

# THE IMPACT OF THE STRENGTH OF LEGAL RIGHTS ON CASH HOLDINGS: EVIDENCE FROM AN EMERGING MARKET

**Hoang Duc Le, National Economics University**  
**Long Phi Tran, National Economics University**  
**Hang Minh Vu, National Economics University**

## ABSTRACT

*This paper investigates the impact of the strength of legal rights on cash holdings. An increase in legal rights can facilitate corporate lending and therefore reducing companies' need of holding cash. Using a sample consisting of Vietnamese listed companies from 2012 to 2019, we show that strong legal rights can lead to a decrease in the level of corporate cash holdings. This result is robust when we use alternative measures of corporate cash holdings or when we use different econometric models to deal with endogeneity problems. Moreover, our results indicate that the negative relationship between legal rights and corporate cash holdings exists only when firms have positive retained earnings. One of the explanations may be because only firms with positive retained earnings are able to access the source of bank financing and therefore can reduce the need of holding cash. Given that a company can have a high opportunity costs when holding a high level of cash, our paper suggests that regulators should have policies that increase the legal rights so that companies can reduce the cash holdings.*

**Keywords:** Legal Rights, Cash Holdings, Emerging Market.

## INTRODUCTION

Over the past three decades, a body of established literature has examined the determinants of corporate cash holdings (e.g., Opler et al., 1999; Ozkan & Ozkan, 2004; Bigelli & Sanchez-Vidal, 2012; Al-Najjar, 2013; Steijvers & Niskanen, 2013; Brick & Liao, 2017; Orlova, 2020; Nurul et al., 2020). Most of the studies have focused on the firm-level financial characteristics and only a few have paid attention to the role of legal in setting the level of corporate cash holdings. The latter includes several studies that investigate the impact of creditor rights on corporate cash holdings (e.g., Yung & Nafar, 2014; Seifert & Gonenc, 2016). The underlying theory of these studies is that strong creditor rights can lead to an increase in the supply of credit (e.g., Djankov et al., 2007; Qian & Strahan, 2007) and therefore weakening the motivation to hold cash of companies.

The common characteristic of these studies is that they use a sample consisting of international countries. Although this may help them have more variation in the country-level variables such as creditor rights, these countries have different characteristics that will make the comparison between these countries difficult. In our study, we use a setting consisting of listed companies in Vietnam. By focusing on one country, our sample of firms will be more homogeneous, which can facilitate the comparison of cash holdings behaviours between firms. Our study is also different from the previous studies in the aspect that instead of examining the impact of creditor rights on corporate cash holdings, we investigate the effects of legal rights,

which measure the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders.

We select Vietnam as our setting because Vietnam is an emerging country where the agency costs of debt may be large and therefore an increase in the legal rights environment can have a large impact on the companies' financing and investment behaviours. For example, firms in an emerging country like Vietnam may have many growth opportunities. Because the legal rights increase, these firms may feel more secure when they invest in new profitable projects and therefore increasing their investment. Additionally, most Vietnamese firms are dependent on bank financing. An increase in legal rights in Vietnam may increase banks' willingness to lend money to these firms when these firms need to finance projects with positive NPV.

Using a sample consisting of 1,477 Vietnamese listed companies during the period from 2012 to 2019, we find that strong legal rights can reduce the level of corporate cash holdings. In economic terms, when the legal rights index increases by one unit, firms in our sample reduce the level of cash holdings by approximately 11.70%. This result is robust when we use alternative measures of corporate cash holdings or when we use different econometric models to deal with endogeneity problems. In addition, we show that the negative relationship between legal rights and corporate cash holdings exists only when firms have positive retained earnings. This may be because only firms with positive retained earnings can access the source of bank financing and therefore can reduce the need of holding cash.

