

An Appraisal of the Determinants of Corporate Cash Holdings: Evidence from the Nigerian Manufacturing Firms

By

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Abstract

Exploring a sample of 40 manufacturing firms listed on the Nigerian Exchange Group, this study investigated factors determining corporate cash holdings from 2012 to 2021. The sampled companies' annual reports served as the source for secondary data. To identify the key variables influencing cash holdings, panel regression analysis was conducted. Findings revealed that leverage, liquidity, return on asset and firm size had significant positive effect on cash holdings while growth opportunities revealed negative significant effects on cash holdings. The findings indicated that both pecking order and trade-off theory played a vital role in explaining the factors influencing the corporate cash holding.

Keywords: Cash holding, Dividend payout, Leverage, Liquidity, Return on asset

Introduction

Every company's day-to-day operations depend heavily on cash. It gives the company liquidity and makes it easier to pay for many kinds of obligations and dues. An important component at the core of corporate financial policy is cash holding (Khatib, Abdullah, Hendrawaty & Elamer, 2022). Lack of liquid assets will prevent a company from meeting its obligations, which could force it to file for bankruptcy. Cash holding plays a vital role on businesses in ensuring smooth operation, which Khatib et al. (2022), however, believe that it is not costless. It is essential to both small and large businesses, including Small and Medium Enterprises, in carrying out their everyday activities. However, managers of companies seem to be careless on the relevance of cash holdings especially in manufacturing firms (Udo and Udodi, 2022, citing Ogundipe, Ogundipe & Ajao, 2012; and Amahalu and Ezechukwu, 2017).

Organisations need cash for several motives. For instance, financing growth, day-to-day running of business and expansion through viable investment activities, in retiring debts that are due, for payment of taxes, and the management decisions have influenced growing development of businesses (Odo and Udodi, 2022; Uyar and Kuzey 2014). A cash holding is

defined as the amount of money that is readily available for financing profitable investment projects and Li, Jiang, Xia & Chu (2022), believed it is a double-edged sword for organisations. In general, businesses hold cash for diverse reasons, which include: speculation, precaution, and transactional purposes (Peitruca and Maciejewski, 2020; Salas-Molina, Rodriguez-Aguilar & Guillen, 2023; Gao, Harford, and Li, 2013). Accordingly, these are all factors that result from businesses' demand for liquidity.

The issue of cash holdings has generated a lot of discussion and scholars have argued that businesses are expected to maintain optimality in cash holdings (Wibawa and Narieswan, 2019; Pandey, 2006). The fundamental question often raised, however, is: why do company holds cash? What elements influence a company's optimal cash holding? Relative to this optimal cash holdings, how achieve this becomes the big challenge for financial managers around the world, including Nigeria. Irrespective of these challenges, Wibawa and Nareswari (2019) and Angelovska and Valentincic (2020) opined that firms must determine the optimal cash holdings for efficiency improvement.

Firm are required to make good decisions in cash holdings for balancing costs and benefits in ensuring operating, investing and financing activities and decision that can ensure going concern of an entity (Salas-Molina, Rodriquez-Aguilar & Guillen, 2023). For instance, retaining too much cash can lead to inefficient returns on investments, while holding too little cash can make it difficult to maintain day-to-day operations. Cash holding is crucial because it gives businesses the liquidity, they need to meet their obligations on time, especially during difficult times, and Ye (2018) believed that the decision is essential to corporate financial decisions. Thus, instead of storing too much cash, companies should aim for the optimum level. Additionally, businesses should stop holding unproductive assets and finance its investment with the least expensive sources of capital if they want to increase value. (Alkhataybeh, Aismadi, Shakhathreh & Khataybeh, 2022).

Regardless of the type of business or activity a company engages in, it should hold cash. It is regarded as the lifeblood of firms, which Nnadi and Belghitar (2020) argued that it represents a vital channel that mitigates the adverse effects of policy uncertainty on the real economic activities of an entity. Cash is arguably essential and the most vital liquid current asset (Chang and Yang, 2022), even though often referred to be a non-earning asset. Notwithstanding the fact that a company's working capital policy ultimately determines how much cash it has on hand at any given time. However, inadequate knowledge in most Nigerian manufacturing firms may result in inefficient cash holding decisions. Hence, the decision of this study in determining factors influencing cash holding required for manufacturing firms in Nigeria is pivotal.

