Marmara Üniversitesi İktisadi ve İdari Bilimler Dergisi • Cilt: 47 • Sayı: 2 2025, ISSN: 2587-2672, ss/pp. 286-299
DOI: 10.14780/muiibd.1630962

ARAŞTIRMA MAKALESİ / RESEARCH ARTICLE

FACTORS INFLUENCING CORPORATE CASH HOLDINGS: A STUDY OF EMERGING ECONOMIES

KURUMSAL NAKİT TURMA KARARLARINI ETKİLEYEN FAKTÖRLER: GELİŞMEKTE OLAN EKONOMİLER ÜZERİNE BIR ARAŞTIRMA

Oğuzhan ERCAN*
Mehtap ÖNER**
Emin AVCI***

Abstract

This study examines the corporate cash holding decisions of publicly traded firms in 10 developing economies from 2009 to 2022, using both firm-specific and macroeconomic determinants. A fixed-effects panel data model was employed for the analysis. The findings indicate that firm size, cash flow, growth opportunities, and profitability are positively associated with cash holdings, while leverage, working capital and capital expenditures exhibit a negative relationship. However, R&D expenses and macroeconomic factors, namely; GDP and inflation rate are found to have no significant impact on cash holdings of the selected firms. The findings related to size, leverage, cash flow, growth opportunities, and capital expenditures are consistent with the assumptions of Pecking Order Theory (POT), where the first two factors also align with the predictions of Free Cash Flow Theory (FCFT). On the other hand, the influence of profitability, growth opportunities, and net working capital on corporate cash holding supports the predictions of Trade-Off Theory (TOT). This study contributes to the literature by providing insights into the dynamics of cash holdings in emerging economies, offering valuable perspectives for creditors, shareholders, and business

* Ph.D. Candidate, Marmara University, Department of Accounting and Finance, Istanbul. E-Mail: oguzhan.ercan.94@hotmail.com, ORCID ID: 0000-0003-4046-7054

** Assoc. Prof. Dr., Marmara University, Department of Business Administration, Istanbul. E-Mail: mehtap.oner@marmara.edu.tr, ORCID ID: 0000-0001-7527-5875

*** Prof. Dr., Marmara University, Department of Business Administration, Istanbul, E-Mail: eavci@marmara.edu.tr, ORCID ID: 0000-0003-3172-897X

How to cite this article/Atıf için: Ercan O, Öner M, Avcı E. (2025). Factors Influencing Corporate Cash Holdıngs: A Study of Emerging Economies. *Marmara Üniversitesi İktisadi ve İdari Bilimler Dergisi, 47*(2), 286-299. DOI: 10.14780/muiibd.1630962

Makale Gönderim Tarihi: 31.01.2025 **Yayına Kabul Tarihi:** 21.04.2025 **Benzerlik Oranı:** %19

managers. The findings highlight the importance of policies that strike a balance between effective cash management and investment efficiency to sustain financial performance.
Keywords: cash holdings, emerging economies, panel data
JEL Clasification: G3, G30

Öz

Bu çalışma, 2009-2022 yılları arasında 10 gelişmekte olan ekonomide faaliyet gösteren halka açık firmaların nakit tutma kararlarını, firma bazlı ve makroekonomik etmenleri kullanarak incelemektedir. Çalışmada sabit etkiler panel veri modeli kullanılmıştır. Bulgular, firma büyüklüğü, nakit akışı, büyüme fırsatları ve kârlılığın nakit tutma düzeyi ile pozitif ilişkili olduğunu, buna karşın kaldıraç, işletme sermayesi ve yatırım harcamalarının negatif yönde ilişkili olduğunu göstermektedir. Ancak, Ar-Ge harcamaları ve makroekonomik değişkenler olan GSYH ve enflasyon oranının seçilen şirketlerin nakit tutma düzeyleri üzerinde anlamlı bir etkisinin olmadığı tespit edilmiştir. Firma büyüklüğü, kaldıraç, nakit akışı, büyüme fırsatları ve yatırım harcamalarına ilişkin bulgular, Finansal Hiyerarşi Teorisi varsayımlarıyla uyumlu olup, ilk iki faktör aynı zamanda Serbest Nakit Akım Teorisi varsayımlarını da desteklemektedir. Öte yandan, kârlılık, büyüme fırsatları ve net işletme sermayesine yönelik sonuçlar, Dengeleme Teorisi varsayımlarıyla örtüşmektedir. Bu çalışma, gelişmekte olan ekonomilerde nakit tutma dinamiklerine dair önemli bulgular sunarak literatüre katkıda bulunmakta; paydaşlar ve işletme yöneticileri için faydalı bakış açıları sağlamaktadır. Bulgular, nakit yönetimi ile yatırım verimliliği arasında etkili bir denge kuran politikaların, finansal performansın sürdürülebilirliğini sağlamak açısından önemini vurgulamaktadır.
Anahtar Kelimeler: nakit tutma, gelişmekte olan ekonomiler, panel veri
JEL Sınıflandırması: G3, G30