Our paper contributes to the literature in several ways. Firstly, our study contributes to a line of established literature on the determinants of corporate cash holdings (e.g., Opler et al., 1999; Ozkan & Ozkan, 2004; Bigelli & Sanchez-Vidal, 2012; Al-Najjar, 2013; Brick & Liao, 2017; Nurul et al., 2020). We show that the legal rights that protect both lenders and borrowers can impact corporate cash holdings. Specifically, an increase in legal rights can make firms hold less cash. Secondly, by showing a negative relationship between legal rights and corporate cash holdings, we also contribute to the growing literature on the impact of institutional factors on corporate financing and investment policy in general (e.g., Acharya et al., 2011; Cho et al., 2014) and on corporate cash holdings in particular (e.g., Yung & Nafar, 2014; Seifert & Gonenc, 2016). Finally, we believe we are one of the first that investigates the impact of legal rights on corporate cash holdings in an emerging country like Vietnam. This is important because the evidence on emerging countries is far less than the evidence on developed countries such as the United States or the United Kingdom.

The rest of the paper is structured as follows. Section 2 presents the literature review and develops the hypothesis. Section 3 describes the data and the empirical model. Section 4 discusses the results. Section 5 concludes the paper and provides some recommendations.

## LITERATURE REVIEW

Previous studies have attempted to investigate why a company holds cash. In essence, there are three theories that can explain this. The first theory is the tradeoff theory proposed by Myers (1977). The tradeoff theory argues that holding cash can bring both benefits and costs for companies. Holding a high level of cash can help companies to invest in positive NPV projects without resorting to external expensive sources of financing. Holding a high level of cash, however, may incur a high opportunity cost, which may reduce the profitability of the companies. Because holding cash have both benefits and costs, the tradeoff theory suggests that there is an optimal level of holding cash that can maximise the firm value.

The second theory explaining the variation in the level of corporate cash holdings is the financing hierarchy theory advanced by Myers and Majluf (1984). This theory suggests that the level of cash holdings is a function of financing decisions. When a positive NPV project becomes available to a firm, the firm will employ the internal funds to finance the project first. When the internal fund is exhausted, the firm will use external funds by issuing debt and then equity as a last resort. When the firm succeeds in implementing the positive NPV project, it starts paying off its debt and accumulating more cash. This suggests that there is no optimal level of cash holdings for a company.

The third theory explaining why a company holds cash is the agency theory (Jensen & Meckling, 1976). This theory argues that because the benefits of a firm's manager and the shareholders are not aligned, the firm's manager can extract private benefits by holding either too little cash or too much cash. For instance, a firm's manager may prefer expansion of the firm to build his "empire" even when the NPV of the expansion is negative. This can lead to a reduction in the company's cash holdings. Or a firm's manager can hold excess cash to increase the liquidity of the firm. This can help him to ensure his position but can affect negatively the firm profitability. As a result, companies should have a monitoring system to monitor the behaviour of the managers (Dittmar et al., 2003; Dittmar & Mahrt-Smith, 2007; Harford et al., 2008).

Several empirical studies find evidence supporting the aforementioned theories (e.g., Opler et al., 1999; Almeida et al., 2004; Han & Qiu, 2007; Harford et al., 2008; Bates et al., 2009; Bigelli & Sanchez-Vidal, 2012; Song & Lee, 2012). For example, Opler et al. (1999) find that firms having strong growth opportunities and riskier cash flows tend to have a high level of cash holdings. Additionally, firms with greater access to the capital markets such as large firms or those with high credit ratings hold relatively low ratios of cash to total non-cash assets. These findings are consistent with the tradeoff theory. Bigelli & Sanchez-Vidal (2012) find evidence supporting the financing hierarchy theory when indicating that firms having longer cash conversion cycles and lower financing deficits hold more cash. Harford et al. (2008) show that firms that have low shareholder rights and have excess cash tend to increase the investment in capital expenditures and acquisitions. These firms are also associated with lower profitability and valuation, which supports the agency theory.

