Morgan Stanley

INVESTMENT MANAGEMENT

Counterpoint Global Insights

Cash Holdings

Data, Theory, and Alternatives

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Introduction

Boiled down to the basics, a company should seek to allocate capital so as to earn a return in excess of the opportunity cost of capital. When it does so, the market values the enterprise in excess of the invested capital. Capital allocation is one of management's prime tasks, and making sure that all investments pull their economic weight is central to doing it well.[1]

A vital function of a healthy capital market is to reallocate capital from firms with limited prospects for value creation to those with attractive opportunities. This process supports productivity gains and enables an economy to grow closer to its full capacity.

This reallocation happens when companies sell non-productive assets to other firms that can manage them better, as well as when companies return capital to shareholders who can then redeploy it into businesses with more promising prospects.

How should we think about corporate cash, defined as cash and short-term investments? On the one hand, cash clearly earns a return below the cost of capital and therefore creates a drag on return on invested capital. Further, most institutional investors hold diversified portfolios, which means that companies do not need to hold cash to reduce corporate risk.

On the other hand, companies might need cash to fund operations or take advantage of an unexpected opportunity. Cash is an asset that eases worries about access to capital. A company flush with cash is similar to an individual with some extra money in the bank: it provides financial flexibility that allows for a good night's sleep.

In either case, cash holdings are an issue of capital allocation and capital structure worthy of attention. For U.S. public companies, we estimate that cash holdings were nearly $2.5 trillion at the end of 2024, or about 4.7 percent of the market capitalization. We exclude financial firms because their reserve requirements may influence their cash holdings.

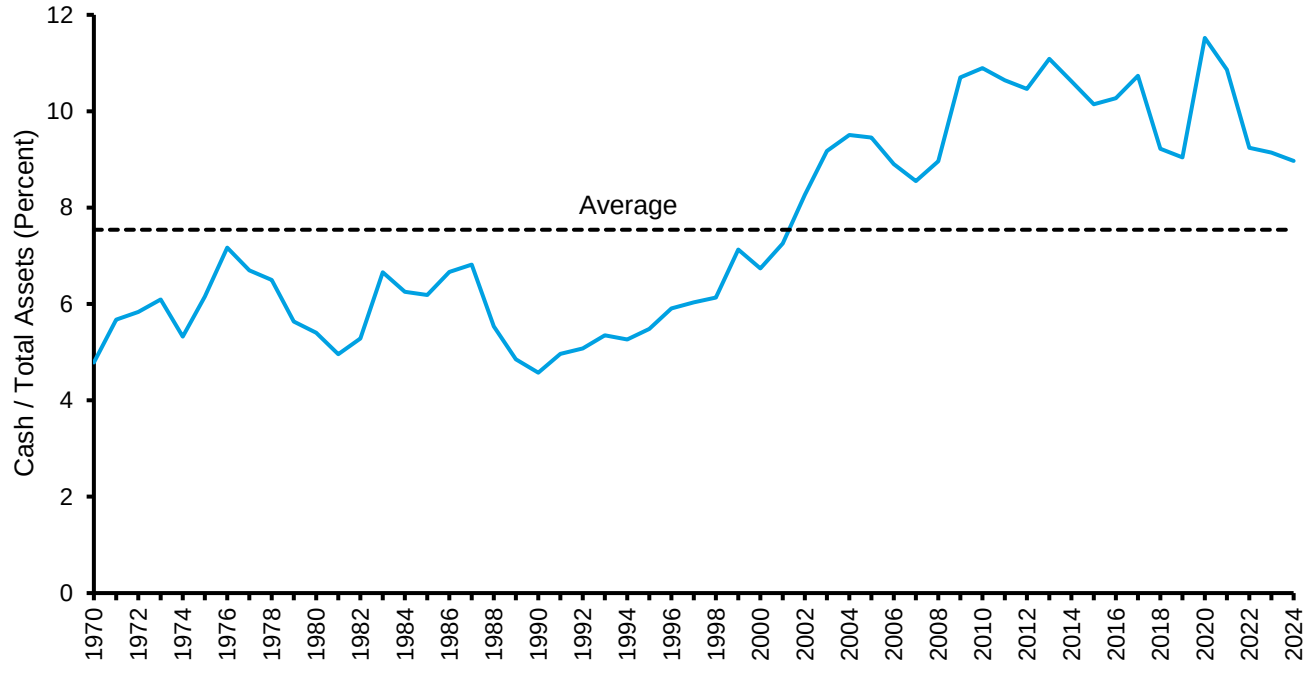
This report has three parts. We start by reviewing empirical data on the cash holdings of public companies in the U.S., noting trends since 1970. Next we discuss theories of why companies hold cash, considering the opportunities and challenges from the point of view of the shareholder. Finally, we consider the alternatives companies have if they choose to disburse excess cash.

The goal is to discern the proper amount of cash a company should hold. There is no simple answer, but holding too little or too much cash can destroy shareholder value.

Empirical Data on Cash Holdings

Exhibit 1 shows aggregate cash and short-term investments divided by total assets for U.S. public companies from 1970 to 2024.[2] The average over the full period is 7.5 percent, but you can see two regimes: the average was 5.8 percent from 1970 to 2000 and 9.7 percent from 2001 to 2024. The ratio at the end of 2024 was 9.0 percent.

Exhibit 1: Cash/Total Assets, 1970-2024

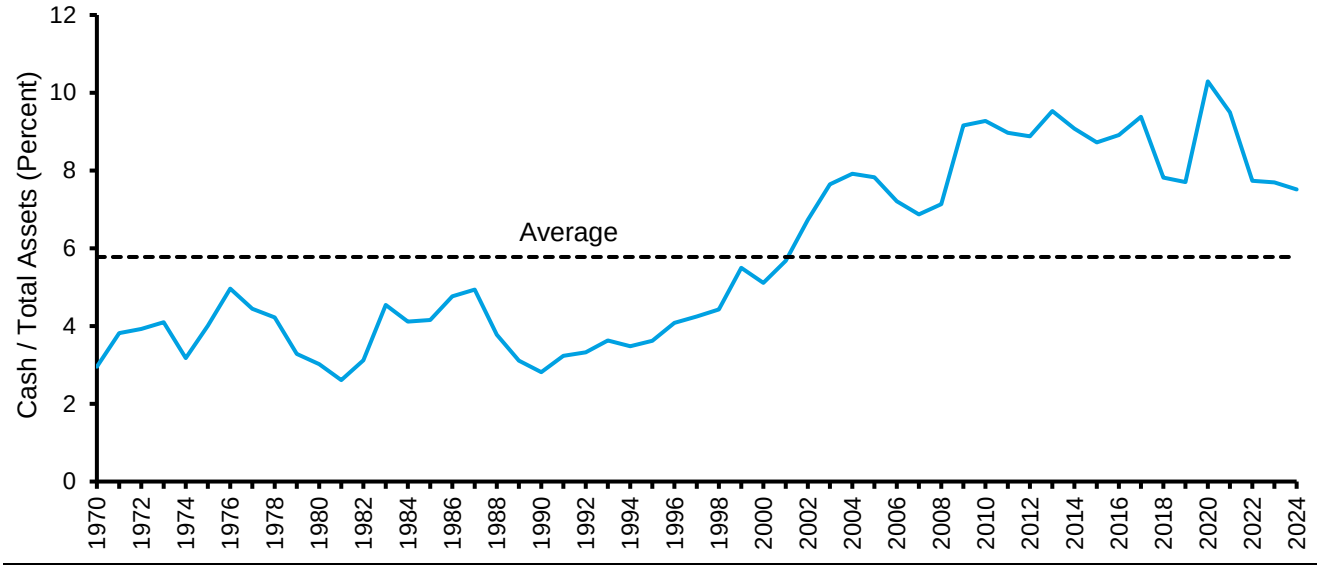


Source: Counterpoint Global, Compustat, and FactSet.
Note: Based on aggregate amounts; U.S. companies excluding financials.

Excess cash divided by total assets is represented in exhibit 2. We define excess cash as the amount a company could disburse to shareholders without creating any hiccup in operations or investment plans. For this calculation, we assume that companies in the aggregate need to hold an amount of cash equivalent to two percent of sales.[3]

As we will see, the appropriate cash balance varies a great deal based on factors such as a company's industry, reliance on intangible investment, position in its life cycle, and degree of business diversification. Here again, we see a meaningful difference in the averages between the pre- and post-2000 periods.

Exhibit 2: Excess Cash/Total Assets, 1970-2024

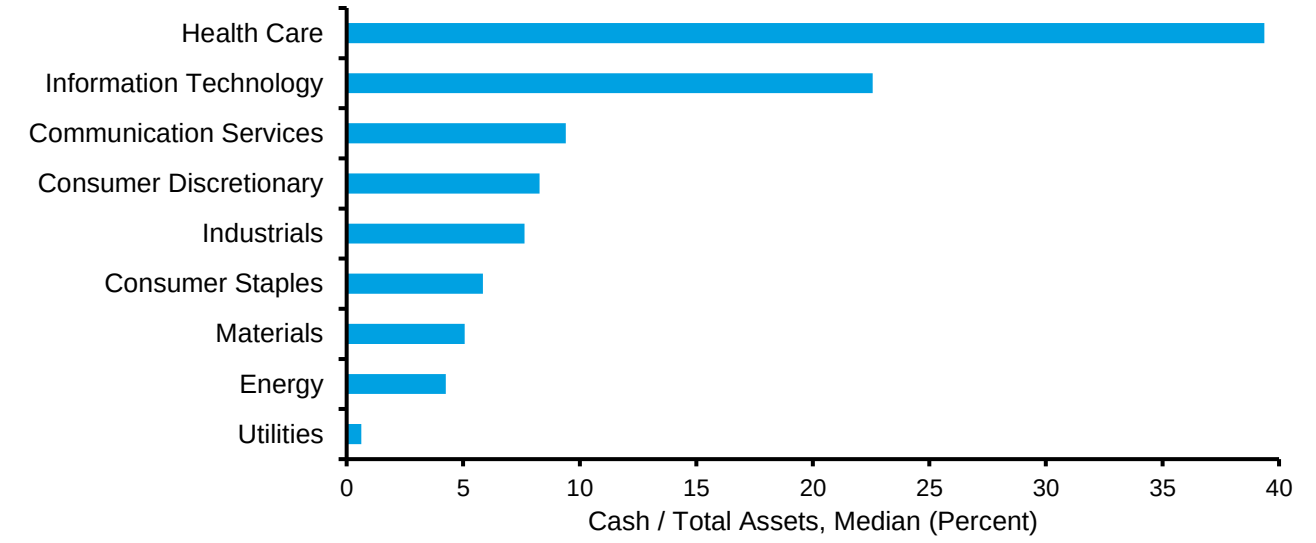


Source: Counterpoint Global, Compustat, and FactSet.
Note: Reflects aggregate amounts; Excess cash assumes required cash balance of 2% of sales; U.S. companies ex-financials.

