

The Evolution of U.S. Corporate Profits: Dissecting 70 Years' of Performance

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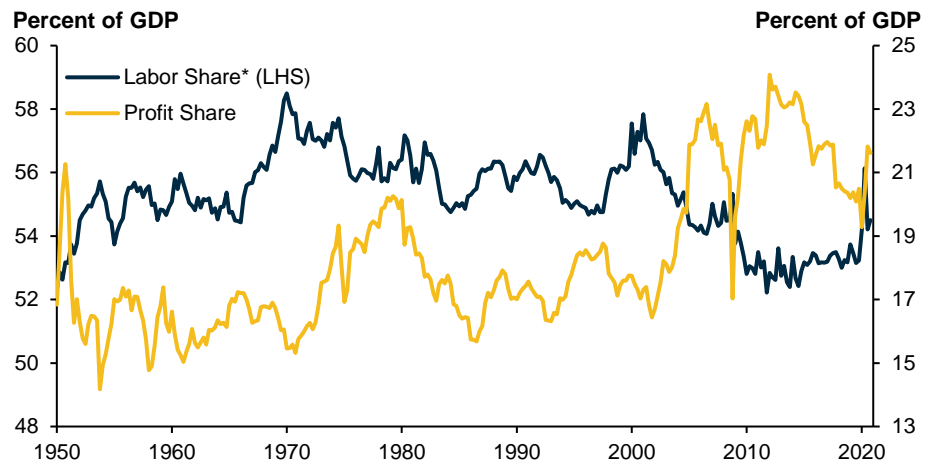
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- U.S. corporate profits have generally weathered the pandemic with resiliency. A key question for investors of all stripes—from equity to fixed income and beyond—is how corporate profits might proceed from here.
- Insight into this question relies on identifying the factors that influence corporate profitability. Our work finds four factors with statistical significance: real interest rates, credit market risk sentiment, real dollar exchange rates, and the trade share.
- These findings not only explain the relationships between these factors and corporate profits, but they also allow us to extrapolate how corporate profits may evolve in 2022 and 2023.

In the years since the global financial crisis, U.S. corporations have been surprisingly profitable compared with previous decades (Figure 1). The stock market has embraced this strong performance, which has undoubtedly contributed to the rise in equity prices in recent years. Moreover, the health of the corporate sector also supported employment in the years prior to the pandemic.

Figure 1: Shares of Profit and Labor



Source: PGIM Fixed Income, Bureau of Economic Analysis, and Bureau of Labor Statistics. *Compensation of employees.

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Earnings that now amount to roughly \$600 billion a year have been transferred from labor to capital.

Yet, economics is about trade-offs: corporate profits' increased share of GDP has been roughly offset by a decline in employee wages, which have fallen from 56% of GDP from 1970 through 2000 to around 53% over the past decade. In tandem, the share of capital has surged from 18% to over 21%. *Stated differently, earnings that now amount to roughly \$600 billion a year have been transferred from labor to capital.*¹

This redistribution has reflected and reinforced deep economic trends, including the continued march of technology, the inertia of global integration, and the growing “skills gap” between higher and lower paid workers. These trends have consequently [driven increased economic inequality](#).

With these issues in mind, we closely examine the evolution of corporate profits in the U.S. economy. What drives the share of profits through the business cycle, and what might fuel it over the longer term?

We find a systematic relationship between the profit share and some key macro variables including the real interest rate, the real exchange rate, and the share of trade to GDP (which we use as a proxy for globalization). This relationship has shown remarkable durability through a range of macro environments over the past 70 years. That said, we also find evidence that since roughly the time of the global financial crisis, the share of profits has stepped up significantly, and by more than the underlying fundamentals would have suggested. Consistent with this finding, we expect that profits will remain at historically elevated levels, of around 20-23% of GDP, through the years ahead. A key question, however, regards the durability of the post-GFC boost to profits.

