

Shaping macroeconomics in times of global transformation – 30 years of FMM

October 2026, Berlin

Jan Prieue

HTW Berlin – University of Applied Sciences

Professor of economics, em.

Do stock markets accelerate or retard growth? The U.S. case

DRAFT

This draft omits the comparison with Germany. It will be included in the final full paper.

Do stock markets accelerate or retard growth? The case of U.S.

The predominant view in macroeconomics and financial economics holds that, by and large, stock markets enhance economic growth. Others counter that this is not always the case, or may even be a negligible factor for growth, and fear the risks of crash and financial crises. However, there are only few analyses of the functioning of stock market in greater details. Many, though not all econometric analyses of the relationship of stock markets and growth in the last two or three decades confirm a positive link, based on single country time series or cross-country studies in the medium or long term, often as panel studies. Perhaps a representative recent econometric study by the Federation of Stock Exchanges (Demir 2025) concluded that there is a bi-directional causality between the growth rate of stock market capitalisation and GDP growth in the short- and medium-run, similarly the Global Wealth Report 2025 by Allianz.

The debate is embedded in long-standing discussions on a) whether finance and financial markets are neutral or negligible for economic growth, b) whether bank-based financial market systems or capital market-based systems are better for growth and c) whether other factors regarding the structure and the specific institutions are more important. Furthermore, there seems to be a consensus that financial systems can be under- or oversized or tilted too much in one direction, which can have macro downsides. Debates d) in the post-Keynesian camp of economists have contributed to critical views on the relationship, following the tradition of Keynes, Kindleberger and Minsky, and proposed the term “financialisation” as a tendency toward stronger influence of unregulated financial markets with negative effects on distribution and growth. Regarding the issue a), there is broad-based consensus that finance does influence growth, mostly in growth enhancing direction. Regarding b), the consensus view is that a combination of banks and capital markets is necessary, leaving many issues open; by and large, capital markets should have a stronger role than in the past the higher the income level per capita is, while traditional bank-based systems such as in Europe, especially in Germany and formerly in Japan were considered somewhat old-fashioned compared more liberal or neo-liberal combinations in the U.S. with a predominant huge stock market. Due to financial globalisation among OECD countries and many others, the U.S. system with a predominant stock market spills over to Europe and leads to competition of different financial systems.

In this essay I intend to look deeper into the U.S. financial system, with a special focus on the stock market, and its macroeconomic performance. First, I discuss the general criteria for the merits of a financial system, regardless what structure it has, as proposed by Levine (2004). Next, I present my idea on what determines stock prices in contrast to the NPV-approach. Third, I look at how the stock market impacts aggregate demand and how this can affect GDP growth negatively.

1. Growth enhancing criteria for financial systems – mainstream and critique

Levine (2004) and many others focus – and also limit – the role of financial systems on optimal intermediation of saving and investment so that the following six tasks can best be accomplished:

Information: financial systems should collect information on supply and demand for finance, hence improve the allocation of funds; this helps to lower information asymmetries

Liquidity: providing liquid assets to savers and wealth owners can mobilise savings and guide them in optimal direction, and supports easy access to finance by investors; moreover, the latter benefit from the combination of long-term fixed capital and holding liquid assets. Liquidity can thus improve allocation.

Control: the management of firms needs to be supervised in order to use good allocation for efficiency and growth

Risks: financial markets should diversify risks and enable investors to take more risk for innovations, but keep risks manageable

Mobilise savings: financial markets or banks should mobilise savings at large scale

Transactions: transaction costs should be minimised so that the costs of finance are reduced

Even though the criteria should apply to bank-based and capital-market-based financial systems, it seems that they implicitly involve a bias for capital markets which are more flexible and much more competitive than bank-based systems. The interaction of savers, rentiers and corporations is more direct than via - normally large - banks or similar institutions.

Amazingly, the proponents using these criteria disregard other potential objectives of financial systems.

- Aggregate demand: Financial systems should also promote aggregate demand (AD), particularly, fixed investment, and innovations. Even if AD is seen through the supply-side lens only as relevant for the short-term under the premise that the short-term is irrelevant for the long-term, then one must pay heed that stock markets do not drain AD, especially in the long-run. The growth of the production potential is not neutral relative to AD.