Cash holdings are heavily skewed. Of the $2.1 trillion of excess cash held in 2024, we estimate that one-quarter of it was attributable to 10 companies, one-third to 21 companies, and one-half to 67 firms. Berkshire Hathaway, a conglomerate holding company, alone held $321 billion at the end of 2024. The company's cash balance swelled further in 2025, reaching $344 billion after the second quarter. (Berkshire is excluded from our sample because it is classified as a financial services company.)

Exhibit 3 shows the median ratio of cash to total assets by sector. Healthcare, at 39 percent, is at the top of the list. This reflects in large part the biotechnology industry. Information technology is second at nearly 23 percent. Healthcare and technology are the sectors where intangible asset intensity is the highest.[4] The sectors with the lowest median cash holdings are energy at 4 percent and utilities at less than 1 percent.

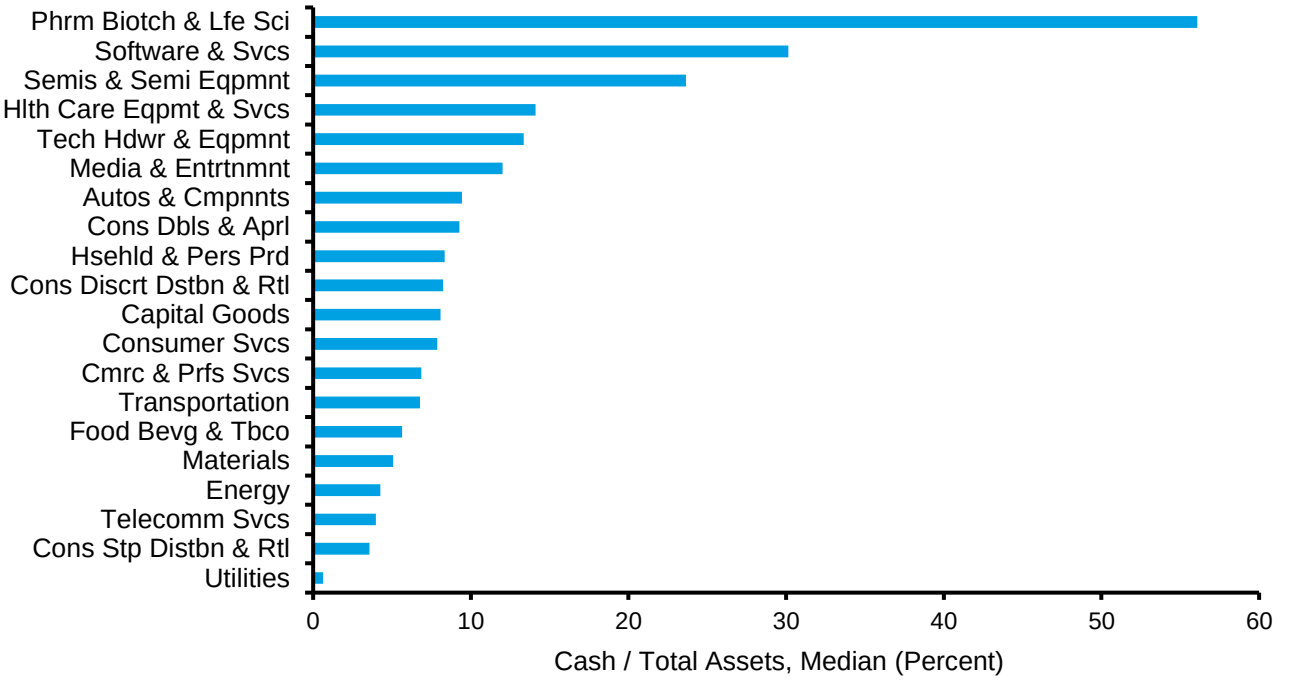
Exhibit 3: Cash/Total Assets by Sector, 2024



Source: Counterpoint Global and FactSet.
Note: Based on calendar year; Minimum assets of $100 million; U.S. companies excluding financials.

Going from sector to industry group (exhibit 4) reveals more precisely where the cash resides. At the top of the list, by far, is the pharmaceuticals, biotechnology, and life sciences industry group. The median percent of cash to total assets is 56 percent. Biotechnology plays a big role. About 10 percent of our sample of public companies are in the biotechnology industry and more than 20 percent of them traded at an equity market capitalization less than their net cash holdings, as of the end of 2024. All of these companies have equity market capitalizations under $1 billion.

Exhibit 4: Cash/Total Assets by Industry Group, 2024



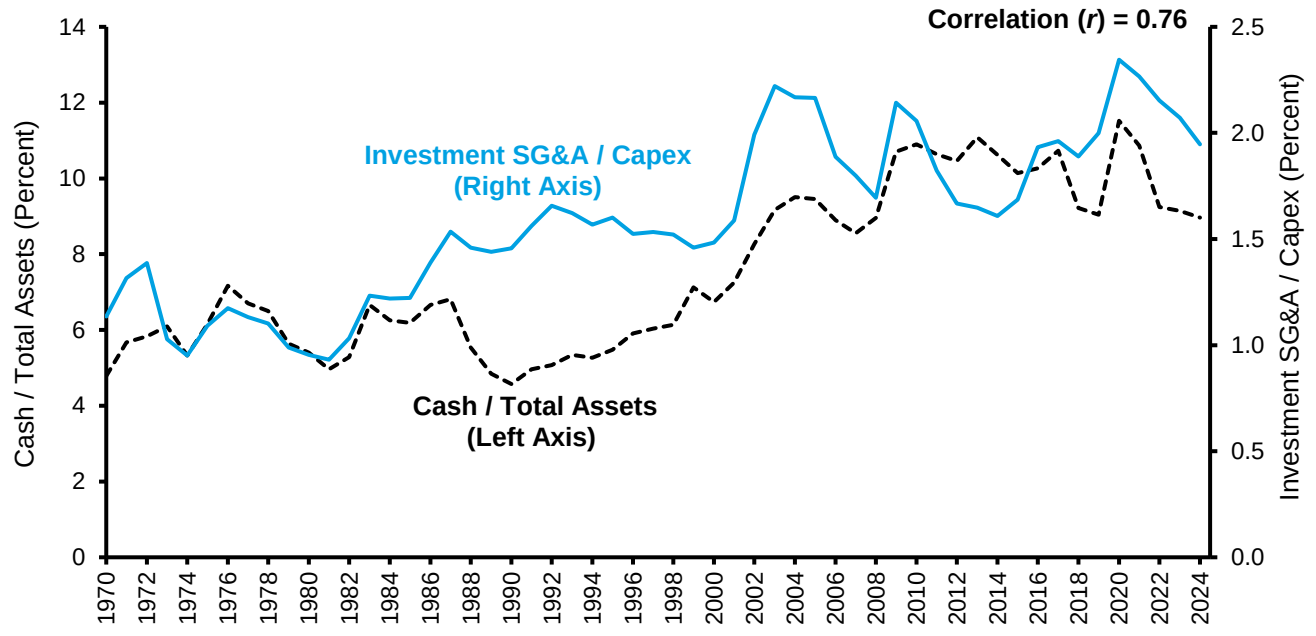
Source: Counterpoint Global and FactSet.
Note: Based on calendar year; Minimum assets of $100 million; U.S. companies excluding financials.

The most important driver of the increase in cash holdings appears to be the growth in intangible relative to tangible investments.[5] Intangible assets are not physical, and include customer relationships, brand building, and recipes for drugs. Tangible assets are physical objects, such as store inventory, machines, and distribution centers.

The basic idea is that intangible assets have limited value as collateral, which caps the debt capacity of those companies reliant on them. Further, many of these companies have good prospects for growth and do not want to be subject to the vagaries of capital markets or economic shocks. As a result, they hold cash to make sure they can run their businesses and fund investment opportunities.

Exhibit 5 shows the ratio of cash to total assets and the ratio of investment selling, general, and administrative (SG&A) expenses to capital expenditures. Investment SG&A is a discretionary investment in intangible assets that shows up on the income statement. The rise in intangible investment since 1970 has been accompanied by a rise in cash holdings.

