

NATIONAL ECONOMICS UNIVERSITY

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**TOPIC: IMPACT OF FINANCIAL FACTORS ON  
CASH HOLDINGS OF FOOD AND BEVERAGE  
COMPANIES IN VIETNAM IN 2020**

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				100%

Marking sheet

		A	B	C	D	E
1	Understanding of the key issues					
2	Ability to answer the question					
3	The logical structure of your arguments					
4	Evidence of reading					
5	Appropriate referencing					
6	Use of diagrams and theory					

Markers' comments

Advantages:

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Disadvantages:

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## **1. Introduction and Research questions.**

### ***1.1. Introduction.***

Before 2020, Vietnam's F&B market continued to grow and was assessed to be full of potential. However, in the outbreak of the COVID-19 pandemic, the activities of many businesses in the industry have been facing a problem of survival. According to a survey by VnExpress, the cash flow of 46% of corporations has dried up, just enough for businesses to maintain operations for 1-3 months.

In the current challenging situation of the new COVID-19 outbreak, cash availability even plays an unequivocal role when firms suffer from difficulties in their business. The adequate level of cash reserves within the firms will protect them from insolvency by helping to cover all expenses payments incurred in daily operation. This shows the importance of the decision to hold cash because it is closely related to companies' operations and a core requirement to ensure continued operations. The term cash holdings in this study refer to the amount of cash and cash equivalent items available for the company to meet its short-term and emergency needs. However, cash holding is not always beneficial for businesses because firms that hold cash levels more than the optimal balance might obtain the low rate of return on cash or liquid assets.

In the past, there were many studies on the influence of financial variables on the decision to keep cash of companies. However, there were almost no research papers that studied this influence during the Covid-19 pandemic and more specifically in the F&B industry in Vietnam. By referencing the variables in previous studies and applying the linear regression model, we want to use data from a sample of 70 F&B companies operating in the Vietnamese market to study the impact of financial determinants to firms' cash holdings.

### ***1.2. Research questions.***

- *What financial factors affect the cash holding ratio of Food and Beverage Companies in Vietnam?*
- *How do those financial factors affect the cash holding ratio of Food and Beverage Companies in Vietnam?*
- *Is there any difference in the cash holding ratio between companies paying annual dividends and companies not paying annual dividends?*

## **2. Literature review.**

### **2.1. Theories.**

#### **2.1.1. Trade-off theory**

According to trade-off theory, corporations have an optimal amount of cash holdings with a given level of debt, which are determined by weighing the marginal costs and benefits of keeping cash on hand (Opler et al (1999)). The opportunity cost of the capital invested in liquid assets is frequently related to the main cost of holding cash and cash holdings can help protect firms from financial distress (Ferreira and Vilela (2004)). The biggest advantage of holding cash is to minimize the external capital raising costs and to prevent missing out on development opportunities due to a lack of liquid assets (Dittmar et al (2003); Faulkender and Wang (2006)). Firms which have stockpile cash level higher than the optimal balance might obtain the low rate of return on cash or liquid assets; so, monetary reserve is not always good for businesses.

#### **2.1.2. Pecking order theory**

The pecking order theory states that managers display the following preference of sources to fund investment opportunities: first, through the company's retained earnings, followed by debt, and choosing equity financing as a last resort. The theory supports the opinion that if a firm is profitable enough to finance its investments, it should be no or less external funding.

#### **2.1.3. Free cash flow theory**

According to Jensen, who was first developed free cash flow theory (1986), managers tend to maintain a high level of cash to control their assets. Excess cash can facilitate directors to pursue investment ideas and make financial decisions. When free cash flow is substantially available, we have the conflict over payout policy which are especially intense, aside from the disagreements over financial issues.

