

Review of International Political Economy

ISSN: (Print) (Online) Journal homepage: <https://www.tandfonline.com/loi/rrip20>

Global secular stagnation and the rise of intellectual property monopoly

Herman Mark Schwartz

To cite this article: Herman Mark Schwartz (2021): Global secular stagnation and the rise of intellectual property monopoly, Review of International Political Economy, DOI: [10.1080/09692290.2021.1918745](https://doi.org/10.1080/09692290.2021.1918745)

To link to this article: <https://doi.org/10.1080/09692290.2021.1918745>



Published online: 06 May 2021.



Submit your article to this journal [↗](#)



View related articles [↗](#)



View Crossmark data [↗](#)



Global secular stagnation and the rise of intellectual property monopoly

Herman Mark Schwartz 

Politics Department, University of Virginia, Charlottesville, VA, USA

ABSTRACT

Explanations for slow global growth (secular stagnation) correctly focus on income inequality and wage formation but are incomplete. They ignore the source of wages and fail to ask why a rising profit share has not produced more investment. Older but essential insights on stagnation from Keynes, Schumpeter and Veblen complement orthodox and post-Keynesian analyses to generate a more robust explanation based on the distributional conflict over profit among firms. These thinkers highlight the importance of corporate profit strategy and organizational structure for investment behavior. A politically mediated process of strategic interaction has transformed the old Fordist dual industrial structure into a tripartite structure composed of high profit volume firms with monopolies based on intellectual property rights (IPRs), physical capital-intensive firms protected by an investment barrier to entry, and low profit volume labor-intensive firms. Profit data from Compustat and Orbis show that IPR-based firms have a lower marginal propensity to invest. Other firms with smaller profit volumes forego investment from fear of creating excess capacity in a slow growth environment. High profit firms also tend to pay higher wages, creating income inequality. Changes in antitrust, employment and intellectual property law can remedy this situation.

KEYWORDS

Secular stagnation; monopoly; intellectual property; Keynes; Schumpeter; Veblen

Chronic depression, more or less pronounced, is normal to business under the fully developed régime of the machine industry.

Thorstein Veblen, *The Theory of Business Enterprise*, 1904: 234

Year after year we have had to explain from midyear on why the global growth rate has been lower than predicted as little as two quarters back.

Stanley Fischer, Vice Chair, Federal Reserve, 11 August 2014

Frankly, we'd welcome slightly higher inflation, somewhat higher inflation.

Frank Powell, Chair, Federal Reserve, 27 January 2021

What explains the pre-COVID19 new economic normal, which was neither particularly new (Hansen, 1939) nor normal (Teulings & Baldwin, 2014)? Specifically,

what explains secular stagnation – three decades of slowing growth in gross domestic product (GDP) and productivity in the 21 rich OECD countries?¹ Why did the rising profit share over the past three decades not translate into more productive investment?² One major contributing factor is heterogeneous changes in corporate profit strategy and thus organizational structure (Chandler, 1962) after the 1980s that reduced growth in all the major components of GDP. This shift concentrated profits into a small set of firms with a low marginal propensity to invest. This shift also concentrated wage growth into their relatively small workforces, concentrating income into households with a low marginal propensity to consume. Finally, a significant part of these concentrated profits accrued to firms rich in intellectual property rights (IPRs – patent, copyright, brand and trademark). This reduced both investment and fiscal resource growth because the intangibility of those assets lowered the cost of capital goods, reduced investment in goods with a high Keynesian multiplier, and enabled pervasive tax avoidance. Less fortunate firms, lacking IPRs, understandably avoided investment that might saddle themselves with excess capacity in an era of slower growth. And by 2015 roughly an eighth of OECD firms were ‘zombies’, unable to cover their debt service from gross profits (Banerjee & Hofmann, 2018).

Examining how changes in corporate strategy and structure affected the distribution of profit among firms complements and adds nuance to the other major efforts to explain secular stagnation and the profit-investment paradox, including financialization. Those explanations variously focus on the distributional conflict between capital and labor, assume homogeneous firms or sectors, or prioritize the supply side. This focus understates or ignores how differential success in executing IPR-centric profit strategies and its related vertical disintegration of commodity chains changed the distributional conflict over profits, with negative consequences for both investment behavior and the distributional conflict between capital and labor. Put differently, with the distributional conflict between labor and capital over wage and profit shares largely settled in favor of capital (Stansbury & Summers, 2020), the distributional conflict among capitals over who would capture that increased profit share moved to the fore. Profit is central to capitalism and growth.

Examining corporate strategy and structure also highlights the political rather than technological causes for stagnation while signaling potential policy responses. The firms now capturing the lion’s share of US and global profits possess robust IPRs (Pagano, 2014; Schwartz, 2016). IPRs are political creatures, as the profits they yield stem from regulatory and juridical decisions about what is patentable or copyright-able, and about the duration of those rights (Pistor, 2019). The shift towards profit through IPRs thus incentivizes quiet politics (Culpepper, 2010) and lobbying (Bessen, 2016) around those decisions. This shift also has international aspects. The US government tried to internationalize much of US IPR law to favor US firms shifting to an IPR-based profit strategy and a global production structure (Sell, 2003). Finally, secular stagnation contributed to the growth of anti-establishment, anti-‘normal’ parties globally, magnifying the importance of an accurate and complete understanding of its causes.

The core argument for looking at strategy and structure runs thus. Profit inequality characterized both the Fordist and contemporary ‘Franchise’ eras, but aggregate analyses and theoretical models conceal how differences in which firms

captured profits and their degree of legal integration generated differing growth and political outcomes. Fordist era corporate strategy created a dual industrial structure concentrating profits into vertically integrated firms whose monopoly or oligopoly power rested on a *high marginal propensity to invest*, and created strong incentives to share that profit with their large labor forces. Fordist era monopoly driven profit inequality thus hindered growth less than today, and given the salience of physical capital in production, perhaps accelerated it.

Contemporary industrial organization has a three layer industrial structure depressing investment and mass consumption. In its ideal typical form, this is a *franchise* structure, in which an intellectual property (IP) owner licenses that IP to a labor intensive goods or services producer using commoditized inputs dictated by the IP owner but produced by third parties. Top level firms exert considerable *de facto* control over lower level firms but *de jure* have neither control nor responsibility. Consider the relationship between size, sales and profits among Apple (118,000 employees and 1.2% of cumulative gross profit captured by the 4039 firms ever appearing on the Forbes Global 2000 list, 2006 to 2020, versus 0.41% of cumulative sales revenue), Samsung (287,000 employees, and 0.72% of profit versus 0.45% of sales) and Hon Hai Precision (803,000 employees and 0.14% of profit versus 0.30% of sales).

Three different firm strategies produce this structure. The top layer captures profit *via* IPR-based monopolies, shifts the risks from fixed physical capital and labor costs onto firms in the other two layers, and preempts potential rivals with *offensive* acquisitions. IPR-based monopoly creates a *low marginal propensity to invest*. The second layer of firms seeks profit through control over physical capital-intensive assets and/or the possession of tacit knowledge, and *defensive* horizontal concentration of existing rivals (Akcigit & Ates, 2021; Philippon, 2019). Here the risk of excess capacity deters investment. Finally labor-intensive manufacturing and service production third layer firms lack any barrier to entry and so seek profit through hyper-exploitation of labor (Weil, 2014). This largely legal fissuring of industrial organization creates a vicious cycle in which weak investment inhibits growth, in turn dissuading firms from new net investment with strong multiplier effects.

The article makes its case in five steps. Section one surveys conventional and post-Keynesian explanations. Section two takes one step backwards and considers how Keynes, Schumpeter and Veblen analyzed secular stagnation. This enables two steps forward into section three's examination of changes in strategy and structure. Section four uses data from the 4029 firms ever appearing on the Forbes Global 2000 list, 2006 through 2020, WRDS *Compustat* data on all publicly listed US firms, 1950 to 2019, and Bureau van Dyck *Orbis* data on 20114 consolidated firms with cumulative operating revenue over \$500 million, 2010 to 2018, to instantiate claims about the salience of IPRs for the unequal distribution of profits and wages and thence investment.³ Section five examines the political causes and consequences for these changes.

1. Four charts outside ebbing global growth

Three paradoxes around investment, inflation and productivity characterize secular stagnation. OECD-21 growth rates have declined secularly since the 1980s

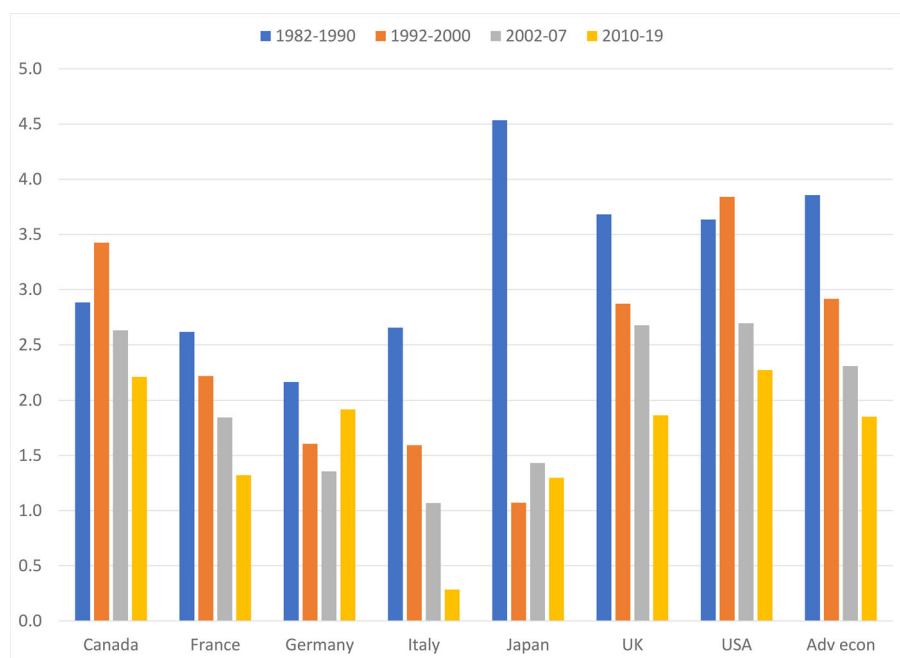


Figure 1. Annual average real % Δ GDP in 4 expansion phases, G7 and all advanced economies.

Source: Author's construction from IMF (2020)

(Figure 1). Investment growth drives GDP growth, but the modest fall in gross fixed capital formation as a share of GDP after 1980 conceals a near halving of net fixed investment, which matters even more for growth (Figure 2). Investment declined even as the average OECD-21 long-term nominal interest rate fell from 10.5% to 0.8%.⁴ The wage share of GDP has declined, boosting OECD-21 corporate profits (Figure 3) (Hope & Martelli, 2019; Karabarbounis & Neiman, 2014). Global corporate savings rose from 10% of global GDP in 1980 to 15% after 2010 (Chen et al., 2017, p. 2; Dao & Maggi, 2018). But capital expenditure by the world's 2000 largest firms was still roughly US\$100 billion below its 2007 level in real terms in 2017 (S&P, 2017). Most firms finance new investment from retained earnings (Fazzari et al., 1987; van Treeck, 2009, p. 925), so more profit but less investment is a puzzle (Stockhammer, 2005–2006). Productivity growth decelerated after the 1970s (Figure 4) despite the 1990s information and communication technology (ICT) boom. Finally, the velocity of money and inflation rates have been falling despite huge increases in the money supply. Recency bias blames these trends on the 2008–2010 global financial crisis, but each predates that crisis and Covid19.