Literature Review

2.1 Hypothesis Development

Leverage

The extent of cash that an organization holds depends on a variety of factors and to Desriwendi and Prijadi (2018), this determines the health condition. Leverage, therefore, which Abosede and Ibrahim (2022) argued that it signifies amount of the debt in firms' capital structure is among the utmost crucial factors and its critical on the optimum financial judgement (Senan, Ahmad, Anagreh, Tabash & Homaidi, 2021). Leverage could be the ratio between a firm's total debt and total asset. To Mortal and Reisel (2014), companies will store more surplus cash when their debt is reduced since they will not be under the capital markets'

scrutiny. Given that companies finance their operations with a combination of debts and equity, understanding a company's overall debt is critical for assessing its ability to pay off its obligations when they become due. Consequently, if not efficiently handled, this could result in bankruptcy and thereby endangering firm's survival (Abosede and Ibrahim, 2022).

Leverage increases a company's risk of insolvency and financial difficulties. Higher leverage companies tend to maintain more cash in an effort to reduce the likelihood of expected economic downturns. Businesses that can generate new debt have less cash on hand since it is utilized to finance new investment opportunities. The trade-off, free cash flow and pecking order theories all predicts that there is a negative relative between leverage and cash holding. (Minh, Thi & Be, 2022; Ozkan & Ozkan, 2004). In general, a company's ability in raising debts can be determined by how much of its funding comes from debts. Therefore, businesses with larger leverage ratios must additionally access debt capital, which reduces the amount of cash they have. Relative to this, the problem of leverage will always be faced by companies when they bear a number of fixed costs. Leverage and cash holdings have a positive relationship, giving to the trade-off theory. Empirical evidence suggests a link amid leverage and cash holding that is negative (Okeke, Ezejiofor and Okoye, 2021; Saputri and Kuswardono, 2019, cited by Davidson and Rasyid, 2020).

As reported by Chen et al. (2015), cash deteriorations as leverage increases. Also, giving the trade-off theory, Ozkan et al (2004) discovered that leverage shows a negative and significant impact on companies' cash holding in their research. The theory of free cash flow, conversely, held that using cash flows to pay debt servicing costs could lead to resource shortages, which would then diminish managers' influence and increase the chance of capital market monitoring (Minh, Thi & Be, 2022). Accordingly, we argue that leverage is a vital determining factor of cash holding and do not envisage the sign of the relationship between leverage and cash holding: Thus we hypothesize the following:

There is a negative/positive association between leverage and cash holding.

Firm size

Another significant element that has been shown to influence corporate cash holdings is firm size. Typically, a company's total assets or logarithm of its assets are used to estimate the determinant. The capital market and money market will be easier for the company to access as the size increases, making it easier for the company to obtain funding. According to Al-Najjar (2013), firm size showed a positive impact on cash holding, therefore, the larger a firm is, the more cash it keeps on hand. Adding to this, Ki and Adhikari (2022) made a more comprehensive argument that a firm's sensitivity to macroeconomic conditions and uncertainties is crucial in determining its level of cash holdings. Opler et al., 1999 stated that according to the pecking order theory, there is a positive relationship between a company's size and its cash holding for the reason that bigger companies frequently outperform smaller ones, necessitating the need for more cash. Size of a firm being another feature that has a negative impact on cash holding of corporate firm because smaller businesses only need to keep a relatively small quantity of cash due to the economies of scale (Davidson and Rasyid, 2020; Bates et al, 2009). In place of the aforementioned, it is possible to claim that a company's size has a significant impacts on its cash holdings, however, it seems impossible to predict with certainty which way the relationship will go. Thus we hypothesize that:

Firm size has significant positive/negative effects on cash holdings.

Liquidity

The cost of converting liquid assets to cash is anticipated to be substantially lower than that of other assets. Entities with greater liquid assets anticipates to possess less cash on hand

since it is relatively inexpensive in converting liquid assets to cash compared to other types of assets. Ferreira and Vilela (2004) stated that given the trade-off theory, liquid assets may be explored to substitute in lieu of cash in the occurrence of cash shortages since they can be quickly liquidated. Investigations have confirmed the trade-off theory's assertion that there is a negative association between liquidity and cash holding (Al-Najjar et al., 2011). However, according to Davidson and Rasyid (2020), there is a positive association between liquidity and cash holding. We therefore, hypothesize that:

There is a positive/negative relationship between liquidity and cash holdings.

