



# **Management Views on Corporate Cash Holdings for Malaysian Firm**

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## **Abstract**

*This paper examines the views of managers of the 250 largest Malaysian companies about the determinants of corporate cash holdings. Responding managers support the view that the primary cause for a firm's cash balances is the accumulation of internally generated cash flows, not the issuance of new securities; that firms will generally hold more cash to prevent underinvestment when there is greater uncertainty in future cash flows; to avoid the risk of financial distress; and to ensure the ability to invest in new projects when internally-generated cash flows exhibit high levels of volatility. They also express support for an optimal trade-off approach to cash holdings.*

**Keywords:** Corporate cash holdings, Cash flows, Volatility, Leverage, Investment, Debt, Financing Constraints

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## **I. Introduction**

The increase in corporate cash holdings represents one of the more significant global trends over the past few decades. It is not surprising that a large body of research focuses on the financial determinants of corporate cash holdings. Studies by Dittmar and Mahrt-Smith (2007), Chang and Noorbakhsh (2009), and Al-Najjar (2013) focus on cash holdings of international firms in both developed and developing countries. Unfortunately, these studies provide mixed results for both developed and emerging market countries on many key issues including the determinants of cash holdings, the extent to which agency problems affect a firm's incentives to hold or spend cash, and whether or not an optimal level of cash holdings exists.

This study employs survey research methodology to examine the views of managers of corporations that trade on Bursa Malaysia about issues related to corporate cash holdings. Of particular interest is what do these managers believe are the most important determinants of cash holdings. By learning managers' views on corporate cash holdings, this study provides direct evidence that complements and extends existing research which relies on secondary data.

## **II. Literature Review**

Kim, Mauer, and Sherman (1998) and Opler, Pinkowitz, Stulz, and Williamson (1999) identify strategic factors for why firms hold cash including the extent of investment opportunities, volatility of firm cash flows, information asymmetries, agency costs, leverage, financing constraints, ability to raise cash by cutting dividends or selling assets, and the use of derivatives. More recent research identifies other factors that may affect a firm's cash holdings including the nature of a firm's assets, size, refinancing risk, labor skills, degree of corporate diversification, and various legal, institutional and cultural factors.

### **A. Investment Opportunities**

Baskin (1987) posits that a firm with abundant investment opportunities may have an incentive to hold more cash to maintain its competitive positions within an industry. Holding excess cash may help deter competition in a firm's product markets. Using a sample of high-growth, high-tech firms listed on NASDAQ, Chen and Chuang (2009) find that firms hold excess cash to maintain their competitive positions.

Kim et al. (1998) and Opler et al. (1999) find evidence that cash holdings increase with the level of investment opportunities and the uncertainty in future cash flows. Firms with more abundant investment opportunities and greater volatility in future cash flows in their models hold more cash to fund future investments when internally generated cash flow is low and raising funds externally is costly.

### ***B. Agency Problem of Free Cash Flow***

Jensen (1986) argues that managers hold excess cash to allow flexibility to pursue their own spending objectives. By using internally-generated cash to fund projects, managers can avoid the disciplines of raising funds externally in the capital markets. Stulz (1990) argues that this agency problem of free cash flow is more acute for firms with low market-to-book ratios, and that increasing the level of managerial ownership may reduce these agency costs by aligning the interests of managers and shareholders. Opler et al. (1999) therefore suggest cash holdings should be inversely related to market-to-book ratios and managerial ownership.

Managers may also squander cash by pursuing dubious acquisitions. Harford (1999) finds cash-rich firms are more likely to pursue acquisitions, and those cash-rich firms with a greater likelihood of agency problems, as measured by low managerial ownership, account for much of the acquisition activity. Harford finds both a negative stock price reaction to acquisition announcements and subsequent poor operating performance of the acquiring firms.

Ozkan and Ozkan (2004) investigate how managerial ownership affects cash holdings for a sample of U.K. firms. They find the level of cash holdings falls as managerial ownership increases up to 24%, increases as ownership increases to 64%, then falls again at higher levels of ownership. However, Papaioannou, Strock, and Travlos (1992) find no relation between managerial ownership and cash holdings. Guney, Ozkan and Ozkan (2007) find that firms with high ownership concentration and strong investor protection hold less cash. Nikolov and Whited (2014) employ a dynamic model of finance and investment to show that perquisite consumption by managers affects cash holdings. They find low managerial ownership to be a key factor in increased cash holdings.

