Corporate Market Investments

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Abstract

This paper studies non-financial corporate market investment and reexamines the hypothesis that market investments are simply a store of excess cash. Traditional investment in U.S. Treasury securities has evolved into a diverse investment portfolio. Like cash, market investments are positively associated with financial distress costs. Unlike cash, market investments are positively associated with firm size. Though decreasing in growth opportunities, market investment use appears to be consistent with value enhancement. The most robust findings support the use of market investments to manage future financial commitments and payout policy, not business risk; business risk increases with market investment.

Keywords: Market Investment, Cash, Payout Policy, Financial Distress

JEL Classification: G30, G31, G32, G38, G39, G11

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1. Introduction

The belief that corporate market investment is simply a store of excess cash (Jeffers and Kwon, 1969) seems to be beyond inquiry[1]. Yet this belief, or cash equivalence hypothesis, requires qualifications, for it is rooted in pre-1960 studies of corporate market investment (Frazer, 1958). During this period corporate market investments were characterized by relatively moderate amounts of funds in government securities. Over time however, managers of non-financial corporations (or firms) have been investing less in Treasuries, and more in other types of securities (Jacobs, 1960; Heston, 1962; Scott, 1979). Nowadays market investment can be substantial, and can constitute well over 30% of total assets for many non-financial corporations. This paper reexamines the belief that corporate market investment is equivalent to cash.

Unconvinced by the cash equivalence hypothesis, Scott (1979) offers a compelling view of corporate market investments. He argues that market investments should be viewed in the same manner as we view capital investments. Simply put, market investment and capital investment should have a common decision-making process[2]and managers should make market investments in an effort to increase shareholder wealth.

This paper evaluates the relative merits of the cash equivalence hypothesis (Jeffers and Kwon, 1969) and the value maximization hypothesis (Scott, 1979). Are corporate market investments simply a store of cash? Are market investments equivalent to cash? Given the change in market investment size in recent years, do managers use corporate market investments

[1] Most recent studies take the liquidity hypothesis as given and define marketable securities as cash (Opler et al., 1999; Faulkender and Wang, 2006; Dittmar and Mahrt-Smith, 2007; Harrod, Sattar, and Maxwell, 2008; Bates, Kahle, and Stulz, 2009).

[2] Attractive in its generality, Scott's view does not recognize the regulatory limits for operating companies that make excessive market investments.

to maximize value? Given the change market investment risk in recent years, do managers use market investments to manage various types of risk?

Market investment has much in common with cash, but market investment is not equivalent to cash. Like cash, market investments are used by firms with higher costs of financial distress. Unlike cash, market investments are positively associated with firm size. In support of Scott's value maximization hypothesis, market investment use is decreasing in the corporate tax rate and appears to be consistent with a manager's efforts to enhance value for shareholders.

The paper's results suggest that the cash equivalence and value maximization hypotheses are inadequate; market investments may be useful beyond what these hypotheses would suggest. In addition to testing the cash equivalence and value maximization hypotheses, this paper tests whether market investment is used manage various types of risk. I motivate this additional hypothesis by using classic financial statement immunization theory (Wallas, 1959; Grove, 1974; Bierwag, 1977; Bierwag and Khang, 1979) and general risk management theory (Smith and Stulz, 1985). These theories help to clarify – and illuminate – the specialness of market investments. I argue that market investments are liquid enough for financial flexibility, but useful enough to manage risk. Nevertheless, there is a dark side; market investments may increase risk through speculation or managerial incompetence[3].

While having much in common with cash and capital investment, one finding clearly sets market investments apart from the rest. Unlike cash and capital investment, market investments are used by non-financial corporations to manage future financial commitments and payout policy. Hence market investment provides a mechanism by which managers can pledge

[3] Note that while managers may overinvest or suffer a capital investment loss ex post, investors are investing with these risks in mind. Investors however, may not be investing with the belief that corporate managers have market investment skill, especially when there are few possibilities for arbitrage.

permanent cash flows – with matching risk characteristics – to maintain long-term commitments such as dividends (Jagannathan, Stephens, and Weisbcah, 2000). While there is evidence that market investments are used to manage financial commitments, there is no evidence to suggest that market investments are used to hedge business cash flow risk. On the contrary, there is evidence that suggests that market investments are associated with increased business cash flow risk.

In trying to understand the similarities between cash and market investments, there is a feature that is often overlooked. Market investment is not limited to current or short-term investments; for a longer horizon, a financial manager can make non-current market investments. The role of investment horizon turns out to be important for the determinants of market investments, particularly the correlation with cash. In contrast to the effect for all market investments, the association between cash and non-current market investments is never statistically significant. Moreover, the association between financial distress costs and non-current market investments becomes negative.

Capital investment and market investment appear to be complementary. This result however, is also driven by investment horizon. In contrast to the result for all market investments, the evidence suggests that non-current market investments and capital investments are substitutes. Finally, the positive association between market investment and repurchases seems to be driven by short-term market investments; non-current market investments are negatively associated with repurchases.

In the next section I show how aggregate market investment, the aggregate investment portfolio composition, and average market investment size have all changed in recent years. The paper continues with a rigorous analysis of corporate market investments. In doing so, this paper

is the first to study the determinants of corporate market investments by using a large panel dataset of U.S. non-financial corporations.

2. Aggregate Market Investments: Size and Composition

This section presents evidence of the trend in aggregate and average market investment size and the change in aggregate portfolio composition in recent years for nonfinancial corporations.

Taking data from the Flow of Funds Accounts, Table I shows the time series means of various types of market investment for three separate periods: Period 1 (1945 to 1964), Period 2 (1965 to 1984), and Period 3 (1985 to 2005). Period 1 nonfinancial corporations place approximately 84% of their investible funds in U.S. Treasury securities[4], and on average, market investments are equal to approximately 8% of tangible assets. The Period 2 aggregate investment portfolio is more diverse when compared to the Period 1 portfolio; investments in U.S. Treasury securities comprise only 16.2% of all Period 2 market investments. On average, approximately 57% of all Period 2 market investments are classified as unidentified miscellaneous financial assets, with total market investments being equal to approximately 12% of tangible assets. Finally, Period 3 market investments are equal to approximately 53% of tangible assets, with over 90% of investments being classified as unidentified miscellaneous financial assets.

Figure I shows the aggregate real amounts of market investments by asset class (excluding unidentified miscellaneous financial assets) for the years 1945 to 2008. In 1945, private nonfinancial corporations invested in U.S. Treasury securities to the amount approximately $200 billion in 2005 dollars. Over the years, firms invested less in U.S. Treasuries and more in other asset classes; in 2008 private nonfinancial corporations invested in mutual

[4] Jacobs (1960) uses a survey method to show the various market investment components of a sample of corporations prior to 1960. He states that non-financial corporations place most of their investible funds in government debt. In addition, he alludes to the progression towards a higher non-Treasury component.

funds to the amount of approximately $200 billion in 2005 dollars. When comparing unidentified miscellaneous financial assets to all other asset classes, Figure II shows that over time the aggregate amount invested in "other" financial assets dwarfs the amount invested in all identified market investments. In 2008, private firms invested over $6 trillion (in 2005 dollars) in unidentified miscellaneous financial assets. Figure II shows the dramatic change in the portfolio composition; in 1945, approximately 100% of the aggregate corporate market investment portfolio consisted of U.S. Treasury securities. In 2008, approximately 100% of the aggregate corporate market investment portfolio consisted of unidentified miscellaneous financial assets.

Taking data from *COMPUSTAT*, Figure IV shows the yearly average market investment for the years 1971 to 2005 for the sample of firms used in this study. The measure for market investment is equal to marketable securities plus non-current investments using the equity and market methods, all normalized by net assets (tangible assets). The net assets variable is equal to total assets minus cash minus marketable securities minus non-current investments using the equity and market methods. Average market investment has increased over the sample period. In 1971, average market investment was approximately 14% of net assets. In 2005, average market investment was approximately 41% of net assets.

Figure V presents yearly average market investment for small-, mid-, and large-cap firms for the years 1971 to 2005. For the purposes of this study, a small-cap firm is defined as a firm with a market value of equity that is less than $500 million in 2005 dollars; a mid-cap firm is defined as a firm with a market value of equity that is between $500 million and $5 billion in 2005 dollars; and a large-cap firm is defined as a firm with a market value of equity that is greater than $5 billion in 2005 dollars.

For each size group: small cap, mid cap, and large cap, there is wide variation in the use of market investments. There are many firms that make no market investments and some firms that make, as a percentage of net assets, huge market investments in excess of 40%. Regardless of the size group, average market investment use has increased over the sample period. In recent years, for mid-, and large-cap firms, market investments – on average – appear to be more closely tied to stock market performance when compared with average market investment for small-cap firms.

3. Hypotheses

This section presents and discusses the various hypotheses to explain the use of market investments, given the change market investment size and composition in recent years. Consider the primary hypotheses: the cash equivalence hypothesis and the value maximization hypothesis. The cash equivalence hypothesis (Jeffers and Kwon, 1969) states that market investment is simply a store of excess cash. Given the change in market investment size in recent years, the value maximization hypothesis (Scott, 1979) states that market investment and capital investment should be viewed as general investment; market investment should be evaluated based on its impact on shareholder wealth.

In addition to testing whether market investment is equivalent to cash, the paper proceeds to test whether market investment shares a common economic driver with cash. In linking market investment to cash, I defer to the tradeoff theory of surplus funds (Opler et al., 1999) to explore the relationship between R & D expenses and market investments. In testing the value maximization hypothesis, I explore the relationship between the corporate tax rate and market investments (Scott, 1979).

Given the change in market investment risk characteristics in recent years, the paper then tests an additional hypothesis to understand the usefulness of market investments to manage various risks. The risk management hypothesis is motivated by theories of financial statement immunization (Wallas, 1959) and by the general risk management literature (Smith and Stulz, 1985).

The commonly-held view is that market investment is simply a store of excess cash (Jeffers and Kwon, 1969). As a result, market investment can be explained by the residual for investment decision-making. This argument motivates the first hypothesis (presented in null form).

Hypothesis 1 (Cash Equivalence) Market investments are <u>not</u> different from cash

Opler et al. (1999) argue that a basic tradeoff theory can explain how managers use cash and surplus funds. The authors argue that excess cash has no economic importance in a world of perfect capital markets. When costs and benefits are present, a manager must choose the optimal amount of surplus funds. If the shortage cost of liquid assets is greater than zero, then the firm must equate the marginal cost of liquid asset holdings to the marginal cost of liquid asset shortage (marginal benefit of liquid asset holdings). This optimization exercise determines the amount of surplus funds for the firm. The authors go on to state that a positive cost of financial distress can result in a liquid asset shortage cost that is greater than zero. To the extent that market investments are like cash, financial distress costs may also explain the use of market investments.

Corollary 1.1 (Costly Financial Distress) Market investments are not associated with the cost of financial distress.

Scott (1979) argues that the liquidity hypothesis is not compelling because many non-financial corporations hold large sums of funds in marketable securities, larger than what can be explained by the liquidity hypothesis. He contends that, from a benefit-cost standpoint, market investments[5] should be viewed in the same manner as capital investments. That is, market investment should be evaluated based on its effect on firm value. Scott argues that market investment may increase value if there are substantial tax benefits, as in the case of high dividend corporate equity.

A natural test that comes out of Scott's common investment hypothesis is one that estimates the effect of the corporate tax rate on the use of market investment. If market investments are used to maximize firm value, then all else equal, the use of market investment should be decreasing in the corporate tax rate. The paper tests the hypothesis that market investment is consistent with value maximization.

Hypothesis 2 (Value Maximization) Market investments are not associated with the corporate tax rate.

Alternatively, market investments may be associated with factors that are not primarily driven by liquidity or investment. The fact that market investment risk has changed in recent

[5] Scott (1979) argues that because corporations have a tax advantage with respect to dividends, investment in tax-exempt securities should reduce value, whereas investment in dividend-paying corporate equity should increase value. In this paper, I attempt to understand the determinants of the amount of market investments, more so than the determinants of the composition of market investments.

years suggests that market investment may be used to manage risky liabilities or various types of risk[6]. Market investments are more liquid – and flexible – than capital investment, but riskier than cash. It is precisely because of this combination of flexibility and risk that market investment is a superior risk management tool when compared to cash and capital investment.

One approach used to manage risky liabilities is to immunize financial statements by asset-liability matching (Wallas, 1959). Asset-liability matching has long been used by financial intermediaries as a way to manage interest rate risk (Grove, 1974; Flannery 1981). Moreover, firms with pension liabilities find it useful to structure an asset mix that maximizes profits given these liabilities (Rauh, 2009). A typical non-financial corporation has many types of liabilities with different periodic commitments. Moreover, a firm's payout policy may require the firm to maintain an ongoing commitment to investors.

Jagannathan, Stephens, and Weisbach (2000) and Brav et al. (2005) argue that dividend payout in particular is an ongoing commitment and tends to be associated with sustainable cash flows. The paper tests the hypothesis that market investments are used to manage financial commitments.

Hypothesis 3 (Risk Management) Market investments are <u>not</u> associated with future financial commitments.