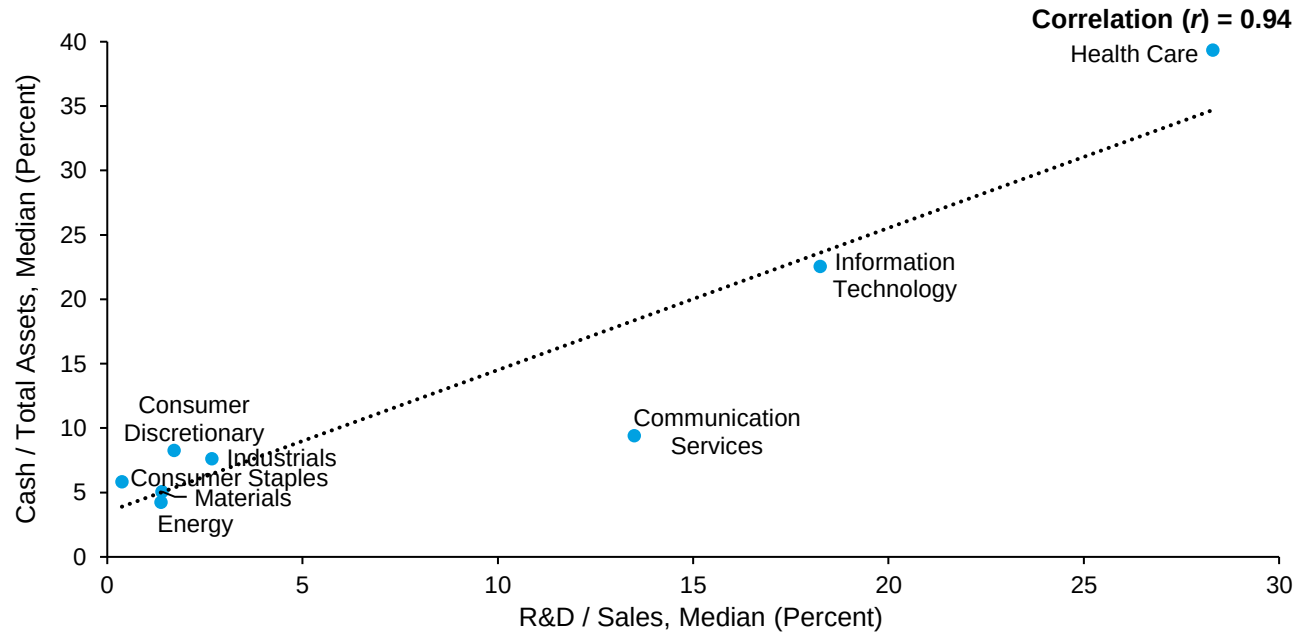
Exhibit 5: Cash Holdings Versus Intangible Investments, 1970-2024



Source: Counterpoint Global, Compustat, and FactSet.
Note: U.S. companies excluding financials.

We can examine this association more closely by comparing research and development (R&D) investment, a proxy for intangible intensity, and cash holdings. Not all of R&D is a discretionary investment, but most of it is.[6] Exhibit 6 shows the relationship by sector for 2024, with median R&D as a percent of sales as the independent variable and median cash as a percent of assets as the dependent variable. The correlation is clearly visible although the sample size is small.

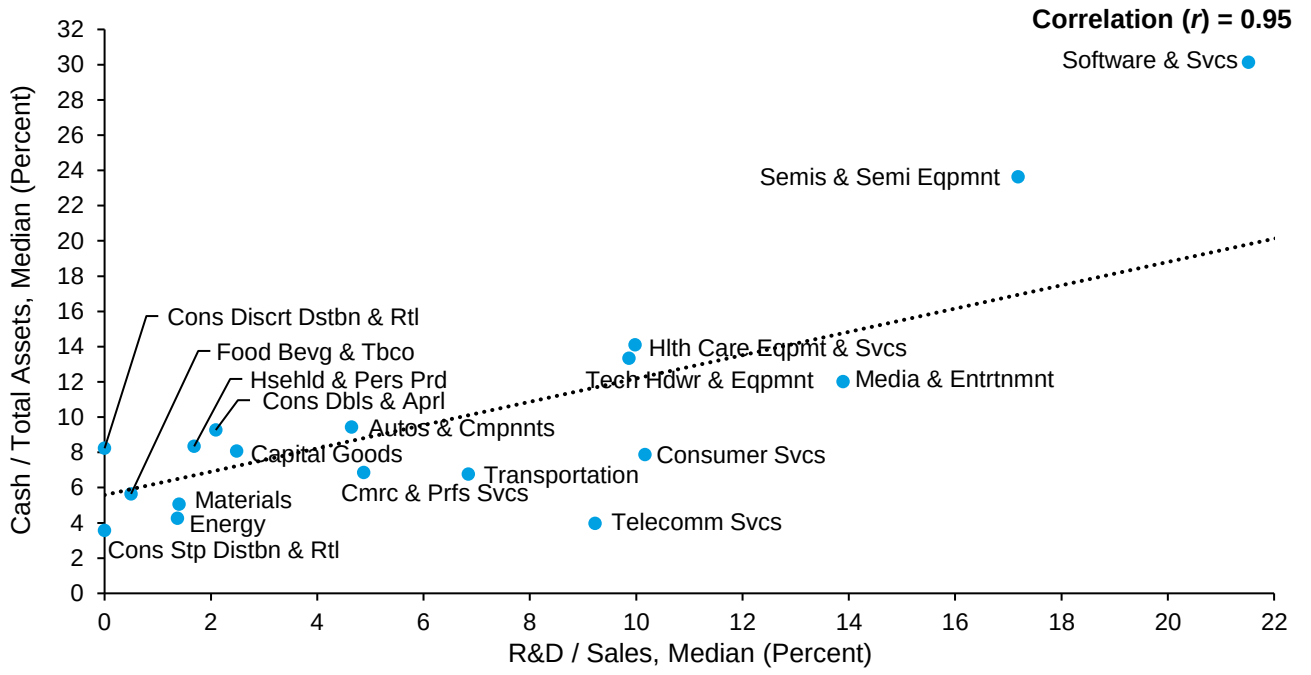
Exhibit 6: Cash/Total Assets versus R&D/Sales by Sector, 2024



Source: Counterpoint Global and FactSet.
Note: Based on calendar year; Minimum assets of $100 million; U.S. companies excluding financials and utilities.

We can fill in the scene by looking at the same variables by industry group (exhibit 7). We see a similar picture, with intangible-reliant industries such as software holding lots of cash and tangible-reliant industries including energy and materials carrying little cash. We do not show the pharmaceuticals, biotechnology and life sciences industry in the exhibit because the median R&D to sales of 80 percent and median cash to total assets of 56 percent would have extended our scales too much.

Exhibit 7: Cash/Total Assets versus R&D/Sales by Industry Group, 2024



Source: Counterpoint Global and FactSet.
Note: Based on calendar year; Minimum assets of $100 million; U.S. companies excluding financials and utilities; Pharmaceuticals, biotechnology & life sciences is excluded for visualization and had median R&D to sales of 80 percent and median cash to total assets of 56 percent.

You might assume that there should be a relationship between company age and cash holdings, with younger and less established companies holding more cash than older and better established ones. But the aggregate data go in the opposite direction: the average age of a U.S. public company since listing rose from about 11 years in 1975 to roughly 18 years in 2024, while cash to total assets also rose from 6.1 percent to 9.0 percent over the same period.[7]

Life cycle analysis is useful for considering a lot of issues that relate to cash holdings, including capital allocation, the cost of financing, corporate governance, and valuation.[8] Proper life cycle analysis does not assume that companies pass through stages solely based on age. A better approach is to consider the patterns of profits, investing, and financing.

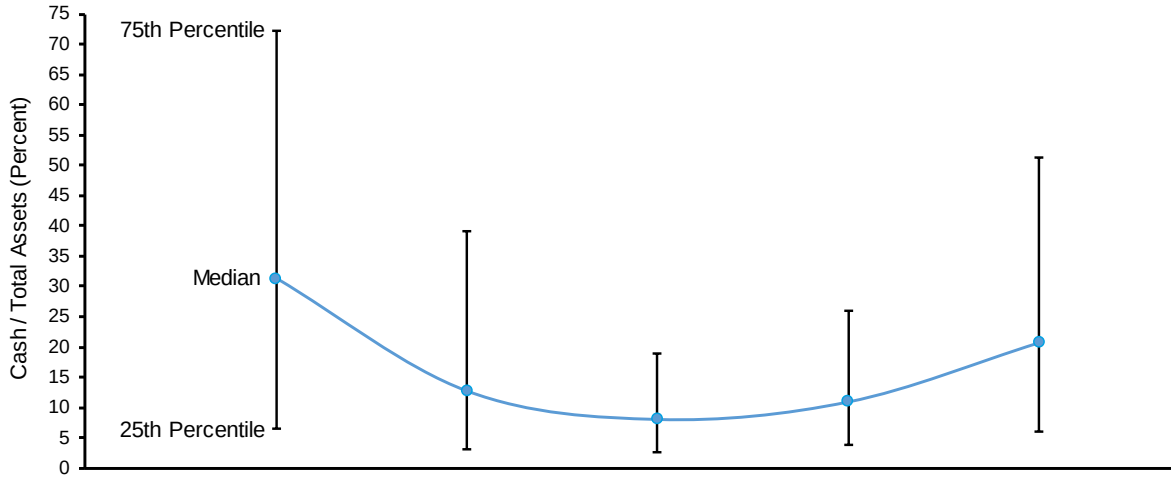
We favor the approach developed by Victoria Dickinson, a professor of accounting, that uses the inflows and outflows for each section of a company's statement of cash flows to place companies within one of the five stages in a traditional life-cycle model.[9] The stages include introduction, growth, maturity, shake-out, and decline.[10]

We modify Dickinson's approach by moving stock-based compensation from cash flow from operating activities to cash flow from financing activities, moving intangible investments from cash flow from operating activities to

cash flow from investing activities, and removing the purchase and sale of marketable securities in cash flow from investing activities.[11] We believe these adjustments provide a better view of economic reality.

Exhibit 8 shows the median and average percentage of cash to total assets for companies in each stage from 1985 to 2023. The pattern is that of a "U," with maturity sitting at the trough and peaks at introduction and decline. Nearly three-quarters of the 120,200 company observations are in the growth and maturity stages.