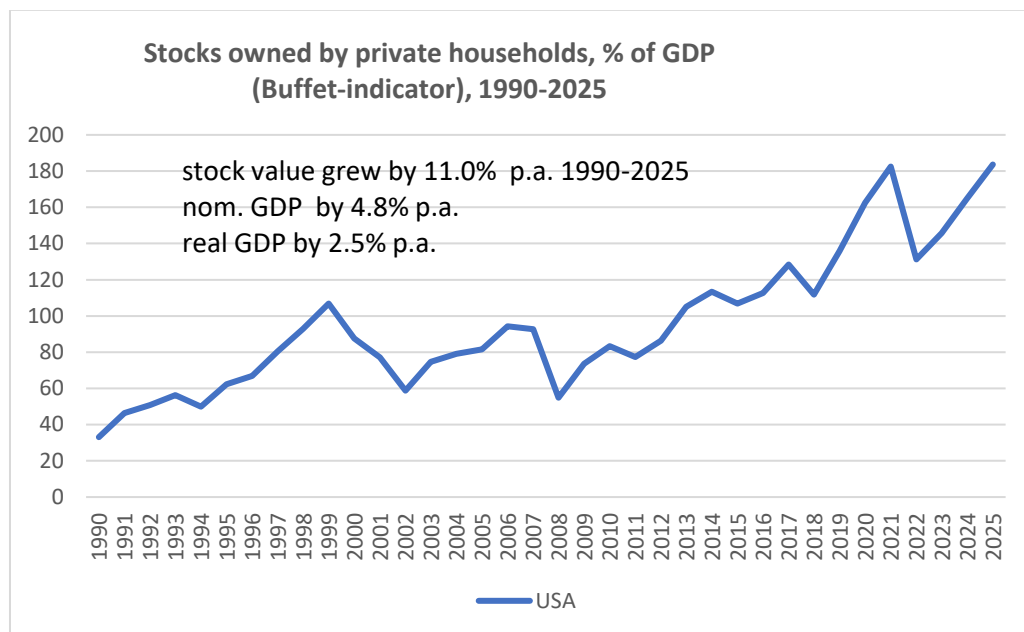
- Financial inclusion: The last criterion that should be applied to compare financial systems is how they impact income and wealth distribution. If stock markets, banks or other institutions/markets would only make the rich richer, they would exclude the low- and middle-income groups.

2. How stock markets work: the U.S. financial system

The U.S. has the biggest stock market on the planet, roughly 50% of global stocks counted in terms of market capitalisation. Financial wealth of U.S. households comprises many assets,

but with a share of almost 50% it is focused on stocks, much more than real estate. Almost 90% of stocks held by private households is owned by the 10th decile of the income distribution. Stock prices as well as market capitalisation grew on average since 1990 by more than 9% p.a.; the market value of stocks owned by private households, as a share GDP – also called the Buffet indicator – grew from 1990 until 2025 from 33% to 184% of GDP. Dividends in nominal terms grew slightly faster than nominal GDP (4.8% p.a.), at the level of 2.5- 3.0% of GDP. The main annual benefits for shareholders are capital gains, in 2025 ca \$ 5.5 trillion, compared to \$0.9 trillion in dividends. These growth rates and the volume of benefits are much higher than in Germany, but GDP growth and fixed investment as a share of GDP is very similar. It seems that the giant stock U.S. market has not contributed to the growth of the capital stock.

Chart 1



WFE

Fixed investment via retained earnings, not stocks

Stocks in the U.S. are seldom used for fixed capital formation. The supply of shares is almost constant. Initial public offerings (IPO) are marginal, as are additional public offerings of incumbent listed corporations. Entry barriers for domestic newcomers are high, also for foreign companies, since there is a widespread home-bias. High stock prices deter domestic newcomers. Paying managers with stock options increases the number of shares when the options are used. To control the scarcity of the supply of stocks, firms buy stocks and take them out of the market, thus increasing the market price of stocks, often more appreciated than dividends by the shareholders, also because the latter are taxed. Share buybacks have crowded out dividends to a high degree in recent years. They absorb and reduce retained earnings if there is an abundance of cash. Especially the US-stock market is concentrated on giant monopolistic or oligopolistic companies and global outreach, listed in S&P 500 which

accounts for roughly 80% of listed stock companies in the U.S. They employ about 18% of domestic employees and produce around a quarter of GDP.