Dividend Payout

Payout to the shareholders constitutes the precise opposite of holding cash. Giving to the trade-off argument, there is expected to be adverse relationship between dividend payment and cash since "dividend paying companies" could reduce dividend payments to offset the expense of retaining cash. Accordingly, the majority of studies finds that dividend payment is negatively associated with the cash level, as demonstrated by Khieu and Pyles (2012). In relation to the static trade-off theory, there is an inverse relationship between dividend payments and a firm's cash holding. If there is a cash deficit, companies that currently pay dividends may deduct the dividend payment. According to Ferreira and Vilela (2004), companies that pays dividend could increase funding at a minimal cost by reducing dividend payment. On the other hand, businesses that don't pay dividends would need to raise money on the capital markets. As a result, it is anticipated that dividend payments will negatively affect cash holdings. Opler et al. (1999) is also in alignment with this negative relationship: When a company lacks liquid assets, it could either reduce investment or dividend payments or raise outside capital by selling assets or issuing securities. In lieu of the trade-off theory, the study hypothesizes that:

There is a negative relationship between dividend and cash holdings.

Profitability

Cash appears to be the fallouts of financial, investment and operational decisions, giving to the pecking order idea. (Dittmar et al., 2003). Previous studies have found a significant relationship between cash holdings and corporate performance. In line with the pecking order theory, the cash holding will have positive effect on Return on Assets (Davidson and Rasyid, 2020; Ogundipe, Salawu, and Ogundipe, 2012). When evaluated by Return on Assets, businesses that hold more cash than their rivals do better in terms of performance and profitability. (Fresard, 2010). This, Davidson and Rasyid (2020) consented that profitability would enhance cash holding. We therefore hypothesize that:

Profitability is significantly positively related with cash holdings

Growth Opportunities

By maximizing the amount of cash holdings, businesses also take growth opportunities into account. Chen et al., (2015) stated that In measuring growth opportunities, market-to-book ratio; the proxies are frequently regarded to be positively related with cash level. In order to finance business expansion, money appears to be kept in reserve. As a result, businesses with more potential for growth must make greater level of investments. Additionally, companies with greater growth rates are known to have larger cash reserves (Al-Najjar & Belghitar, 2011). These findings follow all the key theories because high-growth companies frequently face higher information asymmetries and aim to evade underinvestment. Based on previous studies, we observe growth opportunities have positive effect on cash holding.

2.2 Theoretical Review

It has been established that the trade-off theory and the pecking order theory support the application of cash holdings when conceptualizing and empirically defining the factors that determine cash holdings.

The Trade-Off Theory

The trade-off theory, which is consistent with the objective of shareholder value maximization, could be regarded as the main stream theory on the corporate cash holdings. This theory's main premise, proposed by Modigliani and Miller (1963), relates to benefit and cost. According to this theory, the optimal cash level should take into consideration both the rewards of such activities and the opportunity cost associated with cash holding. Opportunity cost happens as a result of the company's preference to hold its cash on hand rather than investing it in any potential profitable ventures. Trade-off theory, which is sometimes referred to as the transaction cost theory (Opler et al., 1999), every firm is expected to have an optimum level of cash which strikes a balance amid the marginal advantages and disadvantages of cash holding. Advantages of cash holding outweigh the expenses of external financing sources and lessen the likelihood of financial difficulties. Giving the trade-off theory, businesses choose their ideal amount of cash holdings by weighing the marginal benefits and costs of doing so (Afza & Adnan, 2007).

The Pecking Order Theory

The pecking order theory is the second important theory that this study will take into account. According to this theory, there is no ideal cash level. Myers & Majluf, (1984), stated that pecking order theory contends that companies adhere to financial hierarchy to lower the cost of information asymmetry (The company first explores internal resources in financing its investments before considering its external sources of funding once internal ones have run out. A corporate management strives to decrease the cost of information asymmetry and other financing costs, in alignment with the pecking-order theory.

This study is, thus, underpinned with the theories of trade-off and pecking order.