Close examination of individual exceptions reveals unsustainable growth trends. Germany's post-2010 growth and employment recovery rests on current account surpluses averaging 7.2% of GDP from 2010 to 2019 (OECD, 2020). These surpluses should have boosted growth considerably. Yet Germany struggled to push its compound annual real local currency GDP growth rate above 0.8% after 2001 (IMF, 2020). Rather than investing, German non-financial firms were consistent net lenders of roughly 2% of GDP after 2001 (Dao & Maggi, 2018, pp. 33–34). China's 5.9% compound annual real local currency GDP growth after 2001 looks

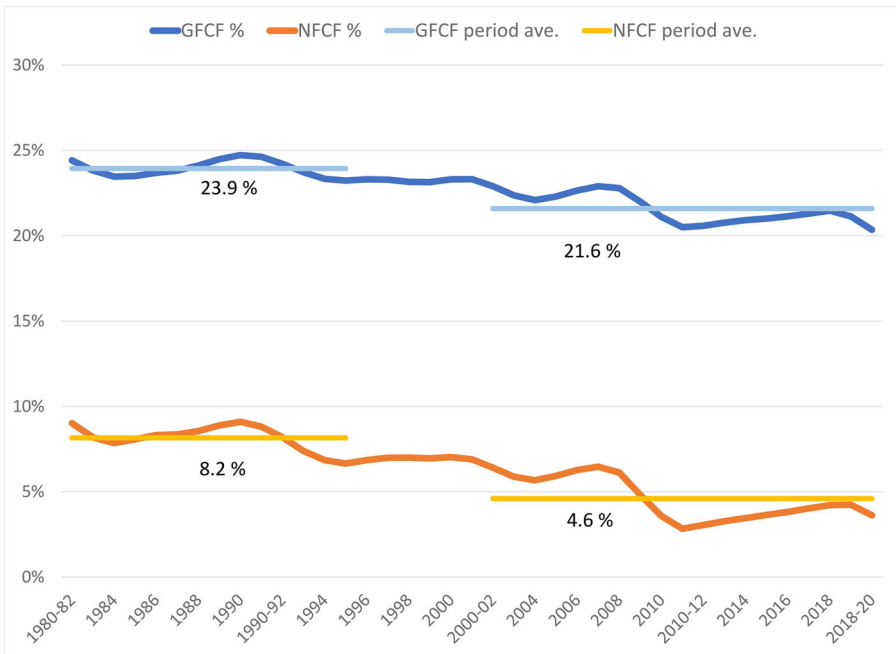


Figure 2. Gross and net fixed capital formation as % of OECD-21 GDP, 3 year rolling weighted average and 1980–1995 and 2001–2020 average levels.

Source: Author's construction from EU-Ameco database series UVGD, UIGT, UINT

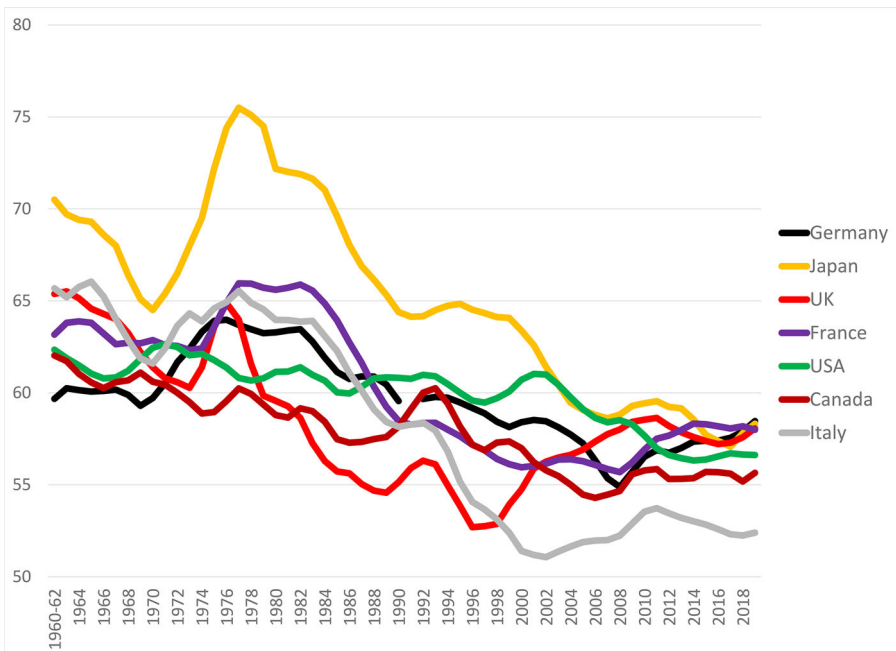


Figure 3. Wage share of GDP (%), G7 countries, 3 year rolling average.

Source: Author's construction from EU-Ameco database series ALCD0

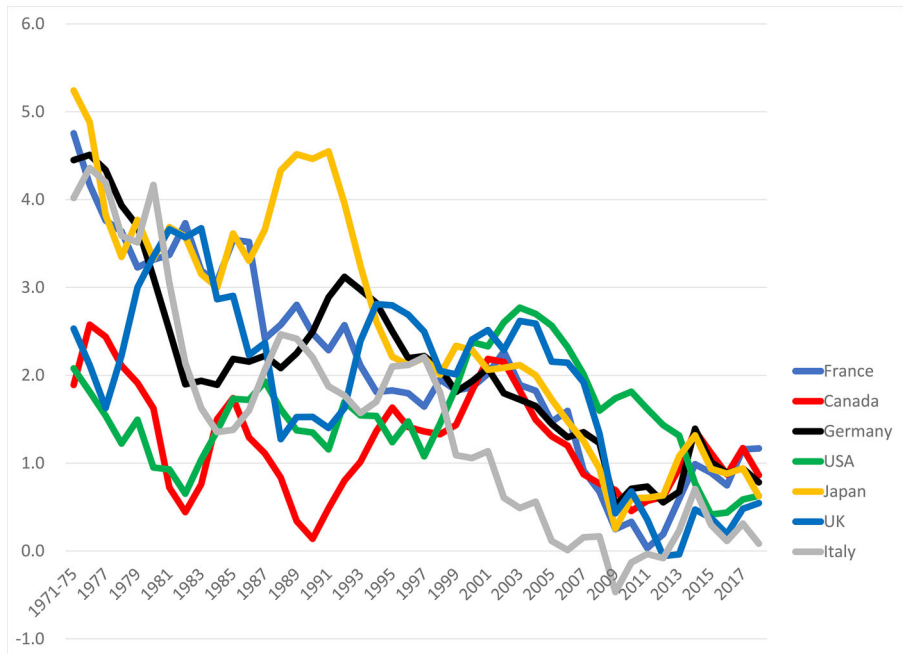


Figure 4. Annual productivity growth (% change in real GDP per hour worked), 5 year rolling average, G7 countries, 1971–2018.

Source: Author's construction from OECD-iLibrary.org/Statistics

similarly substantial, but economic methamphetamine in the form of massive credit creation – a 110 percentage point increase in the total debt to GDP ratio from 2008q4 through 2020q2 – only moderated its growth deceleration.⁵ The volume of credit needed to produce one unit of GDP growth tripled between 2007 and 2015, signaling a rapidly deteriorating incremental capital output ratio (Chen & Kang, 2018, p. 5).

How do the most prominent or canonical examples of mainstream demand- and supply-side explanations, as well post-Keynesian models focusing on financialization, explain secular stagnation and the related profit-investment, money supply-inflation and feeble monetary policy paradoxes? The treatment here necessarily emphasizes gaps rather than strengths to set up the later positive and complementary corporate strategy and structure argument. Critically, these analyses largely center on the distributional conflict between capital and labor and related income inequality issues, usually assume homogeneous firms, or prioritize the supply side. Income inequality arguments fail to consider firms' role in creating income. Assuming homogeneous firms obscures the sources and consequences of profit inequality among firms. And shareholder value model explanations cannot explain why US per capita GDP growth exceeds most of the OECD-21.

Rachel and Summers (2019) demand side analysis correctly points to stagnant consumption growth, but inadequately explains stagnant investment. They define secular stagnation as a situation where a negative Wicksellian neutral real interest rate, or R^* , is required to bring savings and investment to an equilibrium that generates full employment and stable inflation. R^* is normally positive. Rachel and

Summers (2019, pp. 1–2, 13) estimate that the US private sector R^* declined to nearly zero after the 1970s, and below zero globally after 2014. Because monetary policy rates cannot pierce the zero lower bound to reach a negative R^* , rich OECD economies cannot use monetary policy to address persistent aggregate demand shortfalls that depress growth.⁶

Rachel and Summers (2019, p. 27) assume that firms are homogenous units and thus ‘Market [sic] are competitive’, assume that a Wicksellian neutral real interest rate exists (Keynes [1936/1964, pp. 175–185] dissents), and assume a loanable funds model (i.e. savings fund investment). These assumptions point (Rachel & Summers, 2019, pp. 13, 27, 37, 38, 43; Cynamon & Fazzari, 2015) towards seeing income inequality as the source of the demand shortfall – higher income households have a lower marginal propensity to consume. But inequality in firms’ income precedes and drives inequality in household income. Firms pay wages and dividends, and wage inequality is increasingly and primarily a matter of inter- rather than intra-firm inequality (Barth et al., 2014; Song et al., 2019). In a loanable funds model, a negative R^* is crucial for explaining why increased household savings (from greater inequality) and absolutely and relatively high corporate profits translate only feebly into investment. But if firms differ in their degree of monopoly, their share of profits, and, as Baines and Hager (2021) argue, their ability to utilize leverage, then investment lethargy is less puzzling. Firms with monopoly face less pressure to invest; firms that fear excess capacity have less incentive to invest. Firm structure and Keynes’ ‘animal spirits’ might matter more than R^* and monetary policy.

Robert Gordon’s (2017) eclectic supply side stagnation argument blends several factors, including declining birth rates and income inequality, but centers on a subtle argument about technological exhaustion (Storm, 2017, dissents). Gordon predicts continued innovation but with much smaller consequences than prior innovation: flush toilets matter more than flash phones, Ford’s assembly line is more productive than Facebook. Like Rachel and Summers (2019), Gordon does not explain the sources of rising income inequality. Slow productivity growth might explain stagnant wage growth – you cannot consume what is not produced – but not the decline in the wage share or the distribution of income.

Gordon’s argument has two weaknesses. First, as Schumpeter (1950, pp. 111–120, 292–298) argued in the first secular stagnation debate, many of Gordon’s headwinds are partially endogenous to the growth rate. For example, income inequality reflects corporate strategy and structure, the regulatory environment firms obtain *via* lobbying (Bessen, 2016; Pistor, 2019) and horizontal concentration (Philippon, 2019). Similarly, as neo-Kaldorian approaches emphasize, growth itself generates productivity increases because investment in and of itself replaces older with newer, better equipment (Verdoorn, 1951). Second, Gordon (2017) has no theory of capitalist dynamics – there is no index entry for ‘profit.’ Gordon essentially assumes the immaculate translation of high income household savings into investment that yields limited productivity gains. Put simply, he cannot see how firms’ pursuit of profit through monopoly and sabotage of productivity might slow growth (Veblen, 1904).

Finally, in one of the few mainstream efforts looking at the importance of IP, Haskel and Westlake (2018) offer a technologically determinist argument that the shift from tangible (basically, machines) to intangible capital (disembodied knowledge and IP), depresses investment and thus growth. They emphasize four

technologically rooted ‘S’s of intangible capital: spillovers (intangible knowledge tends to spread to other firms), scalability (production can expand without increased physical capital), sunken-ness (the inability to re-monetize capital investment in intangibles because of difficulty selling ‘information’) and synergies (the ability to combine knowledge to attain greater output).