A Closer Look at Several Measures of Profits

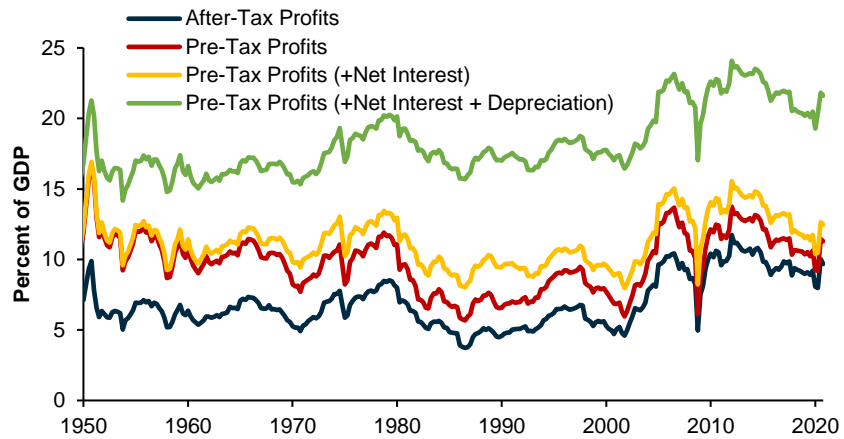
We begin with a closer look at after-tax corporate profits relative to GDP.² Even within the context of data from the US National Income and Product Accounts, there is no uniform definition of corporate profits. Consistent with this observation, we present four related measures (Figure 2). The broadest of these is corporate earnings before interest, taxes, and depreciation (the green line). Other measures sequentially exclude depreciation (the yellow line), interest (the red line), and taxes (the blue line).³

¹ Under this decomposition, the remainder of GDP consists of the operating surplus and rental income of the non-corporate sector (including proprietors' income), capital depreciation associated with that sector, and direct taxes on production and imports (e.g., sales taxes, property taxes, and custom duties).

² As noted, our data come from the national income and product accounts, where our broad measure of profits is defined as total corporate revenue minus production expenses (including intermediate inputs and wages).

³ Another common measure of profits is firms' margins. This variable is defined as aggregate prices divided by unit labor costs. This, in turn, is equal to the reciprocal of labor's share of GDP (shown in Figure 1). As such, margins are also closely related to capital's share of GDP—the observed correlation over the past seven decades has hovered between 80% and 90%.

Figure 2: Corporate Profits



Source: PGIM Fixed Income

The similarities across these four measures are striking. The series move broadly in sync, just at differing levels. This observation is reassuring. It suggests that the factors driving the various measures are likely to be similar and, further, that the features of our empirical work will not depend inordinately on which definition is chosen. A model that sheds light on the behavior of one should also be useful in understanding the behavior of the other measures.

But which of the series is best? As a rule, economists are conceptually drawn to the more narrow measures of profit, since depreciation reflects capital resources consumed in production, and interest payments represent the rents paid to owners of financial resources. In some deep sense, these are factors that have been utilized in production and, hence, they don't represent profit.

Even so, as a practical matter, the question for credit investors is not so much which definition of profits is the most conceptually pure. But rather, which definition best captures the firm's capacity to make payments, especially during times of stress. For this reason, broad measures of profit, which are more closely related to notions of free cash flow, have proved useful. In extreme circumstances, the firm will forego other types of expenses to make its debt payments. Also for this reason, we choose to focus our empirical work on the broadest of the four measures—earnings before interest, taxes, and depreciation.

Some Long-Run Drivers of Corporate Profits

Arguably this broad measure of profits has progressed through three regimes since 1950. The first, from 1950-1970, saw the profit share bounce near 16% of GDP. After rising and then falling during the 1970s and early 1980s, the share came to rest at around 17% through 2000. The profit share subsequently surged upward and has cycled around 22% over the past decade.

To better understand these gyrations, we regress the GDP share of profits on what we see as four key economic factors: the 10-year real Treasury yield, the Fed's so-called "excess bond premium" (i.e., the portion of corporate spreads unrelated to expected default—essentially, a measure of credit market sentiment)⁴, the broad real dollar index, and the share of US

⁴ See Gilchrist, Simon, and Egon Zakrajšek. 2012. "Credit Spreads and Business Cycle Fluctuations." *American Economic Review*, 102 (4): 1692-1720. Notably, the published data for the excess bond premium go back only to 1973. We backcast the series using Moody's Baa spread over comparable Treasuries.

