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Determinants of Corporate Cash Holdings

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CLAREMONT McKENNA COLLEGE
DETERMINANTS OF CORPORATE CASH HOLDINGS

SUBMITTED TO
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In loving memory of my Grandmother

Abstract

The paper explores the driving forces behind corporate cash holdings by analyzing past literature and extending this research to the behavior of firms after the 2008 recession. I look at the cash to assets and net debt to assets ratios from October 1980 to October 2011 to obtain an understanding of the past and current state of cash holdings. A comprehensive literature review is done on agency costs and transactional motives to give the reader an overview of the costs and benefits of holding cash. This provides the foundation for the precautionary motives for companies today to keep cash as a risk management tool.

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Introduction

Since the 2008 recession, significant media attention has been paid to the large cash holdings of US corporations. According to *The Wall Street Journal*, nonfinancial companies in 2010 had \$1.84 trillion on their books, a 26 percent increase from the prior year.¹ Reporters and scholars both argue that the recession has led to a behavioral change to hold more cash. This is because the economic downturn had revealed the lack of liquidity and the inability of even large companies to repay debt or purchase inventory. Later on 29 July 2011, BBC news reported that Apple had reached a point in which it held more cash than the US government. Apple's financials showed a cash balance of \$76.8 billion while the US Treasury Department reported cash reserves of \$73.7 billion.² But more surprisingly, Apple's mountain of cash was not formed in response to the financial crisis. Instead even before late 2008, the high demand of Apple products had allowed it to increase its cash holdings from \$12 billion in 2006 to \$28 billion in 2008.³ Therefore, the recent build-up of large cash reserves must be explained by more than simply a precautionary measure.

In Thomas Bates' *Why do US Firms Hold so Much More Cash than They Used to?*, he takes the average cash to assets ratio for US industrial firms from 1980 to 2006. The findings concluded that the average cash ratio more than doubles from 10.5% to 23.2% over the sample period.⁴ This evidence reinforces the fact that the recent increase in cash holdings is not recent at all. Instead, this trend has continued throughout history and stems from a far deeper explanation of the additional benefit of holding cash.

¹ *Wall Street Journal*, 10 June 2010

² *BBC – Homepage*, 29 July 2011

³ *CNN*, 23 Feb. 2009

⁴ Bates, pg 1985

In this paper, I seek to identify these factors through both analyses of current literature and my own thoughts on the determinants of corporate cash holdings. The paper will begin with a look at the costs and benefits for firms to hold cash. Then, it will cover more in-depth explanations derived from past findings and theories. After looking at these articles, I will develop my own take based on these arguments as well as through my own research. This study will exclude financial companies and all mentions of firms will refer to nonfinancial ones.

What Does Cash Mean to a Company?

Cash can often be defined as some form of currency used for the exchange of goods or services. Yet in an accounting sense, cash is a non-operating asset that every firm has on its books. To keep cash means liquidity for a company and the ability to pay back debt. It also gives a company the financial flexibility to make inventory purchases or even make strategic acquisitions. In addition, steady positive cash flows are viewed positively by investors and lenders as a sign of a stable company. However, having money just sitting in the bank also means a decrease in value due to the time value of money. A company may also miss out on investing in positive net present value projects that will improve and grow the company. Therefore, hoarding cash is a sign that management may be extremely conservative, which is not necessarily beneficial unless the company is strategically waiting to make a large purchase. On a macroeconomic level when companies do not invest, there are fewer jobs and less demand for products. As a result, less consumption will cause the economy to remain stagnant. Even if interest rates fall, we can see that today's companies are not actively taking on debt since they already have cash on their books to fund projects.

A simple solution to large cash holdings would be to start issuing dividends to shareholders. Yet this would also place pressures on management to consistently pay shareholders on a going forward basis. A sudden stoppage in dividends is often seen as a negative sign and will cause stock prices to fall. Therefore, companies are unwilling to begin issuing dividends and would rather sit on cash.

According to Keynes, the three motives for individuals to hold cash are for “precautionary, transactional, and speculative purposes.”⁵ These can be seen as some of the main operational reasons for why businesses hold cash. However, the relationship between managers and shareholders creates an added dynamic.