### ***C. Agency Problem of Debt***

Myers (1977) argues that an agency problem between shareholders and debtholders increases the cost of issuing new debt and may cause firms to forego investing in some positive NPV projects. This underinvestment problem is more acute for highly-leveraged firms; therefore, managers choose low levels of debt or hold more cash to avoid these agency costs. According to Opler et al. (1999), firms with higher market-to-book ratios will have greater investment opportunities and will hold more cash to avoid incurring higher costs if their financial condition worsens.

Opler et al. (1999) argue that firms with abundant investment opportunities and greater information asymmetries with investors will hold more cash to avoid the aforementioned agency problem of underinvestment. They suggest that firms with higher R&D expenses will likely experience higher information asymmetries and will hold more cash to ensure being able to fund projects. Pinkowitz, Stulz and Williamson (2016) find that, on average, U.S. firms hold more cash than similar foreign firms, and that the differences in cash holdings can be attributed to higher R&D investments by U.S. firms.

### ***D. Financing Constraints***

Small firms tend to hold more cash to avoid the higher issuance costs when raising external funds (Barclay and Smith, 1996). Whited (1992) and Fazzari and Petersen (1993) find that small firms will hold more cash because they are more likely to face borrowing constraints. Opler et al. (1999) find that large firms with strong credit ratings tend to hold less cash; Kim et al. (1998), however, find an insignificant negative relationship.

Ghaly, Dang and Stathopoulos (2017) find that a firm's dependence on skilled labor affects its cash holdings. Firms that require more highly-skilled labor face higher labor adjustment costs in response to cash flow shocks and will thus hold more precautionary cash. They find the effects of labor skills on cash holdings to be more pronounced in firms that are financially constrained. Horioka and Terada-Hagiwara (2014) study cash holdings for a large sample of 11 Asian economies and find that firm cash flows will have a more positive impact on cash holdings for small firms that are financially constrained.

### ***E. Leverage***

Borrowing may also affect a firm's cash holdings. Kim et al. (1998) find cash holdings to be inversely related to debt ratios. Using a large sample of firms from the U.S., France, Germany, Japan, and the United Kingdom, Guney et al. (2007) find a negative relationship between cash holdings and leverage at low levels of leverage, but find that the relationship turns positive at higher levels of debt. They argue that debt acts as a substitute for cash holdings at low debt levels; but suggest that high levels of debt increase the cost of financial distress and causes firms to increase their cash holdings. This latter finding is consistent with Opler et al. (1999) who argue that firms with greater likelihood of financial distress should hold more cash.

Al-Najjar (2013) examines the determinants of cash holdings for the four largest emerging market countries (Brazil, Russia, India and China). He finds that the cash holdings of firms in these emerging markets are also related to leverage and firm size as predicted by previous studies. He argues therefore that the financial determinants of cash holdings in developed and emerging market countries are quite similar.

Harford, Klasa, and Maxwell (2014) find that firms with greater refinancing risk for their debt will hold

more cash. They argue that refinancing risk has increased in recent years as the maturity of firms' long-term debt has decreased. They contend that holding more cash helps to mitigate the effects of refinancing risk. Azar, Kagy and Schmalz (2016) contend that the cost of carry, defined as the spread between the cost and return of holding cash, explains the increased level of cash holdings by U.S. and foreign firms.

#### **F. Other Factors**

Duchin (2010) and Bakke and Tiantian (2017) examine the relationship between corporate diversification and cash holdings. Duchin finds that multi-division firms hold less cash than do stand-alone firms. Bakke and Tiantian (2017) also find that diversified firms hold less cash than focused firms. They argue that investment dynamics are more important than financing frictions in explaining differences in cash holdings among diversified firms.