Methodology

3.1 Research Design

This study explored longitudinal research design. Listed manufacturing firms is the subject of interest for this study during a period of ten years (2012 to 2021). As a result, the data type obtained is panel data. The use of panel data is deemed appropriate because it improves the estimate's level of precision using the vast amount of available data. For this topic, the longitudinal research design is appropriate. A longitudinal study made use of panel data. Time-frame units and cross-sectional and are both present in the panel data. The study's time span is from 2012 to 2021, and the cross-sectional units are 40 publicly listed manufacturing companies in Nigeria.

3.2 Population, Sampling Techniques and Sample Size

The primary subject of this study is Nigerian manufacturing companies. 45 manufacturing companies that were listed on the Nigerian Exchange Group as of 2021 made up the study's population. The Taro Yamane (1967) Formula was used in the study to determine sample size. This is an effort to pick manufacturing companies whose stocks were traded during the sample period on the stock market and for which there was publicly available information. This came to forty manufacturing companies.

3.3 Data Collection Techniques

This study considers manufacturing companies quoted on the Nigerian Exchange Group and data gathered includes variables such as Independent Variables (Asset Growth, Leverage, Liquidity, Firm Size, Return on Asset, Dividend Payout and Growth Opportunities) and the dependent variable (Cash and Cash equivalent to Total Asset). The data were sourced from annual reports and accounts of the selected quoted Nigerian manufacturing firms.

3.4 Model

This study explored panel data model in estimating the results. A fixed effect and a random effect models are the two models available for panel data. In choosing the most suitable model for our results, this study used the Hausman specification test. An econometric model for estimation is described as follows given the variables in Table 1:

$$CAH = \beta_0 + \beta_1 AGR_{it} + \beta_2 LIQ_{it} + \beta_3 SIZ_{it} + \beta_4 ROA_{it} + \beta_5 DPR + \beta_6 LEV_{it} + \beta_7 GRO_{it} + \epsilon_{it}$$

Table 1 The variables' definitions, proxies, sources, and anticipated relationships with cash holdings are listed in Table 1.

Variables	Aprior Expectation	Measurement	Sources
Cash and Cash equivalent (<i>CAH</i>)		Cash and cash equivalents in relation to total assets	Al-Najjar (2013); Maheshwari & Rao (2017).
Leverage (<i>LEV</i>)	+/-	Leverage is the proportion of total debt to total assets Calculated as the difference between the current year's total assets and the prior year's total assets divided by the prior year's total assets.	Selcuk and Yilmaz (2017), Khalil et al (2019)
Asset Growth (<i>ASG</i>)	+	calculated by comparing current liabilities to the most liquid assets	Ashhari and Faizal (2018); Khalil et al (2019)
Liquidity (<i>LIQ</i>)	-/+	The natural logarithm of total assets	Kim, Kim, & Woods (2011); Al-Najjar (2013); Khalil et al (2019)
Firm Size (<i>SIZ</i>)	-	calculated as the net income to total assets ratio	Selcuk and Yilmaz (2017); Ashhari and Faizal (2018);
Return on Asset (<i>ROA</i>)	+	is determined by dividing dividends per share by earnings per share.	Bates, Kahle, & Stulz (2009); Najjar (2013), Selcuk and Yilmaz (2017);
Dividend Payout Ratio (<i>DPR</i>)	-	The Tobin's Q, which is calculated as the market value of equity plus the book value of debt, divided by the book value of assets, is used to proxy growth opportunities.	Chen & Chuang (2009), Selcuk and Yilmaz (2017);
Growth Opportunities/ (<i>GRO</i>)	+		

Source: Authors' Compilation (2023)

Results and Discussion

The descriptive statistics are shown in Table 2 for the variables chosen among Nigerian manufacturing companies. It showed that cash holdings make up 11.0% of total assets. In other words, For the overall sample, cash holding as a percentage of the total asset show an average value of 11%. According to the table, the maximum cash holdings value for the specified variable is 56.3%, and the minimal value is 0%. The median value of the cash holding, however, is 6.9%, which is lower than the mean value. The Dividend Payout Ratio showed the mean value and median value of 57.60 and 35.85 respectively. The mean of Return on Asset (ROA) is 5.414 percent with the standard deviation 8.032 percent and ranging between -19.660 and 29.890. With an average leverage ratio of 0.597 and standard deviation of 0.19 for the sample companies, Typically, manufacturing companies prefer debt financing to equity financing.