The aforementioned studies seem to focus particularly on the firm-level determinants of cash holdings. Recent studies have attempted to pay more attention to the country-level determinants. These include several studies investigating the impact of creditor rights on cash holdings (e.g., Huang et al., 2013; Yung & Nafar, 2014; Seifert & Gonenc, 2016). The creditor rights refer to the protection of lenders when borrowers fail to meet the payment obligation. The underlying theory of these papers is that an increase in the protection of lenders can result in an increase in the supply of credit (Djankov et al., 2007; Qian & Strahan, 2007). Since an increase in the supply of credit can increase the supply of available funds to firms, the firms may find it not necessary to hold a high level of cash. Consistent with this, Seifert & Gonenc (2016) find a negative relationship between creditor rights and the level of cash holdings.

In this paper, instead of using a creditor rights index, which only focuses on the rights of creditors, we employ a new measure, namely the strength of legal rights index. This measure captures the degree to which collateral and bankruptcy laws protect the rights of both borrowers and lenders and therefore facilitate lending. The value of this index ranges from 1 to 12, with the higher value being associated with the stronger protection of both borrowers and lenders. Several studies also use this index, such as (Nana, 2014; Moro et al., 2018). Nana (2014) finds that

stronger legal rights can lead to an increase in the supply of private credit, measured by the ratio of private credit to GDP. Moro et al. (2018) investigate the effects of legal rights on the probability of obtaining credit. Their result indicates that firms in countries with strong legal rights have a higher probability of getting credit. Overall, the results of Nana (2014) and Moro et al. (2018) suggest that when legal rights become stronger, firms tend to hold less cash because they find it easier to raise external finance.

## DATA AND EMPIRICAL MODEL

### Data

Our data consist of non-financial companies listed on Vietnamese Stock Exchange from 2012 to 2019. Vietnam has three stock exchanges, which are Hochiminh Stock Exchange (HOSE), Hanoi Stock Exchange (HNX), and UPCOM Stock Exchange (UPCOM). The data are collected from FinPro Database. This database provides financial information of all listed companies in Vietnam.

In this study, we use the strength of legal rights index developed by The World Bank - Doing Business. The figure of Vietnamese GDP growth is gathered from World Bank database. After deleting all the missing value of the variables in our model, the final sample includes 1,477 listed companies, which are corresponded to 10,024 firm-year observations.

### Empirical Model

We use the following regression model to estimate the impact of legal rights on cash holdings:

$$\text{Cash\_Assets}_{it} = \alpha + \beta_1 \text{Legal\_Rights\_Index}_t + \beta_2 \text{Leverage}_{it} + \beta_3 \text{Size}_{it} + \beta_4 \text{Profitability}_{it} + \beta_5 \text{Growth}_{it} + \beta_6 \text{GDP\_Growth}_t + \varepsilon_{it} \quad (1)$$

where  $i$  and  $t$  denote firm  $i$  and year  $t$ , respectively. The dependent variable in Equation (1) is Cash\_Assets, measured by the ratio of cash and cash equivalents over total assets. The independent variable is Legal\_Rights\_Index, which measures the protection of both lenders and borrowers. In our sample, this index takes the value of 7 in the year 2015, 2016, and 2017 and the value of 8 in the other years. Based on the previous studies related to the determinants of cash holdings (e.g. Opler et al., 1999; Almeida et al, 2004; Han & Qiu, 2007; Song & Lee, 2012; Yung & Nafar, 2014; and Seifert & Gonenc, 2016), we include in our model some control variables. In essence, we capture the effects of leverage, firm size, firm profitability, firm growth on cash holdings. We also include the GDP growth in our model. The definition of variables employed in our study is provided in Table 1.

<b>Table 1</b>	
<b>VARIABLE DEFINITION</b>	
<b>Variables</b>	<b>Definition</b>
Cash_Assets	The ratio of cash and cash equivalents over total assets.
Legal_Rights_Index	The strength of legal rights index.
Leverage	The ratio of total debt over total assets.
Size	The natural logarithm of total assets (in VND)
Profitability	The ratio of EBIT over total assets.
Growth	The growth of sales.
GDP_Growth	The growth of Vietnamese GDP (%).