Legal, institutional and cultural factors may also affect cash holdings. Guney et al. (2007) find that firms from the US, UK, France, Germany, and Japan with strong creditor protection carry excess cash to avoid financial distress. They find that firms with strong investor protection and high ownership concentration hold less cash. Chang et al. (2009) examine how cultural factors may influence corporate cash holdings in 45 countries. They find that firms hold more cash in countries where individuals have a longer term orientation, tend to avoid uncertainty more, and are culturally more masculine.

Several studies have examined the effects of the 2008-2009 financial crisis in the U.S. on corporate cash holdings. Blissa, Chengb and Denis (2015) find that the shock of the supply of credit during the crisis increased the benefit of holding cash, and that firms reduced disbursing cash to shareholders via dividends and share repurchases to, in effect, create a substitute form of financing. These effects were more pronounced among firms with higher leverage and more valuable growth options. Acharya, Almeida and Campello (2013) find that firms will hold more cash reserves during periods of heightened aggregate volatility to avoid higher spreads and shorter maturities imposed by banks on their undrawn credit lines during these risky periods.

#### **G. Tradeoff Model**

Kim et al. (1998) also find support for an optimal tradeoff model for holding cash where the optimal level of cash increases with the cost of external financing, volatility of cash flows, and return on future investment opportunities and decreases with the difference in returns between physical and liquid assets. Opler et al. (1999) also find support a tradeoff model where large firms with strong credit ratings hold less cash while small firms with strong growth opportunities and more volatile cash flows hold more. Opler et al. (1999) also find that firms exhibiting strong performance tend to hold more cash than an amount predicted by their model, and that firms tend to acquire those cash holdings from internally generated cash flows, not by issuing new securities.

### **III. Survey Design**

I mailed a survey instrument in early May 2018 to the chief financial officer (CFO) of the 250 largest Malaysian, non-financial firms, based on year-end 2017 market capitalization. A cover letter assured recipients that their answers would be completely confidential and released only in summary form. If the CFOs preferred not to respond to the survey personally, they were asked to give it to someone actively involved in their firm's cash management decisions. Each mailing included a cover letter and a self-addressed stamped envelope. I received 61 responses to the first mailing and 28 from the second, which took place in mid-August 2018. The 89 responses represent a 35.6% response rate.

The survey contains three questions providing background information and 20 closed-end statements on the determinants of corporate cash holdings. The questionnaire contains a copy number to permit testing for non-response bias and to avoid including duplicate responses. The survey instrument is available upon request. I consulted experts in both survey design and in corporate liquidity when designing these statements to avoid including statements that respondents might not properly understand or might not elicit the appropriate information. The survey asks respondents to indicate their level of agreement or disagreement with each statement about corporate cash holdings in large, publicly-held U.S. corporations in general where SD = strongly disagree (-2), D = disagree (-1), UND = undecided (0), A = agree (+1), and SA = strongly agree (+2).

Based on responses to the survey's background questions, the 89 respondents hold high-level positions in their firms: Corporate Secretary (32.6%), CFO (40.4%), Director of Finance (12.4%), Controller (11.2%), and other (3.4%). The vast majority of respondents indicate active involvement in their firm's general liquidity and cash holdings decisions (89.5%). The 89 respondents also work for firms from a wide variety of industry groups.

Steps were taken to increase the response rate and to reduce potential non-response bias by guaranteeing confidentiality and using multiple mailings. To test for non-response bias, characteristics of responding were compared to those of non-responding firms with t-tests for differences in means in sales, dividend payout, total assets, cash-to-total assets, debt-to-total assets, and market-to-book ratio. No statistically significant differences between the two groups for any of these characteristics at the 0.05 level were found. Results are available upon

request.

#### IV. Results

Table 1 contains a summary of Malaysian managers' responses to 20 statements derived from previous research on the determinants of cash holdings. Statements are ranked by their mean response score. While all statements in Table 1 have theoretical or empirical support, respondents generally disagree at the 0.05 level with four of these statements (S3, S5, S13, and S18) as indicated by negative means that are statistically significant. Respondents are generally undecided, with a mean response that does not differ significantly from 0 at the 0.05 level or greater, for three of the statements (S10, S15, and S20). The mean scores of the remaining 13 statements are positive and differ significantly from 0 at the 0.05 level.

