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INVESTMENT MANAGEMENT

Counterpoint Global Insights

Cost of Capital and Capital Allocation

Investment in the Era of "Easy Money"

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Introduction

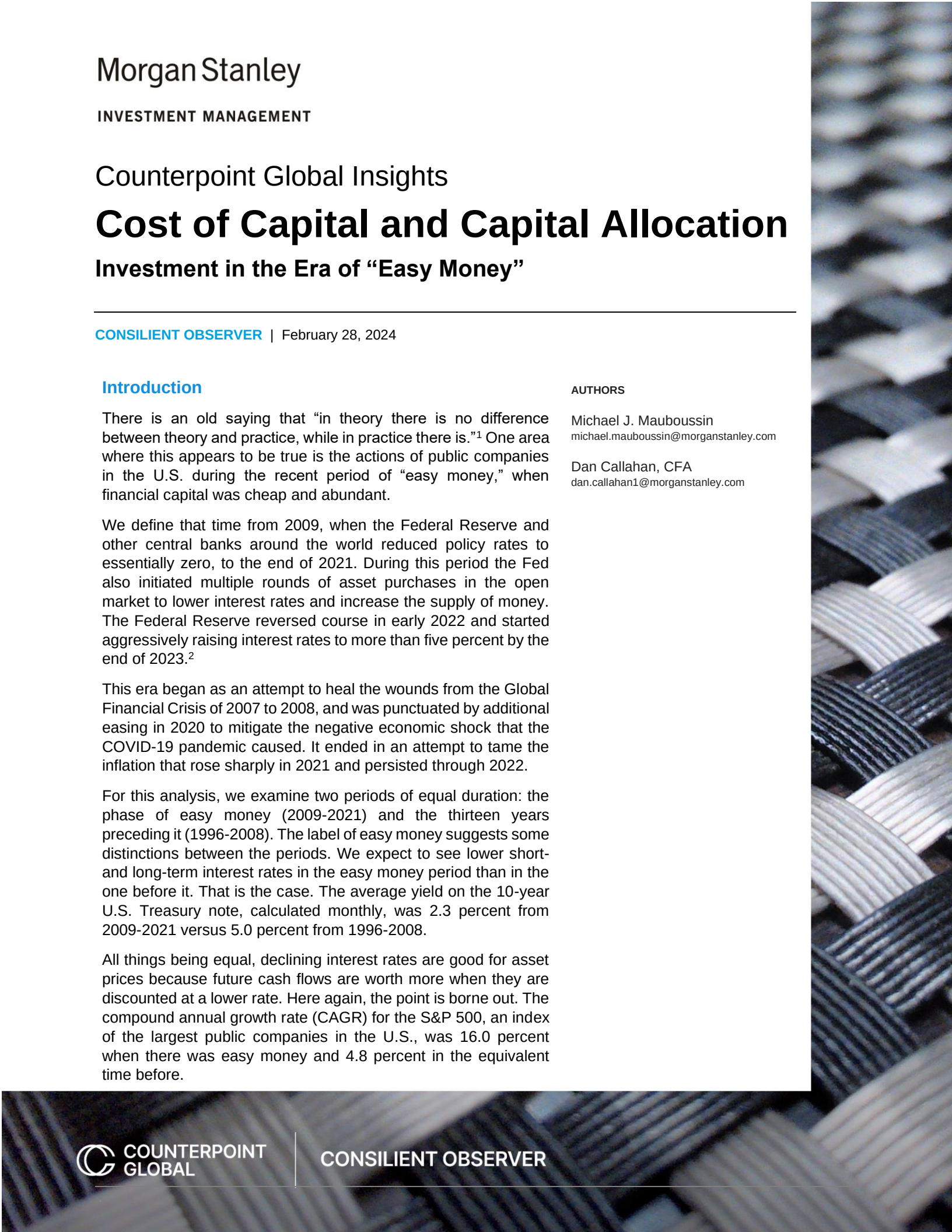
There is an old saying that "in theory there is no difference between theory and practice, while in practice there is."[1] One area where this appears to be true is the actions of public companies in the U.S. during the recent period of "easy money," when financial capital was cheap and abundant.

We define that time from 2009, when the Federal Reserve and other central banks around the world reduced policy rates to essentially zero, to the end of 2021. During this period the Fed also initiated multiple rounds of asset purchases in the open market to lower interest rates and increase the supply of money. The Federal Reserve reversed course in early 2022 and started aggressively raising interest rates to more than five percent by the end of 2023.[2]

This era began as an attempt to heal the wounds from the Global Financial Crisis of 2007 to 2008, and was punctuated by additional easing in 2020 to mitigate the negative economic shock that the COVID-19 pandemic caused. It ended in an attempt to tame the inflation that rose sharply in 2021 and persisted through 2022.

For this analysis, we examine two periods of equal duration: the phase of easy money (2009-2021) and the thirteen years preceding it (1996-2008). The label of easy money suggests some distinctions between the periods. We expect to see lower short- and long-term interest rates in the easy money period than in the one before it. That is the case. The average yield on the 10-year U.S. Treasury note, calculated monthly, was 2.3 percent from 2009-2021 versus 5.0 percent from 1996-2008.

All things being equal, declining interest rates are good for asset prices because future cash flows are worth more when they are discounted at a lower rate. Here again, the point is borne out. The compound annual growth rate (CAGR) for the S&P 500, an index of the largest public companies in the U.S., was 16.0 percent when there was easy money and 4.8 percent in the equivalent time before.



Earnings growth was higher in the easy money phase than in the prior one in part because it started as the result of poor economic conditions and depressed earnings in 2008. But the returns also benefited from an expansion in the price-earnings (P/E) multiple, a natural outcome of lower rates. The CAGR for the S&P 500 was 9.6 percent from 1928 to 2023, so the returns during the easy money era were exceptional.[3]

Easy money periods have a long history of spurring financial shenanigans, and the recent episode was no exception.[4] For example, investors took on greater risk in search of returns (see appendix). This contributed to the financing of highly speculative companies, money flowing into nefarious schemes in the cryptocurrency sector, and an increase in the number of "zombie firms," companies unable to service their debt with present profits but able to access cheap financing.[5]

There was also a flurry of interest in meme stocks, which traded based more on social media hype than on fundamentals, and a surge in the number of special purpose acquisition companies (SPACs) seeking to do deals. These booms were followed by a bust after the end of easy money.[6]

Our focus is on how U.S. public companies acted in the regime of easy money. In theory, lower interest rates and ready access to capital would suggest that public companies invest more, use more debt, and hold less cash. More abundant investment opportunities would also imply restraint from returning cash to shareholders. But that is not what public companies did.

We place particular emphasis on the observation that companies often use hurdle rates that are substantially higher than their cost of capital based on market indicators, and that share buybacks will contribute less to earnings per share growth now than they did in the period of easy money given today's valuation multiples and interest rates.

Discount Rates, Cost of Capital, and Return on Invested Capital

This first example of a gap between theory and practice is how public companies reacted to lower interest rates. We estimate that the weighted average cost of capital (WACC) for companies in the Russell 3000 dropped to 6.9 percent in the time of easy money from 7.5 percent in the prior period, based on annual averages. The Russell 3000 Index includes the largest 3,000 U.S. companies and represents nearly all of the investable equity market in the U.S.

Standard corporate finance dictates that companies fund projects that have a positive net present value (NPV), defined as when the present value of the future cash flows from an investment exceeds the initial outlay. For example, if the investment to acquire a customer is $1,000 and the present value of the cash flows that customer is expected to generate is $1,500, the NPV is $500. The company ought to acquire that customer because the investment passes the NPV test ($500 = $1,500 – $1,000).