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exports and imports of goods and services relative to GDP. We use quarterly data beginning in 1950.⁵ The variables enter in levels with a one-quarter lag.

In light of the strong performance of profits since the global financial crisis, we also include a dummy variable for the post-GFC period. This allows us to assess whether factors beyond those included in our model have been in play.

Our results, displayed in Figure 3, are highly statistically significant and have compelling economic interpretations. Graphs of these variables are shown in the Appendix.

Figure 3: Long-Term Model: Corporate Profit Share (% of GDP)

On the one hand, low rates tend to signal accommodative monetary and financial conditions, which should stimulate borrowing and risk-taking and, hence, raise profitability. On the other hand, low rates may also signal a weak macroeconomic backdrop and deficient aggregate demand.

	1950Q1-2019Q4
10-Year Real Interest Rate (Percent)	-0.192 (-6.1)
Excess Bond Premium (Percent)	-0.905 (-6.0)
Broad Real Dollar (Log-Level)	-0.086 (-16.1)
Trade Share* (Percent of GDP)	0.181 (9.3)
Post Global Financial Crisis Dummy	1.596 (5.8)
Observations	280
Adjusted R-Squared	0.748

Source: PGIM Fixed Income. *Component of trade share uncorrelated with the broad real dollar.

Note: All regressions include an unreported constant; t-stats shown in parentheses; explanatory variables enter as first lags.

Real 10-Year Treasury Yield. The relationship between real yields and profit runs in both directions.⁶ On the one hand, low rates tend to signal accommodative monetary and financial conditions, which should stimulate borrowing and risk-taking and, hence, raise profitability. On the other hand, low rates may also indicate a weak macroeconomic backdrop and deficient aggregate demand.

Across a range of specifications, the first of these effects generally dominates. This is a feature of our baseline regression, where the coefficient comes in at around -0.2 and is highly statistically significant. This result indicates that a 100 basis point rise in real bond yields lowers the profit share by 0.2 percentage point. Rising real rates increase interest expenses today and also make it more expensive to borrow to expand capacity and profits in the future.

Excess Bond Premium. This variable, as noted above, is constructed to capture the risk sentiment in credit markets, over and above default risk. An increase reflects a tightening of credit conditions and a decreased appetite in markets for corporate debt. In our regression, we find that a 100 basis point rise, which is similar to that recorded during the dot.com collapse in the early 2000s, is associated with a 0.9 percentage point drop in the share of profits.

⁵ Given the extraordinary features of the pandemic, and the sharp gyrations in profits that have resulted, we do not include data for 2020 in the regressions.

⁶ We define the real 10-year yield, simply, as the nominal yield less the four-quarter change in the CPI.

Our results indicate that a 10 percent rise in the dollar cuts the profit share by over 0.8 percentage point.

Broad Real Dollar. A weakening of the exchange rates stimulates profits through two channels.⁷ First, domestic firms become more competitive versus foreign competition, which allows them to expand market share at home and abroad. Second, there is a powerful near-term “translation effect”—unhedged foreign earnings translate into more dollars as the exchange rate depreciates. Over the past couple of decades, nearly one-quarter of corporate earnings have come from abroad, so this effect is likely to be powerful. We find that a 10 percent rise in the dollar cuts the profit share by over 0.8 percentage point.

Trade Share. We also include the share of U.S. exports and imports relative to GDP. Rising foreign trade creates additional demand for U.S. products and increases access to potentially cheaper inputs from abroad.⁸ In addition, we see the trade share as a proxy for globalization, including the off-shoring of production. Globalization has brought increased foreign competition, especially from China, but it also has created new opportunities for U.S. firms. Our results point to a powerful positive, and highly significant, relationship between the trade share and profits. The resulting coefficient suggests that the 10 percentage point run-up in the share since the mid-1980s is associated with a roughly 2 percent of GDP rise in the share of profits.

