Capital Share Risk*

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Abstract

This paper surveys evidence on the evolution of the capital share — the portion of output accruing to firm owners as after-tax profits — and its contribution to asset prices, arguing that capital share risk is a dominant driver of equity values. Using aggregate data on the US corporate sector, we show that the capital share has more than doubled since the late 1980s, primarily driven by a falling labor share. These changes have passed through nearly one-for-one into higher corporate payouts, and help to explain the long-run divergence between growth in the value of the stock market and real economic activity. Our review summarizes existing research on the measurement and structural consequences of movements in the capital share, and outlines open questions about its empirical properties and endogenous links to macroeconomic variables. In sum, capital share risk is essential to understanding asset pricing dynamics in the modern economy.

1 Introduction

To explain the evolution of stock returns, financial economists have historically emphasized discount rate variation for higher frequency fluctuations, and economic growth over the long term. More recently, however, researchers have presented growing evidence that a different type of cash flow risk — affecting the division of output between factors of production rather than its level — may be as or more important compared to these alternative forces in driving the value of the stock market at longer horizons, particularly during the long period of rapidly rising equity values since the late 1980s.

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To fix ideas, consider a firm that produces output (i.e., value added), then divides it between after-tax profits and other factors of production. Since equity is a claim on these after-tax profits, the value of equity could increase for three reasons: (i) the output produced by the firm could increase, holding its division fixed; (ii) the profit share could increase, holding output fixed; or (iii) there could be changes to discount rates or risk premia holding the cash flows fixed. In this paper, we define this second channel as *capital share risk*, and argue for its primary importance in driving equity values over time. We will similarly refer to the ratio of after-tax profits to net value added as the *capital share* or *profit share*.

For a motivating example, Panel (a) of Table 1 follows Greenwald, Lettau and Ludvigson (2025), hereafter "GLL," in displaying average growth rates for the real value of total market capitalization of equity ("Market Cap"), net value added ("NVA"), and after-tax profit for the US corporate sector from the National Income and Product Accounts and the Financial Accounts of the United States (see Section 2.1 for details). We observe that during the 1952 - 1989 subsample, real market capitalization and net value added grew by nearly identical 4.4 % and 4.5 % annual rates, respectively. Over the 1989 - 2025 subsample, however, the real value of corporate equity grew at a much faster 7.1 % annual rate, even though growth in real corporate net value added was a much *slower* 2.6 % per year.

This seeming puzzle can be resolved by understanding movements in the capital share. Because the share of net value added accruing to after-tax profits was flat or slightly decreasing, real corporate profits grew at a 4.1 % annual rate over this period, just below the overall growth in net value added. In contrast, during the 1989 - 2025 subsample, the share of output accruing to profits rose so much that real profits grew at a 5.0 % annual rate, nearly twice the rate of growth in real corporate output, and outpacing the growth in profits over the 1952 - 1989 subperiod of strong economic growth. This example suggests that changes in the capital share can be so large as to overwhelm trends in overall productivity, and can act as a dominant force in driving cash flows and equity values over long horizons.

In this paper, we attempt to improve understanding of the role of capital share risk in three steps. First, we present a set of descriptive facts on the empirical properties of the profit share. Using aggregate data for the US corporate sector, we show that the capital share (ratio of after-tax profits to NVA) has increased massively since the late 1980s, more than doubling over this period. Using a simple accounting decomposition, we show that this rise is largely associated with a substantial decline in the ratio of labor compensation to NVA, and to a lesser degree with a decline in net interest payments and an increase in foreign earnings. Importantly, this rise in the capital share appears to pass through essentially one-for-one into net dividends, generating a large proportional

increase in corporate payouts over time.

Turning to asset pricing data, we show that the rise in the profit share coincides with a contemporaneous rise in the ratio of the market value of corporate equity to NVA. Using a simple accounting decomposition, we show that most of this increase in valuations is explained by movements in the capital share, rather than changes in the ratio of equity prices to after-tax profits. Last, we study the risk properties of the profit share, showing that due to operating leverage effects, relatively small changes in the labor share can explain much higher volatility in the growth of after-tax profits and corporate payouts, with potentially important consequences for asset pricing.

Second, we provide a review of the existing literature on capital share risk. To provide further context for our empirical patterns, we review work on alternative measurements or decompositions of the capital share. We then provide an overview of research on the structural consequences of movements in the capital share, with a particular focus on asset prices.

Third, we suggest opportunities for additional research in this area. Among the many possible avenues for further research in this area, we highlight several promising paths. A first set of suggestions relate to fundamental questions about measurement and estimation, including improving estimates of the statistical properties of the capital share, measuring the degree of surplus splitting between workers and shareholders, and refining measures of foreign profits and the foreign capital share. A second set relate to exploring and expanding on endogenous links between the profit share and other financial and macroeconomic variables such as output growth, discount rates, and investment. For each, we attempt to motivate the topic, summarize research to date, and provide potential ideas for implementation.

In summary, we argue that capital share risk — movements in the share of output accruing to owners of firms as after-tax profits — is a central driver of asset prices, deserving similar attention to movements in discount rates and long-term economic growth, and hope to provide a useful set of ideas and facts to facilitate the next set of papers on this important topic.

Overview. The rest of the paper is organized as follows. Section 2 displays some basic properties of the capital share, and how it connects to alternative components of corporate output, as well as to equity payouts and valuations. Section 3 provides a review of the relevant literature. Section 4 discusses potential opportunities for future research. Section 5 concludes.

2 Empirical Facts

In this section we present a set of descriptive empirical facts about the evolution of the capital share and its components. We first describe our data sources and variable construction, then present time series patterns, and close with an analysis of the volatility of corporate profits and payouts.

2.1 Data Definitions

Following GLL, we define the capital share using data from the National Income and Product Accounts (NIPA) provided by the Bureau of Economic Analysis (BEA). We use NIPA Table 1.14, which decomposes the gross value added of domestic corporate business. This table first splits gross value added into net value added (NVA) and consumption of fixed capital. The table then splits NVA into (1) compensation of employees, (2) taxes on production and imports less subsidies, (3) net interest payments, (4) business current transfer payments, (5) taxes on corporate income, and (6) profits after tax. We define the domestic capital share as the ratio of profits after tax (item (6)) to NVA. In our analysis below, we will combine the two tax categories (2) and (5) to create a measure of total taxes, and ignore business current transfer payments, which are numerically small. Last, the NIPA table further decomposes profits after tax into net dividends and undistributed earnings, which we will further use in our analysis below.