⁵ Damodaran, pg4

The Agency Problem and Free Cash Flow Theory

The interests of managers and shareholders are often at odds with each other. While shareholders focus on ownership and stock value, managers often look to grow the company and increase sales numbers, which determine the amount of compensation received and potential promotions. When the question of cash is presented to this situation, managers have the choice of investing these resources or holding onto them, creating the perfect scenario for value destruction. Adam Smith best characterizes it, “negligence and profusion, therefore, must prevail, more or less, in the management of the affairs of such compan[ies].”⁶ Therefore, the issue of corporate cash holdings has risen as increased free cash flow has given management access to substantial amounts of capital that can be used at their discretion. Managers have essentially the following three options: issue dividends, begin share buybacks, or purchase other companies. On one hand as discussed previously, dividends are not in the interest of managers since this creates the pressure of having consistent payouts. On the other hand, shareholders do not necessarily want share buybacks since they are losing ownership in a company and on future stock price increases. Good acquisitions will benefit both managers and shareholders, but these purchases actually hurt the company more often than not as we will see in later discussion. Hence, the agency problem arises as entrenched managers may make decisions that can significantly impact the company without shareholder input. This leads to the free cash flow theory, which “predicts that mergers and takeovers are more likely to destroy, rather than to create, value.”⁷ As a result, there have been

⁶ Dittmar, pg 1

⁷ Jenson, pg 11

extensive studies on the relationship between corporate governance and cash holdings to find solutions to avoid losses caused by taking on bad investments.

Michael Jensen's *Agency Costs of Free cash Flow, Corporate Finance, and Takeovers* presents a solution to motivate managers to spend their cash effectively rather than wasting it on negative net present value projects. Such projects are taken on since the abundant cash on a company's books decreases the cost of financing, resulting in a lower discount rate. Therefore, a previously bad investment may suddenly seem like a great option. Yet often times, these projects are riskier and do not benefit the company. Jensen proposes debt as a way to replace problems caused by dividends and disgorge managers of cash. Promises of permanent increases in dividends are often very weak since these dividends can be easily reduced in the future.⁸ These decreases are then viewed negatively by capital markets, which cause stock prices to fall significantly. Therefore, Jensen suggests the issuance of debt in exchange for stock from shareholders. This practice not only ensures the future payments of free cash flows to shareholders, but also incentives managers to act in the interest of the company. "The threat caused by failure to make debt service payments serves as an effective motivating force to make such organizations more efficient."⁹ Such a proposal must be enforced by a company's board of directors to reduce the agency costs of free cash flow. An additional advantage of repurchasing stock for debt or cash is the tax shield generated from interest payments and "that part of the repurchase proceeds equal to the seller's tax basis in the stock is not taxed at all."¹⁰ Nevertheless, this plan has its limits as increased leverage can benefit a company to a certain point. If the optimal capital structure is reached, any point past this

⁸ Jensen, pg 3

⁹ Jensen, pg 3

¹⁰ Jensen, pg 4

would cause the company to become more risky and less likely to obtain financing. As a result, this proposal would be most ideal in firms with large cash flows but low growth since these firms are most prone to investing in unprofitable ventures in an attempt to expand. In all, Jensen identifies that entrenched management and weak shareholder rights often results in high cash holdings, which can be detrimental to firm value.

This correlation between weak shareholder protection and increased cash holdings is expanded upon in Ivalina Kalcheva's *International Evidence on Cash Holdings and Expected Managerial Agency Problems*. The paper does a regression analysis with the cash to asset ratio as the dependent variable and has various independent variables including ownership, shareholder rights, and managerial control. It looks at approximately 5,000 firms from 31 different countries and finds "moderate...evidence that entrenched managers hold more cash and that this relation is stronger when country-level external shareholder protection is weak."¹¹ This is largely due to managerial entrenchment, which is measured in three ways by Kalcheva. First, it looks at the percentage of rights held by the management group and its family. The second way takes into consideration the votes held by other blockholders by creating a dummy variable, which is equal to one if the management group and its family is the largest blockholder of a firm's control rights. The final measurement is also a dummy variable that is set to one if the management's control rights exceed 20 percent and is greater in size than all of the blockholder rights.¹² The interaction between these variable produced a positive coefficient that was statistically significant. However, the R squared for these regressions was fairly low, so only around 15 percent of the variation in cash holdings is explained

¹¹ Kalcheva, pg 1

¹² Kalcheva, pg 8

by variation in managerial control. Kalcheva goes even more in depth by looking at the perceived value of cash when there is poor shareholder protection. The tests show that an “incremental dollar held inside an average firm has a marginal value of \$0.76 to outside shareholders, unless managers are the largest blockholder, in which case the dollar is discounted to \$0.39.”¹³ This proves that a company with great amounts of cash but entrenched management may not be valued as highly as a company with less cash but stronger shareholder rights. Management may think that holding more cash gives them more control, but they do not see this loss in value.

