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INVESTMENT MANAGEMENT

Counterpoint Global Insights

Total Shareholder Return

Linking The Drivers of Total Returns to Fundamentals

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AUTHORS

Michael J. Mauboussin
michael.mauboussin@morganstanley.com

Dan Callahan, CFA
dan.callahan1@morganstanley.com

Introduction

Expectations about a company's future free cash flow should, in theory, determine the value of its stock.[1] You can think of total shareholder return (TSR) over a period as the change in the stock price, reflecting revisions in expectations from the beginning to the end of the period, plus any cash the company paid to equity holders.

Investor expectations reflect a combination of factors. Some are specific to the company, such as the cash flows that result from sales growth, operating profit margins, and investments. Others are external, including economic growth, inflation, and the cost of capital. In the short term, these factors combine with swings in investor sentiment to determine stock prices. In the long term, the results of the business carry the day.

TSR is the capital accumulation rate that investors earn if they reinvest all of their dividends into more shares of the stock during their holding period.[2] This report examines the sources of TSR and ties them to underlying economic principles. The goal is to create a bridge between theory and practice. The concepts are relevant for helping to assess the prospective returns of the stock of any company. We emphasize value traps, stocks of companies that appear to have an inexpensive valuation but have drivers consistent with outcomes below the average.

The analysis reveals that few investors in the stocks of companies that pay dividends earned the TSR. It also dispenses with the common but incorrect perception that dividends contribute to capital accumulation.

This framework gives investors a checklist of drivers and the tools to help assess them. It also provides a way to decompose past returns to see what drove the results. We start with the calculation of TSR.

Calculating Total Shareholder Return (TSR)

The equity rate of return for a stock over one year is simply the change in stock price from the beginning of the year to the end of the year plus any dividends the company paid. For instance, if a stock price appreciated 8 percent and the company paid a dividend with a yield of 2 percent, the equity rate of return was 10 percent.

The calculation of total shareholder return for a stock or index is slightly different than the equity rate of return because the TSR assumes shareholders reinvest their dividends in additional shares. The formula for TSR is as follows:

TSR = price appreciation + [(1 + price appreciation) × dividend yield]

For example, if price appreciation is 8 percent and the dividend yield is 2 percent, the TSR is 10.16 percent (.1016 = .08 + [(1.08) × .02]).[3] This is the capital accumulation rate. Only investors who reinvest all their dividends into the stock with no taxes or transaction costs can earn the TSR.

Investors as a group cannot earn the TSR even if a small number of investors do because reinvesting dividends in additional shares requires sellers to match the buyers.[4] If all shareholders are buyers, there are no sellers. Those who sell cannot earn the TSR.

We can break down the formula for TSR even further. Price appreciation over a period reflects earnings per share (EPS) growth combined with the change in the price-earnings (P/E) multiple. Price appreciation exceeds EPS growth when the P/E multiple expands and falls short of EPS growth when the multiple contracts.

EPS growth integrates the change in net income and the change in shares outstanding. Net income growth can differ from operating profit growth as a result of changes in financing costs and tax rates. The change in shares outstanding reflects the net effect of equity issuance and buybacks over the relevant period.

Dividends reflect the capacity and proclivity of the company to return capital to shareholders. About one-third of public companies in the U.S. pay a dividend. Companies also use share buybacks to return cash to shareholders. Buybacks reduce the shares outstanding.

An investor's ability to earn the TSR requires full dividend reinvestment in additional shares. A very small percentage of investors are willing or able to earn the TSR. Indeed, investors commonly consider price changes and dividends to be separate rather than related components in total returns.[5]

Exhibit 1 summarizes the drivers of TSR as well as the fundamental sources behind them. We explore each of these drivers and provide a framework and data for thinking about how they might change over time.

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Exhibit 1: Drivers of Total Shareholder Return

	Driver	Sub-driver	Sub-driver	Fundamental source
Total shareholder return	Price appreciation	Earnings per share growth	Net income growth	Sales growth, operating profit margin, financing costs, tax rate
			Change in shares outstanding	Equity issuance or retirement
		P/E multiple change		Value creation prospects, risk
	Dividend			Capacity to return capital, capital allocation policy
	Dividend reinvestment			Reinvestment program, tax rate, other frictions

Source: Counterpoint Global.

The TSR formula is straightforward but further examination of the term on the far right, (1 + price appreciation) × dividend yield, reveals that price appreciation is the only source of investment return that contributes to capital accumulation.

To see why, we have to slow down the process of a payout and consider two scenarios. Assume a shareholder owns 100 shares of a $200 stock ($20,000 = 100 × $200) and the company declares a dividend of $4.

In the first scenario, the investor simply takes the dividend in cash. She will be left with 100 shares of a stock at its ex-dividend price of $196 ($19,600 = 100 × $196) and $400 in cash.[6] The sum of the stock holding and the dividend is $20,000 ($20,000 = $19,600 + $400).

Research suggests that most individual investors use dividends for current consumption.[7] This is an example of mental accounting: the stock holding is in one account for investment and the dividend is in another account for consumption.[8] Academics call this the “free dividends fallacy” because such accounting seems to neglect the fact that the dividend payment reduces the stock price.[9]

In the second scenario, the investor reinvests the dividend into additional shares of the stock. That allows for the purchase of an additional 2.0408 shares ($400/$196) and the shareholder is again left with $20,000 ($20,000 = 102.0408 × $196). The investor has exposure to price appreciation only because all of the proceeds from the dividend are reinvested into the stock. Investors who seek capital accumulation, and therefore focus on TSR, derive no returns from dividends.

Exhibit 2 shows the TSR for the S&P 500, an index that tracks the results of the stocks of the 500 largest companies listed in the U.S., on an annualized basis from 2012 through 2021. We select the 10 years ended 2021 so that we could use forward P/E multiples. The annual TSR over that period was 16.6 percent.

We can see how the drivers contribute to the total. Net income growth was 6.7 percent and the reduction in shares outstanding was 0.7 percent, leading to EPS growth of 7.4 percent. The P/E multiple expanded during this period, adding 6.9 percentage points. The combination of EPS growth and multiple expansion led to price appreciation of 14.3 percent.

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Exhibit 2: Drivers of Total Shareholder Return for the S&P 500, 2012-2021 Annualized

	Driver	Sub-driver	Sub-driver	Percent of Total
Total shareholder return 16.6%	Price appreciation 14.3%	Earnings per share growth 7.4%	Net income growth 6.7%	**40.2%**
			Change in shares outstanding 0.7%	**4.3%**
		P/E multiple change 6.9%		**41.6%**
	Dividend 2.0%			**12.2%**
	Dividend reinvestment 0.3%			**1.7%**
				100.0%

Source: FactSet and Counterpoint Global.

The dividend yield averaged 2.0 percent and reinvesting the dividend chipped in an additional 0.3 percentage points. The sum of 14.3 percent from price appreciation and 2.3 percent from dividends and dividend reinvestment is 16.6 percent.

The right column in exhibit 2 shows the percentage contributions of each of the drivers. Earnings per share growth was 44 percent, multiple expansion 42 percent, and dividends and dividend reinvestment 14 percent.

We now examine the components of total shareholder return: net income growth, change in shares outstanding, change in P/E multiple, the ability to pay a dividend, and dividend reinvestment. We seek to connect these concepts to frameworks for assessing them and, where relevant, base rates of relevant results.

Linking the Drivers: From Theory to Practice

Net income growth. Net income equals earnings before interest and taxes (EBIT, or operating profit) minus net interest expense and taxes. Accordingly, assessing net income requires a separate understanding of operating profit growth, net interest expense, and the tax rate.

A deep discussion of operating profit growth is beyond the scope of this discussion, but there are a few important concepts to consider. The first is gaining a realistic sense of the total addressable market (TAM). You should think of TAM not as the aggregate of a market but rather as the portion of the market that a company can serve while creating value.[10]

The size of the market is the number of potential customers multiplied by the average revenue per customer. A convenient example is an estimate of the market for a new medicine.[11] A thoughtful estimate requires judging the population of possible users, the subset of the population likely to use the good or service, and the sales that result.

A company's cost structure determines the operating profit margin, or operating profit divided by sales. The aggregate operating profit margin for companies in the S&P 500 averaged 14 percent in the 10 years ended in

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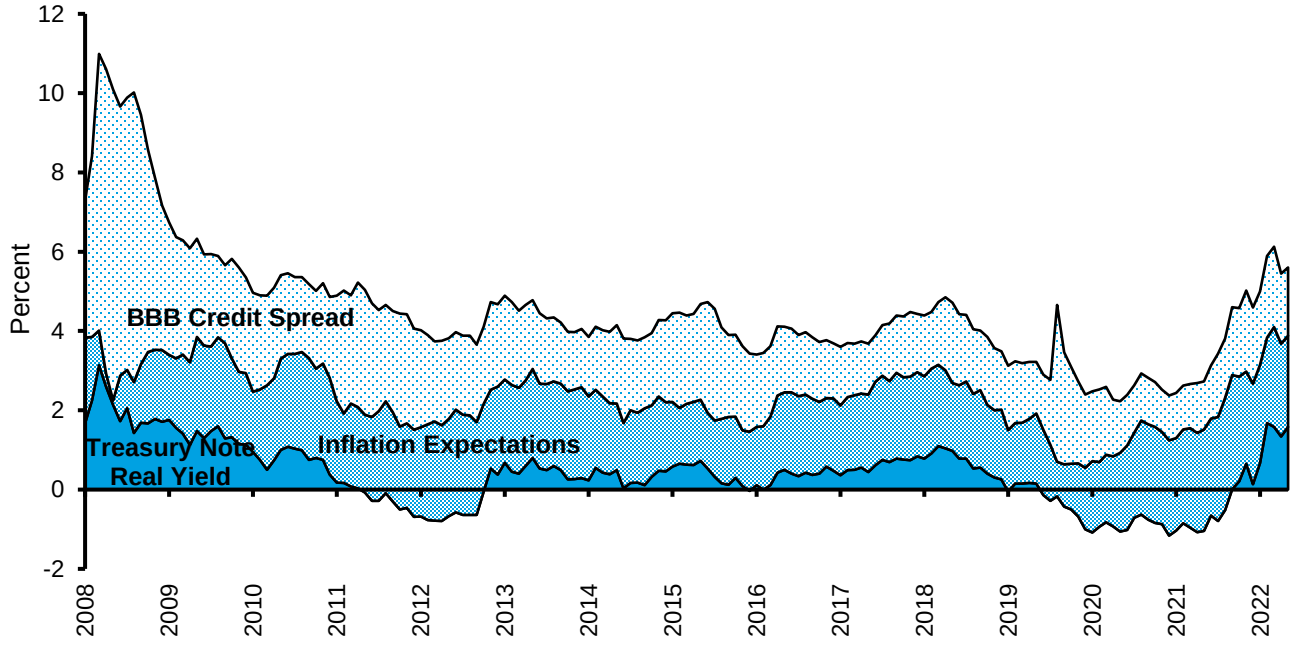
2022. Operating leverage, the change in operating profit as a function of change in sales, is also crucial. Businesses with high fixed cost structures tend to have substantial operating leverage.