In addition to profits on domestic activity, US corporations can also benefit from profits on foreign subsidiaries (Desai, Foley and Hines (2009)). To address this, we follow GLL in counting direct equity income from foreign subsidiaries as a component of total profits. A measure of profits from foreign investment can be computed in the NIPA data by subtracting our domestic after-tax profit measure above from the profits after-tax series in NIPA Table 1.12, which reflects total national income including income from foreign sources. However, the resulting series does not distinguish between profits on portfolio investment and direct investment in foreign subsidiaries. To address this, we Table 4.2 of the BEA's International Transactions Accounts ("US International Transactions in Primary Income on Direct Investment") provide a measure of direct equity income as "Income on equity" (row 2), but this series is only available from 1982 onward. To address this, we pursue a combined approach where we use the BEA direct equity income series when available, but replace it with a proxy computed, following GLL, as the fitted value of a regression of the BEA direct equity income measure on the NIPA total foreign profit measure.

We supplement these data with data on asset prices from the Financial Accounts of the United States (FAUS) provided by the Federal Reserve. Our main analysis uses two variables from the FAUS series (using their corresponding numeric codes) as follows:

the market value of corporate equity or "Market Cap" (LM103164105 + LM793164105 - LM554090005 - LM564090005), and corporate net equity issuance (FA103164103 + FA793164105). For both terms we sum over two series corresponding to the nonfinancial and financial sectors, respectively, while for the market capitalization term we follow GLL in also netting out the equity held in closed-end funds and ETFs to avoid double counting. For our study of Tobin's q, we additionally construct measures for the corporate nonfinancial sector of market enterprise value or "Market EV" (FL104190005 + LM103164105 + LM103192105 - FL104090005) and book enterprise value or "Book EV" (LM102010005), where Market EV is the sum of the market value of equities, liabilities, and foreign direct investment equity, net of financial assets.

Last, we supplement our asset pricing series with data from the Center for Research on Securities Prices (CRSP), from which we obtain the price and dividend on the value-weighted stock index.

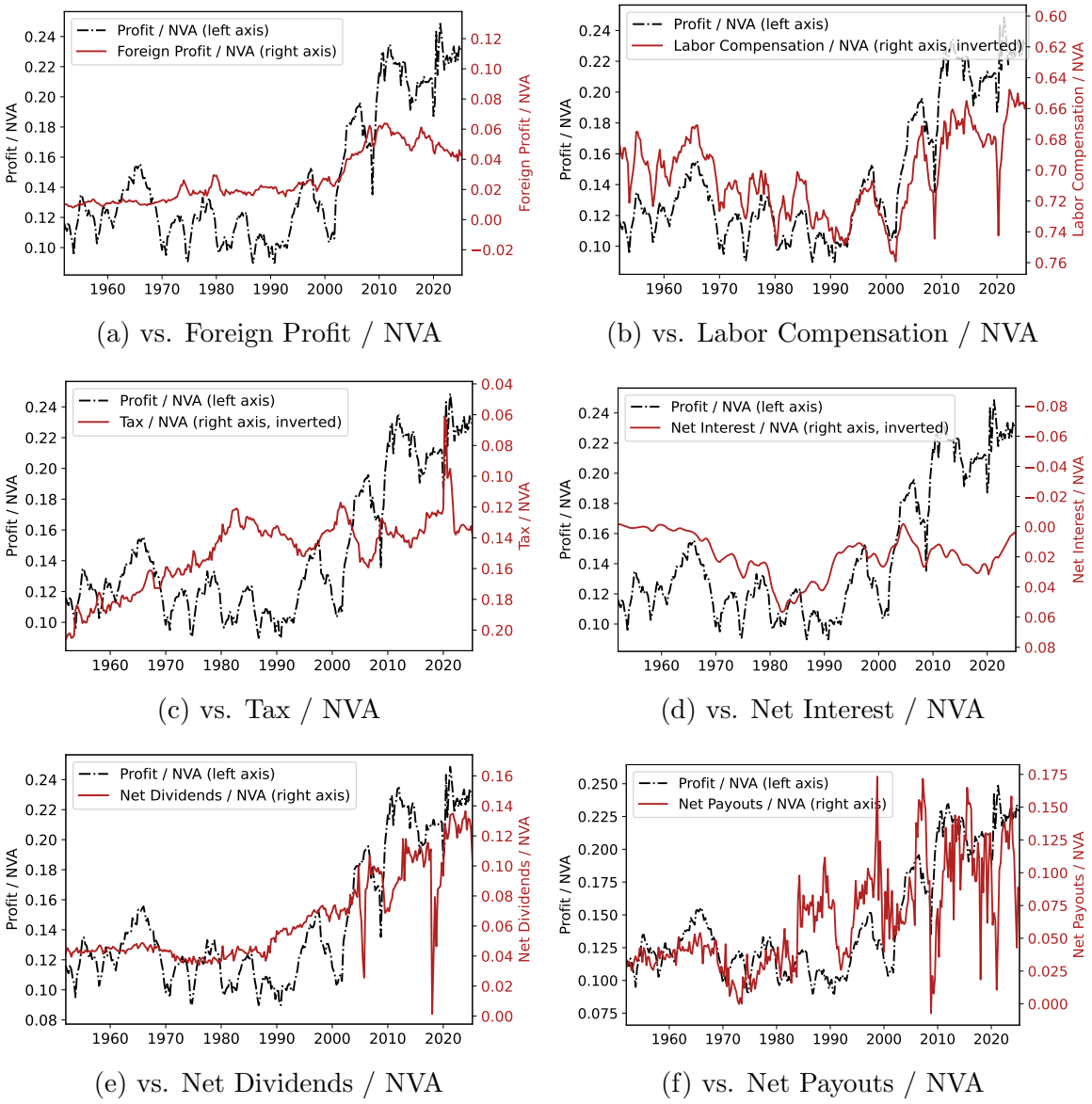
2.2 Time Series Patterns

Using these data, we now plot the profit share, and its comparison to alternative components of NVA in Figure 1. The figure is complemented by Panel (b) of Table 1, which shows the percentage point differences in each component over the full 1952:Q1 - 2025:Q2 sample, as well as over the two subsamples before and after 1989:Q1. Each panel plots the profit share (Profit / NVA) against one of its components, to show their relative contributions. We begin by noting several patterns in the evolution of the profit share itself, shown as the black dash-dot line in each panel. First, the after-tax profit share of NVA takes an average value of 14.6 %. This number is much lower than the typical estimate of the "capital share," which is traditionally measured as the complement to the labor compensation share, leading to a value closer to 30 %. Our much smaller share instead reflects netting out a substantial average share of NVA dedicated to taxes (14.9 %) and, to a lesser degree, net interest payments (1.9 %).