## **2.2. Previous studies.**

**Table 1.** Previous studies on determinants of cash holding ratio.

<b>STUDY</b>	<b>FINDING</b>	<b>MAIN RESULT</b>
Bate et. al (2009)	The reason why the average cash-to-asset ratio of industrial US firms doubled from 1980 to 2006.	They found that the average firm can retire all debt obligations with its cash holdings and when a firm's cash flow becomes risky, they will increase cash ratio and hold fewer inventories and receivables.
Ozkan and Ozkan (2004)	Relationship between total debt ratio and cash holding ratio	According to a sample of 839 UK firms, they found that total debt ratio and cash holding ratio have a negative relation, implying that companies capable of borrowing through bonds would hold less cash, and tend to focus on investment activities. Empirically, this relation is also found in Phung and Nguyen (2018).
Ferreira and Vilela (2004)	Relationship between total debt ratio and cash holding ratio	According to a sample of 400 companies in 12 EU countries for the period 1987-2000, they found that total debt ratio and cash holding ratio have a positive relation, showing that firm with high debt ratio tend to hold a high level of cash to reduce the default risk.
Bigelli and Sánchez-Vidal (2012)	Relationship between size and cash holdings ratio	According to an investigation of 17,000 Italian private companies in the 1996-2005 period, they showed that firm size and cash holdings are negatively correlated because larger firms can get benefits of cheaper financing in better and easier way. Empirically, this relation is also found in Al-Najjar and Clark (2017).
Opler et. al (1999)	Relationship between cash flow ratio and cash holding ratio	According to a set of collected data for the period 1971-1994 from 1048 US listing companies, they found that companies with higher free cash flow tend to have a larger quantity of cash as they can quickly pursue their projects when cash is available. Empirically, this relation is also found in Hung et. al (2020).
Sheikh et. al (2018)	Relationship between growth opportunity and cash holding ratio	According to a sample of 160 firms listed on the Karachi Stock Exchange during 2003-2007, they suggest that higher the level of sales for the firms have less chances of financial distress and companies can keep less cash reserves. Empirically, this relation is also found in Saleem et. al (2021).
Muhammad Usama (2012)	The effect of inventory turnover, receivable turnover, account payable turnover on cash holding ratio	According to an investigation of 18 companies listed on Karachi Exchange of food sector from 2006 to 2010 in Pakistan, they found that inventory turnover and cash holding ratio had a positive relationship as an increase in inventory turnover would make companies to hold more cash for paying. Empirically, this relation is also found in Mahjabeen and Rizwan (2018).
Drobetz, W., Grüninger, M.C. (2007)	Relationship between capital expenditure and cash holding ratio	According to a sample of Swiss non-financial firms between 1995 and 2004, they indicated that capital expenditure is negatively related to corporate cash holdings. Companies have fixed asset, which means high capital expenditure can increase the ability to borrow and thus reduce the need for cash. Empirically, this relation is also found in Bate et. al (2009).
Nguyen (2005)	The effect of dividend payout on cash holding ratio	According to a sample of 9168 companies on the Tokyo Stock Exchange during the period 1992-2003, he found that firms distributing dividends have cash balances that are higher compared to firms paying no dividend. Empirically, this relation is also found in Saleem et. al (2021).

### **3. Research methodology.**

#### **3.1. Data collection.**

The study takes data from the 2020 financial statements of 70 F&B companies currently operating in the Vietnamese market for research and analysis. The necessary information and data in this article are taken from the financial statements of companies collected from websites specializing in the stock market such as [www.cafef.vn](http://www.cafef.vn), [www.cophieu68.com](http://www.cophieu68.com), [www.vietstock.vn](http://www.vietstock.vn), [www.stockbiz.vn](http://www.stockbiz.vn), and some websites of the companies in the sample.

#### **3.2. Methodology.**

In this research, we estimate some regression models to show the effect of financial factors, which are identified in the current literature, on cash holding ratio based on a sample of 70 F&B Companies in Vietnam's market.

Initially, we calculate the descriptive statistics of the data and make diagrams of correlation matrix and multicollinearity diagnosis to ensure that there is no incorrect estimation. Then, we used Least Square Estimation method to investigate the impact of each proxy on cash holding ratio for each model. Eventually, we make some comparison and evaluation between the models to carry out the best one. The table below shows the form of regression models we use to compare.