Companies should ideally rank their investment opportunities and pursue those that pass the NPV test. A lower cost of capital boosts the future cash flows and therefore allows more investments to clear the hurdle. A logical consequence is an increase in investment opportunity.

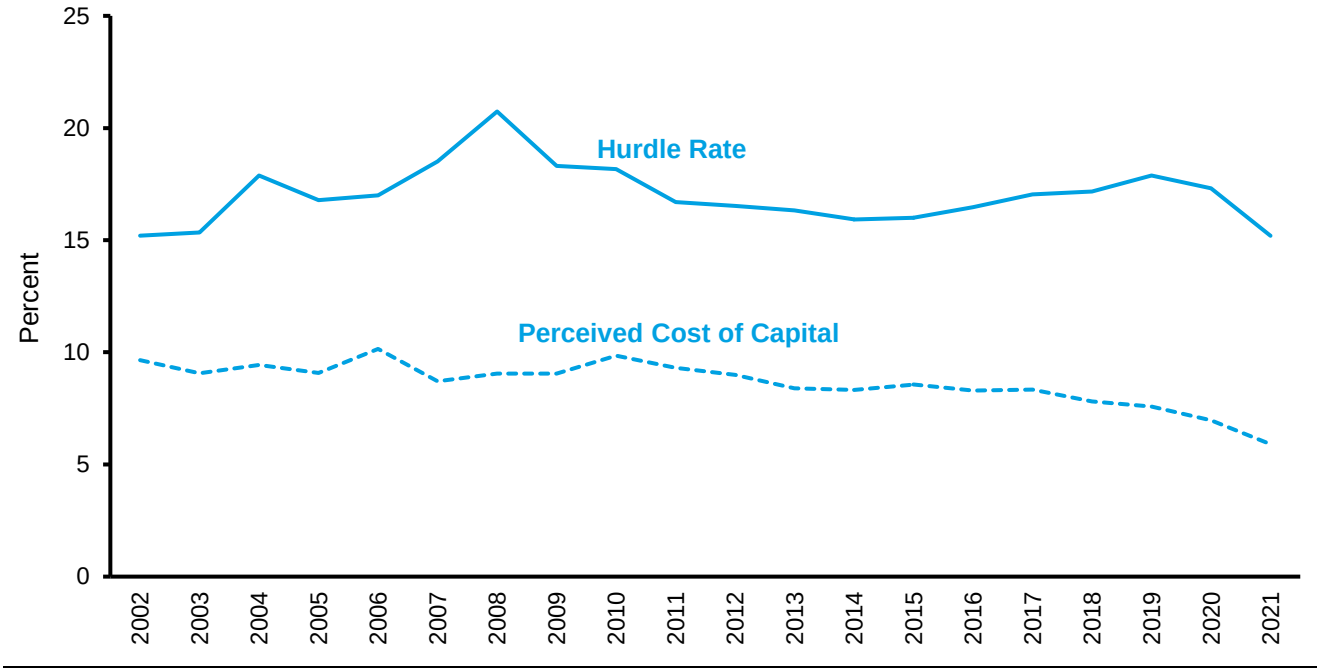
Surveys of executives over decades reveal that changes in the cost of capital have a muted effect on their decisions. Most firms do have an internal estimate of the cost of capital, which researchers determined through the analysis of more than 100,000 paragraphs in the transcripts of quarterly conference calls from 2002 to 2022.[7]

Consistent with our estimates, the average cost of capital perceived by companies did in fact drift lower through the period of easy money.

But that did not make much of a dent in corporate decisions because the cost of capital is not what most companies use to discount cash flows. Rather, about 80 percent of companies adopt a hurdle rate that is substantially higher than the cost of capital (see exhibit 1). In the period of easy money, for instance, the researchers estimate that the average hurdle rate was 16.8 percent, more than double the average perceived cost of capital of 8.3 percent.[8]

Companies around the globe also have a gap between the hurdle rate and cost of capital, albeit the disparity is the largest in the U.S.[9] This observation runs counter to the idea that companies have to increase their discount rates to reflect the end of easy money.[10]

Exhibit 1: Hurdle Rates and Perceived Cost of Capital for U.S. Companies, 2002-2021



Source: costofcapital.org and Counterpoint Global.

This is relevant because, in theory, the present value of one dollar of earnings in perpetuity is twice as high if you discount it by the perceived cost of capital ($12.05 = $1 ÷ 0.083) than by the hurdle rate ($5.95 = $1 ÷ 0.168).

John Graham, a professor of finance, has been surveying financial executives for decades.[11] He makes three observations about how executives actually make decisions. First, they are very conservative, which helps explain the policy of using a hurdle rate much higher than the perceived cost of capital. The gap between the hurdle rate and cost of capital can offset the effect of cash flow forecasts that are too optimistic.

The idea is that in practice two wrongs, overestimating cash flows and applying a hurdle rate that is too high, make a right. Take the example of capitalizing earnings. If the plan is to earn $2 from a project and the company discounts it at the hurdle rate, it is worth $11.90 ($11.90 = $2 ÷ 0.168). But in reality the company actually earns $1, worth $12.05 when discounted by the cost of capital. The value of the overstated cash flow and discount rate yield a value similar to the proper cash flow and discount rate ($11.90 versus $12.05).

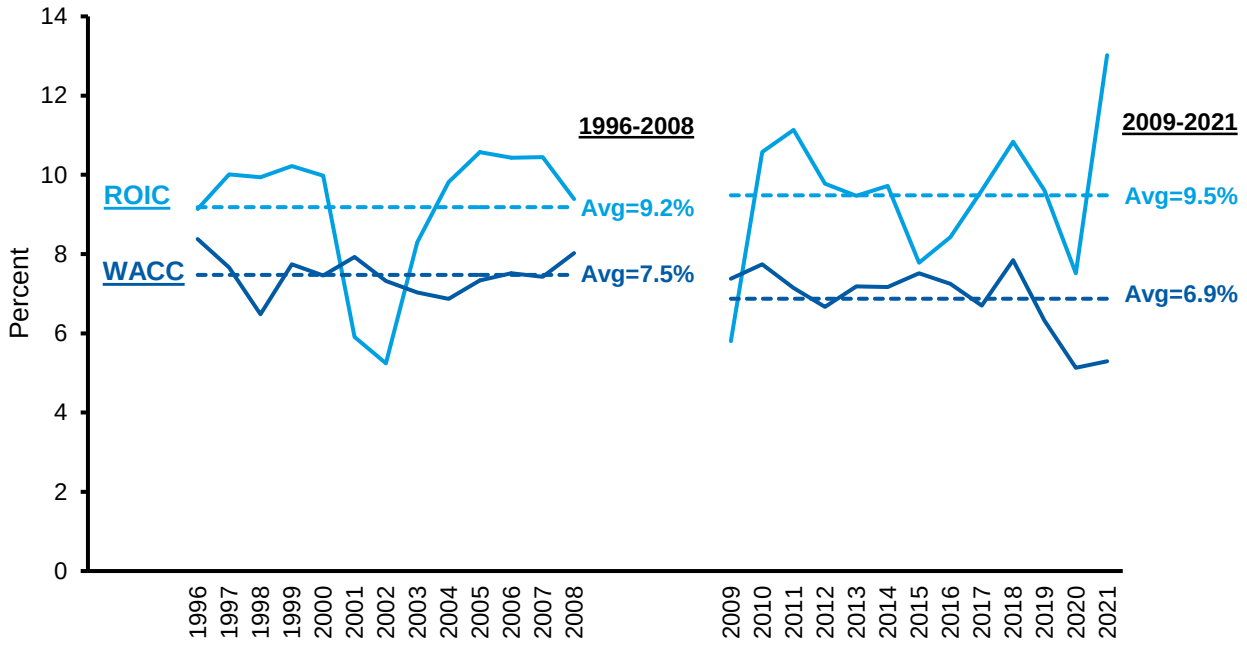
Second, the process they use to make decisions is sticky. As a result, they do not move their hurdle rates frequently. Overall hurdle rates in recent decades have come down much less than what market rates would suggest. In addition, companies tend to allocate capital internally the same way from year to year even when a more dynamic process would generate higher returns.[12]

Finally, executives suffer from a form of overconfidence called "overprecision," defined as excessive certainty in the accuracy of one's judgment."[13] And they commonly forecast ranges of outcomes that are too optimistic. This is the main reason financial executives use a hurdle rate that is higher than the cost of capital: it helps cushion the blow of rosy forecasts. Financial executives are fine with using a hurdle rate well above the cost of capital because they are aware that the projected returns are generally too high on the investments they approve.

