What Could a Democratic Clean Sweep Bring for U.S. Equities?

Macroeconomic impact will likely be muted, but higher corporate taxes will have modest impact on equities.

Morningstar Equity Research
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Contents

2 Policy Will Be Highly Sensitive to Size of Democratic Senate Majority
5 Sizing Up the Taxes/Spending Impact of Biden's Plans
8 U.S. Election Outcome Won't Have Major Impact on Our Economic Forecasts
11 U.S. Equities Could See Hit From Higher Corporate Taxes

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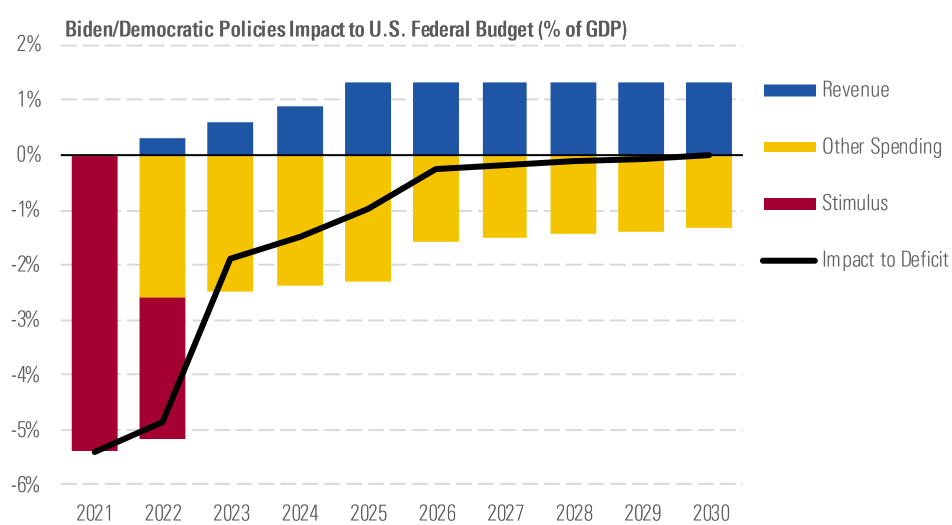
Executive Summary

Days before the election, the Democrats stand a solid chance of achieving a clean sweep, with Joe Biden winning the presidency and the Democrats recapturing the Senate. Regardless of the exact probability of this event, we think this is the top election outcome that investors should be focusing on, as a Donald Trump win would preserve the status quo and a Biden win without a Democratic Senate would bring legislative gridlock. Biden's platform proposes trillions of dollars of new spending on clean energy, infrastructure, healthcare, education, and other areas. However, the degree to which these plans can be enacted is highly contingent on the *size* of a future Senate Democratic majority, as a slim Democratic majority will struggle to coalesce around more sweeping changes.

Furthermore, even assuming a large majority (five-plus seats), we don't think the increase in taxes or spending will push the U.S. to unusually high levels by historical standards (Exhibit 1). As such, our U.S. GDP forecasts aren't substantially affected by the election outcome. However, U.S. equities are likely to see a modest negative impact from higher corporate taxes, which could reduce aggregate after-tax earnings on the order of 5% to 10%. Of course, specific companies or sectors could see outsized impact from newly enacted policies.

Exhibit 1 Even With a Large Senate Majority, Increases in Taxes and Spending Won't Be Extreme



Source: U.S. Bureau of Economic Analysis, Penn Wharton Budget Model, U.S. Congressional Budget Office, Morningstar.

Policy Will Be Highly Sensitive to Size of Democratic Senate Majority

In this section, we assign the probabilities for different Democratic priorities, assuming they take control of the Senate and Joe Biden wins the presidency, which is around a two thirds probability.[1] In the scenarios in which the Democrats win the Senate, we believe there is a roughly one third probability of three possible sizes for the Democratic majority, with important differences in what they can likely accomplish given the size of their possible majority. We believe that there are inflection points between a slim majority of just one or two seats, a three- or four-seat majority, and a five-seat or more majority. We include the vice president in these calculations, so a 51-seat majority includes the vice president. Given how unusual ticket-splitting is in American politics today, we do not think the Democrats would win the Senate if President Trump is reelected.

At the top of any Democratic agenda will be new revenue raisers because their other policy priorities require new infusions of money. Democrats have generally followed “pay-go” rules, meaning they will attempt to pay for new policy initiatives with new revenue or cuts over a 10-year window. While these provisions may rely on gimmicks such as deferred revenue-raisers to some extent, there are still enough centrist Democrats that the caucus will insist on increasing revenue to pay for new programs.

Next, depending on what the lame duck Congress (which convenes after the election and before new members are sworn in on Jan. 3, 2021) accomplishes, the new potential majority will likely need to pass a stimulus bill. Unlike other policy efforts, Congress will likely suspend “pay-go” rules for this emergency response to the pandemic and resulting economic dislocation. Democrats will look particularly hard at stabilizing state and local governments’ finances.

Exhibit 2 illustrates the gradients of policy action we expect depending on the size of the Senate majority. However, it is important to keep in mind that these probabilities have some interdependency on each other. Congress can only do so much in the 2021-22 legislative session. To the extent that Congress needs to do more to respond to the pandemic, there will be less room for other legislative priorities. Should a Democratic Congress prioritize healthcare over climate change policy for example, the probabilities of accomplishing major reform would increase.