**Table 2.** Regression models.

**Model (1):**

$$CASH_i = \beta_0 + \beta_1 LEV_i + \beta_2 GROWTH_i + \beta_3 CAPEX_i + \beta_4 ITD_i + \beta_5 SIZE_i + \beta_6 CFR_i + \beta_7 DPR_i + \varepsilon_i$$

**Model (2):**

$$CASH_i = \beta_0 + \beta_1 LEV_i + \beta_2 GROWTH_i + \beta_3 CAPEX_i + \beta_4 ITD_i + \beta_5 SIZE_i + \beta_7 DPR_i + \varepsilon_i$$

**Model (3):**

$$CASH_i = \beta_0 + \beta_1 LEV_i + \beta_2 GROWTH_i + \beta_3 CAPEX_i + \beta_4 ITD_i + \beta_6 CFR_i + \beta_7 DPR_i + \varepsilon_i$$

**Model (4):**

$$CASH_i = \beta_0 + \beta_1 LEV_i + \beta_2 GROWTH_i + \beta_3 CAPEX_i + \beta_4 ITD_i + \beta_7 DPR_i + \varepsilon_i$$

**Model (5):**

$$CASH_i = \beta_0 + \beta_1 LEV_i + \beta_3 CAPEX_i + \beta_4 ITD_i + \beta_7 DPR_i + \varepsilon_i$$



### 3.3. Variables and formulas.

**Table 3.** Compilation of variables and formulas.

Variable	Symbol	Formula	Unit	Expected sign	References
Cash holding ratio	CASH	$\frac{Cash}{Total\ Assets} * 100\%$	%		
Total debt ratio (Financial Leverage)	LEV	$\frac{(TotalAssets - TotalEquity)}{Total\ Assets} * 100\%$	%	+/-	The pecking order theory, Ferreira and Vilela (2004), Ozkhan and Ozkhan (2004), Phung and Nguyen (2018)
Size of company	SIZE	$log(TotalAssets)$		-	Bigelli and Sánchez-Vidal (2012), Al-Najjar and Clark (2017)
Sale Growth (% change in sales)	GROWTH	$\frac{SALE_{2020} - SALE_{2019}}{SALE_{2019}} * 100\%$	%	-	Sheikh et. al (2018), Saleem et. al (2021)
Cash flow ratio	CFR	$\frac{Net\ Income + Depreciation}{Total\ Assets} * 100\%$	%	-	Opler et. al (1999), Hung et. al (2020)
Capital Expenditure	CAPEX	$\frac{Tangible\ fixed\ assets}{SALE\ 2020} * 100\%$	%	-	Drobetz, W., Grüninger, M.C. (2007), Bate et. al (2009).
Inventory turnover	ITD	$\frac{Cost\ of\ Good\ Sold}{Inventory}$	times	+	Muhammad Usama (2012), Mahjabeen and Rizwan (2018)
Dividend payout	DPR	<i>Dummy (1 for company paying dividend in 2020, 0 for company not paying dividend in 2020)</i>		-	Nguyen (2005)

### 3.4. Descriptive statistics.

**Table 4.** Descriptive statistics.

Variables	Observation	Mean	Standard Deviation	Min	Max
CASH	70	10.3031	10.7183	0.4027	64.7179
LEV	70	42.4792	19.8665	6.5094	82.7878
SIZE	70	11.9764	0.73153	9.0464	13.6851
GROWTH	70	-0.4283	25.6493	-58.3789	83.86663
CFR	70	11.5469	9.3534	-9.8885	37.0766
ITD	70	7.4457	5.9395	0.6579	26.7334
CAPEX	70	24.5109	32.3961	1.1103	162.4086
DPR	70	0.7286	0.4479	0	1

Table shows the descriptive measures for the study variables. The results indicate the mean value calculated for the cash ratio is 10.3% of total assets with its standard deviation of 10.7%. These results are similar to the results about the companies in Italia (10%), America (8-10,5%) (Kim et al. (1998); Opler et al. (1999); Foley et al. (2007); D'Mello et al. (2008)). We can see that the values of cash holdings fluctuate among a wide range with minimum of 0.4% and maximum of 64.7%. Financial leverage (LEV) percentage is 42.48% on average, with a standard deviation of 19.87%, which implies a wide variance across corporations. Most of independent variables (LEV, GROWTH, CFR, ITD, CAPEX) have wide ranges, so their variances are high, except SIZE and DPR. About growth percentage, the average of sale growth ratio is a negative number (-0.43%), which is related to the Covid-19 issue. The number of firms paying dividends accounts for 72.86% of the total number of F&B companies in the sample.