Henock Louis’ *Value of Cash Holdings and Accounting Conservatism* looks at the overall market value of an additional dollar in cash holdings with increases in accounting conservatism. Examining the value of cash holdings is just as important as tracking how much cash a company has. This is because a firm may very well be keeping large amounts of cash in order to compensate for its low market to book value of cash. According to Louis, this value changes with variations in accounting conservatism. He produces a regression model with the dependent variable as abnormal stock return and among the independent variables are change in cash and two proxies for conservatism. CON-AC is the “negative of the ratio of nonoperating accruals to total assets cumulate over the previous three years.” CON-CR is a conditional conservatism ratio developed by Callen, Segal, and Hope (2010) and that “measures the percentage of a shock to total current and future earnings recognized in current period earnings.”¹⁴ These two measures are a good representation of conservatism since they look at a company’s reporting policies and managerial discretion. Both CON-AC and CON-CR produced a positive

¹³ Kalcheva, pg 1

¹⁴ Louis, pg 7-8

relationship between accounting conservatism and market value of cash. Louis argues that these findings confirm that conservatism can serve as a form of external monitoring that can ease the agency conflicts between managers and shareholders.¹⁵ Thus, conservatism creates a self-check since managers have to follow corporate policies that closely monitor the use of cash and prevents value destroying investments. An additional finding is that cash holdings actually increase as conservatism is added to the regression model. This may seem counter-intuitive at first since cash with higher value means that a company can hold less of it. However, conservatism also means that shareholders trust management more in their decisions, so more cash can be safely left in the hands of managers. Meanwhile, although managers may be more conservative, they still seek to maximize sales and growth in order to receive more compensation.

Therefore, we now look at Yixin Liu's *Corporate Cash Holdings and CEO Compensation Incentives* to find the relationship between the level of cash and management incentives. On paper, management's goal should be to maximize shareholder value and equity-based compensation should reinforce this objective. However, Liu identifies that the side effect of such practices is that managers will take on risky positions in order to increase the market value of equity at the expense of bondholders.¹⁶ In order to see the effect on cash, data is first collected on the sensitivity of a CEO's own-firm wealth to change in stock price and stock price volatility. This forms a variable called vega, which is a measure of a CEO's risk-taking incentive. Controlling for firm characteristics and corporate governance, Liu is able to find a

¹⁵ Louis, pg 24

¹⁶ Liu, pg 1

positive relationship between vega and cash holdings.¹⁷ One explanation for this relationship is the fact that higher risk taking may make debt more expensive, causing the company to hold more cash to fund future projects. Liu calls this the “costly external finance hypothesis,” which results in debt holders requiring liquidity covenants.¹⁸ Thus, a cash cushion is required to hedge the risky ventures entered by managers and create a more reasonable capital structure. Another reason for the cash build-up is the “costly contracting hypothesis.”¹⁹ Liu claims that bondholders require firms to have excess cash holdings to serve as a reserve for potential losses from bad investments. Thus, equity compensation drives managers to take on more risk and grow the company. This risk-taking propensity or vega forces the managers to keep more cash on their books in order to maintain their current practices without damaging the firm. Overall, there is an indirect relationship between managerial compensation and cash holdings.