Haskel and Westlake’s mechanisms credit technology qua technology too much, while concealing the origin of profit. They exaggerate how much scalability and sunken-ness might depress investment. IPR-rich firms routinely acquire ‘sunk’ IPRs from failing and rising firms to create entry barriers. Google bought bankrupt Motorola Mobility’s 17,000 patents for a non-trivial \$12.5 billion; a Microsoft-led consortium bought bankrupt Nortel Network’s 6000 patents for \$4.5 billion. Second, easily generated spillovers and synergies from intangibles should generate rising, scalable economy-wide productivity. Instead, dispersion between high productivity frontier firms and the rest has increased (Andrews et al., 2016). Finally, Haskel and Westlake’s *Capitalism without Capital* lacks both capitalism – a system of accumulation driven by profits – and capital as a social relation. They largely ignore how firms defending IPR-based monopoly profits through Veblenian ‘sabotage’ – lawsuits and preemptive acquisition – might slow technological diffusion. The introduction of ICT technology determined neither corporate structure nor labor control strategies (Noble, 1984; Zuboff, 1988). Had firms remained vertically integrated, profits from IPRs and the productivity gains from intangibles would be more broadly distributed. Organizational structures mediate the effects of the tangible to intangible shift.

Post-Keynesian models remedy some of these faults, but in varying degrees assume homogenous firms, retain the classic post-Keynesian assumption of a positive relationship between profits and investment (van Treeck, 2008, p. 371, 2009, p. 908), or center on the distributional conflict between wages and profits. Three efforts stand out. Baccaro and Pontusson (2016, 2018; van Treeck 2009) elaborate a demand-side growth model amending the largely supply-side *Varieties of Capitalism* (Hall & Soskice, 2001). Carlin and Soskice (2018) merge Kaldorian cumulative causation with Keynesian uncertainty. Stockhammer (2005–2006, 2008) and van Treeck (2008, 2009) examine how the shareholder value model shapes firm behavior. Per Kaldor and Kalecki (1943), they all assume that increased demand can trigger self-sustaining increases in supply *via* new investment because excess capacity is normal and thus the supply side is not a fixed constraint (Verdoorn, 1951).

Baccaro and Pontusson (2016, 2018) supply one clue to stagnation by highlighting firms’ excess capacity. But their analysis focuses on differentiating *national* macro-economic growth models so they stop short at examining differences among firms with respect to excess capacity and profitability. Here, though, a puzzle emerges – their profit- and export-led economies deliver even slower growth than the consumption- or debt-led economies, and the export-led economies largely contain firms with only moderate global profit shares. Looking at the distributional conflict among firms rather than between capital and labor helps remedy this by explaining firms’ investment behavior.

Carlin and Soskice (2018) focus on firms’ behavior after 2010. They argue that monetary policy could change private investment and wage demands – Wickse’s R^* existed before 2010. But increased corporate pessimism after 2010 created a

Keynesian rather than Wicksellian equilibrium. Uncertainty and Keynesian animal spirits in relation to profit expectations (Keynes' marginal efficiency of capital) deterred investment. Firms' unwillingness to invest created a self-sustaining environment of low growth and involuntary unemployment. But like mainstream macro, Carlin and Soskice assume largely homogenous firms, and present a single plausible mechanism hindering investment. The uneven distribution of profit among firms suggests multiple mechanisms. Among the Orbis-20114, the top 300 firms in terms of cumulative profit 2010 to 2018 accounted for 52.6% of cumulative profit but only 38% of cumulative capital expenditure. Firms relying on IPRs for profitability, who essentially cannot create excess capacity, account for much of this under-investment relative to profit share. Moreover, as noted above, GDP, investment and productivity growth rates were all declining before the 2008–2010 shock.

Finally, Stockhammer's (2005–2006, 2008) and van Treeck's (2008, 2009) post-Keynesian models also address firm behavior, though Stockhammer (2005–2006, p. 206) assumes 'identical firms' and van Treeck (2008, p. 382) oligopoly. Both attack the post-Keynesian assumption that rising profits naturally turn into rising investment. Both argue enhanced shareholder power diverts profits away from investment and into dividend and interest payouts (cf Lazonick, 2014). Ironically, shareholders then suffer from a fallacy of composition because their efforts to limit managerial over-investment translate into lower aggregate output and profits. In the aggregate, the 2434 US firms in the Orbis-20114 paid out roughly 60% of their gross profit with a 0.80 correlation between a firm's profit volume and dividend payouts or share repurchases. This surely hindered capital expenditure.

These studies share similar flaws. First, as van Treeck (2008, p. 379) himself notes, the influence of the shareholder value model is unmeasurable. We see the dependent variable but not the independent variable. Second, heterogeneity among firms matters. Econometric analyses (Davis & Orhangazi, 2021; Orhangazi, 2019; Philippon, 2019) typically use standard industry classification codes that lump high profit volume and low/no profit volume firms together. But closer examination shows that US firms pay out a higher proportion of profits while investing less as a percentage of profit than the rest of the Orbis-20114, who disburse on average only one-third of profit. Moreover even US firms exhibit significant variance. The top 50 US firms by cumulative profits captured 17.7% of all Orbis-20014 profits yet generated only 9.6% of capital expenditures; the next 50, however, accounted for 4.9% of profits and 4.7% of capital expenditure. Similarly the top 200 Orbis-20114 firms captured 45% of profits but generated only 31.2% of capital expenditures.

The key issue here is why firms do not translate profit into investment. Similar disbursement rates plausibly confirm Stockhammer's and van Treeck's uniform shareholder pressure. But at a macro-economic level what matters is profit volumes, which means understanding why the firms with the biggest profit volumes exhibit a lower propensity to invest out of profit. Variance in capital expenditure signals either excess profits, or limited pressure to invest, or both on the part of these firms. This prompts an investigation into strategy and structure, or how those firms capture profit and how that strategy affects investment behavior.

Finally, financialization cum shareholder value models posit the United States as the paradigmatic case. Paradoxically, while US firms disbursed more and invested less out of profits (Table 1), US real GDP and GDP per capita grew faster than

Table 1. Share of all cumulative operating revenue, gross profit, disbursements and capital expenditures for the top 100 Orbis-20114 firms by cumulative profits, and residual firms, 2010–2018 (%).

	Operating revenue	Gross profit	Dividends & share repurchases	Capital expenditure
US firms (42)	7.4	16.5	23.9	8.9
non-US firms (58)	10.5	16.7	9.6	14.1
Remaining firms (20014)	82.1	66.8	66.5	77.0

Source: author construction from Bureau van Dyck *Orbis* data.

economies where firms disbursed less and invested more after 1992. Why would the paradigmatic case have faster growth?

2. Keynes, Schumpeter, Veblen

One step backward to Keynes, Schumpeter and Veblen enables us to go two steps forward towards a better grasp on the mechanisms driving secular stagnation.

2.1. Keynes: Investment drives savings

Keynes (1936/1964) brings two insights. As Rachel and Summers (2019) argued, high income households’ lower marginal propensity to consume depresses growth and employment. Moreover, rising inequality shifts the top decile’s consumption towards luxury items and positional goods with low labor content and weaker productivity stimulating effects compared to mass consumption (Verdoorn, 1951).

But the second insight about the fallacy of composition is largely forgotten: while savings by accounting definition must equal productive investment, there is no singular, optimal equilibrium point where this happens. The fallacy of composition helps explain the paradox of high profits and low productive investment, and explains Keynes’ partial dismissal of the loanable funds model.

Unlike Real Business Cycle or ‘New Keynesian’ arguments, where individual savings automatically trigger and are immaculately transformed into investment (Kehoe et al., 2018), Keynes (1936/1964, p. 19) denied that “an act of individual saving inevitably leads to a parallel act of investment.” Rather, saving and investment were dependent variables, “the twin results of the system’s determinants, namely, the propensity to consume, the schedule of the marginal efficiency of capital and the rate of interest” (Keynes 1936/1964, pp. 183, 184).

Keynes thus denied that Wicksell’s R^* existed and downplayed the loanable funds model. Lower productive investment causes aggregate income and thus aggregate savings to equilibrate downward to the actual level of investment. Because of the fallacy of composition, actors who increase their savings will diminish other actors’ income if those savings are not productively invested, causing overall savings to decline. Rather than savings generating investment, investment determines savings. Productive investment calls savings into being (1936/1964: 27–32; 374–7) through higher incomes and potentially through endogenous credit creation.

Keynes thus highlights uncertainty and the stability of financial institutions to explain firms’ investment behavior. Assume stable financial institutions. Keynes (1936/1964, pp. 141–143) argued that firms’ expectations about the ‘marginal

efficiency of capital' (MEC), their belief that a given new productive investment would yield future income, discounted by animal spirits and uncertainty, would exceed the cost of that investment, determined investment behavior. MEC is a financial, not material productive concept. Low interest rates will not tempt firms with considerable excess capacity to invest in a slow growth, no growth, or highly uncertain growth environment, as Carlin and Soskice (2018) argue.

That said, Keynes could not have foreseen two crucial changes that sustained growth and savings. First, mass creditworthiness enabled an inversion of the normal flow of savings from households to firms, partly and temporarily ameliorating the effects of falling investment and thus sustaining asset values (i.e. savings) until 2007. Second, central banks proved extraordinarily willing to re-valorize assets through quantitative easing after 2007. Corporate profits arrive as cash, leaving firms with only four options. They can channel profits into new productive investment; the weakness of this channel motivates the argument here. They can park it passively in the banking system or disburse cash to shareholders, who are overwhelmingly concentrated in the top decile in all OECD-21 countries. These two options simply shuffle the money around. Increased bank deposits mean banks must find firms and households willing to borrow money. High income shareholder households likewise have to park dividends and realized capital gains, given that the top 20% of US households by income typically spend less than half of any increase in income (Fisher et al., 2019, p. 26), and that this surely drops even further in the top 10% and 1%. Finally, firms can translate cash into financial assets, producing increased debt elsewhere in the economy.

US, British, and German non-financial firms, as well as the top 10% by income, are now net lenders to households, and, within the corporate world, each other (Chen et al., 2017; Dao & Maggi, 2018; Mian et al., 2020; Tomaskovic-Devey & Lin, 2011). Mass creditworthiness, largely manifested through homeownership, enabled households almost everywhere to maintain consumption in the face of a falling labor share of GDP (Cynamon & Fazzari, 2015; Schwartz, 2009; Streeck, 2014). Driven largely by an \$8 billion increase in US household liabilities after 2000, household debt as a percentage of net disposable income rose by an (unweighted) average 46% from 2000 to 2016 in the 19 rich OECD countries with data. Increased consumption partially offset declining investment from the IPR sectors until borrowing hit its limits in 2008 (Pagano, 2014).

When this channel for recycling corporate and high income household cash collapsed, corporate profits flowed instead into Keynes' liquidity trap. Much of the \$17 trillion central banks created from 2007 to 2017 round-tripped back to central banks as banks' excess reserves. Meanwhile cash-rich IPR-based firms recycled profits as lending to governments and other firms. In 2019, Microsoft and Apple together held \$163.6 billion in US government bonds and \$92.8 billion in corporate bonds, roughly equaling all Canadian public and private holdings of US issued debt.⁷ And low profit 'zombie' firms increasingly borrowed from high profit firms (Baines & Hager, 2021).

Keynes' insights about firms' MEC expectations partly resolves the paradoxical weakness of monetary policy. Keynes highlights what Rachel and Summers (2019) forgot – investment responds more to the MEC, to expected returns, than to the rate of interest. Weaker firms with excess capacity will assume a low MEC from new investment; high income households are likely to be relatively interest rate

insensitive. Still, Keynes' homogenous firms cannot fully explain why firms with profits above the socially defined adequate MEC do not invest more. And he is silent on the possibility that productivity slowdowns and supply side issues block new investment. Here Schumpeter clarifies the problems in Gordon's (2017) supply side argument, while again pointing us towards the distribution of profits across firms, and thus the need to look at firm strategy and structure to understand investment behavior.