Debt and equity financing both have an opportunity cost. This cost is equivalent to the expected return for capital providers. But the cost of debt is explicit whereas the cost of equity is implicit.

The cost of debt shows up on the income statement as interest expense. Exhibit 3 shows the cost of debt for BBB U.S. corporate bonds from August 2008 through 2022. BBB is the lowest rating that qualifies as investment grade. The cost, or expected return, starts with the real yield on the 10-year U.S. Treasury note and then adds inflation expectations and the credit spread. The credit spread is the return bondholders demand over the Treasury note to compensate them for risk. Of the global bonds rated by S&P Global, a leading credit rating firm, a little more than three-quarters are investment grade and BBB is the most common rating.[12]

Exhibit 3: Expected Returns on BBB U.S. Corporate Bonds Calculated Monthly, 2008-2022



Source: Aswath Damodaran; FRED at the Federal Reserve Bank of St. Louis; Counterpoint Global.
Note: August 2008-December 2022; Treasury note=10-year U.S. Treasury note; BBB spread=ICE BofA BBB U.S. corporate index option-adjusted spread.

Interest rates and corporate bond yields drifted lower during the period we measured to calculate the TSR for the S&P 500. Further, many companies held cash that created interest income, and the debt-to-total capital ratio declined modestly for public companies in the U.S.[13] The net result is that the pretax margin, which is after net interest expense but before taxes, rose for the aggregate of companies in the S&P 500 over the decade we sampled.

Pretax income minus taxes gets us to net income. Net income margins also expanded because the tax rate dipped. Exhibit 4 shows the decline in the effective tax rate, which was lower as the result of a drop in the top federal statutory rate in 2017.

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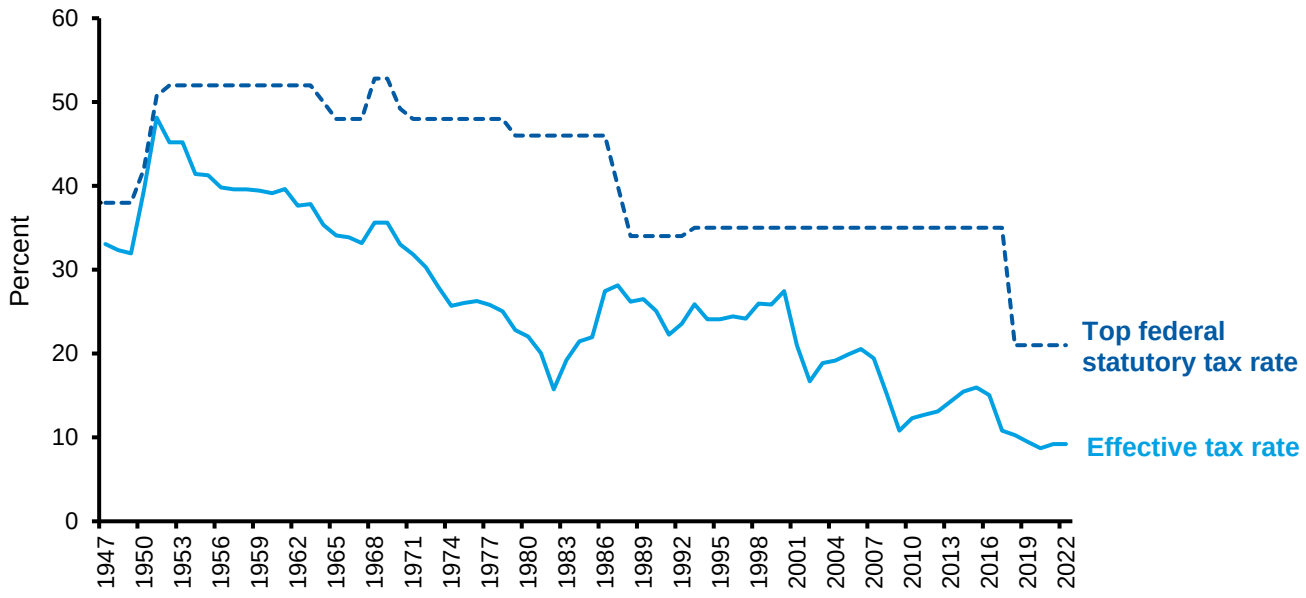
Exhibit 4: Top Federal Statutory and Effective Tax Rate for U.S. Companies, 1947-2022



Source: Tax Policy Center; FRED at the Federal Reserve Bank of St. Louis; Counterpoint Global.

The decline in financing costs and taxes allowed the companies in the S&P 500 to grow their net income at a rate of 6.7 percent at the same time that operating profit grew 5.6 percent. Over the period we measured, interest and tax expense as percent of operating income went from roughly 32 to 24 percent. In fact, interest expense and taxes as a percentage of operating profit have declined steadily since 1980, which has allowed net income to grow faster than operating profit over that time.[14]

One method to assess the future is to consider the problem you face as an instance of a larger reference class. The results from the reference class are called base rates. These allow you to examine what happened to others who were in a similar situation before.

In this case, we can ask what base rates tell us about net income growth. We examined the correlation, *r*, between past and future 1-, 3-, and 5-year net income growth from 2012 to 2022. Our sample excludes any company that had negative net income over a measured period. Just under 30 percent of public companies had negative net income over the span we examined. Our sample includes more than 1,250 companies.

A correlation of zero means there is no persistence. A correlation of 1.0 means the second outcome is perfectly related to the first. A negative correlation means the latter outcome is anti-persistent relative to the early one. In other words, outcomes with bad expected values are more likely to follow good outcomes, and outcomes with good expected values are more likely to follow bad ones.

Exhibit 5 shows that the correlation in net income growth is -0.10 for 1 year, -0.20 for 3 years, and -0.28 for 5 years. This is consistent with the academic literature that shows low persistence in net income growth.[15] These results show that extrapolating past net income growth into the future is rarely a good idea.

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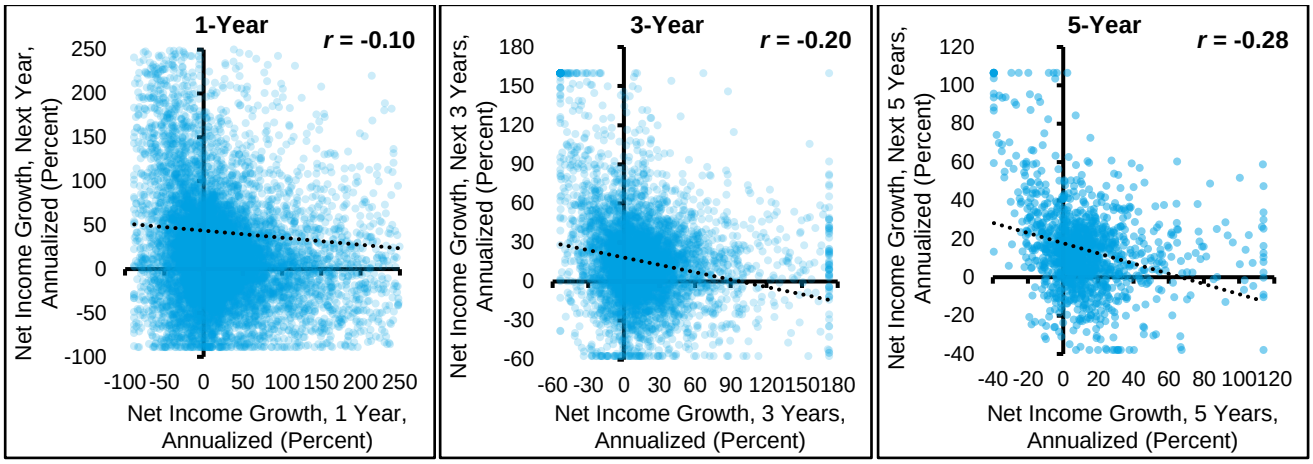
Exhibit 5: Correlation in 1-, 3-, and 5-Year Net Income Growth, 2012-2022



Source: FactSet and Counterpoint Global.
Note: Winsorized at 1st and 99th percentiles.

We treat net income growth as a driver of price appreciation, but companies can achieve net income growth without creating value. This occurs when investments generate net income growth but fail to earn the cost of capital.[16] The negative impact these investments have on value show up as a lower P/E multiple rather than in net income growth.

Mergers and acquisitions are a good example. It is common for companies to pronounce that an acquisition adds to EPS at the same time its stock declines. A shrinking P/E multiple allows for earnings to be up and the stock to be down.

Change in shares outstanding. Earnings per share equal net income divided by shares outstanding. When a profitable company's shares outstanding rise, EPS growth is less than net income growth. When shares outstanding fall, EPS increases faster than net income. For companies with negative net income, more shares outstanding dampen the loss per share and fewer shares outstanding exacerbate the loss per share.