Gary Powell’s *Management Views on Corporate Cash Holdings* offers some unique insight on this issue through a survey of CFOs in 1,000 large US companies and their opinion on corporate cash holdings. This study was done in 2009 using three questions providing background information, 27 closed-end statements on the determinants of corporate cash holdings, and 12 statements on the effects of corporate governance on cash holdings.²⁰ The CFO’s then choose from one of the following answers: strongly disagree (-2), disagree (-1), undecided (0), agree (1), and strongly agree (2). These responses are assigned values in order to obtain a mean and rank for each statement. This method not only provides a numerical response, but also creates a fairly

¹⁷ Liu, pg 2

¹⁸ Liu, pg 3

¹⁹ Liu, pg 25

²⁰ Powell, pg 12

objective viewpoint since the CFOs are asked about their perception of large, publicly-held US companies as a whole. The first significant result was that 72 percent of managers agree or strongly agree with the statement:

“Firms strive to hold optimal levels of cash that trade off the opportunity cost of holding too much cash against the trading costs of holding too little.”²¹

This may seem like a very reserved position by managers since they only wish to keep as much cash as needed to pay back debt or buy inventory. Yet, 72 percent of the managers also generally agree that:

“Firms with greater uncertainty in their future cash flows tend to hold more cash to prevent underinvestment in profitable projects and firms with abundant investment opportunities hold higher levels of cash to insulate future capital expenditures from the variability of internally generated cash flows.”²²

These answers reinforce our previous discussion of the conservatism factor among managers. They do not simply hold an optimal level of cash since that is almost impossible to identify. Instead, managers keep as much cash as they think the company will need and a little more on top of that to ensure liquidity. Managers expressed the most disagreement with the following two statements even though they were statistically significant at the .01 level:

“Firms with higher levels of managerial ownership tend to hold higher levels of cash; firms hold excess cash balances to avoid the disciplining effects from the capital markets that may accompany raising funds externally.”²³

²¹ Powell, pg 15

²² Powell, pg 15

²³ Powell, pg 16

It is quite interesting that managers would vote these statements down when empirical evidence from previous literature begs to differ. Managers may have responded negatively to the first since this is more of a personal question as they do not want to be accused of hoarding cash, which is understandable. However, it is strange that they would deny the costly debt financing they would have to face if interest rates fluctuated. Nevertheless, their reasoning could be that their motive for holding cash would be for future investments as the previous statements they expressed agreement with pointed out. Therefore, the type of questions being asked here may have altered the responses or suggested a more accurate answer in some cases.

The second part of Powell's survey focused on the corporate governance effects on cash holdings. The responses to this section of the study are more in line with the findings by past scholars.

“About 66% of the responding managers generally agree with the statement that entrenched managers are more likely to accumulate large, unused cash stockpiles than managers of firms with strong corporate governance mechanisms.”²⁴

The support for this statement reinforces our discussion of Kalcheva's paper and identifies the problem with entrenched managers. The percentage that is in agreement with this statement may seem lower, but it is the most highly-ranked one in this part of the survey. The majority of the CFOs being surveyed responded positively since this question is phrased in such a way that the “entrenched managers” seem to be describing a completely different demographic of managers. Therefore, the respondents disassociate themselves from this group and are more willing to agree with this statement. The study goes on to report that 63% of managers agreed with the next statement: “Firms with

²⁴ Powell, pg 20

stronger corporate governance mechanisms that protect investors tend to hold smaller cash balances.”²⁵ Again, we can see that both managers and scholars have a similar view that corporate governance is a strong determinant of cash holdings. Powell’s study brings a new perspective to this discussion, which has been dominated by scholarly articles and theories. It reaffirms some of the pre-established notions, yet also brings in new insights on how managers feel about the topic. An interesting finding is that although firms with stronger corporate governance hold less cash, growing firms are expected to have higher levels of cash as long as there are governance mechanisms that protect investors’ interests.²⁶ This creates an added dynamic since there has been evidence that more cash holdings are a result of poor governance.

The above literature gives us a good understanding of how the quality of management and controls in place can affect corporate cash holdings. The agency problem and free cash flow theory do generate substantial concern over value destroying investments and the discretion of management. However, we can see that effective corporate governance can limit these risks and allow companies to potentially achieve an optimal level of cash. The incentives and motivations for managers also play a large part since certain compensation methods and lack of monitoring can prove to be costly. It seems like managers are like misbehaving children, who left on their own terms shall surely cause problems. Cash is the trust shareholders place with these individuals to manage as long as they behave. Therefore, a strong board of directors must be in place to discipline the managers through policing and rules that should become more stringent as cash holdings rise.

