address these concerns, All pooled OLS regressions use heteroskedasticity-robust (Huber–White) standard errors, and all panel fixed-effects regressions use firm-clustered (panel-robust) standard errors as recommended by Petersen (2009). In corporate finance panel settings, firm-clustered standard errors are often suggested because they give consistent

results even when error terms are dependent on each other within the same firm.[2] This method is based on Petersen (2009), who shows that clustering by firm is the right way to fix things when the panel structure has repeated observations on the same firms.

Also, all continuous variables, such as leverage, net working capital, capital expenditures, profitability, and operating cash flow, are winsorized at the 1% and 99% levels to keep extreme outliers from having too much of an effect. Winsorization is a common method used in research to make sure that coefficient estimates aren't too heavily influenced by observations that are much larger than normal. Using firm-clustered standard errors and winsorization together makes the econometric results more reliable and makes sure that the estimated links between firm characteristics and cash holdings aren't caused by distributional problems or uncorrected error dependence.

4.5 Expected Signs

The expected signs of the coefficients adhere to conventional corporate cash-holding theory. It is expected that leverage will hurt cash because debt and liquidity can be used in place of cash. Negative net working capital (NWC) is also expected because it gives you another way to get cash in the short term. Negative cash flow should happen because capital expenditures (CapEx) use up internal funds.

It is expected that operating cash flow (OCF) will be positive because companies that make more cash inside tend to have more cash on hand. The expected signs for profitability (ROA) and firm size are unclear because of conflicting theoretical mechanisms. The market-to-book ratio (MTB), which stands for growth opportunities, should be positive. Companies that pay dividends are usually more stable financially, so they are expected to

[2] Petersen (2009) says that firm-clustered standard errors are right for both heteroskedasticity and serial correlation within firms.

have less cash (negative). State-owned enterprises (SOEs) are also expected to have more cash because they tend to be careful with their money.[3]

5. Results

5.1 Descriptive Trends in Cash Holdings

As a complement to the summary statistics, this section will present a pictorial view of how the corporate cash-holding behavior has changed over the sample period in Kazakhstan. The respective values are reported in such a way in Appendix C (Figures A1 and A2).

Appendix Figure C1 demonstrates the average of the cash ratio of all publicly listed non-financial companies in the period between 2017 and 2024. The trend shows that there is a gradual growth until 2021 when cash ratios will be at the highest point. This spike is in line with the regression estimates, especially the major effects of the years and is probably due to the accumulation of liquidity after the COVID as companies started piling precautionary reserves at a time where there was an increased level of uncertainty. The changes in the cash holdings are also rather negative in 2022, and the recovery is only partly observed in 2024, which can be associated with the tightening of monetary policy and new incentives toward savings as the macroeconomic environment changed.

Appendix Figure C2 shows the comparison of average cash-holding level of state-owned enterprises (SOE) and private firms. SOEs have significantly higher cash ratios which is consistent with the positive (although not statistically significant) coefficient of SOE dummy in the regression analysis across all years. This descriptive trend implies the SOEs are more likely to have larger liquidity cushions, which may be caused by a more lenient budgeting process, lower investment efficiency, or more conservative financial policies.

Such visual trends give significant backgrounds to the ensuing regression findings. They confirm that (i) there is significant time-series variation on cash holdings, particularly around

[3] SOEs may retain higher liquidity buffers due to conservative or bureaucratic financial policies, consistent with evidence from emerging markets.

2021-2022, and (ii) structural variations between SOEs and private companies. These two observations support the necessity of the fixed-effects specifications in the achievement of the appropriate consideration of firm-level heterogeneity and shocks of time.