Statement		Disagree (%)		U 0	Agree (%)		N	Rank	Mean	t-value
		SD -2	D -1		A 1	SA 2				
S7	Firms prefer holding larger cash balances to avoid the risk of costly financial distress or bankruptcy.	0.00%	1.10%	9.00%	49.40%	40.40%	89	1	1.29	17.99*
S19	Firms strive to hold an optimal level of cash that maximizes shareholder value and operating performance.	0.00%	4.50%	22.50%	36.00%	37.10%	89	2	1.06	11.28*
S2	Firms with greater uncertainty in future cash flows tend to hold more cash to prevent underinvestment in future profitable projects.	1.10%	5.60%	19.10%	57.30%	16.90%	89	3	0.83	9.62*
S1	Firms strive to hold optimal levels of cash that trade off the opportunity costs of holding too much cash against the trading costs of holding too little.	2.20%	7.90%	21.10%	42.70%	25.80%	89	4	0.82	7.87*
S14	Financially constrained firms are more likely to save cash from internally generated cash flows to fund future investment opportunities than firms that are not constrained.	2.20%	7.90%	30.30%	38.20%	21.30%	89	5	0.69	6.65*
S9	Firms with abundant investment opportunities hold higher levels of cash to insulate future capital expenditures from the variability of future internally generated cash flows.	2.20%	11.20%	34.80%	34.80%	16.90%	89	6	0.53	5.09*
S16	At higher levels of debt where financial distress is possible, there is a positive relationship between leverage and cash holdings.	5.60%	13.50%	25.80%	38.20%	16.90%	89	7	0.47	4.05*
S11	Firms with abundant investment opportunities have a strong incentive to hold excess cash in order to maintain their competitive positions.	1.10%	15.70%	37.10%	34.80%	11.20%	89	8	0.39	4.01*
S4	Managers prefer larger cash balances to provide more discretion in their firm's spending and capital expenditure decisions.	4.50%	18.00%	30.30%	31.50%	15.70%	89	9	0.36	3.11*
S8	Firms with higher cash balances will generally invest more in R&D.	4.50%	15.70%	30.30%	41.60%	7.90%	89	10	0.33	3.12*
S6	Larger firms with stronger credit ratings and greater access to the capital markets hold less cash.	2.20%	18.00%	39.30%	33.70%	6.70%	89	11	0.25	2.57*
S12	Because larger firms enjoy economies of scale when issuing securities, they tend to hold smaller cash balances than smaller firms.	5.60%	16.90%	34.80%	32.60%	10.10%	89	12	0.25	2.25*

S17	Firms with higher market-to-book ratios hold higher levels of cash.	4.50%	16.90%	38.20%	32.60%	7.90%	89	13	0.22	2.18*
S20	Firms with greater refinancing risk for their debt hold more cash to help mitigate refinancing risk.	4.50%	14.60%	50.60%	20.20%	10.10%	89	14	0.17	1.66
S15	By holding large cash reserves, a firm can deter competition in the product market and maintain its competitive position.	5.60%	19.10%	43.80%	23.60%	7.90%	89	15	0.09	0.86
S10	Firms base their capital structure decisions on their <i>net debt ratio</i> , where net debt is total debt minus cash holdings.	3.40%	28.10%	34.80%	15.80%	7.90%	89	16	0.07	0.64
S3	Financially constrained firms are more likely to use excess cash flows to increase cash holdings instead of paying down debt than firms that are not financially constrained.	12.40%	32.60%	32.60%	21.30%	1.10%	89	17	-0.34	-3.22*
S18	Firms with higher levels of managerial ownership hold higher levels of cash.	10.20%	30.70%	51.10%	6.80%	1.10%	88	18	-0.42	-4.85*
S13	There is an inverse relation between leverage and cash holdings for firms with low to fairly moderate levels of debt.	15.70%	46.10%	32.60%	5.60%	0.00%	89	19	-0.72	-8.51*
S5	Firms hold excess cash balances to avoid the disciplining effects from the capital markets that may accompany raising funds externally.	25.80%	37.10%	36.00%	1.10%	0.00%	89	20	-0.88	-10.22*

Table 1 Determinants of Corporate Cash Holdings

This table reports managerial views of respondents on 20 statements about corporate cash holdings in Malaysian corporations in general. Table reports managerial views of respondents on statements about cash holdings in Malaysian firms. Respondents use a five-point scale to record their views where **SD** = strongly disagree (-2), **D** = disagree (-1), **UND** = undecided (0), **A** = agree (+1), and **SA** = strongly agree (+2). The t-value is a two-tailed test. Percentages may not add to 100 due to rounding. The statements are ranked in declining order by their means. The t-values followed by an asterisk are statistically significant at the 0.05 level.