#### **4. Modelling and Results.**

##### **4.1. Correlation matrix.**

By using Pearson's correlation analysis, we have the correlation matrix between variables.

**Table 5.** Correlation matrix.

	CASH	LEV	SIZE	GROWTH	CFR	ITD	CAPEX	DPR
CASH	1							
LEV	-0.2696	1						
SIZE	-0.4311	0.1853	1					
GROWTH	-0.1099	0.1369	0.2527	1				
CFR	0.1693	-0.3115	0.0540	0.2893	1			
ITD	0.4330	-0.0541	-0.1795	0.0611	0.2873	1		
CAPEX	-0.3266	0.0547	-0.0379	-0.2916	-0.2012	-0.1884	1	
DPR	0.2985	-0.3297	0.1078	0.0562	0.3827	0.2368	-0.3337	1

Even though the highest correlation result is 0.4330 (between CASH and ITD), the correlation coefficient is still acceptable level ( $<0.8$ ). It is clear from the correlation matrix that the no pairs of variables have correlation. (Gujarati (2003)).

## 4.2. Regression model selection and results.

**Table 6.** Regression results.

Variable	(1)	(2)	(3)	(4)	(5)
(Intercept)	71.5705*** (17.8731)	71.5224*** (17.7234)	11.0762** (4.5259)	10.7094** (4.2286)	11.0208** (4.2965)
LEV	-0.0598 (0.0584)	-0.0583 (0.0555)	-0.1044* (0.0618)	-0.1002* (0.0588)	-0.1164* (0.0591)
GROWTH	-0.0431 (0.0452)	-0.0444 (0.0426)	-0.0767 (0.0479)	-0.0805* (0.0449)	
CAPEX	-0.0862** (0.0348)	-0.0862** (0.0345)	-0.0928** (0.0377)	-0.0930** (0.0374)	-0.0742** (0.0365)
ITD	0.5157*** (0.1865)	0.5118*** (0.1799)	0.6708*** (0.1964)	0.6600*** (0.1898)	0.6557*** (0.1930)
SIZE	-5.2650*** (1.5125)	-5.2715*** (1.4988)			
CFR	-0.0115 (0.1307)		-0.0340 (0.1416)		
DPR	3.7280 (2.7153)	3.6738 (2.6234)	1.7887 (2.8825)	1.6207 (2.7756)	1.5936 (2.8224)
R-sq	0.4498	0.4497	0.3422	0.3416	0.3086
Adj R-sq	0.3876	0.3973	0.2796	0.2902	0.2660
P-value (F-test)	0.0000	0.0000	0.0001	0.0000	0.0000
Ramsey (RESET test)	0.0000	0.0000	0.3080	0.2855	0.2459
Breusch- Pagan (BP test)	0.0071	0.0038	0.7606	0.6560	0.5587

[\*], [\*\*], [\*\*\*]: significant at 10%, 5%, 1%

Comparing these five models, we can firstly reject model (1) and (2) as according to Ramsey test and Breusch-Pagan test, both have omitted variables and heteroscedasticity at level of significance of 10%. Thus, they violate the assumptions we make in regression model even though they are overall significant at 10%, and their R-squared coefficients are high.

Next, we consider model (3), (4) and (5). All of them have overall significant, no omitted variables and homoscedasticity at level of significance of 10%, therefore, we compare the Adjusted R-squared coefficients and the level of significance of explanatory

variables. The results of Adjusted R-squared of model (3), (4), (5) are 27.96%, 29.02%, 26.60% respectively. Also, while model (4) and (5) have 4 over 5 and 3 over 4 variables that are significant at 10%, the number of variables that are insignificant at 10% of model (3) are two. Thus, we can conclude that **model (4)** is the best model.