5.2 Baseline OLS Results

Variables	(1) OLS	(2) OLS + Year FE
Leverage	-0.0144	-0.00719
	(0.0644)	(0.0620)
NWC	0.104**	0.107**
	(0.0502)	(0.0517)
CAPEX	-0.179***	-0.154**
	(0.0656)	(0.0681)
OCF	0.277***	0.265***
	(0.0826)	(0.0780)
Profitability	-0.0988***	-0.109**
	(0.0364)	(0.0426)
Firm Size	0.00288	0.00217
	(0.00464)	(0.00509)
Market to Book	4.49e-08***	4.50e-08***
	(1.36e-08)	(1.23e-08)
Dividend Dummy	-0.0217	-0.0137
	(0.0263)	(0.0303)

SOE Dummy	-0.0555	-0.0515
	(0.0382)	(0.0403)
Observations	94	94
R-squared	0.465	0.517
Year Fixed Effects	No	Yes

Table 5.2 represents the results of the baseline pooled OLS estimates of the determinants of corporate cash holdings. pattern is constant across all the specifications. The most significant predictors of cash holdings in the sample are capital expenditure (CAPEX) and the market to book ratio. The coefficient of CAPEX is negative and statistically significant, meaning that the more significant percentage of assets that are owned by the firms, the less they hold in cash. This is in line with the premise that internal liquidity is required by investment needs. The size and the value of the coefficient are consistent throughout the models implying a strong relationship. The market to book is good and very important meaning that the stronger the growth prospects of firms, the more the cash they keep in their hands. This observation favors the precautionary motivation, where the firms anticipating beneficial future investment conditions maintain a greater liquidity buffer to prevent the expensive outside financing. The operating cash flow (OCF) is also positive and significant indicating that firms that produce a lot of internal funds have a higher likelihood of accumulating cash. The high liquidity reserves of companies occur naturally as a result of high operating performance.

The other variables, leverage, net working capital (NWC), profitability, and the firm size, are not statistically significant in the pooled OLS specification. Some of their coefficient signs can be easily predicted in the theory, but they cannot draw conclusions with their imprecise estimates. One example of such is that profitability is negative as predicted by the pecking-order theory, but it is not statistically significant. On the same note, leverage and

NWC show weak positive values, which are contrary to expectation, yet, these values are not significant as it makes the patterns hard to explain. The dividend dummy and SOE dummy indicate the anticipated negative and positive values, respectively, although both do not attain traditional significance values. This implies the fact that state ownership and dividend policies do not have a significant motive in describing cross-sectional variations in cash holding in the OLS system.

On the whole, the pooled OLS findings demonstrate that the primary variables that explain the difference in the cash holdings of Kazakhstani listed firms are CAPEX, OCF, and in particular market-to-book. Nonetheless, owing to the fact that pooled OLS fails to adjust against unobserved firm-specific attributes, these results can be taken as descriptive standards. The results provided in the following section, based on the fixed-effects, provide a more valid representation of the dynamics of cash-holding behavior changes among firms over time. The fixed effects analysis in Section 5.2 gives a better picture of how things change over time within a company.

5.3 Fixed Effects (FE) Results

Variables	(3) Firm FE	(4) FE + Year FE
Leverage	-0.0144	0.0402
	(0.0851)	(0.101)
NWC	-0.182	-0.172
	(0.161)	(0.142)
CAPEX	-0.216***	-0.211***
	(0.0467)	(0.0507)
OCF	0.190	0.180

	(0.127)	(0.127)
Profitability	-0.0565	-0.0801
	(0.0754)	(0.0495)
Firm Size	0.0460	0.0235
	0.0460	(0.0714)
Market to Book	4.00e-08***	4.10e-08***
	(2.28e-09)	(4.37e-09)
Dividend Dummy	-0.0387	-0.0497
	(0.0308)	(0.0355)
SOE Dummy	-0.0555	-
	(0.0382)	
Observations	94	94
R-squared	0.401	0.474
Year Fixed Effects	No	Yes

The regression results for fixed effects (FE) are shown in Table 5.3. After accounting for time-invariant firm characteristics, the primary determinants of cash holdings remain aligned with the OLS findings. Capital expenditures (CapEx) still have a negative and statistically significant effect, which means that years with more investment activity are also years when a company's cash balances are lower. Market-to-book (MTB) is still positive and important, which shows that companies keep more cash when there are better growth opportunities. Operating cash flow (OCF) also has a positive and economically significant coefficient, which supports the precautionary motive. In contrast, leverage, profitability, firm size, and

net working capital (NWC) are not statistically significant in the FE model, suggesting that these characteristics do not drive within-firm changes in cash holdings over time. Year fixed effects account for shared aggregate shocks. Uncertainty shocks can cause temporary rises in cash buffers (Duchin et al., 2010). The 2021 dummy is positive and statistically significant, which means that companies had more cash right after the pandemic, even when controlling for fundamentals.