²⁵ Powell, pg 20

²⁶ Powell, pg 23

Operational Motives

Companies need liquidity to function, but they will also keep cash for a variety of strategic reasons. Shareholder rights or management motives do not matter since these are conscious decisions approved by the board to take in order to gain a competitive advantage in the market. Cash gives a company the ability to be flexible in making decisions and is frequently the easiest solution to problems. If there was a sudden fire that destroyed a store of a retail company, this company would not have to wait for money from insurance and have the ability to quickly rebuild. Otherwise, the company would have to seek out debt financing, which will be considerably more expensive since debt results in both interest payments and more leverage that can increase the riskiness of the overall firm. A company with readily available cash can not only take advantage in such a situation, but it can also have a competitive edge if it was bidding over an acquisition. As a result, we can see how important cash is to all kinds of businesses. However, there are several more reasons why companies today are holding an exorbitant amount of cash.

Aswath Damodaran's *Dealing with Cash Cross Holdings, and Other Non-operating Assets: Approaches and Implications* outlines a variety of key motives for cash reserves. First, the type of business determines the cash needs of a company. Retail stores are required to be more liquid in order to constantly purchase inventory to adjust for the cyclical nature of demand. A service-based company will not have to hold as much cash since its main expense would be the salaries that occur on a scheduled basis. Damodaran also emphasizes the difference between cash oriented versus credit oriented businesses.²⁷ This explanation brings about the opportunity to highlight the trends on the credit policies of

²⁷ Damodaran, pg 4

today's companies. In the past, large retailers offered their own rewards card, which served as a credit card as well. These cards were widely promoted until the retailers realized the added costs and risks associated with credit cards as their bad debts increased. Therefore, fewer stores now offer such services and rely on more traditional credit card companies. This gives companies the ability to have a minimal receivables account as they immediately obtain cash on purchases. As a result, the decreasing trend of credit-granting stores adds to the increase in cash holdings today. The second transactional motive lies with precautionary holdings by managers to shield against unexpected charges. Damodaran agrees with scholars that the current recession plays a large factor as a volatile economy will induce managers to hold onto cash and have the ability to face sudden swings in the market.²⁸ Emphasis is also given to the operational and competitive environment of these companies. Companies with uncertain free cash flows are more likely to have more cash. Technology companies, which fall into this category, "often have large cash balances precisely because they are so uncertain about their future earnings."²⁹ Thus, Apple can now justify their large cash holdings because earnings in the technology sector are more volatile. In addition, competition may force firms to hold more cash since there is increased pressure on supplier options and market dominance. Third, strategically holding cash for future investments provides company with the option to take on projects that they otherwise would not be able to fund. "Firms will set aside cash to cover future investment needs; if they fail to do so, they run the risk of turning away worthwhile investments."³⁰ As a result, companies that face more expensive capital markets and limited financing options choose to keep more cash. These

²⁸ Damodaran, pg 5

²⁹ Damodaran, pg 5

³⁰ Damodaran, pg 6

companies are often smaller businesses that are in emerging markets since such companies have lower credit scores and very little established reputation. Moreover, capital will be harder to generate if there is asymmetric information where “external investors have less information about the potential payoffs than the firm does.”³¹ This explains why R&D intensive firms will have more cash since lenders have difficulty assessing the probability of a successful project. However, most of these companies will not simply have an equity dominated capital structure since this makes them lose out on the tax benefits of debt. They must weigh the costs and benefits before an optimal balance of debt and equity is achieved. In all, market movements have a good deal of influence on management’s decision to retain cash, yet a company’s tax policies must also be looked at.

Why do Firms hold so much cash? A tax-based explanation by C. Fritz Foley investigates the effect of repatriation taxes on cash stashes overseas. US multinationals choose to keep their earnings overseas in low tax countries in order to avoid having to pay high tax costs of repatriating these funds to the US. The US obligates these companies to pay taxes on foreign income, but grants tax credits for foreign income taxes paid abroad. “Taxes due upon repatriation are equal to the difference between foreign income taxes paid and the tax payments that would be due if earnings were taxed at the US rate.”³² Therefore, there is no incentive for multinationals to repatriate their cash promptly unless there is a sudden liquidity crunch. These earnings are placed in low tax jurisdictions in order to avoid foreign income taxes. Foley’s regression output concludes that “one standard deviation increase in tax costs associated with repatriations is