Exhibit 8: Cash/Total Assets by Life Cycle Stage, 1985-2023

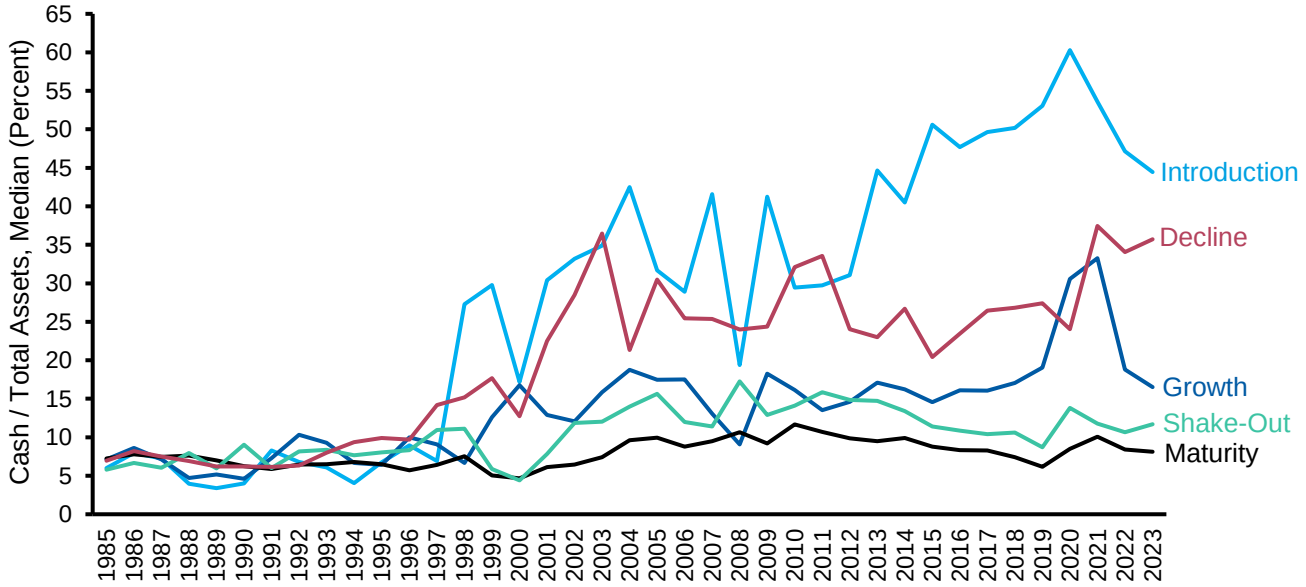


	Life Cycle Stage				
	Introduction	**Growth**	**Maturity**	**Shake-Out**	**Decline**
Statistic					
Cash/Assets, Median (%)	31.3	12.7	8.0	10.9	20.7
Cash/Assets, Average (%)	39.5	24.4	13.7	18.6	31.1
ROIC (%)	-2.8	10.6	11.2	3.8	-12.0
Percent of sample	7.4	38.2	36.1	6.6	11.7
Cash Flow Type					
Operations	Outflow -	Inflow +	Inflow +	Inflow + / Inflow + / Outflow -	Outflow - / Outflow -
Investing	Outflow -	Outflow -	Outflow -	Inflow + / Inflow + / Outflow -	Inflow + / Inflow +
Financing	Inflow +	Inflow +	Outflow -	Inflow + / Outflow - / Outflow -	Inflow + / Outflow -

Source: Counterpoint Global, Compustat, and FactSet.
Note: Companies listed on New York Stock Exchange, NASDAQ, and NYSE American, excluding financials; ROICs are based on aggregate amounts and adjusted for internally-generated intangible assets.

Exhibit 9 tracks the median cash to total assets by stage from 1985 to 2023. The results were clustered through the mid-1990s but are now very disperse, with cash holdings in the introduction stage rising the most. Companies in the introduction stage have negative cash flow from operating and investing activities, and inflows from financing. It stands to reason that those businesses hold cash to prevent the risk of not being able to fund value-creating opportunities.

Exhibit 9: Median Cash/Total Assets by Life Cycle Stage, 1985-2023

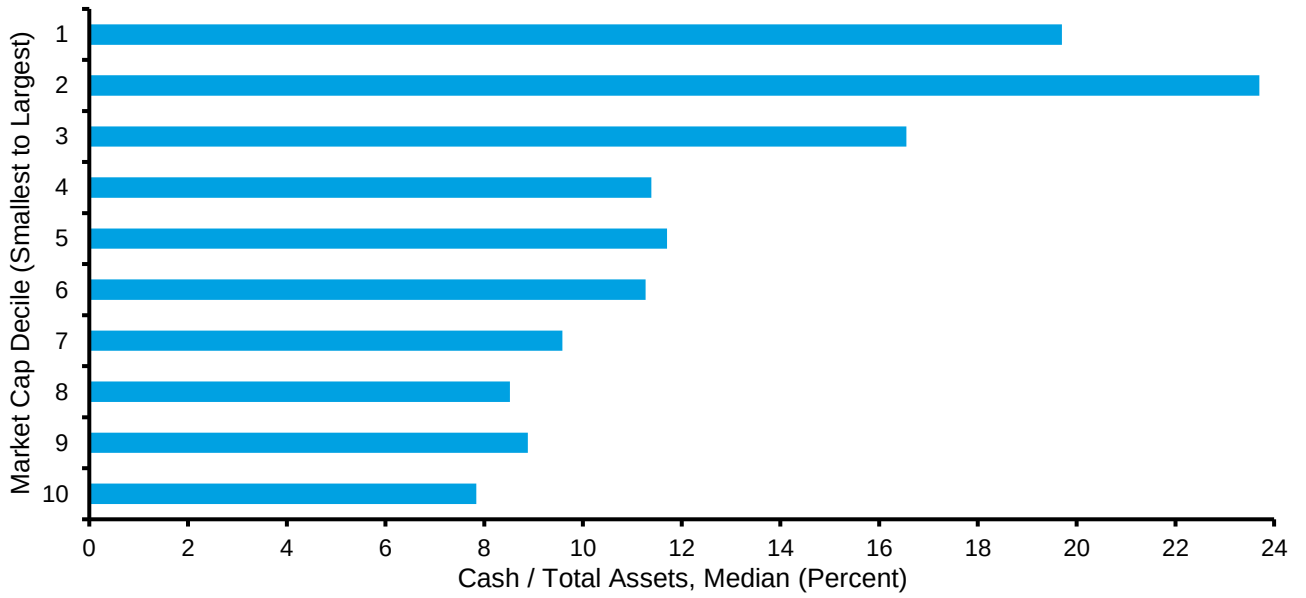


Source: Counterpoint Global, Compustat, and FactSet.
Note: Companies listed on New York Stock Exchange, NASDAQ, and NYSE American, excluding financials.

Essential to this analysis is that companies need not pass through the stages in a linear fashion. Firms can skip stages or go back to earlier stages based on their cash flow characteristics. It so happens that age since founding increases from introduction to maturity.[12]

Cash holdings do relate to market capitalization, with smaller companies generally holding more cash than larger ones (exhibit 10). While the aggregate cash held is skewed heavily toward the largest companies, they also have a lot of assets. For example, the $344 billion in cash that Berkshire Hathaway had on June 30, 2025 was 30 percent of the company's assets.

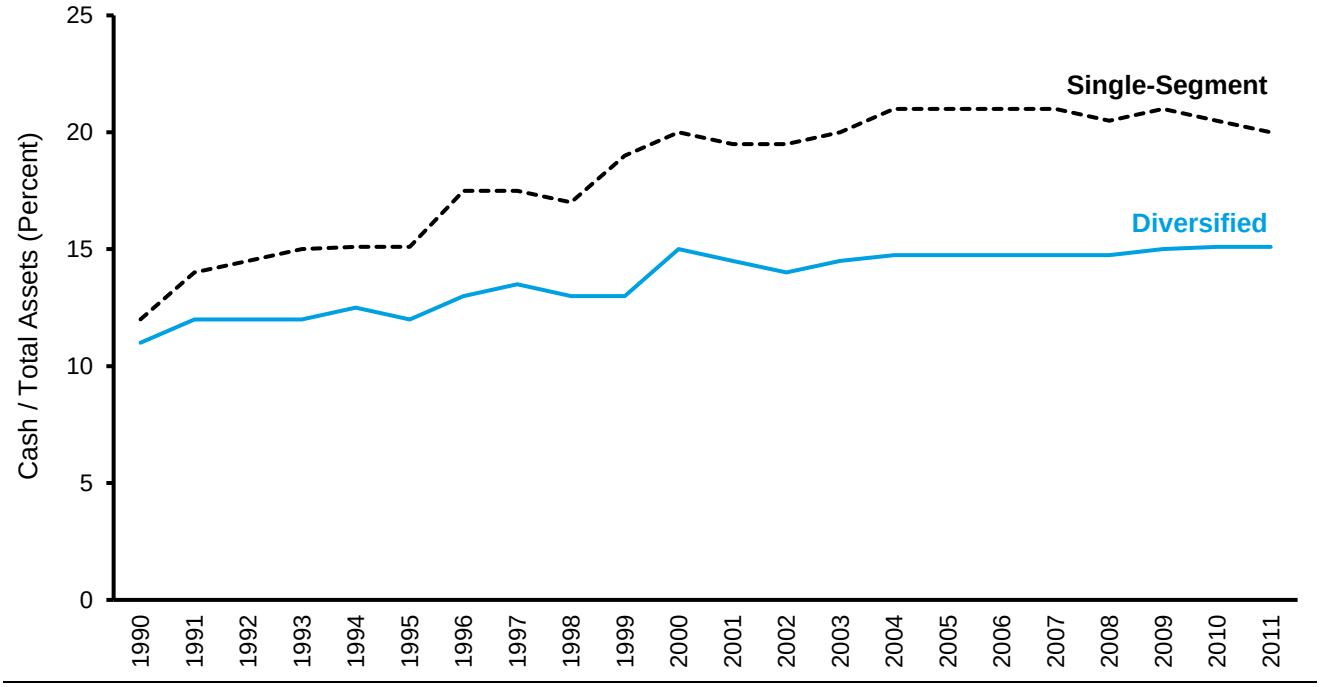
Exhibit 10: Cash Holdings By Market Capitalization, 2024



Source: Counterpoint Global and FactSet.
Note: Based on calendar year; Minimum assets of $100 million; U.S. companies excluding financials.