1 FiveThirtyEight assessed a 72% probability of this event as of Oct. 22.

Exhibit 2 Gradient of Policies and Probability of Passage in Isolation but Ordered by Importance to Hypothetical Majority

Issue and Potential Policy Responses Gradient of Polices	Probability Slim Majority	Probability Modest Majority	Probability Large Majority
Revenue Raisers of Any Kind	High	Very High	Very High
Increase marginal rates on families earning more than $400 thousand	High	Very High	Very High
Increase CBT to 28%	High	Very High	Very High
Higher increase in CBT >28% and additional enforcement of existing laws	Low	Medium	Medium-High
Financial transactions tax raising approximately $1T over 10 years	Very low	Low	Medium
State and Local Stimulus—Any Action*	High	Very High	Very High
Modest package ~ $1.8 T	High	Very High	Very High
Larger package ~ $2.5 T>	Medium	High	Very High
Climate Change Mitigation—Any Action	High	Very High	Very High
Restore/Increase Tax Credits Aimed at Consumers	Very High	Very High	Very High
Increased enforcement of existing laws and new rulemakings on carbon	90%, Does Not Require Congress—Uncertainty is based on likely litigation based on extant statutory authority and whether rulemaking is arbitrary or capricious		
Major (>$1T) investment in new energy research	Medium	Medium	Very High
Hard caps on emissions including statutory enshrinement of clean power plan targets	Very Low	Low	Medium
ACA Reform**	Medium	Very High	Very High
Public option similar to 2010 proposal	Medium	High	Very High
Expanded access to Medicare for people under 50	Low	Medium	Medium High
Medicare for all or single-payer option	Very low	Very low	Very low
New Financial Services Regulations	Very High	Very High	Very High
New Dodd-Frank Section 913 Regulations to Increase Standards of Conduct	100%, does not require Congress, fairly clear authority for SEC		
Congressional fiduciary rule to clarify DOL authority	Low	Low	Medium low

Source: Morningstar.
*Possibly passed before election or during lame duck.
**Reminder, depends very much on Supreme Court. This may well be deprioritized.

Our preelection assumptions presume a generic Senate, but the specific composition of a potential Democratic caucus will matter a good deal. For example, a one-seat Democratic majority with a freshman Democratic senator from Montana is very different than with a freshman senator from Maine.

Also, implicit in our assumptions is that there will be very high levels of party cohesion, at least as high as we saw from Democrats during the 2009-10 legislative session and from Republicans in the 2017-18 legislative session. We assume Democrats will need to act unilaterally to accomplish most of their priorities, and given the low levels of ticket-splitting among voters as well as the highly nationalized environment for most races, there is a reasonable chance they will have enough party cohesion to do so, particularly with a larger majority.

One other implicit assumption we make is that Democrats will weaken the filibuster by either eliminating it for certain kinds of legislation or using reconciliation to pass major priorities. In either case, we do not expect that a 60-vote threshold will be necessary for Democrats to pursue their top legislative objectives.

Also note, a handful of Democratic policy priorities can be accomplished solely through executive action, and we expect a potential Biden administration to pursue these regulatory avenues.

Tax Policy

Outside of increasing marginal tax rates on high earners, the most obvious place to raise revenue is from reversing the corporate business tax cuts that were reduced from 35% to 21% as the centerpiece of the 2017 “Tax Cuts and Jobs Act.” We think an increase to around 28% is very likely, particularly since candidate Biden has repeatedly said he will not increase taxes on those earning less than $400,000 annually, leaving few opportunities to raise revenue. In terms of an individual tax increase, much of those funds will likely be used to shore up and expand social security, making it important for Democrats to pursue other revenue raisers. A financial transactions tax on every sale of a security could conceivably raise hundreds of billions of dollars over 10 years, but it would probably reduce asset values in the short term and be met with sharp resistance from a diverse coalition of business interests. Nonetheless, it may be one of the few ways to raise revenue that does not explicitly violate Biden’s campaign promise not to raise taxes on those earning less than $400,000.

Stimulus

In terms of stimulus, Democratic leadership will try to get a large stimulus to cope with the effects of the pandemic. Even if the lame duck Congress passes something, it seems likely that Democrats will still want to engage in aggressive fiscal stimulus. Conventional wisdom in Democratic circles is that the 2009 stimulus was too small, and, as the party associated with it, they owned the outcome of that too-small stimulus.

Climate/Clean Energy

We think addressing climate policy via a large spending bill will be more politically feasible than hard caps on emissions or other harsh regulations. Given the geographic and economic skew of the Senate, a

Democratic caucus will have senators from coal-producing states and senators from states that skew more to the political right than the country. Unless there is a bipartisan momentum on climate policy—which we think is unlikely—Democrats will need a fairly large majority to maintain enough votes for the kinds of greenhouse gas regulation that Biden has floated on his campaign’s website. However, investments in clean energy—while not without controversy—should be more attainable for Democrats.

In order to further sweeten the pot, this package may also include large conventional infrastructure investments (that are also mentioned in the clean energy plan on Biden's website). Of course, we'd expect that a Democratic majority would include a large mix of green investments as part of any infrastructure plan.

Supreme Court rulings around the power of the administrative state to regulate based on legislative directives could limit what Biden can do with the executive branch alone. Such rulings could spur congressional action on issues such as regulating greenhouse gas emissions.

Healthcare

Finally, we think that while Democrats have largely run on healthcare since the 2018 cycle, they will likely only make marginal changes to the Affordable Care Act unless the Supreme Court were to invalidate the law and require a legislative fix.

Democrats have primarily run on defending some of the protections in the Affordable Care Act, and while some Democrats want a “Medicare for All” universal single-payer system, their nominee has been clear since the primaries that he does not support these efforts. Should Democrats focus on healthcare, it seems very likely that they will be able to add a public option for the individual marketplace. However, that marketplace covers a fraction of the people covered by the workplace market, and Democrats may wish to simply defend the status quo while pursuing other policy objectives.

Sizing Up the Taxes/Spending Impact of Biden's Plans

In Exhibit 3 we show our projected federal budget impact in a scenario in which Biden wins and the Democrats capture the Senate with a large majority (five seats or more). We incorporate the policies we've assessed as being "very likely" to pass in this scenario (Exhibit 2). Our analysis draws heavily on other public estimates for the budget impact of various policies, especially the Penn Wharton Budget Model[2], Moody's[3], and the Tax Policy Center[4].