³¹ Damodaran, pg 7

³² Foley, pg 4

associated with a 7.9% increase in the ratio of cash to net assets.”³³ This supports past literature that repatriation taxes play a big factor in influencing companies to hold onto cash. In addition, “the median firm facing an above average repatriation tax burden holds 47% of its cash abroad, but the median firm facing a below average repatriation tax burden holds only 26% of its cash abroad.”³⁴ Companies with incorporated affiliates in foreign nations choose to leave this cash overseas despite having their main operations in the US. This is a cause for concern for the US government since less domestic investment would occur due to costs of repatriation. Therefore, in 2004, President George W. Bush approved a tax repatriation holiday through the American Job Creation Act.³⁵ This allowed companies to bring back their cash for a comparably lower tax rate than usual. Billions of dollars were sent back by companies, yet the results were the not quite what the government had hoped for. Instead of having a dramatic increase in investing that would stimulate the economy, companies used these funds to reward managers or buy back shares. As a result, there has been little support for another tax repatriation holiday, and multinationals seem to be happy to keep their cash in tax havens. Foley also suggests that technology companies are extremely sensitive to repatriation taxes and more often move funds to low-tax jurisdictions. “Technology intensive firms typically have high profit margins and intangible assets like intellectual property that are easy to transfer within the firm.”³⁶ This means that a company like Apple would be able to have its foreign affiliates purchase intellectual property from its parent before the project is successful. Thus, Apple can avoid taxes on profitable R&D ventures through these

³³ Foley, pg 3

³⁴ Foley, pg 3

³⁵ Foley, pg 25

³⁶ Foley, pg 7

loopholes. Foley's findings strengthen the argument that multinationals hold larger amounts of cash to avoid triggering repatriation taxes. Overall, companies must decide whether keeping so much cash on their books actually minimizes their tax exposure.

Scholars have repeatedly suggested the use of dividends as a solution, yet Eugene F. Fama contends that dividends are taxed at a higher rate than capital gains. Fama's *Disappearing Dividends: Changing Firm Characteristics or Lower Propensity to Pay?* studies the changing nature of companies as well as their dividend payout policies. Although the paper only covers dividend payers from 1926 to 1999, its trends and findings are representative of why companies today have increasing levels of cash. Data from NYSE, AMEX, and NASDAQ firms show that the percent of dividend payers reach a peak of 66.5 percent in 1978 but falls to only 20.8 percent in 1999.³⁷ The changing characteristics of newly listed firms play a great factor in this trend. IPOs have traditionally been small firms with high asset growth rates, but what changes in 1999 is the profitability. Earnings of new lists amount to only 2.07 percent of book equity from 1993-1998 while other firms reported earnings of 11.26 percent.³⁸ As a result, this deterioration in profitability has led firms to pay less or even no dividends. In fact, only 3.7 percent of new lists paid dividends in 1999 and an average of 5 percent of previous payers stopped paying each year during 1978-99.³⁹ This shows that not only was there a decline in payers, but also a lack of new payers to replace them. Therefore, companies in general were seeing less value in paying dividends and more value in holding cash. Past research has shown that the tax disadvantage of dividends has convinced firms to increase share repurchases as a substitute for dividends. Share repurchases generate lower

³⁷ Fama, pg 1

³⁸ Fama, pg 2

³⁹ Fama, pg 2-5

taxed capital gains for stockholders but still require a cash payout. Fama argues that repurchases do not simply serve as a substitute, but instead they are used by current dividend payers to increase already high cash payouts.⁴⁰ This point is important as these dividend paying firms account for 23.6 percent of the firms yet account for 91.7 percent of common stock earnings.⁴¹ Therefore, this may skew the results to show that nonpayers utilize share buybacks instead of dividends when actually dividend payers account for most of the share buybacks. This may lead to speculation that these nonpayers are mostly low-profit firms that cannot pay out dividends. However, Fama indicates that “the surge in unprofitable non-paying new lists in the 1980s and 1990s keeps the aggregate profits of non-payers low even though the non-payer group includes an increasing fraction of firms with positive earnings – firms that in the past would pay dividends.”⁴² This proves that there is an overall lower propensity to pay dividends for more recent lists. As more new lists choose not to pay dividends, such behavior can be seen as a change in characteristics of firms and an increase in the inclination to keep more cash. Therefore, this transformation of company policy to cease paying dividends has continued today and is one of the key reasons for large cash holdings.