1. Introduction

The cash holding decisions of companies are regarded as a significant issue in corporate finance. Companies need to hold cash to sustain their regular operations. Although an academic approach to cash holding policies of companies began with Keynes (1936), the topic has remained consistently relevant in corporate finance literature. This is because it provides companies with the ability to repay debts and taxes, ensure liquidity, finance future investments, achieve their operational objectives, and improve financial performance. Consequently, the cash holding tendencies of companies and how these tendencies change over time have attracted the attention of academicians, leading to extensive research on the determinants of cash holding ratios in both advanced and developing economies.

Two major motives for cash holdings have emerged prominently in the academic literature as explanations for corporate cash holding decisions which are the precautionary and transactional motives (Ozkan & Ozkan, 2004). The transactional motive, dated back to the pioneer book of Keynes (1936), expresses the need for companies to keep cash to carry out ordinary operations and minimize transaction costs. Companies need liquid assets to maintain their day-to-day operations and uphold the going concern principle (Kim et al., 1998). If companies face a cash shortage when needed, they may be forced to liquidate their fixed assets to cover operational costs and expenses, which would impose additional transaction costs. Therefore, companies hold cash to avoid such costs. Companies with higher access to external debt and capital prefer to holding less cash because of lower transaction costs. However, the precautionary motive suggests that firms keep cash to hedge against unforeseen circumstances and capitalize on profitable investment opportunities (Ozkan & Ozkan, 2004). This motive considers cash holdings as a risk avoidance tool and insurance for the company. Thus, by

holding cash, companies can maintain their operations even during unexpected and adverse events such as economic crises, supply-demand imbalances, supply chain disruptions, and political issues that cause cash shortages.

Three prominent theories have been commonly used in literature to explore the determinants of corporate cash holdings (Gül & Şahin, 2022): trade-off theory (TOT), pecking order theory (POT), and the free cash flow theory (FCFT). The TOT suggests the optimum equilibrium level of marginal costs and marginal benefits of holding cash for firms (Miller & Orr, 1966). Accordingly, this theory proposes that firms should aim for an optimal cash balance to prevent a decline in equity value, which may result in holding excessive or insufficient levels of cash. The optimal cash level is shaped by the trade-off between the opportunity cost of excess cash and the cost of debt when cash is deficient. The POT asserts that managers follow a hierarchy when choosing their funding options, giving priority to those with the lowest information asymmetry over those with higher information asymmetry (Myers & Majluf, 1984). Specifically, retained earnings are used first, then debt, finally followed by equity. In contrast, FCFT (Jensen, 1986) suggests that executives may act in their own interests when there is excess cash. According to this theory, firms should allocate free cash flows to options such as paying dividends, paying off debt, and repurchasing stocks. Excessive cash holdings allow executives to evade debt and the external scrutiny of capital markets and banks, while also granting them the flexibility to conduct new investment opportunities. However, this can lead to conflicts between shareholders and executives, as executives may prefer to hold more cash than is necessary.

Beyond these theoretical explanations, it has been suggested that firm-specific variables also influence cash holdings. Before the 2010s, studies on the factors influencing cash holdings mainly focused on advanced economies (Ozkan & Ozkan, 2004; Opler et al., 1999; D'Mello et al., 2008). In contrast, studies focusing on individual developing economies or cross-country comparisons were relatively limited during the 2010s. However, there has been a growing body of literature on emerging economies since 2010s including studies on individual developing countries (Uyar & Kuzey, 2014; Abdioğlu, 2016; Guizani, 2017; Yiğit, 2020; Gül & Şahin, 2022) and cross-country analyses (Al-Najjar, 2013; Akben-Selcuk & Yılmaz, 2017; Al-Naijar & Clark, 2017; Batuman et al., 2021; Alnori et al., 2022). This paper focuses on to identify the drivers of cash holdings and how they influence cash levels by analyzing both firm-specific and macroeconomic variables. It contributes to relevant literature by evaluating the determinants of cash holdings in publicly-listed companies from developing nations, utilizing a broader sample, a more recent time frame, updated firm-specific variables, and a novel perspective on macroeconomic variables. As such, it provides insights into the corporate finance decisions of companies in emerging economies.