The reliability of anticipated cash flows also influences the level of cash holdings. Diversified firms tend to have less volatile cash flows and therefore can hold a lower ratio of cash to total assets than single-segment companies (exhibit 11).[13]

Exhibit 11: Cash/Total Assets for Diversified and Single-Segment Multinational Firms



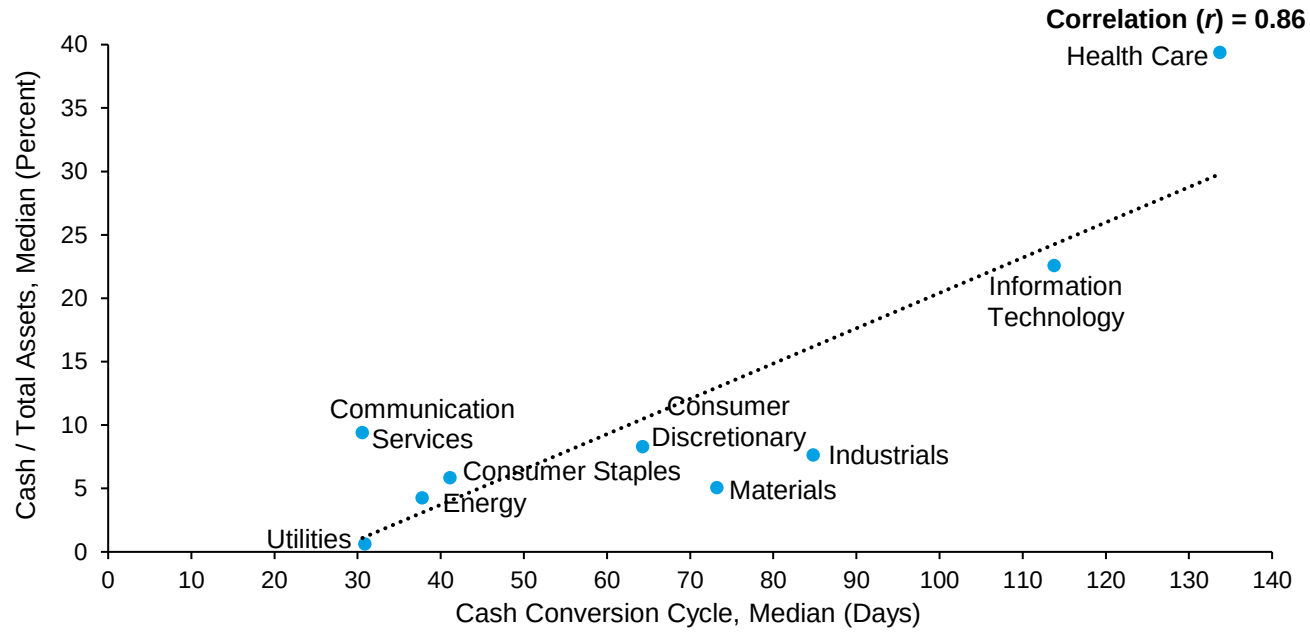
Source: Counterpoint Global based on Nuno Fernandes and Halit Gonenc, "Multinationals and Cash Holdings," Journal of Corporate Finance*, Vol. 39, August 2016, 139-154.*

A company's need for working capital, predominantly accounts receivable, inventory, and accounts payable, typically grows as it gets larger. The cash conversion cycle (CCC) measures how many days a company's cash is tied up in working capital during the normal course of business.[14]

The premise is that companies with long CCCs have more capital employed in their operations and might need higher cash balances to assure liquidity. Companies with short CCCs are more liquid and can hold less cash. Some companies have negative CCCs, which means that their suppliers effectively help finance their businesses as long as the companies grow.

Exhibit 12 shows the relationship between median CCC and cash to total assets by sector. There is a positive correlation between CCC and cash holdings, although there is a great deal of variability behind the medians.

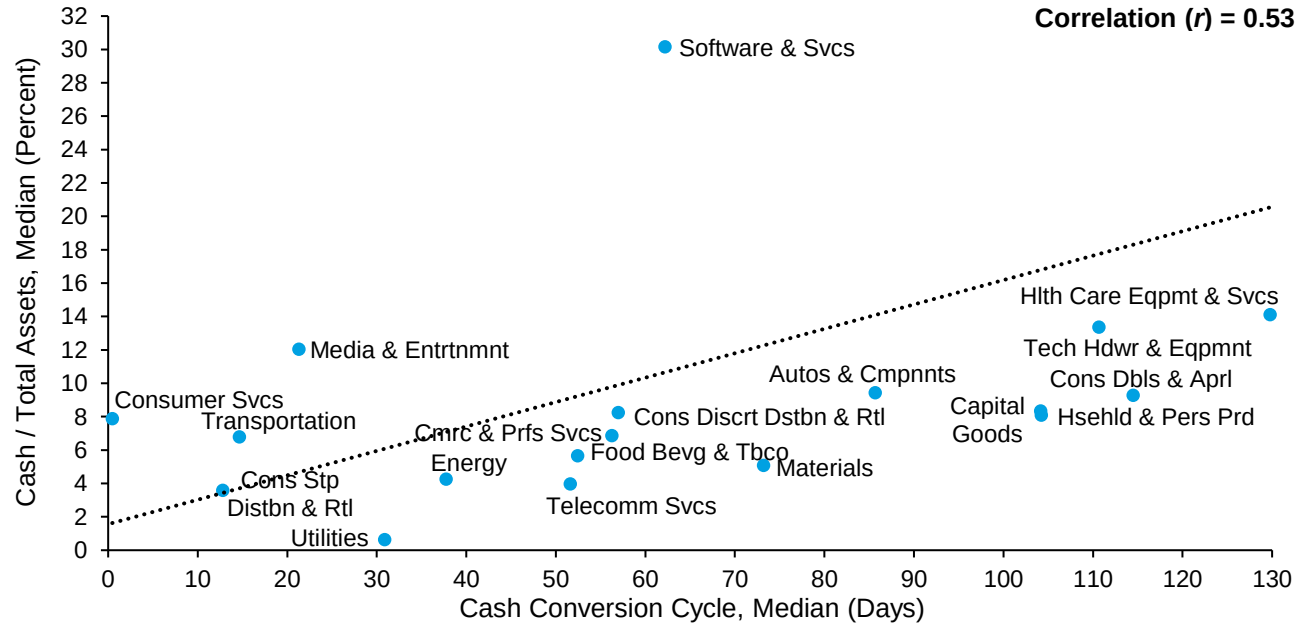
Exhibit 12: Cash/Total Assets versus Cash Conversion Cycle by Sector, 2024



Source: Counterpoint Global and FactSet.
Note: Based on calendar year; Minimum assets of $100 million; U.S. companies excluding financials.

Exhibit 13 looks at the same relationship by industry. Here again the relationship holds, but the software and services industry appears as an outlier with a median CCC of 62 days and median cash to total assets of 30 percent. Other industries with similar CCCs hold a small fraction of that much cash.

Exhibit 13: Cash/Total Assets versus Cash Conversion Cycle by Industry Group, 2024

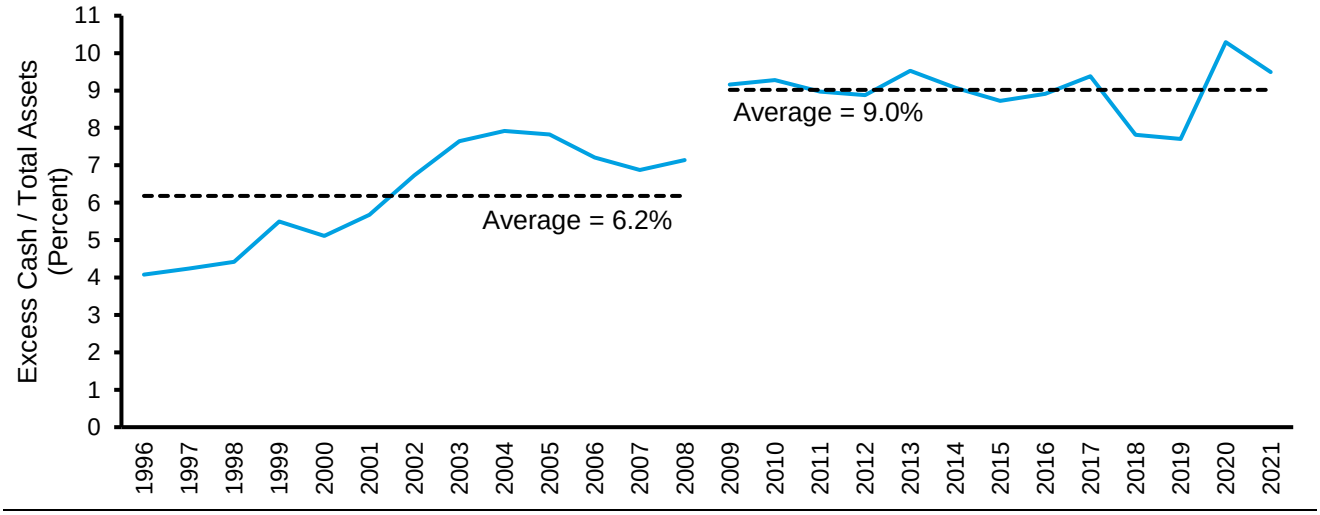


Source: Counterpoint Global and FactSet.
Note: Based on calendar year; Minimum assets of $100 million; U.S. companies excluding financials.

Surveys of executives reveal that they do not alter their financial strategies much, even in the face of material changes in interest rates and risk premia.[15] For example, you might posit that executives would have wanted to hold less cash in the recent period of low interest rates (2009 to 2021) because they would not want to have substantial amounts of cash earning next to nothing.

Exhibit 14 compares excess cash as a share of assets for the period of easy money from 2009 to 2021 to the prior 13-year period (1996-2008). The average excess cash was higher when interest rates were lower.