2.2. Schumpeter: GoD smites stagnant firms

Perhaps supply side problems block translation of higher profits into productivity enhancing innovation? Unlike Keynes, who assumed fixed resources and black box firms, Schumpeter (1950, pp. 82–84) centered his argument about the sources of dynamic growth on entrepreneurial changes to firms' organizational structure. Like Keynes, he asked what the economy would look like if neo-classical assumptions held. The answer: a *circular flow economy* in a perfectly efficient, yet lifeless equilibrium (Schumpeter, 1934). Dynamic growth required entrepreneurs who created new, disruptive monopolies using endogenously created credit.

The circular flow economy was a world of perfect competition in which like-sized homogeneous firms, each pricing output at marginal cost, would drive profits down to the level where they merely covered firms' cost of capital (i.e. depreciation and interest on debt). With net profits at zero, economic growth would creep along at the rate of population growth plus marginal improvements in productivity. Firms would lack both incentive and ability to invest above and beyond depreciation even in a low interest rate environment. Banks would cease creating new net credit endogenously and money would become a simple store of value. At best, the circular flow economy would be a world of extensive growth, and as Schumpeter (1934, p. 66) put it, adding more and more stagecoaches would never get you to a world of railroads.

Recent empirical work suggests most firms live in something like Schumpeter's circular economy. Bessembinder (2018) shows that returns (dividends and capital gains) for 52% of the 25,782 firms ever appearing in US equity markets from 1926 to 2015 underperformed the returns from simply holding a series of one-month US Treasury bills – surely the lower bound for the cost of covering depreciating capital. The top 3.8% firms accounted for nearly all US\$31.8 trillion dollars in excess returns. Bessembinder et al. (2019) found that of 62,000 listed firms globally, only 40.5% had returns above the one-month US Treasury bill, 1990 to 2018, and 1.33% generated all net returns. These high return firms are mostly Schumpeter's entrepreneurial 'disrupters'. The rest are marginally profitable firms including, presumably, today's zombies.

Schumpeter (1934, pp. 86–9, 134–137, 152–153, 208) argued that monopoly was crucial for disrupting the circular flow. Only entrepreneurs making big risky investments to introduce new products, production processes, organizational forms and energy and transportation modes could break that equilibrium. Risky investments in turn required endogenous credit creation by banks, because would-be entrepreneurs needed some way to claim and reorient actually existing goods and labor towards something new. Entrepreneurs could only motivate endogenous credit from banks by promising massive monopoly profits. Alternately, like Veblen (1904,

ch. 6), Schumpeter (1950, pp. 101–103) observed that potential monopolies could issue new equity (like today's initial public offerings – IPOs) backed by future monopoly profit.

Schumpeter (1950, pp. 82–84, 88–89, 131–142, 156) thus anticipates Chandler's (1962) organizational focus, arguing that big monopolistic firms create dynamism, not textbook small homogenous firms. The new monopolies are GoDs (Gales of Destruction, sub-type creative) striking down lazy circular flow firms by making their product (production processes, markets, etc.) obsolete, or by subsuming them under the monopolist's new commodity chains. Monopoly stabilized firms' environment, reducing some Keynesian uncertainty. This permitted firms to invest in large-scale processes and plan innovation without constant reference to market pressures (Chandler, 1962; Piore & Sabel, 1984). Schumpeter located stabilization in vertical integration, but in the Franchise era control is exercised contractually rather than through fiat.

Contra Schumpeter, even as many new firms are heralded as 'disrupters' and we observe more monopoly, investment and productivity growth lag. Firms like AirBNB and Uber are neither revolutionary nor profitable. Rather, these new platform firms 'perfect' markets by reducing the transaction costs involved in mobilizing *existing* capital. This decreases turnover time but does not spur investment as such. Instead, these 'disrupters' push down prices for and returns on the use of that newly mobilized capital, thus bringing the economy closer to Schumpeter's circular flow economy. Faster stagecoaches, not railroads. This is partly because these firms largely divert 'investment' – the endogenous credit creation around their potential and actual IPOs – into consumer subsidies in pursuit of their monopoly. The bulk of Uber's 'investment' has been \$14 billion spent subsidizing rides versus \$1.6 billion on physical plant and software (Horan, 2019).⁸ Likewise firms like Google and Facebook shift and concentrate revenue from traditional advertisers, though Google does do some blue sky R&D. And while software is scalable, contra Haskel and Westlake (2018) firms like Uber rely on an established physical capital base.

Schumpeter accurately captures the importance of monopoly in potentially inducing new endogenous credit creation and thus new investment. But he cannot explain why new, non-bureaucratized, disruptive firms underinvest. Why did firms' investment behavior change from the Fordist to the Franchise era? Why massive monopoly profits without the mobilization of innovation? Here Veblen points to firms' management of excess capacity and their use of IPRs as a barrier to dynamism, putting Haskel and Westlake (2018) arguments about increasing returns to IPRs into a sharper, more behaviorally rooted focus. Veblen points us towards the consequences of the inter-firm distribution of profit flowing from the new corporate strategies and organizational structure.

2.3. Veblen: conspicuous under-investment

Veblen brings three key insights that help clarify secular stagnation's investment, productivity and monetary policy paradoxes. Like Schumpeter, Veblen posits heterogeneous firms with differing abilities to control their markets and capture profit. Second, Veblen focuses laser-like on firms' drive for monopoly profit, but, unlike Schumpeter, through suppression of innovation. Third, Veblen locates monopoly

mostly in control over intangible capital, opening a window into the role of IPRs. Veblen thus highlights how IPR-based profit strategies drive organizational structure and thence stagnation.

Veblen (1904) counterpoises *industry* against *business*. Industry is the Schumpeterian innovations that make people's lives easier, that lower the cost of products, and that are socially generated and shared. Business is the pursuit of 'pecuniary gain', the differential accumulation of profit through the strategic control over markets using product market and geographic monopolies, acquisition of rivals, and suppression of innovation (1904, chs 1, 3; Nitzan, 1998).

For Veblen (1908a, 1908b), capital is neither machines, nor the homogenous, abstract capital of mainstream economics. Capital is the intangible, often tacit knowledge that enables effective use of machines, as well as knowledge embedded in those machines. Control over physical capital matters mostly because it enables firms to extract tacit knowledge from workers. Veblen argues that profit and thus capital arises from firms' efforts to lock up *industry* – socially generated knowledge – behind legally enforceable property rights like IPRs. Although formal IPRs emerged as early as the 1710 British Statute of Anne and the 1789 US constitution, US corporate litigation to create and enforce IPRs dates from the 1860s (Fisk, 2009), contemporaneous with Veblen.

Firms' pecuniary instinct conflicts with the human 'instinct to workmanship'. This innovation instinct causes the deflation and 'chronic depression' that pushes returns below the socially defined acceptable profit rate business seeks. Here Veblen (1904, pp. 87–91, ch 7) anticipated Keynes' argument that pessimism about the MEC inhibits investment, rather than technological problems or inadequate savings. Firms respond to deflation by seeking concentration 'on such a scale as to regulate the output and eliminate competitive sales and competitive investment... To neutralize the cheapening of goods and services effected by current industrial progress' (Veblen, 1904, pp. 115–116). In the early 1900s, Veblen observed firms using horizontal concentration to meter output into the market, to keep profits high, and to absorb rivals.

So far, so much like Fordism, whose dual industrial structure combined large, vertically integrated and high profit volume firms that successfully implemented this strategy, and less successful, small, lower profit volume firms. But while contemporary second tier firms continue to use defensive horizontal concentration (Philippon, 2019) to suppress excess production and maintain prices, firms producing intangible products follow a different Veblenian logic. These firms maximize output to – and profit from – a global 'total addressable market' while using IPRs to suppress competition *via* litigation and patent thickets (Cunningham et al., 2021; Feldman, 2018; Hall et al., 2015; Schacht, 2006). Both Veblen (1904, pp. 241–243, 258–263; 1908a, 1908b) and more recent archival work (Peinert, 2019, pp. 25–26) suggest that IPRs were essential for enforcing cartel discipline and thus monopoly profit.

Control over IPRs gives dominant firms *de facto* control and pricing power over weaker firms in their commodity chain, as in the ideal typical franchising model. In this model, a firm licenses use of its brand and production model (often embodied in specific equipment) to small firms and takes a fixed percentage of the franchisee's total revenue (not profit!) in return. This puts risk and nominal ownership of fixed assets onto the franchisee, enabling IPR-based firms to capture increasing

returns on their IP. Qualcomm's 5% royalty on the sale price of smartphones, a fast food franchise royalty of 6% of gross sales and Hilton's 5% royalty rate on gross room revenue are all the same strategy; Apple's near fanatical control over all aspects of its commodity chain parallels the *de facto* control fast food and hotel franchisors exert over their franchisees.

Veblen, contra Schumpeter, argues that firms' desire for monopoly rents trumps technological or entrepreneurial adventurousness once they secure that monopoly. Dominant IPR-firms make only incremental improvements to their own products while litigating or acquiring potential rivals to prevent disruptive innovation (Boldrin & Levine, 2008). Litigation and lobbying is easier than new investment and has higher returns (Bessen, 2016), making IPR-rich firms insensitive to interest rates. For example, pharmaceutical firms prefer to reboot the patent life of existing drugs by tweaking their molecular structure without generating any significant new curative benefits (Cunningham et al., 2021; Feldman, 2018). Tech firms similarly 'acqui-hire' potential rivals, as when Facebook bought Instagram. Veblen thus locates technological exhaustion and monopoly rents in some firms' success in creating barriers to entry using IPRs.

Summing up: the new normal combines a rising profit share with declining investment, investment behavior insensitive to low nominal interest rates, and limited productivity growth. Conventional and post-Keynesians arguments correctly identify some pieces of the stagnation puzzle, but their shared assumptions about homogenous firms obscure how firms' ability to use IPRs to capture profit creates three different strategic orientations around investment. Contra Philippon (2019), not all monopolies are the same. Drawing on Keynes, Schumpeter and Veblen we can tease out the macroeconomic consequences of firms' differential success implementing IPR-based profit strategies and organizational structures. As the data below show, successful execution of an IPR-based strategy has concentrated profit into firms with a low marginal propensity to invest and small employee headcounts, while shifting fixed capital and low-skill labor into two other layers of firms. This depresses investment and consumption growth.

3. Strategy and structure

The shift from the Fordist dual industrial structure to the three-tier Franchise structure negatively affects growth in consumption, government and investment, thus depressing overall GDP growth. The problem is not insufficient supply of potential investment funds but rather the demand for those funds. The top two types of firm are insensitive to monetary policy, albeit for different reasons. Low employee headcount, IPR-based firms capturing the bulk of profit have both a low marginal propensity to invest, and weak multiplier effects from that investment. The financial system theoretically could shift unused top tier profits to second tier firms whose strategy involves control over physical capital. But top tier firms' minimal investment and limited workforce depresses demand growth enough to make second tier firms wary of creating excess capacity. The labor intensive firms at the bottom of the industrial system largely deploy little capital and are thus also interest rate insensitive. In the extreme case, temporary employee agencies are almost all labor and no physical or human capital. This section describes the three layer structure, while section four offers data confirming the change in the distribution

of profit and capital expenditures, and discusses the political sources for and consequences of the change from the dual Fordist structure to the Franchise three-tier structure.