## EMPIRICAL RESULTS

### Summary Statistics

Our data consist of non-financial companies listed on Vietnamese Stock Exchange from 2012 to 2019. Vietnam has three stock exchanges, which are Hochiminh Stock Exchange (HOSE), Hanoi Stock Exchange (HNX), and UCom Stock Exchange (UPCOM). The data are collected from FiiPro Database. This database provides financial information of all listed companies in Vietnam.

Table 2 reports summary statistics of variables used in this study.

Variables	Obs.	Mean	Std.	Min	Max
Cash_Assets	10,024	0.094	0.104	>0.000	0.523
Legal_Rights_Index	10,024	7.603	0.489	7.000	8.000
Leverage	10,024	0.537	0.289	0.039	1.768
Size	10,024	26.761	1.493	23.625	31.025
Profitability	10,024	0.059	0.081	-0.230	0.322
Growth	10,024	0.023	0.500	-7.427	5.503
GDP_Growth (%)	10,024	6.374	0.643	5.247	7.076

On average, firms in our sample have a level of cash and cash equivalent that equals 9.4% total assets. This figure is much lower than the corresponding number of 14.9% and 16.9% reported in Yung and Nafar (2014) and Seifert and Gonenc (2016) for samples containing international countries, respectively. The minimum and maximum values of Vietnamese legal rights index are 7 and 8, respectively. The variation in this index enables this study to examine the impact of legal rights on corporate cash holdings. The mean, standard deviation, minimum and maximum values of control variables are also reported in Table 2.

Table 3 shows the correlation matrix between variables employed in our regression model. All of the correlation coefficients between independent and control variables are lower than 0.7, suggesting that our regression model is not likely to have multicollinearity problems.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Cash_Assets	1.000						
(2) Legal_Rights_Index	-0.035	1.000					
(3) Leverage	-0.252	-0.006	1.000				
(4) Size	-0.132	-0.006	0.175	1.000			
(5) Profitability	0.239	-0.003	-0.310	0.061	1.000		
(6) Growth	0.034	-0.021	-0.059	0.073	0.238	1.000	
(7) GDP_Growth	-0.055	-0.245	-0.023	0.040	-0.028	0.012	1.000

### Regression Results

Table 4 reports the regression results of Equation (1) using a pooled Ordinary Least Squares model. In column 1, the sample includes all firms listed on Vietnamese Stock Exchange. The result shows that the coefficient on Legal\_Rights\_Index is negative significant at the 1% level, suggesting that an increase in legal rights is associated with a decrease in the corporate

cash holdings. In economic terms, when the legal rights index increase by 1 unit from 7 to 8, the ratio of cash and cash equivalents over total assets decreases by 0.011, which corresponds to a reduction of 11.70% in the mean of the ratio. In columns 2, 3, and 4, we divide our sample into three sub-samples. Specifically, in columns 2, 3, and 4, we include companies listed in HOSE, HNX, and UPCOM, respectively. Our results in columns 2, 3, and 4 are qualitatively unchanged. Overall, these results support our hypothesis and are consistent with Seifert and Gonenc (2016).

VARIABLES	Dependent variable: Cash_Assets			
	Full sample	HOSE	HNX	UPCOM
	(1)	(2)	(3)	(4)
Legal_Rights_Index	-0.011*** (0.002)	-0.011*** (0.003)	-0.013*** (0.004)	-0.010*** (0.002)
Leverage	-0.061*** (0.007)	-0.076*** (0.021)	-0.097*** (0.022)	-0.053*** (0.007)
Size	-0.008*** (0.001)	-0.002 (0.004)	-0.005 (0.003)	-0.011*** (0.002)
Profitability	0.254*** (0.028)	0.284*** (0.063)	0.235*** (0.063)	0.242*** (0.035)
Growth	-0.003* (0.002)	-0.007* (0.004)	-0.008** (0.004)	0.002 (0.003)
GDP_Growth	-0.010*** (0.002)	-0.017*** (0.004)	-0.013*** (0.004)	-0.007*** (0.002)
Constant	0.522*** (0.046)	0.370*** (0.109)	0.516*** (0.086)	0.576*** (0.061)
Observations	10,024	2,250	2,377	5,397
Industry fixed effects	YES	YES	YES	YES
R-squared	0.126	0.131	0.141	0.140

\*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively. The robust standard errors are in parenthesis.