Exhibit 14: Excess Cash as a Share of Assets, 1996-2021

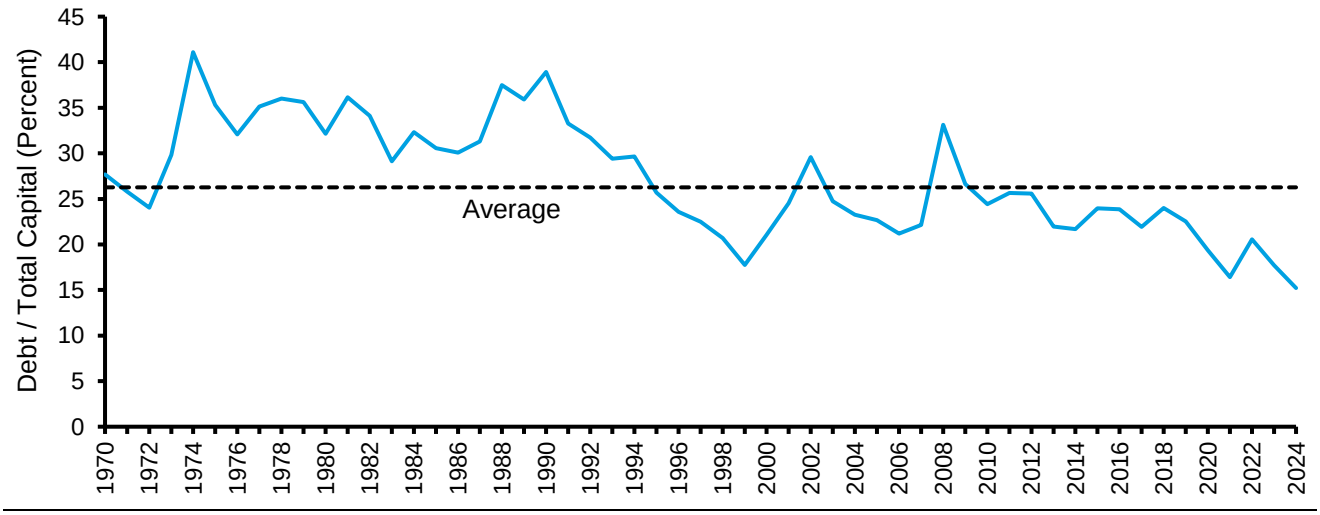


Source: FactSet and Counterpoint Global.
Note: Reflects aggregate amounts; Excess cash assumes required cash balance of 2% of sales; U.S. companies ex-financials.

Cash holdings are relevant for considerations of capital structure. The long-term trend in the debt-to-total-capital ratio in the U.S. is noteworthy. Exhibit 15 shows that the ratio has moved downward since the early 1970s. This, too, reflects the change in the mix of businesses toward those that are intangible intensive.

A study of capital structures in the U.S. over the past century shows debt-to-total-capital ratios declining modestly from 1920 to 1940, rising steadily after World War II until the early 1970s, and again drifting lower since then.[16]

Exhibit 15: Debt / Total Capital, 1970-2024



Source: Counterpoint Global, Compustat, and FactSet.
Note: Based on aggregate amounts; U.S. companies ex-financials; Equals book debt / (book debt + market value of equity).

Now that we have a sense of what has happened in recent decades, we turn to the main theories of why companies hold cash.

Theories of Why Companies Hold Cash

There has been a lot of research on the reasons companies hold cash. We will review the precautionary motive, tax management, optionality, and agency theory. As we will see, there is plenty of overlap between these explanations and companies may use cash holdings to achieve multiple objectives.

Precautionary Motive. Companies want to make sure they can operate their businesses smoothly and invest in worthy projects. In standard finance theory, companies invest in all opportunities that create value and have frictionless access to capital. In reality, there are a lot of barriers that make it hard or costly to raise capital.[18] The precautionary motive for holding cash is to make sure the company has sufficient liquidity to create value.[19]

A target level of cash considers the magnitude and stability of cash flow from operations, the opportunity cost of not investing, and the cost and accessibility of external financing.[20] Companies with ample and predictable cash flows do not need as much cash on hand as those with volatile cash flows.

Some public firms with little or no revenue, such as early-stage biotechnology companies, rely on cash to finance their R&D in hopes of creating a viable product. This is why companies in the introduction stage of the life cycle, with outflows in both cash flow from operating activities and cash flow from investing activities, hold so much cash. In the same spirit, companies with more investment opportunities have more cash than those with fewer opportunities.[21]

The rise of intangible investment is also relevant in the precautionary motive. Companies with tangible assets have ready collateral and hence good access to capital markets.[22] Intangible-intensive companies, in contrast, have to hold more cash to make sure they can operate and invest through all environments.

The data back this up. One researcher examined the relationship between earnings before interest taxes depreciation and amortization (EBITDA) divided by assets, access to a bank line of credit, and cash holdings. He found that companies with low cash flow had less access to credit and higher cash holdings.

As the cash flow profile of companies strengthened, the fraction with a line of credit went up and the cash holdings went down.[23] Companies with weak or risky cash flows have more limited access to capital, and hence hold more cash, than do those with strong and stable cash flows.[24]

The precautionary motive is also meant to anticipate the harmful effect of shocks. One example that drew a lot of attention was the U.S. airline industry during the coronavirus (COVID) pandemic that started in 2020. The pandemic crushed demand for flying, and the airlines saw their revenue drop more than 60 percent from 2019 to 2020. Profits plunged and the industry swung from a $15 billion profit to a $35 billion loss over the same period.[25] As a result, the industry received and raised more than $75 billion in capital to continue operations.[26]

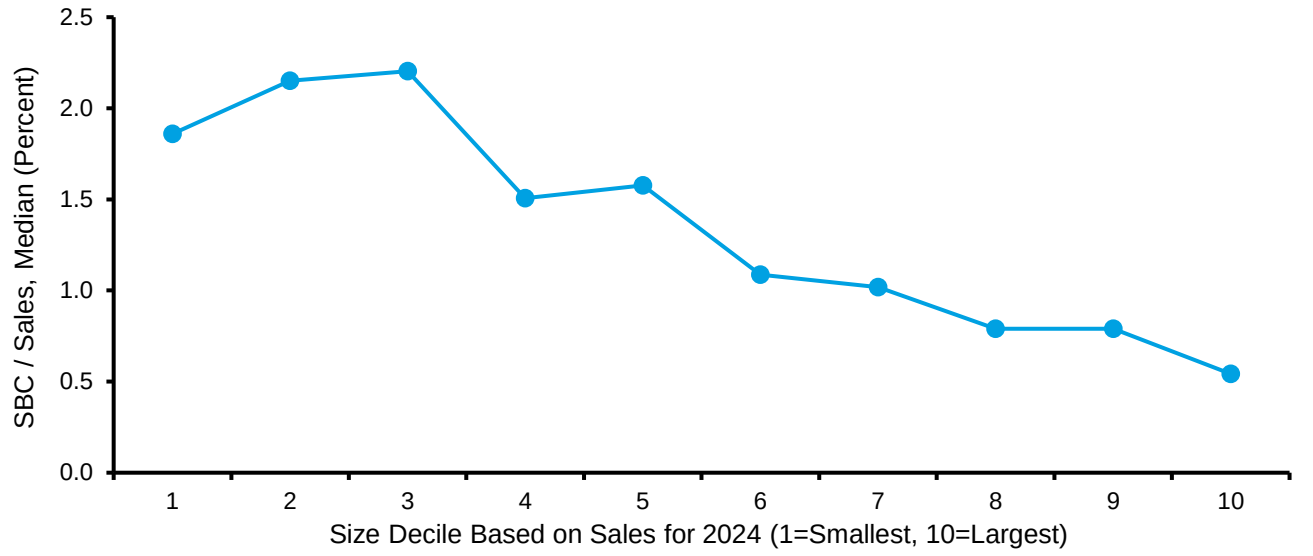
The industry came under fire because the companies actively bought back stock, rather than stockpile cash, in the years preceding the crisis. By one estimate, the airline industry used nearly all of its free cash flow in the decade before the pandemic to repurchase shares.[27] It is not clear in this case that buying back stock was worse than building cash.[28] In any case, the airlines were prohibited from returning cash to shareholders until late 2022.

Overall, companies with stronger cash balances fare better in crises, which supports the precautionary motive.[29] In effect, cash is insurance against the possibility of a future shortfall in funds.

Part of the precautionary motive is that it can be difficult to raise capital. But it is worth highlighting that stock-based compensation (SBC) is a systematic form of equity issuance. You can think of SBC in two steps: the company issues equity and pays employees.[30]

SBC has risen from 0.2 percent of sales in 2006, the first year it was required to be disclosed on the income statement, to 1.3 percent of sales in 2024. SBC as a percent of sales is higher among small than large companies, as measured by sales (exhibit 16), and it is by far highest for those in the introduction stage of the corporate life cycle (exhibit 17).

Exhibit 16: SBC/Sales Based on Size for U.S. Companies, 2024



Source: Counterpoint Global and FactSet.
Note: Based on calendar year; Minimum sales of $100 million; U.S. companies.

Exhibit 17: SBC/Sales by Life Cycle Stage, Median, 2006-2023

Life Cycle Stage	SBC/Sales
Introduction	14.0%
Growth	2.2
Maturity	0.7
Shake-Out	0.8
Decline	4.3

Source: Counterpoint Global and FactSet.
Note: Based on calendar year; Companies listed on New York Stock Exchange, NASDAQ, and NYSE American, ex-financials.

Tax Management. This reason for holding cash was much more relevant prior to the Tax Cuts and Jobs Act (TCJA) of 2017 than it is now. Before the TCJA legislation passed, U.S. multinationals had to pay U.S. tax rates on all earnings, including international earnings. Companies could defer the taxes on foreign profits by leaving the cash outside the U.S. rather than repatriating it. As a result, companies built large international cash holdings to avoid U.S. taxes.[31]

The TCJA changed the law so that U.S. taxes apply only to income earned in the U.S., and firms can repatriate foreign earnings without triggering additional U.S. taxes.[32]

The Federal Reserve estimated that U.S. companies had about $1 trillion overseas in 2017 and that almost 80 percent was repatriated in 2018.[33] Companies held a lot of their overseas cash in fixed income secuties.[34] As with the Homeland Investment Act of 2004, which granted a reduced repatriation tax rate for one year, a substantial percent of repatriated funds went to repurchase shares.

Apple Inc. is a good example. The company had more than $250 billion in cash prior to the passing of the TCJA and has since repatriated a large chunk of that sum.[35] The company repurchased $73 billion of stock in fiscal 2018, up 120 percent from $33 billion in fiscal 2017.