We expect a hefty boost to spending in the next five years, due greatly to a new $1.8 trillion stimulus package. Note that we also think another stimulus bill is likely if Trump wins reelection. Exhibit 3

2 https://budgetmodel.wharton.upenn.edu/issues/2020/9/14/biden-2020-analysis

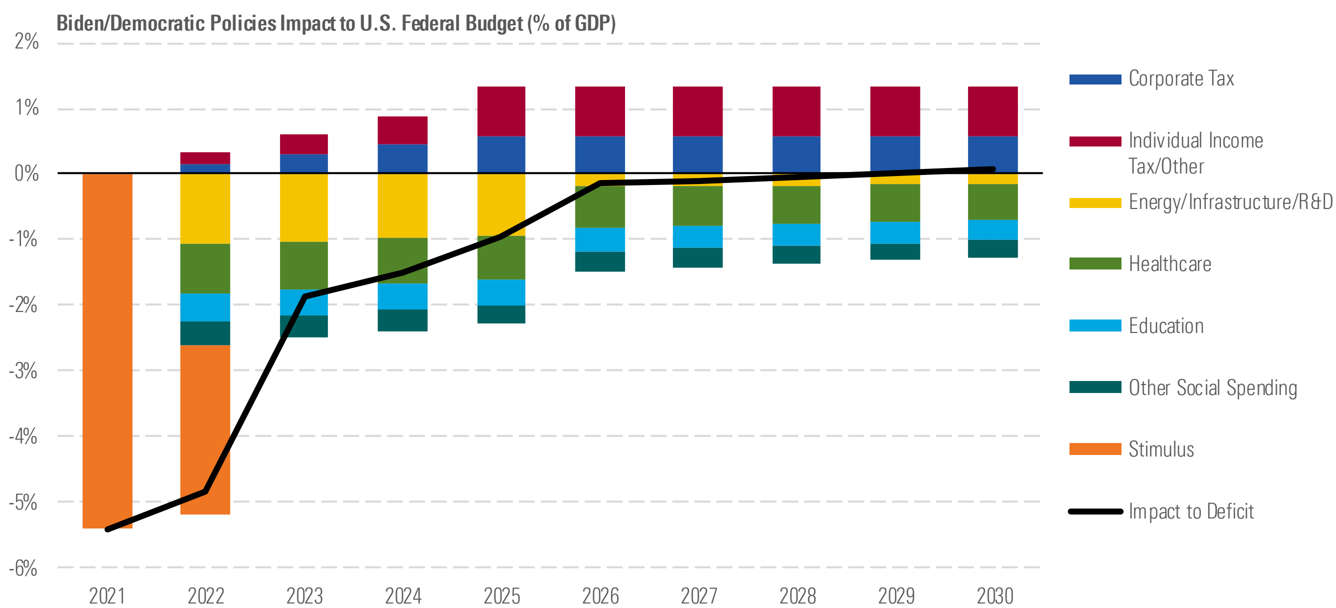
3 https://www.moodysanalytics.com/-/media/article/2020/the-macroeconomic-consequences-trump-vs-biden.pdf

4 https://www.urban.org/sites/default/files/publication/103075/an_updated_analysis_of_former_vice_president_bidens_tax_proposals_1_0.pdf

illustrates the impact relative to current policies, rather than relative to anticipated policies (including stimulus) should Trump win reelection.

By contrast, the large up-front boost to spending in the "energy/infrastructure/R&D" category would be unique to a Biden/Democratic win. This largely corresponds to Biden's Clean Energy program.[5] The plan references large investments in energy conservation, electric vehicles, and clean energy R&D. The plan also makes reference to items like highway infrastructure and affordable housing, suggesting the bill could become an omnibus for all sorts of spending whether specifically related to clean energy or not.

Exhibit 3 Biden/Democratic Clean Sweep Would Lead to Solid (but Far From Unprecedented) Boost in Taxes and Spending



Source: U.S. Bureau of Economic Analysis, Penn Wharton Budget Model, U.S. Congressional Budget Office, Morningstar.

Biden's website mentions a price tag of $2 trillion for the Clean Energy plan but doesn't provide a concrete breakout of spending. We assume the plan will generate $1.250 billion in spending over the 2021 to 2030 period, as centrist Democrats may balk at a $2 trillion price tag. Furthermore, the plan is somewhat scant on details, and it's not clear there are truly $2 trillion in good ideas to fund what would fall under the heading of the Clean Energy bill.

Ongoing Spending Will Be Constrained by Need to Fund With Revenue

The other major contributors to Biden's spending plans are largely social programs like healthcare and education. Any plans in these areas will create ongoing expenditures rather than merely one-time costs. We expect that these ongoing expenditures will be constrained by the need to raise revenue to create a

5 https://joebiden.com/clean-energy/

neutral impact on the long-term budget deficit. As shown in Exhibit 3 above, we expect a near-zero impact on the deficit from the Biden/Democratic policies for years 2026-30.

Biden has proposed several tax increases that we think are likely to pass. This includes raising the corporate tax rate to 28% from 21% (previously at 35% prior to the 2017 Tax Cuts and Jobs Act). Also, he has proposed overhauling rules to increase taxes on corporations hiding in offshore tax havens. This includes an overhaul of the global intangible low-taxed income (GILTI) as well as a new alternative minimum book tax.

On the individual income tax side, he's proposed a slew of tax increases on earners with more than $400,000 in annual income. We think these plans stand a good chance of passing with a strong Democratic majority. Most sources expect these tax increases to boost federal revenue by around 1% of GDP annually. Generating additional revenue will be hard to come by if Biden is to stick with his pledge not to increase taxes on those making less than $400,000 per year. We don't incorporate impact of a financial transactions tax in this forecast, as the chances of it passing with even a large Democratic Senate majority are much smaller than the individual income and corporate tax increases.

Our views on spending are slightly more conservative than other forecasters, partly because we are assuming that ongoing expenditures will need to be close to deficit neutral by the end of our forecast period, although some deferred revenue-raisers may never become effective.