4. Data

Aggregate data for private nonfarm nonfinancial corporations are taken from the Flow of Funds Accounts maintained by the Federal Reserve Board of Governors. Firm-level data are

[6] Faulkender (2005) argues that corporations may use tools other than derivatives to hedge cash flow risk.

initially extracted from the *COMPUSTAT/CRSP* merged database for the years 1971 to 2005. I exclude financial firms (SIC codes between 6000 and 6999), utilities (SIC codes between 4900 and 4999), and foreign firms. I exclude firm-years where data are missing or negative for market value of equity (DATA54 * DATA199). Finally I exclude firm-years where data are missing for all of the following items: investments and advances using the equity method (DATA31), investments and advances using the market method (DATA32), and short-term investments (DATA193).

All data are converted to 2005 dollars using the consumer price index (CPI). CPI data are extracted from the *Penn World Tables*. The market investments variable is equal to short-term investments plus non-current investments using the equity and market methods. Cash is cash plus short-term investments (DATA1) minus short-term investments (DATA193). Capital expenditure is equal to the capital investments of the firm (DATA128). The size variable is equal to the market value of equity. The cash flow variable is equal to EBITDA minus interest, minus taxes minus common dividends (DATA13 – DATA15 – DATA16 – DATA21). Leverage is equal to the market debt ratio, calculated as total debt (DATA9 + DATA34) divided by the sum of total debt and the market value of equity. New financing is equal to total equity issuance (DATA108) minus repurchases (DATA115) plus debt issuance (DATA111) minus debt redemption (DATA114). Interest expense is equal to the interest payments of the firm (DATA15). The dividend payout is equal to common dividends paid (DATA21). The repurchase variable is equal to the purchase of the firm's own common stock and preferred stock minus the redemption of preferred stock (DATA115 – DATA56). The pension expense variable is equal to pension and retirement obligations for the firm (DATA43). R & D expense is equal to research and development expenditures (DATA46) divided by sales (DATA12). The market-to-book ratio

is equal to total assets (DATA6) minus book equity (DATA60) plus the market value of equity (DATA54 * DATA199), all divided by total assets (DATA6).

To investigate whether market investment decisions are consistent with the goal of maximizing value, I use a trichotomous variable for the marginal tax rate (Shevlin, 1990; Graham, 1996). The firm-year marginal tax rate variable is constructed based on taxable income, the top statutory tax rate, and the net operating loss (NOL) carryforward (DATA52). Following Graham and Kim (2009), taxable income is defined as operating income after depreciation plus non-operating income minus interest expense minus deferred taxes from the income statement (divided by the top statutory tax rate) plus extraordinary items and discontinued operations (divided by one minus the top statutory tax rate) plus special items (DATA178 + DATA61 – DATA15 – (DATA50/top tax rate) + (DATA48/(1 – top tax rate)) + DATA17). The marginal tax rate is equal to the top statutory tax rate if taxable income is positive and there is no NOL carryforward (DATA52 is zero or missing). The marginal tax rate is equal half of the top statutory tax rate if either the taxable income is positive or there exists an NOL carryforward (without both conditions being satisfied). The marginal tax rate is equal to zero in all other cases.

To control for toehold investments in future merger or acquisition firms, I use a dummy variable equal to one if the company completes a merger or acquisition in fiscal year $t + 1$. Merger and acquisition data are taken from *SDC Platinum* for the years 1969 to 2006. To control for strategic investment in other firms, I use a dummy variable equal to one if non-current investment using the equity method is positive, and zero otherwise.

To investigate whether market investments are used to hedge cash flow risk, I use three measures: hedging needs, industry cash flow volatility, and firm cash flow volatility. The firm-level hedging needs variable is constructed as the correlation between the firm's operating cash

flow (DATA13 – DATA14 – DATA15 – DATA16 – DATA19 – DATA21) and the median level of R & D expenditures for the firm's industry (Acharya, Almeida, and Campello, 2007). For volatility measures, at least five years of data are required for each firm. Firm cash flow volatility is calculated as the sample-period standard deviation of operating cash flow for each firm (Opler et al., 1999). The industry-year median value for firm cash flow volatility is used as the measure for industry cash flow volatility (Opler et al., 1999). For this purpose, industries are defined using the three-digit SIC code.

All variables other than size, R & D expense, leverage, market-to-book ratio, the marginal tax rate, hedging needs, industry cash flow volatility, and firm cash flow volatility are normalized by net assets (DATA6 – DATA1 – DATA31 – DATA32). All variables are winsorized at the 1% tails to lessen the effect of extreme values. I also eliminate firm-year observations for which net assets or dividend payout values are negative. The final sample consists of 114,484 observations for the years 1971 to 2005. The sample summary statistics are presented in Table II.

5. Sample Statistics and Empirical Analysis

Table II lists the summary statistics for variables used in this study. Market investments, cash, capital expenditures, cash flow, new financing, repurchases, interest expense, and dividend payout are all normalized by net assets (total assets minus cash minus market investments).

The distribution for market investments is positively skewed with a mean of 27.40%. For market investments and net assets, the difference between the mean values and the corresponding median values are substantial. The median for net assets is approximately $84 million, whereas the mean for net assets is approximately $1 billion. Using median values, the typical firm has $1.21 million in market investments, which is relatively small. Based on mean values though, the

average amount for market investments is approximately $144 million. For perspective, the average total net assets for a mutual fund is approximately $300 million (Chen, Hong, Huang, and Kubik, 2004), whereas the average size for a hedge fund is approximately $80 million (Getmansky, 2004).

The distribution for cash is positively skewed with a mean of 25.4%. This mean value for cash is higher than the 17% mean found in Opler et al (1999) partly because average cash holdings have increased with time (Bates, Kahle, and Stulz, 2009), and partly because of the difference in the definition of cash. The distribution for capital expenditures is not as positively skewed as those for cash and market investments. The mean for capital expenditures is 9.80% and is similar to the 9% found in Opler et al. (1999). The median for capital expenditures is 6.30%. The median equity value for firms in the sample is roughly $80 million. The median values for cash flow, the marginal tax rate, and the market-to-book ratio are 6.90%, 35%, and 1.288. The median for leverage is 27.10%, which is comparable with the findings in Opler et al (1999) and Harford et al. (2008).

To test the main hypotheses, the paper continues by comparing the determinants of market investments to the determinants of cash in a multivariate regression framework.

Are Market Investments Equivalent to Cash?

Table III compares market investments to cash by using the base specification with year effects and industry effects. Column one presents the results of an Ordinary Least Squares (OLS) regression where the dependent variable is the logarithm of cash holdings (excluding current market investments). As seen in Table II, the market investment variable is positively skewed and many firms do not invest at all. To address this issue, Column two presents a Tobit model to explain the use of market investment where the dependent variable is the logarithm of market

investments (including current market investments) with a corner solution for no market investments.

When comparing coefficients, the goal is to uncover the ways in which market investments are similar to, or different from cash based on observable variables. If market investments are equivalent to cash, then the difference in corresponding coefficients should be statistically and economically indistinguishable from zero. Alternatively, if the independent variables in the specification explain the use of cash and the use of market investments in an equivalent way, then the cash regression coefficient – market investment coefficient ratio should be the same for all independent variables.

Cash decreases with size, but market investments exhibit the opposite behavior. The coefficient difference (or elasticity difference) is 91.70% and is statistically significant at the 1% level. Statistically significant coefficient differences are present for all of the remaining variables thus rejecting the hypothesis that the coefficients are statistically equivalent. A proportionality test of coefficient ratios being similar across all variables is also rejected; the *p*-value is 0.000. Taken together, these findings reject the hypothesis that market investment is equivalent to cash (Hypothesis 1).

In terms of coefficient sign (or direction), cash and market investment agree for most of variables used in the specification. Both cash and market investments decrease with cash flow, leverage, and the marginal tax rate. Both cash and market investments increase with new financing, interest expense, R & D expense, and capital expenditure. Note that in a multivariate setting, market investment has a higher correlation with capital expenditure when compared to the correlation between cash and capital expenditure.

For the promised commitments associated with finance, interest expense and dividend payout, the coefficient differences are substantial. For cash, the interest expense coefficient is 2.41. For market investments, the interest expense coefficient is 9.31. For cash, the dividend payout coefficient is -0.317 and not statistically significant. For market investments, the dividend payout coefficient is approximately 17.25, and is statistically significant at the 1% level.

In Table III, the market-to-book ratio is used as a measure of growth opportunities. Cash increases with growth opportunities, but market investments exhibit the opposite behavior. The coefficient difference is 41.90% and is statistically significant at the 1% level.

In Table IV, I attempt to determine, controlling for variables that may affect cash and market investments, the extent to which cash is associated with market investments through common unobservable variables. Column seven presents the specification with year effects and industry effects. Controlling for cash and capital investment, larger firms, firms with less cash flow, firms with less leverage, firms with new financing, and firms with fewer growth opportunities are more likely to use market investments.

The coefficient for cash is -4.90% and is not statistically significant. This evidence suggests that, controlling for observables such as R & D expenses, cash is not a statistically significant determinant of market investments through common unobservables.

Market investments have much in common with cash through observables. Moreover, the tradeoff theory of surplus funds suggests that the costs of financial distress may be a common driver that affects cash holdings and market investments.

Are Market Investments Linked to the Cost of Financial Distress

As the costs of financial distress increase, the firm prefers liquidity over illiquid investment. To the extent that market investments are similar to liquidity in response to the cost

of financial distress, a firm may use them when the cost of financial distress is high. As a measure of the cost of financial distress, I use R & D expense normalized by sales (Opler et al., 1999). Table IV column seven shows an R & D expense coefficient of 62.10% and is statistically significant at the 1% level. This finding suggests that, controlling for cash, an increase in the potential cost of financial distress results in the increased use of market investments (Corollary 1.1).

Are Market Investments Consistent with Value Maximization?

In Table IV, I attempt to determine the extent to which capital expenditure (or capital investment) is correlated with market investment, and whether the use of market investment is consistent with a manger's efforts to maximize firm value. In column seven when controlling for variables that may affect capital expenditure and market investment, the coefficient for capital expenditure is 2.29 and is statistically significant at the one percent level. Hence capital expenditure is a statistically significant determinant of market investments through common unobservables.

Scott (1979) argues that market investment may increase value if there is a tax benefit associated with such investment. If the use of market investment is consistent with value maximization, then all else equal, market investment should decrease with the corporate tax rate. In column seven of Table IV, the coefficient for the marginal tax rate is -2.47 and is statistically significant at the 1% level. Therefore an increase of 10% in the marginal tax rate results in a 0.24% decrease in the use market investments (normalized by net assets). This finding suggests that the use of market investment is consistent with value maximization.

Managing Financial Commitments

The results in Table IV column seven also show that interest expense and the dividend payout are important determinants of market investments. Both coefficients are positive and statistically significant. The coefficient for interest expense is approximately 9.31 and is statistically significant at the one percent level. Hence a 5% increase in the interest expense variable results in a 0.46% increase in market investments (normalized by net assets). The coefficient for dividend payout is approximately 17.25 and is statistically significant at the 1% level. Hence a 5% increase in the dividend payout variable results in a 0.86% increase in market investments (normalized by net assets). These findings suggest that firms use market investments to manage future financial commitments (Hypothesis 3). Taken together with the results from Table III, these findings suggest that market investment is different from cash in its being used to manage commitments, especially dividends.

6. Non-Current Market Investments

For market investments, liquidity can be present not only because of the market mechanism, but because of the investment horizon. The main dependent variable for this study includes current (short-term) market investments and non-current market investments. Current market investments are typically selected to provide horizon-driven liquidity for the firm. To investigate the role of market-driven liquidity as opposed to horizon-driven liquidity, I repeat the previous analysis using non-current market investments.

Table III shows that market investments have much in common with cash, but may have economically important characteristics that go beyond simply being a store of excess cash. While the paper's analyses suggest that the common driver of the use of cash and the use of market investments may be the cost of financial distress, one may question whether some of the previous

results are important for the short-term market investment component only. To what extent is the concern for the cost of financial distress driven by investment horizon? Does horizon affect the other results for market investments?

Table VIII repeats the analysis from Table IV using the logarithm of non-current market investments as the dependent variable. Comparing Table IV, column seven, to Table VIII column seven, we can immediately see the effect that the investment horizon has on the results. In contrast to the corresponding coefficients for all market investments, the coefficients for size and cash flow are larger in magnitude for non-current market investments. For non-current market investments, new financing and leverage have opposite effects when compared to the effects for all market investments.

For all specifications in Table VIII the coefficient for the cash variable is not statistically significant. When observing the effect of financial distress costs, the coefficient for all market investments is positive, whereas the coefficient for non-current market investments is negative. This result suggests that non-current market investments are not used in response to the cost of financial distress. Taken together with the cash result, the evidence is consistent with concerns for liquidity being largely driven by investment horizon.

For all market investments, the estimated coefficients for interest expense and dividend payout are approximately 9.31 and 17.25. The comparable interest expense and dividend payout coefficients for non-current market investments are approximately 22.44 and 9.47. Taken together, these results suggest that firms, in addition to using short term market investments, use non-current market investments to manage the future financial commitments.