In a capital market based financial system like in the U.S., a larger amount of equity can be expected than in primarily bank-based systems. Independence from banks saves interest payments, replaced by dividends and buybacks for the shareholders, besides rising stock prices and market capitalisation. This way, the higher amount of retained earnings allows not only higher salaries for the top management, but also higher returns on equity (RoE) and price earnings ratios than for instance in Germany. Retained earnings (after tax and dividends/share buybacks) are mainly used for fixed investments whose share in GDP is however not higher than in Germany.

With an inelastic supply of stocks, share prices depend almost solely on demand. Demand is a function of many variables, most important besides dividends is the expected capital gain relative to other assets. The expected net present value of future profits may play a role, also capital-earnings-ratios of different kinds. The thresholds considered as tolerable such as the Buffet indicator or the CAPE-Indicator may give an orientation, but are regularly trespassed, even more with the emergence of share buybacks. A certain degree of “irrational exuberance” seems to be normal. The growth rate of market capitalisation including dividends are above 10% annually as a long-term average. The PE-ratio for 2025 was on a record high with 28.2.

3. Consumption out of capital gains and dividends?

Increases in the market value of stocks are not value-added in the System of National Accounts, in contrast to dividends which are profit income. Value-added is the result or production. Capital gains are not profits even though similar to “virtual profits”, hence they do not impact GDP. They are not even finance, although very valuable. Unrealised capital gains as well as realised capital gains do not enter GDP. Realised capital gains are booked in the SNA in an “accumulation account” and then the sub-account called “revaluation account”. If the revenue of a sold share is used for purchasing goods, the value-added incorporated in the good is of course included in GDP. Double counting is impossible. The tax system does not care for the value-added, it considers the revenue of realised stock sales as taxable income. The tax revenues are income of the government. Income from pension funds such as 401k or similar, which often are based to a certain extent on stocks, do count as income, disregarding its source.

If capital gains are realised, i.e. shares are sold and purchased by either an incumbent share holder or a new shareholder, they reduce the disposable income or the wealth of the purchaser. The net effect for the seller and the purchaser on national income may be zero, positive or negative depending on the marginal propensities to consume. Similarly, if households save to some extent by buying stocks continuously, for instance via a capital-

based pension system, it reduces national income, apart from dividends, which can be to some extent be offset by the simultaneous payout of pensions to retirees. The net effect may be zero, or positive or negative dependent on the balance of paying-ins and payouts in the same period. The Mackenroth-Law applies also in capital-funded pension systems.

Could perhaps capital-funded pension systems contribute to aggregate consumption? At first glance it seems, especially in the U.S., that employees, also wealthy persons save over a long period with pension schemes such as 401k system or similar schemes for the old age. Since almost 90% of shares in the U.S. are held by households in the 10th decile, this group may have other options if they become retirees. In employer-run pension schemes with contributions of mainly employees and additionally employers, the share of stock is around 10-12%, mixed with many other assets. But the point is that long-standing paying in of contributions of the size of 8-10% plus more from employers reduces aggregate demand permanently, offset by payouts to retirees in the same period. Realised capital gains within pension schemes are not taxed. So, the balance of pay-ins and payouts is unlikely to increase consumption.

3.1 The case of extreme saving – the buy and hold strategy

Let us assume the *extreme case* that capital gains are high and always re-invested, as well as dividends. It is irrelevant whether reinvesting occurs in the same firm or in others. Only the ownership of stocks would change. In this case the growth of marketisation is maximised. It would be perfect maximisation of shareholder-value. The wealth of stocks would be transferred to the next generation and so on. The effect on GDP growth would be negative since the dividends are they paying-ins, which transforms them from value-added profits in virtual finance stocks. Saving of capital gains by just holding the same or other stocks is like reinvesting, even more if dividends are reinvested. This leads to exponential growth of stock wealth with the same effects as with compound interest. Since the growth rate of capital gains, i.e. of market capitalisation, is much above nominal growth of GDP and much above the inflation rate, the Buffet indicator (market capitalisation as % of GDP) will be rising infinitely. Dividends, by contrast, rise more or less in lockstep with nominal GDP, but faster the more they are reinvested. S&P500 grew in terms of the stock price by 6.3% p.a. over 98 years (1928-2025), with dividends reinvested and compound effects by 10.1%. For the period 1990-2025, the stock price grew by 8.7% p.a., inflation adjusted 3.7 pp faster than real GDP, and with reinvested dividends way faster. This implies that that the stock wealth rises in both cases much faster than GDP; the dynamics of stocks would be detached from GDP, and they had been detached since 1928.