We assume healthcare spending will be about $1.575 trillion. This would be mainly driven by the public option, along with the possibility of other piecemeal initiatives (such as lowering Medicare eligibility from 65 to 60 years, bolstering the ACA with additional subsidies/tax credits, and public health spending).[6]

With ongoing healthcare expenditure absorbing much of the new revenue created by Biden's tax hikes, we don't think he'll be able to accomplish all of his agenda on education or other social programs. On the education front, his plans include universal pre-K, making public colleges tuition free for families with income below $125,000. All of this could easily cost around $2 trillion. In terms of other social spending, Biden has proposed a new paid family and medical leave program, boosts to social security benefits, affordable housing spending, and other initiatives. This could add on another $1 trillion or so. There won't be room in the budget to pass all this while remaining long-run deficit neutral, so we expect the actual amount passed for education and other social spending to be about $900 billion and $720 billion, respectively. We don't think political support for these programs will be strong enough to compel further tax hikes to support the full extent of the proposed spending.

6 The Committee for a Responsible Federal Budget estimates the total cost of Biden's healthcare plans at $1.5 trillion (net of $450 billion in cost savings from drug price reform and other areas). http://www.crfb.org/papers/understanding-joe-bidens-2020-health-care-plan

Exhibit 4 We Expect Spending to Be Slightly Lower Than Other Forecasters

Budgetary Impact: 2021-2030

Spending	Penn Wharton	Moody's	Tax Policy Center	Morningstar
Energy/Infrastructure/R&D	1,600	2,400		1,250
Education	1,900	1,900		900
Healthcare	350	1,500		1,575
Social/Other	1,520	1,500		720
Total	**5,370**	**7,300**		**4,445**
Revenue	**Penn Wharton**	**Moody's**	**Tax Policy Center**	**Morningstar**
Corporate	1,440	2,138	1,379	1,220
Payroll	993	997	740	700
Individual Income	942	965	1032	852
Total	**3,375**	**4,100**	**3,151**	**2,772**

Source: Various (listed in chart), Morningstar

Revenue/Spending Increases Would Be Less With Smaller Majority

As we've indicated in Exhibit 2, the probabilities of Biden's plans getting passed in full diminish if the Democrats' Senate majority is smaller. While the prospects for a massive stimulus bill are still strong, other large tax and spending plans are less likely. As such, we think with a slim (one or two seat) Senate majority, the increase in long-run federal revenue and spending would probably only be about 0.5% of GDP, versus 1.3% of GDP with a large majority (the scenario shown by Exhibit 3).

U.S. Election Outcome Won't Have Major Impact on Our Economic Forecasts

We wouldn't expect a large impact on our U.S. GDP forecasts from a Biden/Democratic victory. Other papers assessing Biden's proposed policies have varied quite a bit in their conclusions. Exhibit 5a shows these papers' estimates for the cumulative impact on U.S. GDP by 2030.

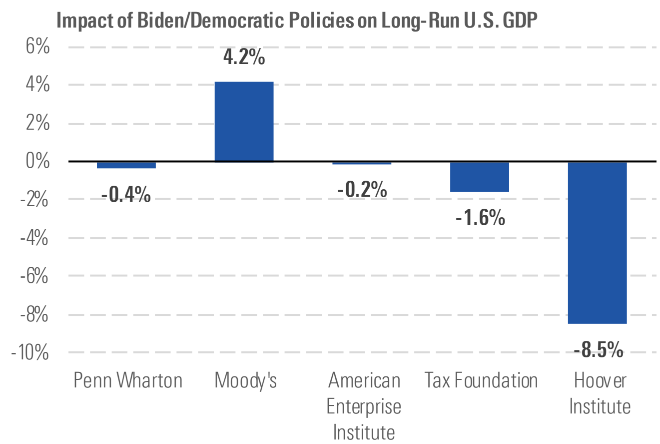
We suspect the more extreme estimates come from analysts with a partisan axe to grind. In particular, the very negative assessment by the Hoover Institute was authored by Trump administration veterans Kevin Hassett (former chair of the Council of Economic Advisers) and Casey Mulligan. We think Penn Wharton is a more unbiased source, and it projects just a negative 0.4% impact from Biden's policies. Note that this is just negative 0.4% cumulatively over a 10-year period; the annual impact on growth is roughly one tenth of that—a miniscule 0.04% annually. Furthermore, even other right-leaning think tanks (American Enterprise Institute and the Tax Foundation) project a far smaller impact than the Hoover Institute. On the other hand, we don’t think the large positive impact from Biden assessed by Moody's is realistic.

Most of the negative impact from Biden's policies projected by these papers comes from higher taxes. In the long run, the main theoretical effect of higher taxes is to decrease the amount people work and invest (as the rewards to doing so are lower). By decreasing the supply of labor and capital, this lowers the sustainable level of GDP. However, the question of exactly how sensitive long-run GDP is to changes in taxes has been an unresolved debate for decades.

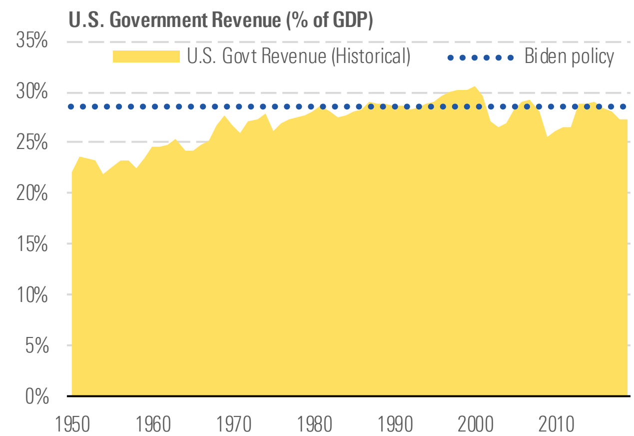
We're expecting an increase in U.S. government revenue-to-GDP of about 1.3% as a result of a Biden/Democratic victory (even with a large Senate majority). This only returns the ratio of government revenue-to-GDP to about where it was prior to the 2017 Tax Cuts and Jobs Act (Exhibit 5b). This revenue level would even be below the revenue level during the late 1990s, which hardly lacked economic dynamism (4.3% real GDP growth from 1996-2000, well above the post-1970 average of 2.8%).