For all market investments, the capital expenditure coefficient is approximately 2.29; for non-current market investments, the coefficient is approximately -1.97. This result suggests that,

2000). All other findings are robust when using a binary response model to explain the decision to invest in marketable securities.

Normalization Variable

Although market investment is normalized by net assets (at book value), market investment is recorded at market value. This difference in accounting may introduce an upward bias in the market investment variable. As a robustness check, in Table V I investigate the determinants of market investments (normalized by the market value of net assets).

In comparison to the findings in column seven of Table IV where the cash coefficient is not statistically significant, the cash coefficient is positive and statistically significant in Table VI. In addition, Table VI shows that the coefficient for repurchases is negative when compared to the positive repurchases coefficient in column seven of Table IV. All other findings are robust when normalizing by the market value of net assets.

Lagged Specification

Table IV presents a specification with contemporaneous independent variables. Hence the results may be biased if error in the dependent variable is correlated with errors in the independent variables simply because all variables are observed at the same point in time. Moreover, one may wonder about the interpretation of the paper's findings with respect to R & D expense, the marginal tax rate, and future financial commitments. Do managers accumulate market investments before a payout or do managers invest in response to a high payout? As a robustness check, in Table VII I investigate the determinants of market investments using a specification with lagged (or predetermined) independent variables.

In comparison to the findings in column seven of Table IV where the cash coefficient is not statistically significant, the cash coefficient is positive and statistically significant in Table

VII. This finding suggests that managers collect cash before making market investments. In addition, Table VII shows that the coefficient for repurchases is no longer significant when compared to the corresponding coefficient in column seven of Table IV. This finding suggests that the coefficient for repurchases may be biased under a contemporaneous specification. All other findings are robust when using lagged independent variables.

Strategic Investments

Firms may make take equity stakes in other firms as a matter of corporate strategy (Allen and Phillips, 2000; Fee, Hadlock, and Thomas, 2006). Even though most equity stakes are not associated with strategic alliances (Allen and Phillips, 2000), and equity is not the most common solution to completing customer-supplier contracts (Fee, Hadlock, and Thomas, 2006), one may question whether the findings on the determinants of market investments are robust controlling for strategic investments. As a robustness check, in Table IX I investigate the determinants of market investments controlling for toeholds, and strategic equity stakes.

The toehold dummy variable is equal to one if the firm merges or acquires a firm in the following fiscal year. The strategic equity stake dummy variable is equal to one if non-current market investment using the equity method is positive, thus representing a stake with significant control. When first included the toehold variable has a coefficient equal to 17.90% and is statistically significant at the 5% level. This coefficient does not remain statistically significant when controlling for strategic equity (column five). All of the findings: the effect of financial distress costs, the marginal tax rate, and future financial commitments are robust when controlling for toeholds and strategic equity stakes.

Pension Obligations

The finding that market investment is positively correlated with interest expense and dividend payout is interpreted as evidence that firms make market investments to manage promised (or ongoing) financial commitments. Pension obligations are important financial commitments for many firms. As a robustness check, in Table IX I investigate whether the use of market investment is positively correlated with pension expenses.

When first included the pension variable has a coefficient approximately equal to 16.47 and is statistically significant at the 1% level. In addition, a ranking of the effects of various financial commitments shows that pension expense and dividend payout are the most important followed by interest expenses. This finding is consistent with the notion that debt is easier to retire than it is to retire pension obligations or cut dividends. All of the findings: the effect of financial distress costs, the marginal tax rate, and future financial commitments are robust when controlling for pension expenses.

Business Cash Flow Risk

Hypothesis 3 states that financial managers may use market investments to manage liabilities or future financial commitments. In general, given its risk characteristics, market investment may be used to manage various types of risk: contractual and non-contractual. Does the use of market investment to manage risk extend to business cash flow risk?

Consider that market investments may be used to hedge cash flow risk. On the other hand, market investments may result in increased cash flow risk, which would be consistent with speculation. Table X investigates the hypothesis that market investments are used for hedging cash flow risk. To investigate this hypothesis, I employ three measures: firm cash flow volatility, industry cash flow volatility (Opler et al., 1999) and hedging needs (Acharya, Almeida, and

Campello, 2007). The measures are estimated by using time series data for each firm. For estimation, at least five years of data are required for each firm. This filter reduces the number of observations from 113237 (Table X, column one) to 103970 (Table X, column two).

Table X, column five presents all of the previously analyzed variables in addition to a variable that measures a firm's hedging needs (Acharaya, Almeida, and Campello, 2007), industry cash flow volatility, and firm cash flow volatility. The hedging needs variable is constructed as follows. For each firm, the correlation between the firm's cash flow from operations and the firm's industry-level median R & D expenditures is estimated. For this purpose, industries are classified by the three-digit SIC code. The correlation is then used as a regressor in the specification[7]. If firms are using market investments in response to hedging needs, then the coefficient should be positive. Column five presents all of the previously analyzed variables in addition to the hedging needs variable. The hedging needs variable – when first included in the specification – gives a coefficient that is negative and not statistically significant.

Column five also presents the effects of industry cash flow volatility and firm cash flow volatility. The volatility of operating cash flow is constructed for each firm to produce firm cash flow volatility. The industry-year median of firm cash flow volatility is subsequently calculated. The regressor is the logarithm of the industry-year median of firm cash flow volatility. If firms are using market investments to hedge cash flow risk, then the coefficient should be positive. The industry cash flow volatility measure – when first included – gives a coefficient (or elasticity) of -89.30% and is statistically significant at the 1% level. When investigating the

[7] Acharya, Almeida, and Campello note that firms with high hedging needs are those with correlation figures above 0.2, whereas firms with low hedging needs are those with correlation figures below -0.2.

effect of firm cash flow volatility, the coefficient is positive and statistically significant at the 5% level.

Taken together, these findings suggest that controlling for variables such as size and cash, market investments are not used for hedging cash flow risk. Moreover, the firm cash flow volatility coefficient is positive, while the hedging needs coefficient and the industry cash flow volatility coefficient are negative, which suggests that firm managers may be speculating instead of hedging. All of the paper's main findings: the effect of financial distress costs, the marginal tax rate, and future financial commitments are robust when controlling for business cash flow volatility.

8. Conclusion

For the past fifty years we viewed market investments as simply a store of cash for non-financial corporations, but today's market investments are quite different from the market investments of 1960. Market investment – on average – continues to rise, and predictable investment in Treasuries has given way to more diverse market investment portfolios. Market investment is indeed positively associated with – and has much in common with – cash, but market investment is much more elaborate than any one-dimensional hypothesis would suggest. Market investment not only has features of liquidity, but features of capital investment as well. Market investment is shown to be consistent with value maximization, and a manager who makes capital investments will tend to make market investments. Nevertheless, managers of growth firms will spend relatively more on capital investment whereas managers of value firms will spend relatively more on market investments.

Rather than view market investment as cash management, we can use theories of investment, surplus funds, immunization, and risk management to understand the specialness of

market investments. Like cash, market investments provide the firm with flexibility. Like capital investment, market investment is not perfectly transparent; it is associated with a decision where the financial manager has more information about the investment than the investor does about the investment. For risk management and financial statement immunization, market investment is a superior tool when compared to cash and capital investments.

Consistent with the theory of surplus funds, market investment is increasing in the costs of financial distress. Market investment is also increasing in interest expense and dividend payout. These findings are consistent with immunization theory. To immunize against exposure to periodic commitments, financial managers may be using market investments to manage future financial commitments and payout policy. While the evidence suggests that firms may be using market investments to manage future financial commitments, there is no evidence that market investments are used to reduce exposure to business risk, or industry cash flow volatility.

Controlling for cash and other factors that are correlated with market investment use, market investments are negatively associated with industry cash flow volatility. Moreover, market investments are associated with higher firm cash flow volatility. This finding is consistent with the hypothesis that managers use market investments to speculate. However, this is not the only channel through which we would observe a positive association between market investment and firm cash flow volatility.

Important, but sometimes overlooked, market investment liquidity not only occurs because of the market mechanism, but because of investment horizon. In contrast to the result for all market investments, liquidity concerns do not appear to be important for non-current market investments. The result that capital investment and market investment are complementary (or positively associated) is also due to investment horizon; in contrast to the result for all market

investments, the evidence suggests that non-current market investments and capital investments are substitutes.

This paper is primarily a foundational study, yet it has implications for financial managers, investors, and regulators. For financial managers, researchers may want to explore the notion of optimal market investment. The results in this paper suggest that there is a tradeoff between immunization benefits and the costs of increased cash flow risk. The issue of managerial market-timing may also be important for market investments[8]. Investors who are concerned about the accumulation of surplus funds by non-financial corporations may want use this study to frame the issue in terms of the risks associated with market investments. Finally, regulators may want to take an economic approach to the classification and the regulation of investment companies. Instead of an arbitrary asset-based cutoff – which may no longer be relevant – regulators may want to characterize the costs of market investments in terms of risk and determine whether investors are being properly compensated for the risks associated with market investments.

Going forward, the most important aspect of corporate market investment research will be that of risk. For instance, the finding that market investments are increasing with firm cash flow volatility warrants further study of whether managers use market investments to speculate. Once researchers understand the risk implications of market investments, we can then study an issue such as regulatory arbitrage.

Though not directly investigated in this paper, market investments may result in increased risk through the incentives to avoid regulatory scrutiny. If non-financial corporations

[8] See Faulkender (2005) for an example of managerial discretion with respect to the liability timing.

are motivated to maintain a low level of perceived market investment risk[9], they may tend to rely more on credit ratings when compared to financial intermediaries with a higher investment risk tolerance. The financial crisis provides a painful lesson that highly-rated securities can in fact be very risky (Coval, Jurek, and Stafford, 2009). Investors, formerly lured by the promise of high yields and low risk, now have to explain why seemingly prudent investment decision making was rewarded with huge losses in 2008. Financial intermediaries have been particularly susceptible to this problem (Acharya and Schnabl, 2009), but a non-financial corporation may be far from immune given its focus on credit ratings. I leave this and other issues surrounding market investments for future research.

[9] To avoid being regulated as an investment company (Investment Company Act of 1940), non-financial corporations face limits on risky marketable security investment.

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Table I. Aggregate Cash and Corporate Market Investments by Asset Class: Period Means

The table provides time-series means of aggregate balance sheet items (cash, financial assets, and tangible assets) for nonfarm nonfinancial corporations in the U.S. economy. The full period is 1945 to 2005 (Federal Reserve Board of Governors) and is divided into three sub-periods: Period 1 (1945 to 1964), Period 2 (1965 to 1984), and Period 3 (1985 to 2005). All nominal balance sheet items are converted to 2005 dollars using the Consumer Price Index. Foreign deposits are deposits, including negotiable certificates of deposit, held in foreign financial institutions. Checkable deposits consist of demand deposits, negotiable order of withdrawal (NOW) accounts and automatic transfer service (ATS) accounts. Currency is U.S. currency and coin. Time and savings deposits are deposits that depositors may withdraw after giving prior notice. Money market mutual funds are open-end investment companies that invest in short-term, liquid assets, including short-term municipal securities. A security repurchase agreement is an agreement to sell an asset, in many cases a federal government security, accompanied simultaneously by an agreement that the seller will repurchase the asset at a later date at a higher price. Commercial paper consists of short-term unsecured promissory notes issued by financial and nonfinancial borrowers. U.S. Treasury securities are marketable and securities issued by the Department of the Treasury. U.S. Govt. agency securities are issued by various federal agencies, other than the Treasury. Municipal securities and loans are obligations issued primarily by state and local governments. Mortgages are loans that are secured in whole or in part by real property. Mutual fund shares are obligations issued by mutual funds; the category excludes money market mutual fund shares. Equity in government-sponsored enterprises (GSE) is equity ownership in Fannie Mae, the Farm Credit System, and the Federal Home Loan Banks. Unidentified miscellaneous claims are obtained directly as the total amount reported by original sources as ‘‘other’’ financial assets. Consumer credit consists of short-term and intermediate-term loans to individuals. Trade credits are accounts receivable arising from the sale of business-related goods and services. Foreign direct investment is the acquisition of equity in, and the provision of loans to, U.S. affiliates of foreign firms by the purchase of tangible or financial assets of U.S. firms or the direct ownership of their equity shares; the 10 percent threshold that distinguishes direct investment from portfolio investment. Insurance receivables are deferred and unpaid life insurance premiums. Investment in finance company (FC) subsidiaries is the acquisition of equity ownership in the subsidiary companies. Among these subsidiaries companies are the subsidiaries of motor vehicle manufacturers and the credit subsidiaries of major retailers.