Turning to the dynamics, the path of the profit share depends strongly on the period. From the start of the sample until the late 1980s, the profit share is largely flat with little trend. From the late 1980s onward, however, the profit share exhibits a rapid and steady rise, more than doubling from 10.0 % in 1989:Q1 to end the sample in 2025:Q2 at 22.9 %. Table 1 shows that the profit share exhibits a total increase over the sample of 11.3 %, of which more than 100 % occurs in the post-1989 subperiod.

Next, we can compare the evolution of the profit share to the shares attributable to the remaining components of net value added, shown in Panels (a) to (d) of Figure 1. For each figure, we adjust the mean of the second y-axis so that the sample means align visually, but leave the scales the same across both axes, so that changes in either series can be interpreted as having the same magnitude. We note that while this approach

Figure 1: Profit Share and its Components, 1952 - 2025



(a) vs. Foreign Profit / NVA

(b) vs. Labor Compensation / NVA

(c) vs. Tax / NVA

(d) vs. Net Interest / NVA

(e) vs. Net Dividends / NVA

(f) vs. Net Payouts / NVA

Notes: Black dash-dot lines display the profit share, defined as the ratio of profits after tax to net value added for the corporate sector (NVA). The red solid lines, corresponding to the right axis, are as follows: (a) the ratio of foreign profits to NVA, (b) the ratio of labor compensation to NVA, (c) the ratio of total taxes (production taxes + corporate taxes) to NVA, (d) the ratio of net interest payments to NVA, (e) the ratio of net dividends to NVA, and (f) the ratio of the total value of market equity to NVA. See Section 2.1 for data definitions. For Panels (b), (c), and (d), we invert the axes as a decrease in these variables corresponds to an increase in the profit share, all else equal. For all panels, the scales of the left and right axes are identical, although they may be shifted by a constant and/or inverted. The sample spans 1952:Q1 - 2025:Q2.

Table 1: Changes by Subperiod

Variable	(i) 1952 - 1989	(ii) 1989 - 2025	(iii) 1952 - 2025
Panel (a) Average Growth Rates			
Real Market Cap	4.4 %	7.1 %	5.7 %
Real NVA	4.5 %	2.6 %	3.6 %
Real Profit	4.1 %	5.0 %	4.6 %
Panel (b) Decomposition of NVA			
After-Tax Profit / NVA	−1.5 %	12.9 %	11.3 %
Foreign Earnings / NVA	1.1 %	2.3 %	3.4 %
Labor Compensation / NVA	4.6 %	−7.3 %	−2.7 %
Taxes / NVA	−6.6 %	−0.2 %	−6.8 %
Net Interest / NVA	4.2 %	−3.6 %	0.6 %
Net Dividends / NVA	1.0 %	5.3 %	6.3 %
Panel (c) Decomposition of Market Cap / NVA			
Log (Market Cap / NVA)	−0.063	1.535	1.471
Log (Profit / NVA)	−0.142	0.824	0.681
Log (Market Cap / Profit)	0.079	0.711	0.790

Notes: This table present various empirical moments over three sample periods: from 1952:Q1 to 1989:Q1 (first column), 1989:Q1 to 2025:Q2 (second column), or 1952:Q1 to 2025:Q2 (third column). Panel (a) displays the average annualized growth rate over each subsample. Panel (b) displays the percentage point difference in each variable in levels over each subsample. Panel (c) displays the changes in log points for each component over each subsample. Variables are defined as in Section 2.1 and the notes to Figure 1. The sample spans 1952:Q1 to 2025:Q2.

provides an effective accounting decomposition, it does not represent *causal* changes, as we do not know the ultimate impact if one of these shares had evolved differently but agents were allowed to react (see discussion in Section 4.2 below).

We begin with Panel (a), which compares the overall profit share to the component obtained from foreign subsidiaries. The figure shows that foreign earnings have increased throughout the sample relative to domestic NVA, with the increase accelerating between 2000 and 2010, ultimately explaining 30 % of the full sample increase in the profit share, and 18 % of the increase since 1989.

Next, Panel (b) displays the contribution of the domestic labor share to the profit share over time. Because an increase in the labor share corresponds to a decrease in the profit share, we invert the labor share series to more easily visualize the contribution to the profit share. However, we note that the scale of the series remains the same. Panel (b) shows that movements in the domestic labor share explain the majority of the high-frequency variation in the profit share. It also has explanatory power over longer

periods, explaining 24 % of the full sample rise, and explains the majority (57 %) of the vast increase in the profit share since 1989.

Third, Panel (c) displays the contribution of the tax share of NVA. As with the labor share, we invert the series but retain the scale, so that an increase in the red line in the graph explains (in an accounting sense) an increase in the profit share of the same magnitude. The figure shows that falling taxes as a share of NVA have also substantially increased the profit share over time. However, Table 1 shows that this effect is stronger in the first part of the sample, with a large decrease in taxes relative to NVA prior to 1989 (corresponding to an increase in the profit share), but little contribution over the 1989 - 2025 sample during which profits are rising rapidly.[1]

Fourth, Panel (d) shows the contribution of the net interest share of NVA. As with the previous two components, we invert the series but maintain the scale. The figure shows that the net interest share is mostly flat outside of a large increase in the early 1980s as interest rates rise toward their peak, and a subsequent decline as interest rates fall. As a result, the net interest share contributes negatively to profit share growth prior to 1989, and positively to profit share growth from the mid 1980s to mid 1990s, but has little effect over the full sample.

The last two panels of Figure 1 display comparisons to measures of financial payouts to investors. Panel (e) compares the profit share of NVA to the net dividend share of NVA, also obtained from NIPA. As before, the axes are shifted to overlay the series, but the scale is preserved. The figure shows that changes in the profit share of NVA pass through roughly 1-to-1 into changes in the net dividend share of NVA. However, because a substantial portion of after-tax profits are retained, the level of net dividends to NVA is lower. As a result, this leads to larger proportional changes in the ratio of net dividends to NVA for a given change in the profit share, which GLL denoted the *leverage effect*.

Last, Panel (f) compares the profit share of NVA to the net payout share of NVA, where net payouts are defined as net dividends minus net equity issuance. This measure adjusts net dividends by adding in stock repurchases, but subtracting equity issuances, to measure the total net flow from the corporate sector to equity investors. As can be seen, while the resulting series is much noisier, the basic finding from Panel (e) that changes in the profit share pass through effectively one-for-one into payouts is preserved.