Overall, the FE results show that CapEx, MTB, and OCF are the main factors that affect how much cash Kazakhstani companies hold. Other firm-level variables don't explain much when firm fixed effects are added.

5.4 Interpretation and Discussion

Both the OLS and the fixed effects model results show that there are three variables that always explain the variation in corporate cash holdings of the Kazakhstani listed companies, which include capital expenditures (CapEx), market-to-book (MTB) ratio, and operating cash flow (OCF). These factors greatly match the international factors and indicate that investment intensity, growth opportunities and internal liquidity creation is the major driving force behind cash policy of firms in Kazakhstan. The negative and powerful impact of CapEx demonstrates that the process of reducing the cash reserves of companies becomes more prominent as they invest more. This implies that the bulk of their money which companies use to invest is not external but rather internal. This follows the fact that the capital markets in Kazakhstan are relatively shallow and the company depends more on internal funds. The close and significant correlation between the MTB and the cash backs supports the notion that firms that have greater opportunities to expand have higher amounts of cash reserves they can use to finance future investments. The positive impact of OCF strengthens the precautionary motive: companies that produce more internal cash usually keep more liquidity. Conversely, leverage, profitability, size of firm and NWC do not have much or no statistical

significance across models. Such findings suggest that traditional balance-sheet characteristics have a small role to play in explaining intra-firm differences in cash holdings in this sample, which may be due to the small sample size, sector concentration, or limited cross-firm heterogeneity. The macroeconomic shocks are correct in terms of year fixed effects. The positive and significant coefficient of 2021 indicates that the cash reserves increased temporarily in the period of recovery following the pandemic. This implies that the accumulation of excess liquidity buffers was a response of companies to greater uncertainty.

The indicators indicate that the cash-holding behavior in Kazakhstan is largely determined by the needs of investments and the opportunities of growth, but many other traditional determinants show weakened impacts when the heterogeneity of the firm level is taken into consideration. This trend is consistent with the behavior of firms in frontier markets with more restrictive financing parameters.

6. Robustness Checks

This part looks at whether the main results change when different model specifications and variable definitions are used. In all robustness tests, the main factors that affect cash holdings capital expenditures (CapEx), market-to-book (MTB), and operating cash flow (OCF) stay the same in terms of sign and significance. This shows that the baseline results are reliable.

6.1 Fixed Effects Model with Macroeconomic Controls

Table 6A shows a fixed effects model that uses macroeconomic indicators like GDP growth, inflation, the policy rate, and unemployment instead of year dummies. The results indicate that incorporating macro variables does not significantly alter the estimated coefficients of the firm-level determinants. CapEx is still negative and significant, MTB is still positive and significant, and OCF is still positively related to cash holdings. Most macroeconomic variables are not important, but unemployment does have a small and slightly significant effect. This suggests that the state of the labor market may have some effect on companies'

decisions about liquidity. The stability of coefficients suggests that the primary results are not influenced by excluded macroeconomic shocks.

6.2 Alternative Measures of Cash Holdings

To determine if results are contingent on the measurement of cash, three alternative dependent variables are evaluated: the logarithm of cash, net cash (cash less short-term debt), and the change in cash. The coefficient patterns for the key variables remain broadly consistent across all three models. CapEx continues to be negative, and MTB remains positive and significant in most specifications, confirming that investment intensity and growth opportunities are robust predictors of liquidity. OCF also retains a consistently positive effect, supporting the precautionary motive. Other firm-level variables leverage, profitability, firm size, and NWC remain insignificant across the alternative specifications, consistent with the baseline findings.

The alternative dependent variable models also show significant year effects in 2021 and 2024, which means that cash accumulation was higher during those years. These results are in line with what the main FE model showed about liquidity building up after the pandemic.

6.3 Overall Assessment

The basic relationships found in the baseline specifications hold true across all robustness checks: companies with more growth opportunities (MTB) and better internal liquidity (OCF) keep more cash, while companies with more investment activity (CapEx) keep less. The fact that these effects last across different models supports the idea that these factors are the main reasons why publicly traded Kazakhstani companies have cash.