The discussion begins with the results of survey responses related to the first research question:

What do Malaysian managers believe are the most important determinants of cash holdings? This study explores various determinants including the effects of leverage and financial distress, refinancing risk, investment opportunities, agency cost explanations, and the effects of financial constraints. Numbers in parentheses after a statement (S#) correspond to the numbers for the survey statements in Table 1. The responses indicate how managers view the statement for Malaysian corporations in general, not for their respective firms.

Results indicate that about 91% of responding managers agree or strongly agree that firms prefer holding larger cash balances to avoid the risk of costly financial distress or bankruptcy (S7). The mean response of 1.29 is the most highly-ranked statement and is highly significant. About 55% of responding managers agree or strongly agree that there is a positive relationship between leverage and cash holdings at higher levels of debt where financial distress is possible (S16). These findings suggest that managers of Malaysian firms believe leverage is an important determinant of a firm's cash holdings, especially for firms with high debt levels that could experience financial distress.

Research by Guney et al. (2007) suggests that cash holdings and leverage are inversely related at lower levels of firm debt. Responses by Malaysian managers in this study do not support that prediction. About 62% of responding managers disagree or strongly disagree with statement S13: "There is an inverse relation between leverage and cash holdings for firms with low to fairly moderate levels of debt" with a mean score of -0.72 that is highly significant. Responding managers, on average, neither agree nor disagree with statement S10 that "Firms base their capital structure decisions on their net debt ratio, where net debt is total debt minus cash holdings."

Firms that borrow face refinancing risk. Survey statement S20 examines whether managers' views are consistent with results by Harford et al. (2014) who posit that firms with greater refinancing risk for their debt will hold more cash. About 51% of responding managers were undecided. While positive, the mean score 0.17 was not significant and this statement was the 14th most highly ranked among the 20 survey statements.

Kim et al. (1998) and Opler et al. (1999) find evidence that cash holdings increase with the level of investment opportunities and the uncertainty in future cash flows. Responding Malaysian managers provide support

for their findings with about 74% agreeing or strongly agreeing that firms with greater uncertainty in their future cash flows tend to hold more cash to prevent underinvestment in future profitable projects (S2). This statement represents the third most highly-ranked statement with a mean of 0.830 that is highly significant. Another 52% of responding managers agree or strongly agree that firms with abundant investment opportunities hold higher levels of cash to insulate future capital expenditures from the variability of future internally generated cash flows (S9). This statement is the sixth most highly-ranked statement with a mean response score of 0.53 that is significant at the 0.05 level.

Baskin (1987) argues that firms with abundant investment opportunities hold excess cash to maintain their competitive positions. Chen et al. (2009) provide evidence that firms hold excess cash to maintain their competitive positions. Managers were asked about their level of agreement with a statement (S11): "Firms with abundant investment opportunities have a strong incentive to hold excess cash in order to maintain their competitive positions." Responding managers, on average, expressed some support for this statement with a mean score of 0.39 that was statistically significant. Responding managers were generally undecided with the statement (S15): "By holding large cash reserves, a firm can deter competition in the product market and maintain its competitive position" with a mean response score that was not significant.

A key issue addressed in previous research is whether agency conflicts within a firm affect its decision to hold cash. Survey results support some of the agency cost explanations. In particular, I find that about 47% of responding managers agree or strongly agree (but with another 31% who are undecided) that managers prefer larger cash balances to provide more discretion in their firm's spending and capital expenditure decisions (S4). With a mean score of 0.36 that is statistically significant, this finding provides support for the agency problems of managerial discretion argument by Jensen (1986). About 41% of respondents agree or strongly agree (with another 38% undecided) that firms with higher market-to-book ratios hold higher levels of cash (S17). The mean response score of 0.22 is statistically significant at the 0.05 level. This finding provides support for Opler et al. (1999) who suggest that firms with high market-to-book ratios are more likely to incur an underinvestment problem due to the agency costs of debt. The support for agency cost explanations (S4 and S17) are tempered somewhat by being only the 9th and 13th most highly-ranked survey statements.