2.3 Links to Asset Prices

Having documented the links between the after-tax profit share and the ratios of alternative components or cash flows to NVA, we now turn to the links between the capital share and asset prices, presented in Figure 2. To begin, Panel (a) overlays the profit

[1]The brief spike in the share of the tax share occurs in 2020:Q2 and has been attributed to the large government intervention to support U.S. small and medium sized businesses (Palazzo, 2023).

share against the ratio of the total value of corporate equity ("Market Cap") to NVA. The panel shows that these series exhibit a remarkable correlation, moving nearly in tandem throughout the sample, with two exceptions: the anomalous rise in market valuations during the dot-com boom, the period of relatively depressed asset prices following the 2008 financial crisis.

Unlike in Figure 1, these axes do not share the same scale, and are instead normalized. However, we can gain a natural sense of scale by applying the identity

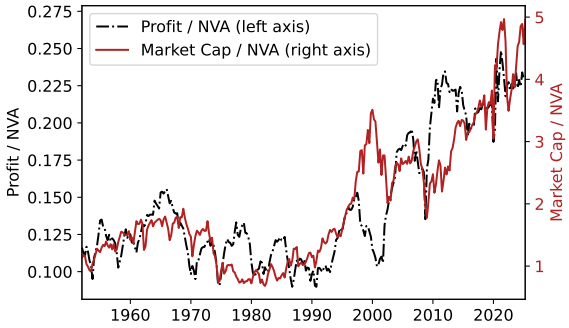
$$\log\left(\frac{\text{Market Cap}}{\text{NVA}}\right) = \log\left(\frac{\text{Market Cap}}{\text{Profit}}\right) + \log\left(\frac{\text{Profit}}{\text{NVA}}\right). \tag{1}$$

Equation (1) allows us to decompose, in an accounting sense, variation in the log ratio of equity values to corporate output into a log price-earnings multiple and the log profit share. The resulting split is displayed in Panel (c) of Figure 2, an updated version of Figure 1 in GLL, which contains all three of these series, normalized by subtracting a constant so that each equals zero in 1989:Q1. We observe that under this scaling, variation in the profit share explains slightly less of the overall movement in the ratio of market cap to NVA than in Panel (a) as the log P/E ratio plays a nontrivial role, particularly in explaining the drop in equity values between 1970 and 1980, and some of the rise from the late 1980s to the end of the sample. However, we observe that changes in the profit share still explain much of the movements in the market value of equity throughout the sample, and remain the dominant source of the rise in equity valuations since the 1980s.

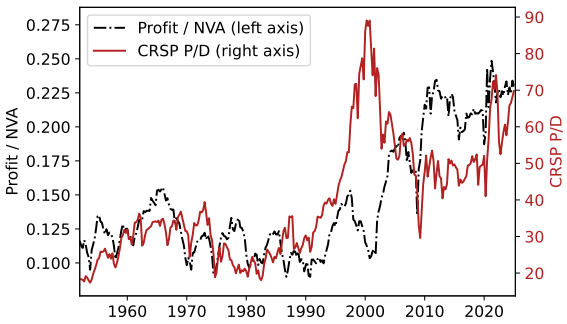
Next, while it is intuitive that increases in cash flows are generally associated with higher asset prices, the link between the profit share and the price-dividend ratio is less obvious. To this end, Panel (b) of Figure 2 compares the profit share to the CRSP price-dividend ratio. This figure shows that outside of the dot-com boom in the 1990s, these series are generally positively correlated. While not a causal relationship, this positive correlation has important implications. To see why, consider a simple model in which a fixed discount rate is used to price future cash flows. In this case, a permanent increase in the cash flow of 1 % will also increase the asset price by 1 %, leaving the price-dividend ratio unchanged. If the increase in the cash flow is less than permanent, a 1 % increase in the cash flow will lead the asset price to rise by less than 1 %, leading the price-dividend ratio to *fall*. Thus, a positive correlation between the price-dividend ratio and the profit share indicates that increases in cash flows may be either causing or associated with declines in discount rates or risk premia, a topic we return to in Section 4.5 below.

Last, we present descriptive empirical evidence on the links between the profit share and Tobin's q. The basic theory, set out in Tobin (1969), specifies that the marginal cost of investment should equal the marginal value of an extra installed unit of capital. Under some assumptions of homotheticity, this implies that investment should be proportional

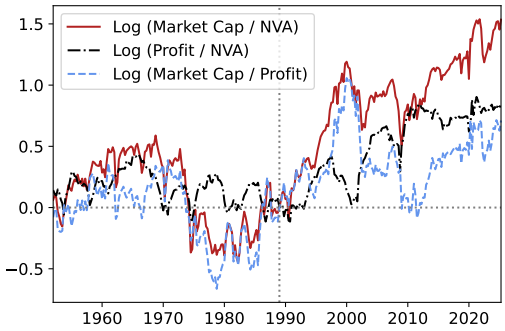
Figure 2: Profit Share vs. Asset Prices, 1952 - 2025



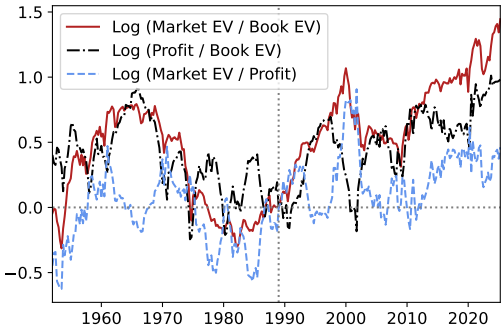
(a) Profit Share vs. Market Cap / NVA



(b) Profit Share vs. CRSP PD



(c) Log (Market Cap / NVA) Decomp.



(d) Log (Market EV / Book EV) Decomp.

Notes: Panels (a) and (b) compare the profit share to the value of market equity to net value added (Panel (a)) and the price-dividend ratio of the value-weighted CRSP stock index (Panel (b)), using different scales on the left and right axes. Panels (c) and (d) present the decompositions in equations (1) and (2), normalizing the value of each series by subtracting its value in 1989:Q1. See Section 2.1 for variable definitions The sample spans 1952:Q1 - 2025:Q2.

to the ratio of the market value of installed capital to its replacement cost, which is often denoted "Tobin's q." Interestingly, while this relationship is empirically strong for earlier subsamples of the data, Gutiérrez and Philippon (2017) show that it performs less well over the post-1980s sample over which the profit share is rising, with much less investment observed than would have been predicted.