The regression model of cash holding ratio which follows model (4) is:

$$\text{CASH}_i = 10.7094 - 0.1002 \text{LEV}_i - 0.0805 \text{GROWTH}_i - 0.0930 \text{CAPEX}_i + 0.6600 \text{ITD}_i + 1.6207 \text{DPR}_i + \varepsilon_i$$

The P-value of F-test is  $0.000 < 5\%$ , the P-value of RESET test is  $0.2855 > 5\%$  and the P-value of Breusch-Pagan test is  $0.6560 > 5\%$ , which indicate that the regression model is overall significant has no error, no omitted variable and homoscedasticity at 5% level of significance. The R-squared coefficient (0.3416) implies that 34.16% of total variation in average cash holding ratio is explained by the model. The regression results show that CAPEX and ITD are statistically significant at 5%, LEV and GROWTH are statistically significant at 10% whereas DPR has no significant effect on cash holding ratio.

### **4.3. Multicollinearity diagnosis.**

Using test for multicollinearity to see a linear relationship between the variables in model (4), Variance inflation factor (VIF) is estimated for this test, and we have the table:

**Table 7.** Multicollinearity test result.

$$\text{VIF} = \frac{1}{1-R_j^2}$$

Variable	R-squared	VIF
LEV	0.1334	1.1539
GROWTH	0.1087	1.1219
CAPEX	0.1960	1.2438
ITD	0.0700	1.0753
DPR	0.2354	1.3078
Mean		1.1805

The mean of VIF for this test is  $\text{VIF}=1.1805$ , which is much smaller than 10. Therefore, there is no high multicollinearity problem in the regression model (4) (Gujarati and Porter (2003)).

## **5. Analyzing and comment.**

From the model, at 10% level of significance, it is found that total debt ratio (LEV) has a negative impact on cash levels of F&B companies; specifically, 1% increase in financial leverage reduces cash holdings by approximately 0.1%. However, the report from Ferreira and Vilela (2004) supported a positive relationship as financial leverage will increase the probability of bankruptcy of the company, so they will have to hold more cash to reduce the probability of financial distress. But now it is clear about the negative influence after running the model, since according to the free cash flow theory, firms that use less debt are subject to less external scrutiny and thus allow managers to determine to hold a higher amount of cash. This negative influence is also consistent with the Pecking order theory and the study of Ozkan, A. and Ozkan, N. (2004), this is explained that debt can be an alternative to cash holding because debt reduces moral hazard and is more flexible.

The coefficient for GROWTH is significant and has a value of  $-0.08050$ , showing a negative impact of sale growth on cash holding level of F&B companies. The reason that the companies with positive profit have enough cash flow to take precautions against ineffective investment problem; as a result, it is not necessary to hold too much cash. This result is not only consistent with the Trade-off theory but also confirmed by the study from Sheikh et al 2018 on firms in Karachi, Pakistan, which states that the investment in tangible assets to avoid agency problem is the reason why firms with higher sale growth often keep less cash reserves. This implies that companies with greater revenue growth will be more confident in using the cash to continue investing in the hope of continuing to generate cash flow rather than storing cash which would cause agency conflicts.

The coefficient between inventory turnover and cash holding level showed a significant positive influence of inventory turnover on the level of cash holding, as its coefficient is  $0.65997$  and significant at 5% level. It means that if the company can sell off or turn over the entire inventory one more time, their cash-to-total asset ratio will increase  $0.65997\%$ . Moreover, inventory turnover measures how many times in a given period a company has sold and replaced; a faster turnover implies the more efficiently companies are managing inventory or the insufficiency in inventory. In the case of effective inventory management, the company will have the opportunity to hold more money to prevent financial distress when it does not have to spend money to invest in inventory. On the other hand, in case if the company is short of inventory, it is necessary to make the decision to hold a certain amount of cash in the company, so that it can be immediately invested in production when the market suddenly has a high demand for that product, but the inventory is not enough to supply. This positive impact was predicted in the study of Muhammad Usama (2012) and also in line with our expectations.