Taking a look at these past studies allows us to break down why companies have chosen to keep cash despite the potential problems and risks associated with agency costs. Recent market volatility, repatriation taxes, and changing firm characteristics all play a large part in making firms choose to hold cash. Each motive derives its influence from firms trying to avoid earnings volatility as the costs of doing business have increased through time with more modern technology and operational risks.

⁴⁰ Fama, pg 23-24

⁴¹ Fama, pg 26

⁴² Fama, pg 26

Looking at the Cash Ratio and Net Debt

An important and effect measure of cash holdings is the cash to assets ratio, which has been used by researchers to examine corporate cash holdings. Instead of simply looking at cash amounts, this ratio adjusts for the time value of money and gives us a better picture of the firm's change in cash levels over time. Thomas Bates' *Why do US Firms Hold so Much More Cash than They Used To?* takes a look at this ratio from 1980 to 2006. His findings show a dramatic increase in cash holdings during this time period for non-dividend paying firms, recent IPO listing firms, and companies in industries with great idiosyncratic risk. These reasons all fall in line with previous literature and create more support that the increase in cash holdings is much more than a recent phenomenon. Running a regression shows a positive correlation between the cash ratio and time, reporting an increase of 0.46% per year.⁴³ Bates' findings report that the main reasons for this increase are that "inventories have fallen, cash flow risk for firms has increased, capital expenditures have fallen, and R&D expenditures have increased."⁴⁴ These results point to Fama's argument that firm characteristics have changed throughout the years. Companies choose to hold onto less inventory as they seek to hold more cash and have smoother earnings. R&D expenses are interesting since it is much more expensive to obtain external financing for these projects. This is because of the problem of asymmetric information, which makes the success of R&D questionable to debtors. Therefore, R&D intensive firms choose to have more cash as a form of internal financing. As Bates analyzes the cash ratio, he also makes a brief point about significance of the net debt to assets ratio, which I find very interesting.

⁴³ Bates, pg 1985

⁴⁴ Bates, pg 2018

I take a look at both the net debt and cash ratios and extend this research from October 1980 to October 2011 by using a sample from WRDS Compustat files. To form these ratios, I obtained data on total assets, cash and short-term investments, total debt in current liabilities, and total long-term debt. In addition, I dropped financial and real estate companies (SIC codes 5200-5399) since they hold large amounts of cash for capital requirements. Also, I removed utilities (SIC codes 2200-2399) because of set cash amounts due to regulation. Utilizing STATA software, I first found the cash ratio by dividing cash and short-term investments by total assets. Then, the net debt ratio was generated by first adding current liabilities and long-term debt to get total debt. Cash and short-term investments were then subtracted from this number, and the result was divided by total assets. Before calculating the mean and medians of these ratios, I winsorized the data to deal with any outliers that might skew my calculations. I only wanted winsorization of the bottom 1 percent and top 99 percent, which set any observations below the first percentile equal to the first percentile and anything above the 99th percentile equal to the 99th percentile. Looking at the mean gives us a fair assessment about the overall level of cash holdings. However, the median allows us to see if the data might have been skewed by a couple firms with extremely large cash holdings.

Once I collapsed the data into means and medians for each year, I graphed the results in **Graph A** and **Graph B**. The cash to assets ratio is displayed in **Graph A**, which shows a substantial spike in recent years. The mean reaches close to 24 percent after hitting a low point of about 17 percent in 2008. This makes sense since many firms during the recession were hit hard and used up much of their liquidity to ride out the volatile markets. The difference between the mean and the median does indicate that a

few firms hold substantially more cash than others. However, the difference is insignificant for our purposes as the trend of the mean is approximately parallel to that of the median. The net debt to assets ratio is shown in **Graph B**, and we can see a very pronounced decrease into the negatives in recent years. There is a build-up in net debt that hits a peak at around 12 percent in 2008 and then a sudden and very steep fall to around negative 4 percent in October 2011. The mean and median follow a very close path and have similar values. Despite there being fluctuations of net debt, the overall trend is still downward sloping, which verifies Bates' findings. Net debt provides a better picture since it represents the true amount of excess cash a firm holds. This excess cash is more important than just the total amount of cash since this represents extra liquidity that is not obligated to any debt. Therefore, large cash holdings are insignificant if these amounts cannot cover its total debt. The phenomena we see today is that the average company holds cash amounts greater than its debt, which is the first instance since 1980 according to data collected. This is the real reason for the extensive amount of media coverage on the amount of cash firms have on their books.