In the years before the TCJA, many large and profitable multinationals were under pressure to return capital to shareholders but did not want to pay taxes on their non-U.S. cash. Instead, they increased their debt to fund dividend and buyback programs.[36]

Optionality. The concept here is that companies hold cash because of its option value. That is, cash provides companies with the opportunity, but not the obligation, to invest in value-creating investments as they arise. Just as the value of an option increases as a function of volatility, the value of cash reflects the nature and size of investment opportunities as well as the uncertainty about when and how these opportunities are likely to appear.[37]

Berkshire Hathaway offers a case in point of this value. In the throes of the financial crisis in 2008, Berkshire bought $5 billion of preferred stock with a 10 percent yield from Goldman Sachs, an investment bank, and $3 billion from General Electric, then an industrial and financial services conglomerate, under similar terms. In both cases Berkshire also received warrants to purchase common stock. Berkshire was able to invest in these companies at a very scary time and profited handsomely from both transactions.

Alice Schroeder is a former security analyst who wrote a biography of Warren Buffett, Berkshire's chairman and chief executive officer (CEO).[38] Her take on Buffett's view of cash: "He thinks of cash differently than conventional investors. He thinks of cash as a call option with no expiration date, an option on every asset class, with no strike price."[39]

There is a rich body of research on the value of a dollar of cash on a company's balance sheet as well as the value of a marginal dollar of cash, or how an additional dollar affects value.[40] These measures can be tricky to calculate but a few broad themes emerge.[41]

Cash tends to be valuable when investment opportunities are attractive, the volatility of investments are high, and when corporate cash flows are uncertain. The value of cash varies by industry and tends to be high in intangible-intensive industries and low in tangible-based ones.[42] This is consistent with our empirical findings.

Corporate governance is also important. The market accords a higher value to cash held by companies with governance that is good relative to ones where it is poor.[43]

Agency Theory. Caryn Seidman Becker is the chairman and CEO of Clear Secure Inc., a public company that provides a secure identity platform. Prior to Clear she was the founder and managing partner of Arience Capital, a hedge fund. Seidman Becker has deep experience as a corporate executive and as an investor.

In a recent conversation, she noted that as an investor she commonly suggested that executives increase the debt of the companies they managed to reach an optimal capital structure and use the proceeds to buy back stock. Now, as an executive, she wants cash on the balance sheet because she feels responsible to her

employees and desires financial flexibility.[44] The point is that she can see and articulate the potential for conflicting interests between investors and managers. (She is very focused on appropriate capital allocation.)

Agency theory studies this tension between executives (agents) and shareholders (principals). The issue is that an agent is supposed to act on behalf of the principal, but each may have different goals, incentives, and risk preferences.[45]

Broadly speaking, companies generally want to hold more cash than investors want them to. Investors prefer less cash because they commonly hold the stock of a company within a diversified portfolio and prefer that management focus on building long-term value per share. Executives prefer more cash because it generally reduces their idiosyncratic risk and increases their ability to make decisions that benefit them and not necessarily their shareholders.

In this context, the main risk shareholders face is that of executives using corporate resources for their benefit at the expense of the shareholders. For example, since there is a relationship between firm size and compensation, executives sometimes make acquisitions in order to grow even if the deal adds no value. Actions that benefit agents at the expense of principals are called “agency costs.”

Michael Jensen, a financial economist, was best known for his work on agency costs. Specifically, he argued that companies that generated a lot of free cash flow ran the risk of deploying the capital in an undisciplined fashion. He advocated that cash-rich companies use debt as a check on the misallocation of capital and went so far as to say that the model of a public company should be replaced by a private company structure with higher levels of debt, concentrated ownership, a small and active board of directors, a clear link between pay and performance, and ultimately higher operating efficiency.[46]

Jensen’s concerns were not unfounded. There is research that suggests cash-rich companies are more likely to do acquisitions and that they often fail to create value.[47] Further, there is a positive correlation between cash holdings and CEO pay, suggesting potential agency costs.[48]

Where companies hold cash is also relevant. For instance, cash held in countries with good shareholder rights and investor protections is worth more than it is in countries where those rights and protections are weak.[49] The repatriation associated with the TCJA quelled many of these concerns.

One relevant observation in this context is that public companies hold roughly twice as much cash as private companies matched for industry and size. This is based on a median percentage of cash to total assets. This relationship holds despite the fact it is often more costly for private companies to access capital.

The researchers who did this analysis attributed the higher cash holdings to higher agency costs for public companies, which “tend to spend excess cash via investment in a myopic way and in ways that reduce firm operating performance.”[50]

Corporate governance still plays a large role, with well-governed businesses returning cash to shareholders when they approach the upper bound of their targets for cash holdings and poorly-governed ones spending the cash on value-neutral or -negative investments.

That private companies hold less cash than similar public companies is among the strongest pieces of evidence that many public companies hold more cash than they need to.

One of the main ways that companies determine how much cash they should hold is by examining the holdings of peer companies and placing themselves somewhere between the extremes.[51]

The strategic rationale hearkens to the precautionary motive by making sure that a company can match the actions of its competitors. For example, companies competing for a leadership position in a business based on a two-sided platform have to be able to keep pace with one another in spending.

The less charitable interpretation is that firms act as if there is an "institutional imperative" to "mindlessly" imitate the behavior of other companies.[52] Following the pack may make sense but runs the risk of introducing unnecessary agency costs.

What should companies do if they reach their target level of cash holdings or choose to reduce their target? Absent investment opportunities that create value, a company can give cash back to capital providers either by reducing debt or returning cash to shareholders.

Debt reduction can add value when a company faces financial distress. But this is rarely the case for companies seeking to reduce their cash holdings. More likely the company will return cash to shareholders, as we saw following the TCJA. We now turn to the main deployment alternatives: dividends and share buybacks.

Deployment Alternatives for Excess Cash

Before getting into details related to dividends and buybacks it is worth taking a moment to examine the breakdown of the sources of capital for companies in the aggregate. The cash comes predominantly from a company's operations, new debt, or new equity. This analysis is relevant for considering how companies adjust their cash holdings with respect to their target levels.

For the aggregate of all companies from 1970 to 2024, 87 percent of capital came from business operations, 22 percent from net new debt, and -9 percent from net new equity. From 2000 to 2024, it has been 97 percent internal, 18 percent from new debt, and -15 percent from net new equity. The vast majority of the capital is generated internally and companies increase debt over time, which is consistent with stable financing ratios as profits grow.

U.S. public companies issued about $10.3 trillion in equity from 2000 to 2024. Of that, 57 percent was used to finance acquisitions, 24 percent for stock-based compensation, and the balance was seasoned equity offerings. Over the same time, companies bought back $14.8 trillion of stock, resulting in negative net issuance.

Under a strict set of assumptions, dividends and buybacks are equivalent.[53] A dividend is a cash payment to a shareholder that is generally funded by profits. With a buyback, the company buys shares from existing shareholders willing to sell. All shareholders receive cash with a dividend but only shareholders who sell get cash with a buyback.

Dividends plus buybacks divided by equity market value equals total shareholder yield. From 1970 to 2024, the total shareholder yield was equal to roughly 45 percent of an estimate of the cost of equity (this total does not consider equity issuance). Total shareholder yield is more predictable than the dividend yield by itself.[54]

Payouts were largely in the form of dividends prior to 1982, which means comparisons of payouts before and after then are not comparable. The Securities and Exchange Act of 1934 prohibited the manipulation of securities prices, and buybacks were a gray area. In fact, the Securities and Exchange Commission (SEC) episodically charged companies with manipulating their stock through buyback programs in the 1960s and 1970s.[55]

In 1982, the SEC created a safe harbor provision, which meant that companies would not be charged with price manipulation as long as they followed the rules. Buybacks took off shortly thereafter, eclipsed dividend payments for the first time in 1997, and have been consistently greater than dividends ever since. In 2024, U.S. public companies paid dividends of approximately $825 billion and bought back $1.1 trillion of stock.

Executives and investors think of dividends and buybacks very differently despite their functional similarity. More specifically, executives tend to consider dividends to be a quasi-contract with shareholders and therefore want to maintain, and ideally increase, them over time.

Executives commonly think of buybacks as a way to deploy residual cash flow after all the bills are paid. Consistent with this, the growth rate of share buybacks has been almost four times as volatile as that for dividends since the early 1980s. This means that companies use share buybacks much more than dividends when they adjust down their cash holdings.

Dividends. Dividends and buybacks are frequently misunderstood. For example, dividends are often cited as a meaningful source of long-term total shareholder return (TSR). TSR is equal to the capital accumulation rate.

In fact, price appreciation is the only source of investment return that contributes to capital accumulation.[56] TSR assumes that an investor reinvests all dividends in the stock without incurring any tax or transaction costs. As a result, price appreciation alone determines the rate of capital accumulation.

By definition, not all shareholders of a stock paying a dividend can earn the TSR because to do so they would all have to purchase additional shares equivalent to their dividend payment. You cannot have all buyers and no sellers.

The evidence shows individual investors largely use dividends for current consumption and institutional investors mostly just redeploy them into the portfolios they manage.[57] In fact, individuals generally use “mental accounting,” treating the stock as one account for investment and the dividend as another account for consumption.[58]

Mental accounting highlights another source of confusion. Academics call this the “free dividends fallacy” because investors ignore the reality that the dividend payment reduces the stock price.[59]

Companies in the maturity stage of the life cycle, about 36 percent of the population of public companies over time, are the most logical dividend payors. Indeed, about one-third of public companies in the U.S. pay a dividend.

Dividends are valuable for at least two reasons. First, they provide a signal of confidence because they are generally backed by earnings.[60] They can also be an effective way for executives to return cash to shareholders when they deem their stock to be overvalued (a perception that occurs rarely).