The next section of the study will review existing literature and formulate the hypotheses. The data and methodology used will be described, and descriptive statistics will be presented in Section 3. The empirical findings of the study will be discussed in Section 4. Finally, the results and implications of the study will be presented.

2. Literature Review and Hypotheses Formulation

A significant body of literature examines the firm-specific variables of cash holdings. Numerous variables such as firm size, leverage, profitability, net working capital, growth opportunity, cash flow, and capital expenditures have been analyzed as potential determinants. The effect of these factors on cash holdings can differ based on the theoretical perspectives discussed previously. This section presents the drivers of cash holdings by referring to earlier studies and the aforementioned theoretical frameworks.

2.1. Size

Both of the FCFT and POT suggest a positive link between firm size and cash holdings. According to POT, companies larger in size are more likely to accumulate liquid assets after funding their investments, because they tend to generate more favorable investment outcomes (Opler et al., 1999). The FCFT also highlights that larger companies typically have more dispersed ownership, leading to greater managerial discretion (Ferreira & Vilela, 2004). Studies by Guizani (2017), Aftab et al. (2018), Al-Naijar and Clark (2017), and Batuman et al. (2021) provide evidence supporting a positive relationship between firm size and cash holdings.

In contrast, the TOT posits a negative relationship between firm size and cash holdings (Ferreira & Vilela, 2004), arguing that smaller firms face higher capital costs compared to larger ones, which encourages them to hold more cash. Opler et al. (1999) examined cash holdings in U.S. companies and found evidence consistent with the TOT, showing that larger firms with better credit ratings hold lower amounts of cash. Many empirical studies align with this view, indicating a negative relationship (Ferreira & Vilela, 2004; Kim et al., 2011; Abdiğlu, 2016; Dao & Maggi, 2018; Alves et al., 2022). Therefore, this study hypothesizes the inverse association based on the TOT and the above-mentioned empirical findings.

2.2. Leverage

The POT suggests that investment and retained earnings have a direct impact on leverage. Specifically, leverage increases when investments surpass retained earnings and decreases when retained earnings outpace investments (Ferreira & Vilela, 2004). Thus, POT proposes an inverse connection between leverage and cash holdings. The FCFT highlights the monitoring role of debt, stating that highly leveraged firms face close scrutiny from creditors, which limits managerial discretion in fund utilization. Conversely, in low-leverage companies, where managers are less closely monitored, they are able to exercise greater managerial discretion (Opler et al., 1999). Less leveraged companies therefore are expected to holding more cash. In contrast, the TOT asserts that there is no definitive or clear relationship between these two variables.

Most studies in the literature support the POT and FCFT (Uyar & Kuzey, 2014; Al-Naijar & Clark, 2017; Alves; Batuman et al., 2021; et al., 2022;). Given the arguments and empirical results in the literature mentioned above, the study proposes an inverse link between cash holdings and leverage.

2.3. Net Working Capital

Net working capital is considered a substitute for cash, as it can be liquidated during a cash shortage. The TOT argues that there is an inverse connection with cash holdings because of this substitution. Since working capital could be quickly converted to cash at a lower cost (Ferreira & Vilela, 2004), a firm with higher level of liquid asset is expected to keep less cash. Most empirical studies confirm this prediction (D'Mello et al., 2008; Kim et al., 2011; Uyar & Kuzey, 2014; Alnori et al., 2022; Gül & Şahin, 2022;). The other two theories mentioned before do not suggest any link. The study proposes an inverse relationship based on the TOT and the empirical evidence mentioned above.

2.4. Cash Flow

The TOT suggests a negative relationship between cash flow and cash holdings, as cash flow serves as an easily accessible source of liquidity that can substitute for cash holdings (Kim et al., 1998). In contrast, the POT predicts a positive relationship. According to this theory, high cash flow enables companies to use more internal financing, which reduces reliance on external funding relatively (D'Mello et al., 2008). Most empirical studies in the literature support this theory and show empirical evidence for a positive direction (Opler et al., 1999; Drobetz & Grüninger, 2007; Uyar & Kuzey, 2014; Alnori et al., 2022; Gül & Şahin, 2022). This study also proposes a positive direction considering the POT and empirical results in the literature mentioned above.