Importantly, the post-GFC dummy variable is also highly statistically significant. It signals that, since the GFC, the profit share has been 1.6% of GDP larger than fundamentals would have otherwise suggested. This sizable effect reinforces the view that the balance of economic power has shifted toward owners of capital and away from workers.

The underlying drivers of this shift have been widely studied in academic papers. They include the effects of improving technology and innovation, meaning that workers must increasingly compete with capital goods. Wage restraint due to globalization, which has brought competition from abroad, has also played a role. These effects have been reinforced by the reduced influence of U.S. labor unions and the rise of highly profitable “superstar firms.”⁹

A key issue, which we return to below, is the robustness and longevity of the step-up in the profit share. Is this 1.6% of GDP boost likely to be sustained in the years ahead—or will labor eventually re-assert itself?

The left panel of Figure 4 shows the actual and fitted values from the regression. In general, the fit of the regression is strong—it broadly tracks the profit share over the 70-year period. As shown in the right panel, profits drifted somewhat below the model’s predictions in the years before the pandemic. However, during the second half of last year, substantial fiscal stimulus, falling interest rates, and the snapback in economic activity drove profits back up, leaving them at levels roughly consistent with the model’s expectations.

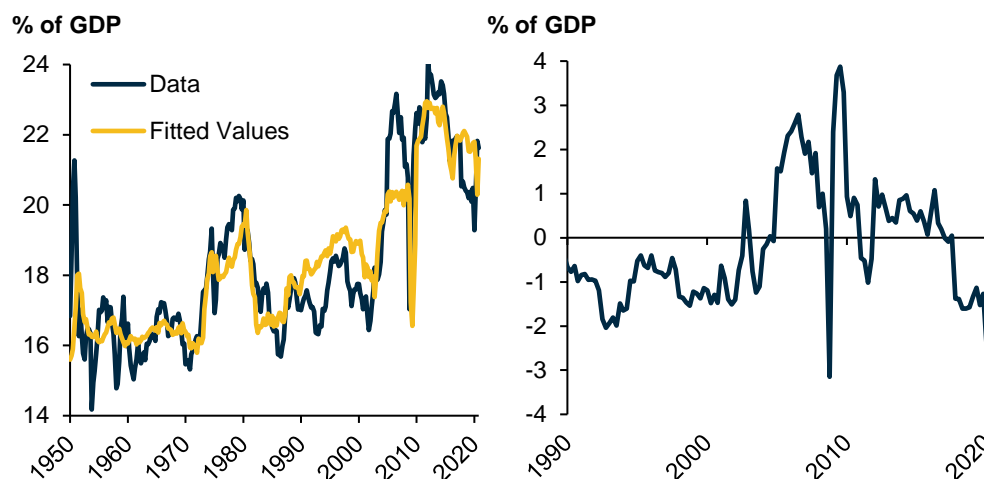
⁷ We use the Federal Reserve’s broad real exchange rate index. This measure captures the inflation-adjusted, trade-weighted value of the dollar against 26 major currencies.

⁸ Given the well-established correlations between trade and the dollar, the variable that enters the regression is the portion of the trade share that is uncorrelated with the dollar. We derive this as the error term of a preliminary regression of the trade share on the broad real exchange rate.

⁹ See for example, Elsby, Hobijn, and Sahin, “The Decline of the US Labor Share,” *Brookings*, 2013; Autor, Dorn, Katz, Patterson, and Reenen, “The Fall of the Labor Share and the Rise of Superstar Firms,” *Quarterly Journal of Economics*, 2020; and Autor, Dorn, Katz, Patterson, and Reenen, “Concentrating on the Fall of the Labor Share,” *American Economic Review*, 2017. Also see our paper, “[The Great ‘Hollowing Out’ of the U.S. Job Market](#),” June 2019.

During the second half of last year, substantial fiscal stimulus, falling interest rates, and the snapback in economic activity drove profits back up.

Figure 4: Corporate Profits and the Residual



Source: PGIM Fixed Income

As a final summary of the results, Figure 5 presents some rules of thumb. The first three columns briefly summarize the effect that a one standard deviation move in each variable would have on the profit share and the level of profits. With each variable, the profit share moves by 15 to 25 basis points and the level of profit by 0.7 to 1%. The similarity of these effects is striking and underscores the important role played by each of the variables.