If the extreme case a bit less extreme, such that dividends are not reinvested but used for consumption. However, dividends are taxed, hence little incentive for consumption for the shareholders in the 10th decile. Statisticians from the Federal Reserve found that the marginal propensity to consume as a response to unexpected windfall income could be

around 22%, independent from income group (Aladangady et al. 2026), most likely smaller in the top income deciles. Hence, the usage of dividends likely impact consumption, but the effect is small. Also the so-called wealth effects are likely small, reflecting psychological inclinations to consume more triggered by higher stock (or other) wealth on their account. For financial wealth it was found that a one-dollar increase could stimulate 3 cents additional consumption, much less compared to housing wealth. It is unclear whether this can compensate a slightly falling propensity to consume with higher incomes in the top 10% of households. Also, it is uncertain whether the wealth effect works continuously, year after year. Furthermore, the life cycle theory of consumption may no longer be realistic with rising wealth in the upper deciles of income and wealth.

3.2 The case of strong realisation of capital gains – buy, hold, sell

Now we assume that not only dividends are not reinvested, but also large parts of capital gains are realised, i.e. shareholders sell considerable parts of stocks to other shareholders or to newcomers. If a certain unknown threshold is surpassed, stock prices might slow and eventually fall or even plummet. There is no stop line. Corporations might offer higher dividends or use share buybacks, in both cases reducing their retained earnings. The corporations could also use margin lending of brokers or asset-based borrowing from banks for stabilising stock prices. If this is successful, those former shareholders who have sold their shares use the liquidity for more consumption which would at least temporarily stabilise growth. They might also switch other asset classes, like real estate or bonds. However, this is unlikely because the households of the 10th decile have already a high level of consumption and will likely not indulge collectively in a consumer boom.

So far we have seen, that stock markets have hardly any impact on fixed investment, and also little impact on consumption, with the exception of consumption out of dividends, but the impact remains uncertain. The most likely tendency is that stocks are held by their owners in a buy-and-hold strategy, with a very high growth rate of capital gains. The shareholders pursue indeed shareholder value maximisation. There is likely no other large asset class that offers higher revenues of roundabout 10% on average if dividends are reinvested. If the life-cycle-theory fades, they will pass on their wealth to the next generation. Why do these wealthy shareholders in the 10th decile want always more of the same, of something that they neither need nor can use? For Adam Smith interpreted this as self-love and selfishness, Karl Marx as a fetish, Keynes saw “money making passion” which would fade away in the long run, similar to John Stuart Mill, others see a disease called greed addiction. Veblen coined it conspicuous consumption.

Levine and others believe that the alleged positive effect of the stock market on economic growth is rooted in efficiency gains, due to a high turnover rate, competition among shareholders, allocation towards the best performers which spurs their above average growth. Fears of unfriendly takeovers can pressure restructuring. This may indeed abet

structural change among the 500 companies in the S&P500 group, but without fixed investment innovation is retarded or comes through other channels. Allocational advantages can be neutralised or turned into disadvantages, if an increasing concentration of stocks occurs on frontrunners which mutate into monopolies or oligopolies. They can be flooded with demand from shareholders for their shares and with exploding retained profits, while other corporations get too little attention. This can lead to large-scale unequal distribution of retained earnings among the corporations. Furthermore, short-termism may lead to intertemporal misallocation. The most important positive innovation enhancing effects comes from outside the joint stock companies, namely, the private equity companies and particularly venture capital, financed by wealthy persons, probably many from the top income floor, pension fund and sometimes also from retained profits of stock companies.

4. Growth retarding feed-backs

Does growth of stocks tend to retard the growth of GDP? So far, we found that in the US the impact of the stock market on fixed investment is low or even negligible. However, there is a positive, but small effect on consumption of households via dividends and tax revenues for the government. But the indirect effects of retained earnings are not yet analysed.