2.5. Market-to-Book Ratio

Both the TOT and POT suggest a positive correlation between growth opportunities and cash holdings. According to the TOT, due to the anticipated losses from forgoing lucrative investment opportunities, companies that have higher investment opportunities face higher costs if they experience a liquidity shortfall. Hence, companies with greater investment opportunities have a tendency to keep more cash to evade expensive external capital (Kim et al., 2011). Similarly, the POT predicts that companies with greater growth opportunities generate higher levels of cash to avoid the risk of forgoing valuable growth opportunities due to cash shortage (Ferreira & Vilela, 2004). While the POT reflects the precautionary motives of cash holding, the TOT represents the costs associated with transactions. In contrast, FCFT anticipates a negative link when the net present value of the firm's expansion projects is negative (Drobetz & Grüninger, 2007). In such cases, executives of companies with limited investment opportunities may prefer to keep more cash to provide that funds will be available for these projects. Even this may result in a lower market-to-book ratio and a reduction in shareholders' value.

Empirical researches largely confirm a positive relationship among the mentioned variables (Chen, 2008; Kim et al., 2011; Al-Naijar & Belghitar, 2011; Ozkan & Ozkan, 2004; Dao & Maggi, 2018; Alves et al., 2022). Considering the suggestions of the TOT and POT, as well as the empirical evidence, this study expects a positive association between the mentioned variables.

2.6. Return on Equity

The POT suggests a positive relationship that less profitable companies rely more on debt financing and tend to hold less cash, while more profitable companies generate more cash, which enables them to pay greater dividends and pay their debts (Opler et al., 1999). Companies with higher returns on equity generate more profit with the same level of capital, indicating better cash flows and as a result, a greater propensity to hold cash. Empirical studies also confirm a positive relationship (Akben-Selcuk & Yılmaz, 2017; Al-Naijar & Clark, 2017; Dao & Maggi, 2018; Özcan, 2024). On the other hand, Al-Najjar (2013) and Aftab et al. (2018) found a negative relationship consistent with the TOT. The theory states that profits and cash are substitutes for each other and profitable firms generally have sufficient cash flow to evade underinvestment problem, consequently they don't need to hold excess cash (Kim et al., 1998). Considering the theoretical argument favoring a positive link and the supporting empirical evidence in the literature, this study proposes a positive relationship among the mentioned variables.

2.7. Research and Development (R&D) Expenses

The TOT assumes that companies with significant R&D expenses are more likely to keep more cash since they are exposed to greater risks and need to keep sufficient cash to protect themselves against potential losses and R&D-related risks (Bates et al., 2009). Thus, it suggests a positive link between cash holdings and R&D expenses, as parallel to some empirical studies in the literature (D'Mello et al., 2008; Dao & Maggi, 2018). However, as R&D expense is a kind of investment, the same logic that applies to capital expenditures can also be extended to R&D, implying a negative correlation with cash holdings (Aftab et al., 2018; Diaw, 2021). Additionally, some studies have not found a significant connection between R&D expenditures and cash holdings, suggesting that the relationship is ambiguous (Bigelli & Sánchez-Vidal, 2012). Considering the mixed empirical findings in the literature mentioned above, this study proposes an insignificant relationship between R&D expenses and cash holdings.

2.8. Capital Expenditure (Capex) Ratio

The TOT posits a positive link between capital expenditures and cash holdings. Companies with high capex are likely to hold more cash (Opler et al., 1999) to minimize transaction costs related with external financing. In contrast, according to POT (Dittmar et al., 2003), companies with significant capital expenditures will experience a reduction in their cash reserves due to increased spendings, as a result, it posits a negative link between the related variables. Moreover, as firms invest more, their assets increase, which enables them to borrow more easily by using these assets as collateral. Consequently, this reduces the need for holding excess cash. The studies of Kim et al. (2011), Uyar & Kuzey (2014), Akben-Selcuk & Yılmaz (2017), Guizani (2017), Diaw (2021), and Gül & Şahin (2022) provide a significant negative relationship between Capex and cash holdings. However, parallel to the TOT, Aftab et al. (2018) documents a positive link. This study proposes an inverse link between the related indicators, considering the theoretical framework and empirical findings discussed above.

2.9. Gross Domestic Product (GDP)

A rise in GDP shows that the economy is growing, and employment levels are rising. Such economic expansion creates a favorable environment for any investors which encourages them to fund profitable projects. A rise in GDP offers firms with additional opportunities, stimulating them to keep higher amount of cash to take advantage of these prospects. Considering these arguments, this study proposes a positive connection between GDP and cash holdings.

2.10. Inflation Rate

Inflation can be defined as the rise in general price levels caused by the imbalance between demand and supply in the market. As inflation increases, the cash holding amount needed for the companies also increases. As inflation rises up to a point, firms may purchase raw materials earlier to avoid rising costs, which contributes to a fall in cash levels (Wang et al., 2014). However, as the inflation continues to rise, companies may increase their cash to improve their external borrowing parameters. Considering the arguments and empirical results in the literature mentioned above, this study proposes an adverse relationship between inflation and cash holdings.