Companies issue shares for mergers and acquisitions (M&A) financed with stock, for stock-based compensation (SBC), and in equity offerings. Companies retire shares primarily through share buybacks. Since 2000, public companies in the U.S. have issued less equity than they have retired.

Exhibit 6 shows the annual equity issuance for U.S. public companies from 2000-2022. We include SBC only since 2006, the first year the Financial Accounting Standards Board required companies to disclose SBC on the income statement. From 2006 to 2022, equity-financed M&A deals were the largest component of equity issuance, followed by SBC and seasoned equity offerings (SEOs), new shares that are issued but are not initial public offerings.

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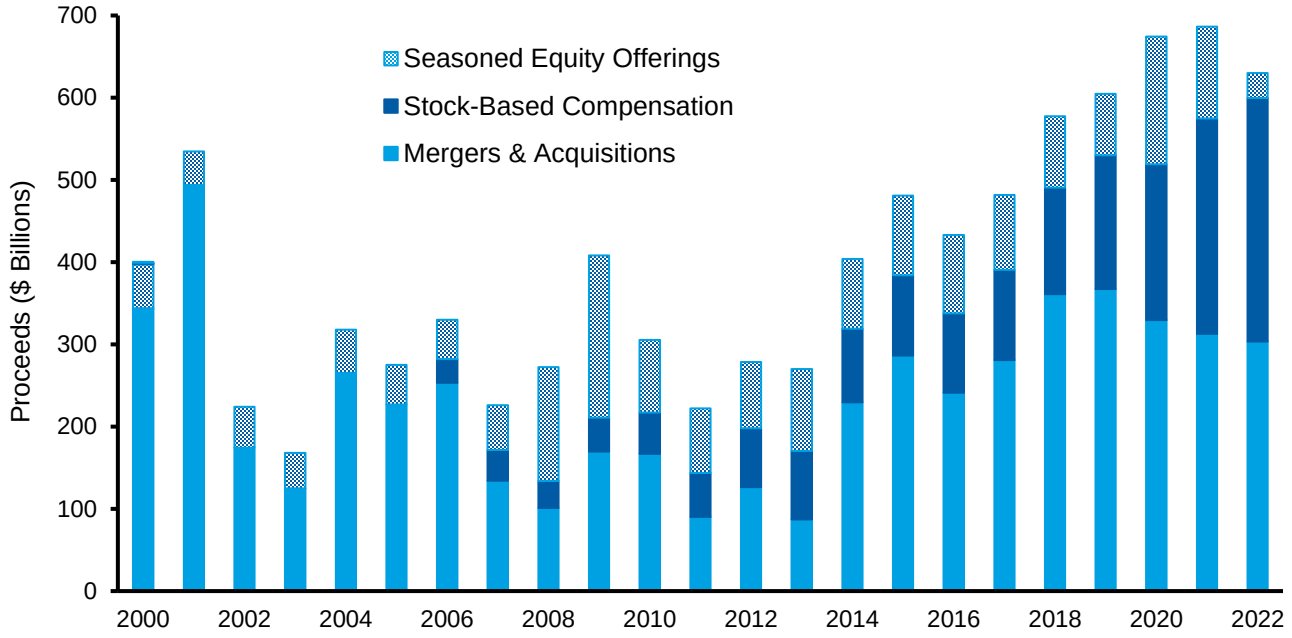
Exhibit 6: Equity Issuance for M&A, SBC, and SEOs, 2000-2022



Source: FactSet and Counterpoint Global.
Note: S&P 500 constituents, as of 8/31/23, that had data every year from 2011-2022; Reflects common shares used to calculate basic earnings per share.

In an M&A deal, a company buys a stream of future cash flows. M&A financed with equity can add or detract from earnings per share based solely on the difference in the P/E between the buyer and seller.

A deal always adds to the buyer's EPS when its P/E is higher than that of the seller. This is called the "bootstrap effect" because EPS rise even if there are no financial benefits to putting the businesses together and the value of the firms do not change after the combination.[17] Conversely, EPS always fall when the buyer's P/E is lower than that of the seller.

That means that a high P/E company buying a low P/E company is good for EPS but the exact same transaction, low buying high, is bad for EPS. The conclusion is that the change in EPS alone tells you nothing about the virtue of a deal.

Investors should assess the price appreciation potential of M&A deals financed with stock based on the economic merits rather than the impact on EPS. The simplest way to determine the value creation potential for the buyers is to estimate the present value of synergies minus the premium paid.

SBC has risen from $29 billion in 2006, or 0.2 percent of sales, to $296 billion in 2022, equivalent to 1.3 percent of sales. SBC as a percentage of sales tends to be higher in general for smaller, young companies than for larger, old companies. By using SBC instead of cash, companies can provide employees with compensation upside if the stock does well and can reduce the need to raise equity in a secondary offering.

Companies announcing secondary offerings generally increase investments in capital expenditures and research and development. Yet, their stocks tend to go down upon announcement.[18] This is consistent with the idea that firms issue equity when they deem the price to be full and retire it when they perceive it to be undervalued.[19]

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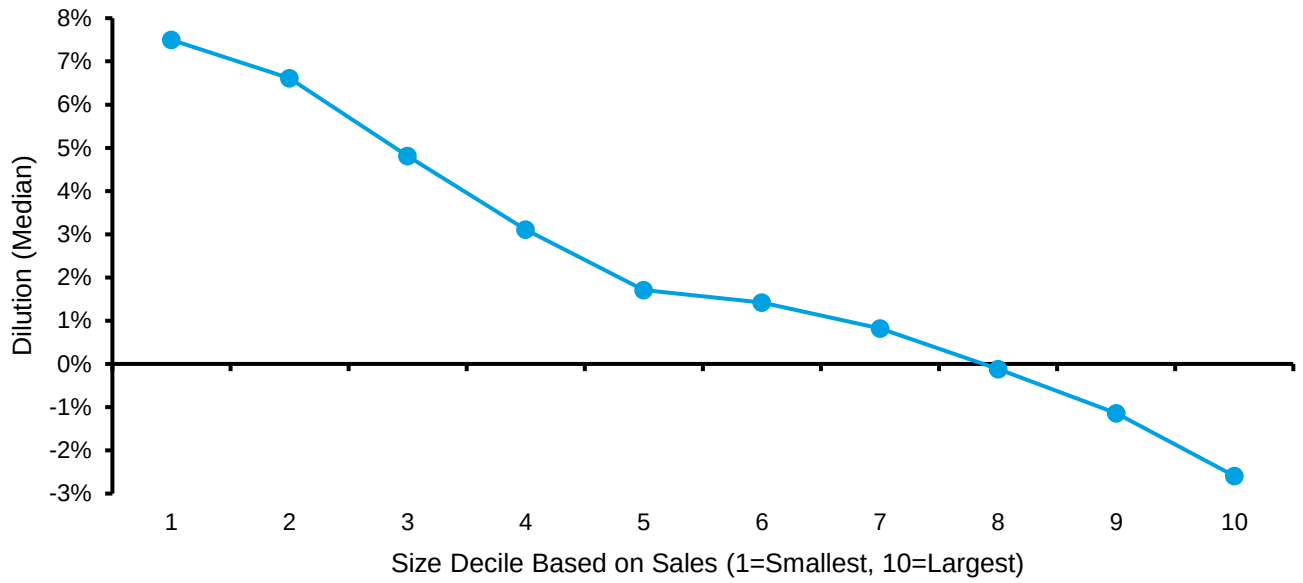
M&A deals financed with stock, SBC, and SEOs all increase shares outstanding and cause dilution, or the lowering of the percentage ownership of existing shareholders. Share buybacks decrease shares outstanding and increase the stake of ongoing holders. To generalize, small companies tend to issue equity and hence dilute ongoing holders, while large companies generally reduce shares outstanding through buybacks.

Exhibit 7 shows the shareholder dilution for companies in the Russell 3000, ranked in size by decile from 2020 to 2022. The Russell 3000 tracks the performance of the largest 3,000 U.S. public companies. The companies in the smallest three deciles realized average dilution of six percent, while the largest three deciles collectively retired equity.

Exhibit 7: Three-Year Dilution of Shareholders by Decile for the Russell 3000, 2020-2022



Source: FactSet and Counterpoint Global.
Note: Data for calendar year 2022; Minimum sales of $100 million.

Share buybacks are a way to return capital to shareholders that are equivalent to dividends under strict assumptions.[20] But unlike dividends, which treat all shareholders equally, buybacks that occur at any price other than fair value result in a wealth transfer. A company that buys back undervalued stock transfers wealth from the selling shareholders to the ongoing holders. And companies that repurchase overvalued stock transfer wealth from the ongoing shareholders to the selling shareholders.

The decisions to retire stock through buybacks and issue stock via SBC are distinct but many executives link them. Specifically, they seek to buy back shares to offset the dilution from their SBC programs. For instance, 68 percent of chief financial officers who were surveyed said that "offsetting the dilutionary effect" of SBC was "important" or "very important."[21] Another study of large U.S. public companies found that 37 percent of the sum spent on buybacks in recent years "had the effect of reversing the share dilution" from SBC programs.[22]

Exhibit 8 shows the cumulative percentage change in shares outstanding for the S&P 500 in total, as well as its constituent sectors, from 2011 through 2021. Overall, the shares outstanding for the members of the S&P shrank and the reduction contributed 0.7 percentage points to the S&P 500's TSR of 16.6 percent per year over that time.