Table 2: Descriptive Statistics

	LIQ	GRO	SIZ	DPR	ROA	LEV	ASG	CAH
Mean	0.274	1.452	7.548	57.601	5.414	59.737	15.744	0.110
Median	0.165	0.845	7.650	35.855	4.195	59.735	9.770	0.069
Maximum	1.385	8.790	8.740	3013.880	29.890	150.450	590.080	0.563
Minimum	0.000	0.030	5.420	-935.630	-19.660	12.420	-69.790	0.000
Std. Dev.	0.297	1.687	0.800	250.012	8.032	19.014	49.276	0.113
Skewness	2.027	2.119	-0.646	9.576	0.187	1.113	9.543	1.714
Kurtosis	6.983	7.613	2.772	119.318	4.246	7.790	111.395	5.655
Jarque-Bera	226.092	274.731	12.055	97276.440	11.840	195.317	84796.01	131.641
Probability	0.000	0.000	0.002	0.000	0.003	0.000	0.000	0.000

Source: Authors' Computation (2023).

Table 3: Correlation Matrix

Covariance Analysis: Ordinary							
Correlation Probability	LQR	GRO	SIZ	DPR	ROA	LEV	ASG
LQR	1.000						
GRO	0.013	1.000					
SIZ	0.091	0.207	1.000				
DPR	-0.046	0.060	-0.013	1.000			
ROA	0.183	0.616	0.130	0.039	1.000		
LEV	-0.391	0.047	0.090	-0.006	-0.280	1.000	
ASG	0.005	-0.029	0.098	-0.054	0.008	0.194	1.000
	0.950	0.707	0.205	0.484	0.922	**0.0118	

*, ** and *** indicate significance at the 10%, 5% and 1%-levels, respectively.

Source: Authors' Computation (2023).

No two independent variables in the result displayed in Table 3 shows a strong correlation that it could cause multicollinearity issues in the regression. GRO and DPR have a correlation of 0.62, which is the highest. The other correlation coefficients are lesser than 0.40, indicating that multicollinearity is not at all anticipated. The presence of multi-collinearity is often indicated by a correlation coefficient of 0.70 or higher between two variables, which is not the case in our data. According to this study, the correlation between any particular set of independent variables is not greater than 70 percent. Hence, multicollinearity doesn't seem to be an issue of concern. The Variance Inflation Factor (VIF) test for multicollinearity is likewise included in Table 4. Each and every VIF coefficient is less than 2. The general guideline is that the level of multicollinearity can be tolerated if the VIF score is less than 10.

Table 4: Variance Inflation Factor

Variable	Coefficient Variance	Centered VIF	1/VIF
ASG	4.020E-09	1.072	0.93263
GRO	5.830E-06	1.823	0.54856
LIQ	1.250E-04	1.219	0.82036
SIZ	1.530E-05	1.079	0.92675
ROA	2.740E-07	1.944	0.51432
LEV	3.620E-08	1.438	0.69556
DPR	1.470E-10	1.009	0.99078
Mean VIF		1.369	

Source: Authors' Computation (2023).

Hausman's Test

For deciding whether to utilize the fixed-effect model or random-effect model for the panel data regression, the Hausman (1978) test has been applied. The test results recommended using a fixed-effects model rather than a random effects model.

Table 5: Hausman's Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	21.1230	7	0.0036

Source: Authors' Computation (2023).

Table 6 displays the findings of the fixed-effects regression model used in determining the factors influencing corporate cash holdings. Based on findings, it was found that the estimated model, with an F-value of 50.49 ($p > 0.05$), statistically significantly at 5% level explains the variables affecting the sample companies' cash holdings. The adjusted R-square value of 0.902 signifies that about 90.2% of the variations in cash holding level of selected companies had been explained by the 7 explanatory variables.

The results indicate that, with a coefficient of 0.001, leverage was shown to display a positive and significant effect with cash holding at 5 percent level. Manufacturing companies with greater debt loads will have more cash on hand in ensuring they can make their debt payments in due time. This might avert economic downturn and possible liquidation. The result is in consonance with Lian et al. (2011), Ashhari and Faizal (2018). One of the factors also affecting cash holdings in manufacturing firms is firm size. Also, larger businesses possess bank credit line and stronger credit ratings, both of which will aid the companies in obtaining funding when needed (Opler et al., 1999). Larger businesses should also be able to obtain funding more quickly and cheaply. The findings showed a relationship between firm size and

cash holding that was significant at 5%. This indicates that larger organizations will hold more cash than smaller ones.