As a summary of the hypothesis formulated above, Table 1 demonstrates predictions of the study with respect to direction of the relationship expected between the variables together with the suggestions of related theories.

Table 1 : Study Predictions and Theory Suggestions

CASH	Study Predictions	Trade-Off Theory	Pecking Order Theory	Free Cash Flow Theory
SIZE	negative	negative	positive	positive
LEV	negative		negative	negative
NWC	negative	negative		
CF	positive	negative	positive	
MB	positive	positive	positive	negative
ROE	positive	positive	negative	
RD		positive		
CAPEX	negative	positive	negative	
GDP	positive			
INF	negative			

3. Data and Methodology

The study focuses on companies from developing countries based on the MSCI Emerging Market classification. This classification includes developing countries from various areas of the world, namely; Europe, America, and Africa. The emerging countries included in the study are Brazil, Chile, Colombia, Czechia, Greece, Hungary, Mexico, Poland, South Africa and Türkiye. Due to limitations in macroeconomic data availability prior to 2009, this study employs balanced panel data of publicly traded firms in mentioned 10 emerging countries from 2009 to 2022.

Firm-specific data such as year-end financial statements, financial market data, and year-end stock prices of publicly traded firms in the selected countries, are obtained from S&P Capital IQ database. Because the data analyzed covers firms from various developing economies, S&P Capital IQ database ensures data consistency among countries. Organization for Economic Cooperation and Development (OECD) database gives macroeconomic data for the selected countries. STATA 13 was used to analyze the dataset.

The initial dataset covers 50,638 firm-year observations spanning 14 years. The companies that have publicly available financial data only after 2019 were excluded from the model. The financial institutions operating in the financial sector and real estate investment firms, identified by Standard Industrial Classification (SIC) codes from 6000 to 6999, were eliminated because of the different formats of their financial statements. Similarly, firms in the utility industry, which have SIC codes from 4000 to 4999; holding companies and public administration companies, which have SIC codes from 9000 to 9999 were excluded because of their nature. Lastly, observations with missing firm-year data were also eliminated. To mitigate the effect of extreme values, the winsorization technique was applied to all variables at 1% level from both tails. Following all these adjustments, the final dataset consists of 17,864 firm-year observations which cover 1,276 firms over 14 years in the selected 10 countries which is summarized and presented in Table 2.

Table 2 : The Number of firms in each selected country

Country	Firms (#)
Greece	105
Mexico	65
Brazil	142
Hungary	15
Colombia	32
Turkey	245
South Africa	121
Czechia	4
Chile	85
Poland	462
Total	**1276**

The variables used in the research model of this study can be basically divided into three categories: the dependent variable which is represented by the cash holding ratio, and the independent firm-specific and independent macroeconomic variables. The firm-specific variables utilized in the analysis are size, leverage, working capital, market-to-book ratio (proxy for growth opportunities), return on equity (proxy for profitability), cash flow, research and development (R&D) expenditures, and capital expenditure. For R&D expenditures a dummy variable is created: "1" for any non-zero R&D spending and "0" for zero spending. This allows companies to be categorized based on whether they allocate resources to R&D or not. As independent macroeconomic variables of the analysis, the growth rate of the GDP against the previous year and the growth rate of the consumer price index (CPI) relative to the preceding year were calculated to represent GDP and inflation rate, respectively.The detailed explanations for all determinants, including abbreviations and their measurements, are given in Table 3.

Table 3 : Variables Definition Table

Variables	Abbreviation	Measurement
Dependent Variable		
Cash Holding Ratio	CASH	Cash and Cash Equivalents / Total Assets
Independent Firm-specific Variables		
Firm Size	SIZE	Natural logarithm of Total Assets in USD
Leverage	LEV	Total Debt / Total Assets
Net Working Capital	NWC	Net Working Capital / Total Assets
Cash Flow	CF	EBITDA / Total Assets
Market-to-Book Ratio	MB	Market Capitalization / Total Equity
Return on Equity	ROE	Net Income / Total Equity
R&D Expense	RD	R&D Expense available (1) or not (0)
CAPEX Ratio	CAPEX	Capital Expenditure / Total Assets
Independent Macroeconomic Variables		
GDP	GDP	(GDP year +1 – GDP year) / GDP year
Inflation Rate	INF	(CPI year + 1 – CPI year) / CPI year

(*) Net Working Capital : Trade Receivables + Inventories – Trade Payables

Descriptive statistics for all variables are given in Table 4. According to the findings, the average cash holding rate between 2009 and 2022 is 8.7%, with a standard deviation of 11%. It implies that, on average, companies hold cash equal to 9% of their total assets, with some holding no cash at all and others holding up to 60%. These results are comparable to data from other nations, such as Italy, where firms hold an average of 10% (Bigelli & Sánchez-Vidal, 2012), and the United Kingdom, also with 10% (Ozkan & Ozkan, 2004). Parallel to studies that included Türkiye, the cash holding rates were documented to be 8% (Akben-Yilmaz, 2017), 9% (Uyar & Kuzey, 2014) and 10% (Abdioğlu, 2016), which closely aligns with the findings of this study.