Exhibit 2 shows that the aggregate return on invested capital (ROIC), defined as net operating profit after taxes divided by invested capital, averaged 9.5 percent in the easy money period and 9.2 percent in the preceding time. Companies earn an ROIC in the aggregate that is roughly 50-60 percent of the hurdle rate they use. That means a lot of investments fail to earn the hurdle rate.

But, on average, companies in the U.S. do earn an ROIC in excess of the actual cost of capital.[14] The average spread between the ROIC and WACC was 2.6 percentage points in the easy money era and 1.7 percentage points in the prior period.

Exhibit 2: ROIC and Weighted Average Cost of Capital for Russell 3000, 1996-2021



Source: FactSet and Counterpoint Global.

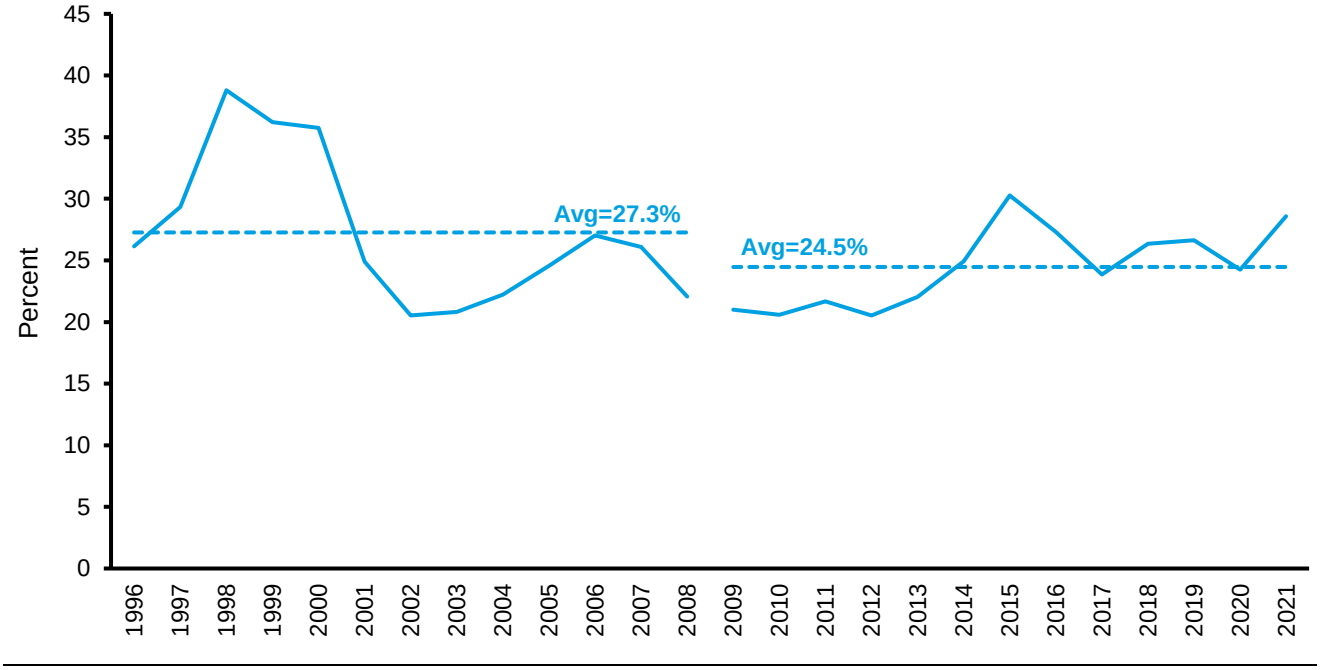
Economic profit is defined as the spread between the ROIC and WACC multiplied by invested capital. The point is you need to know how much a company will earn relative to the cost of capital as well as how much it will invest at that spread. We now look at the rate of investment, which determines invested capital, in these two periods.

Lower Interest Rates and Investments

A successful investment is a cash outlay today that generates cash flows in the future in excess of the amount spent. Companies largely rely on the cash their businesses generate to fund their investments. Investments can be internal, such as capital expenditures, working capital, research and development (R&D), and intangible investments within selling, general, and administrative (SG&A) expense excluding R&D. Investments can also be external, including mergers and acquisitions (M&A).

Exhibit 3 shows investments, including capital expenditures, M&A, R&D, and non-R&D SG&A, as a percentage of sales in the period of easy money versus the prior one.[15] Counter to the assumption that lower interest rates lead to higher investment activity, investments were 24.5 percent of sales from 2009-2021 versus 27.3 percent from 1996-2008. Only intangible investments were higher.

Exhibit 3: Investment as Percent of Sales for Companies in the Russell 3000, 1996-2021



Source: FactSet and Counterpoint Global
Note: Capital expenditures and M&A reflect all sectors; R&D and non-R&D SG&A exclude financial and real estate sectors.

The easy money era launched following the Global Financial Crisis, which may have made companies skittish to invest. But the preceding period included the dot-com bust and a three-year bear market in stocks, which also deterred investment.

These sums reflect total spending on these investments. It is common to break down spending into components of growth and maintenance. Proxies for maintenance spending include depreciation for tangible assets and amortization for intangible assets. The decline in growth investments, to 9.5 percent of sales from 12.7 percent, was similar to the overall pattern.

Despite lower capital costs, companies invested at a slower rate and the spread between ROIC and the cost of capital widened. Aggregate invested capital grew at a 2.6 percent CAGR in the easy money era and 4.9 percent in the previous period. Both figures are adjusted for inflation.

M&A is consistently one of the largest forms of investment.[16] Deals create value in the aggregate because there are commonly synergies, which are cost or revenue benefits of putting the businesses together. Researchers measure overall value as the increase in the combined market capitalizations of the buyer and seller from before to after the deal.

But wealth transfers also happen frequently. A buyer generally has to offer a premium to the seller's stock price to assume control. If the premium exceeds the value of the synergy, there is a wealth transfer from the shareholders of the buyer to the shareholders of the seller. The market signals this transfer when the buyer's stock price goes down beyond what would be expected based on changes in the overall stock market.

Historically, a majority of deals failed to create value for the buyer based on this measure.[17] However, there was a marked change following the Global Financial Crisis, and the success rate of buyers improved substantially.

While the dates do not align exactly with our designation, one study found that buyers had an average abnormal return of positive 1.05 percent from 2010 to 2015 versus negative 1.08 percent from 1990 to 2009. Further, the research concluded that 54 percent of deals added value for the buyer, up from 42 percent in the earlier time.[18] Another study, using somewhat different data, also found that success rates improved markedly after 2009.[19]

There does not appear to be a simple explanation for this result. Candidates include the phase within the M&A cycle, investor demand for growth, and the benefit of lower interest rates.[20] In any case, the benefit faded after COVID-19 took grip of the world economy in 2020.[21]

Companies did not spend more on investments in the easy money era despite a lower cost of capital than in the prior time. There are multiple potential explanations for this lack of investment, including decreased competition and heightened governance.[22] Indeed, the aggregate ROIC for public companies in the U.S. rose to a level above the long-term average.