Findings revealed that liquidity showed a significant and positive impact on cash holdings ($c=0.333$, $p < 0.05$) in the selected manufacturing firms in Nigeria, showing that firms with higher level of liquidity ratios tends to have large cash reserve. The results is at odds with earlier empirical investigations as well as the theoretical prediction of the trade-off theory, which contends that liquidity and cash holdings showed a negative relationship (Uyar and Kuzey 2014, Al-Najjar and Belghitar 2011). Size also revealed a significant and positive effects on cash holding in the Nigerian manufacturing firms. The effect being significant is in line with pecking order theory, according to which large organisations outperform small firms and have access to greater resources like capital. Additionally, a positive relationship that exist between firm size and corporate cash holding is predicted under the pecking order theory. Because they often outperform smaller organizations, large companies are expected to have more money (Opler et al., 1999). They therefore hold more cash. This outcome is in consonance with a few previous studies (Lian et al. 2011; Song and Lee 2012).

Mikkelson and Partch (2003) stated that corporate cash holdings is being found to significantly affects the financial performance of the chosen manufacturing firms, making cash a crucial component of a firm's financial policies. The result revealed that ROA had positive and significant effect on cash holding ($c=0.002$, $p<0.05$). Significant negative relationship exists between growth opportunities and cash holdings of the selected manufacturing firms in Nigeria showing a coefficient of -0.009 and probability of <0.05 .

Table 5: Regression Analysis

Dependent Variable: CAH						
Method: Panel EGLS						
Sample: 2012 2021						
Periods included:						
10						
Cross-sections included: 40						
Variable	Random Effect			Fixed Effect		
	Coefficient	Std. Error	Prob .	Coefficient	Std. Error	Prob .
GRO	-0.007	0.003	0.015	-0.009	0.005	0.049
LEV	0.002	0.000	0.000	0.001	0.000	0.000
LIQ	0.365	0.012	0.000	0.337	0.014	0.000
SIZ	0.008	0.005	0.161	0.037	0.017	0.029
ROA	0.002	0.001	0.000	0.002	0.001	0.025
ASG	0.000	0.000	0.356	0.000	0.000	0.345
DPR	0.000	0.000	0.488	0.000	0.000	0.686
C	-0.144	0.042	0.001	-0.339	0.130	0.010
	R-squared	0.860		R-squared	0.920	
	Adjusted R-squared	0.853		Adjusted R-squared	0.902	
	S.E. of regression	0.037		S.E. of regression	0.035	
	F-statistic	139.984		Sum squared resid	0.170	
	Prob(F-statistic)	0.000		Log likelihood	341.034	
				F-statistic	50.492	
				Prob(F-statistic)	0.000	

Source: Authors' Computation (2023).

Conclusion and Recommendations

Investigating the factors influencing cash holdings in Nigerian manufacturing sectors was the objective of this study. We selected 40 manufacturing companies quoted on the Nigerian Exchange Group exploring data spanning from 2012 to 2021. This study examined popular metrics that could affect a company's cash holdings, and it included leverage, asset growth, dividend payout ratio, liquidity, firm size, return on asset and growth opportunities. Result indicated that leverage, Liquidity, firm size and ROA revealed positive significant effect on cash holding while only investment opportunities revealed negative and significant effect on cash holdings. Further, manufacturing firms should consider these factors in managing cash holding. Thus, while determining how much cash to hold, manufacturing companies must consider all of the aforementioned criteria.

In conclusion, this study will assist the managers of business and policy makers in understanding the determining factor influencing cash holding especially in the manufacturing industry in a bid to avoid bankruptcy and financial distress. Managers can use this data to make economic and financial decisions in lieu of the manufacturing companies' cash holdings. Policy makers or government can use this study as a reference in creating some policies in a bid to put control measure for cash holdings in the manufacturing industry. Effective liquidity management is necessary to meet a company's long-term financial goals and objectives.