Responding managers also express some support for an agency cost explanation that firms with higher cash balances will generally invest more in R&D (S8). With a mean score of 0.33 that is statistically significant at the 0.05 level, this statement is the 10<sup>th</sup> most highly ranked survey statement.

Responding managers, on average, tend to disagree or strongly disagree that firms with higher levels of managerial ownership hold higher levels of cash (S18) with a mean response score of -0.42 that is statistically significant. Managers also express disagreement, on average, that firms hold excess cash balances to avoid the disciplining effects from the capital markets that may accompany raising funds externally (S5). Statements S18 and S5 represents the 18<sup>th</sup> and 20<sup>th</sup> ranked survey statements, respectively, with negative mean response scores that are statistically significant.

My results find limited support for Almeida, Campello and Weisbach (2004) who find that a firm's cash holdings are affected by whether or not a firm is financially constrained. Managers generally agree that financially constrained firms are more likely to save cash from internally generated cash flows to fund future investment opportunities (S14) with a mean response score of 0.69 that is statistically significant. This statement is the 5th most highly-ranked statement. Responding managers, however, generally disagree with the statement that financially constrained firms are more likely to use excess cash flows to increase cash holdings instead of paying down debt than firms that are not financially constrained (S3). The mean response score for S3 is -0.34 and is statistically significant.

Responses from two additional statements provide additional insight about managers' views of cash determinants and firm size. About 43% of responding managers agree or strongly agree with the statement that large firms tend to hold smaller cash balances than smaller firms because they enjoy economies of scale when issuing securities (S12). This finding is consistent with Opler et al. (1999). About 41% of responding managers agree or strongly agree with the statement that larger firms with stronger credit ratings and greater access to the capital markets hold less cash (S6). While the mean response scores for S12 and S6 are both positive and significant, they are only the 11<sup>th</sup> and 12<sup>th</sup> most highly-ranked statements, respectively.

This study also investigates whether the managers of Malaysian firms believe in a trade-off model for corporate cash holdings. My results offer support for an optimal trade-off approach for cash holdings based on managers' responses from two statements. About 73% of responding Malaysian managers agree or strongly agree that firms strive to hold an optimal level of cash that maximizes shareholder value and operating performance (S19). The mean response score of 1.06 is highly significant and represents the second most-highly ranked statement in Table 1. In addition, about 69% of responding Malaysian managers agree or strongly agree that firms strive to hold optimal levels of cash that trade off the opportunity costs of holding too much cash against the trading costs of holding too little (S1). The mean score of 0.82 is significant and represents the 5<sup>th</sup> most highly-ranked statement. These results support the general notion of an optimal trade-off approach for cash holdings, consistent with studies by Kim et al. (1998) and Opler et al. (1999).

## **V. Conclusions**

Results in this study support previous theoretical and empirical research findings that firms prefer holding larger cash balances to avoid the risk of costly financial distress or bankruptcy, and that firms with greater uncertainty in future cash flows tend to hold more cash to prevent under-investment in future profitable projects. I also find support for the view that the primary cause for a firm's excess cash balances is the accumulation of internally generated cash flows, not the issuance of new securities in the capital markets. I find only weak and mixed support for agency cost explanations and also find evidence that the managers of firms that exhibit high cash flow volatility may hold more cash to ensure the ability to invest in new profitable projects given that internally-generated cash flows exhibit high levels of volatility. Results also provide suggest strong support for an optimal trade-off approach to cash holdings.