As John Graham says, "sticky hurdle rates make a lower cost of capital less relevant, and thus, imply that monetary policy (i.e., reducing interest rates) may not be able to spur corporate investment."[23] Companies are aware that the cost of capital is lower but do not change their investment patterns as a result. Over the long haul, investment growth shows little link to short- or long-term interest rates.[24]

All things being equal, lower interest rates allow companies to take on more debt while maintaining similar ratios of operating profit to interest expense. Lower rates also make holding excess cash less desirable as it earns modest returns. In theory we would expect companies to increase leverage and decrease cash holdings. That is not what they did.

Lower Interest Rates and Financial Leverage

Franco Modigliani and Merton Miller, economists who would each go on to win the Nobel Memorial Prize in Economic Sciences, published a famous paper showing that a company's capital structure does not affect its value under a strict set of conditions.[25] The beauty of the approach is that we can see why the capital structure does matter by relaxing the conditions to better fit reality. The big condition is the assumption of no taxes.

A company has to deal with numerous stakeholders, including employees, customers, suppliers, shareholders, and the government. The ability to tax a company's profit is the government's main claim on the firm.

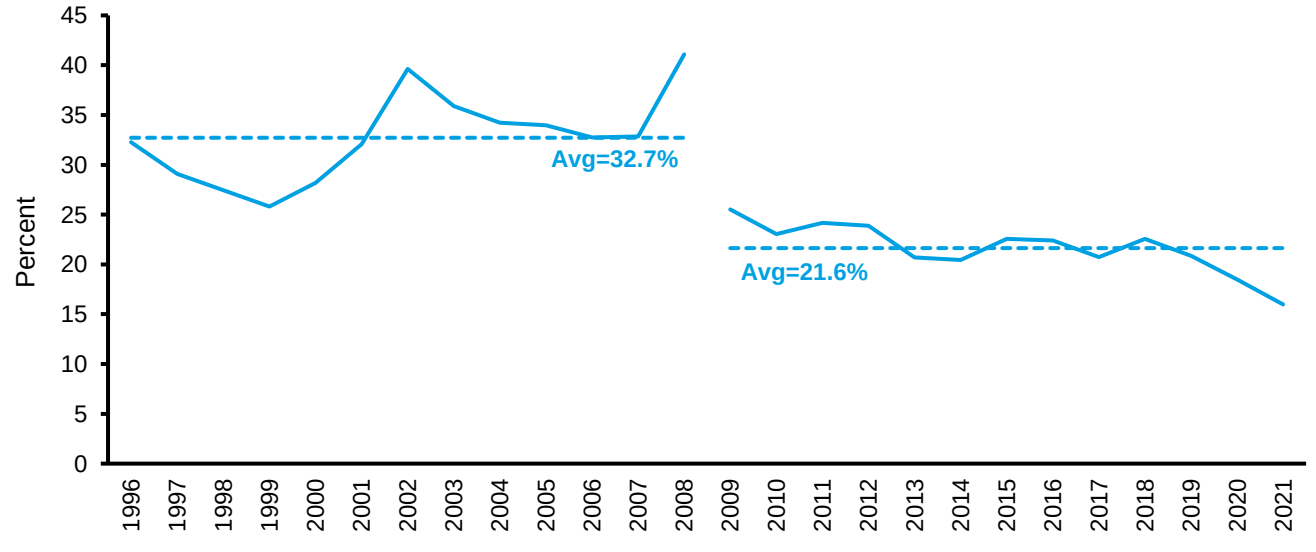
For many countries, interest expense is considered a cost of doing business and hence lessens taxable income.[26] This reduces the value of the government's claim and increases the value to other stakeholders. The right amount of debt creates a valuable tax shield while maintaining sufficient financial flexibility in case the company experiences adverse business results.

Corporate practice differs from theory. Companies tend to settle on a capital structure with less debt than what is ideal because they are conservative and prize resilience. The tax deductibility of interest expense, considered important by 60 percent of chief financial officers (CFOs) in a survey done in 2001, was deemed important by less than 25 percent of CFOs in a survey completed two decades later.

This likely reflects lower tax rates. Taxes were 19.4 percent of operating income in the easy money era for U.S. public companies, excluding financial companies, versus 25.6 percent in the prior period.

Exhibit 4 shows the debt to total capital ratio for the Russell 3000, excluding financials and real estate, in aggregate from 1996 to 2021. Total capital is defined as the book value of debt plus the market value of equity. The average ratio was 21.6 percent in the era of easy money, down from 32.7 percent in the previous period. The change in the aggregate was much more than in the median, suggesting that most of the deleveraging happened among the larger companies. Further, the interest coverage ratio, operating income divided by interest expense, was 7.9 times, up from 5.5 times preceding the time of easy money.[27]

Exhibit 4: Debt to Total Capital Ratio for the Russell 3000, 1996-2021



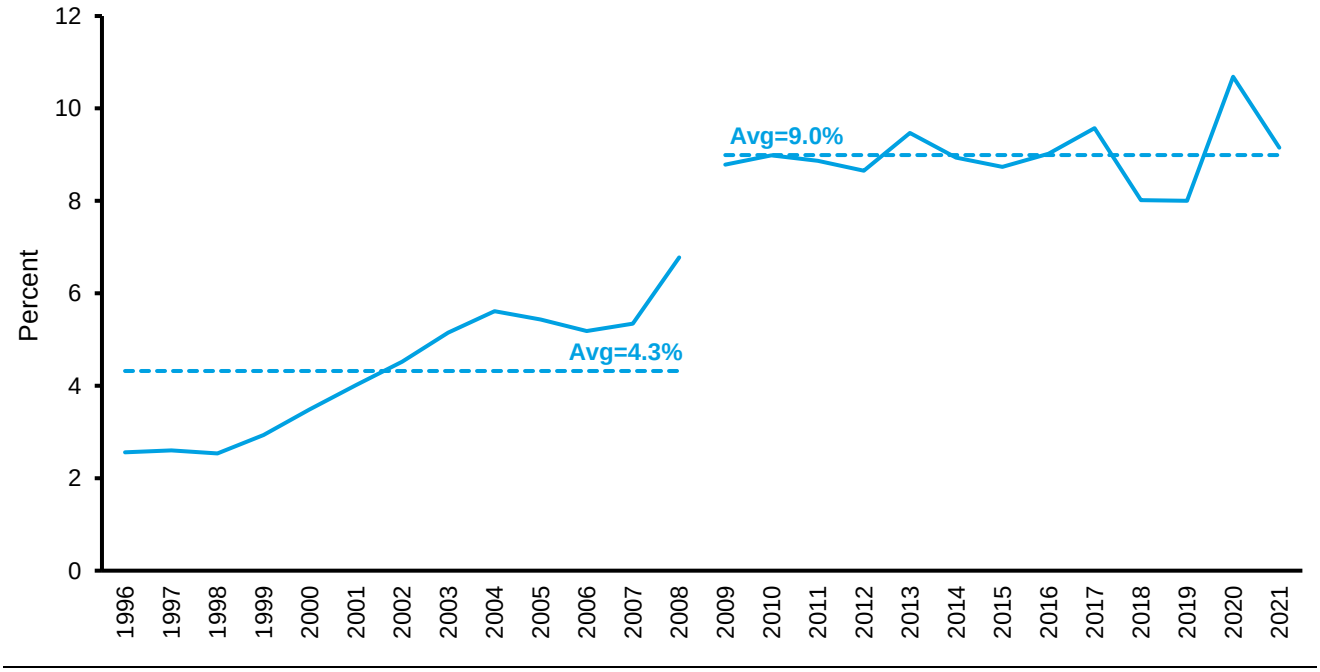
Source: FactSet and Counterpoint Global.
Note: Russell 3000 excluding financial and real estate sectors.