Regarding the control variables, we find a negative relationship between firm leverage and cash holding. This may be because firms with a high level of cash holdings may not need to tap the external source of financing. Additionally, the coefficient on firm size is negative and significant, implying that larger firms tend to hold less cash. This is in line with the notion that large firms are able to access capital markets and therefore do not need to hold a high level of cash. We also show a positive association between firm profitability and cash holdings. This can be explained because profitable firms can stockpile cash over time. Finally, firm growth has a negative and significant coefficient, suggesting that growth firms hold less cash. A possible explanation for this might be that growth firms have many investment opportunities and therefore will use the internal fund, such as cash, to finance these investments.

### Robustness Tests

In this section, we provide a battery of robustness tests for our results. In the first robustness test, we employ other measures of corporate cash holding to repeat our regression analysis. The results are reported in Table 5. In column 1, we measure corporate cash holdings by the ratio of cash over total assets. In column 2, we use the natural logarithm of cash and cash equivalents to proxy corporate cash holdings. The results indicate that the coefficients on legal

rights are still negative and significant at the 1% level in both columns 1 and 2, suggesting that our previous results do not change.

VARIABLES	Dependent variables	
	Cashonly_Assets (1)	Ln(Cash) (2)
Legal_Rights_Index	-0.003*** (0.001)	-0.112*** (0.021)
Leverage	-0.003 (0.003)	-0.961*** (0.119)
Size	-0.007*** (0.001)	-0.057*** (0.018)
Profitability	0.091*** (0.012)	3.651*** (0.317)
Growth	0.004*** (0.001)	0.141*** (0.036)
GDP_Growth	0.001 (0.001)	-0.099*** (0.021)
Constant	0.266*** (0.021)	1.470*** (0.560)
Observations	10,024	10,015
Industry fixed effects	YES	YES
R-squared	0.076	0.151

\*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively. The robust standard errors are in parenthesis.

In the second robustness test, we employ alternative econometric models to estimate Equation (1). The results are provided in Table 6. In column 1, we employ a firm fixed effects model to capture the impact of unobserved time-invariant factors on the relationship between legal rights and corporate cash holdings. The results show that the coefficient on legal rights is still negative and significant at the 1% level. This is consistent with our previous results. In column 2, we employ a first difference estimator that uses the one-period changes for each firm to estimate Equation (1). Although the magnitude of the coefficient on legal rights reduces, the coefficient is still significantly negative at the 1% level.

Estimating Equation (1) can face the problem of endogeneity. To deal with this, we employ a System Generalised Method of Moments (SGMM) to estimate Equation (1). By using this method, we also can add the one-year lag value of Cash\_Assets to the right-hand side of our regression model to capture the dynamic effects of the model. In this method, the lags of the endogenous variables are used as the instruments for the endogenous variables and the contemporary exogenous variable are used as the instruments for the exogenous variables. The results are reported in column 3 of Table 6. The p-value of AR(2) test is higher than 0.1, suggesting that there is no autocorrelation of the lag two of the endogenous variables. This implies that we can use the lag of the endogenous variable as the instruments for the endogenous variables. Additionally, the p-value of Hansen test is higher than 0.1, suggesting that the instruments are valid. The main results estimated from the SGMM model are also similar to our previous results. Moreover, the lag value of Cash\_Assets is positive and significant at the 1% level. This implies that the previous year's corporate cash holdings can impact positively on the current year's corporate cash holdings.