Figure 5: Rules of Thumb for Corporate Profits

	Quantum (1 St. Dev. Move)	Impact on. . .		1995-2000 to Post GFC	
		Profit Share (% of GDP)	Level of Profit (% Change)	Change	Contribution (% of GDP)
Excess Bond Premium	25 bps	-0.23	-1.1	-3 bps	0.02
10-Year Real Yield	80 bps	-0.15	-0.8	-299 bps	0.57
Broad Real Dollar	2.0%	-0.17	-0.9	-1.7%	0.14
Trade Share	0.8%	0.14	0.7	4.0%	0.73

Source: PGIM Fixed Income

The last column asks how much of the step up in profit's share since the late 1990s can be explained by each variable. The rise in the trade share and the decline in the real 10-year yield have been strikingly large and together explain a 1.3 percent of GDP rise in profit's share. The net moves in the dollar and the bond premium have been much smaller and, as result, their contribution to the rise in profits has been correspondingly less important. Taken together, these results shed light on the strong level of profits recorded over the past decade. Of course, the statistically significant dummy variable highlights that other factors have likely been at work as well.

Finally, in the course of our research, we looked at a range of variables in addition to the four presented here. Two of these merit comment. The first is the statutory corporate tax rate. Although it was not as robust as the variables reported here, it did enter significantly in many regressions. The resulting coefficients suggested that a 7 percentage point hike in tax rates, such as the Biden Administration is proposing, would reduce the level of post-tax profits by

Our work suggested that a 7 percentage point hike in tax rates, such as the Biden Administration is proposing, would reduce the level of post-tax profits by roughly 7 percent, essentially one for one with the tax rate.

roughly 7 percent, essentially one for one with the tax rate. Further, we found evidence that higher tax rates also reduce pre-tax profits, albeit by less. This result hints that increased tax rates may generate incentives for tax avoidance and influence how profits are booked, particularly for large multinationals that can shift profits across tax jurisdictions.

The real oil price is a second variable that we put through the paces. Across a range of specifications, the sign of its coefficient varied—sometimes positive and sometimes negative. We interpret this as reflecting genuine variation in the net effects of changes in oil prices, both across sectors and over time. That said, somewhat to our surprise, the coefficient was more frequently positive (i.e., higher oil prices supported profits) than negative.¹⁰ This suggests that, in aggregate, the oil sector's rising profits may more than offset the losses of other firms when oil prices rise. Further, it's also material that the United States was only a limited oil importer in the first decades of our sample and recently has gained energy independence on the back of the shale revolution. In any event, we plan to explore this important issue more fully in future work.

A Short-Term Forecasting Framework

This section expands the discussion by developing a short-term forecasting framework. Our approach will allow us to simultaneously consider the cyclical adjustment of corporate profits along with the longer-term relationships developed in the previous section.

Without going into details on the econometrics, we regress the change in the profit share on variables capturing the economy's cyclical position, as well as the lagged error term from our long-term model above (Figure 3).¹¹ The coefficient on the lagged error term indicates how quickly profits move back to the long-term model's prediction. We consider the entire 70-year sample.

For simplicity, the model includes only two cyclical variables. This not only keeps it streamlined, but also allows it to be used more easily in forecasting the trajectory of profits. The first variable is real GDP growth, which accounts for overall economic conditions. As shown in Figure 6, the resulting coefficient is statistically significant and indicates that 1 percentage point of additional GDP growth causes the profit share to accelerate by just under 0.25 of a percentage point. With the share of profits bouncing between 16% and 22% through most of the sample period, this suggests a 1% to 1.5% increase in near-term profit growth for each point of additional GDP growth.

¹⁰ This result is consonant with the finding by some researchers of a positive correlation between stock prices and oil prices. See, for example, Ben Bernanke, "The Relationship between Stocks and Oil Prices," Brookings, February 2016.