I see the most important negative macroeconomic effect of large stock markets like in the U.S. in two mechanisms by which the inequality in the financial wealth distribution, which is increased by stock markets, spills over to the inequality of incomes. First, the way stock-markets function allow higher profitability for corporations and for shareholders, which can spill over to other asset markets which compete with the stock market. The second mechanism leads to redistribution of national income because the profit share in national income rises while the labour share falls.

Equity wealth, mainly stocks, account for ca 30% of total household assets, other financial wealth around 40%, real estate 25%. The ratio of the worth of households to their disposable income reached by mid-2026 the record level of 8.28. The wealth in other asset classes rose in tandem with corporate stocks, but the composition is tilting somewhat to stocks. The asset classes compete with each other, although there is of course no uniform price earnings ratio. Especially private equity companies achieve often similarly high profit margins as corporations, sometimes more. The stock corporations are in a way the pacemaker. Even if their yield cannot be replicated, their share in the wealth portfolio might shrink if the hierarchy of profit margins remains steep. They are under pressure and may exert pressure on wages or rentals in the case of commercial real estate if there are no other ways.

Chart 2: Household balance sheet 2001-2026 2nd quarter

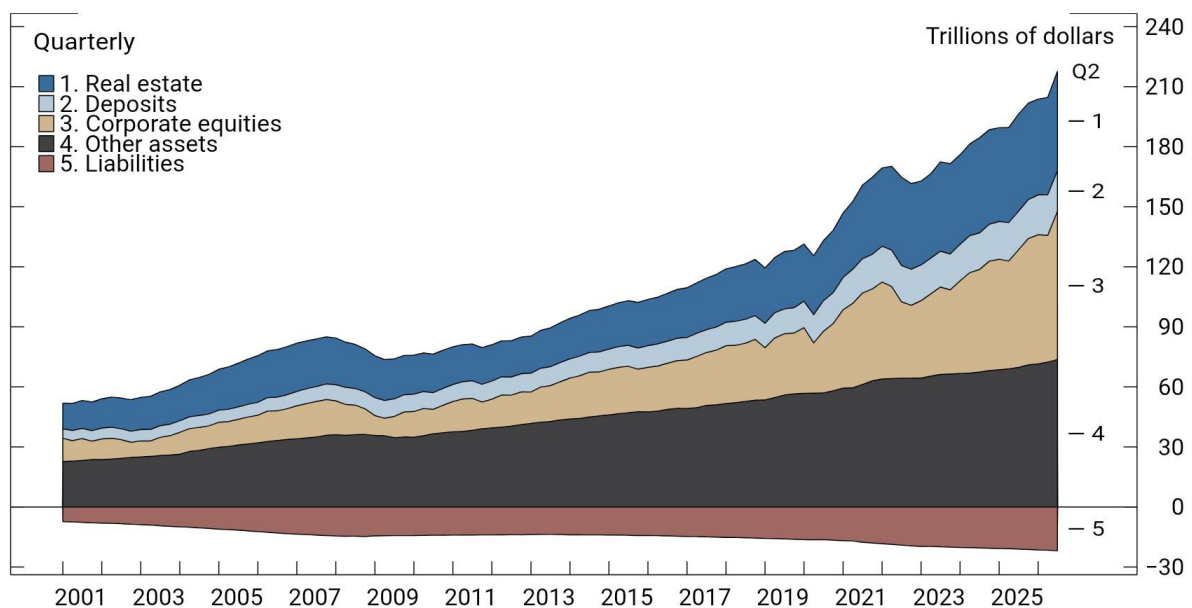
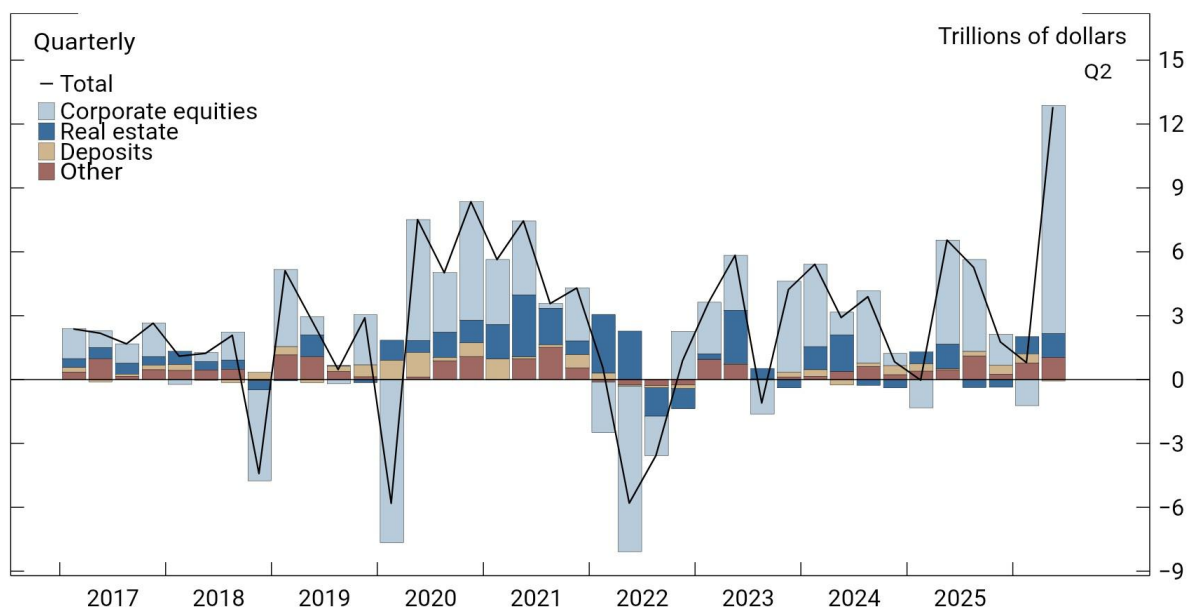