To better understand the evolution of Tobin's q over time, we can perform a decomposition similar to (1) to again obtain an additive relationship in logs:

$$\log\left(\frac{\text{Market EV}}{\text{Book EV}}\right) = \log\left(\frac{\text{Market EV}}{\text{Profit}}\right) + \log\left(\frac{\text{Profit}}{\text{Book EV}}\right). \tag{2}$$

In the above, "EV" stands for "enterprise value," equal to the total market capitalization of equity in the corporate nonfinancial sector used earlier, plus the value of foreign direct

Table 2: Summary Statistics

Variable	(i) Mean (Levels)	(ii) Std (1Y Log Diff)	(iii) Std (5Y Log Diff)
1 - Labor Comp. / NVA	29.6 %	5.3 %	9.2 %
Net Op. Surplus / NVA	20.2 %	7.9 %	13.9 %
After-Tax Profit / NVA	14.6 %	10.7 %	20.1 %
Net Dividends / NVA	6.3 %	40.2 %	43.3 %

Notes: Column (i) displays the mean in levels, while columns (ii) and (iii) display the standard deviations of 1-year and 5-year log differences, respectively. Variables are defined as in Section 2.1 and the notes to Figure 1, with the exception of Net Op. Surplus, which is equal to NVA net of labor compensation and taxes on production in NIPA Table 11.4. The sample spans 1952:Q1 - 2025:Q2.

investments held and the liabilities owned by this sector, minus the financial assets owned by this sector (see Section 2.1 for a formal definition). By netting out financial assets and liabilities in this way, enterprise value is thought to better capture the total value of installed capital at the firm. In addition, we note that these measures are derived from the corporate nonfinancial sector rather than the total corporate sector (as used in our other results) to stay parallel to the literature, which emphasizes investments in physical capital that are more straightforward to map into the activities of the nonfinancial sector.

The resulting decomposition is displayed in Panel (d), which again normalizes each series by subtracting its value in 1989:Q1. The figure shows that outside of a large discrepancy during the dot-com boom, most of the lower-frequency movements in Tobin's q are associated with changes in the ratio of profits to book EV, rather than changes in the market EV to profit valuation multiple. Indeed, while a rise in this valuation ratio plays a nontrivial role, we see that the vast majority of the rise in Tobin's q since 1989 is due to an increase in profits relative to book value (similar to the accounting concept of "return on assets"). This evidence is therefore suggestive that the variation in the capital share we have documented is also central to the evolution of Tobin's q, which may be important in resolving the apparent breakdown of its traditional relationship with investment, a topic we return to in Section 4.6.

2.4 Risk Properties

While the previous section documented the realized changes in the after-tax profit share over the historical sample, and how those changes have covaried with other key variables, we now turn to the risk properties of the profit share itself. Table 2 displays summary statistics for a number of ratios representing a form of the capital share, profit share, or net dividend share of NVA. Column (i) displays the mean in levels, while columns (ii) and (iii) display the standard deviations of 1-year and 5-year log differences, respectively.

Beginning with column (i), we can compare the average levels of the various ratios. The top row displays the "non-labor share," equal to the complement of labor's share of net value added. This has an average share close to 30 %, as the complement of an average labor share close to 70 %. These gross shares are well known in the literature, and are commonly used as the weights in a Cobb-Douglas production function. However, as discussed above, this non-labor share is far from the final share of output received by owners of the firm.

The next row subtracts taxes on production from the non-labor share to obtain the ratio of domestic net operating surplus (i.e., gross profit) to NVA. We observe that this adjustment nontrivially lowers the average share to only 20 %. From here, subtracting taxes, interest payments, and business transfer payments, and adding in income from foreign subsidiaries yields the after-tax profit share (our preferred measure of the capital share) in the third row, which as can be seen is only half of the non-labor share. Last, removing retained earnings yields the net dividend share, displayed in the fourth row, which is less than half again of the after-tax profit share. Ultimately, only 6.3 % of net value added on average ends up being paid to shareholders as dividends.

To understand the volatility properties of these series, we can turn to Columns (ii) and (iii), which report the standard deviation of log growth in each variable at the 1-year and 5-year horizons. Both series show a general increase in volatility as we move down the rows. As mentioned above, these moments are consistent with the *leverage effect* described in GLL. According to this mechanism, changes in labor compensation are passed through roughly one-for-one into after-tax profits and ultimately net dividends. As a result, while the absolute changes in these variables are similar, the proportional changes in the smaller after-tax profit and net dividend shares are larger.

For instance, if we begin at average values for the labor share of 70.4 %, the after-tax profit share of 14.6 %, and the net dividend share at 6.3 %, then a 1pp increase in the labor share to 71.4 % increases the labor share proportionally by (0.714 / 0.704 - 1) = 1.4 %, while the non-labor share will change by (0.286 / 0.296 - 1) = -3.3 %. However, if this change passes through into a 1pp decrease in the after-tax profit share (to 13.6 %), then it will exhibit a proportional change of (0.136 / 0.146 - 1) = -6.8 %, while if the net dividend share also decreases by 1pp (to 5.3 %), then it will experience a proportional change of (0.053 / 0.063 - 1) = -15.9 %. Thus, we should expect that the volatility of after-tax profits should be roughly double that of the non-labor share, while the volatility of the net dividend share should be roughly five times as high. Table 2 shows that this pattern is largely reproduced in the data, where we observe that the volatility of the after-tax profit share is very close to twice that of the non-labor share at both the 1-year and 5-year horizons, while that of the net dividend share is close to five times larger at the 5-year horizon, and by an even greater multiple at the 1-year horizon, with this last

result likely reflecting large transitory swings in dividend payouts associated short-term financial conditions or choices about dividend timing.

These results demonstrate that, under a simple assumption that changes in labor compensation pass through roughly one-for-one into after-tax profits and net dividends, leverage effects can amplify small changes in the labor share into much larger proportional changes in profits and cash flows, potentially explaining the vast majority of volatility for these series. In contrast, the standard deviation of log real NVA growth is only 4.1 % for 1-year differences and 8.7 % for 5-year differences over our sample, showing a much smaller direct contribution of NVA to cash flow volatility. In addition, the correlation between log real NVA and the log capital share is only 0.382 at the 1-year horizon and -0.031 at the 5-year horizon. Thus, while many models explain movements in profits and cash flows as proportional to changes in output or consumption, these results show that most of the large additional variation in these series due to changes in the capital share are not directly explained by a correlation with output growth. These statistics are therefore supportive of time variation in the capital share playing a leading role in driving the volatility of corporate cash flows and payouts over time.

To close this discussion, we note that this parsimonious model of cash flows (as profits net of a constant) has an important implication for time variation in volatility. For instance, if profits and dividends both begin at 3 % below their mean, at 11.6 % and 3.3 % respectively, then a 1pp decrease in both variables will proportionally change the profit share by (0.106 / 0.116 - 1) = -8.6 % and the net dividend share by (0.023 / 0.033 - 1) = -30.3 %. These numbers are much larger than those obtained above, which started from the mean values for each variable, because the same absolute change maps into a larger proportional change when the initial values are smaller.