Fordist era firms sought oligopoly profits *via* control over physical capital. Veblenian trusts and vertical integration allowed some firms to regulate output and thus obtain their desired rate of return on new, asset specific investment. Differential success executing this strategy produced a bifurcated economy composed of large, high profit, capital-intensive, unionized firms and smaller, lower profit, less capital intensive, often disorganized firms (Piore & Sabel, 1984). Rising labor militancy hindered efficient management of physical plant, politically generating the classic Fordist class compromise. This partially redistributed oligopoly profits towards workers, broadening and sustaining consumption. The natural depreciation of physical capital and firms' need to maintain some surplus capacity to deter market entry required them to reinvest, sustaining investment levels (Bulow et al., 1985; Steindl, 1952). Vertically integrated Fordist firms consolidated profit streams from both physical capital and IPRs, enabling that reinvestment. And state management of industrial relations and expansive public investment stabilized investment by reducing Keynesian uncertainty (Eichengreen, 2008).

Today, varying success in controlling IPRs in vertically *disintegrated* production chains produces an economy with three *ideal typical* firms that are often linked in a *de facto* integrated production process. At the top are low headcount, human capital-intensive firms whose robust IP portfolios generate large profit volumes. Their IPRs are *de jure* monopolies that prevent or discourage entry. Despite vertical disintegration they exert considerable operational control over their subcontractors. Apple, for example, 'exerts control over nearly every piece of [its] supply chain, from design to retail store' (Satariano & Burrows, 2011). Tier-two physical capital-intensive firms capture modest profit volumes using investment barriers to entry. The semiconductor and automobile industries suggest the height of these barriers: \$20 billion for a state of the art (3-nanometer) semiconductor fabrication plant that might be obsolete in a handful of years; \$1 to \$2 billion for a state of the art automobile assembly plant. At the bottom are low-skill, labor-intensive manufacturing and service firms with low profit volumes and few barriers to entry. While these bottom tier firms might have a high profit *rate* – they are highly exploitative – their profit *volume* generally is low. And volume is what matters for investment that moves the macro-economy.

Tech is the paradigmatic industry here – think Apple + Taiwan Semiconductor Manufacturing Co + Hon Hai Precision (aka Foxconn). But the large mass of brand-based, franchised service businesses also exhibit this tripartite structure of IPR firms, physical capital owners, and labor suppliers. Consider: Hilton and Marriott, brand owners largely without buildings; the Apple Hospitality Real Estate Investment Trust, which owns 242 physical buildings bearing the logo of these ostensibly competing brands; Hospitality Staffing Solutions and Adecco, supplying low wage labor to Apple Hospitality (Schwartz, forthcoming). Likewise, the big US pharmaceutical firms have retained patents while shifting one-fourth of production to subcontractors (Results Healthcare, 2017). Outside the United States about 10% of German employment is low-wage, part-time Hartz 4 jobs (Dustmann et al., 2014; Herrigel, 2015). Obviously, hybrid firms blending two different barriers to entry exist. Intel, for example, blends patents and the capital cost of a

semiconductor fab as barriers to entry, while McDonalds blends brands and real estate ownership.

Explanations based on the generic increase in product market concentration conceal how the three types of strategic orientation produce different types of concentration. IPR-based firms have reinforced their position through pre-emptive, *offensive* acquisition of nascent rivals (Akcigit & Ates, 2021; Cunningham et al., 2021); their outsized market capitalization makes this a cheap strategy. By contrast, tier-two firms have restored some pricing power through classic Veblenian horizontal mergers with established firms (Durand & Milberg, 2020; Orhangazi, 2019; Philippon, 2019). Finally, firms at the bottom have tried to ‘roll up’ multiple franchisees or independent smaller producers in order to gain some leverage with franchisors and IP holders. The world’s top 10 pharmaceutical firms expanded their global market share from 12% to 50%, 1988 to 2002, through acquisitions; automobile assemblers similarly consolidated. In response, bottom tier pharmaceutical industry contract manufacturers and automotive parts suppliers merged up.

This generic increase in product market concentration in the United States and elsewhere has mostly enhanced IPR-firms’ profit volumes. De Loecker and Eeckhout (2017, p. 13; 2018; Philippon, 2019) report that the top 10% of US firms showed the strongest relative and absolute increase in mark-ups, from 40% in 1980 to 160% in 2014, while the median mark-up held steady. IPR-based firms loomed largest, with tech firms obtaining margins twice the average level, and nine IPR-rich firms accounting for 47% of the expansion in margins among the US S&P500 firms through 2018 (Kostin, 2018, p. 14). As Bessembinder (2018) and proliferating zombie firms suggest, the bottom 50% of firms showed no appreciable increase in mark-ups.

4. Evidence

Table 2 and Figures 5 and 6 display the shift in profits towards IPR-based firms, and IPR firms’ low marginal propensity to invest. Table 2 contrasts the inflation adjusted cumulative gross profit, capital expenditure and employee headcount of the top 100 and 200 publicly listed US firms by sector in high Fordism (1961–1965) and the Franchise era (2014–2018) (Longer term data for 1950–1980 versus 1992–2018 display similar patterns). It shows that the top 100 and especially top 200 US firms matter more macro-economically than the long tail of smaller ‘circular economy’ firms. Significantly, the top firms’ share of employee headcount has shrunk, which matters for income inequality since firms form wages. Data limits block a global comparison across both eras, but the top 300 Orbis-20114 firms display a similar pattern.

Table 2 evidences four things. In either era, the top US firms accounted for about the same share (row 1) of unequally distributed cumulative profit (row 7). But contemporary high profit volume firms translate much less of those profits into capital expenditure (and thus growth) (row 5 versus row 6). They also employ relatively fewer people (row 3). In 1961–1965 the top firms accounted for a greater share of US capital expenditures than profits, but in 2014–2018 the reverse (row 1 versus row 2). Indeed top US firms have shifted from above to below average rates of investment out of profit relative to all firms. The IPR sectors drive much of the average trend (Figures 5 and 6).

Table 2. Top 100 and 200 US firms' share of gross profit, capital expenditures, and employees, and capital expenditure as percentage of gross profit for all listed US firms in two eras, and the top 300 firms' share of Orbis-20114 in 2010–2018.

Share of:	Top 100 US		Top 200 US		Top 300 in Orbis-20114
	1961–1965	2014–2018	1961–1965	2014–2018	2010–2018
1 Gross profit (GP)	49.9%	50.7%	63.7%	62.9%	52.5%
2 Capital expenditure (Capex)	56.1%	32.9%	74.5%	49.8%	38.1%
3 Employees	42.1%	31.8%	55.0%	44.2%	23.4%
4 N of firms	3.5%	1.5%	6.9%	3.0%	1.5%
Capex/GP:					
5 Top US 100 or 200 or Orbis 300 average	28.1%	13.1%	29.2%	16.0%	41.8%
6 All US firms or Orbis-20114 average	25.0%	20.3%	25.0%	20.3%	57.7%
Gini index for profits:					
7	1961–1965	0.920	2014–2018	0.868	0.795

Memo: Capex/GP is calculated from the raw data, not the percentages in the first two rows.

Memo: N of all firms 1961–1965 = 2881 of which 438 recorded no or negative profits; 2014–2018 = 6627, of which 1257 recorded no or negative profits; 20114 Orbis firms of which 2269 recorded no or negative profits.

Source: Author calculation from WRDS *Compustat* database for US data, Bureau van Dyck Orbis for Orbis data.

Figure 5 presents the inflation adjusted cumulative gross profits of the top 200 US firms by sector, again contrasting high Fordism with the contemporary era. It shows the profit shift away from the old Fordist complex of oil and integrated assembly line manufacturing firms towards pure owners of IPRs, like software firms, pharmaceuticals, consumer brands (e.g. Proctor & Gamble at 0.7% of cumulative profit, 2014–2018), and copyright (e.g. Disney at 0.45%) (WRDS). Orbis-20114 data for the top 500 global firms from 2010 to 2018 are similar.

Figure 5 also shows the massive shift towards finance. Space constraints prohibit full consideration of the voluminous financialization literature, but given its importance I advance brief negative and positive arguments why we should think of it as an IPR sector. Negatively, the financialization literature exhibits three antinomies that weaken it as a comprehensive explanation for stagnation. US and British financial firms (NACE codes 64 and 65) respectively captured 25.0% and 18.3% of the profit captured by all US or British firms in the Orbis-20114, 2010 to 2018. Yet this trails the share captured by financial firms in the other Orbis-20114 economies at 27.1%, and mirrors the famously 'less financialized' German (20.3%) and Japanese (18.9%) economies. It is hard to see the United States and Britain as the exemplars of financialization (Engelen, 2008, p. 114) on a profit share basis.

Financialization arguments also argue that share buybacks divert profit away from investment and that the financial sectors' profits are too high, slowing growth. Share buybacks are a largely US phenomenon, yet the United States had per capita GDP growth rates above the OECD-21 average from 1992 to 2018 (Table 1). Unsurprisingly, the bulk of share buybacks come from high profit volume non-financial firms, again raising the question of why those firms capture so much profit. Moreover, while German and Japanese firms do not engage in US-style share buybacks, they also do not invest their retained profits (Dao & Maggi, 2018); Japanese firms proportionally held three times as much cash equivalents as US firms in 2019.⁹ Finally, the rising share of financial income in firm-level profit – a major indicator for the alleged financialization of US firms – may be an accounting

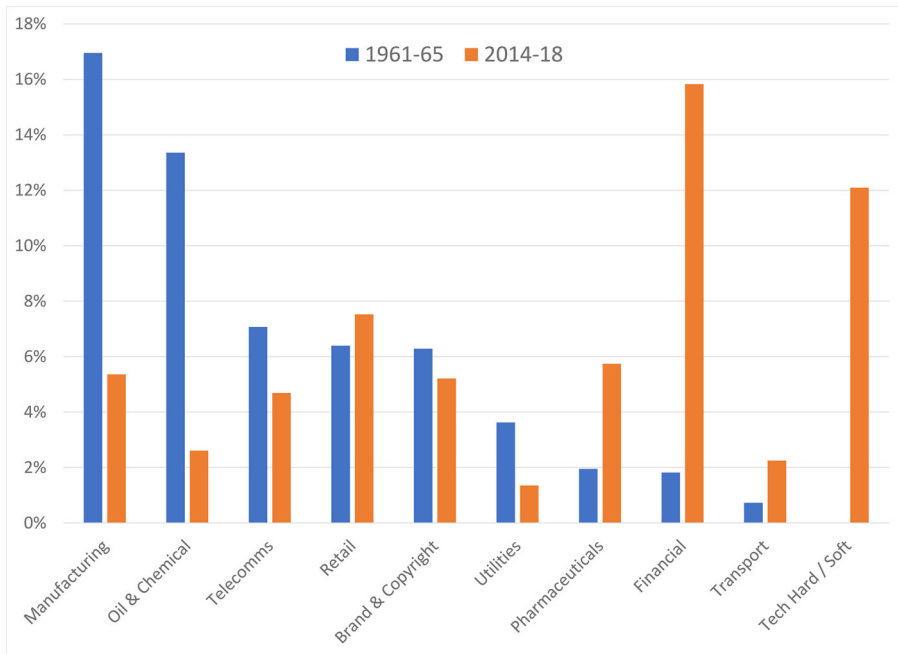


Figure 5. Sectoral shares of all cumulative gross profit by the top 200 US firms, %, 1961–1965 and 2014–2018. Ranked by 1961–1965 share.

Source: Author calculation from WRDS *Compustat* database. Tech Hard/Soft = Technology hardware and software; Manufacturing includes automobiles. Minor sectors omitted.

artifact rather than a shift to financial activity in the strict sense (Fiebiger, 2016). Increasingly transnationalized US firms receive profit from foreign subsidiaries as dividend and interest payments. Accounting convention labels this nonfinancial profit as financial income.