Capital Expenditure (CAPEX), measured by tangible fixed assets to sales percentage, has a negative influence on level of cash holdings in firms at the 5% significant. This effect is at a magnitude of -0.09301, which implies 1% increase in capital expenditure leads to a 0.09301% decrease in cash holding ratio. It has been explained in pecking order theory that capital expenditure will directly reduce a firm's cash; however, for Drobetz, W., Grüninger, M.C., the reason for the decrease in cash is that firms with high capital will have a higher ability to borrow when there is a large amount of fixed assets as collateral for the debt. Despite the different interpretation, both literatures show a negative effect and our research model has also demonstrated similar results for Vietnamese F&B companies.

Contrary to our expectation and also the study from Nguyen (2005) for a significant positive effect, this model leads to an insignificant coefficient of dividend payout dummy variable (DPR), which means that there is no difference in cash holding ratio between dividend-paying and non-dividend-paying firms. Free cash flow presents the potential for serious agency conflict as the large amount of cash reserves can serve mainly the interests of management, while paying dividends will serve the interests of shareholders. Therefore, the insignificant relationship between dividend payout and cash holdings can be explained by the fact that Vietnamese F&B firms do not experience significant agency problems, namely conflicts between stockholders and management.

## **6. Conclusion and limitation.**

### **6.1. Conclusion.**

The research is carried out by using the secondary data from financial report of 70 F&B companies with the purpose of investigating the cash reserve decisions in Vietnamese Food & Beverage market during Covid-19 pandemic. From analyzing the model and considering the literature review, we can draw the following conclusions for the research questions:

- *What financial factors affect the cash holding ratio of Food and Beverage Companies in Vietnam?*

The research outcomes show that at 5% significant, Capital Expenditure variable (CAPEX) and Inventory Turnover (ITD) have an impact on cash holding ratio of Vietnamese F&B companies; Sale Growth (GROWTH) and Total Debt Ratio (LEV) also has a linear effect on the ratio but at the 10% level of significance. These effects are not only statistically and econometrically proven but also supported by theories such as free cash flow theory, pecking order theory, trade-off theory and previous studies.

- *How do those financial factors affect the cash holding ratio of Food and Beverage Companies in Vietnam?*

While the inventory turnover variable has a large positive impact on the cash holding ratio, the remaining variables with percentage units have a negative influence on the cash reserve decision. Specifically, when inventory turnover increases by 1 time, the percentage of cash holdings will increase by 0.65%, whereas increase in the ratio of financial leverage, capital expenditure and revenue growth each by 1% will decrease the ratio of cash reserves by 0.10018%, 0.09301%, 0.08050%, respectively.

- *Is there any difference in the cash holding ratio between companies paying annual dividends and companies not paying annual dividends?*

The test for the significance of the dividend payment dummy gives a p-value which is larger than 10%, so at the 10% level of significance, the hypothesis that dividend payment does not affect the decision to hold cash is not rejected. Thus, we can conclude that the dividend payment of F&B companies in Vietnam does not affect the cash reserve decision of the firms. This can be explained by the absence of considerable agency problems in these companies.

## **6.2. Limitation.**

Although our analysis nearly achieves the purpose of the study to answer research questions, there are still some limitations:

First of all, the sample we investigate is relatively small, with only 70 Vietnamese companies in the F&B market which are all listed on three stock markets. We do not consider the contribution of Private Limited Companies (Ltd) which are not listed on stock markets. The reason is that they are not obliged to public their financial statement, so the regression results do not cover the whole population of the F&B companies in Vietnam.

The second restriction is that we only use the Least Square Estimation method to estimate the effect of financial independent variables to cash holding ratio, so this method may not be the most suitable one to apply in this regression model.

The final limitation is that we do not comprehensively analyze the exogenous effects of COVID-19 pandemic on the level of significance of the coefficients of independent variables because in 2020, Vietnamese F&B companies were still optimistic about the pandemic, so these financial ratio did not change significantly compared to the previous year. Consequently, the results of our research can not be generalized for the whole F&B market, and we should investigate with larger scales and additional methodologies in the future to carry out the best estimation and explanation.