7. Conclusion

This thesis examined the determinants of the corporate cash of non-financial listed companies in Kazakhstan in the year 2017 through 2024. The analysis reveals that the capital spending, the market to book ratio and operating cash flow are the key factors which influence the

amount of cash possessed by a company. It achieves this through the firm fixed effects and the year fixed effects. CapEx never works in favor, but both MTB and OCF have good and economically significant relationships with cash. In these results, it is indicated that the companies that have better growth potential and more cash on hand retain higher cash reserves whereas the companies that invest higher amounts of cash expend it.

Leverage, profitability, firm size, and net working capital, on the other hand, do not have strong and significant effects. This implies that the traditional balance-sheet characteristics are less significant when differences in firms are considered. The short-run increases in liquidity are observed in the year fixed effects, particularly in 2021, when the uncertainty post-pandemic is associated. Consistency of the main findings is tested using robustness checks through the use of macro controls and other dependent variables.

The data shows that the cash-holding behaviour in Kazakhstan is mostly related to the investment needs, the internal liquidity generation and the growth opportunities, which are consistent with the precautionary motive. Future studies can increase sample size, add other governance measures, or explore how changes in commodity prices affect liquidity in frontier markets.

References

Almeida, H., Campello, M. and Weisbach, M.S., 2004. The cash flow sensitivity of cash. The *Journal of Finance, 59*(4), pp.1777–1804.

Alfaro, L., Bloom, N. and Lin, X., 2020. The COVID-19 pandemic and economic policy uncertainty. *Journal of Economic Perspectives*, 34(4), pp.153–174.

Astana International Exchange (AIX), 2024. Issuer disclosures and annual reports. Available at: https://aix.kz.

Bates, T.W., Kahle, K.M. and Stulz, R.M., 2009. Why do U.S. firms hold so much more cash than they used to? *The Journal of Finance, 64*(5), pp.1985–2021.

Bureau of National Statistics (BNS), 2024. Macroeconomic indicators and official statistics. Available at: https://stat.gov.kz.

Chen, Y., Chen, Y. and Wei, K.C.J., 2011. Agency costs of free cash flow and the effect of shareholder rights on the implied cost of equity capital. *Journal of Financial and Quantitative Analysis, 46*(1), pp.171–207.

Dittmar, A., Mahrt-Smith, J. and Servaes, H., 2003. International corporate governance and corporate cash holdings. *Journal of Financial and Quantitative Analysis, 38*(1), pp.111–133.

Duchin, R., Ozbas, O. and Sensoy, B.A., 2010. Costly external finance, corporate investment, and the subprime mortgage credit crisis. *Journal of Financial Economics, 97*(3), pp.418–435.

Gormley, T. and Matsa, D., 2022. Policy uncertainty and corporate liquidity management. *Review of Finance*, 26(5), pp.1033–1072

Guney, Y., Ozkan, A. and Ozkan, N., 2003. Corporate cash holdings: Evidence from emerging markets. *Journal of Empirical Finance, 10*(5), pp.597–610.

Harford, J., 1999. Corporate cash reserves and acquisitions. *Journal of Financ*e, 54(6), pp.1969–1997.

Jensen, M.C., 1986. Agency costs of free cash flow, corporate finance, and takeovers. *American Economic Review, 76*(2), pp.323–329.

Kazakhstan Stock Exchange (KASE), 2024. Listed company financial statements and market data. Available at: https://kase.kz.

Khanna, T. and Yafeh, Y., 2007. Business groups in emerging markets: Paragons or parasites? *Journal of Economic Literature, 45*(2), pp.331–372..

Myers, S.C. and Majluf, N.S., 1984. Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics, 13*(2), pp.187–221.

National Bank of Kazakhstan (NBK), 2024. Monetary statistics and macroeconomic indicators. Available at: https://nationalbank.kz (Accessed: [insert date]).

Opler, T., Pinkowitz, L., Stulz, R. and Williamson, R., 1999. The determinants and implications of corporate cash holdings. *Journal of Financial Economics, 52*(1), pp.3–46.