Positively, the high profit volume parts of finance are in many respects an IPR sector (Schwartz, 2017; Selmier & Winecoff, 2017). A narrow slice of financial firms captures the bulk of profits through the sale of patented derivatives and management of IPOs for tech firms. The gini for US financial firms' cumulative profit is 0.95 for both gross and net income, 1992 to 2017 (WRDS) and 0.859 for the 2302 banks (NACE 64 net of central banks) in Orbis-20114. Derivatives have two strong IPR characteristics. First, small teams with high human capital produce them in an ICT and software heavy production process (Bernstein, 2008). Second, generic, easily copied derivatives make little money. But subsequent to a 1998 federal court decision permitting patenting of mathematical and business algorithms, banks increasingly rely on Class 705 business process patents to protect new derivatives and processes. In 2018, for example, Bank of America filed roughly as many successful US patents as Xerox, Toyota, or MIT, and JP Morgan as many as STMicroelectronics or the University of North Carolina (USPTO, 2018). Investment banks typically charge a 7–8% commission for IPOs, and tech IPOs have been among the largest in the past two decades (Ghosh, 2017). Third, high profit financial firms are a conduit for other actors' money. IPR firms need to recycle outsized profits not committed to productive investment. These profits compose a significant share of the funds translated into rising indebtedness for

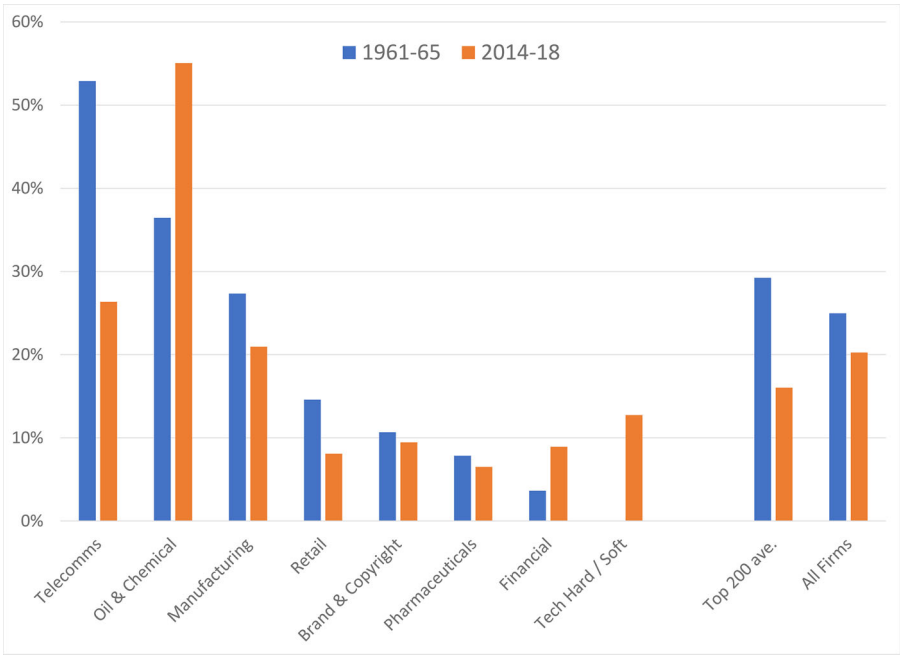


Figure 6. Cumulative capital expenditure as a percentage of cumulative gross profit for each indicated US sector, top 200 average, and economy-wide average, %, in two eras. Ranked by share of capital expenditures, 1961–1965.
Source: Author construction from WRDS *Compustat* database. Tech Hard/Soft = Technology hardware and software; Manufacturing includes automobiles. Transport and utilities sectors omitted.

governments and households, given the inversion of the old pattern that households lent to firms (Tomaskovic-Devey & Lin, 2011). In short, financialization explanations can plausibly be subsumed under IPR explanations but IPR explanations are harder to fit into a financialization explanation.

Either way, both underinvest relative to profit shares of the same magnitude. All US IPR sectors combined – technology firms, pharmaceuticals, and brands – accounted for 23% of cumulative gross profits 2014–2018, considerably exceeding finance at 15.8% (WRDS). The respective shares for the Orbis-20114 are 18.8% and 25.9%, with the smaller IPR sector share reflecting the weakness of non-US tech and pharmaceutical firms. So if the financial share of profit is a problem for investment, then *pari passu* so is the IPR sectors’ share, given their common low marginal propensity for capital expenditure (Figure 6).

Figure 6 shows that the IPR sectors substantially underinvest relative to their profit share. While IPR-rich firms captured an increasing and substantial share of profits from one era to the next, they did not generate a proportional increase in capital expenditure. Obviously the emergence of the software and tech hardware sectors after 1992 increased their share from zero. Nonetheless, the aggregated IPR sectors (tech plus pharmaceuticals, brands, and copyright) plus finance captured 38.9% of cumulative US profit but did only 18.8% of all capital expenditures (WRDS). By itself this would have driven down aggregate investment in the economy. US tech and pharmaceutical firms accounted for much of the \$1.9 trillion in cash US firms collectively held in 2019.¹⁰

Table 3. Sector shares of cumulative operating revenue and pre-tax profit, 2010–2018, for the top 500 Orbis-20114 firms (%), and ratio of capital expenditure (capex) to pre-tax profit. Ranked by share of profits.

	Count	Operating revenue (%)	Pre-tax profit (%)	Capex	Capex as a % of Pre-tax profit
Financial & insurance	152	7.2%	18.8%	nd	nd
All IPR sectors	92	7.7%	15.6%	8.7%	32.4%
Of which:					
Tech hard/soft	45	4.2%	8.1%	5.8%	41.6%
Brands & copyright	27	2.0%	4.0%	1.6%	23.1%
Pharmaceuticals	20	1.5%	3.4%	1.3%	21.7%
Manufacturing	73	8.3%	7.3%	9.1%	71.9%
Of which: automobiles	29	4.9%	3.8%	6.0%	91.0%
Oil & chemicals	38	6.9%	7.0%	10.3%	84.6%
Telecommunications	20	2.2%	3.0%	5.6%	107.3%
Other	125	9.6%	10.1%	12.5%	71.0%
<i>Memo items:</i>					
German and Japanese automobile firms, % of global auto sector	14	57.8%	62.0%	61.8%	90.7%
US IPR firms, % of global IPR sectors	38	53.1%	67.9%	45.1%	24.7%
Top 500 as % of cumulative world GDP		22.8%	3.1%	1.3%	43.2%

Source: Author calculations from Bureau van Dijk Orbis database.

The same pattern holds outside the United States, although missing data prevent a precise comparison with the Fordist era. Table 3 shows the top 500 Orbis-20114 firms' share of cumulative operating revenues, profit before tax and capital expenditure, 2010–2018, and their transformation of profit into investment, broken down by sectors. Globally, IPR firms in the top 500 Orbis firms account for 15.6% of all profit but only 8.7% of all capital expenditure. Where the average Orbis-20114 firm recycled 57.7% of gross profit as investment, the average IPR-based firm in the top 500 recycled only 43.2% and in the top 200 only 29.9%. Roughly speaking the share of profits for the financial and IPR sectors is significantly higher and lower than for the US-only charts above. This reflects the local and global domination of the IPR sectors by US firms, as compared with German and Japanese firms' domination of the automobile sector. In essence, the three layer US pattern is duplicated both in the global division of labor and also internally in many countries. Developed country firms have a much higher ratio of intangible to tangible assets than developing country firms (Durand & Milberg, 2020). Most of the 72 non-OECD-21 firms in the top 500 are banks or raw materials firms.

The point is not that the new sectors abjure all investment, producing a 1930s style depression with collapsing GDP, income and investment. Rather, IPR-based firms' relatively low rate of capital investment is a drag on total investment. Counterfactually, if they invested at a rate closer to the average, and if they demanded and transformed more endogenous credit into productive investment, then growth would perforce be faster. Equally, there is no reason to expect that all firms will re-invest profits at the same rate. The critical point is that structure matters: Fordist vertical integration pooled profit streams from control over both IPRs and physical capital, which enabled firms to undertake more productive investment. Vertically disintegrated Franchise firms' production process is largely wage

based R&D ‘investment’ that relies on human capital inputs with weaker multiplier effects.

5. Political causes and consequences

Firms’ strategic behavior produced differential success in the distributional struggle over profit. Profit concentration reflects three different political processes, which can only be described briefly here. First, the US state expanded and strengthened IPRs (Pistor, 2019). Legislation in 1968, 1976 and 1980 enabled the copyrighting or patenting of software, strengthened trademark protection in 1988, and extended copyright on works for hire to 105 years in 1998. The Supreme Court expanded the scope of IP protection in novel ways, like the 1980 *Diamond v. Chakrabarty* decision permitting patenting of genetically modified organisms and the 1998 affirmation of business process patents (important in finance) in *State Street Bank v. Signature Financial Services*. International trade treaties increasingly dealt with strengthening IPRs rather than traditional tariff reductions (Sell, 2003).

Second, weaker US (but less so European) antitrust enforcement enabled both the offensive and defensive concentration noted above while legalizing expansion of the franchise format. Chicago school ‘law and economics’ arguments blessing monopoly if consumer surplus increased influenced the Justice Department, the Federal Trade Commission, and some judges to wave through mergers that would have been banned in earlier decades (Christophers, 2016). The International Franchise Association won US court, Federal Trade Commission, and National Labor Relations Board decisions that enabled franchisors to license brands and trademarks to their franchisees, to tightly control the nature of their operations, and to supply critical inputs while avoiding legal responsibility for their workforce and anti-trust sanctions for vertical restraint (Callaci, 2018). Franchises replaced thousands of formerly independent and locally owned businesses.

Third, top-tier firms eroded workers’ ability to organize and threaten control over production by pushing non-essential workers out to legally separate firms (Schwartz, forthcoming; Stansbury & Summers, 2020; Weil, 2014). While this has gone farthest in the United States, even heavily unionized northern Europe has seen similar phenomena *via* the proliferation of contracted-out, temporary, and minimum wage jobs, as with Germany’s Hartz 4 reforms (Autor, 2019; Emmenegger et al., 2012; Redeker, 2019). This broke Fordist-era wage relativities that generated some degree of profit sharing. Firms with higher profits tend to pay higher wages. Inter-firm wage dispersion rather than skills-biased technical change or intra-firm dispersion drives most of the rising income inequality in the United States (Barth et al., 2014; Song et al., 2019) and Germany (Goldschmidt & Schmieder, 2017).

The tripartite structure also inhibits innovation, slowing productivity growth (Pagano, 2014). Gutiérrez and Philippon (2019; Blonigen and Pierce, 2016; van Reenen, 2018) show that the contribution to productivity growth by the four largest US firms in 62 different sectors fell by one-third after 2000 despite – or perhaps because of – mergers. IPR-based firms’ decapitation of potential competitors hampers innovation, as the pharmaceutical industry shows (Cunningham et al., 2021; Feldman, 2018). In the ‘tech’ world, the majority of ‘unicorns’ – firms with potentially billion dollar IPOs – are largely spending investor money on subsidies to

create monopoly over some large, ‘total addressable market’ rather than concentrating on more socially useful things. Simultaneously, the bulk of the firms in the second tier, particularly automobile, heavy equipment and agricultural machinery sectors, face markets with excess capacity. Automobile sector excess capacity ranges from about 10% in North America to 50% in China. This understandably makes firms cautious about new *net* investment, although the existential threat that electric vehicles pose motivated a recent untick in auto industry R&D.