Exhibit 5 Estimates Vary on Biden Impact on Long-Run U.S. GDP, but We Think Impact Likely to Be Small

5a Estimates Vary on Biden Impact on Long-Run U.S. GDP



5b Increased Taxes Under Biden Won't Be Unprecedented



Sources: U.S. Bureau of Economic Analysis, Various sources (xb), Morningstar.

Exhibit 6 breaks out into further detail the impact estimates provided by various sources. The Hoover institute is projecting a large negative impact from higher taxes, but we think the effect will be much more modest given other sources. In particular, the Hoover analysis is projecting a 2% reduction in employment plus a 12% reduction in the capital stock due to the higher taxes. Compare that with the Tax Foundation, which estimated about a 0.3% reduction in employment and a 4% reduction in the capital stock.

Exhibit 6 Potential Negative Ramifications From Biden/Democratic Victory Come From Higher Taxes

Penn Wharton		**Moody's**		**Tax Foundation**	
Category	% GDP	Category	% GDP	Category	% GDP
Tax	-0.2%	*Mainly due to fiscal stimulus*		Tax	-1.6%
Immigration	1.0%				
Govt Investment	0.3%				
Healthcare	-1.1%				
Other	-0.4%				
Total	**-0.4%**		**4.2%**		**-1.6%**

Hoover Institute		**American Enterprise Institute**	
Category	% GDP	Category	% GDP
Tax	-5.2%	Tax	-0.2%
Energy	-1.8%		
Other Regulation	-1.5%		
Total	**-8.5%**		**-0.2%**

Source: Various (listed in chart), Morningstar

Moody's stands out with its large positive assessment of the impact of Biden's plans on GDP. An exact breakout isn't provided, but the analysis indicates qualitatively that the impact of fiscal stimulus on closing the output gap is very important. However, our current economic forecasts are that the U.S. economy will experience a robust recovery, with the output gap mostly closing by the mid-2020s. This incorporates expectations that some stimulus is passed in 2021 if Trump remains president. Without extra slack in the economy in the long run, there's little room for extra stimulus to move our GDP forecasts.

While we do agree that additional taxes from a Biden/Democratic victory would be a modest headwind on growth, we see two areas where Biden could have an offsetting positive impact. First, immigration has fallen off sharply since Trump became president (Exhibit 7a). It seems likely that Trump's policies have played a role in this, including tougher enforcement against undocumented immigrants plus increased restrictions on legal immigration.[7] We think Biden could reverse this trend. Penn Wharton estimates this could boost long-run GDP by 1%.

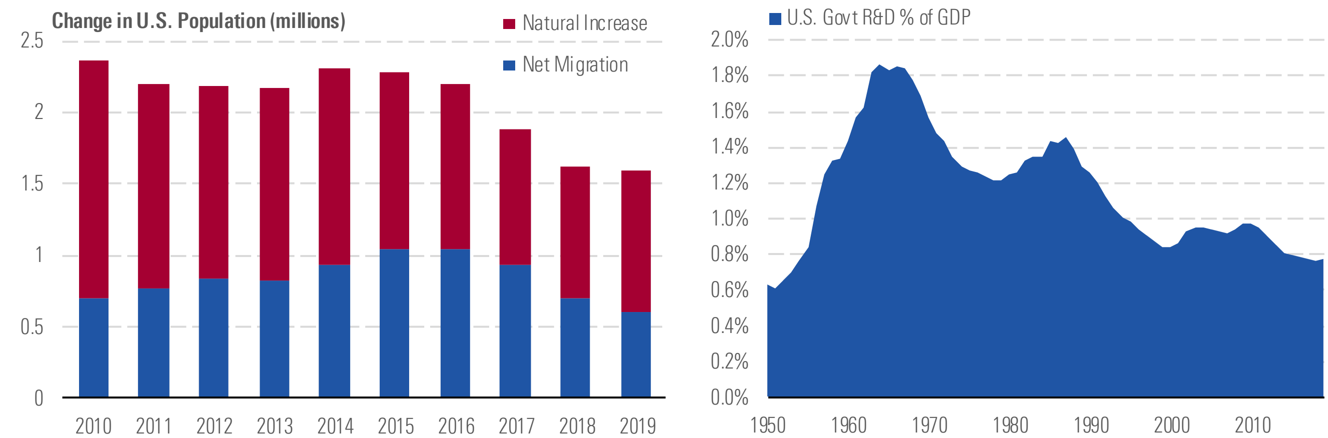
Second, we think many of Biden's proposed spending programs could boost long-run output. In particular, Biden is proposing a surge in R&D spending. U.S. government R&D spending has languished in the decades after the Cold War ended (Exhibit 7b). We think the returns to public R&D are likely to be especially high given that funding has been starved for so long.

7 https://www.forbes.com/sites/stuartanderson/2020/01/13/new-data-legal-immigration-has-declined-under-trump/#f39c2e16e999

Exhibit 7 Biden's Policies to Boost Immigration, Public R&D Could Be Good for Growth

7a A reversal in downward trend for immigration could boost growth

7b Public R&D



Sources: U.S. Census Bureau, U.S. Bureau of Economic Analysis, Various sources (xb), Morningstar.