Share buybacks. Share buybacks are the second way to return cash to shareholders and the main way companies deploy excess cash. Buybacks have become a lightning rod for politicians and a minority of economists who do not appear to understand how buybacks work and what the consensus of financial economists says about them.[61] As Ken French, a professor of finance, has noted, “Buybacks are divisive. They divide people who do understand finance from people who don’t.”[62]

Warren Buffett’s take is even more colorful: “When you are told that *all* repurchases are harmful to shareholders *or* to the country, *or* particularly beneficial to CEOs, you are listening to either an economic illiterate or a silver-tongued demagogue (characters that are *not* mutually exclusive).”[63]

Buffett's swipe at the buyback critics reveals the two main arguments against buybacks. The first is that companies are using cash to repurchase shares rather than invest in the business.[64] The implication is that this hampers corporate value ("are harmful to shareholders"). The second is that buying back stock artificially increases the stock price ("particularly beneficial to CEOs").[65]

The evidence for these arguments is flimsy. Investment in capital expenditures, measured as a percentage of sales, has moderated in recent decades. But that has been more than offset by a sharp increase in intangible investments. When all forms are considered, investment remains robust. Further, for this discussion we assume that companies have met or exceeded their target for cash holdings and have made all available value-creating investments.

Proving that buybacks are a form of manipulation, precisely what the SEC's safe harbor provision is meant to address, is very difficult. A survey of the share buyback literature concludes that buybacks stabilize, rather than manipulate, stock prices.[66]

You sometimes hear commentators suggest buybacks destroy or create value. Buybacks themselves do no such thing. Corporate value drops by the amount of the disbursement, true whether it's a dividend or a buyback.

If the company buys back overvalued stock, there is a wealth transfer from the ongoing shareholders to the selling shareholders. If the company buys back undervalued stock, there is a wealth transfer from the selling shareholders to the ongoing shareholders. If the stock is at fair value, there are no wealth transfers.[67]

Generally, institutional investors hold shares of a stock because they think they are undervalued. Doing nothing when a company buys undervalued shares increases the intrinsic value per share for continuing holders.

Academic research generally concludes that buybacks, in the aggregate, add some value for ongoing shareholders.[68] But empirically, companies are better at selling overvalued stock than they are at buying undervalued stock.[69]

In theory, the motivation for a company to buy its shares should be that they are undervalued. In reality, surveys show that financial executives pursue non-economic motives such as boosting earnings per share (EPS) and offsetting dilution from stock-based compensation.[70] For instance, more than three-quarters of CFOs think that increasing EPS is an important, or very important, factor in the decision to buy back stock, and more than two-thirds said that offsetting dilution from SBC is important or very important.[71]

There is no evidence that buybacks that lift EPS create shareholder value.[72] If anything, the evidence suggests that EPS-motivated buybacks are bad for ongoing shareholders.[73]

U.S. public companies generate more cash than they invest and have a ratio of cash to total assets above the long-term average. Companies at or above their target adjust their cash holdings, often by returning capital to shareholders. Notably, the speed of adjustment varies quite a bit across companies.[74]

Dividends and buybacks allow capital to be reallocated from businesses with limited investment opportunities to those with more potential, a vital task within an efficient economic system.

Conclusion

The prime directive for a company is to generate a sufficient return on the capital it invests. In this context, cash can at the same time be a non-productive holding as well as a resource for future investments that create value. The question is what level of cash holdings maximizes long-term value.

This tension arises when investors and executives have different points of view on optimal cash holdings. Investors generally have diversified portfolios so do not want any individual company to carry too much cash. Executives have large exposure to their company's results so like having cash because it lowers risk and gives them the flexibility to invest as they see fit. Excess cash is money a firm can pay out to shareholders without sacrificing operations or the funding of investment opportunities.

At the end of 2024, U.S. public companies had a cash-to-total assets ratio of 9.0 percent. This is well above the long-run average of 7.5 percent (1970 to 2024) but down from the peak of 11.5 percent in 2020.

Companies in many other countries often hold even more cash than those in the U.S. Exhibit 18 summarizes cash holdings as a percentage of assets for the top 20 countries around the world, measured by stock market capitalization at the end of 2024. The average is 12.2 percent and the median is 10.8 percent. The U.S. is well below those figures.

As a result, while the value of cash holdings in the U.S. is the largest in the world (the U.S. comprised about 64 percent of the global equity market in mid-2025), the themes in this report are relevant for lots of other markets as well.[75]

Exhibit 18: Cash/Total Assets by Country, 2024

Country	Cash/Total Assets
Taiwan	23.2%
China	18.0
United Arab Emirates	18.0
Denmark	16.2
Netherlands	15.7
South Korea	14.7
Hong Kong	13.3
Japan	12.1
France	11.7
Switzerland	10.8
India	10.8
Spain	10.2
Italy	9.2
Saudi Arabia	9.1
United States	9.0
Germany	8.8
Ireland	8.5
Sweden	8.4
United Kingdom	7.8
Australia	7.5

Source: Counterpoint Global and FactSet.
Note: Includes the 20 largest countries based on 2024 calendar year-end market values.

Our empirical analysis of cash holdings revealed a number of findings and themes. Cash holdings have risen steadily since 1990, with sectors including healthcare and technology having the highest ratios of cash to total assets and energy and utilities the lowest. Refining the results by industry shows a similar pattern.

Part of the reason for the rise in cash holdings is the change in the mix of the market. Healthcare and technology went from about 20 percent of the S&P 500 Index in 1985 to over 40 percent in 2024. Energy, materials, and industrials shrank from 34 to 13 percent of the index over the same period.

There is a solid positive correlation between intangible asset intensity and cash holdings, which makes the rise of intangibles the best candidate to explain the increase in cash holdings. The main motivation for having cash is that access to capital can be costly and fickle, and many companies that rely on intangible assets have good investment opportunities. They therefore keep lots of cash so they can invest without worrying about access to capital markets.

Where a company is in its life cycle is also a strong predictor of cash holdings. Here we use a framework that places each company in one of five stages based on the characteristics of its statement of cash flows. This approach has strong analytical and intuitive appeal.

A major benefit of this methodology is that companies can transition from one stage to another, including going back to an earlier stage, providing management and investors guidance as to appropriate cash holdings for each stage.

More than 80 percent of companies fall into the introduction, growth, and maturity stages. Of these stages, cash holdings are highest for introduction and lowest for maturity. The criteria from the cash flow statement explain why.

Companies in the introduction stage have outflows from both cash flow from operating activities and cash flow from investing activities. As a result, they typically have a lot of cash on hand to fund their operations and investments. Executives and investors often refer to a “cash runway,” the time a company can operate with the current amount of cash.

Firms in the maturity stage have inflows from cash flow from operating activities and outflows from cash flow from investing activities, but the inflows are greater than the outflows. These companies do not need to hold much cash because their businesses are stable and they generate cash.

Consistent with the life cycle analysis, small companies tend to have a higher cash-to-total assets ratio than big ones, although the aggregate cash balances are heavily skewed. Fewer than 70 companies hold about one-half of the total cash.

Diversified companies hold less cash than single-line businesses, and companies with short cash conversion cycles hold less cash than those with long cash conversion cycles.

As cash holdings have trended upward in recent decades, debt-to-total capital ratios have trended downward. The explanation is likely similar. Lenders prefer tangible to intangible assets as collateral, which means that intangible intensive businesses need to rely more on equity than debt financing.[76]

There are a number of theories of why companies hold cash. The most prominent is the precautionary motive, which says that firms carry cash as a precaution against the inability to access capital as well as for immunization against shocks.

Companies also retain cash because it provides option value. One way to measure optionality is the value the stock market places on corporate cash. Broadly, cash has more value when investment opportunities are abundant and corporate governance is strong and less value when opportunities are limited and governance is weak.

Agency theory addresses the potential for conflicting interests between shareholders and managers. Cash-rich companies can take actions that enrich executives at the expense of shareholders. It is noteworthy that private firms hold roughly half as much cash as do their matched public counterparts.

One way that companies assess their cash holdings target is by examining peers. While a sensible starting point, it introduces the risk of unenlightened imitation.

Companies that meet or exceed their target for cash holdings can return capital to shareholders through a dividend or share buyback. While functionally equivalent, managers and investors perceive dividends and buybacks as different. Buybacks are the main way that companies adjust their cash holdings when they exceed internal targets.

Cash holdings are an important issue in capital structure, capital allocation, and valuation.[77] A framework for understanding why they have changed over time and what is appropriate for an individual company is useful for executives and investors.

Endnotes

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*Introduction***.** Companies in this stage launch a good or service they hope will be commercially viable. For promising industries, lots of competitors tend to enter at the same time. How long a company stays in this stage is often related to the rate of diffusion for the technology. Cash flow from operations is an outflow, as the company must absorb pre-production costs and is below efficient economies of scale. Cash flow from investing is also an outflow because there are substantial investment prospects. Cash flow from financing is an inflow as the company must raise capital to fund its expansion.
*Growth***.** In this stage the marketplace has accepted the good or service but the threat of new entrants remains. Cash flow from operations is an inflow, as the company reaches profitability. Cash flow from investing remains an outflow because the company continues to invest to sustain growth and deter entry. Cash flow from financing is also an inflow, albeit to a lesser degree than in the introduction stage, as the company still needs capital to support growth.
*Maturity***.** Here the company reaches scale and entry and exit in the industry are in rough balance. Cash flow from operations is an inflow as the company maximizes profits. Cash flow from investing is an outflow, although near maintenance levels. Cash flow from financing flips to an outflow, as the company has the resources to retire debt or pay shareholders through dividends or share buybacks.
*Shake-out***.** In this stage, the industry starts to contract and firms exit. It reflects three of the eight possible combinations for cash flows and is a catchall for companies that do not fall clearly in another stage. Cash flow from operations may be an inflow or outflow and is an inflow in two of the three combinations. Cash flow from

investing can also be an inflow or an outflow, with the same ratio. Cash flow from financing is also split between an inflow and outflow, with two of the three combinations being outflows.

*Decline***.** In this stage the company, reflecting the markets it serves, is in decline reflecting either market saturation or product obsolescence. Cash flow from operations is an outflow as profitability is elusive. Cash flow from investing is an inflow as the company disinvests. Cash flow from financing can be either an inflow or outflow depending on profitability and proceeds from asset liquidation.

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