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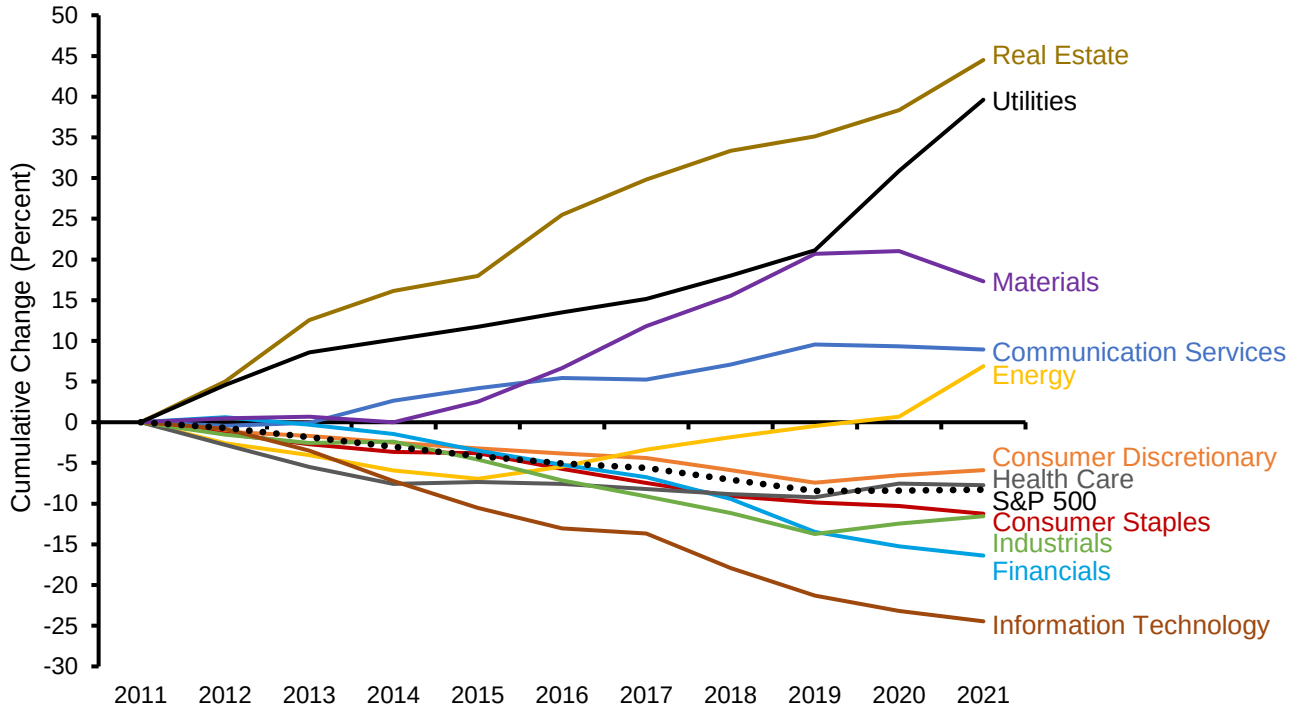
Exhibit 8: Cumulative Change in Shares Outstanding by S&P 500 Sectors, 2011-2021



Source: FactSet and Counterpoint Global.
Note: S&P 500 constituents, as of 8/31/23, that had data every year from 2011-2022; Reflects common shares used to calculate basic earnings per share.

The exhibit reveals a wide range of outcomes. Shares outstanding rose almost 45 percent for the real estate sector but fell about 25 percent for information technology. Understanding equity issuance or retirement can provide insight into the relationship between net income and EPS growth.

In theory, corporate executives should invest only in opportunities where the present value of the future cash flows is expected to exceed the cost. They are supposed to try to maximize this net present value. In reality, however, it appears many executives focus more on maximizing EPS.[23]

For example, a survey of chief financial officers (CFOs) found that they perceived EPS to be the key metric in financial reporting. As one CFO said, "earnings are in a class by themselves."[24] Consistent with this attitude, more than three in four CFOs said that increasing EPS was an important, or very important, factor in the decision to buy back stock.[25]

There is no evidence that increasing EPS through buybacks creates shareholder value.[26] Change in EPS and value creation are separate concepts and an increase in EPS should not be used as a proxy for value creation.[27]

Indeed, the presumption that buybacks always increase EPS is wrong. The common portrayal is that net income is divided by fewer shares and therefore automatically leads to a boost in EPS. This simplistic analysis neglects the fact that the company has to fund the buyback, either with excess cash or additional debt. Excess cash generates interest income, and debt comes with interest expense. As a result, buybacks affect net income as well as shares outstanding.

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A buyback's impact on EPS is a function of the earnings yield (E/P), and the after-tax rate either on the foregone income from excess cash or the additional expense from the debt used to fund the program. When the earnings yield is higher than the after-tax rate, buybacks lift EPS.[28] Research shows that when the cost of debt is low companies are more likely to issue debt and buy back stock.[29]

Here are some numbers to show how the math for buybacks funded with debt has changed in recent years. In July 2020, the after-tax yield on BBB debt, assuming a tax rate of 20 percent, was under 2 percent. This means that a buyback of a stock with an E/P of 2 or more, equivalent to a P/E of 50 or less, would add to EPS. The S&P 500's P/E at that time was around 25.

In the beginning of October 2023, the after-tax yield on BBB debt was 4.9 percent, which means that only buybacks of stocks with an E/P of 4.9 or more, or a P/E multiple of 20.4 or less, are accretive to EPS. This was lower than the P/E multiple for the S&P 500 overall at that time.

Issuing or retiring shares can be positive, neutral, or negative for ongoing shareholders. In the aggregate, companies that have high net issuance of new shares provide lower TSRs than those that retire shares.[30] Using changes in EPS to measure the impact of decisions regarding equity is suboptimal. But it appears to be what many companies do in practice and what lots of investors consider. The focus should be on economic value, which seeks to assess whether the benefit of future cash flows exceeds the cost of issuing equity.

Change in the P/E Multiple. The P/E multiple, or any other multiple, is a shorthand for the process of valuation. The value of a financial asset equals the cash flows the asset will generate discounted to the present at an appropriate rate. Within the P/E, "price" reflects a stream of cash flows for many years into the future while "earnings" are commonly a snapshot of past, current, or imminent earnings. When a P/E multiple is justifiably high, the price captures many years of future results while the earnings consider outcomes only in the near term.

While our focus is on P/E multiples, the ideas we discuss are relevant to other multiples, including price/sales (P/S) and enterprise value (EV) to earnings before interest, taxes, depreciation, and amortization (EBITDA).[31] When surveyed, 93 percent of investment professionals reported that they use multiples. P/E, P/S, and EV/EBITDA are among the most popular multiples they use.[32]

Cash flows and the discount rate are the main aspects of the P/E multiple. Merton Miller and Franco Modigliani, a pair of economists who won the Nobel Prize in Economic Sciences, published a paper in 1961 that provides a fundamental way to think about the cash flows.[33]

The idea is that you can think of the value of a business as having two parts: a steady-state value and the present value of growth opportunities (PVGO). The steady-state value assumes that the company can sustain its current earnings into the future. The PVGO reflects the magnitude and sustainability of future investments that earn a positive spread between return on invested capital (ROIC) and the weighted average cost of capital (WACC).[34]

We can start by assuming that the PVGO is zero and that all of a company's value comes from the steady state. In this case, we assume that a company maintains its current earnings in perpetuity. The value of a perpetuity is earnings ÷ cost of equity and the steady-state P/E is 1 ÷ cost of equity. For instance, if earnings are $100 and the cost of equity is 8 percent, the value of the perpetuity is $1,250 ($1,250 = $100 ÷ .08) and the P/E is 12.5 (12.5 = 1 ÷ .08).

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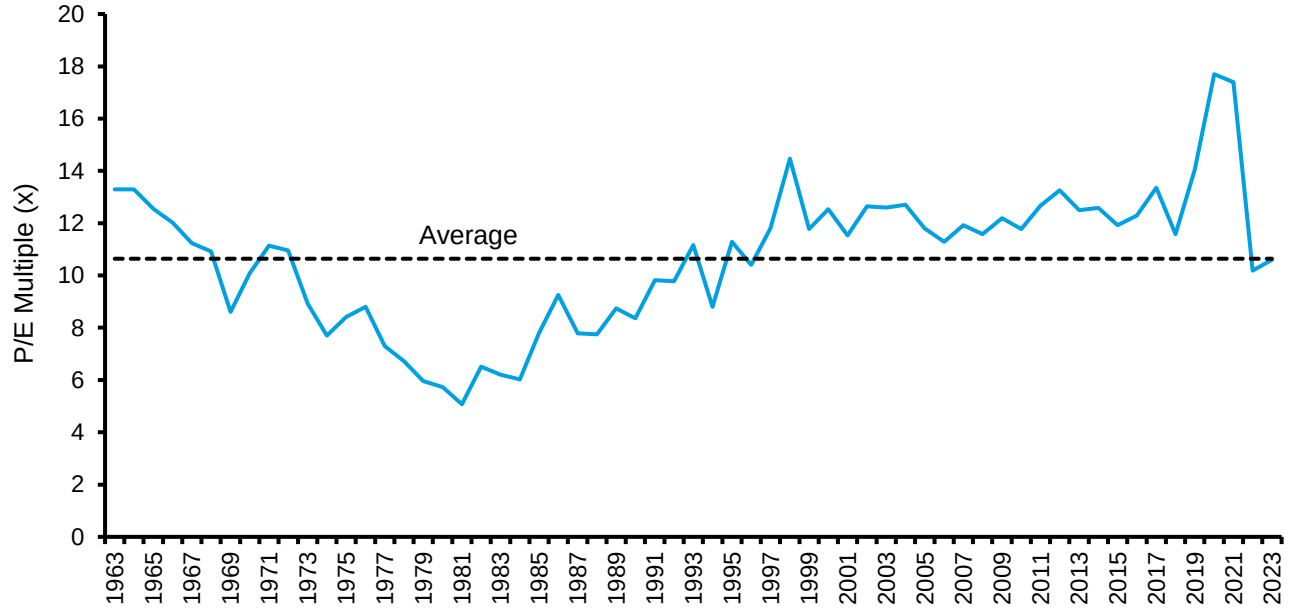
The second part of the P/E multiple is the discount rate, or an estimate of the cost of equity. The essential concept is that the cost of equity is a measure of opportunity cost. That means market conditions are an important determinant of the P/E multiple.