	Period 1: 1945 - 1964 Time-Series Means			*Period 2: 1965 - 1984* Time-Series Means			*Period 3: 1985 - 2005* Time-Series Means		
	Amount (in $BN, 2005)	% of TANA	% of MINV	Amount (in $BN, 2005)	% of TANA	% of MINV	Amount (in $BN, 2005)	% of TANA	% of MINV
Cash and cash equivalents	215.439	11.388	150.347	313.734	7.351	101.794	622.362	9.044	17.555
Foreign deposits	1.463	0.062	0.996	15.034	0.335	3.365	30.481	0.454	0.934
Checkable deposits and currency	199.971	10.681	139.678	198.228	4.744	73.831	238.026	3.646	7.796
Time and savings deposits	13.908	0.642	9.612	83.067	1.887	20.577	211.936	3.028	5.684
Money market funds	0.000	0.000	0.000	7.863	0.163	0.755	136.151	1.830	2.961
Security repurchase agreement	0.097	0.003	0.061	9.542	0.223	3.267	5.769	0.086	0.180
Market investments (MINV)	145.712	7.804	100.000	563.529	12.324	100.000	3689.712	53.040	100.000
Commercial paper	3.138	0.136	2.174	33.279	0.789	12.498	44.203	0.622	1.129
U.S. Treasury securities	122.241	6.790	83.972	45.351	1.093	16.207	51.072	0.811	1.849
U.S. Govt. agency securities	3.152	0.125	2.143	7.935	0.187	2.571	15.165	0.225	0.450
Municipal securities and loans	9.941	0.452	6.822	20.377	0.480	6.734	42.946	0.668	1.463
Mortgages	0.270	0.013	0.190	30.887	0.653	3.579	75.553	1.179	2.618
Mutual funds	0.199	0.007	0.132	4.154	0.095	1.258	73.707	1.021	1.774
Equity in GSE	0.183	0.007	0.125	0.210	0.006	0.156	0.000	0.000	0.000
Unidentified misc. investments	6.587	0.274	4.440	421.335	9.021	56.997	3387.067	48.514	90.717
Other identified financial assets	628.988	30.657	435.359	1823.302	42.312	563.670	3167.489	46.776	93.551
Consumer credit	57.595	2.902	39.944	77.486	1.857	28.662	89.702	1.383	2.981
Trade credit	406.469	19.887	281.456	1061.831	24.772	342.180	1637.159	24.434	49.815
Foreign direct investment	145.623	6.975	100.587	599.828	13.771	170.714	1193.288	17.257	33.156
Insurance receivables	193.019	0.893	13.373	75.988	1.739	21.204	218.306	3.273	6.724
Investment in FC subsidiaries	0.000	0.000	0.000	8.169	0.172	0.910	29.034	0.429	0.875
Tangible assets (TANA)	1996.542	100.000	1386.685	4271.995	100.000	1394.026	6687.987	100.000	204.772
Total assets	2986.682	149.850	2072.392	6972.560	161.986	2159.489	14200.000	208.860	415.878

Figure I. Real Amount of Market Investments by Asset Class

The figure presents the amounts of aggregate market investments for nonfarm nonfinancial corporations in the U.S. economy. The full period is 1945 to 2005 (Federal Reserve Board of Governors). All nominal items are converted to 2005 dollars using the Consumer Price Index. Commercial paper consists of short-term unsecured promissory notes issued by financial and nonfinancial borrowers. U.S. Treasury securities are marketable and securities issued by the Department of the Treasury. U.S. Govt. agency securities are issued by various federal agencies, other than the Treasury. Municipal securities and loans (Munis) are obligations issued primarily by state and local governments. Mortgages are loans that are secured in whole or in part by real property. Mutual fund shares are obligations issued by mutual funds; the category excludes money market mutual fund shares. Equity in government-sponsored enterprises (GSE) is equity ownership in Fannie Mae, the Farm Credit System, and the Federal Home Loan Banks.

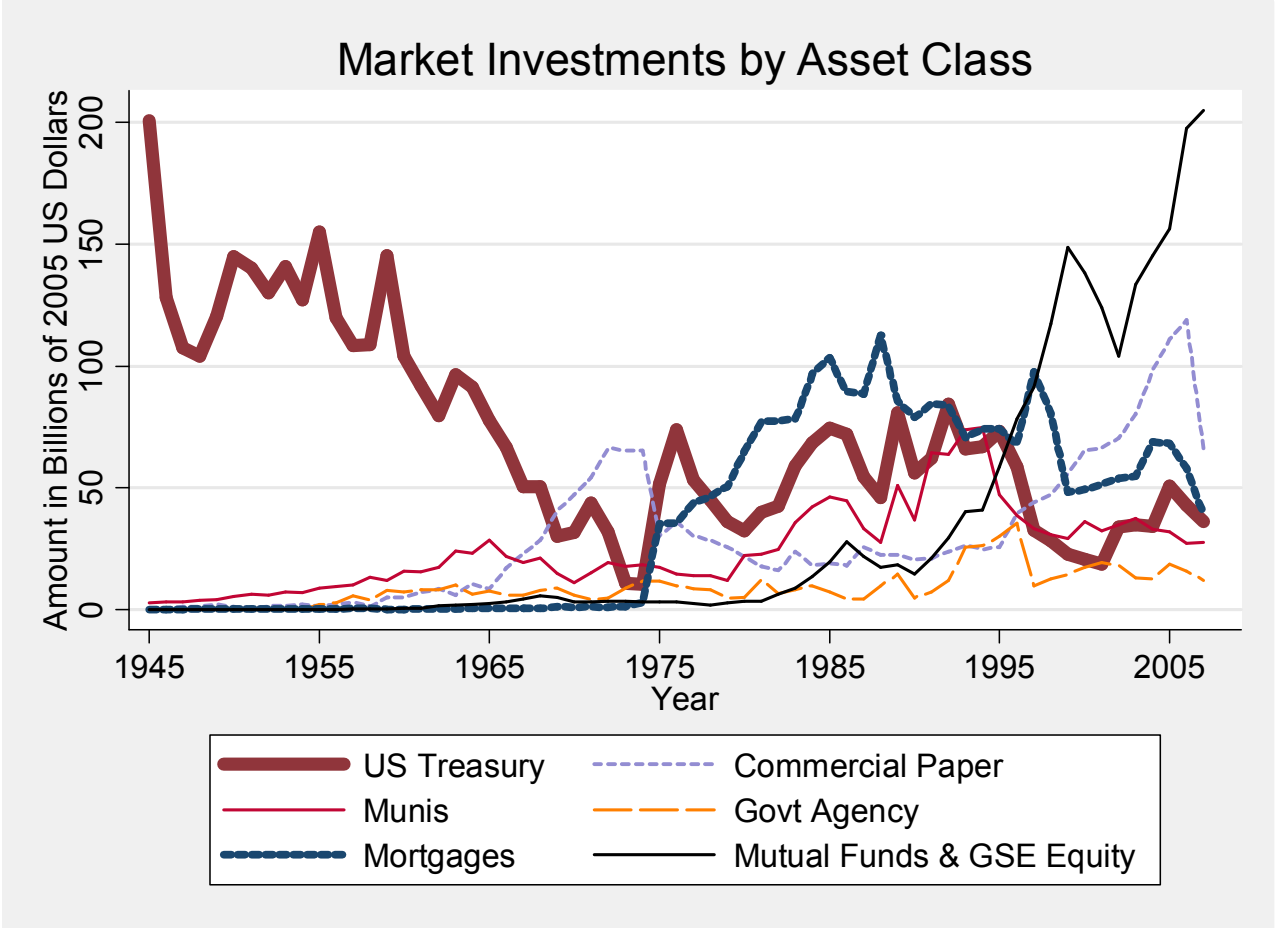

Figure II. Real Amount of Unidentified Market Investments Compared to All Other Market Investments

The figure presents the amounts of aggregate market investments for nonfarm nonfinancial corporations in the U.S. economy. The full period is 1945 to 2005 (Federal Reserve Board of Governors). All nominal items are converted to 2005 dollars using the Consumer Price Index. Unidentified miscellaneous claims are obtained directly as the total amount reported by original sources as ‘‘other’’ financial assets. Other investments include commercial paper, U.S. Treasury securities, U.S. Govt. agency securities, Municipal securities and loans, mortgages, mutual fund share, and equity in government-sponsored enterprises (GSE). Commercial paper consists of short-term unsecured promissory notes issued by financial and nonfinancial borrowers. U.S. Treasury securities are marketable and securities issued by the Department of the Treasury. U.S. Govt. agency securities are issued by various federal agencies, other than the Treasury. Municipal securities and loans (Munis) are obligations issued primarily by state and local governments. Mortgages are loans that are secured in whole or in part by real property. Mutual fund shares are obligations issued by mutual funds; the category excludes money market mutual fund shares. Equity in government-sponsored enterprises (GSE) is equity ownership in Fannie Mae, the Farm Credit System, and the Federal Home Loan Banks.

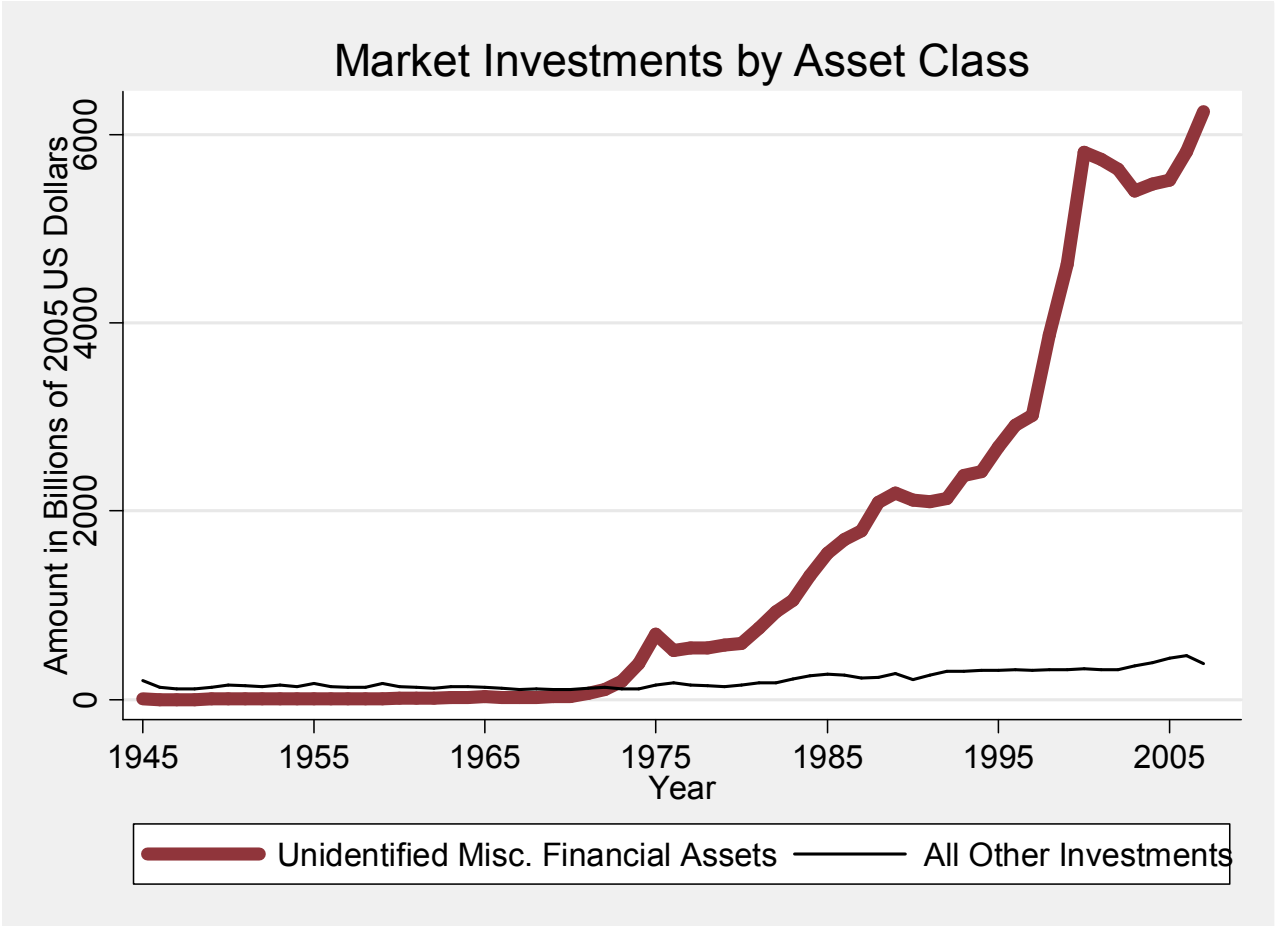

Figure III. Market Investment Portfolio Composition

The figure presents the classes of aggregate market investments for nonfarm nonfinancial corporations in the U.S. economy as a percentage of total aggregate market investments. The full period is 1945 to 2005 (Federal Reserve Board of Governors). All nominal items are converted to 2005 dollars using the Consumer Price Index. Commercial paper consists of short-term unsecured promissory notes issued by financial and nonfinancial borrowers. U.S. Treasury securities are marketable and securities issued by the Department of the Treasury. U.S. Govt. agency securities are issued by various federal agencies, other than the Treasury. Municipal securities and loans (Munis) are obligations issued primarily by state and local governments. Mortgages are loans that are secured in whole or in part by real property. Mutual fund shares are obligations issued by mutual funds; the category excludes money market mutual fund shares. Equity in government-sponsored enterprises (GSE) is equity ownership in Fannie Mae, the Farm Credit System, and the Federal Home Loan Banks. Unidentified miscellaneous claims (other investments) are obtained directly as the total amount reported by original sources as ‘‘other’’ financial assets.