Apple’s relations with its suppliers illustrate the tensions here. Apple invested US\$200 million (from its \$5 billion Advanced Manufacturing Fund) in Corning Glass to create a production facility for a new generation of Gorilla GlassTM (for mobile phone screens), because Corning was leery of expanding capacity and making existing production facilities obsolete. Investment gave Apple privileged access to Corning’s output, reinforcing *de facto* control. Monopolies no longer mobilize investment capital and research resources to produce great leaps in productivity. Instead, Veblenian businesses jockey for dominance in their commodity chain, using IPRs as their first choice barrier to entry, and physical capital as a second best barrier.

6. Conclusion

Returning to classical analyses complements and more fully explains current growth puzzles than analyses focusing only on income inequality, or apparent supply side limits, or which assume homogenous firms enthralled by the shareholder value model. Keynes and Veblen highlight how firms’ fear and management of excess capacity might depress net new investment even in a low interest rate environment. Schumpeter and Veblen highlight how mobilizing capital investment into existing rather than novel channels pushes the economy towards a lifeless and low inflation circular flow. Veblen highlights how differential profitability flows from heterogenous strategies and differential success pursuing monopoly.

Politically mediated changes in corporate strategy and organizational structure away from the pursuit of oligopolistic profit through control over physical capital embedded in vertically integrated firms towards the pursuit of monopoly profit through control over IPRs in a vertically disintegrated commodity chain have shifted the OECD-21 economies onto a low investment, low growth, low inflation trajectory characterized by income inequality among workers and a specific form of profit inequality among firms. Vertical disintegration of the production process – the segmentation of production into different legal containers or firms – produced three different kinds of firms out of Fordism’s dual industrial structure. Low headcount human capital-intensive firms deploy IPRs to capture and hoard a disproportionate share of profit, reducing the growth impulse from investment. Physical capital-intensive firms rationally delay or avoid investment to avoid creating excess capacity and thus worsening their bargaining position versus the first type of firm. Labor-intensive firms typically invest little. Profit inequality has shifted investable resources towards firms with a low marginal propensity to invest; firms that might invest hesitate to create new capacity in a low growth environment. Firms with monopoly positions fear cannibalizing their sales, inhibiting productivity growth through innovation. Wage and profit trends combine to reduce total aggregate demand and thus growth.

Counterfactually, had firms remained vertically integrated, the increasing share of profit captured by IPRs would have been distributed more evenly across a larger workforce and firms would have had the resources to make investment with higher multiplier effects. Although this article does not consider fiscal policy and tax avoidance to any degree, the analysis suggests that a more sustained expansionary fiscal stance, like that present in Fordist Europe (Eichengreen, 2008), would have reduced fear of creating excess capacity. In this respect, easy tax avoidance by IPR-rich firms is one factor contributing to fiscal stress, and thence to reduced growth in aggregate demand.

The tripartite structure is a political and legal reality, not a technological or physical reality, as any tour of an automobile factory or perusal of the iPhone bill of manufactures reveals. The same tasks are being done as in the past, when automobile firms or Apple were vertically integrated. But now they are fragmented over different legal entities, producing highly unequal profit and wage outcomes. The primary problem is the legal separation of IP ownership from physical production and the bulk of employment. While the intangibility of IP matters (Haskel & Westlake, 2018), so do industrial organization and IPRs, which are matters of legal form.

In short, it is not just concentration of profits, but concentration into specific kinds of firms subsequent to a politically mediated legal fissuring of production activities and labor forces. Fragmentation reflects choices made by the political actors that control the organizations regulating antitrust enforcement (Christophers, 2016), defining what qualifies for patent or copyright protection (Pistor, 2019), and defining who is legally the employer (Weil, 2014). The good news here is that nothing about the current era of slow growth and rising inequality is baked into the cake of a ‘service economy’ or ‘information economy’. Changes in regulation, labor relations, and tax structure, as well as more the more aggressive fiscal policy that Covid-19 has already sparked could accelerate growth and change firms’ strategy and structure. None of that will be easily accomplished given the current concentration of profits and thus wealth, but Covid-19 has clearly opened the door to more aggressive policy backed by popular demands.

Notes

1. OECD-21 denotes Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Korea, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States.
2. Unless otherwise noted, ‘investment’ means the creation of new productive capacity, not the purchase of existing assets that leave the stock of tangible and intangible production inputs and cash unchanged.
3. Data availability determined date ranges. Unless otherwise noted, all data for US firms are author calculations from Wharton Research Data Services (WRDS), *Compustat* database at <https://wrds.wharton.upenn.edu>, accessed 15 March 2019, referenced as WRDS. Orbis and Orbis-20114 refer to author calculations from the Bureau van Dijk Orbis database (<https://orbis.bvdinfo.com/>) accessed 31 July 2020. FG2K indicates author calculations from Forbes Global 2000 (<https://www.forbes.com/global2000/>).
4. OECD, *Main Economic Indicators*, at https://stats.oecd.org/BrandedView.aspx?oecd_bv_id=mei-data-en&doi=data-00052-en, accessed 11 January 2021.

5. Federal Reserve Bank of St Louis, Fred database series QCNPAM770A at <https://fred.stlouisfed.org/series/QCNPAM770A>, accessed 8 January 2020.
6. Di Buccianico (2020) analyzes deeper logical contradictions in mainstream monetary policy arguments.
7. Calculated from Microsoft and Apple SEC Forms 10k for 2019.
8. Economist, 'How real-estate barons have ridden the tech boom', 09 May 2019 <https://www.economist.com/business/2019/05/09/how-real-estate-barons-have-ridden-the-tech-boom>).
9. J. Koll, 'Japan's cash reserves are now a great source of advantage,' *Financial Times* 14 May 2020, at <https://www.ft.com/content/7fdae7b1-9bc4-43d1-8e9f-72ae82cfc927>.
10. <https://www.spglobal.com/en/research-insights/articles/us-corporate-cash-reaches-19-trillion-but-rising-debt-and-tax-reform-pose-risk>.

Acknowledgements

Randall Germain most of all, and Puneet Bhasin, Dorothee Bohle, Derek Hall, Peter Hall, Eric Helleiner, Jonathan Kirshner, Melissa Lee, Anastasia Nesvetailova, Darius Ornston, Ronen Palan, David Soskice, Peter Swenson, Bent Sofus Tranøy and the anonymous reviewers provided useful comment and criticism, as did audiences in Amsterdam, Florence, London, Ottawa, Toronto, and Waterloo. Jon Ashley and Eric Rzeszut helped with data access. The biggest debts are owed to Linda Lim and James Kurth, for making me read Keynes and Schumpeter when I was 20 years old.

Disclosure Statement

No potential conflict of interest was reported by the author(s).

Funding

This study was supported by The US-Canada Fulbright Commission, Aarhus University Institute for Advanced Studies Cofund II grant, and University of Virginia Sesquicentennial fund.

Notes on contributor

Herman Mark Schwartz is professor of Politics at the University of Virginia. <https://uva.theopenscholar.com/hermanschwartz>

ORCID

Herman Mark Schwartz  <http://orcid.org/0000-0002-5571-3644>

References

- Akcigit, U., & Ates, S. T. (2021). Ten facts on declining business dynamism and lessons from endogenous growth theory. *American Economic Journal: Macroeconomics*, 13(1), 257–298.
- Andrews, D., Criscuolo, C., & Gal, P. (2016). *The best versus the rest: The global productivity slowdown, divergence across firms and the role of public policy* (OECD Productivity Working Papers, 2016-05). Paris: OECD Publishing.
- Autor, D. (2019). *Work of the past, work of the future* (NBER Working Paper No. w25588). National Bureau of Economic Research.
- Baccaro, L., & Pontusson, J. (2018). *Comparative political economy and varieties of macroeconomics* (Max-Planck-Institut für Gesellschaftsforschung Discussion Paper 18/10). Max Planck Institute.

- Baccaro, L., & Pontusson, J. (2016). Rethinking comparative political economy: The growth model perspective. *Politics & Society*, 44(2), 175–207. <https://doi.org/10.1177/0032329216638053>
- Baines, J., & Hager, S. (2021). The great debt divergence and its implications for the Covid-19 crisis: Mapping corporate leverage as power. *New Political Economy*, <https://doi.org/10.1080/13563467.2020.1865900>.
- Banerjee, R., Hofmann, B. (2018). The rise of zombie firms: causes and consequences. *BIS Quarterly Review September*, 67–78, at https://www.bis.org/publ/qtrpdf/r_qt1809.pdf.
- Barth, E., Bryson, A., Davis, J., & Freeman, R. (2014). *It's where you work: Increases in earnings dispersion across establishments and individuals in the US* (NBER Working Paper No. w20447). National Bureau of Economic Research.
- Bernstein, J. (2008). *Physicists on Wall Street and other essays on science and society*. Springer Science + Business Media.
- Bessembinder, H. (2018). Do stocks outperform treasury bills? *Journal of Financial Economics*, 129(3), 440–457. <https://doi.org/10.1016/j.jfineco.2018.06.004>
- Bessembinder, H., Chen, T.-F., Choi, G., Wei, K.-C. (2019). Do global stocks outperform US treasury bills? Available at SSRN: <https://ssrn.com/abstract=3415739>.
- Bessen, J. E. (2016). *Accounting for rising corporate profits: intangibles or regulatory rents?* (Law and Economics Research Paper 16-18). Boston University School of Law.
- Blonigen, B., & Pierce, J. (2016). *Evidence for the effects of mergers on market power and efficiency* (NBER Working Paper No. w22750). National Bureau of Economic Research.
- Boldrin, M., & Levine, D. (2008). *Against intellectual monopoly*. Cambridge University Press.
- Bulow, J., Geanakoplos, J., & Klemperer, P. (1985). Holding idle capacity to deter entry. *The Economic Journal*, 95(377), 178–182. <https://doi.org/10.2307/2233477>
- Callaci, B. (2018). Control without responsibility: The legal creation of franchising 1960-1980. Washington Center for Equitable Growth, available @ <https://equitablegrowth.org/working-papers/control-without-responsibility-the-legal-creation-of-franchising-1960-1980/>.
- Carlin, W., & Soskice, D. (2018). Stagnant productivity and low unemployment: Stuck in a Keynesian equilibrium. *Oxford Review of Economic Policy*, 34(1–2), 169–194. <https://doi.org/10.1093/oxrep/grx060>
- Chandler, A. (1962). *Strategy and structure*. MIT Press.
- Chen, M., & Kang, J. (2018). *Credit Booms—Is China Different?*. International Monetary Fund Working Paper 18/2. : International Monetary Fund.
- Chen, P., Karabarbounis, L., & Neiman, B. (2017). The global rise of corporate saving. *Journal of Monetary Economics*, 89, 1–19. <https://doi.org/10.1016/j.jmoneco.2017.03.004>
- Christophers, B. (2016). *The great leveler: Capitalism and competition in the court of law*. Harvard University Press.
- Culpepper, P. (2010). *Quiet politics and business power: Corporate control in Europe and Japan*. Cambridge University Press.
- Cunningham, C., Ma, S., & Ederer, F. (2021). Killer acquisitions. *Journal of Political Economy*, 129(3), 649–702. <https://doi.org/10.1086/712506>
- Cynamon, B., & Fazzari, S. (2015). Rising inequality and stagnation in the US economy. *European Journal of Economics and Economic Policies: Intervention*, 12(2), 170–182. <https://doi.org/10.4337/ejeep.2015.02.03>
- Dao, M., & Maggi, C. (2018). *The rise in corporate saving and cash holding in advanced economies* (Working Paper WP/18/262). International Monetary Fund.
- Davis, L., & Orhangazi, Ö. (2021). Competition and monopoly in the US economy: What do the industrial concentration data show? *Competition & Change*, 25(1), 3–30. <https://doi.org/10.1177/1024529420934011>
- De Loecker, J., & Eeckhout, J. (2017). *The rise of market power and the macroeconomic implications* (NBER Working Paper No. w23687). National Bureau of Economic Research.
- De Loecker, J., & Eeckhout, J. (2018). *Global market power* (NBER Working Paper No. w24768). National Bureau of Economic Research.
- Di Bucchianico, S. (2020). Discussing secular stagnation: A case for freeing good ideas from theoretical constraints? *Structural Change and Economic Dynamics*, 55, 288–297. <https://doi.org/10.1016/j.strueco.2020.06.002>
- Durand, C., & Milberg, W. (2020). Intellectual monopoly in global value chains. *Review of International Political Economy*, 27(2), 404–429. <https://doi.org/10.1080/09692290.2019.1660703>