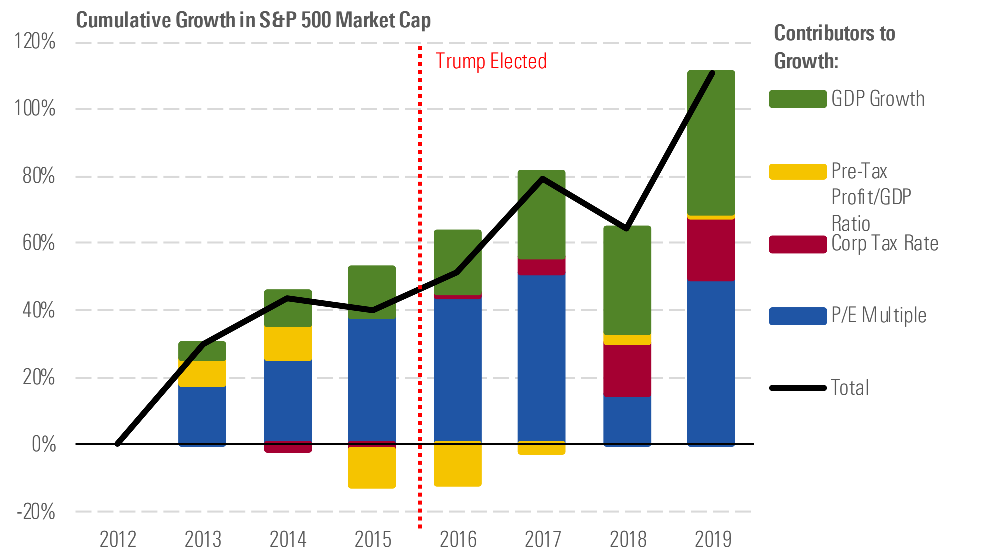
U.S. Equities Could See Hit From Higher Corporate Taxes

What could happen to U.S. equities overall after the election? In order to answer this question, we first take a closer look at the drivers of stock market performance in the last several years. Exhibit 8 shows cumulative growth in the S&P 500 market capitalization split into key drivers. The S&P 500 market capitalization is the product of 1) U.S. GDP, 2) the ratio of pretax profits to GDP, 3) the corporate tax rate, and 4) the P/E multiple.

The stock market took off following the election of Donald Trump in November 2016. Altogether, the S&P 500 was up 58% by year-end 2019 versus year-end 2015 levels. This actually was not an extraordinary amount of price appreciation compared with the prior four years (which delivered 63% in cumulative returns). Still, prior to the 2016 election, many investors were wondering how much room was left for stock market gains. This was especially the case given that in the years prior the election, much of the gains were driven by multiple expansion (as shown in Exhibit 8), which cannot continue indefinitely.

Could a Trump defeat lead to an unwind of the tremendous equity gains in the past four years? By and large, we don't think so. Exhibit 8 shows that the main drivers of equity performance from 2016 to 2019 were continued GDP growth, a rebound in the ratio of pretax profits to GDP, and a decrease in the corporate tax rate. Only the last factor was driven directly by Trump's election, as the 2017 Tax Cuts and Jobs Act led to a cut in the U.S. statutory tax rate to 21% from 35% previously. This caused the average effective tax rate on S&P 500 companies to fall to 18% from 28%, according to S&P.

Exhibit 8 Corporate Tax Cuts Were Only Part of the Reason U.S. Equities Rallied After Trump's Election



Source: S&P Dow Jones Indices, Morningstar
Note: Market capitalization is year-end. All other data are on trailing 12-month basis. Earnings are non-GAAP (excluding extraordinary items).

Certainly, Biden's plans to raise corporate taxes will have some negative impact on U.S. equities overall if enacted. By reducing the effective tax rate by 1,000 basis points, Trump's corporate tax cuts increased after-tax earnings on the S&P 500 by 14% overall. A reversal of those tax cuts should lead to a reduction in average after-tax earnings by a similar magnitude.

In the event that the Democrats capture a large Senate majority (five-plus seats), we think the scale of the corporate tax increase could be quite large (shown in Exhibit 3). In this scenario, our back-of-the-envelope analysis suggests a hit to average equity valuations on the order of 10%. Biden plans on upping the statutory rate to 28% from 21% and implementing new measures to increase taxes on companies located in offshore tax havens. We expect the ratio of corporate taxes to U.S. GDP to increase by about 60 basis points by 2025, whereas this ratio fell about 80 basis points following the corporate tax cuts of the Tax Cuts and Jobs Act. This suggests that 75% (dividing 60/80) of the recent fall in effective tax rates will reverse. Effective tax rates fell by 1,000 basis points (18% from 28%), so a 75% rebound would be 750 basis points (25.5% from 18%).[8] All else held equal, this should reduce after-tax earnings by 9% (= (1-.255)/(1-.18) -1). Average U.S. equity valuations should fall by just shy of that 9%.

With that said, we wouldn't expect equities to fall by 9% on the day after the election if the Democrats achieve a clean sweep. First, some of the tax hike is probably baked into equities at the moment. More importantly, it's likely that the tax increase would be smaller if the Democrats capture a smaller majority than the five-plus seat scenario discussed above. In particular, implementing the measures to

8 As another sanity check to this estimate. The 1,400-basis-point cut to the statutory rate from the TCJA caused effective tax rates to fall by 1,000 basis points. As such, the 700-basis-point increase in statutory tax rates should lead to about a 500-basis-point increase in effective tax rates. If we then tack on the impact from the measures impacting companies in offshore tax havens, the effective tax rate should go up another 200-300 basis points in addition to the 500 basis points from the higher statutory rate.

crackdown on offshore tax havens presents some thorny issues that a slim majority could be unable to resolve. If we were only to see an increase in the statutory rate to 28% from 21% but no other measures, that would likely translate into about a 500-basis-point increase to effective tax rates. In turn, that would reduce after-tax earnings by only about 6%.