Opler, T. and Titman, S., 2023**.** Corporate cash holdings: New evidence and perspectives. *Annual Review of Financial Economics*, 15, pp.201–225.

Petersen, M.A., 2009. Estimating standard errors in finance panel data sets: Comparing approaches. *Review of Financial Studies*, 22(1), pp.435–480.

Pinkowitz, L., & Williamson, R. (2004). What is a dollar worth? The market value of cash holdings. *Journal of Applied Corporate Finance, 16*(3), 47–57.

World Bank, 2024. World Development Indicators. Available at: https://data.worldbank.org

Appendix

Appendix A - Additional Descriptive Analysis

Table A1. Summary Statistics

Variables	**N**	**Mean**	**SD**	**Min**	**Max**
Cash Ratio	120	0.104	0.106	0.000	0.706
Leverage	120	0.215	0.228	0.000	1.227
NWC	120	-0.015	0.193	-0.682	0.454
CapEx	120	0.0855	0.118	-0.0579	0.745
OCF	120	0.118	0.137	-0.310	0.592
Profitability	120	0.0430	0.222	-0.648	0.940
Firm Size	120	16.85	4.482	7.047	23.66
Market-to-Book	94	174.9	992.6	-23.27	9203.8
Dividend Dummy	120	0.633	0.484	0	1
SOE Dummy	120	0.533	0.501	0	1

Table A2. Correlation Matrix

Variables	Cash Ratio	Leverage	NWC	CapEx	OCF	Profitability	Firm Size	Market-to-Book
Cash Ratio	**1.000**	-0.292	0.296	-0.090	0.316	-0.100	-0.252	0.511
Leverage	-0.292	**1.000**	-0.617	0.017	-0.623	-0.259	-0.075	-0.124
NWC	0.296	-0.617	**1.000**	-0.131	0.397	0.333	0.080	0.007
CapEx	-0.090	0.017	-0.131	**1.000**	0.164	-0.301	-0.278	0.004
OCF	0.316	-0.623	0.397	0.164	**1.000**	0.346	-0.019	0.075
Profitability	-0.100	-0.259	0.333	-0.301	0.346	**1.000**	-0.232	-0.273
Firm Size	-0.252	-0.075	0.080	-0.278	-0.019	-0.232	**1.000**	0.453
Market-to Book	0.511	-0.124	0.007	0.004	0.075	-0.273	0.453	**1.000**

Appendix B - (Robustness) FE+Macro Variables

Table B1.

Variables	(5) FE + Macro Variables
Leverage	0.0396
	(0.102)
NWC	-0.171
	(0.141)
CAPEX	-0.210***
	(0.0465)
OCF	0.176
	(0.128)
Profitability	-0.0811
	(0.0504)
Firm Size	0.0253
	(0.0617)
Market to Book	4.10e-08***
	(4.36e-09)
Dividend Dummy	-0.0506
	(0.0351)
SOE Dummy	-
Observations	94

R-squared	0.473
Year Fixed Effects	No
Base Rate	0.421
	(0.746)
GDP Growth Rate	-0.00989
	(0.252)
Inflation	-0.207
	(0.362)
Unemployment	11.22**
	(5.040)

Alternative Dependent Variables

Table B2.

Variables	(6) Log_cash	(7) Cash_Net	(8) Δcash
Leverage	-1.608	-0.0797	-0.000212
	(1.501)	(0.350)	(0.130)
NWC	-0.633	-0.358	-0.212
	(2.023)	(0.310)	(0.191)
CAPEX	-5.902	-0.431***	-0.243**
	(3.428)	(0.119)	(0.0870)
OCF	2.086	0.111	0.0749

	(1.911)	(0.443)	(0.226)
Profitability	-0.725	-0.0851	-0.141***
	(0.536)	(0.173)	(0.0336)
Firm Size	0.795	0.228	-0.0944**
	(0.494)	(0.265)	(0.0324)
Market to Book	8.72e-09	9.14e-08***	3.98e-08***
	(1.24e-07)	(1.18e-08)	(4.21e-09)
Dividend Dummy	0.0584	-0.145	-0.00852
	(0.197)	(0.118)	(0.0223)
SOE Dummy	-	-	-
Observations	94	94	83
R-squared	0.475	0.368	0.398
Year Fixed Effects	yes	Yes	Yes

Alternative Variables (Robustness) FE + Macro Variables

Table B3.