¹¹ An early paper outlining such "Error Correction" models was Robert Engle and Clive Granger, "Cointegration and error correction: Representation, estimation, and testing," *Econometrica*, 1987. Details on this approach are now widely available on the internet and in time-series econometrics textbooks.

Figure 6: Change in Corporate Profit Share (% of GDP)

We find that 1 percentage point of additional GDP growth causes the profit share to accelerate by just under 0.25 of a percentage point—suggesting a 1 to 1.5% increase in near-term profit growth.

	1950Q1-2019Q4
Cyclical Variables:	
Change in Real GDP (Percent)	0.230 (6.6)
Change in Broad Real Dollar (Percent)	-0.044 (-2.7)
Error Term from Long-term Model (First Lag)	-0.080 (-2.9)
Observations	279
Adjusted R-Squared	0.167

Source: PGIM Fixed Income. Note: All regressions include an unreported constant; t-stats shown in parentheses.

The regression's second cyclical variable is the change in the exchange rate. As noted above, "translation effects" from unhedged foreign earnings may be an important driver of profits over short horizons. In addition, moves in the exchange rate are often a useful signal of the relative cyclical performance of the United States in the global business cycle.

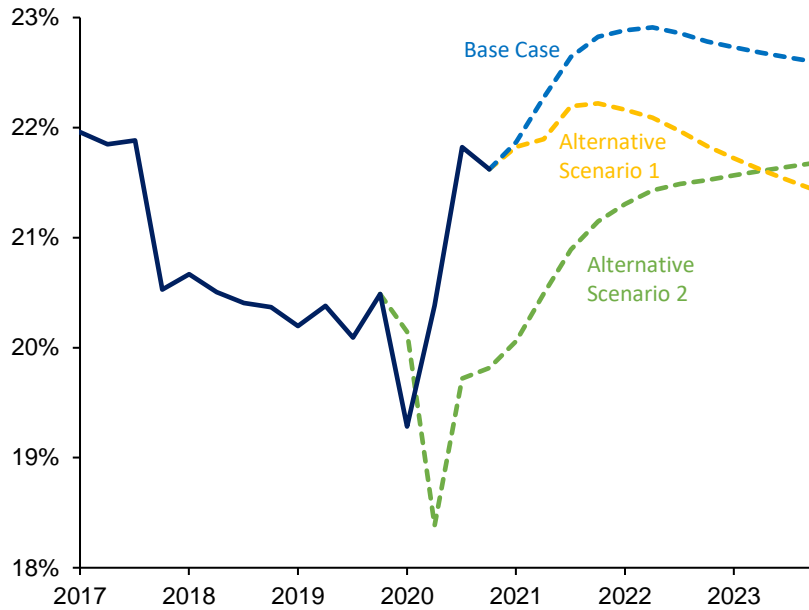
The coefficient on the dollar suggests that a 3% quarterly depreciation, which has happened in 10% of the quarters since 1950, will drive a near-term acceleration of 0.13 percentage point in the share of profits. Alternatively, we find that a 5% depreciation of the currency has roughly the same near-term, effect on profits as 1 percentage point of additional real GDP growth.

The third variable in the regression assesses the pace of adjustment back to the longer-term model. In other words, how quickly do shocks to the profit share dissipate? The estimated coefficient indicates that profits adjust back at a gradual rate of 8% a quarter, implying that it takes roughly eight quarters to close half the gap between the actual profit share and the prediction of the long-term model.

Figure 7 uses this framework to forecast the path of the profit share. Our projections assume that U.S. real GDP expands on a Q4/Q4 basis by 7.4% this year, 2.9% next year, and 2% in 2022.¹² This pace is broadly consistent with the trajectory of our own forecast, as well as many of the sell-side projections that we monitor. Along our baseline path, we hold the other variables constant at their Q1 2021 values.

¹² On an annual average basis this corresponds to 6.6% growth in 2021, 4.8% in 2022, and 2.1% in 2023.

Figure 7: Corporate Profits Share of GDP



One clear observation is that all three measures suggest that by the end of 2022, profits are likely to have bounced roughly 20% to 25% relative to their 2019 levels. And we see incremental further gains in 2023.