References

- Abosede, S. A. & Ibrahim, M. Y. (2022). Influence of firm's size and age on leverage of listed financial firms in Nigeria. *advanced International Journal of Banking, Accounting and Finance (AIJBAF)*, 4(11), 1-11. Doi:10.35631/AIJBAF.411001
- Akben-Selcuk, E., & Altiok-Yilmaz, A. (2017). Determinants of corporate cash holdings: Firm level evidence from emerging markets. *Global Business Strategies in Crisis: Strategic Thinking and Development*, 417-428.
- Alkhataybeh, A., AISmadi, S. A., Shakhathreh, M. Z. & Khataybeh, M. A. (2022). Government ownership and corporate cash holdings: empirical evidence from the Amman Stock Exchange. *Sustainability*, 2022, 14, 11168, 1-14.
- Al-Najjar, B. (2013). The financial determinants of corporate cash holdings: Evidence from some emerging markets. *International business review*, 22(1), 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.
- Angelovska, M. & Valentincic, A. (2020). Determinants of cash holdings in private firms: the case of the Slovenian SMEs. *Economic and Business Review*, 22(1), 5-36. Doi:10.15458/ebr95
- 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.
- Chang, C. & Yang, H. (2022). The role of cash holdings during financial crises. *Pacific-Basin Journal*, 72, 1-23.
- Chen, Y. R., & Chuang, W. T. (2009). Alignment or entrenchment? Corporate governance and cash holdings in growing firms. *Journal of Business Research*, 62(11), 1200-1206.
- Chen, Y., Dou, P. Y., Rhee, S. G., Truong, C., & Veeraraghavan, M. (2015). National culture and corporate cash holdings around the world. *Journal of Banking & Finance*, 50, 1-18.

- Davidson & Rasyid, R. (2020). The influence of profitability, liquidity, firm size and leverage on cash holding. *Advances in Social Science, Education and Humanities Research*, 478, 405-409.
- Desriwendi & Prijadi, R. (2018). The factors affecting the company's cash holding (empirical study of listed manufacturing companies Indonesia). *International Journal of Business Management & Research (IJBMR)*, 8(1), 1-10.
- Dittmar, A., Mahrt-Smith, J., & Servaes, H. (2003). International corporate governance and corporate cash holdings. *Journal of Financial and Quantitative analysis*, 38(1), 111-133.
- Ferreira, M. A., & Vilela, A. S. (2004). Why do firms hold cash? Evidence from EMU countries. *European financial management*, 10(2), 295-319.
- Fresard, L. (2010). Financial strength and product market behavior: The real effects of corporate cash holdings. *The Journal of finance*, 65(3), 1097-1122
- Gao, H., Harford, J., & Li, K. (2013). Determinants of corporate cash policy: Insights from private firms. *Journal of Financial Economics*, 109(3), 623-639
- Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica: Journal of the econometric society*, 1251-1271
- Khalil, S., & Ali, L. (2015). The effect of family ownership on cash holdings of the firm (Karachi stock exchange). *International Journal of Academic Research in Business and Social Sciences*, 5(6), 133-141.
- Khaib, S. F. A., Abdullah, D. F., Hendrawaty, E. & Elamer, A. A. (2022). A bibliometric analysis of cash holdings literature: current status, development, and agenda for future research. *Management Review Quarterly*, 72, 707-744.
- Khieu, H. D., & Pyles, M. K. (2012). The influence of a credit rating change on corporate cash holdings and their marginal value. *Financial Review*, 47(2), 351-373
- Ki, Y. & Adhikari, R. (2022). Corporate cash holdings and exposure to macroeconomic conditions. *International Journal of Financial Studies*, 10(105), 1-25.
Doi.org/10.3390/ijfs10040105
- 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.
- Kumar, S., Kumar, B., Singh, D. & Khan, K. (2021). Innovation in corporate cash holding & management: an empirical investigation. *Empirical Economics Letters*, 20(3), 21-31.
- Li, Z., Jiang, J., Xia, L. & Chu, C. (2020). Empirical research on the relationship between industry working capital shortfall and company cash holding in the same industry. *Discrete Dynamics in Nature and Society*, 2022, 1-14.
- Lian, Y., Sepehri, M., & Foley, M. (2011). Corporate cash holdings and financial crisis: an empirical study of Chinese companies. *Eurasian Business Review*, 1, 112-124.
- Maheshwari, Y., & Rao, K. V. (2017). Determinants of corporate cash holdings. *Global Business Review*, 18(2), 416-427.
- Mesfin, E. A. (2016). The factors affecting cash holding decisions of manufacturing share Companies in Ethiopia. *International Journal of Advanced Research in Management and Social Sciences*, 5(3), 48-67.
- Mikkelsen, W. H., & Partch, M. M. (2003). Do persistent large cash reserves hinder performance?. *Journal of financial and quantitative analysis*, 38(2), 275-294.
- Minh, H. P. T., Thi, K. N. & Be, L. P. T. (2022). The non-linear impact of financial leverage on cash holdings: empirical evidence from Vietnam. *Cogent Business & Management*, 9(1), 2114304, 1-22. Doi.org/10.1080/23311975.2022.2114304
- Modigliani, F., & Miller, M. H. (1963). Corporate income taxes and the cost of capital: a correction. *The American economic review*, 53(3), 433-443.