Table 4 : Descriptive Statistics

Variable	Mean	Std. Dev.	Min.	Max.	Obs.
CASH	0.09	0.11	0.00	0.60	17864
SIZE	17.17	5.06	0.00	23.72	17864
LEV	0.22	0.22	0.00	1.28	17864
NWC	0.13	0.22	-0.85	0.67	17864
CF	0.07	0.12	-0.49	0.44	17864
MB	9.00	52.14	-4.38	464.99	17864
ROE	0.04	0.45	-2.74	1.59	17864
RD	0.10	0.30	0.00	1.00	17864
CAPEX	0.04	0.05	0.00	0.30	17864
GDP	0.03	0.04	-0.10	0.12	17864
INF	0.06	0.09	-0.02	0.72	17864

Std. Dev. : Standard Deviation, Obs. : Observation, N: 1276 Companies

The panel data methodology is employed in this study. The model to be analyzed is presented below, where the dependent variable is the cash holding ratio and independent variables are firm

size, leverage, net working capital, cash flow, market-to-book ratio, return on equity, R&D expenses, capital expenditures, GDP annual growth rate and inflation rate, respectively.

$CASH_{i,t} = \alpha + \beta1\ SIZE_{i,t} + \beta2\ LEV_{i,t} + \beta3\ NWC_{i,t} + \beta4\ CF_{i,t} + \beta5\ MB_{i,t} + \beta6\ ROE_{i,t} + \beta7\ RD_{i,t} + \beta8\ CAPEX_{i,t} + \beta9\ GDP_{i,t} + \beta10\ INF_{i,t} + u_{i,t}$

α is the intercept

β1 – β10 are the independent variable coefficients

ui,t is the error term

i and t respectively refer to the companies and the year-end time in the analysis.

The Jargue-Bera test is employed for the normality diagnostic. The result shows that the data is normally distributed. Variance Inflation Factor (VIF) values, used to detect the existence of multicollinearity, are calculated for each variable. The VIF results confirm that there is no multicollinearity problem in the model. The Breusch-Pagan Lagrangian Multiplier test determines which of the pooled OLS and static panel data methods should be used. When the results were examined, the null hypothesis was rejected which means that static panel data methods (random or fixed effects models) will be used. To decide which of the fixed or random effects panel data models is suitable, Hausman (1978) developed an objective test. According to results of this test, the fixed effect model (FEM) is determined to be the most suitable one for the regression model.

4. Empirical Findings

Table 5 indicates the results of the cash holding analyses, examining the factors influencing firms' cash holdings as well as the direction and strength of these relationships. The findings highlight the importance of size, leverage, investment opportunities, profitability, working capital, cash flow, and capital expenditure in determining cash holding.w

Table 5 : The Results of Fixed Effects Model

Dep. Var.	CASH	
Variables	Coef.	P>t
SIZE	0.0087	0.000 ***
LEV	-0.0558	0.000 ***
NWC	-0.1104	0.000 ***
CF	0.0794	0.000 ***
MB	0.0001	0.0109**
ROE	0.0086	0.000 ***
RD	0.0006	0.931
CAPEX	-0.0713	0.003 ***
GDP	-0.0074	0.684
INF	-0.0025	0.824
Constant	-0.0393	0.000 ***

R-squared (within)	0.1265
R-squared (between)	0.0248
R-squared (overall)	0.0564
Prob > F	0.0000
# of Companies	1276