Variables	(6) Log_cash	(7) Cash_Net	(8) Δcash
Leverage	-2.142	-0.0734	-0.0248
	(1.784)	(0.337)	(0.141)
NWC	-0.860	-0.351	-0.241

	(1.779)	(0.298)	(0.204)
CAPEX	-5.265	-0.443***	-0.207**
	(3.455)	(0.110)	(0.0781)
OCF	0.842	0.109	0.0443
	(1.824)	(0.427)	(0.239)
Profitability	-1.045	-0.0781	-0.160***
	(0.628)	(0.175)	(0.0328)
Firm Size	0.905	0.203	-0.0668**
	(0.648)	(0.226)	(0.0280)
Market to Book	2.04e-08	9.00e-08***	4.17e-08***
	(1.34e-07)	(1.26e-08)	(3.75e-09)
Dividend Dummy	-0.0113	-0.143	-0.0107
	(0.186)	(0.111)	(0.0255)
SOE Dummy	-	-	-
Observations	94	94	83
R-squared	0.401	0.365	0.370
Year Fixed Effects	No	No	No
Bae Rate	5.712	-1.191	0.851
	(4.682)	(2.386)	(0.724)
GDP Growth Rate	-3.505	0.487	-0.123
	(2.071)	(0.570)	(0.480)

Inflation	-1.805	-0.114	-0.714
	(5.367)	(0.943)	(0.674)
Unemployment	85.44*	20.60	11.98*
	(44.72)	(12.76)	(6.193)

Appendix C- Figures

Figure C1.