## Works Citation

- Acharya, V., Almeida, H. & Campello, M. (2013). Aggregate risk and the choice between cash and lines of credit. *Journal of Finance*, 68(5), 2059-2116.
- Al-Najjar, B. (2013). The financial determinants of corporate cash holdings: Evidence from some emerging markets. *International Business Review*, 22(1), 77-88.
- Almeida, H., Campello, M., & Weisbach, M. (2004). The cash flow sensitivity of cash. *Journal of Finance*, 59(4), 1777-1804.
- Azar, J., Kagy, J. & Schmalz, M. (2016). Can changes in the cost of carry explain the dynamics of corporate “cash” holdings? *The Review of Financial Studies*, 29(8), 2194–2240.
- Bakke, T. & Tiantian, G. (2017). Diversification and cash dynamics. *Journal of Financial Economics*, 123(3), 580-601.
- Barclay, M. & Smith Jr., C. (1996). On financial architecture: leverage, maturity, and priority. *Journal of Applied Corporate Finance*, 8(4), 4-17.
- Baskin, J. (1987). Corporate liquidity in games of monopoly power. *The Review of Economics and Statistics*, 69(2), 312-319.
- Blissa, B., Chengb Y., & Denis, D. (2015). Corporate payout, cash retention, and the supply of credit: Evidence from the 2008–2009 credit crisis. *Journal of Financial Economics*, 115(3), 521-540.
- Chang, K. & Noorbakhsh, A. (2009). Does national culture affect international corporate cash holdings? *Journal of Multinational Financial Management*, 19(5), 323-42.
- Chen, Y. & Chuang, W. (2009). Alignment or entrenchment? Corporate governance and cash holdings in growing firms. *Journal of Business Research*, 62(11), 1200-1206.
- Dittmar, A. & Mahrt-Smith, J. (2007). Corporate governance and the value of cash holdings. *Journal of Financial Economics*, 83(3), 599-634.
- Duchin, R. (2010). Cash holdings and corporate diversification. *Journal of Finance*, 65(3), 955-992.
- Fazzari, S. & Petersen, B. (1993). Working capital and fixed investment: New evidence on financing constraints. *The RAND Journal of Economics*, 24(3), 328-342.
- Ghaly, M., Dang, V. & Stathopoulos, K. (2017). Cash holdings and labor heterogeneity: The role of skilled labor. *The Review of Financial Studies*, 30(10), 3636-3668.
- Guney, Y., Ozkan, A. & Ozkan, N. (2007). International evidence on the non-linear Impact of leverage on corporate cash holdings. *Journal of Multinational Financial Management*, 17(1), 45-60.
- Harford, J. (1999). Corporate cash reserves and acquisitions. *Journal of Finance*, 54(6), 1969-1997.
- Harford, J., Klasa, S. & Maxwell, W. (2014). Refinancing risk and cash holdings. *Journal of Finance*, 69(3), 975-1012.
- Horioka, C. & Terada-Hagiwara, A. (2014). Corporate cash holding in Asia. *Asian Economic Journal*, Volume 28, Issue 4, December 2014, 28(4), 323-345.
- Jensen, M. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *The American Economic Review*, 76(2), 323-329.
- Kim, C., Mauer, D. & Sherman, A. (1998). A. The determinants of corporate liquidity: Theory and evidence. *Journal of Financial and Quantitative Analysis*, 33(3), 335-359.
- Myers, S. (1977). Determinants of corporate borrowing. *Journal of Financial Economics*, 5(2), 147-175.
- Nikolov, B. & Whited, T. (2014). Agency conflicts and cash: estimates from a dynamic model. *Journal of Finance*, 69(5), 1883-1921.
- Opler, T., Pinkowitz, L., Stulz, R., & Williamson, R. (1989). 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), 2103-34.
- Papaiouannou, G., Strock, E. & Travlos, N. (1992). Ownership structure and corporate liquidity policy. *Managerial and Decision Economics*, 13(4), 315-22.
- Pinkowitz, L., Stulz, R., & Williamson, R. (2016). Do U.S. firms hold more cash than foreign firms do? *The Review of Financial Studies*, 29(2), 309–348.
- Stulz, R. (1990). Managerial discretion and optimal financing policies. *Journal of Financial Economics*, 26(1), 3-27.
- Whited, T. (1992). Debt, liquidity constraints, and corporate investment: Evidence from panel data. *Journal of Finance*, 47(4), 1425-1460.