Forecasted Earnings (Index, 2019Q4=100)

	Base Case	Alternative Scenario 1	Alternative Scenario 2
2020	104.3	104.3	95.6*
2021	120.5	117.3	111.6
2022	126.1	120.8	119.1
2023	130.1	123.4	124.8

Source: PGIM Fixed Income. *Model projection jumping off in 2019Q4.

Beginning in Q4 2020, our base case path (the dashed blue line) shows the profit share rising to 23% over the next year—pushed up by rapid real GDP growth. The share then tails off slightly as growth slows and the projection drifts back down to the solution of the long-term model, which hovers around 22% of GDP.

To kick the tires, we also consider an alternative scenario (the yellow line) where the 10-year real rate and excess bond premium move up another 75 basis points, the dollar appreciates 5%, and a retrenchment in globalization pushes the trade share down by 3% of GDP. Restrained by these shocks, the profit share tops out at 22%, also supported by strong 2021 real GDP growth, and then retreats toward 21%, more than 1 percent of GDP weaker than the base case. If these shocks also resulted in weaker real GDP growth, the effects would be amplified.

A key question, however, is to what extent the snapback in profits that was recorded in the second half of last year proves sustainable. Thus, as an alternative, we allow our projections to jump off Q4 2019 profit levels (the dashed green line). From this starting point, our model expected a sharper drop-off in profits during the second quarter of last year and a more muted bounce back in the second half than actually occurred. From there, however, profits are seen to rise strongly by year-end, to above 21% of GDP, and somewhat further thereafter. This bounce is propelled by the surging economy as well as some upward pull from the long-term model.

As a final cut of the data, the bottom panel translates these projections into the implied *level of profits*. One clear observation is that all three measures suggest that by the end of 2022, profits are likely to have bounced roughly 20% to 25% relative to their 2019 levels. And we see incremental further gains in 2023.

As a bottom line, our work indicates that over the next few years the share of corporate profits is likely to remain elevated by historical standards, at somewhere between 20% and 23% of GDP. Moving much beyond that range would seem to require a sizable shock or deep structural changes in the economy.

Concluding Thoughts

The findings detailed above have a range of important implications. For the economy, our expectation that the share of profits will remain at historically elevated levels suggests continued strength and resilience in the corporate sector. Strong and profitable firms should be well-positioned to expand employment and investment, ultimately fueling economic growth.