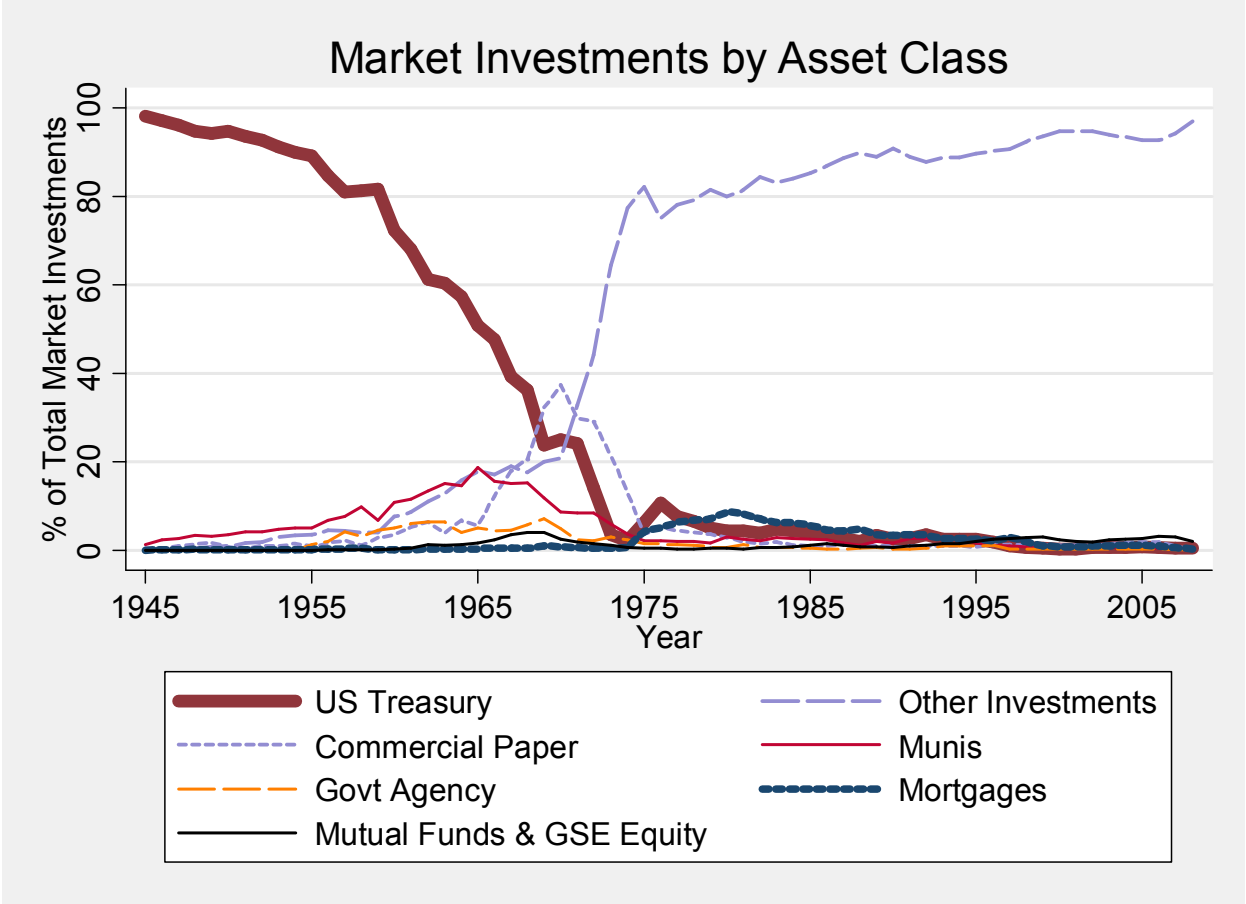

Figure IV. Average Market Investments, 1971-2005

The figure presents yearly average values of *S & P 500 index* and *Market investments* over the sample period of 1971 to 2005 (COMPUSTAT/CRSP). *Market investments* is marketable securities plus non-current investments using the equity and market methods, all normalized by *Net assets*. *Net assets* is equal to total assets minus cash minus marketable securities minus non-current investments using the equity and market methods. *S & P 500 index* is the index value at the close of the trading day.

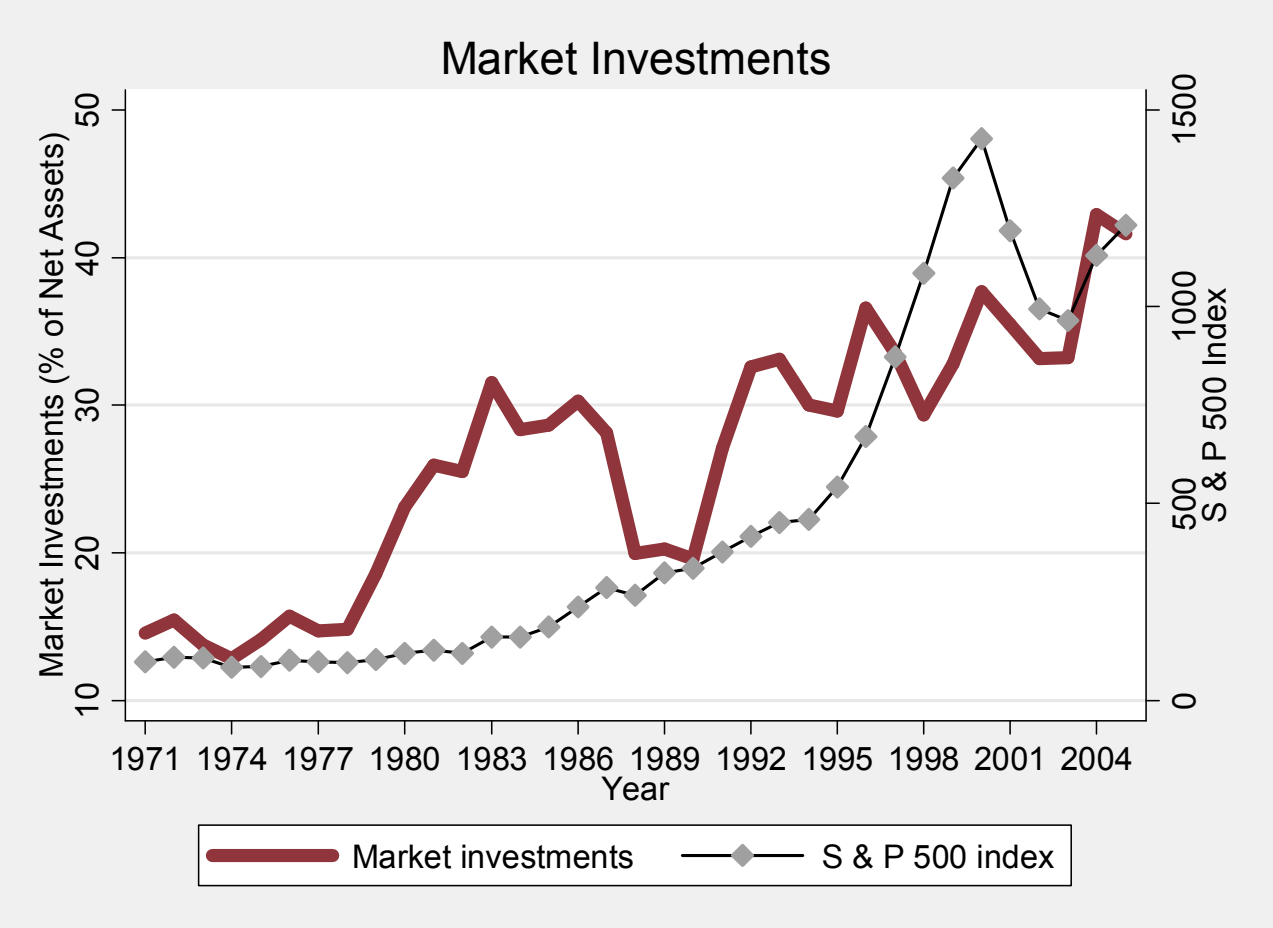

Figure V. Average Market Investments by Size, 1971-2005

The figure presents yearly average values of *S & P 500 index* and *Market investments* for small cap firms, mid cap firms, and large cap firms over the sample period of 1971 to 2005 (COMPUSTAT/CRSP). A small cap firm is a firm with a market value of equity that is less than $500 million in 2005 dollars. A mid cap firm is a firm with a market value of equity that is between $500 million and $5 billion in 2005 dollars. A large cap firm is a firm with a market value of equity that is greater than $5 billion in 2005 dollars. *Market investments* is marketable securities plus non-current investments using the equity and market methods, all normalized by *Net assets*. *Net assets* is equal to total assets minus cash minus marketable securities minus non-current investments using the equity and market methods. *S & P 500 index* is the index value at the close of the trading day.

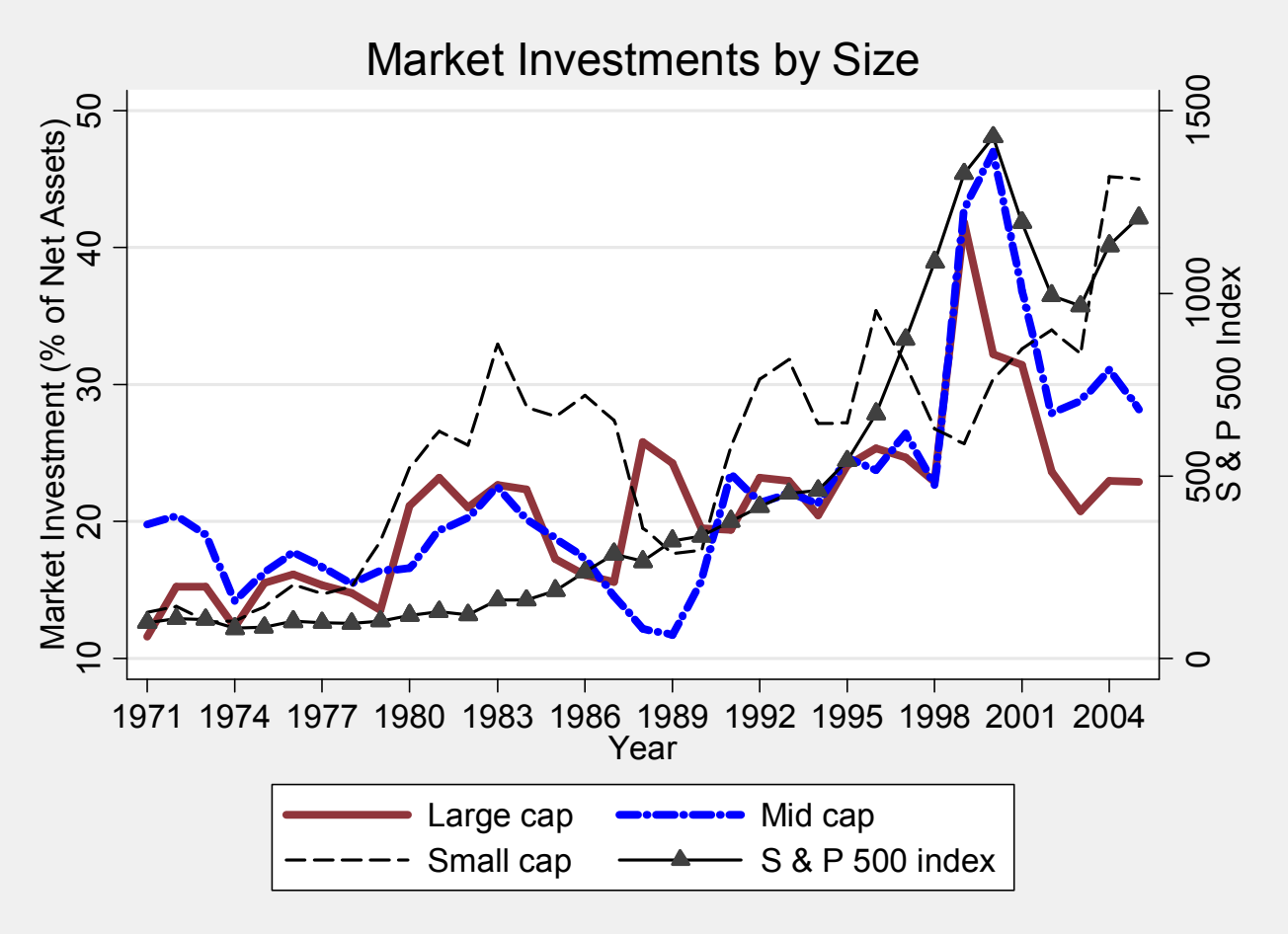

Table II. Corporate Market Investments: Summary Statistics

The table provides summary statistics for observations in the sample. The sample period is 1971 to 2005. All nominal balance sheet items are converted to 2005 dollars using the Consumer Price Index. *Market investments* is marketable securities plus non-current investments using the equity and market methods. *Cash* is cash holdings. *Capital expenditure* is capital investments. *Cash flow* is EBITDA minus interest minus taxes minus common dividends. *New financing* is equal to total equity issuance minus repurchases plus debt issuance minus debt redemption. *Repurchases* is the net repurchase of common shares and preferred stock. *Interest expense* is the interest expense of the firm. *Dividend payout* is equal to common dividend paid. All aforementioned variables are normalized by total assets minus cash minus marketable securities minus non-current investments using the equity and market methods. *Size* is the market value of equity. *Leverage* is market leverage. *Market-to-book ratio* is total assets minus book value of equity plus the market value of equity, all divided by total assets. *R & D expense* is the research and development expenditures of the firm divided by sales. *Marginal tax rate* is the trichotomous variable for corporate tax rate (Graham, 1996).