In GLL, we described this effect, through which the "leverage effect" described above becomes larger when the profit share is low, as the *leverage risk effect*. This effect implies that a low profit share not only reduces cash flows, but can also increase risk premia, due to an increase in the quantity of risk faced by investors. In GLL we found robust evidence for this channel, in the sense that an unrestricted model that in principle could allow any relationship between profit shares and risk premia nonetheless estimated a link with almost exactly the same strength as theoretically implied by the leverage risk effect. We return to discuss this effect further in Section 4.1 below.

3 Related Literature

Having presented basic facts on the evolution of the capital share, we now provide a broad overview on the existing literature studying the capital share and its implications for asset pricing.

3.1 Measurement of the Capital Share

We first review existing work on measurement of the capital share and other factor shares. To begin, a wide body of work has documented a broad-based decline in the labor share in recent decades. In influential works, Elsby, Hobijn and Şahin (2013) document a broad-based decline in the labor share in the US since the 1980s, aligning closely with our US measures in Panel (b) above, while Karabarbounis and Neiman (2014) provide similar evidence at the cross-country level.

In terms of the underlying causes, Autor, Dorn, Katz, Patterson and Van Reenen (2020) document that this decline is associated with a composition effect, whereby "superstar" firms with high markups and a low labor share have grown relative to other firms, rather than a decrease in the labor share within individual firms. Further evidence along these lines can be found in De Loecker, Eeckhout and Unger (2020), who also measure firm markups and provide additional evidence for their rise over time. Alternatively, Stansbury and Summers (2020) note that changes in labor market power that reduce workers' ability to bargain or extract surplus could even more directly transfer resources from workers to owners of capital. These authors use cross-country and cross-industry data to argue for the importance of institutional changes (e.g., weaker support for unions, a lower real minimum wage), and increasing pressure from shareholders to cut costs in explaining changes US labor market power over time.

At the same time, alternative research has shown that measuring capital's share of *total* income is a complex operation that hinges on a number of assumptions. Rognlie (2016) argues that much of the measured increase in the total capital share reflects changes in the imputed rents on housing, which may not reflect any change in the division of surplus between workers and owners of firms but rather an expression of scarcity in the housing stock. Elsby et al. (2013), Koh, Santaeulàlia-Llopis and Zheng (2020), and Atkeson (2020) similarly show that even basic facts such as whether the labor share of national income has had a downward trend depend on assumptions made about "ambiguous" income, such as the income of sole proprietors, that require assumptions to allocate or divide them between "labor" or "capital" income.

While this work is both interesting and insightful, and offers many potential paths for future study, we note here that our approach of focusing on the corporate sector can offer a simple and robust empirical setting that is much less dependent on these key assumptions, whose optimal treatment has not yet been resolved. Indeed, focusing on the corporate sector has the advantages of allowing internally consistent measures of many macroeconomic and financial quantities through the US Integrated Macroeconomic Accounts linking the NIPA and FAUS data, while excluding many ambiguous sources such as proprietor's income or rental income that have challenged computation of the capital share for the broader economy.

Next, although we focus in this paper on the total share of profits accruing to owners of the firm, which represents the basic cash flow obtained with a claim on equity, an important literature has attempted to further split the capital share into a portion reflecting the return on capital, and a "factorless" portion that is often attributed to intangible assets or market power. This conceptual decomposition has been emphasized more recently by Karabarbounis and Neiman (2019) and Barkai (2020), who find that factorless income has risen substantially since the early 1980s. Barkai (2020) estimates that the factorless or "pure profit" income has increased by nearly 15 % of value added since the early 1980s, an increase so large that *both* the labor share and the "pure" capital share have been falling since the 1980s.

Last, the empirical literature has also considered alternative decompositions to the one based on shares of corporate NVA performed in Table 1. In recent work, Smolyansky (2023) uses an accounting decomposition to argue that taxes and interest payments played a key role in the rise of earnings (net income) since the 1980s. This decomposition takes an additive form in logs

$$\log Earnings_t = \log EBIT_t + \log(1 - Interest_t/EBIT_t) + \log(1 - \tau_t) \tag{3}$$

where τ_t is the effective tax rate. Smolyansky (2023) estimates that the second and third terms in (3) explain 19 % and 22 % of the rise in log earnings over the 1989 - 2019 period.

These contributions for taxes and interest payments are larger than those observed in Table 1 because the counterfactual assumption is that taxes and net interest payments would have remained constant as a share of firm *profits* (EBIT or EBT) rather than as a share of NVA. Since, as documented above, profits rise sharply relative to NVA over the sample, this approach implies that taxes and interest would also have been increasing along the counterfactual path. As a result, the disparity between the counterfactual path and the true path, which over which taxes and interest have been flat or slightly decreasing relative to NVA since the 1980s, yields a larger explanatory share for these components. These differing results highlight that there are many potential ways to create a counterfactual for computing a decomposition, and the correct structural specification for this counterfactual is an important area for future research (see Section 4.2 below).

3.2 Consequences of Changes in the Capital Share

Having briefly summarized the empirical literature on this topic, we now turn to a complementary structural literature studying the primitive forces behind these movements and how they causally relate to other variables such as asset prices.

In our own work (GLL), we used a structural time series model to estimate the contributions of four fundamental factors (changes in the profit share, productivity growth,

risk-free rates, and risk tolerance) in driving the value of market equity over time. Using a tractable structural model, we estimated the contributions of these factors quarter-by-quarter, while also estimating both the fundamental parameters of the model (e.g., the persistence and volatility of each process) as well as the values taken by each latent state at each point in time. We found that shocks that increase the profit share holding the level of production fixed have been the largest driver of the rise in equity valuations since 1989, explaining 54 % of the rise in the ratio of market capitalization to NVA, and 40 % of the rise in the real per-capital value of market equity overall.[2] This overall finding stems from a number of sources, discussed a length in GLL, including (i) the large increase in the capital share documented above, (ii) the high estimated persistence of this share's low-frequency trend (discussed further in Section 4.1 below), and (iii) the leverage and leverage risk effects discussed above, which amplify the effects of changes in profits on firm cash flows and risk premia.

In highly related work, Corhay, Kung and Schmid (2020), Eggertsson, Robbins and Wold (2021), and Farhi and Gourio (2018) use structural macrofinancial models allowing for time variation in market power to study the impact of changes in the profit share on asset prices. While these papers obtain some results that differ from GLL due to their alternative methodology that compares steady states instead of estimating potentially nonpermanent changes in the time series, particularly on the relative roles of the risk-free rate and risk premia in driving asset prices, the findings of these papers generally align with GLL in concluding a key role for a rising profit share in explaining equity valuations.