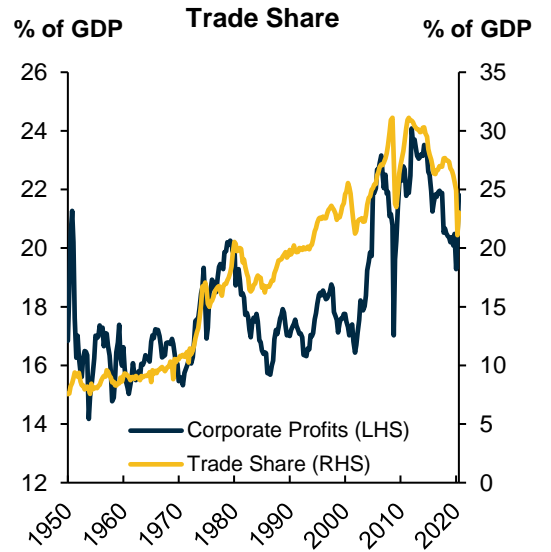
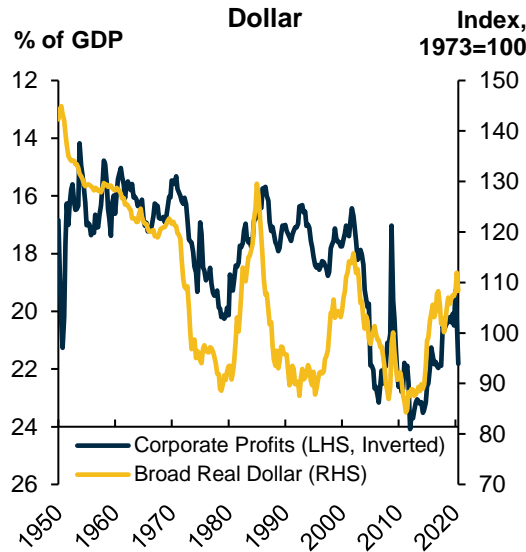
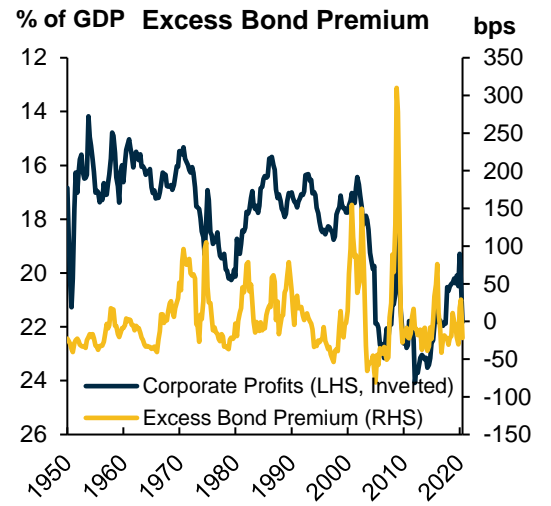
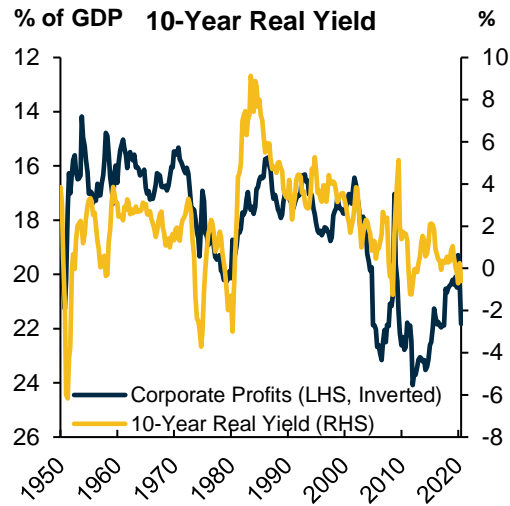
However, this favorable assessment requires two more-cautious caveats. First, many U.S. firms are exiting the pandemic with elevated debt levels and, as a result, will be focused on deleveraging and cleaning up their balance sheets in the years ahead. Second, the strong performance of profits in the aftermath of the global financial crisis failed to drive investment to the extent that was expected. Instead, a surprisingly large portion of these funds was used on share buybacks.

For investors, the continued solid performance of profits is likely to provide a favorable backdrop for a broad range of risk assets. Firms should be well-positioned to pay their bondholders, strengthen their balance sheets, and still provide good returns to their shareholders. Of course, particularly for equities, there are separate valuation-related issues that must also be considered. But a continued expansion of profits should, at a minimum, put such valuations on firmer footing than otherwise.

Perhaps the most nuanced implications of these findings are for policymakers. On the one hand, they should welcome a strong corporate sector and sunny financial markets. But on the other hand, to the extent that the continued strength of profits signals weakness in wages and further redistribution from labor toward capital, it becomes problematic.

For policymakers, this challenge suggests two types of potential solutions. The first is to endeavor to grow the economic pie more rapidly. The second is to find ways—through taxes and other policies—to reverse labor's losses. To varying degrees, the Biden Administration is pursuing both approaches, including through its recently announced infrastructure package. Even so, history teaches us that identifying the nature of such challenges is much easier than successfully blunting the deep economic forces that seem to be at work. As such, the challenges for policymakers are likely to be persistent, and any progress will most likely be incremental.

Appendix



Sources: Corporate Profits (BEA), Corporate Taxes (IRS), 10-Year Real Yield/Real Dollar/Debt to Equity (Federal Reserve), Real Oil Price (EIA). Note: 10-year real yield and real oil price deflated by 4-quarter CPI (BLS).

Notice: Important Information

Source(s) of data (unless otherwise noted): PGIM Fixed Income as of April 2021.

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