Variable Name	Mean	N	Q25	Q50	Q75
Market investments	0.274	114484	0.000	0.020	0.138
Cash	0.254	114484	0.018	0.047	0.153
Capital expenditure	0.098	114484	0.031	0.063	0.121
Size	750.814	114484	21.144	76.165	325.676
Cash flow	-0.097	114484	-0.003	0.069	0.121
Leverage	0.271	114484	0.042	0.206	0.443
New financing	0.230	114484	-0.022	0.007	0.115
Market-to-book ratio	1.853	114484	0.973	1.288	1.986
R & D expense	0.130	113268	0.000	0.000	0.033
Marginal tax rate	33.580	114484	23.000	35.000	46.000
Repurchases	-0.017	114484	0.000	0.000	0.000
Interest expense	0.032	114484	0.009	0.022	0.040
Dividend payout	0.010	114484	0.000	0.000	0.011

Table III. Comparing Corporate Market Investments to Cash

The table presents regression results for the sample where the dependent variables are the logarithm of *Cash* in column one, and the logarithm of *Market investments* in column two. In column one, the coefficients are estimated using Ordinary Least Squares (OLS). In column two, the coefficients are estimated using a Tobit model. Column three presents the difference in coefficients between columns one and two. The sample period is 1971 to 2005. All nominal balance sheet items are converted to 2005 dollars using the Consumer Price Index. All regressions use year and industry effects. *Market investments* is marketable securities plus non-current investments using the equity and market methods. *Cash* is cash holdings. *Capital expenditure* is capital investments. *Cash flow* is EBITDA minus interest minus taxes minus common dividends. *New financing* is equal to total equity issuance minus repurchases plus debt issuance minus debt redemption. *Repurchases* is the net repurchase of common shares and preferred stock. *Interest expense* is the interest expense of the firm. *Dividend payout* is equal to common dividend paid. All aforementioned variables are normalized by total assets minus cash minus marketable securities minus non-current investments using the equity and market methods. *Log(Size)* is the logarithm of the market value of equity. *Leverage* is market leverage. *R & D expense* is the research and development expenditures of the firm divided by sales. *Market-to-book ratio* is total assets minus book value of equity plus the market value of equity, all divided by total assets. *Marginal tax rate* is the trichotomous variable for corporate tax rate (Graham, 1996). Heteroscedasticity-robust standards errors are estimated and corrected for clustering at the firm level. Absolute *t*-statistics are reported in parentheses in columns one and two. The *p*-values for a generalized Hausman test are reported in brackets in column three; the null hypothesis is that the difference in the coefficients is zero. . The *p*-value for a nonlinear test of proportionality is reported in column three; the null hypothesis is that the relative contribution of each variable is the same for both regressions. The Model *p*-value shows the result for a test that all of the listed coefficients are jointly zero. +, *, ** denote statistical significance at the 10%, 5% and 1% levels.

	Cash	*Market Investments*	*Cash – Market Investments*
Log (Size)	-0.079	0.838	-0.917
	(11.621)**	(27.412)**	[0.000]**
Cash flow	-0.135	-0.625	0.490
	(5.826)**	(6.967)**	[0.000]**
Leverage	-2.407	-3.330	0.923
	(45.605)**	(13.528)**	[0.000]**
New financing	0.372	0.280	0.092
	(37.450)**	(7.467)**	[0.016]*
Capital expenditure	0.506	2.287	-1.781
	(5.363)**	(5.810)**	[0.001]**
Market-to-book ratio	0.034	-0.385	0.419
	(5.321)**	(13.001)**	[0.000]**
R & D expense	0.182	0.620	-0.438
	(9.793)**	(7.564)**	[0.000]**
Marginal tax rate	-0.376	-2.471	2.095
	(3.878)**	(5.428)**	[0.000]**
Repurchases	0.022	0.640	-0.618
	(0.319)	(1.990)*	[0.051]+
Interest expense	2.414	9.309	-6.895
	(6.978)**	(6.889)**	[0.000]**
Dividend payout	-0.317	17.245	-17.562
	(0.506)	(7.471)**	[0.000]**
Proportionality: *p*-value			0.000
Number of observations	113237	113237	
Model *p*-value	0.000	0.000	

Table IV. Corporate Market Investments

The table presents Tobit regression results for the sample where the dependent variable is the logarithm of *Market investments*. The sample period is 1971 to 2005. All nominal balance sheet items are converted to 2005 dollars using the Consumer Price Index. All regressions use year and industry effects. *Market investments* is marketable securities plus non-current investments using the equity and market methods. *Cash* is cash holdings. *Capital expenditure* is capital investments. *Cash flow* is EBITDA minus interest minus taxes minus common dividends. *New financing* is equal to total equity issuance minus repurchases plus debt issuance minus debt redemption. *Repurchases* is the net repurchase of common shares and preferred stock. *Interest expense* is the interest expense of the firm. *Dividend payout* is equal to common dividend paid. All aforementioned variables are normalized by total assets minus cash minus marketable securities minus non-current investments using the equity and market methods. *Log(Size)* is the logarithm of the market value of equity. *Leverage* is market leverage. *R & D expense* is the research and development expenditures of the firm divided by sales. *Market-to-book ratio* is total assets minus book value of equity plus the market value of equity, all divided by total assets. *Marginal tax rate* is the trichotomous variable for corporate tax rate (Graham, 1996). Heteroscedasticity-robust standards errors are estimated and corrected for clustering at the firm level. Absolute *t*-statistics are reported in parentheses. The Model *p*-value shows the result for a test that all of the listed coefficients are jointly zero. +, *, ** denote statistical significance at the 10%, 5% and 1% levels.

Log (Size)	0.881	0.873	0.901	0.879	0.885	0.836	0.838
	(30.270)**	(29.795)**	(30.549)**	(30.046)**	(30.451)**	(27.795)**	(27.405)**
Cash flow	-1.179	-0.881	-1.145	-1.191	-1.055	-1.162	-0.639
	(15.972)**	(9.637)**	(15.503)**	(16.172)**	(14.132)**	(15.724)**	(6.984)**
Leverage	-2.916	-2.793	-3.060	-2.897	-3.712	-2.621	-3.348
	(12.604)**	(12.034)**	(13.240)**	(12.535)**	(15.035)**	(11.385)**	(13.512)**
New financing	0.307	0.306	0.301	0.310	0.279	0.324	0.296
	(7.695)**	(7.019)**	(7.582)**	(7.753)**	(7.040)**	(8.190)**	(6.862)**
Cash	-0.133	-0.038	-0.133	-0.137	-0.127	-0.132	-0.049
	(1.848)+	(0.481)	(1.861)+	(1.903)+	(1.797)+	(1.846)+	(0.640)
Capital expenditure	2.025	1.885	2.083	2.009	2.127	2.290	2.287
	(5.246)**	(4.771)**	(5.400)**	(5.203)**	(5.525)**	(5.952)**	(5.811)**
Market-to-book ratio	-0.373	-0.358	-0.389	-0.371	-0.402	-0.360	-0.386
	(12.953)**	(12.113)**	(13.462)**	(12.895)**	(13.898)**	(12.485)**	(13.007)**
R & D expense		0.498					0.621
		(6.096)**					(7.590)**
Marginal tax rate			-2.474				-2.473
			(5.442)**				(5.431)**
Repurchases				0.408			0.649
				(1.291)			(2.017)*
Interest expense					9.458		9.311
					(7.220)**		(6.885)**
Dividend payout						15.342	17.248
						(6.609)**	(7.469)**
Number of observations	114449	113237	114449	114449	114449	114449	113237
Model *p*-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table V. Corporate Market Investments: Binary Response

The table presents Probit regression results for the sample where the dependent variable is *Market investment dummy*. The sample period is 1971 to 2005. All nominal balance sheet items are converted to 2005 dollars using the Consumer Price Index. All regressions use year and industry effects. *Market investments* is marketable securities plus non-current investments using the equity and market methods. *Cash* is cash holdings. *Capital expenditure* is capital investments. *Cash flow* is EBITDA minus interest minus taxes minus common dividends. *New financing* is equal to total equity issuance minus repurchases plus debt issuance minus debt redemption. *Repurchases* is the net repurchase of common shares and preferred stock. *Interest expense* is the interest expense of the firm. *Dividend payout* is equal to common dividend paid. All aforementioned variables are normalized by total assets minus cash minus marketable securities minus non-current investments using the equity and market methods. *Log(Size)* is the logarithm of the market value of equity. *Leverage* is market leverage. *R & D expense* is the research and development expenditures of the firm divided by sales. *Market-to-book ratio* is total assets minus book value of equity plus the market value of equity, all divided by total assets. *Marginal tax rate* is the trichotomous variable for corporate tax rate (Graham, 1996). Heteroscedasticity-robust standards errors are estimated and corrected for clustering at the firm level. Absolute *t*-statistics are reported in parentheses. The Model *p*-value shows the result for a test that all of the listed coefficients are jointly zero. +, *, ** denote statistical significance at the 10%, 5% and 1% levels.

Log (Size)	0.158	0.157	0.160	0.158	0.158	0.151	0.152
	(28.323)**	(27.927)**	(28.461)**	(28.191)**	(28.392)**	(26.642)**	(26.236)**
Cash flow	-0.159	-0.131	-0.155	-0.159	-0.148	-0.157	-0.102
	(13.980)**	(9.426)**	(13.581)**	(14.007)**	(12.741)**	(13.659)**	(7.168)**
Leverage	-0.278	-0.266	-0.296	-0.278	-0.348	-0.240	-0.306
	(7.530)**	(7.162)**	(8.032)**	(7.539)**	(8.841)**	(6.542)**	(7.707)**
New financing	0.027	0.029	0.026	0.027	0.024	0.030	0.029
	(4.359)**	(4.123)**	(4.260)**	(4.344)**	(3.905)**	(4.807)**	(4.093)**
Cash	-0.058	-0.048	-0.058	-0.058	-0.057	-0.058	-0.048
	(5.635)**	(4.155)**	(5.648)**	(5.631)**	(5.533)**	(5.610)**	(4.148)**
Capital expenditure	0.214	0.201	0.223	0.214	0.224	0.248	0.254
	(3.315)**	(2.998)**	(3.440)**	(3.313)**	(3.454)**	(3.848)**	(3.783)**
Market-to-book ratio	-0.065	-0.064	-0.067	-0.065	-0.068	-0.063	-0.067
	(15.053)**	(14.260)**	(15.506)**	(15.056)**	(15.731)**	(14.518)**	(14.798)**
R & D expense		0.057					0.072
		(4.151)**					(5.096)**
Marginal tax rate			-0.328				-0.350
			(4.321)**				(4.563)**
Repurchases				-0.001			0.023
				(0.015)			(0.484)
Interest expense					0.847		0.787
					(4.360)**		(3.820)**
Dividend payout						2.355	2.670
						(5.473)**	(6.118)**
Number of observations	114446	113234	114446	114446	114446	114446	113234
Model *p*-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table VI. Corporate Market Investments: Normalized by the Market Value of Net Assets

The table presents Tobit regression results for the sample where the dependent variable is the logarithm of *Market investments*. The sample period is 1971 to 2005. All nominal balance sheet items are converted to 2005 dollars using the Consumer Price Index. All regressions use year and industry effects. *Market investments* is marketable securities plus non-current investments using the equity and market methods. *Cash* is cash holdings. *Capital expenditure* is capital investments. *Cash flow* is EBITDA minus interest minus taxes minus common dividends. *New financing* is equal to total equity issuance minus repurchases plus debt issuance minus debt redemption. *Repurchases* is the net repurchase of common shares and preferred stock. *Interest expense* is the interest expense of the firm. *Dividend payout* is equal to common dividend paid. All aforementioned variables are normalized by total assets minus the book value of equity plus the market value of equity minus cash minus marketable securities minus non-current investments using the equity and market methods. *Log(Size)* is the logarithm of the market value of equity. *Leverage* is market leverage. *R & D expense* is the research and development expenditures of the firm divided by sales. *Market-to-book ratio* is total assets minus book value of equity plus the market value of equity, all divided by total assets. *Marginal tax rate* is the trichotomous variable for corporate tax rate (Graham, 1996). Heteroscedasticity-robust standards errors are estimated and corrected for clustering at the firm level. Absolute *t*-statistics are reported in parentheses. The Model *p*-value shows the result for a test that all of the listed coefficients are jointly zero. +, *, ** denote statistical significance at the 10%, 5% and 1% levels.