A company's WACC reflects the blend of equity and debt it uses to finance its business and the cost of each. Unlike the cost of debt, which is explicit, we must estimate the cost of equity. One approach is to start with a risk-free rate of return, where the yield on the 10-year Treasury note is a standard proxy, and add an equity risk premium (ERP). This is the additional return that equity investors demand in order to own an asset riskier than the Treasury note.

Aswath Damodaran, a professor of finance at New York University and an expert in valuation, shares his estimate of the ERP each month along with the assumptions he uses to derive the figure. Damodaran's estimate requires forecasts for drivers such as cash flow growth and return on capital. We have found a good fit between his estimate of the cost of equity and subsequent 10-year TSRs for the S&P 500.

Exhibit 9 traces the steady-state P/E for the S&P 500 from 1963 to the end of the third quarter of 2023 using Damodaran's figures. The low was 5.1 in 1981 and the high was 17.7 in 2020. This is the multiple that is appropriate assuming that earnings are sustainable and that there are no opportunities to make investments that earn a return in excess of the cost of capital.[35]

Exhibit 9: The Steady-State P/E for the S&P 500, 1963-2023



Source: Aswath Damodaran and Counterpoint Global.
Note: 2023 as of September 30/October 1.

Now we consider the PVGO. Companies make investments that create value and the market recognizes that in valuation. Exhibit 10 shows an estimate of the PVGO as a percent of value for the S&P 500 from 1963 to 2023.[36] The average is 35 percent, and about 95 percent of the observations are between 10 and 60 percent. Saying this differently, on average a bit less than two-thirds of the stock market's price is attributable to the steady-state value and a bit more than one-third comes from the PVGO.

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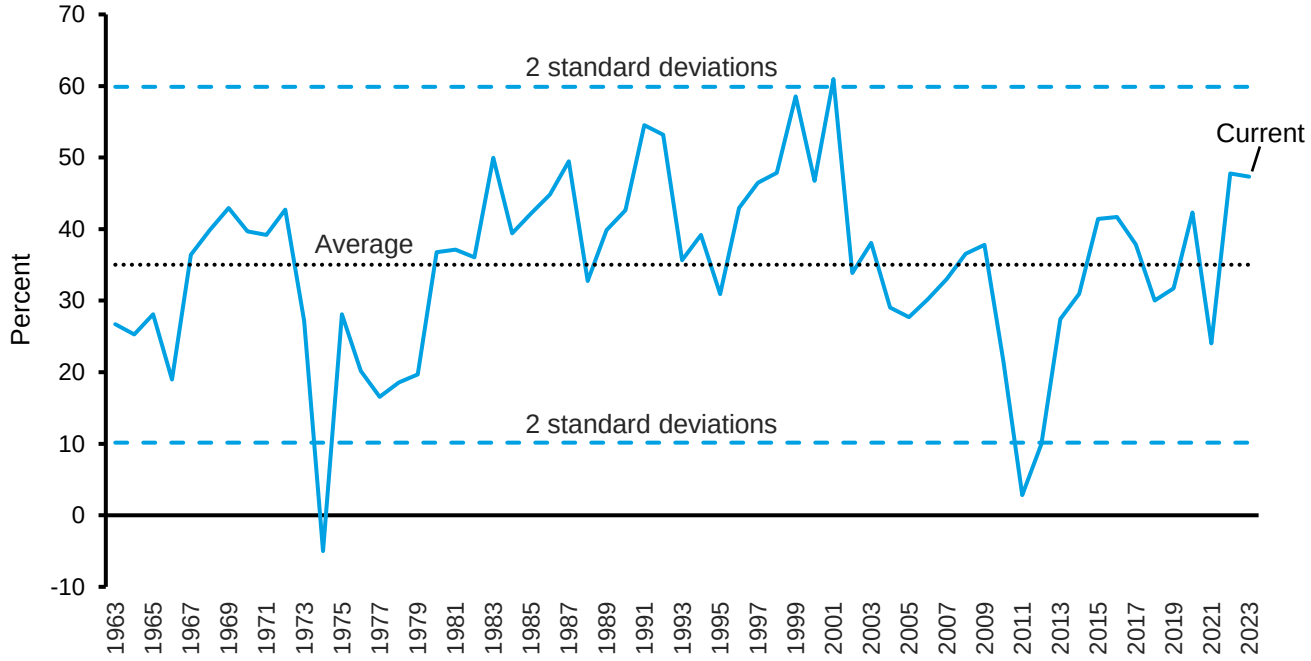
Exhibit 10: The Present Value of Growth Opportunities as a Percent of Market Value for the S&P 500, 1963-2023



Source: S&P Dow Jones Indices; Aswath Damodaran; Counterpoint Global.

We can dig into the three drivers of the PVGO: the spread between ROIC and WACC, the magnitude of investment, and the competitive advantage period (CAP), or how long a company can find and fund investments that have a positive spread.[37] One simplified formula to estimate the PVGO is as follows:[38]

$$\text{Present Value of Growth Opportunities} = \frac{(\text{ROIC} - \text{WACC}) \times \text{Investment} \times \text{CAP}}{\text{WACC} \times (1 + \text{WACC})}$$

The first important point is that if the spread between ROIC and WACC is zero, the value of the PVGO is nil and the steady-state P/E multiple reflects all of the value of the business. We estimate that companies in the Russell 3000, excluding financials and real estate, had in the aggregate an ROIC of 12.4 percent and a WACC of 8.7 percent in 2022. Their investment was $1.1 trillion.

Understanding that regression toward the mean applies to ROIC is crucial because the difference between ROIC and WACC is central in assessing the PVGO. Exhibit 11 breaks the universe of companies into quintiles based on ROIC in 2017. It then follows those cohorts for five years. There is marked regression toward the mean for the highest and lowest quintiles, and the gap between them goes from 35 percentage points in 2017 to 15 percentage points in 2022.

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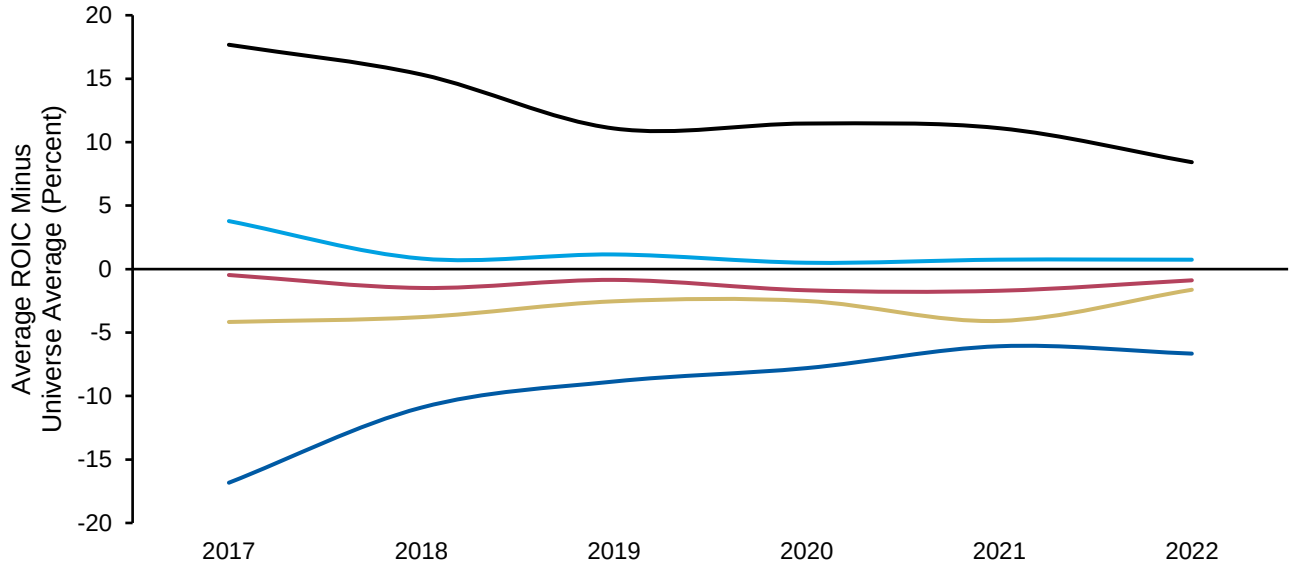
Exhibit 11: Regression Toward the Mean for ROIC, Russell 3000 Companies, 2017-2022



Source: FactSet and Counterpoint Global.
Note: Excludes financials and real estate.

The rate at which ROICs regress toward the cost of capital varies by sector, industry, and company. For example, consumer staples companies have faded at a rate slower than energy companies in the past. A firm's ability to sustain high ROICs is an indication of competitive advantage.[39]

A company can offset a lower spread between ROIC and WACC by investing more. We can see why through the concept of economic profit, which equals the ROIC – WACC spread times invested capital. For instance, a company with an ROIC of 15 percent, a WACC of 10 percent, and invested capital of $1,000 generates economic profit of $50 ($50 = [.15 – .10] × $1,000).

But a company with an ROIC of 12 percent, the same WACC, and invested capital of $3,000 creates economic profit of $60 ($60 = [.12 – .10] × $3,000). In practice, it is challenging to invest substantial sums while still earning sufficient returns on investment.

The final determinant of the PVGO is the competitive advantage period. Academic research finds that the market-implied CAP was around eight years from 1975 to 2015. CAPs change for businesses over time and long market-implied CAPs tend to be consistent with poor subsequent stock price results. This underscores the challenge in sustaining a high value for the PVGO.[40]

The important implication of this discussion is that P/Es for high multiple companies have the tendency to migrate toward the commodity P/E over time.[41] The reason is that the spread between ROIC and WACC narrows on new investments making the PVGO a lower percent of the total value. This does not happen to every company, and some companies actually improve their ROICs. But understanding incremental ROIC is essential in assessing the change in multiple.