Chart 3: Changes in household net worth, quarterly data 2017-2026 2nd quarter



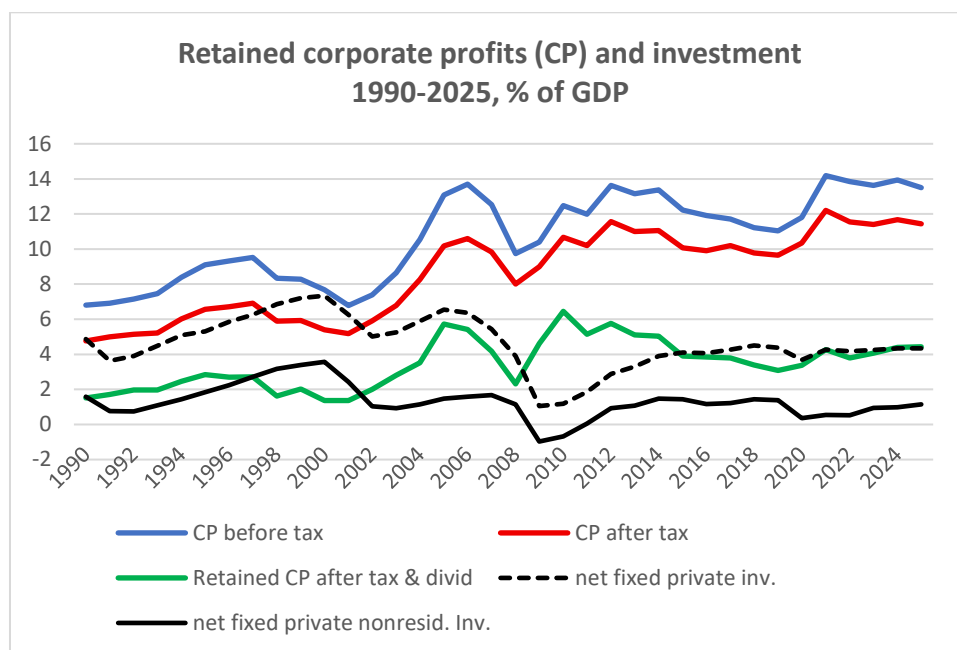
U.S. Federal Reserve 2026

https://www.federalreserve.gov/releases/z1/dataviz/z1/balance_sheet/chart/

A closer look at the retained profits of corporations shows the role of dividends paid out to household. Unfortunately, there are no publicly available and reliable data on S&P500 retained profits. Instead, I use the data from NIPA-accounts for all corporations of all legal variants, mainly stock companies, listed and not listed, and Limited Liability Corporations. Chart 4 shows corporate profits (CP) before and after tax and after dividends/buybacks. We see the strong increase of CP since 1990 with three dents and following recoveries. The share

of dividends rose from around 3 percentage points 1990 by ca. 7 points. Net fixed private investment is by and large similar retained profits after tax and dividends, but net private nonresidential investment stands in 2025 at 1.1% of GDP. This is the investment relevant for the productive capacity which remains almost stagnant, meaning capital consumption (depreciation) keeps the fixed capital stock constant.