Part of the explanation for this decline in the debt to total capital ratio is that a number of companies had to raise equity capital to improve their financial footing following the Global Financial Crisis. But the ratio drifted lower throughout the 13-year period, suggesting that companies did not have the appetite to increase leverage.

Lower interest rates mean cheaper borrowing costs. But they also imply less interest income from the excess cash and marketable securities that companies hold. In theory, companies would not want to hold substantial amounts of cash earning next to nothing.

Exhibit 5 shows excess cash and marketable securities as a percent of assets in the two regimes. We define excess as any amount above two percent of sales. That ratio doubled, to 9.0 from 4.3 percent, in the period of easy money. Here again, companies exhibited substantial conservatism.

Exhibit 5: Excess Cash and Marketable Securities as a Share of Assets, Russell 3000, 1996-2021



Source: FactSet and Counterpoint Global.
Note: Russell 3000 excluding financial and real estate sectors.

While balances of excess cash and marketable securities swelled to almost $2.3 trillion in 2021, most of that money was concentrated in the hands of a small percentage of large firms. Specifically, 10 companies held one-quarter of the cash, 25 firms one-third, and 80 firms one-half.

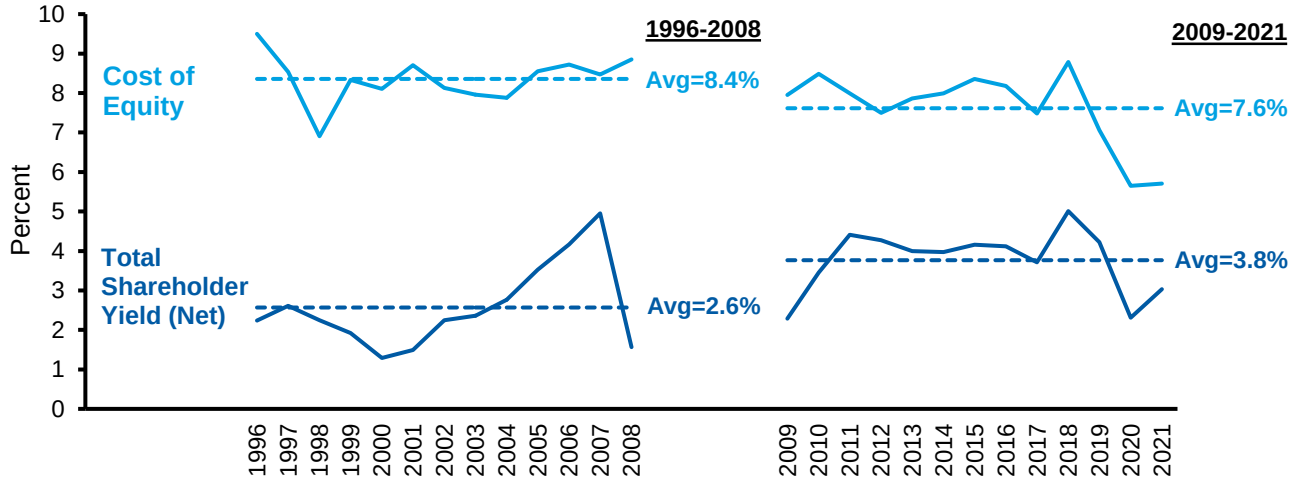
Companies place much higher emphasis on financial flexibility than on interest rates when deciding on their capital structure.[28] The data are shaped a great deal by large companies that are unusually conservative both in capital structure and in holding excess cash. Some companies certainly did indulge in debt, but the overall picture suggests that prevailing interest rates were not central to the decisions many executives made.

Lower Interest Rates and Share Buybacks

The era of easy money may not have compelled companies to change their hurdle rates much, invest more, or take on more debt. But companies did bump up the rate at which they returned capital to shareholders. And easy money may provide an explanation for one of the motivations to do so.

Exhibit 6 shows that the total shareholder yield, dividends plus buybacks (net of equity issuance) divided by market capitalization, rose to 3.8 percent in the period of easy money, up from 2.6 percent in the equivalent preceding period. The exhibit also shows that the total shareholder yield was one-half of the cost of equity, on average, in the easy money period versus less than one-third from 1996-2008.

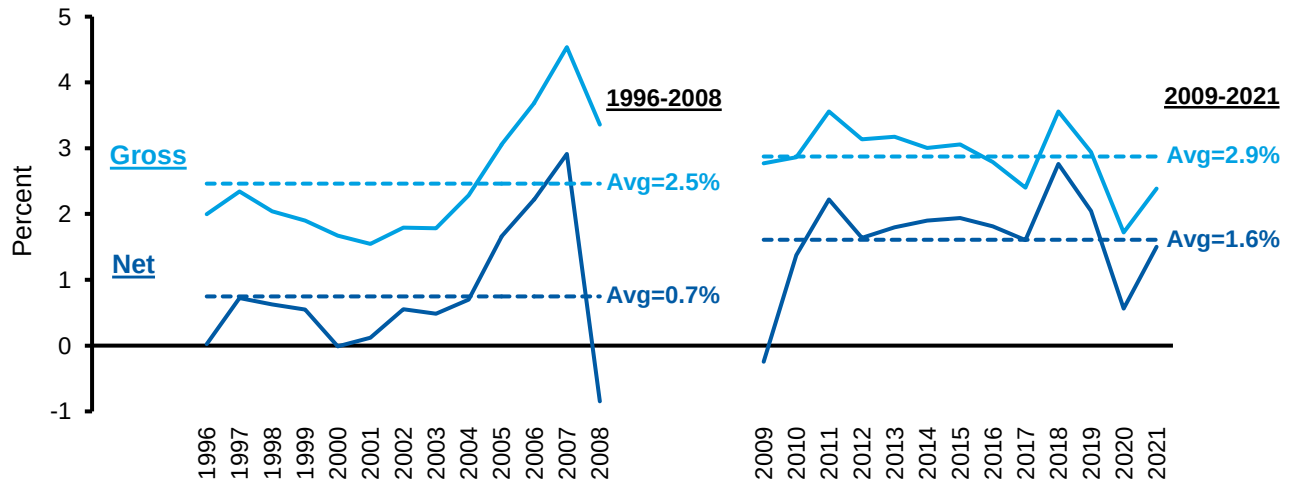
Exhibit 6: Total Shareholder Yield and Cost of Equity for the Russell 3000, 1996-2021



Source: FactSet and Counterpoint Global.

Exhibit 7 shows gross and net buybacks as a percent of market capitalization for both periods, and it reveals buybacks were higher in the era of easy money. Buybacks as a percentage of the total payout increased only a modest amount. The combination of curtailed buybacks and equity issuance during the financial crisis in 2008 and 2009 affected the sums in each period.

Exhibit 7: Share Buybacks as a Percent of Market Capitalization for the Russell 3000, 1996-2021



Source: FactSet and Counterpoint Global.

Kenneth French, a professor of finance, quipped, “Buybacks are divisive, they divide people who do understand finance from people who don’t.”[29] Sometimes it is hard to know where financial executives fall on this divide.

Companies that buy back shares below intrinsic value trigger a wealth transfer from selling shareholders to ongoing shareholders. This is because the selling shareholders get less than what the stock is worth and the intrinsic value per share rises for the ongoing shareholders. Buying back undervalued stock is an excellent way to build long-term value per share for ongoing shareholders, which should be the goal of management.