We see regression toward the mean for P/E multiples in exhibit 12. We sort the universe by quintile, based on deviation from the median P/E in the universe, starting in 2012. The difference between the highest and lowest quintiles begins at 17.3 percentage points and ends in 2022 at 12.5 percentage points. As with ROICs, P/E multiples do not always go down. But the overall tendency is for regression. The median P/E in 2022 was 14.3x.

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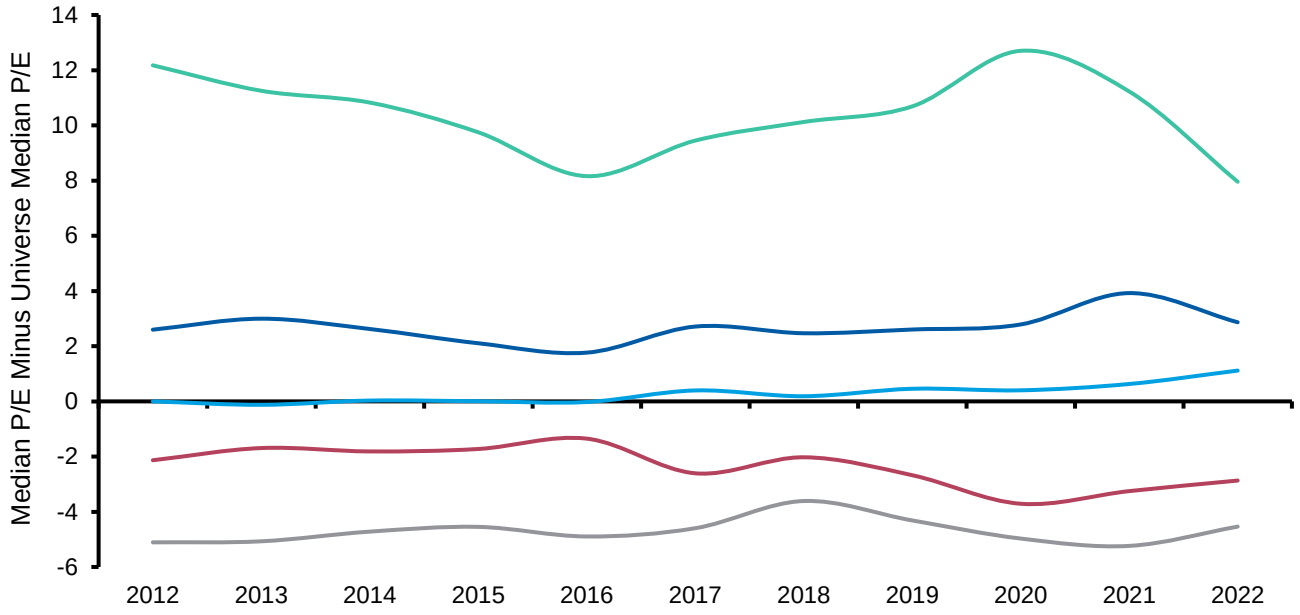
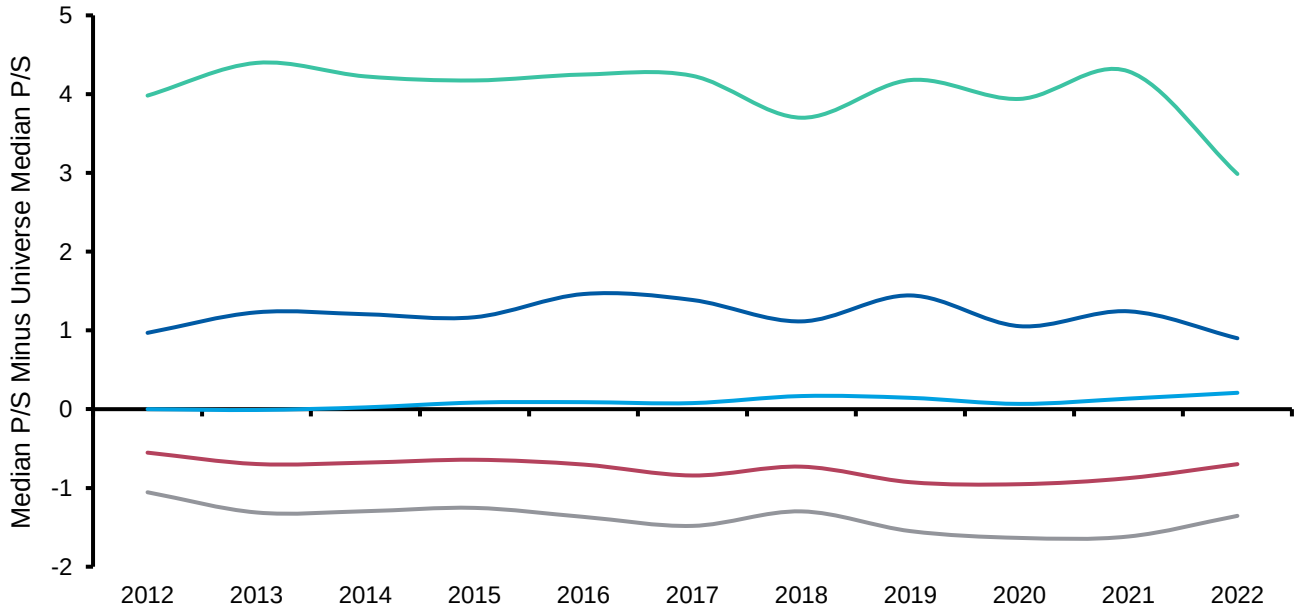
Exhibit 12: Regression Toward the Mean for Price/Earnings Multiples, Russell 3000, 2012-2022



Source: FactSet and Counterpoint Global.
Note: Russell 3000 as of 8/31/23.

Investors often use price/sales multiples for unprofitable companies because P/E multiples do not apply. So instead of using EPS growth and the change in the P/E multiple to determine price appreciation, you can use sales growth and the change in the P/S multiple. Exhibit 13 shows that P/S multiples regress toward the mean in a fashion similar to P/E multiples. In particular, high P/S tend to come down sharply over time. The median P/S in 2022 was 1.9x.

Exhibit 13: Regression Toward the Mean for Price/Sales Multiples, Russell 3000, 2012-2022



Source: FactSet and Counterpoint Global.
Note: Russell 3000 as of 8/31/23.

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We now have a framework for assessing potential P/E multiple change. The starting point is the steady-state P/E, which is determined by market forces such as the risk-free rate and the equity risk premium. Next is an assessment of the PVGO, a measure of future value creation. This component is driven by the spread between ROIC and WACC, as well as the magnitude of investment and how long a company can find attractive opportunities.

ROICs, P/E multiples, and P/S multiples regress toward the mean. But that does not mean that some companies cannot sustain, or even improve, their high ROICs or P/E and P/S ratios. Analysis of the corporate life cycle, with stages from introduction to growth to maturity and decline, shows that firms frequently transition between stages.[42]

The Ability to Pay a Dividend. Free cash flow (FCF), or net operating profit after taxes (NOPAT) minus investments in future growth, is the foundation of corporate value. FCF is the cash that is available for distribution to the debtors and shareholders of the business. Debt capacity tends to increase as companies grow their operating profits. As a result, companies in the aggregate issue debt and retire equity. That means that firms commonly use FCF to pay dividends or buy back stock. Total shareholder yield, dividends plus net buybacks divided by equity market value, is a useful measure of value.[43]

Note that 40 percent of companies that disclose free cash flow in earnings announcements define it as cash flow from operations minus capital expenditures, items disclosed on the statement of cash flows.[44] Many investors use this definition as well. This can vary meaningfully from the proper definition within finance, especially in cases when SBC is a large percentage of cash flow from operations.

A company needs positive free cash flow to pay dividends or buy back stock unless it chooses to borrow or use excess cash. But there is nothing wrong with negative FCF, which occurs when investments exceed NOPAT, if the return on investment is above the cost of capital. In this case negative FCF is good because it leads to more positive FCF in the future, making the firm more valuable.

Alfred Rappaport, a professor emeritus at the Kellogg School of Management at Northwestern University, created a formula to determine what he called the “affordable dividend rate.” It is more accurate to call it the affordable payout ratio. The formula relies on FCF, as well debt capacity through a target debt-to-total capital ratio, to determine the percentage of net income a company can pay out to shareholders in the form of dividends or buybacks.[45]

The actual payout ratio for the S&P 500 from 2012 to 2021 was about 90 percent. Rappaport’s formula for the affordable payout ratio provides a nearly identical percentage. The utility of the formula comes from its close link to free cash flow.

Dividend reinvestment. The calculation of TSR assumes all dividends are reinvested in the stock at no cost. As noted, research shows that individual investors largely consider price appreciation and dividends to be different and commonly consume rather than reinvest dividends. Studies of institutional investors show that the holdings of stocks that pay dividends rarely change after the dividend distribution date, a clear indication that dividends are not reinvested in the payer’s stock.

Then there is the issue of taxes. Shareholders who receive dividends in taxable accounts cannot reinvest all of the proceeds into the stock because they have to pay taxes. This reduces the contribution of dividend

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reinvestment to accumulated capital. The tax rates on dividends and capital gains in the U.S. have been the same since 2003, but prior to that the tax rate for dividends was consistently higher than that for capital gains.

Our example with the S&P 500 showed that dividend reinvestment accounted for about 14 percent of the accumulated capital. The percentage of accumulated capital attributable to reinvested dividends grows as the holding period lengthens.

Since price appreciation is the only source of investment return that contributes to capital accumulation, reinvesting dividends in a stock that realizes a declining price compounds the loss. Some academics have concluded that TSRs are understated because investors in fact reinvest dividends into other investments.[46] This underscores the point that few investors actually earn the TSR despite its widespread use.