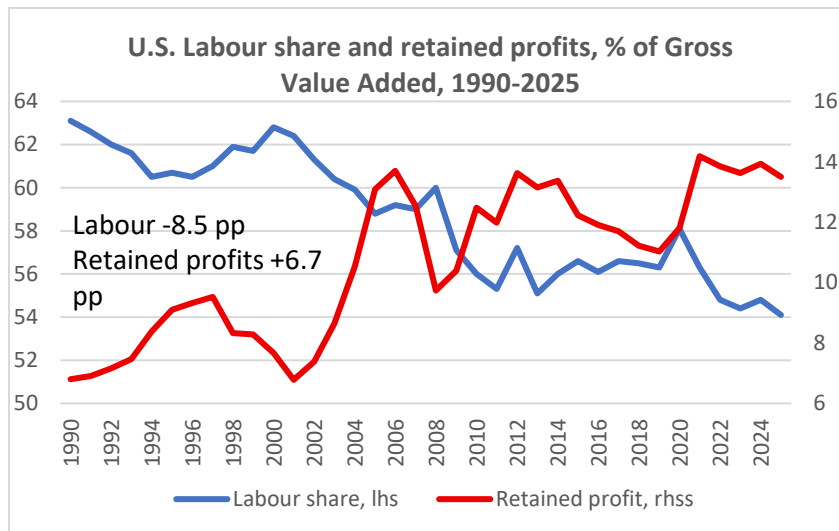
Chart 4



FRED

The dividends shown here are much more than the dividends of joint stock corporations. Ordinary profits are counted in NIPA also as dividends, as if they were retained profits. These dividends are in part spent for consumption, not only for the top decile households. Yet they must compensate to low income below the median. According to EU-poverty counting, the first and the second decile are categorized as poor, also 40% of the 3th decile. This development impacts the labour share in national income which trails with ups and downs one a falling trend. This certainly impedes GDP growth. The labour share is defined here in a way that includes the incomes of the top managers of the S&P500 corporations which live probably mostly in the 10th decile (stock options once used are excluded). A more realistic calculation of the labour share would show a faster decline. Of course, the labour share performance has a number of other reasons, but we see that dividends crowd out wages. If there were no strongly rising fiscal deficit, GDP would likely grow less fast.

Chart 5: Functional income distribution



BEA, BLS, FRED

Regarding the sources of growth, in the case of the U.S., private consumption is in the period analysed here (1990-2025), with 2.7% p.a. (inflation adjusted) the main driver for growth, neither fixed investment nor net exports. The U.S. economy is consumption driven, more than any other OECD country. The high consumption rate occurs due to low saving rates of average household, around 3%, reinforced by negative saving of many low-income households. A key driver for consumption is increasing employment - +50% since 1990, i.e. 1.1% per annum. Hence, consumption p.c. grew only by 1.6%. In addition, technical progress aka total factor productivity is over the period 1990-2025 estimated at 0.59% p.a. (FRED).

There is little evidence that the consumption of the rich households could offset the limited consumption capacity of the below-median-income groups; there is also little for presumed psychological wealth effects caused by real estate and financial wealth. Data on the propensity to consume in the top household groups are scarce and not reliable.

In sum, our analysis has shown that the enormous wealth and income increase through the channel of stock markets have contributed to low growth and exceptionally low net fixed investments, offset to some extent

- by capital progress made with venture capital,
- for several years by QE-oriented monetary policy,
- by immigration-based employment increases,
- by the fracking boom after 2008
- and by expansionary fiscal policies after the pandemic.

Rising stock wealth inequality and high income inequality contribute via rising retained profits the fall of the labour share which impedes consumption out wages and GDP growth.

Besides this, the falling labour share in national income and the rising value of stocks relative to GDP signal unsustainability.