Beyond this limited selection of papers is a large and fascinating body of additional research connecting the capital share, cash flows, and asset prices. While this broader set cannot be fully covered in a short review article such as this one, we direct readers interested in the study of capital share risk to contributions by Caballero, Farhi and Gourinchas (2017), Danthine and Donaldson (2002), Donangelo, Gourio, Kehrig and Palacios (2019), Eisfeldt and Papanikolaou (2013), Eisfeldt and Papanikolaou (2014), Favilukis and Lin (2016, 2013, 2015), Hall (2000), Lansing (2015), and Marfe (2017).

4 Directions for Future Research

Having discussed progress to date on measurement and analysis of changes in the capital share and their consequences, we close by identifying a number of areas of opportunity for ongoing research.

[2]These results are point estimates, obtained by averaging our results over many draws accounting for both parameter and latent state uncertainty.

4.1 Statistical Properties of the Capital Share

While in GLL we made great efforts to formally estimate the persistence and volatility of each of our fundamental factors, there are several important measurements of the statistical properties of the capital share that we feel could be improved.

To begin, a crucial but perhaps underappreciated property of changes in the capital share is their persistence. Because asset prices are forward looking, highly persistent shocks that affect future cash flows for a long time to come have a much larger impact on valuations than more transitory changes. We found in our own work in GLL that these persistence parameters are thus central to the effect of changes in various fundamental variables on asset prices, but challenging to measure. In particular, as the persistence of a stochastic process approaches unit root, small changes that are difficult to detect using sample autocorrelations or other standard econometric methods may still have a large effect on asset prices.

In GLL, we addressed this issue in two ways. First, we specified each fundamental driver to be a mixture of two stochastic processes, a high-frequency one, and a low-frequency one. This allowed the model to separately estimate the slower-moving trends that are most important for forward-looking asset prices from the more transitory movements that may drive more quarter-to-quarter variation but have a much smaller impact on valuations. Second, when possible, we brought in long-term surveys from the Survey of Professional Forecasters and forced the model to match their 10-year expectations for the average real interest rate and real growth rate of GDP. We found that this extra discipline was important, nontrivially increasing our estimates of the persistence of the low-frequency components of the interest rate and output growth processes.

Because the Survey of Professional Forecasters does not contain a long term real profit forecast, we did not use expectations data to discipline our capital share process. While we estimated the low-frequency component of this process to be quite persistent (around 0.99 quarterly), it is possible that this is actually an underestimate, and indeed our experiments using simulated data in Section 7.2 of GLL suggest that this may be the case. If so, it is possible that GLL actually understates the total contribution of the capital share to asset prices over the post-1989 sample. To address this, future work could attempt to obtain or construct alternative measure of long-run profit forecasts. Alternatively, specialized econometric methods for estimating the persistence of near-unit-root processes could be employed.

In addition, as described above, our model creates a theoretical prediction of the "leverage risk effect" whereby the volatility of firm cash flows and dividends should be higher when the profit share is lower. Attempting a formal econometric study of time-varying volatility in these cash flow series, and how they relate to the overall level of the profit share, would be another potential avenue for study.

4.2 Surplus Splitting

As discussed above, our data show a large decline in the ratio of taxes to NVA over the first portion of our sample, and a substantial decrease in the ratio of interest payments to NVA over the second half of our sample. Smolyansky (2023) shows that an even larger decrease is obtained when these ratios are taken relative to measures of earnings (such as EBIT or EBT) rather than relative to NVA.

In contrast, in GLL we performed an empirical decomposition that found a very limited role for taxes and interest payments in driving changes in the profit share. We obtained this result due to differing assumptions about *surplus splitting*. In particular, the accounting decompositions in Table 1 or Smolyansky (2023) implicitly assume that a $1 decrease in taxes corresponds to a $1 increase in after-tax profits. In contrast, we assumed in GLL that workers and shareholders divide the surplus in the firm, defined as NVA net of taxes and interest payments. Because labor compensation is much larger than after-tax profits, most of the tax and interest savings actually accrue to workers under this surplus splitting scheme, leading to a much smaller contribution of taxes and interest payments to the rise in earnings.

These questions of what taxes and interest payments might have looked like absent the changes that occurred in sample, and of how the gains from reduced taxes and interest payments are split between workers and owners of firms, are thus central to understanding how these components have affected the profit share over time. Thankfully, the existing literature provides some estimates of the long-run pass through of these changes to labor compensation. Arulampalam, Devereux and Maffini (2012) study this question using cross-sectional data from Europe and estimate that a long-run increase in taxes of $1 translates into a long-run decrease in wages of 49 cents. Fuest, Peichl and Siegloch (2018) perform a similar analysis using cross-municipality variation in Germany, and also find that roughly half of corporate tax changes ultimately pass through to wages. Last, Suárez Serrato and Zidar (2016) decomposes the incidence of a $1 increase in corporate taxes among firms, landowners, and workers, finding that 40 cents are borne by firms, while 30-35 cents are borne by workers, again consistent with a roughly even split. To summarize, the empirical literature to date appears most consistent with labor compensation absorbing approximately half of long-run changes in taxes.

These estimates imply that accounting decompositions that implicitly assume full pass-through will overstate the effects of changes in the tax share, while our assumption in GLL that surplus is split proportionally between workers and shareholders will likely understate the effects of the tax share. Performing a simple back-of-the-envelope calculation in which we assume that half of the change in Taxes / NVA is absorbed by an offsetting change in labor compensation in Table 1 would imply that the change in Taxes / NVA explains only 30 % of the rise in Profit / NVA over the full sample, rather than

the unadjusted 60 % in Table 1. At the same time, assuming that half of the 6.8pp fall in the tax share was absorbed by a 3.4pp increase in the labor share implies that separate shocks orthogonal to changes in taxes reduced the labor share by 2.7pp + 3.4pp = 6.1pp over the full sample, equal to 54 % of the contemporaneous rise in the profit share.

In summary, the current consensus in the empirical literature appears to be that roughly half of the change in taxes is absorbed in offsetting changes in labor compensation in the long run. If so, the influence of taxes may be smaller than it would appear from an accounting decomposition like that of Table 1, but potentially larger than the proportional surplus-splitting assumptions of GLL. Further research to confirm and refine these estimates, and to decompose the influence of fundamental components on the profit share and the value of market equity in a richer model of surplus splitting, remains a promising area for future research.