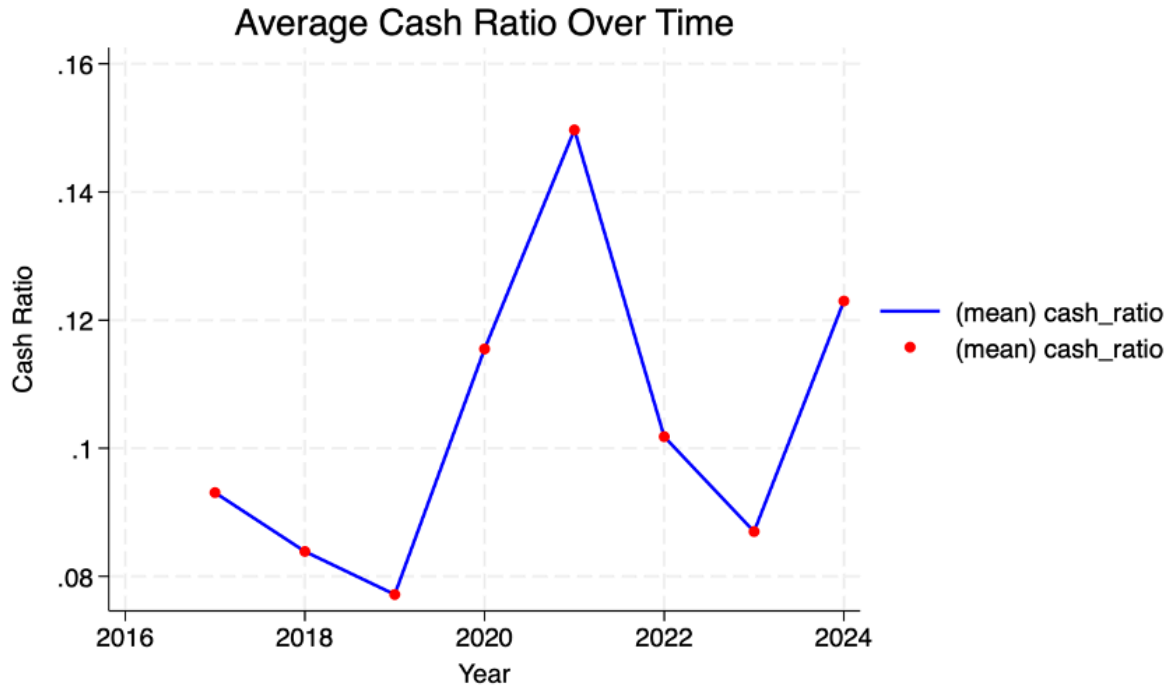
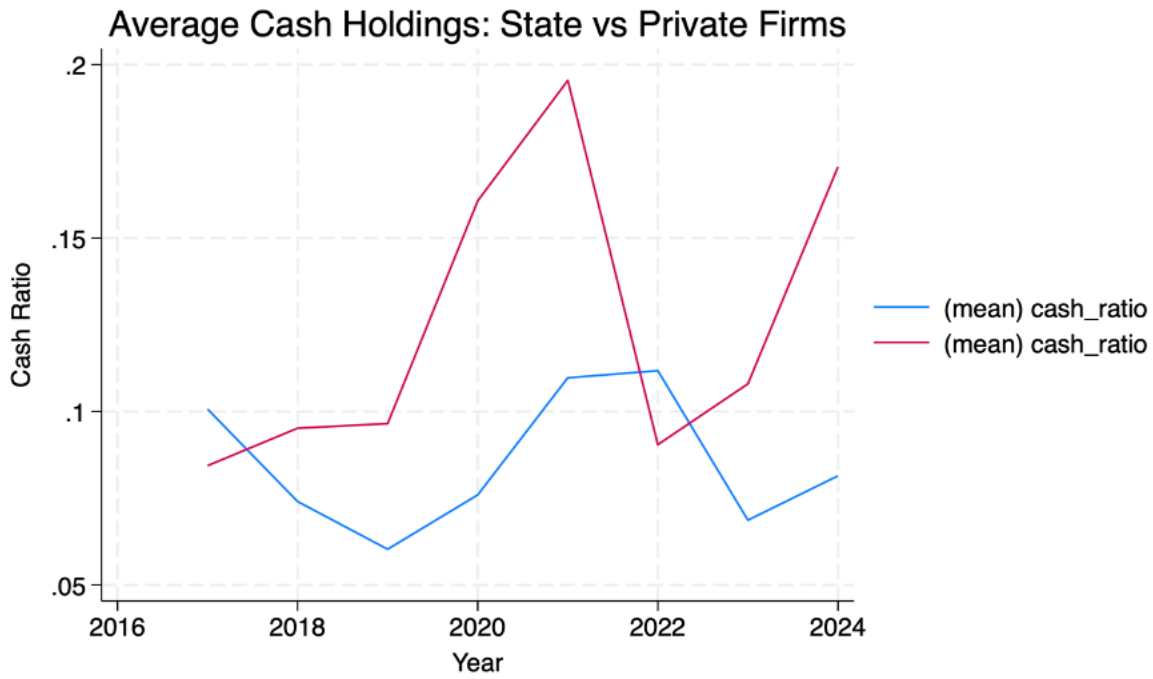


Figure C2.


Average Cash Holdings: State vs Private Firms
Cash Ratio
.2
.15
.1
.05
2016
2018
2020
2022
2024
Year
(mean) cash_ratio
(mean) cash_ratio

Appendix D - Variable Definitions

Variable	Definition	Construction/Source
Cash Ratio	Ratio of cash and cash equivalents to total assets	cash/total assets
Leverage	Total debt relative to total assets	(short term debt + long term debt)/total assets
NWC	Net working capital scaled by total assets	(Current Assets - current liabilities-cash)/total assets
CapEx	Capital expenditure scaled by total assets	capex/total assets
OCF	Operating cash flows scaled by total assets	ocf/total assets
Profitability	Return on assets	Net income/total assets
Firm Size	Natural log of total assets	ln(total assets)
Market-to-Book	Market valuation relative to book equity	(share price*shares outstanding)/book value of equity
Dividend	Dummy=1 if firm pays dividend, 0 otherwise	From AIX/KASE fillings
State -Owned	Dummy=1 if firm is state-owned, 0 otherwise	From AIX/KASE fillings
Base Rate	Policy interest rate	National Bank of Kazakhstan
GDP	Annual GDP growth rate	BNS/World Bank
Inflation	Annual inflation rate	BNS
Unemployment	Annual unemployment rate	BNS