But executives are not always discerning. For example, most believe that the stock of their company is undervalued. A survey of CFOs in 2020 found that 83 percent of them held this view, and a majority of them said the same going back to 1996.[30] Further, the most popular method to value the stock, revealed in a survey completed in 2022, was “current price relative to historic highs and lows.” By contrast, “internal valuation performed by company” was the fourth most popular.[31]

Research also shows that executives make financial decisions that stray from the ideal of creating long-term value for continuing shareholders and instead focus on maximizing earnings per share (EPS).[32] The era of easy money made buybacks particularly effective at boosting EPS.

CFOs, when asked, indicate that they are very aware of the link between buybacks and EPS. In one survey, 76 percent of CFOs said that increasing EPS was an important, or very important, factor in the decision to buy back stock, and 68 percent indicated that offsetting EPS dilution from stock-based compensation (SBC) was important or very important.[33] More than one-third of buybacks by big companies in recent years have been to counter the dilutive effect of SBC.[34]

Financial executives hold these views despite a lack of evidence that using buybacks to increase EPS creates shareholder value.[35] However, EPS are relevant for executive compensation in many companies, providing management teams with sufficient incentive to use buybacks as a means to lift earnings.

It is worth examining why buybacks are so effective at boosting EPS when interest rates are low. To start, buybacks do not always increase EPS despite lowering the number of shares outstanding. The reason is that the company must pay for a buyback using either excess cash or the proceeds from borrowing. Because excess cash earns interest income and debt incurs interest expense, net income is lower following a buyback than it would have been without the buyback.[36]

We can calculate the impact of buybacks on EPS by comparing the after-tax interest rate (either on interest income from cash or interest expense from debt) to the earnings yield, defined as earnings divided by price (the reciprocal of the P/E multiple). Buybacks add to EPS when the earnings yield is higher than the after-tax interest rate. The size of the buyback also contributes to the impact on EPS if the earnings yield and interest rate are different.

Exhibit 8 presents a simple example with three companies that have the same earnings but trade at different P/E multiples. We assume they all have operating income of $95, $5 of interest income on $100 of excess cash, pay taxes at a 20 percent rate, and have 80 shares outstanding. Each have earnings of $80 and EPS of $1.00, and the after-tax interest rate is 4.0 percent ($0.04 = 0.05 \times (1 - .20)$).

Exhibit 8: Company Comparison Before Buyback

	Company A	Company B	Company C
Operating income	$95	$95	$95
Interest income ($100 at 5%)	$5	$5	$5
Pretax income	$100	$100	$100
Taxes (at 20%)	$20	$20	$20
Net income	$80	$80	$80
Shares outstanding	80	80	80
Earnings per share	**$1.00**	**$1.00**	**$1.00**
Stock price	$10.00	$25.00	$50.00
P/E	10.0	25.0	50.0
E/P	10.0%	4.0%	2.0%
After-tax interest rate	4.0%	4.0%	4.0%

Source: Michael J. Mauboussin and Alfred Rappaport, Expectations Investing: Reading Stock Prices for Better Returns—Revised and Updated *(New York: Columbia Business School Publishing, 2021), 202.*

Company A trades at a P/E multiple of 10, or an earnings yield of 10 percent (0.10 = $1 ÷ $10). Company B has a P/E of 25 and an earnings yield of 4 percent. And Company C has a P/E of 50 and an earnings yield of 2 percent.

We now assume that each company uses $100 to buy back stock.[37] They all realize a drop in net income, but the action makes the EPS rise from $1.00 to $1.09 for Company A, has no effect on EPS for Company B, and causes a decline from $1.00 to $0.97 for Company C.

Exhibit 9: Company Comparison After Buyback

	Company A	Company B	Company C
Operating income	$95	$95	$95
Interest income	$0	$0	$0
Pretax income	$95	$95	$95
Taxes (at 20%)	$19	$19	$19
Net income	$76	$76	$76
Shares outstanding	70	76	78
Earnings per share	**$1.09**	**$1.00**	**$0.97**

Source: Michael J. Mauboussin and Alfred Rappaport, Expectations Investing: Reading Stock Prices for Better Returns—Revised and Updated *(New York: Columbia Business School Publishing, 2021), 203.*

Whether buybacks increase or decrease EPS is a function of interest rates and multiples. The era of easy money provided low interest rates and multiples that were, for the most part, within historical norms. As a result, buybacks were strongly additive for many companies.

To give some sense how this driver of EPS can change, consider that the yield on BBB-rated bonds, calculated as the 10-year U.S. Treasury note plus the option-adjusted spread, was 2.23 percent at the end of 2020.

Assuming a 20 percent tax rate, the after-tax interest rate was 1.78 percent. The S&P 500 Index traded at 22.4 times the estimate of earnings at the time for 2021, or an earnings yield of 4.46 percent. A buyback for a company with a profile consistent with the S&P 500 would get a boost in EPS. The magnitude of the increase is related to the size of the buyback program.

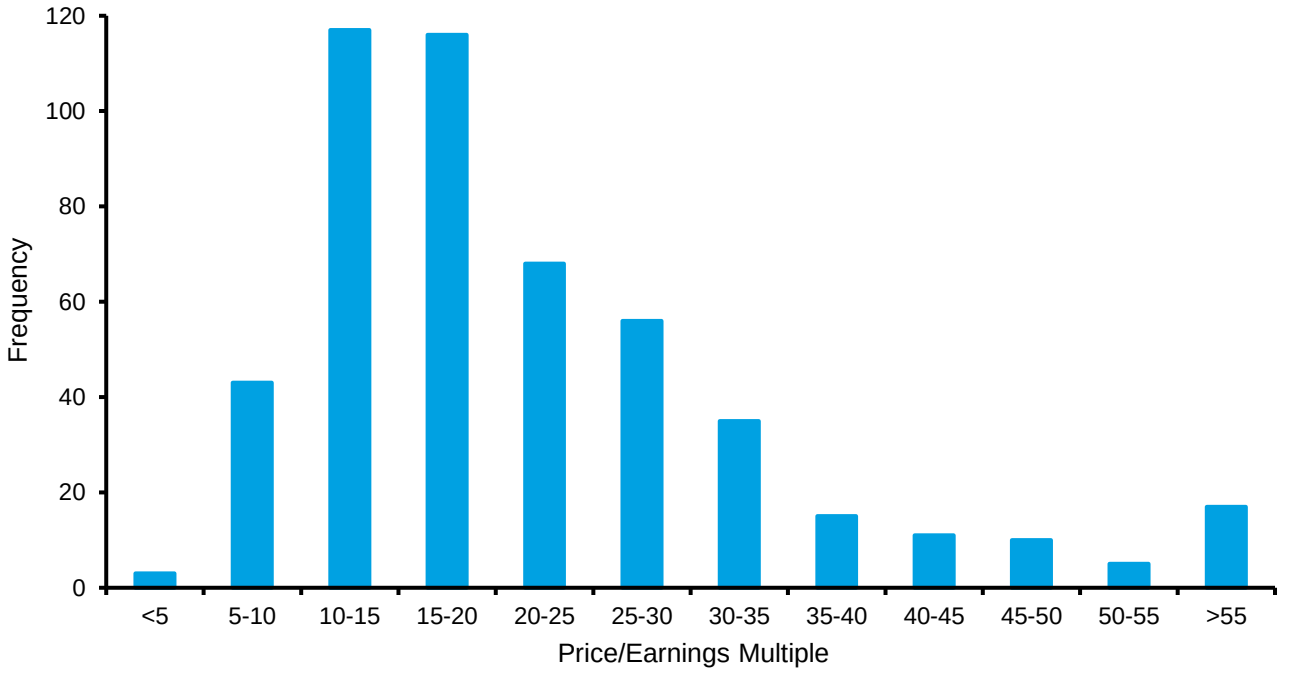
At the beginning of 2024, the pre-tax yield on BBB bonds was 5.17 percent and the after-tax yield was 4.14 percent. The S&P 500 was at 19.5 times the estimate of earnings for 2024, a 5.13 percent earnings yield. A repurchase program for a company with those figures would realize a slight lift to EPS but the effect would be close to neutral.