4.3 Foreign Earnings

Our empirical analysis above shows that the foreign share of earnings has risen in tandem with the domestic profit share over our sample, with Table 1 showing that the foreign earnings component has been important for the long-run rise of the profit share, explaining 30 % of its increase over the full 1952 - 2025 sample. At the same time, more research is needed to understand the sources of this rise in foreign earnings and to what degree is it linked to the contemporaneous rise in domestic profits.

To begin, it is not clear to what degree the increase in profits from foreign subsidiaries reflects an increase in the scale of foreign production, holding factor shares fixed, or an increase in the profit share of foreign production paralleling the one observed in domestic production. This question poses an empirical challenge as NIPA and BEA data do not include measures of net value added of foreign subsidiaries, creating opportunities for further study using alternative data sets.

In addition, there are further potential links between the domestic and foreign profit share driven by endogenous responses to tax treatment and other policies. Tørsløv, Wier and Zucman (2023) argue that 36 % of the profits of multinational firms are attributed to tax havens, while Guvenen, Karahan, Ozkan and Song (2021) provide direct evidence that US firms appear to reallocate profits toward their foreign subsidiaries to reduce their tax payments. If the incentives to rearrange the corporate structure (e.g., for tax purposes) has also grown as the profit share has increased, then the true increase in the domestic profit share may be even larger than implied by Table 1.

In summary, the increasing role of foreign earnings in driving the total corporate profit share can be influenced by the scale of foreign production, changes in the foreign profit share, and changes in corporate structures designed to obtain more favorable tax or policy treatments. Future work to more accurately measure the relative contributions of

these components, and to unwind the true measures of corporate value added and profit by country relative to the (possibly distorted) values reported for tax purposes seems like highly fertile ground for future study.

4.4 Links to Productivity

As highlighted above, Panel (a) of Table 1 shows that real profits grew more slowly than real NVA (4.1 % vs. 4.5 %) over the 1952 - 1989 subsample over which the real value of market equity grew at a tepid 4.4 % annual rate, but grew much more quickly than real NVA (5.0 % vs. 2.6 %) over the 1989 - 2025 subsample over which real equity values grew at a rapid 7.1 % annual rate. Our conclusion above is that changes in the capital share can be so large that they can push profits and NVA in opposite directions, potentially allowing equities to perform strongly in periods of weak economic growth.

An open question, however, is whether this pattern by which profit shares comoved negatively with productivity over these two subsamples was coincidental or causal. This could be the case if there exist economic mechanisms through which slower economic growth leads to higher growth of profit shares, or vice versa. Alternatively, an external factor could be at work that simultaneously explains both trends.

Existing research can already provide some insights into this question. For instance, the large literature on the rise in markups discussed above connects naturally to this issue, as increases in market power can lead to a contraction in aggregate supply as firms seek to reduce output to increase the equilibrium price. As an alternative, Grossman, Helpman, Oberfield and Sampson (2017) provide a theoretical mechanism through which declines in productivity growth also reduce the labor share by decreasing the incentives to invest in human capital. While progress has thus been made, a quantitative analysis of the share of the profit share explained by falling output growth, or vice versa, over the post-1989 sample remains a highly valuable contribution for future work.

4.5 Links to Discount Rates

An additional area of ongoing research involves links between the capital share and discount rates, and several theories posit structural connections between the two. For example, as discussed above, GLL posits a natural link between the capital share and risk premia via the leverage risk effect.

Alternative lines of research have considered whether shifts in resources can influence discount rates by changing the wealth weights of households with different preferences or savings behavior. This line of research implies that high wealth causes low interest rates, rather than the other way around. Toda and Walsh (2020) and Gomez (2024) consider models in which an increase in wealth inequality reduces risk premia, because the

wealthiest households have relatively low risk aversion. Similarly, Mian, Straub and Sufi (2021) provide a theory in which wealthy households have disproportionately high savings due to nonhomotheticities in utility, implying that shifting resources toward the wealth increases total savings demand and lowers the risk-free rate. Since equity holdings are dominated by the top of the wealth distribution, whereas the middle class is more heavily invested in housing (see e.g., Greenwald, Leombroni, Lustig and Van Nieuwerburgh (2023) for cross-sectional evidence), an increase in the capital share that boosts the value of public equity could activate either or both of these mechanisms.

4.6 Links to Investment

While we have mostly discussed the dynamics of firm profits, what ultimately matters for equity investors is firm dividends or free cash flows, which net out firm investment. As a result, firm payout risk depends both on capital share risk as well as on how investment reacts to changes in the capital share. For example, we assumed in GLL that investment was a constant share of GDP that did not react to changes in the profit share. This assumption creates a form of operating leverage. Specifically, since corporations retain roughly half their earnings on average, this implies that e.g., a 1pp change in the ratio of profits to NVA leads to a roughly 2pp change in the ratio of payouts to NVA. This mechanism also turned out to be relevant in that setting for risk premia, as dividends become more volatile the closer earnings get to this fixed level of investment via the "leverage risk effect".

Panel (e) effectively shows how the net dividend share would be approximated by subtracting a constant from the profit share in this way, showing that it delivers a close fit at low frequencies. GLL show in Figure E.2 of the Internet Appendix that approximating net dividends, which are smoother than firm free cash flows, using only the low-frequency component of the profit share delivers an even better fit. Last, GLL show that while firms frequently use stock repurchases, these roughly balance against equity issuance over time, meaning that net dividends are a good approximation for low-frequency trends in total corporate payout, which can be roughly visualized by comparing Panels (e) and (f) of Figure 1 above. In summary, modeling the ratio of net corporate payouts to NVA as the profit share net of a constant retained earnings share of roughly 6 % provides a good fit of the data.

While this parsimonious assumption of investment as a constant share of NVA works surprisingly well at low frequencies, there is clearly more work to be done to study how firm investment responds to changes in the capital share, and the resulting implications for corporate dividend and payout risk. Further, as discussed above, changes in the capital share appear to be the main driver of the large increase in Tobin's q since the late 1980s. As shown by Gutiérrez and Philippon (2017) and others, this large rise in q

has not led to a proportionate increase in investment, posing a potential puzzle for the literature. While theories have been proposed to explain this — Gutiérrez and Philippon (2017) themselves prefer a mechanism based on reduced competition — this remains an active area of research. As such, we believe that the drivers of joint movements in the capital share and investment pose highly fruitful ground for future research.

5 Conclusion

In this paper, we have attempted to (i) summarize key facts about the capital share and its evolution, (ii) describe the literature to date on these movements, as well as their causes and consequences, and (iii) provide new paths forward for future research. Our main message is simple: movements in the capital share are central to understanding changes in equity valuations, particularly during the post-1989 sample over which equities have been booming. We hope that this analysis can inform and inspire future researchers to continue the study and exploration of this important topic.

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