- Dustmann, C., Fitzenberger, B., Schönberg, U., & Spitz-Oener, A. (2014). From sick man of Europe to economic superstar: Germany's resurgent economy. *Journal of Economic Perspectives*, 28(1), 167–188.
- Eichengreen, B. (2008). *The European Economy since 1945: Coordinated capitalism and beyond*. Princeton University Press.
- Emmenegger, P., Häusermann, S., Palier, B., & Seeleib-Kaiser, M. (Eds.). (2012). *The age of dualization: The changing face of inequality in deindustrializing societies*. Oxford University Press.
- Engelen, E. (2008). The case for financialization. *Competition & Change*, 12(2), 111–119.
- Fazzari, S., Hubbard, R., & Petersen, B. (1987). *Financing constraints and corporate investment* (NBER Working Paper No. w2387). National Bureau of Economic Research.
- Feldman, R. (2018). May your drug price be evergreen. *Journal of Law and the Biosciences*, 5(3), 590–647. <https://doi.org/10.1093/jlb/lsy022>
- Fiebigler, B. (2016). Rethinking the financialisation of non-financial corporations: A reappraisal of US empirical data. *Review of Political Economy*, 28(3), 354–379. <https://doi.org/10.1080/09538259.2016.1147734>
- Fisher, J., Johnson, D., Smeeding, T., & Thompson, J. (2019). *Estimating the marginal propensity to consume using the distributions of income, consumption and wealth* (Working Paper 19-4). Federal Reserve Bank of Boston.
- Fisk, C. (2009). *Working knowledge: Employee innovation and the rise of corporate intellectual property, 1800–1930*. University of North Carolina Press.
- Ghosh, A. (2017). *Pricing and performance of initial public offerings in the United States*. Routledge.
- Goldschmidt, D., & Schmieder, J. (2017). The rise of domestic outsourcing and the evolution of the German wage structure. *The Quarterly Journal of Economics*, 132(3), 1165–1217. <https://doi.org/10.1093/qje/qjx008>
- Gordon, R. (2017). *The rise and fall of American growth*. Princeton University Press.
- Gutiérrez, G., & Philippon, T. (2019). *Fading stars* (NBER Working Paper No. w25529). National Bureau of Economic Research.
- Hall, B., Helmers, C., & Von Graevenitz, G. (2015). *Technology entry in the presence of patent thickets* (NBER Working Paper No. w21455). National Bureau of Economic Research.
- Hall, P., & Soskice, D. (2001). *Varieties of capitalism*. Oxford University Press.
- Hansen, A. (1939). Economic progress and declining population growth. *American Economic Review*, 29(1), 1–15.
- Haskel, J., & Westlake, S. (2018). *Capitalism without capital*. Princeton University Press.
- Herrigel, G. (2015). Globalization and the German industrial production model. *Journal for Labour Market Research*, 48(2), 133–149. <https://doi.org/10.1007/s12651-014-0170-5>
- Hope, D., & Martelli, A. (2019). The transition to the knowledge economy, labor market institutions, and income inequality in advanced democracies. *World Politics*, 71(2), 236–288. <https://doi.org/10.1017/S0043887118000333>
- Horan, H. (2019). Uber's path of destruction. *American Affairs*, 3(2), 108–133.
- IMF (2020). *World economic outlook*. International Monetary Fund.
- Kalecki, M. (1943). *Studies in economic dynamics*. George Allen and Unwin.
- Karabarbounis, L., & Neiman, B. (2014). The global decline of the labor share. *The Quarterly Journal of Economics*, 129(1), 61–103. <https://doi.org/10.1093/qje/qjt032>
- Kehoe, P., Midrigan, V., & Pastorino, E. (2018). Evolution of modern business cycle models. *Journal of Economic Perspectives*, 32(3), 141–166. <https://doi.org/10.1257/jep.32.3.141>
- Keynes, J. (1936/1964). *The general theory of employment, interest and money*. Harcourt Brace Jovanovich.
- Kostin, D. (2018). *Where to invest now: 2019 US equity outlook*. Goldman Sachs.
- Lazonick, W. (2014). Profits without prosperity. *Harvard Business Review*, 92(9), 46–55.
- Mian, A., Straub, L., & Sufi, A. (2020). *The saving glut of the rich and the rise in household debt* (NBER Working Paper No. w26941). National Bureau of Economic Research.
- Nitzan, J. (1998). Differential accumulation: Towards a new political economy of capital. *Review of International Political Economy*, 5(2), 169–216. <https://doi.org/10.1080/096922998347543>
- Noble, D. (1984). *Forces of production: A social history of industrial automation*. Knopf.
- OECD (2020). *Economic outlook 2020–2*. OECD Publishing.
- Orhangazi, Ö. (2019). The role of intangible assets in explaining the investment–profit puzzle. *Cambridge Journal of Economics*, 43(5), 1251–1286. <https://doi.org/10.1093/cje/bey046>

- Pagano, U. (2014). The crisis of intellectual monopoly capitalism. *Cambridge Journal of Economics*, 38(6), 1409–1429. <https://doi.org/10.1093/cje/beu025>
- Peinert, E. (2019). *Liberalization, Protectionism, and Pervasive Market Regulation [Paper presentation]*. Presentation at the Society for Advancement of Socio-Economics Annual Meeting, New York, NY.
- Philippon, T. (2019). *The great reversal*. Belknap Press.
- Piore, M., & Sabel, C. (1984). *The second industrial divide*. Basic Books.
- Pistor, K. (2019). *The code of capital: How the law creates wealth and inequality*. Princeton University Press.
- Rachel, L., & Summers, L. (2019). *On secular stagnation in the Industrialized World* (NBER Working Paper No. w26198). National Bureau of Economic Research.
- Redeker, N. (2019). *The politics of stashing wealth. The demise of labor power and the global rise of corporate savings* (CIS Working Paper No. 101). University of Zurich.
- Results Healthcare (2017). Pharma & biotech 2017: Review of outsourced manufacturing. Accessed @ https://resultshealthcare.com/wp-content/uploads/2017/01/Results-Healthcare_Pharma-Biotech-2017-Review-of-outsourced-manufacturing_Whitepaper.pdf
- Satariano, A., Burrows, P. (2011). Apple's supply-chain secret? Hoard lasers. *Bloomberg Businessweek*, at <http://www.businessweek.com/primer/magazine/apples-supplychain-secret-hoard-lasers-11032011.html>.
- Schacht, W. (2006). *Patent reform: Issues in the biomedical and software industries*. Congressional Research Service (7 April 2006), available at: <http://sharp.sefora.org/wp-content/uploads/2007/12/r133367.pdf>.
- Schumpeter, J. (1934). *The theory of economic development*. Harvard University Press.
- Schumpeter, J. (1950). *Socialism, capitalism and democracy*. Harper.
- Schwartz, H. (2009). *Subprime nation*. Cornell University Press.
- Schwartz, H. (2016). Wealth inequality and secular stagnation: The role of industrial organization and intellectual property rights. *Russell Sage Foundation Journal of the Social Sciences*, 2(6), 226–249.
- Schwartz, H. (2017). Club goods, intellectual property rights, and profitability in the information economy. *Business and Politics*, 19(2), 191–214. <https://doi.org/10.1017/bap.2016.11>
- Schwartz, H. (forthcoming). Intellectual property, technorents, and the labour share of production. *Competition and Change*. <https://doi.org/DOI: 10.1177/1024529420968221>
- Sell, S. (2003). *Private power, public law: The globalization of intellectual property rights*. Cambridge University Press.
- Selmier, T., & Winecoff, W. (2017). Re-conceptualizing the political economy of finance in the post-crisis era. *Business and Politics*, 19(2), 167–190. <https://doi.org/10.1017/bap.2017.12>
- Song, J., Price, D., Guvenen, F., Bloom, N., & von Wachter, T. (2019). Firming up inequality. *The Quarterly Journal of Economics*, 134(1), 1–50. <https://doi.org/10.1093/qje/qjy025>
- Stansbury, A., & Summers, L. (2020). *The declining worker power hypothesis: An explanation for the recent evolution of the American economy* (NBER Working Paper 27193). National Bureau of Economic Research.
- Steindl, J. (1952). *Maturity and stagnation in American capitalism*. New York University Press.
- Stockhammer, E. (2005–2006). Shareholder value orientation and the investment-profit puzzle. *Journal of Post Keynesian Economics*, 28(2), 193–215. <https://doi.org/10.2753/PKE0160-347280203>
- Stockhammer, E. (2008). Some stylized facts on the finance-dominated accumulation regime. *Competition & Change*, 12(2), 184–202.
- Storm, S. (2017). The new normal: Demand, secular stagnation, and the vanishing middle class. *International Journal of Political Economy*, 46(4), 169–210. <https://doi.org/10.1080/08911916.2017.1407742>
- Streeck, W. (2014). *Buying time: The delayed crisis of democratic capitalism*. Verso Books.
- Teulings, C. & Baldwin, R. (Eds). (2014). *Secular stagnation: Facts, causes and cures*. CEPR.
- Tomaskovic-Devey, D., & Lin, K. (2011). Income dynamics, economic rents, and the financialization of the US economy. *American Sociological Review*, 76(4), 538–559. <https://doi.org/10.1177/0003122411414827>
- USPTO (United States patent and Trademark Office). (2018). Calendar Year Patent Statistics. Available at https://www.uspto.gov/web/offices/ac/ido/oeip/taf/reports_topo.htm.

- van Reenen, J. (2018). *Increasing differences between firms: Market power and the macroeconomy* (CEP Discussion Paper No 1576), available at http://eprints.lse.ac.uk/91698/1/Van-Reenen_Increasing-differences_Author.pdf.
- van Treeck, T. (2008). Reconsidering the investment–profit nexus in finance-led economies: An ARDL-based approach. *Metroeconomica*, 59(3), 371–404. <https://doi.org/10.1111/j.1467-999X.2008.00312.x>
- van Treeck, T. (2009). The political economy debate on ‘financialization’ – A macroeconomic perspective. *Review of International Political Economy*, 16(5), 907–944. <https://doi.org/10.1080/09692290802492158>
- Veblen, T. (1904/1975). *The theory of business enterprise*. A. M. Kelley.
- Veblen, T. (1908a). On the nature of capital. *The Quarterly Journal of Economics*, 22(4), 517–542. <https://doi.org/10.2307/1884915>
- Veblen, T. (1908b). On the nature of capital: Investment, intangible assets, and the pecuniary magnate. *The Quarterly Journal of Economics*, 23(1), 104–136. <https://doi.org/10.2307/1883967>
- Verdoorn, P. (1951). On an empirical law governing the productivity of labor. *Econometrica*, 19(2), 209–215.
- Weil, D. (2014). *The fissured workplace*. Harvard University Press.
- Zuboff, S. (1988). *In the age of the smart machine: The future of work and power*. Basic Books.