Value Traps. Investors create the opportunity for excess returns by buying a financial asset when expectations are low and selling it when they are higher. One proxy for low expectations is a P/E multiple that is less than a stock's historical average or that of the stock market overall. This may appear to be a good value.

But such investments provide disappointing results in many cases. A value trap is a stock that trades at a multiple below the average only to earn a total shareholder return, adjusted for risk, that is below the average.

Perhaps the best way to understand a value trap is to review a case study. This analysis examines history to make a point, and past performance is no guarantee of future results. We selected AT&T from 2012-2021. To start, the company had a P/E below, and a dividend yield above, that of the S&P 500.

Exhibit 14 shows that AT&T's annual TSR was 3.7 percent versus 16.6 percent for the S&P 500. The shares of AT&T were less volatile than the market but still underperformed after adjusting for risk. The company made two large acquisitions during this period, including buying DirecTV for $49 billion in 2014 and Time Warner for $109 billion in 2016.

Exhibit 14: Drivers of Total Shareholder Return for AT&T, 2012-2021 Annualized

	Driver	Sub-driver	Sub-driver	Percent of Total
Total shareholder return 3.7%	Price appreciation -2.0%	Earnings per share growth 1.9%	Net income growth 4.0%	**108.7%**
			Change in shares outstanding -2.1%	**-58.1%**
		P/E multiple change -3.9%		**-106.1%**
	Dividend 5.8%			**158.7%**
	Dividend reinvestment -0.1%			**-3.2%**
				100.0%

Source: Counterpoint Global.

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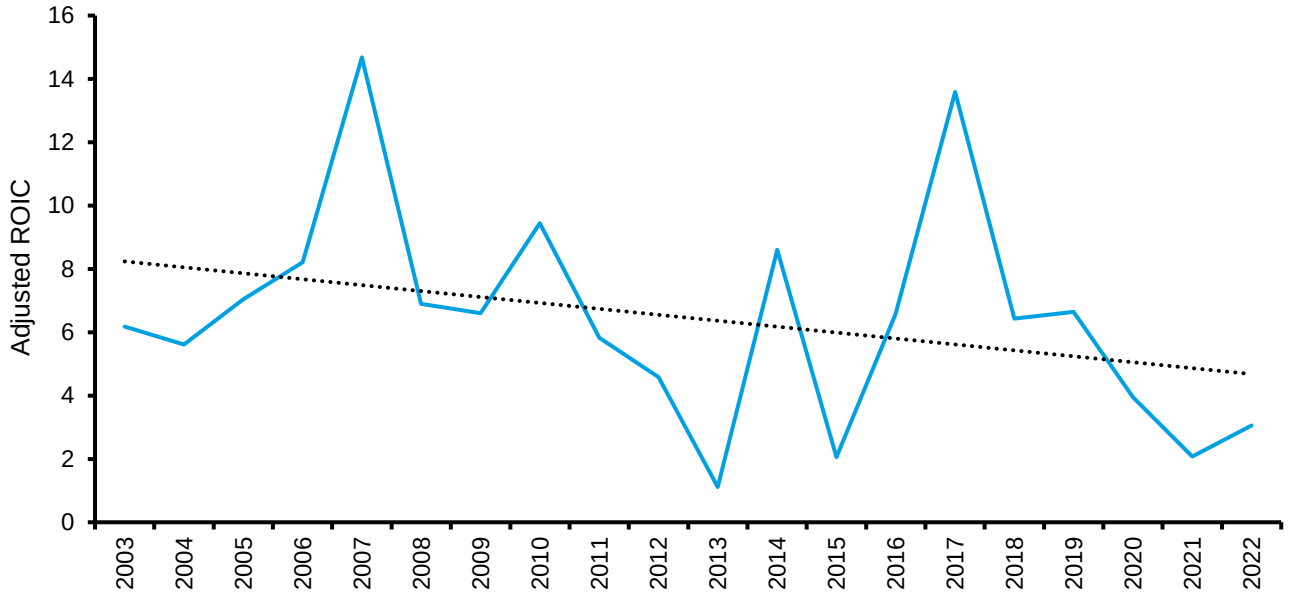
A decomposition of TSR starts with the observation that net income growth of 4.0 percent was slower than the 6.7 percent of the S&P 500. Further, AT&T's shares outstanding increased about 2 percent per year versus an average annual decrease for the aggregate of companies in the S&P 500. As a result, AT&T's EPS growth was 1.9 percent, about one-quarter of the 7.4 percent growth that the constituents of the S&P 500 achieved.

The compression of AT&T's P/E multiple reduced the stock's TSR by 3.9 percentage points, the largest negative contributor to the TSR. This occurred in spite of the fact that the starting P/E was below that of the market. Over the same period, the P/E multiple of the S&P 500 expanded, adding 6.9 percentage points to the market's TSR.

Exhibit 15 shows AT&T's ROIC, adjusted for intangible investment, from 2003 to 2022. While volatile, the general trend is down, including large drops following the big M&A deals. Over the measured period, the PVGO went from positive to less than zero. A negative PVGO implies that current earnings are not sustainable, future investments will fail to create value, or some combination of the two.

Exhibit 15: AT&T's Return on Invested Capital, Adjusted for Intangibles, 2003-2022



Source: Counterpoint Global.

As the result of multiple contraction, AT&T's price appreciation was -2.0 percent versus 14.3 percent for the S&P 500 over the period we considered. However, the poor price appreciation was offset by dividend payments that provided a yield well above that of the S&P 500. The contribution from the yield was 5.8 percent and the reinvestment was -0.1 percent. Because the price appreciation was only slightly negative, the impact of dividend reinvestment was of minor importance.

This discussion reiterates the important takeaway that price appreciation is the only source of return that determines capital accumulation. This is because the TSR assumes investors use their dividend to buy more shares of stock.

At the end of the report, we provide a checklist to guide the analysis of the components of TSR. Value traps look cheap but fail to meet or exceed expectations for growth and value creation. The checklist is also applicable to the market overall and can be used to assess scenarios for firm-specific drivers as well as macroeconomic phenomena.

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Conclusion

Total shareholder return (TSR) is the capital accumulation rate for investors who reinvest dividends at no cost. TSR is a popular return measure despite the fact few investors earn it for the stocks of companies that pay a dividend. Investors fail to earn the TSR because they do not reinvest the dividend or cannot reinvest the full amount because of taxes or other costs. Price appreciation and the capital accumulation rate are the same for the stocks of companies that do not pay a dividend, which includes about 65 percent of U.S. public companies.

We can break down TSR into drivers, including net income growth, change in shares outstanding, P/E multiple change, and the benefit of reinvesting dividends. We examine each of these drivers and link them to underlying economic principles.

It is useful to think about the value of a business in two parts: a steady-state value and the prospects for future value creation. The steady-state value assumes that the company can sustain its current earnings forever. Future value creation reflects the ability to earn a return on invested capital in excess of the cost of capital, the amount of investment the company can make while maintaining a positive spread, and the length of time a company can create value with its investments. Historically, about two-thirds of the value of the S&P 500 has derived from the steady-state value.

The market determines the appropriate P/E to apply to current earnings through an estimate of the cost of equity capital. The cost of equity is the opportunity cost of equity investors and is commonly estimated by adding an equity risk premium to the risk-free rate. Over the past 60 years, the steady-state P/E has gone from a low of 5.1 in 1981 to a high of 17.7 in 2020.

The multiples of companies with high P/Es tend to regress toward the steady-state P/E over time because the relative contribution of future value creation shrinks. This reflects market saturation and competition. Some companies can defy this downward drift by either sustaining a high return or by investing in new businesses.

Investors often consider dividends to be part of total returns. But for investors using TSR, price appreciation is the only source of investment return that contributes to accumulated capital. Indeed, dividends and share buybacks have the same result in a TSR calculation because they both increase the percentage ownership in a company. In the case of dividends, the investor uses the proceeds to buy more shares at the ex-dividend price. In the case of buybacks, the investor does not sell and hence winds up with a higher percentage of the company. These are equivalent, save for the reality that dividend reinvestment generally has a cost (see appendix A).

Value traps exist when a company appears statistically inexpensive, often based on the P/E as compared to the stock's past or to the market overall, but the future drivers of TSR perform poorly. The two main culprits in the bad results are growth below the average and P/E multiple contraction that captures fleeting or elusive prospects for value creation.

We explain TSR through drivers including EPS growth and changes in the P/E multiple. We have noted the severe limitations of EPS and multiples to explain value. To compensate, we seek to link these concepts to underlying fundamental drivers. Doing so gives investors and executives a framework to understand the past and to anticipate the future.

We decompose the returns for value and growth stocks in recent years (see appendix B). We also include a checklist below for executives and investors who want to consider how the drivers of TSR might unfold in the future for a company or index of companies.

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Checklist for Helping Assess Prospective Total Shareholder Returns

Net Income Growth

□ Is sales growth rising or falling?

□ What is the trend in operating profit margin?

□ Are net financing costs (interest expense – interest income) rising or falling?

□ What is the expected tax rate?

□ Do estimates consider base rates and appropriate regression toward the mean?

Change in Shares Outstanding

□ Does the company use equity to finance acquisitions or is it likely to do so?

□ Is a secondary equity offering possible?

□ How much stock is the company issuing for compensation and what is the trend in SBC?

□ Does the company buy back stock or will it initiate a program? How large is the current or anticipated program?

P/E Multiple Change

□ What is the PVGO as a percent of value based on the current valuation?

□ What is the ROIC – WACC spread and is it rising or falling?

□ How large are the investment opportunities?

□ Are current earnings sustainable?

□ Are there strategic reasons to believe that the ROIC – WACC spread will be persistent?

Dividend

□ Can the company afford the current rate of buybacks and dividends?

□ If the company does not pay a dividend, is there reason to believe that it will initiate one?

□ What is the mix of buybacks and dividends and might that change?

□ Does the company offer a dividend reinvestment (DRIP) program?