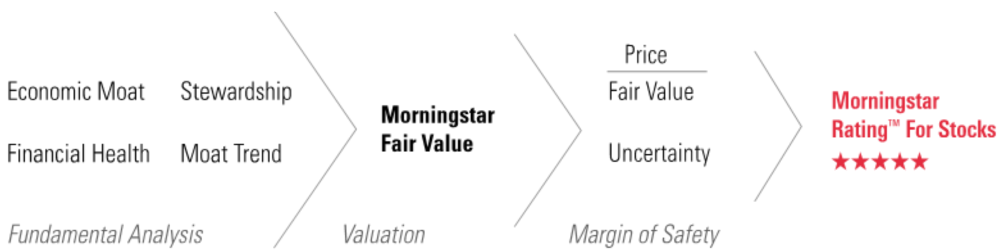
Research Methodology for Valuing Companies

Overview

At the heart of our valuation system is a detailed projection of a company's future cash flows, resulting from our analysts' research. Analysts create custom industry and company assumptions to feed income statement, balance sheet, and capital investment assumptions into our globally standardized, proprietary discounted cash flow, or DCF, modeling templates. We use scenario analysis, in-depth competitive advantage analysis, and a variety of other analytical tools to augment this process. Moreover, we think analyzing valuation through discounted cash flows presents a better lens for viewing cyclical companies, high-growth firms, businesses with finite lives (for example, mines), or companies expected to generate negative earnings over the next few years. That said, we don't dismiss multiples altogether but rather use them as supporting cross-checks for our DCF-based fair value estimates. We also acknowledge that DCF models offer their own challenges (including a potential proliferation of estimated inputs and the possibility that the method may miss short-term market-price movements), but we believe these negatives are mitigated by deep analysis and our long-term approach.

Morningstar's equity research group ("we," "our") believes that a company's intrinsic worth results from the future cash flows it can generate. The Morningstar Rating for stocks identifies stocks trading at a discount or premium to their intrinsic worth—or fair value estimate, in Morningstar terminology. Five-star stocks sell for the biggest risk-adjusted discount to their fair values, whereas 1-star stocks trade at premiums to their intrinsic worth.

Morningstar Research Methodology



Source: Morningstar.

Four key components drive the Morningstar rating: 1) our assessment of the firm's economic moat, 2) our estimate of the stock's fair value, 3) our uncertainty around that fair value estimate and 4) the current market price. This process ultimately culminates in our single-point star rating.

Economic Moat

The concept of an economic moat plays a vital role not only in our qualitative assessment of a firm's long-term investment potential, but also in the actual calculation of our fair value estimates. An economic moat is a structural feature that allows a firm to sustain excess profits over a long period of time. We define economic profits as returns on invested capital (or ROIC) over and above our estimate of a firm's cost of capital, or weighted average cost of capital (or WACC). Without a moat, profits are more susceptible to competition. We have identified five sources of economic moats: intangible assets, switching costs, network effect, cost advantage, and efficient scale.

Companies with a narrow moat are those we believe are more likely than not to achieve normalized excess returns for at least the next 10 years. Wide-moat companies are those in which we have very high confidence that excess returns will remain for 10 years, with excess returns more likely than not to remain for at least 20 years. The longer a firm generates economic profits, the higher its intrinsic value. We believe low-quality, no-moat companies will see their normalized returns gravitate toward the firm's cost of capital more quickly than companies with moats.

To assess the sustainability of excess profits, analysts perform ongoing assessments of the moat trend. A firm's moat trend is positive in cases where we think its sources of competitive advantage are growing stronger; stable where we don't anticipate changes to competitive advantages over the next several years; or negative when we see signs of deterioration.

Estimated Fair Value

Combining our analysts' financial forecasts with the firm's economic moat helps us assess how long returns on invested capital are likely to exceed the firm's cost of capital. Returns of firms with a wide economic moat rating are assumed to fade to the perpetuity period over a longer period of time than the returns of narrow-moat firms, and both will fade slower than no-moat firms, increasing our estimate of their intrinsic value.

Our model is divided into three distinct stages:

Stage I: Explicit Forecast
In this stage, which can last five to 10 years, analysts make full financial statement forecasts, including items such as revenue, profit margins, tax rates, changes in working-capital accounts, and capital spending. Based on these projections, we calculate earnings before interest, after taxes, or EBI, and the net new investment, or NNI, to derive our annual free cash flow forecast.

Stage II: Fade
The second stage of our model is the period it will take the company's return on new invested capital—the return on capital of the next dollar invested, or RONIC—to decline (or rise) to its cost of capital. During the Stage II period, we use a formula to approximate cash flows in lieu of explicitly modeling the income statement, balance sheet, and cash flow statement as we do in Stage I. The length of the second stage depends on the strength of the company's economic moat. We forecast this period to last anywhere from one year (for companies with no economic moat) to 10–15 years or more (for wide-moat companies). During this period, cash flows are forecast using four assumptions: an average growth rate for EBI over the period, a normalized investment rate, average return on new invested capital (RONIC), and the number of years until perpetuity, when excess returns cease. The investment rate and return on new invested capital decline until a perpetuity value is calculated. In the case of firms that do not earn their cost of capital, we assume marginal ROICs rise to the firm's cost of capital (usually attributable to less reinvestment), and we may truncate the second stage.

Stage III: Perpetuity
Once a company's marginal ROIC hits its cost of capital, we calculate a continuing value, using a standard perpetuity formula. At perpetuity, we assume that any growth or decline or investment in the business neither creates nor destroys value and that any new investment provides a return in line with estimated WACC.

Because a dollar earned today is worth more than a dollar earned tomorrow, we discount our projections of cash flows in stages I, II, and III to arrive at a total present value of expected future cash flows. Because we are modeling free cash flow to the firm—representing cash available to provide a return to all capital providers—we discount future cash flows using the WACC, which is a weighted average of the costs of equity, debt, and preferred stock (and any other funding sources), using expected future proportionate long-term market-value weights.

Uncertainty Around That Fair Value Estimate
Morningstar's Uncertainty Rating captures a range of likely potential intrinsic values for a company and uses it to assign the margin of safety required before investing, which in turn explicitly drives our stock star rating system. The Uncertainty Rating represents the analysts' ability to bound the estimated value of the shares in a company around the Fair Value Estimate, based on the characteristics of the business underlying the stock, including operating and financial leverage, sales sensitivity to the overall economy, product concentration, pricing power, and other company-specific factors.