Log (Size)	0.895	0.908	0.906	0.897	0.903	0.860	0.883
	(30.506)**	(30.837)**	(30.549)**	(30.576)**	(30.893)**	(28.903)**	(29.513)**
Cash flow	-3.028	-2.552	-2.919	-2.994	-2.566	-3.007	-1.921
	(17.679)**	(14.622)**	(17.040)**	(17.505)**	(15.163)**	(17.617)**	(11.217)**
Leverage	-2.453	-2.323	-2.540	-2.538	-5.152	-2.113	-4.855
	(10.460)**	(9.870)**	(10.849)**	(10.791)**	(17.165)**	(9.059)**	(16.148)**
New financing	-0.496	-0.655	-0.507	-0.526	-0.281	-0.415	-0.359
	(4.805)**	(6.256)**	(4.910)**	(5.073)**	(2.766)**	(4.036)**	(3.488)**
Cash	0.889	0.896	0.881	0.888	0.407	0.858	0.345
	(5.277)**	(5.229)**	(5.237)**	(5.271)**	(2.403)*	(5.110)**	(1.999)*
Capital expenditure	2.217	2.144	2.252	2.246	2.031	2.172	1.953
	(8.827)**	(8.517)**	(8.960)**	(8.925)**	(8.183)**	(8.666)**	(7.861)**
Market-to-book ratio	-0.384	-0.450	-0.394	-0.386	-0.398	-0.344	-0.426
	(14.698)**	(16.484)**	(15.072)**	(14.805)**	(15.338)**	(13.157)**	(15.619)**
R & D expense		0.850					0.839
		(12.735)**					(12.583)**
Marginal tax rate			-1.613				-1.589
			(3.378)**				(3.345)**
Repurchases				-1.063			-0.805
				(2.961)**			(2.244)*
Interest expense					17.649		18.319
					(15.628)**		(16.229)**
Dividend payout						11.124	13.697
						(7.981)**	(9.863)**
Number of observations	113711	112598	113711	113711	113711	113711	112598
Model *p*-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table VII. Corporate Market Investments: Lagged Specification

The table presents Tobit regression results for the sample where the dependent variable is the logarithm of *Market investments* at year *t*. All independent variables are as of year *t*-1. The sample period is 1971 to 2005. All nominal balance sheet items are converted to 2005 dollars using the Consumer Price Index. All regressions use year and industry effects. *Market investments* is marketable securities plus non-current investments using the equity and market methods. *Cash* is cash holdings. *Capital expenditure* is capital investments. *Cash flow* is EBITDA minus interest minus taxes minus common dividends. *New financing* is equal to total equity issuance minus repurchases plus debt issuance minus debt redemption. *Repurchases* is the net repurchase of common shares and preferred stock. *Interest expense* is the interest expense of the firm. *Dividend payout* is equal to common dividend paid. All aforementioned variables are normalized by total assets minus cash minus marketable securities minus non-current investments using the equity and market methods. *Log(Size)* is the logarithm of the market value of equity. *Leverage* is market leverage. *R & D expense* is the research and development expenditures of the firm divided by sales. *Market-to-book ratio* is total assets minus book value of equity plus the market value of equity, all divided by total assets. *Marginal tax rate* is the trichotomous variable for corporate tax rate (Graham, 1996). Heteroscedasticity-robust standards errors are estimated and corrected for clustering at the firm level. Absolute *t*-statistics are reported in parentheses. The Model *p*-value shows the result for a test that all of the listed coefficients are jointly zero. +, *, ** denote statistical significance at the 10%, 5% and 1% levels.

Log (Size)	0.905	0.898	0.921	0.904	0.906	0.861	0.863
	(29.056)**	(28.728)**	(29.220)**	(28.934)**	(29.146)**	(26.671)**	(26.386)**
Cash flow	-0.777	-0.440	-0.745	-0.782	-0.678	-0.763	-0.212
	(8.627)**	(3.889)**	(8.258)**	(8.687)**	(7.534)**	(8.480)**	(1.901)+
Leverage	-2.529	-2.389	-2.653	-2.520	-3.229	-2.229	-2.845
	(10.121)**	(9.544)**	(10.643)**	(10.095)**	(12.029)**	(8.966)**	(10.555)**
New financing	0.220	0.180	0.214	0.221	0.192	0.236	0.167
	(5.131)**	(3.862)**	(5.015)**	(5.152)**	(4.486)**	(5.564)**	(3.626)**
Cash	0.561	0.723	0.562	0.560	0.560	0.560	0.711
	(7.564)**	(9.164)**	(7.591)**	(7.548)**	(7.639)**	(7.581)**	(9.126)**
Capital expenditure	0.730	0.552	0.769	0.723	0.825	0.999	0.949
	(1.746)+	(1.290)	(1.841)+	(1.728)+	(1.977)*	(2.397)*	(2.224)*
Market-to-book ratio	-0.257	-0.242	-0.270	-0.256	-0.279	-0.244	-0.265
	(8.407)**	(7.753)**	(8.822)**	(8.396)**	(9.115)**	(7.963)**	(8.426)**
R & D expense		0.571					0.697
		(5.590)**					(6.837)**
Marginal tax rate			-2.193				-2.272
			(4.335)**				(4.495)**
Repurchases				0.187			0.327
				(0.490)			(0.843)
Interest expense					8.736		8.584
					(5.661)**		(5.397)**
Dividend payout						14.095	15.894
						(5.795)**	(6.565)**
Number of observations	100249	99287	100249	100249	100249	100249	99287
Model *p*-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table VIII. Non-Current Corporate Market Investments

The table presents Tobit regression results for the sample where the dependent variable is the logarithm of *Non-current market investments*. The sample period is 1971 to 2005. All nominal balance sheet items are converted to 2005 dollars using the Consumer Price Index. All regressions use year and industry effects. *Non-current market investments* is non-current investments using the equity and market methods. *Cash* is cash holdings. *Capital expenditure* is capital investments. *Cash flow* is EBITDA minus interest minus taxes minus common dividends. *New financing* is equal to total equity issuance minus repurchases plus debt issuance minus debt redemption. *Repurchases* is the net repurchase of common shares and preferred stock. *Interest expense* is the interest expense of the firm. *Dividend payout* is equal to common dividend paid. All aforementioned variables are normalized by total assets minus cash minus non-current investments using the equity and market methods. *Log(Size)* is the logarithm of the market value of equity. *Leverage* is market leverage. *R & D expense* is the research and development expenditures of the firm divided by sales. *Market-to-book ratio* is total assets minus book value of equity plus the market value of equity, all divided by total assets. *Marginal tax rate* is the trichotomous variable for corporate tax rate (Graham, 1996). Heteroscedasticity-robust standards errors are estimated and corrected for clustering at the firm level. Absolute *t*-statistics are reported in parentheses. The Model *p*-value shows the result for a test that all of the listed coefficients are jointly zero. +, *, ** denote statistical significance at the 10%, 5% and 1% levels.

Log (Size)	1.295	1.303	1.326	1.300	1.295	1.269	1.301
	(31.790)**	(31.950)**	(32.278)**	(31.807)**	(31.943)**	(29.967)**	(30.511)**
Cash flow	-1.267	-1.540	-1.136	-1.219	-0.797	-1.241	-0.845
	(7.685)**	(8.628)**	(6.868)**	(7.370)**	(4.768)**	(7.513)**	(4.600)**
Leverage	3.640	3.642	3.391	3.594	1.796	3.779	1.917
	(11.983)**	(11.947)**	(11.192)**	(11.836)**	(5.413)**	(12.588)**	(5.808)**
New financing	-0.797	-0.742	-0.821	-0.820	-0.845	-0.776	-0.800
	(6.343)**	(5.765)**	(6.590)**	(6.521)**	(6.984)**	(6.237)**	(6.506)**
Cash	0.097	0.158	0.102	0.110	0.083	0.096	0.133
	(0.687)	(1.076)	(0.729)	(0.784)	(0.603)	(0.688)	(0.924)
Capital expenditure	-2.536	-2.357	-2.346	-2.501	-2.441	-2.412	-1.965
	(4.052)**	(3.719)**	(3.755)**	(3.995)**	(3.938)**	(3.867)**	(3.137)**
Market-to-book ratio	-0.438	-0.427	-0.463	-0.441	-0.498	-0.429	-0.501
	(10.273)**	(9.774)**	(10.837)**	(10.350)**	(11.574)**	(10.045)**	(11.304)**
R & D expense		-0.417					-0.262
		(3.390)**					(2.139)*
Marginal tax rate			-4.310				-3.679
			(7.091)**				(6.057)**
Repurchases				-1.045			-0.279
				(2.153)*			(0.568)
Interest expense					22.437		20.238
					(11.602)**		(10.227)**
Dividend payout						8.848	9.467
						(2.131)*	(2.276)*
Number of observations	114449	113237	114449	114449	114449	114449	113237
Model *p*-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table IX. Corporate Market Investments: Strategic Investments and Pensions

The table presents Tobit regression results for the sample where the dependent variable is the logarithm of *Market investments*. The sample period is 1971 to 2005. All nominal balance sheet items are converted to 2005 dollars using the Consumer Price Index. All regressions use year and industry effects. *Market investments* is marketable securities plus non-current investments using the equity and market methods. *Cash* is cash holdings. *Capital expenditure* is capital investments. *Cash flow* is EBITDA minus interest minus taxes minus common dividends. *New financing* is equal to total equity issuance minus repurchases plus debt issuance minus debt redemption. *Repurchases* is the net repurchase of common shares and preferred stock. *Interest expense* is the interest expense of the firm. *Dividend payout* is equal to common dividend paid. All aforementioned variables are normalized by total assets minus cash minus marketable securities minus non-current investments using the equity and market methods. *Log(Size)* is the logarithm of the market value of equity. *Leverage* is market leverage. *R & D expense* is the research and development expenditures of the firm divided by sales. *Market-to-book ratio* is total assets minus book value of equity plus the market value of equity, all divided by total assets. *Marginal tax rate* is the trichotomous variable for corporate tax rate (Graham, 1996). *Toehold dummy* is equal to one if the firm acquires or merges with another firm in year t+1, and zero otherwise. *Strategic equity* is equal to one if non-current investment using the equity method is positive, and zero otherwise. *Pension expense* is the pension expense of the firm. Heteroscedasticity-robust standards errors are estimated and corrected for clustering at the firm level. Absolute t-statistics are reported in parentheses. The Model p-value shows the result for a test that all of the listed coefficients are jointly zero. +, *, ** denote statistical significance at the 10%, 5% and 1% levels.

Log (Size)	0.838	0.827	0.374	0.818	0.306
	(27.405)**	(26.877)**	(12.554)**	(22.878)**	(8.860)**
Cash flow	-0.639	-0.641	-0.299	-0.492	-0.111
	(6.984)**	(7.010)**	(3.274)**	(3.769)**	(0.840)
Leverage	-3.348	-3.350	-4.490	-3.286	-4.537
	(13.512)**	(13.523)**	(19.477)**	(10.873)**	(16.248)**
New financing	0.296	0.294	0.363	0.156	0.224
	(6.862)**	(6.806)**	(8.515)**	(2.566)*	(3.688)**
Cash	-0.049	-0.047	0.018	0.331	0.396
	(0.640)	(0.620)	(0.242)	(3.188)**	(3.917)**
Capital expenditure	2.287	2.313	2.675	3.902	3.970
	(5.811)**	(5.877)**	(7.225)**	(7.254)**	(7.922)**
Market-to-book ratio	-0.386	-0.384	-0.241	-0.237	-0.047
	(13.007)**	(12.938)**	(8.477)**	(6.247)**	(1.290)
R & D expense	0.621	0.625	0.812	0.821	1.031
	(7.590)**	(7.642)**	(10.017)**	(7.349)**	(9.197)**
Marginal tax rate	-2.473	-2.464	-2.319	-3.192	-3.111
	(5.431)**	(5.413)**	(5.428)**	(5.603)**	(5.920)**
Repurchases	0.649	0.644	1.197	0.454	1.098
	(2.017)*	(2.001)*	(3.877)**	(1.082)	(2.729)**
Interest expense	9.311	9.328	7.470	7.001	4.858
	(6.885)**	(6.895)**	(5.584)**	(3.790)**	(2.658)**
Dividend payout	17.248	17.341	16.399	15.014	14.749
	(7.469)**	(7.512)**	(7.621)**	(5.777)**	(6.169)**
Toehold dummy		0.179			-0.004
		(2.028)*			(0.043)
Strategic equity			6.176		6.139
			(62.392)**		(53.143)**
Pension expense				16.466	12.867
				(3.108)**	(2.593)**
Number of observations	113237	113237	113237	76497	76497
Model *p*-value	0.000	0.000	0.000	0.000	0.000

Table X. Corporate Market Investments and Business Risk

The table presents Tobit regression results for the sample where the dependent variable is the logarithm of *Market investments*. The sample period is 1971 to 2005. All nominal balance sheet items are converted to 2005 dollars using the Consumer Price Index. All regressions use year and industry effects. *Market investments* is marketable securities plus non-current investments using the equity and market methods. *Cash* is cash holdings. *Capital expenditure* is capital investments. *Cash flow* is EBITDA minus interest minus taxes minus common dividends. *New financing* is equal to total equity issuance minus repurchases plus debt issuance minus debt redemption. *Repurchases* is the net repurchase of common shares and preferred stock. *Interest expense* is the interest expense of the firm. *Dividend payout* is equal to common dividend paid. All aforementioned variables are normalized by total assets minus cash minus marketable securities minus non-current investments using the equity and market methods. *Log(Size)* is the logarithm of the market value of equity. *Leverage* is market leverage. *R & D expense* is the research and development expenditures of the firm divided by sales. *Market-to-book ratio* is total assets minus book value of equity plus the market value of equity, all divided by total assets. *Marginal tax rate* is the trichotomous variable for corporate tax rate (Graham, 1996). *Hedging needs* is the AAC measure of hedging needs (Acharya, Almeida, Campello, 2007). *Log (Industry CF volatility)* is the logarithm of the industry-year median of the firm-level measure of the sample period volatility of operating cash flow over total assets, where industry is defined by the three-digit SIC code. *Log (Firm CF volatility)* is the sample period volatility of operating cash flow over total assets. Heteroscedasticity-robust standards errors are estimated and corrected for clustering at the firm level. Absolute *t*-statistics are reported in parentheses. The Model *p*-value shows the result for a test that all of the listed coefficients are jointly zero. +, *, ** denote statistical significance at the 10%, 5% and 1% levels.