<b>Table 6</b>			
<b>ROBUSTNESS TEST 2: ALTERNATIVE ECONOMETRIC MODELS</b>			
	<b>Dependent variable: Cash_Assets</b>		
	<b>FE</b>	<b>FD</b>	<b>SGMM</b>
<b>VARIABLES</b>	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>
L.Cash_Assets			0.314***
			(0.101)
Legal_Rights_Index	-0.012***	-0.009***	-0.006***
	(0.002)	(0.002)	(0.002)
Leverage	-0.030***	-0.029**	0.024
	(0.009)	(0.014)	(0.026)
Size	-0.013***	-0.004	-0.013***
	(0.003)	(0.005)	(0.005)
Profitability	0.183***	0.115***	0.174
	(0.025)	(0.027)	(0.136)
Growth	-0.000	-0.000	0.015
	(0.002)	(0.002)	(0.017)
GDP_Growth	-0.010***	0.002	-0.007***
	(0.002)	(0.003)	(0.002)
Constant	0.612***	-0.004***	0.568***
	(0.082)	(0.001)	(0.159)
Observations	10,024	8,476	8,985
Industry fixed effects	YES	YES	YES
R-squared	0.092	0.013	0.413
AR(1) test			0.000
AR(2) test			0.749
Hansen test (p-value)			0.270

\*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively. The robust standard errors are in parenthesis.

In the final robustness test, we divide our sample into two sub-sample, one including firms with positive retained earnings and one containing firms with non-positive retained earnings. We expect that the negative association between legal rights and corporate cash holdings only exists for the former group. This is because only firms with positive retained earnings are able to hold less cash when legal rights become stronger. For the firms in the latter group, they cannot reduce the level of cash holdings even when legal rights become stronger. This is because these firms may be experiencing a huge loss and therefore lenders are not willing to provide credit to them. As a result, they need to hold a high level of cash so that they can invest in profitable projects in the future. The results of this analysis are reported in Table 7.

In Panel A of Table 7, we present the results corresponding to the group with positive retained earnings. In columns 1 and 2, we use a pooled OLS and a firm fixed effects model, respectively. We find that the coefficient on legal rights is negative and significant at the 1% level in the two columns. In Panel B, we report the results for the group with non-positive retained earnings. In columns 3 and 4, we employ a pooled OLS and a firm fixed-effects model, respectively. The results in columns 3 and 4 show an insignificant coefficient of legal rights, suggesting that the negative relationship between legal rights and corporate cash holdings does not exist for the group with non-positive retained earnings. This is consistent with our expectations. In sum, the results in our robustness checks corroborate our previous finding.

VARIABLES	Dependent variables: Cash Assets			
	Panel A: Retained earnings > 0		Panel B: Retained earnings <= 0	
	OLS	FE	OLS	FE
	(1)	(2)	(3)	(4)
Legal_Rights_Index	-0.012*** (0.002)	-0.013*** (0.002)	0.003 (0.004)	0.002 (0.004)
Leverage	-0.063*** (0.008)	-0.031*** (0.010)	-0.034*** (0.009)	-0.035* (0.019)
Size	-0.008*** (0.001)	-0.012*** (0.004)	-0.006*** (0.002)	-0.022** (0.010)
Profitability	0.256*** (0.031)	0.199*** (0.028)	0.127** (0.057)	0.135** (0.063)
Growth	-0.004* (0.002)	-0.001 (0.002)	0.002 (0.004)	0.001 (0.003)
GDP_Growth	-0.011*** (0.002)	-0.011*** (0.002)	-0.000 (0.004)	0.001 (0.005)
Constant	0.547*** (0.048)	0.585*** (0.090)	0.208*** (0.076)	0.642** (0.267)
Observations	9,166	9,166	858	858
Industry fixed effects	YES	YES	YES	YES
R-squared	0.116	0.045	0.149	0.063

\*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively. The robust standard errors are in parenthesis.

## CONCLUSION

The aim of this paper is to investigate the impact of legal rights on corporate cash holdings. We argue that strong legal rights can facilitate lending and therefore companies do not need to hold a high amount of cash. Using a sample consisting of Vietnamese listed companies during the period from 2012 to 2019, we find evidence supporting this argument. The results are robust when we use alternative measures of corporate cash holdings or when we employ different econometric methods. We also find that the results exist only when firms have positive retained earnings.