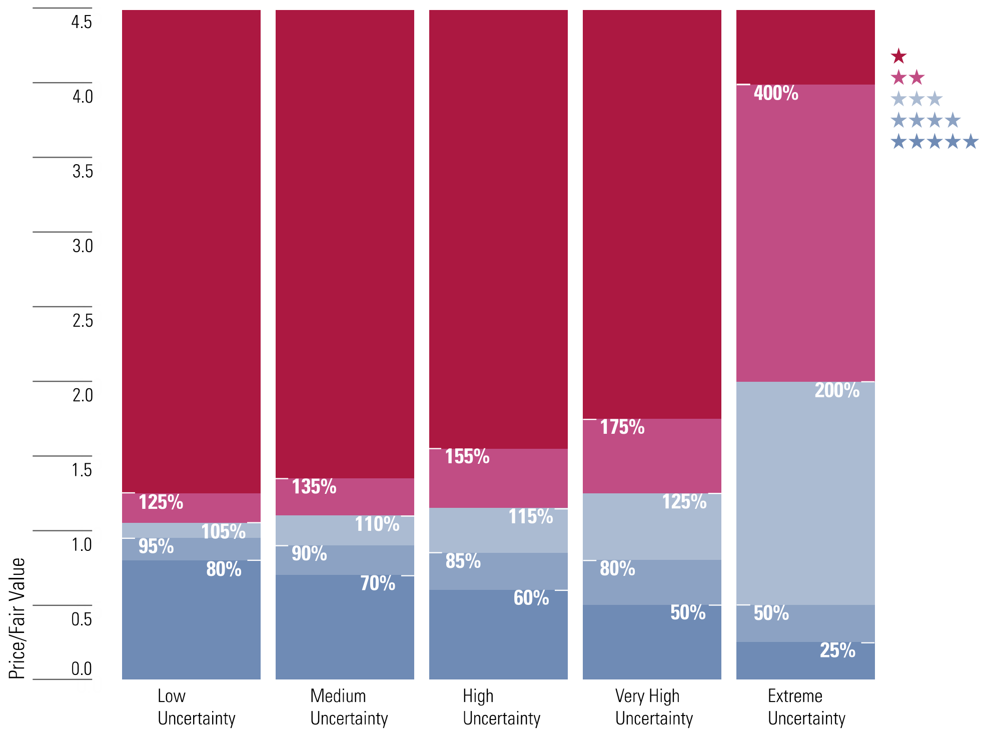
Analysts consider at least two scenarios in addition to their base case: a bull case and a bear case. Assumptions are chosen such that the analyst believes there is a 25% probability that the company will perform better than the bull case, and a 25% probability that the company will perform worse than the bear case. The distance between the bull and bear cases is an important indicator of the uncertainty underlying the fair value estimate.

Our recommended margin of safety widens as our uncertainty of the estimated value of the equity increases. The more uncertain we are about the estimated value of the equity, the greater the discount we require relative to our estimate of the value of the firm before we would recommend the purchase of the shares. In addition, the uncertainty rating provides guidance in portfolio construction based on risk tolerance.

Our uncertainty ratings for our qualitative analysis are low, medium, high, very high, and extreme.

- Low–margin of safety for 5-star rating is a 20% discount and for 1-star rating is 25% premium.
- Medium–margin of safety for 5-star rating is a 30% discount and for 1-star rating is 35% premium.
- High–margin of safety for 5-star rating is a 40% discount and for 1-star rating is 55% premium.
- Very High–margin of safety for 5-star rating is a 50% discount and for 1-star rating is 75% premium.
- Extreme– margin of safety for 5-star rating is a 75% discount and for 1-star rating is 300% premium.

Morningstar Equity Research Star Rating Methodology



Market Price

The market prices used in this analysis and noted in the report come from exchange on which the stock is listed which we believe is a reliable source.

For more details about our methodology, please go to https://shareholders.morningstar.com.

Morningstar Star Rating for Stocks

Once we determine the fair value estimate of a stock, we compare it with the stock's current market price on a daily basis, and the star rating is automatically re-calculated at the market close on every day the market on which the stock is listed is open. Our analysts keep close tabs on the companies they follow, and, based on thorough and ongoing analysis, raise or lower their fair value estimates as warranted.

Please note, there is no predefined distribution of stars. That is, the percentage of stocks that earn 5 stars can fluctuate daily, so the star ratings, in the aggregate, can serve as a gauge of the broader market's valuation. When there are many 5-star stocks, the stock market as a whole is more undervalued, in our opinion, than when very few companies garner our highest rating.

We expect that if our base-case assumptions are true the market price will converge on our fair value estimate over time, generally within three years (although it is impossible to predict the exact time frame in which market prices may adjust).

Our star ratings are guideposts to a broad audience and individuals must consider their own specific investment goals, risk tolerance, tax situation, time horizon, income needs, and complete investment portfolio, among other factors.

The Morningstar Star Ratings for stocks are defined below:

★★★★★ We believe appreciation beyond a fair risk-adjusted return is highly likely over a multiyear time frame. Scenario analysis developed by our analysts indicates that the current market price represents an excessively pessimistic outlook, limiting downside risk and maximizing upside potential.

★★★★ We believe appreciation beyond a fair risk-adjusted return is likely.

★★★ Indicates our belief that investors are likely to receive a fair risk-adjusted return (approximately cost of equity).

★★ We believe investors are likely to receive a less than fair risk-adjusted return.

★ Indicates a high probability of undesirable risk-adjusted returns from the current market price over a multiyear time frame, based on our analysis. Scenario analysis by our analysts indicates that the market is pricing in an excessively optimistic outlook, limiting upside potential and leaving the investor exposed to Capital loss.

Risk Warning

Please note that investments in securities are subject to market and other risks and there is no assurance or guarantee that the intended investment objectives will be achieved. Past performance of a security may or may not be sustained in future and is no indication of future performance. A security investment return and an investor's principal value will fluctuate so that, when redeemed, an investor's shares may be worth more or less than their original cost. A security's current investment performance may be lower or higher than the investment performance noted within the report. Morningstar's Uncertainty Rating serves as a useful data point with respect to sensitivity analysis of the assumptions used in our determining a fair value price.

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