Log (Size)	0.838	0.828	0.839	0.748	0.749
	(27.405)**	(25.773)**	(26.097)**	(14.801)**	(14.840)**
Cash flow	-0.639	-0.678	-0.686	-0.653	-0.648
	(6.984)**	(6.374)**	(6.461)**	(6.071)**	(6.024)**
Leverage	-3.348	-3.351	-3.330	-3.475	-3.475
	(13.512)**	(12.665)**	(12.592)**	(12.714)**	(12.728)**
New financing	0.296	0.247	0.244	0.254	0.254
	(6.862)**	(4.964)**	(4.914)**	(5.094)**	(5.097)**
Cash	-0.049	0.020	0.022	0.017	0.015
	(0.640)	(0.228)	(0.255)	(0.195)	(0.168)
Capital expenditure	2.287	2.324	2.307	2.323	2.316
	(5.811)**	(5.207)**	(5.172)**	(5.206)**	(5.196)**
Market-to-book ratio	-0.386	-0.383	-0.387	-0.371	-0.375
	(13.007)**	(11.471)**	(11.616)**	(10.879)**	(10.991)**
R & D expense	0.621	0.721	0.698	0.732	0.696
	(7.590)**	(7.618)**	(7.354)**	(7.714)**	(7.336)**
Marginal tax rate	-2.473	-2.736	-2.731	-2.630	-2.612
	(5.431)**	(5.624)**	(5.618)**	(5.405)**	(5.373)**
Repurchases	0.649	0.622	0.608	0.701	0.693
	(2.017)*	(1.768)+	(1.731)+	(1.986)*	(1.965)*
Interest expense	9.311	10.776	10.797	10.544	10.543
	(6.885)**	(7.212)**	(7.235)**	(7.017)**	(7.033)**
Dividend payout	17.248	19.390	19.413	19.640	19.667
	(7.469)**	(8.030)**	(8.064)**	(8.137)**	(8.161)**
Hedging needs		-0.362			-0.389
		(0.740)			(0.792)
Log (Industry CF volatility)			-0.893		-0.920
			(5.656)**		(5.813)**
Log (Firm CF volatility)				0.107	0.126
				(1.790)+	(2.104)*
Number of observations	113237	103970	103970	103970	103970
Model *p*-value	0.000	0.000	0.000	0.000	0.000

Appendix

9. Case Studies: The Modern Nonfinancial Corporation

What types of market investments do modern firms make? What is the profile of a modern firm that makes market investments? Given existing regulation, can a firm make excessive market investments? What is the profile of a firm that makes excessive market investments? To shed light on these questions, I use summary financial statement items to profile three firms that use market investments: Google, Ford, and National Presto Industries. Google and Ford carry two of the most recognizable brands in business[10]. In addition to these observations, I present a brief case study of National Presto Industries, a firm that was recently sued by the Securities and Exchange Commission (SEC) for excessive market investments.

Google

Google is a large public corporation in the internet and technology sector. Its primary NAICS code corresponds to internet service providers and web search portals. The company not only provides a good example of the diversity in the types of market investments, but diversity in the maturity of market investments. For the quarterly period ended March, 31, 2009[11], the firm has total assets of approximately $33.5 billion. The firm's cash holding excluding cash equivalent marketable securities is equal to approximately $4.1 billion. The firm's total market investment is equal to approximately $13.8 billion. Market investment as a percentage of net assets (total assets minus cash minus market investments) is equal to approximately 88%. The largest component of market investment consists of U.S. government agency securities ($4.2 billion). U.S. government agency securities make up approximately 21% of net assets. Google's

[10] Brand recognition is based on the BusinessWeek's top 100 global brands in 2009. Google is ranked at 24, Ford is ranked at 30.
[11] Unaudited statements at the time of this writing.

market investments also include municipal securities ($2 billion), corporate debt securities ($695 million), equity securities ($152 million), and mortgage-backed securities ($108 million). Of the $7.2 billion of non-cash equivalent marketable securities, $3.1 billion worth is due within 1 year, $2.8 billion worth is due between 1 year and 10 years, and $1.3 billion worth is due after 10 years. Google obviously has a flexible investment policy; the company is not limited to investing a moderate amount of funds in short-term Treasuries.

Ford

Like Google, Ford provides an example of a company with substantial market investments. Ford is a large public corporation; its primary NAICS code corresponds to automotive manufacturing. For the quarterly period ended March, 31, 2009[12], the firm has total assets of approximately $76.5 billion for its automotive unit. The firm's cash holding excluding cash equivalent marketable securities is equal to approximately $4.2 billion for the automotive unit. For the automotive unit, the firm's total market investment is equal to approximately $17 billion, with $13.1 billion in non-cash equivalent marketable securities. For the automotive unit, market investment is equal to approximately 31% of net assets.

National Presto Industries

National Presto is a public corporation that sells small consumer appliances, adult diapers, and ammunition. Its primary NAICS code corresponds to broad-woven fabric mills. For the quarterly period ended April, 5, 2009[13], the firm has total assets of approximately $343 million. The firm's cash holding including cash equivalent securities is equal to approximately $19.4 million. The firm's total market investment (excluding cash equivalent securities) is equal

[12] Unaudited statements at the time of this writing.
[13] Unaudited statements at the time of this writing.

to approximately $130 million. Market investment as a percentage of net assets is equal to approximately 61%. The firm's market investment consists wholly of tax-exempt securities.

National Presto found itself with a large amount of cash after a series of divestitures in the 1970s and 1980s. The managers of the firm stated that they were seeking investment opportunities and needed the cash to invest. Market investments made up 86% of total assets in 1994 and 92% of total assets in 1998. In 2002, the SEC filed a lawsuit against National Presto declaring that the firm was an investment company as defined in Section 3(a)(1)(C) of the Investment Company Act of 1940. Section 3(a)(1)(C) states that "the title, 'investment company,' means any issuer which is engaged or proposes to engage in the business of investing, reinvesting, owning, holding, or trading in securities, and owns or proposes to acquire investment securities having a value exceeding 40 percentum of the value of such issuer's total assets (exclusive of Government securities and cash items) on an unconsolidated basis."

In November, 2005, Judge Charles R. Norgle of the U.S. District Court for the Northern District of Illinois ruled in the SEC's favor. In the draft injunction, the SEC allowed for National Presto to apply for an exemption, which other firms – such as Microsoft – had done. The judge refused the draft; National Presto responded by registering as an investment company and replaced enough of its existing portfolio with government securities to bring its market investments below the 40% limit. Subsequent to the 2005 ruling, Presto fell out of compliance with SEC reporting rules, which prompted the New York Stock Exchange (NYSE) to warn the firm that it could be delisted from the exchange within a year.

In May 2007, the U.S. Court of Appeals for the Seventh Circuit reversed the 2005 decision. In doing so, the Seventh Circuit relied less on the asset-based test and more on the judgment that investors were not misled by the firm's behavior. National Presto's CEO Maryjo

Cohen said in a statement, "…The court's opinion is logical and well-reasoned and is a valuable legal precedent which will no doubt be cited in future cases."

10.Aggregate Market Investments: Further Evidence

Figure IV of the main paper shows that average market investment increases with time for firms in the *COMPUSTAT* sample. Taking data from the Flow of Funds Accounts, Figure A. I shows that aggregate market investment (as a percentage of tangible assets) increases with time as well. In contrast to the evidence for market investment, the evidence presented in Figure A. II shows that aggregate cash (as a percentage of tangible assets) decreases with time for the years 1945 to 1975, then increases with time for the years 1975 to 2008.

Figure A. I. Aggregate Market Investments

The figure presents aggregate market investments for nonfarm nonfinancial corporations in the U.S. economy as a percentage of book value of tangible assets and the market value of tangible assets. The full period is 1945 to 2005 (Federal Reserve Board of Governors). All nominal items are converted to 2005 dollars using the Consumer Price Index. *S & P 500 index* is the index value at the close of the trading day.

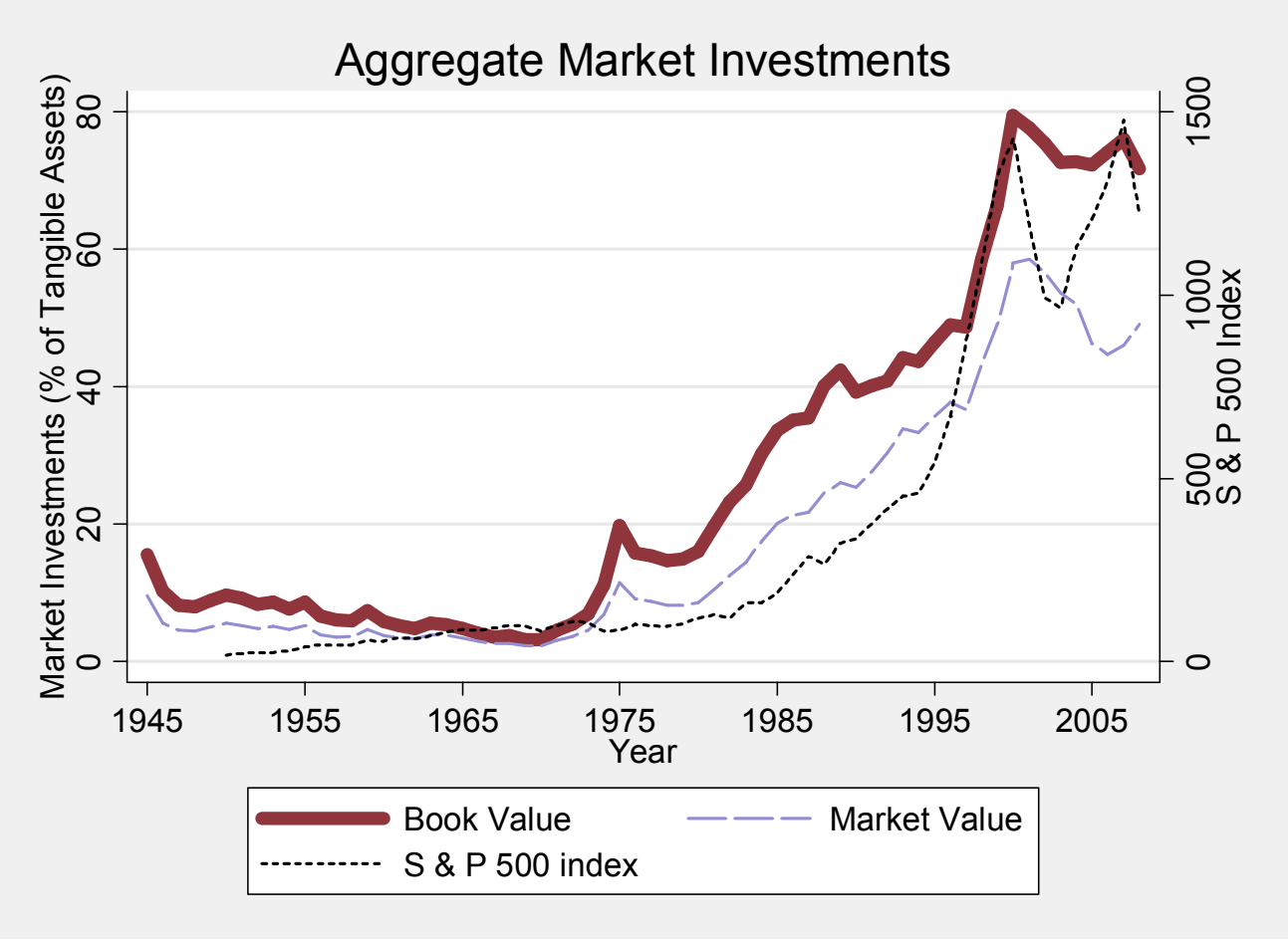

Figure A. II. Aggregate Cash

The figure presents aggregate cash holdings for nonfarm nonfinancial corporations in the U.S. economy as a percentage of book value of tangible assets and the market value of tangible assets. The full period is 1945 to 2005 (Federal Reserve Board of Governors). All nominal items are converted to 2005 dollars using the Consumer Price Index.