- Mohd-Ashhari, Z., & Faizal, D. R. (2018). Determinants and performance of cash holding: evidence from small business in Malaysia. *International Journal of Economics, Management and Accounting*, 26(2), 457-473.
- Mortal, S., & Reisel, N. (2014). Do Firms Hold Too Much Cash? Evidence from Private and Public Firms. In EFMA 2015, Conference Paper.
- Myers, S.C.; 1984. The capital structure puzzle. *Journal of Finance* 39(3), 575-592
- Nenu, E. A. & Vintila, G. (2017). An analysis regarding cash holdings: empirical study on the Bucharest Stock Exchange listed firms. *Scientific annals of Economics and Business*, 64(3), 289-306. Doi:10.1515/saeb-2017-0019
- Nnadi, M., Surichamorn, V., Jayasekera, R. & Belghitar, Y. (2020). Empirical analysis of debt maturity, cash holdings and firm investment in developing economies. *International Journal of Financial Economics*, 27, 3345-3372. Doi:10.1002/ijfe.2324
- Ogundipe, S. E., Salawu, R. O., & Ogundipe, L. O. (2012). The determinants of corporate cash holdings in Nigeria: Evidence from general method of moments (GMM). *World Academy of Science, Engineering and Technology*, 61, 978-984.
- Odo, J. O. & Udodi, J. N. (2022). Influence of cash management on financial performance of selected manufacturing companies in Nigeria. *Contemporary Journal of Banking and Finance*, 3(6), 26-41.
- Okeke, L. N., Ezejiofor, R. A. & Okoye, N. J. (2021). Leverage and cash ratio: an empirical study of conglomerates firm in Nigeria. *American Journal of Contemporary Management Sciences Research (AJCMSR)*, 76-84.
- 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.
- Pietrucha, J. & Maciejewski, G. (2020). Precautionary demand for cash and perceived risk of electronic payments. *Sustainability*, 12 (7977), 1-25. Doi:10.3390/su12197977
- Salas-Molina, F., Rodriguez-Aguilar, J. A. & Guillen, M. (2023). A multidimensional review of the cash management problem. *Financial Innovation*, 9(67), 1-35. Doi.org/10.1186/s40854-023-00473-7
- Senan, N. A. M., Ahmed, A., Anagreh, S., Tabash, M. I. & Al-Homaidi, E. A. (2021). An empirical analysis of financial leverage and financial performance: empirical evidence from Indian listed firms. *Investment Management and Financial Innovations*, 18(2), 322-334. Doi:10.21511/imfi.18(2).2021.26
- Shamsuddeen, S. S. & Ibrahim, I. (2022). Effect of firms-specific characteristics on corporate cash holding of listed manufacturing firms in Nigeria. *journal of Innovation Research & Advances Studies*, 18(2), 301-316.
- Song, K. R., & Lee, Y. (2012). Long-term effects of a financial crisis: Evidence from cash holdings of East Asian firms. *Journal of Financial and Quantitative analysis*, 47(3), 617-641.
- Uyar, A., & Kuzey, C. (2014). Determinants of corporate cash holdings: evidence from the emerging market of Turkey. *Applied Economics*, 46(9), 1035-1048.
- Vuong, T. H. G., Dao, T. H., Le, T. T. H. & Nguyen, H. M. (2022). Debts and corporate cash holdings: evidence from ASEAN-5. *Investment Management and Financial Innovations*, 19(1), 186-200.
- Wibawa, B. M. & Nareswari, N. (2019). Cash holding management and firm performance: empirical evidence for financially constrained firms in Indonesia. *Advances in Economics, Business and Management Research*, 135, 72-77.
- Ye, Y. (2018). A literature review on the cash holding issues. *Modern Economy*, 9, 1054-1064. doi.org/10.4236/me.2018.96068