Our findings have some policy implications for policymakers and future research. Given that holding a high level of cash can generate opportunity costs to companies and an increase in legal rights can reduce the corporate cash holdings, regulators should have policies that enhance the legal rights. Additionally, scholars that are interested in examining the corporate policy of cash holdings should pay attention to the legal factors because these factors may affect the level of corporate cash holdings as well as the relationship between cash holdings and the firms' financing and investment policies.

## REFERENCES

- Acharya, V.V., Amihud, Y., & Litov, L. (2011). Creditor rights and corporate risk-taking. *Journal of Financial Economics*, 102(1), 150-166.
- Almeida, H., Campello, M., & Weisbach, M.S. (2004). The cash flow sensitivity of cash. *The Journal of Finance*, 59(4), 1777-1804.
- Al-Najjar, B. (2013). The financial determinants of corporate cash holdings: Evidence from some emerging markets. *International Business Review*, 22(1), 77-88.
- 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.
- Bigelli, M., & Sanchez-Vidal, J. (2012). Cash holdings in private firms. *Journal of Banking and Finance*, 36(1), 26-35.
- Brick, I.E., & Liao, R.C. (2017). The joint determinants of cash holdings and debt maturity: the case for financial constraints. *Review of Quantitative Finance and Accounting*, 48(3), 597-641.
- Cho, S.S., El Ghouli, S., Guedhami, O., & Suh, J. (2014). Creditor rights and capital structure: Evidence from international data. *Journal of Corporate Finance*, 25, 40-60.
- 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.
- Dittmar, A., & Mahrt-Smith, J. (2007). Corporate governance and the value of cash holdings. *Journal of Financial Economics*, 83(3), 599-634.
- Djankov, S., McLiesh, C., & Shleifer, A. (2007). Private credit in 129 countries. *Journal of Financial Economics*, 84(2), 299-329.
- Han, S., & Qiu, J. (2007). Corporate precautionary cash holdings. *Journal of Corporate Finance*, 13(1), 43-57.
- Harford, J., Mansi, S.A., & Maxwell, W.F. (2008). Corporate governance and firm cash holdings in the US. *Journal of Financial Economics*, 87(3), 535-555.
- Huang, Y., Elkinawy, S., & Jain, P.K. (2013). Investor protection and cash holdings: Evidence from US cross-listing. *Journal of Banking and Finance*, 37(3), 937-951.
- Jensen, M.C., & Meckling, W.H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360.
- Moro, A., Maresch, D., & Ferrando, A. (2018). Creditor protection, judicial enforcement and credit access. *The European Journal of Finance*, 24(3), 250-281.
- Myers, S.C. (1977). Determinants of corporate borrowing. *Journal of Financial Economics*, 5(2), 147-175.
- 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.
- Nana, P.N. (2014). Legal rights, information sharing, and private credit: New cross-country evidence. *The Quarterly Review of Economics and Finance*, 54(3), 315-323.
- Nurul Hoque, M., Bhuiyan, M.B.U., Nomura, T., & Van Zijl, T. (2020). Determinants of cash holdings—evidence from New Zealand local councils. *Public Money & Management*, DOI: 10.1080/09540962.2020.1836803
- 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 and Finance*, 28(9), 2103-2134.
- Orlova, S.V. (2020). Cultural and macroeconomic determinants of cash holdings management. *Journal of International Financial Management and Accounting*, 31(3), 270-294.
- Qian, J., & Strahan, P.E. (2007). How laws and institutions shape financial contracts: The case of bank loans. *The Journal of Finance*, 62(6), 2803-2834.
- Seifert, B. & Gonenc, H. (2016). Creditor rights, country governance, and corporate cash holdings. *Journal of International Financial Management and Accounting*, 27(1), 65-90.
- Song, K., & 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.
- Steijvers, T., & Niskanen, M. (2013). The determinants of cash holdings in private family firms. *Accounting & Finance*, 53(2), 537-560.
- Yung, K., & Nafar, N.A., (2014). Creditor rights and corporate cash holdings: International evidence. *International Review of Economics & Finance*, 33, 111-127.