***, ** and * shows levels of significance at the 1%, 5% and 10%, respectively.

The findings show that firm size, cash flow, growth opportunities, and profitability have a significant positive relationship with cash holdings. The evidence with respect to firm size is in line with the previously stated hypothesis and existing literature (Aftab et al., 2018; Guizani, 2017; Batuman et al., 2021). As size of the companies increases, they tend to keep more cash due to their higher success in investments, which is consistent with the expectations of FCFT and POT. On the other hand, the findings of cash flow which is consistent with the studies of Opler et al. (1999), Uyar & Kuzey (2014), Alnori et al. (2022) and Gül & Şahin (2022) only align with the predictions of POT. Companies with high cash inflows tend to use their liquid resources to carry out operations or pursue possible opportunities and, as a result, retain a larger portion of these resources as cash. Moreover, the positive significant impact of growth opportunities on cash holdings suggests that firms with high market value or growth potential keep more cash to evaluate future opportunities (Dittmar et al., 2003; Chen, 2008; Al-Naijar & Belghitar, 2011; Dao & Maggi, 2018; Alves et al., 2022) in accordance with the TOT. Findings regarding profitability, which is one of the firm specific determinants that is also found to be positively corelated with cash holdings, are consistent with prior research (Akben-Selcuk & Yılmaz, 2017; Al-Naijar & Clark, 2017; Dao & Maggi, 2018; Özcan, 2024) and supports the predictions of all major mentioned theories. Accordingly, less profitable companies are relying more on debt financing and therefore, maintain lower cash reserves.

On the other hand, the results documents that leverage, working capital and capital expenditures are negatively correlated with cash holdings. As a firm specific factor, leverage supports the hypothesis proposed and evidence revealed is in line with the findings in literature (Ozkan & Ozkan, 2004; Al-Naijar & Clark, 2017; Uyar & Kuzey, 2014; Guizani, 2017; Batuman et al., 2021; Alves et al., 2022). According to theories explaining cash holding dynamics, this result indicates that companies with higher debt levels keep less cash because they have easier access to external funding, a conclusion also supported by this study. Furthermore, net working capital is compatible with the TOT and prior empirical research (D'Mello et al., 2008; Uyar & Kuzey, 2014; Alnori et al., 2022; Gül & Şahin, 2022). Accordingly, companies with more net liquid assets, except cash, prefer to keep lower cash because they could convert to cash if they need it. Additionally, the findings of capital expenditures are consistent with the expectations of POT and previous studies (Kim et al., 2011; Guizani, 2017; Diaw, 2021; Gül & Şahin, 2022). This finding reflects that companies primarily use internal resources and turn to external financing as a last option when making investments, resulting in a reduction of cash reserves as investments increase.

Finally, with respect to firm specific independent variables, R&D expenses are found to have no significant impact on cash holdings of the selected companies. Moreover, macroeconomic independent

factors, namely; GDP and inflation rate, are also found to have no significant relationship with cash holdings of the companies.

5. Conclusion

Holding cash is essential for companies to sustain their regular operations. The cash holding tendencies of companies have attracted researchers, resulting in a rich body of literature exploring the factors influencing cash holding ratios. The fundamental question consistently posed is: Why are companies inclined to hold cash, and what determinants influence their optimal level of cash holdings? In addition to numerous studies conducted on samples from developed and developing countries, the literature also provides cross-country evidence.

This paper is aimed to investigate the factors affecting cash holdings in publicly traded companies from 10 emerging countries between the timespan 2009-2022, utilizing a FEM model. The findings reveal that, on average, companies' cash holding ratio is 9% of their total assets throughout the analyzed period. Overall, the results suggest that larger, more profitable companies with higher cash flows tend to keep more cash. These companies are also characterized by lower leverage and working capital levels, higher growth opportunities and higher fixed asset levels, all of which assist to enhanced cash holdings. The findings related to capital expenditures, growth opportunities, cash flow, leverage and firm size align with the assumptions of POT, whereas the results for profitability, growth opportunities and net working capital are compatible with the predictions of TOT. Additionally, the findings regarding leverage and firm size support the assumptions of FCFT.

This paper provides both academic and practical implications. By offering insights into the dynamics of cash holdings in emerging economies, it provides valuable perspectives for creditors, shareholders, and business managers. The findings emphasize the importance of policies that strike a balance between cash management and investment efficiency in maintaining financial performance. This study adds to the existing literature by presenting new evidence on the determinants of cash holding in publicly traded firms in developing countries. It employs a broader sample, a more recent time frame and updated firm-specific variables. Moreover, the findings of the study contribute to a deeper understanding of how macroeconomic factors influence corporate cash holdings in developing countries. Additionally, it provides evidence that trade-off theory, pecking order theory and free cash flow theory play a significant role in explaining financial decisions related to cash holdings in these economies. Consequently, it enhances the understanding of corporate finance decisions in these firms while incorporating the relevant theories discussed throughout the study.

6. References

Abdioğlu, N. (2016). Corporate cash holdings and corporate governance quality in Turkey. International Journal of Management, Economics, and Business, ICAFR 16 Special Issue, 802-811.