Conclusion

Corporate cash holdings have caused great concern for economists since the lack of spending has hurt the recovery of the US economy. However, the situation is not as simple since there has been a gradual increase of cash levels. Managers today choose not to issue dividends or buy back shares, following the non-payer trend identified by Fama. As more cash is available to the discretion of management, shareholders have to worry about value destroying investments that must be regulated through a conservative policy issued by the board of directors. Nevertheless, firms have carefully made the decision to hold cash as they try to avoid repatriation taxes and achieve an ideal capital structure. The most significant reason for holding cash after the 2008 recession is to keep it as a form of risk management. From the net debt ratios, we can see that companies are holding more cash than debt and effectively changing their capital structures. Risk management can be achieved through the use of financial instruments, operational changes, or modifying the capital structure. Today's economy makes the use of derivatives quite risky and unpredictable. Adjusting operations can only achieve so much and is often very expensive. The best choice for companies seems to be holding more cash to hedge against market movements. Cash is a risk-free asset that gives companies the most leeway and is an important requirement for seeking future loans. Therefore, cash is no longer simply a balance sheet line-item that is used to purchase inventory. Instead, it is a risk management technique that produces more benefits despite the costs of losing a tax shield. After all of these years, cash is still king as this theoretical debate has shown. My research has produced an update to past literature and has concluded that the current levels of cash are formed as a hedge against volatility.

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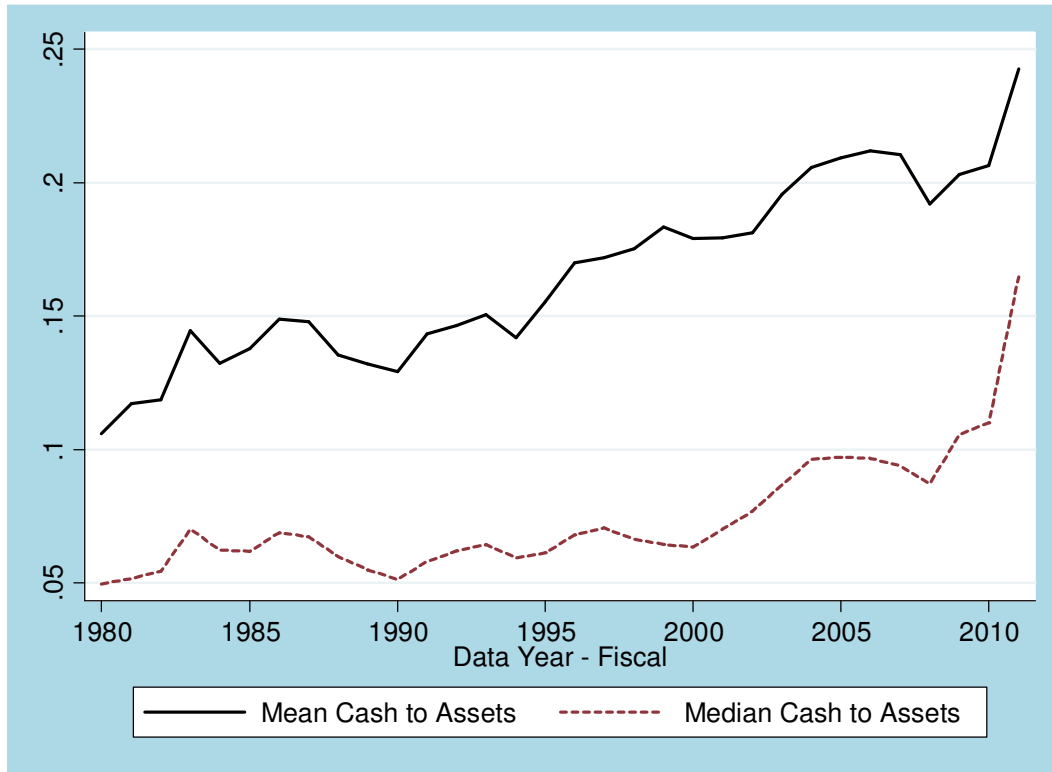
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Graph A

Cash to Assets



Graph B

Net Debt to Assets