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Appendix A: Dividend and Buyback Equivalence—Think Percentage Ownership

Dividends and buybacks have the same impact on corporate value. But executives think of them very differently. They consider dividends to be a commitment tantamount to capital expenditures and buybacks as a way to return excess cash after they have paid all of their bills and made of all of their investments.[47]

Dividends and buybacks can have dissimilar effects on shareholders because of taxes and potential wealth transfers. But they have something important in common: shareholders have to increase their percentage ownership in the company to earn the TSR either through dividends or buybacks. Not all shareholders can earn the TSR because not all shareholders can up their stake at the same time.

To illustrate the concept, let's go back to the shareholder who owns 100 shares of a $200 stock. Assume that there are 1,000 shares outstanding in total, no debt, and that the stock price accurately reflects the corporate value of $200,000. Our shareholder therefore owns 10 percent of the company before any disbursement.

The company decides to pay out $4,000, or 2 percent of its corporate value. The first thing to note is that the value of the firm will drop from $200,000 to $196,000 whether it chooses to pay a dividend or buy back shares. All shareholders are treated the same with a dividend. They end up with a stock worth $196 ($196 = $196,000 ÷ 1,000) and a $4 dividend.

Observers sometimes suggest that buybacks create or destroy value. They do not. But buybacks can transfer wealth. There is a transfer of wealth from sellers to ongoing holders when a company buys back undervalued stock, and from ongoing holders to sellers when the stock is overvalued.[48] In this case, we assume the stock is at fair value, which means the value for ongoing shareholders is $196,000 and the sellers receive $4,000.

Earning the TSR requires increasing the percentage ownership in the company. But the process is active for dividend payments and passive for buybacks.

Let's return to our shareholder with 100 shares of a $200 stock that paid a $4 dividend. To earn the TSR, she had to use the $400 in dividends to buy 2.041 additional shares (2.041 = $400 ÷ $196). She now has 102.041 shares, increasing her stake in the company from 10 to 10.2 percent. This reflects an active choice to reinvest.

Now let's look at what happens with a buyback. Our shareholder starts with the same 100 shares of a $200 stock. In this case the company buys 20 shares (20 = $4,000 ÷ $200), reducing the shares outstanding to 980. The stock is still worth $200 ($200 = $196,000 ÷ 980) and our shareholder has increased her stake from 10 to 10.2 percent (.102041 = 100 ÷ 980). In this case, the higher percentage of ownership reflects a passive decision to hold shares rather than sell them back to the company.

Our shareholder could have created a homemade dividend by selling 2 shares. She would then have been left with stock worth $196,000 ($196,000 = $200 × 98) and cash of $400 ($400 = $200 × 2). In this case, her stake in the company would remain unchanged. Further, if she held shares in a taxable account her tax liability would likely be less than if she had received a dividend.

In practice, dividends and buybacks are different because of tax consequences and the impact of gaps between stock price and value. But to understand TSR, the central distinction is between actively or passively increasing the percentage ownership in a company.

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Appendix B: Decomposing TSR for Value and Growth

Over the past 15 years or so, "value" stocks have provided substantially lower TSRs than have "growth" stocks. Value stocks are those with low multiples of price to sales, earnings, and book value. Growth stocks are characterized by above-average sales growth, high P/Es, and positive stock price momentum.[49]

The S&P 500 Value Index tracks the investment return of large-capitalization value stocks in the S&P 500. The index includes about 400 stocks that have an average market capitalization of $60 billion as of September 29, 2023. The S&P 500 Growth Index draws about 235 stocks from the S&P 500 that qualify as large-capitalization growth. The average market capitalization was $110 billion at the end of the third quarter of 2023. The stocks of numerous companies are in both indexes.

Exhibit 16 shows that the annualized TSR from 2007 to 2021 was 7.6 percent for the Value Index and 13.3 percent for the Growth Index. We end in 2021 in order to use forward P/Es, but the value index still underperforms the growth index by 330 basis points annualized if we include the returns from 2022.

We can compare the drivers to see why the results varied. Companies in the value index grew their net income at a 5.2 percent rate during the period, a little slower than the 5.9 percent rate for the members of the growth index. But the translation from net income to EPS was impeded by net equity issuance among the value index constituents and aided by equity retirement for the companies in the growth index. As a result, EPS rose 3.3 percent per year for the value index and 8.0 percent for the growth index.

Both indexes enjoyed P/E multiple expansion, although the contribution was 1.6 percentage points for the value index and a larger 3.6 percentage points for the growth index. Interest rates dropped over this period and growth companies have longer implied durations, a measure of the weighted average time investors have to wait before they receive cash flows. Assets with long durations are more sensitive to changes in real interest rates than those with short durations. The growth index likely benefitted more than the value index when rates dropped during this time.

The sum of EPS growth and P/E multiple expansion led to price appreciation of 4.8 percent for the value index and 11.6 percent for the growth index. Those drivers explain most of the TSR difference between the indexes.

Companies in the value index did pay a more generous dividend than those in the growth index, a yield of 2.6 percent versus 1.6 percent, and both benefitted fractionally from dividend reinvestment. The contribution of dividends closed the gap between value and growth from 6.8 percentage points for price appreciation to 5.7 percentage points for TSR.

The exhibit also shows the contribution to TSR by driver. One point to underscore is that the change in shares outstanding and the dividend can be appropriately considered together. For ongoing holders, buybacks increase an investor's ownership in the company. Reinvesting dividends has an identical effect. Buybacks and dividends are more similar than they appear even though we separate them in our calculations.

Decomposing past returns allows us to understand the key sources of TSRs and allows us to weigh the likelihood of the drivers persisting. The drivers can also be readily linked to macroeconomic considerations such as overall economic growth and changes in interest rates.

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Exhibit 16: Tale of the TSR: S&P 500 Value versus S&P 500 Growth, 2007-2021 Annualized

		Value	Growth
	Net income	5.2%	5.9%
+	Shares outstanding	-1.9%	2.0%
=	EPS growth	3.3%	8.0%
+	Multiple expansion	1.6%	3.6%
=	Price appreciation	4.8%	11.6%
+	Dividend yield	2.6%	1.6%
+	Dividend reinvestment	0.1%	0.2%
=	Total shareholder return	7.6%	13.3%
	TSR contribution:		
	Net income	68.5%	44.6%
	Shares outstanding	-25.6%	15.1%
	Multiple expansion	20.6%	27.2%
	Dividend yield	34.8%	11.7%
	Dividend reinvestment	1.7%	1.4%
	Percent of total	100.0%	100.0%

Source: Counterpoint Global.

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$$\frac{P_b - P_a}{D} = \frac{(1 - t_d)}{(1 - t_{cg})}$$

Where P_b is the stock price before the ex-dividend date, P_a is the price after the ex-dividend date, t_d is the tax rate on dividend income, and t_{cg} is the tax rate on capital gains. When governments tax dividends and capital gains at the same rate, as is the case in the U.S. in 2023, the decline in the stock price is roughly equivalent to the dividend. If taxes on dividends are higher than those on capital gains, the decline in stock price will be less than the dividend. See Aswath Damodaran, "Returning Cash to the Owners: Dividend Policy," available at http://pages.stern.nyu.edu/~adamodar/pdfiles/ovhds/ch10.pdf.
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[35] For some businesses, assuming current earnings will persist is too optimistic and therefore the steady-state P/E is too high. In these cases, you can use the Gordon Growth Model, E/(k-g), where E is earnings (a proxy for distributable cash), k is the weighted average cost of capital, and g is the growth in perpetuity. Growth is negative if the business is shrinking. As a result, you divide earnings by a higher denominator (subtracting a negative number is equivalent to adding its positive counterpart), which lowers the value and fair P/E. For example, the appropriate multiple is 6.7 times if the cost of capital is 10 percent and the growth is -5 percent (6.7 = 1/[.10 + .05]).

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[36] The price of the S&P 500 Index equals the steady-state value plus the PVGO. To assess PVGO, we estimate the steady-state value by taking the trailing four-quarter operating profit per share of the S&P 500 and capitalizing it by the cost of equity. We subtract that steady-state value from the S&P 500 Index price to estimate the PVGO.
[37] Very astute readers will note that we are shifting gears here and discussing the enterprise value versus the equity value only. But equity value is simply enterprise value minus debt.
[38] G. Bennett Stewart, *The Quest for Value: A Guide for Senior Managers* (New York: HarperCollins Publishers, 1991), 288. This formula lines up exactly with a standard discounted cash flow model using a perpetuity continuing value only when the growth rate equals the cost of capital.
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[41] William Beaver and Dale Morse, "What Determines Price-Earnings Ratios?" *Financial Analysts Journal*, Vol. 34, No. 4, July-August 1978, 65-76. To see how high P/Es regress, we examined two groups of stocks, those with P/Es of 60-275 (median of 84.5) and 40-60 (median of 46.6) in 2012. Each group had 23 stocks. In 2022, the median P/E was 37.0 for the first group and 26.3 for the second group.
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$$= \frac{\text{sales growth} \times (\text{working capital rate} + \text{fixed capital rate})}{(1 + \text{sales growth}) \times \text{operating profit margin} \times (1 - \text{tax rate}) \times (1 + \text{target debt/equity ratio})}$$

The working capital rate is the amount of additional working capital that is required as a percentage of the change in sales. For example, if the rate is 15 percent and sales grow $100, working capital will grow by $15. The fixed capital rate equals the capital expenditures minus depreciation that are required as a percentage of the change in sales. If capital expenditures are $50, depreciation is $25, and sales grow $100, fixed capital will grow by $25. The fixed capital rate is 25 percent.
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[49] This distinction between "value" and "growth" reflects factors that academics use to explain risk and reward better than the capital asset pricing model can do by itself. In practice, this distinction is hollow. Value investing is buying something for less than it is worth. As we saw with our example of a value trap, buying statistically cheap "value" stocks provides no assurance of excess returns.

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