Aftab, U., Javid, A., & Akhter, W. (2018). The Determinants of Cash Holdings around Different Regions of the World. Business & Economic Review, 10, 151-182.

Alnori, F., Bugshan, A. and Bakry, W. (2022). The determinants of corporate cash holdings: evidence from Shariah-compliant and non-Shariah-compliant corporations, Managerial Finance, 48(3), 429-450.

Al-Najjar, B. (2013). The financial determinants of corporate cash holdings: Evidence from some emerging markets. International Business Review, 22, 77-88.

Al-Najjar, B., & Belghitar, Y. (2011). Corporate cash holdings and dividend payments: Evidence from simultaneous analysis. Managerial and Decision Economics, 32(4), 231-241.

Al-Najjar, B., & Clark, E. (2017). Corporate governance and cash holdings in MENA: Evidence from internal and external governance practices. Research in International Business and Finance, 39, 1-12.

Alves, D., Alves, P., Carvalho, L., & Pais, C. (2022). Cash holdings: International evidence. The Journal of Economic Asymmetries, 26, e00273.

Bates, T.W., Kahle, K.M., & Stulz, R.M. (2009).Why do US firms hold so much more cash than they used to? The Journal of Finance, 64(5), 1985-2021.

Batuman, B., Yildiz, Y., & Karan, M.B. (2021). The impact of the global financial crisis on corporate cash holdings: Evidence from Eastern European countries. Borsa Istanbul Review, 22(4), 678-687.

Bigelli, M., & Sanchez-Vidal, J. (2012). Cash holdings in private firms. Journal of Banking & Finance, 36(1), 26-35.

Chen, Y. R. (2008). Corporate governance and cash holdings: Listed new economy versus old economy firms. Corporate Governance: An International Review, 16(5), 430-442.

Dao, M. C., & Maggi, C. (2018). The Rise in Corporate Saving and Cash Holding in Advanced Economies: Aggregate and Firm Level Trends. IMF Working Papers, 18/262.

Diaw, A. (2021). Corporate cash holdings in emerging markets. Borsa Istanbul Review, 21 (2), 139-148.

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

D'Mello, R., Krishnaswami, S., & Larkin, P.J. (2008). Determinants of corporate cash holdings: Evidence from spin-offs. Journal of Banking & Finance, (32), 1209-1220.

Drobetz, W., & Grüninger, M. C. (2007). Corporate cash holdings: Evidence from Switzerland. Financial Markets and Portfolio Management, 21(3), 293-324.

Ferreira, M. A., & Vilela, A. S. (2004). Why do firms hold cash? Evidence from EMU countries. European Financial Management, 10(2), 295-319.

García-Teruel, P. J., & Martínez-Solano, P. (2008). On the determinants of SME cash holdings: Evidence from Spain. Journal of Business Finance & Accounting, 35(1-2), 127-149.

Guizani, M. (2017). The financial determinants of corporate cash holdings in an oil rich country: Evidence from Kingdom of Saudi Arabia. Borsa Istanbul Review, 17(3), 133-143.

Gül, S., & Şahin, B.C. (2022). Corporate Cash Holding And Monetary Policy. Maliye ve Finans Yazıları, (117), 101 – 114.

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

Keynes, J. M. (1936). The General Theory of Employment, Interest, and Money. 125-128.

Kim, J., Kim, H., & Woods, D. (2011). Determinants of corporate cash-holding levels: An empirical examination of the restaurant industry. International Journal of Hospitality Management, 30(3), 568-574.

Kim, C.S., Mauer, D.C., & Sherman, A.E. (1998). The determinants of corporate liquidity: Theory and evidence. Journal of Financial and Quantitative Analysis 33, 335–359.

Miller, M. H., & Orr, D. (1966). A model of the demand for money by firms. Quarterly Journal of Economics, 80, 413-435.

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.

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

Ozkan, A., & Ozkan, N. (2004). Corporate cash holdings: An empirical investigation of UK companies. Journal of Banking & Finance, 28(9), 2103-2134.

Uyar, A., & Kuzey, C. (2014). Determinants of corporate cash holdings: evidence from the emerging market of Turkey. Applied Economics, 46(9), 1035-1048.

Wang, Y., Ji, Y., Chen, X., & Song, C. (2014). Inflation, operating cycle, and cash holdings. China Journal of Accounting Research, 7(4), 263-276.

Yiğit, F. (2020). Nakit Tutma Oranının Finansal ve Kurumsal Belirleyicileri: Borsa İstanbul Üzerine Bir İnceleme. Atatürk Üniversitesi İktisadi Ve İdari Bilimler Dergisi, 34(3), 1127-1151.