## **7. References.**

1. Anjum, S., & Malik, Q. A. (2013), “Determinants of Corporate Liquidity – An Analysis of Cash Holdings”, *Journal of Business and Management*, Vol. 7, No. 2, pp. 94-100.
2. 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.
3. Binh An (2021), “Thị trường F&B nhuộm màu Covid: 17% gặp khó về thanh khoản, nhiều DN cạn vốn, chỉ đủ cầm cự 1-3 tháng nữa”
3. Bates, T. W., Kahle, K. M., & Stulz, R. M. (2009), “Why Do U.S. Firms Hold So Much More Cash than They Used To?” *The Journal of Finance*, Vol. 64, No. 5, pp. 1985-2021.
4. Bigelli, M., Sánchez-Vidal, J. (2012) “Cash holdings in private firms” *Journal of Banking and Finance*, 36(1), 26-35.
5. D’Mello, R., Krishnaswami, S., & Larkin, P. J. (2008). Determinants of corporate cash holdings: Evidence from spin-offs. *Journal of Banking & Finance*, 32(7), 1209-1220
6. Drobetz, W., Grüninger, M.C. (2007), “Corporate cash holdings: Evidence from Switzerland”, *Financial Markets and Portfolio Management*, 21(3), 293-324
7. Ferreira, M.A., & Vilela, A.S. (2004). “Why do firms hold cash? Evidence from EMU countries”. *European Financial Management*, 10(2), 295-319.
8. Foley CF, Hartzell JC, Titman S, Twite G (2007) “Why do firms hold cash? A tax-based explanation. *J Financ Econ*” 86: pp.579–607
9. Gujarati, D. and Porter, D. (2003) Multicollinearity: What Happens If the Regressors Are Correlated? *Basic Econometrics, 4th Edition, McGraw-Hill, Boston, MA*, 363.
10. Hung Dang Ngoc, Van Vu Thi Thuy and Hung Nguyen Duy (2020). The sensitivity of cash flows to cash holdings: case studies at Vietnamese enterprises. *Investment Management and Financial Innovations*, 17(1), 266-276.
11. 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.



12. Mahajabeen, R.A. and Rizwan, F. (2018), “Working capital management and corporate cash holdings: a comparative analysis of large and small scale non-financial Pakistan firms”, *Journal of Social Sciences*, Vol.18, pp. 1-12.
13. Muhammad Usama (2012), “Working capital Management and its effect on firm’s profitability and liquidity: In other food sector of Karachi Stock Exchange”, *Arabian Journal of Business and Management Review*, 1 (12).
14. Nguyen, P. (2005) “How sensitive are Japanese firms to earnings risk? Evidence from cash holdings”.
15. Ozkan, A. and Ozkan, N. (2004), “Corporate cash holdings: an empirical investigations of UK companies”, *Journal of Banking and Finance*, Vol.28 No.9, pp. 2103-2134.
16. Opler, T., Pinkowitz, L., Stulz, R. and R. Williamson (1999). “The Determinants and Implications of Corporate Cash Holdings”, *Journal of Financial Economics* 52, pp. 3-46.
17. Phung, A.T. and Nguyen, V.K. (2018), “Factors effect on corporate cash holdings of the energy enterprises listed on Vietnam’s stock market”, *International Journal of Energy Economics and Policy*, Vol.8 No.5, pp. 29-34
18. Sheikh, N. A., Mehmood, K. K., & Kamal, M. (2018). “Determinants of Corporate Cash Holdings: Evidence from MNCs in Pakistan”. *Review of Economics and Development Studies*, 4(1), 71-78.
19. Saleem, F., Zafar, L., Khan, M.T., Khan, Z., Jamil, S. and Ataula (2021), “Factors effecting corporate cash holdings of the listed non-financial firms in Pakistan”, *Ilkogretim Online – Elementary Education Online*, Vol 20 No. 3, pp. 1765 - 1775.
20. Vietnam report (2020), “Công bố Top 10 Công ty uy tín ngành Thực phẩm - Đồ uống năm 2020”.