Some of the companies with the largest buyback programs today trade at P/E multiples that make buybacks neutral or even slightly dilutive to EPS given current interest rates.

Exhibit 10 shows the distribution of P/E multiples, based on earnings estimates for the next four quarters, for companies in the S&P 500 at the end of January 2024. The after-tax interest rate is a little higher than year-end 2023, which means that the breakeven P/E multiple is 22.9. The median multiple is well below that but about one-third of companies in the index have a multiple that is above that level.

Buybacks provided a lift to EPS and EPS growth because of the relationship between interest rates and P/E multiples. Executives and investors need to measure the impact that buybacks have on EPS for each individual company. However, it is clear that the relationship today is less beneficial to EPS than it was during the easy money era.

Exhibit 10: Distribution of Forward Price-Earnings Ratios, S&P 500



Source: FactSet and Counterpoint Global.
Note: Based on FactSet consensus estimates of EPS for the next four quarters as of 1/31/24.

Conclusion

Central banks around the world lowered interest rates significantly in reaction to the Global Financial Crisis, making financial capital relatively inexpensive and accessible. In theory, companies would increase their rate of investment and add financial leverage to take advantage of the lower rates. Higher investment is justified by a reduced cost of capital because more projects clear the hurdle to create value. More debt makes sense because companies can keep their ratios of profit to interest expense while reducing the government's claim on cash flows.

In an ideal world, corporate executives would make decisions to maximize long-term value per share. But there's a lot of evidence that they fall short of this objective for reasons that are mostly understandable.[38] Executives are cautious, slow to change policies, and poorly calibrated. They commonly use hurdle rates that are nearly double their perceived cost of capital, maintain capital structures that are conservative, and place emphasis on EPS and EPS growth ahead of creating value for shareholders. Executive pay is commonly tied to earnings.

We separated 1996 to 2021 into two periods of equal length. We consider the latter one to be a period of easy money, as indicated by below-average interest rates. While these low rates encouraged plenty of undisciplined behavior among investors and companies, the large U.S. public companies behaved in ways that were not consistent with what theory would suggest (see exhibit 11).

We place special emphasis on share buybacks. The relationship between interest rates and market valuation that prevailed during most of the era of easy money made buybacks especially useful for boosting EPS. That all changed as interest rates rose in 2022 and the S&P 500 had a total shareholder return of 26 percent in 2023, lifting the market's P/E ratio.

Exhibit 11: Metrics Before (1996-2008) and During (2009-2021) Easy Money

	Average	
	Before 1996-2008	Easy Money 2009-2021
Risk and Return		
Yield on 10-year U.S. Treasury note (monthly)	5.0%	2.3%
Cost of capital	7.5%	6.9%
Total shareholder return CAGR (S&P 500)	4.8%	16.0%
Investment		
Investment SG&A as a percent of sales	9.2%	10.3%
M&A as a percent of sales	12.0%	9.3%
Capital expenditures as a percent of sales	7.0%	6.2%
Leverage		
Debt to total capital	32.7%	21.6%
Excess cash as a percent of assets	4.3%	9.0%
Return of Capital		
Total shareholder yield	2.6%	3.8%
Share buybacks (net of issuance)	0.7%	1.6%

Source: Counterpoint Global.
Note: Unless otherwise stated, annual averages based on Russell 3000; intangible investments, debt, and excess cash exclude financial and real estate sectors; CAGR=compound annual growth rate.

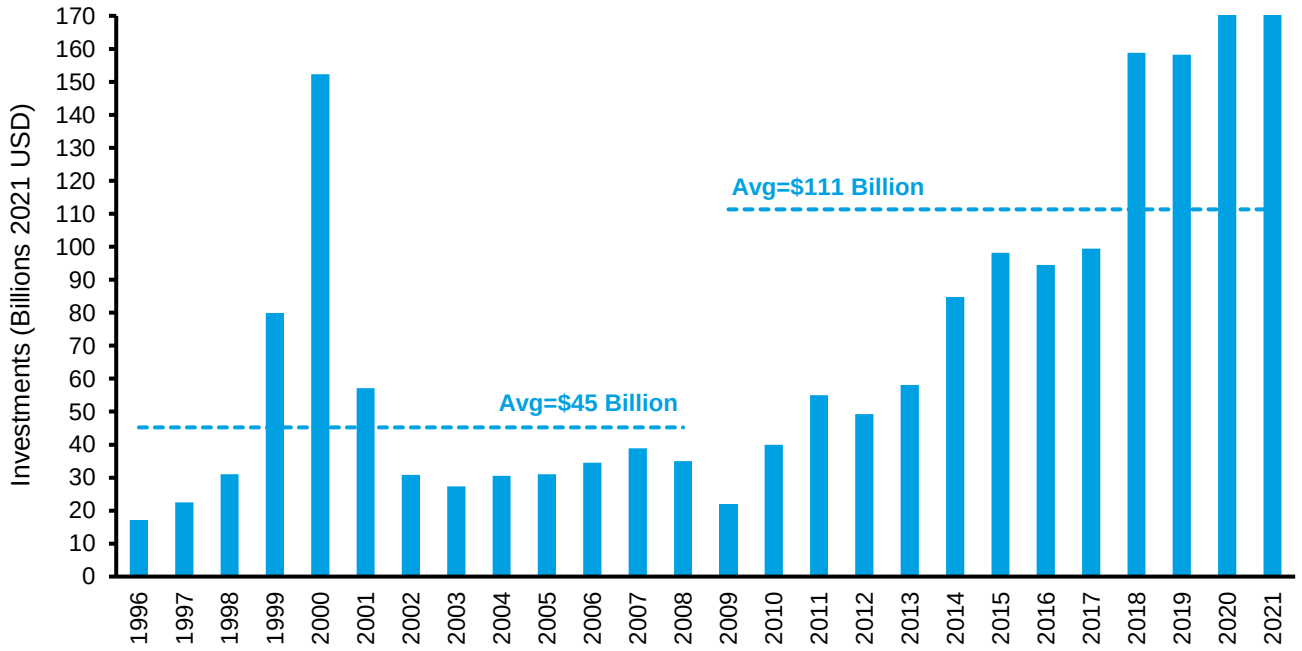
Please see Important Disclosures on pages 19-21

Appendix: Easy Money and Venture Capital

This report focused on the behavior of public companies in the U.S. during a period of easy money. But low interest rates, which imply low expected returns, encouraged institutional investors to take on more risk in the pursuit of higher returns. The venture capital industry benefitted from this shift in asset allocation. Investor commitments to U.S. venture capital were more than 20 percent higher in the easy money era than in the one that preceded it.

In turn, venture capital firms accelerated their investments. Exhibit 12 shows the average annual investment was $111 billion in the period of easy money, up from $45 billion in the prior period. Venture capital firms invested 2.5 times more money, adjusted for inflation, from 2009 to 2021 versus 1996 to 2008. The annual investment in 2000, at the apex of the dot-com boom, was not exceeded until 2018.

Exhibit 12: U.S. Venture Capital Annual Investment, 1996-2021



Source: National Venture Capital Association and Counterpoint Global.

The capacity to make productive venture capital investments is limited, especially for young companies. The flow of venture capital encouraged companies to pursue growth. But growth is good only when the business model leads to value creation.

In some cases, companies subsidized their customers to buy their good or service to become the dominant network. Examples include industries that have two-sided networks such as ridesharing and food delivery. The idea is that a company can curtail subsidies once it reaches the tipping point and therefore becomes the network of choice for consumers. Companies such as Uber Technologies and DoorDash illustrate businesses that lost money as they sought to establish their businesses but are now profitable.

In other cases, companies pursued growth that exceeded organizational capacity or where the basic unit of analysis, which captures how the company makes money, was flawed. Those were poor investments. WeWork is an example of a company that grew faster than its organization could support.

Endnotes

[1] No, Yogi Berra does not get credit for this. The first acknowledged use of the phrase is by Benjamin Brewster, a student at Yale University, in "The Yale Literary Magazine" dated February 1882. See https://quoteinvestigator.com/2018/04/14/theory/.
[2] Howard Marks, "Easy Money," *Memo to Oaktree Clients*, January 9, 2024. The federal funds rate is "the interest rate at which depository institutions trade federal funds with each other overnight." Federal funds are the balances these institutions hold at Federal Reserve Banks.
[3] The S&P 500 as we know it today was launched in 1957. For prior periods, we use an equivalent measure.
[4] Edward Chancellor, *The Price of Time: The Real Story of Interest* (New York: Atlantic Monthly Press, 2022).
[5] Ryan Banerjee and Boris Hofmann, "The Rise of Zombie Firms: Causes and Consequences," *BIS Quarterly Review*, September 2018, 67-78.
[6] Arash Aloosh, Hyung-Eun Choi, and Samuel Ouzan, "The Tail Wagging the Dog: How Do Meme Stocks Affect Market Efficiency?" *International Review of Economics and Finance*, Vol. 87, September 2023, 68-78 and www.spacinsider.com/data/stats.
[7] Niels Joachim Gormsen and Kilian Huber, "Firms' Perceived Cost of Capital," *Working Paper*, November 2023.
[8] Gormsen and Huber, "Firms' Perceived Cost of Capital," and Niels Joachim Gormsen and Kilian Huber, "Corporate Discount Rates," *Working Paper*, September 2023.
[9] See https://costofcapital.org/; John R. Graham, "Presidential Address: Corporate Finance and Reality," *Journal of Finance*, Vol. 77, No. 4, August 2022, 1975-2049; and Philip Bromiley, *Corporate Capital Investment: A Behavioral Approach* (Cambridge, UK: Cambridge University Press, 1986).
[10] For example, in a recent podcast the interviewer, Patrick O'Shaughnessy, asked Aswath Damodaran, a professor, "What are the biggest market and business implications of that new normal or status quo?" Damodaran replied, "I think for those companies that got used to using 6% or 7% cost of capital, it's time to let go. I know there are companies that still hang on to those hurdle rates they set in the last decade saying, you know what, rates are low, therefore, those costs of capital are not coming back. So the way we assess projects at your companies has to change…" See Aswath Damodaran, "Making Sense of the Market—Part 2," *Invest Like the Best Podcast*, October 24. 2023 at www.joincolossus.com/episodes/72302556/damodaran-making-sense-of-the-market-pt2?tab=transcript.
[11] Graham, "Presidential Address."
[12] Dan Lovallo, Alexander L. Brown, David J. Teece, and David Bardolet, "Resource Re-Allocation Capabilities in Internal Capital Markets: The Value of Overcoming Inertia," *Strategic Management Journal*, Vol. 41, No. 8, August 2020, 1365-1380.
[13] Don A. Moore, *Perfectly Confident: How to Calibrate Your Decisions Wisely* (New York: Harper Business, 2020), 8.
[14] This is consistent with prior research. For example, see Eugene F. Fama and Kenneth R. French, "The Corporate Cost of Capital and the Return on Corporate Investment," *Journal of Finance*, Vol. 54, No. 6, December 1999, 1939-1967.
[15] Capital expenditures and M&A reflect the entire Russell 3000 and intangible investments reflect the Russell 3000 universe excluding companies in the financial and real estate sectors. All investments are scaled by the sales for the entire Russell 3000 universe.
[16] Michael J. Mauboussin and Dan Callahan, "Capital Allocation: Results, Analysis, and Assessment," *Consilient Observer: Counterpoint Global Insights*, December 15, 2022.
[17] Mark L. Sirower, *The Synergy Trap: How Companies Lose the Acquisition Game* (New York: Free Press, 1997).
[18] G. Alexandridis, N. Antypas, and N. Travlos, "Value Creation from M&As: New Evidence," *Journal of Corporate Finance*, Vol. 45, August 2017, 632-650.
[19] Mark Sirower and Jeff Weirens, *The Synergy Solution: How Companies Win the Mergers and Acquisitions Game* (Boston, MA: Harvard Business Review Press, 2022).
[20] See Samer Adra, Leonidas G. Barbopoulos, and Anthony Saunders, "The Impact of Monetary Policy on M&A Outcomes," *Journal of Corporate Finance*, Vol. 62, June 2020, 101529 and Alice Bonaimé, Huseyin Gulen, and

Mihai Ion, "Does Policy Uncertainty Affect Mergers and Acquisitions?" *Journal of Financial Economics*, Vol. 129, No. 3, September 2018, 531-558.

[21] Barbara Sveva Magnanelli, Luigi Nasta, and Emanuele Ramazio, "Bid Premiums and Cumulative Abnormal Returns: An Empirical Investigation of the Consequences of the Covid-19 Pandemic," *Finance Research Letters*, Vol. 49, October 2022, 103093.

[22] Germán Gutiérrez and Thomas Philippon, "Investment-Less Growth: An Empirical Investigation," *NBER Working Paper 22897*, December 2016.

[23] Graham, "Presidential Address," 1991.

[24] S.P. Kothari, Jonathan Lewellen, and Jerold B. Warner, "The Behavior of Aggregate Corporate Investment," *Working Paper*, September 2016.

[25] Franco Modigliani and Merton H. Miller, "The Cost of Capital, Corporation Finance and the Theory of Investment," *American Economic Review*, Vol. 48, No. 3, June 1958, 261-297.

[26] Not all companies in the U.S. are allowed to take all of their interest expense as a deduction from taxes. The Tax Cuts and Jobs Act of 2017 set a limit on the tax deductibility of interest at 30 percent of earnings before interest and taxes (EBIT) for U.S. companies with sales of $25 million or more. This went into effect in 2022. We estimate this affects about one-quarter of the profitable companies in the Russell 3000.

[27] Michael Smolyansky, "End of an Era: The Coming Long-Run Slowdown in Corporate Profit Growth and Stock Returns," *Board of Governors of the Federal Reserve System Finance and Economics Discussion Series 2023-041*, June 2023.

[28] Graham, "Presidential Address," 2016.

[29] "Ken French: Expected the Unexpected," *Rational Reminder Podcast*, May 28, 2020.

[30] Graham, "Presidential Address," 2021.

[31] Ibid., 2022.

[32] Itzhak Ben-David and Alexander M. Chinco, "Modeling Managers as EPS Maximizers," *NBER Working Paper 31125*, June 2023.

[33] Alon Brav, John R. Graham, Campbell R. Harvey, and Roni Michaely, "Payout Policy in the 21st Century," *Journal of Financial Economics*, Vol. 77, No. 3, September 2005, 483-527.

[34] Bruce Dravis, "Dilution, Disclosure, Equity Compensation, and Buybacks," *Business Lawyer*, Vol. 74, No. 3, Summer 2019, 631-658.

[35] Jacob Oded and Allen Michel, "Stock Repurchases and the EPS Enhancement Fallacy," *Financial Analysts Journal*, Vol. 64, No. 4, July-August 2008, 62-75.

[36] This is true for a dividend as well.

[37] This analysis holds if the company instead issues debt at a 5 percent interest rate.

[38] Ben-David and Chinco, "Modeling Managers as EPS Maximizers."

[39] Kevin Roose, "Farewell, Millennial Lifestyle Subsidy," *New York Times*, June 8, 2021.

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