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Financialization's conservation and transformation: from Mark I to Mark II

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Abstract

This paper argues that, as far as the investment behavior of non-financial corporations is concerned, the apparent continuity over the last four decades suggested by the financialization label is misleading. Indeed, while the disconnection between profitability and investment is a robust stylized fact for most of the period, with cumulative detrimental consequences for labor, we contend that the underlying mechanisms changed meaningfully at the turn of the millennium.

This contribution proposes to establish -empirically and theoretically- two distinctive successive financialization regimes (Mark I and Mark II) and to explain their evolutionary articulation.

Financialization Mark I is characterized by the empowerment of financial actors: in a context of high-interest rates and full-blown liberalization, diminishing retained earnings by non-financial corporations resulted in a dramatic slowdown of investment with cascading negative effects for labor. Contrastingly, Financialization Mark II is characterized by a strongly established financial hegemony with new forms of intellectual and financial monopoly. In this configuration, interest rates are low and global value chains are deeply seated. This fuels rampant deflationary pressure, which changes the overall dynamic of the profit-investment nexus. Then, in Financialization Mark II, contrary to what occurred during Financialization Mark I, distributed profits are the consequence of slow investment.

Keywords

Financialization regimes; Investment-profit nexus; Payout; Globalization: Intellectual monopoly; Asset managers

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1. Introduction

The four last decades exhibited a puzzling concomitance of macro-tendencies. Except for the United States (US) in the second half of the nineties, most developed economies experienced disappointing performances in terms of GDP and productivity growth; investment was generally lackluster but profitability improved and stock market valuation skyrocketed at a historical high in 2020, in the middle of a pandemic.

This period was also characterized by a meaningful change in corporate governance. After decades of relative managerial autonomy, the shareholder value orientation (SVO) progressively asserted the primacy of equity holders among other stakeholders on legal and economic grounds. This followed a sharp rise in real interest rates after the generalization of restrictive monetary policies by central banks in the name of the fight against inflation at the turn of the eighties. In the meantime, a vast movement of internal and external liberalization of financial operations drastically increased financial assets' liquidity.

Overall, these self-reinforcing changes resulted in a new assertiveness of the claims of the financial community (banks, financial institutions, investment funds, and ultimate owners of assets...) and in a weakening of labor position, which suffered an increasing commodification and a relative devaluation *vis-à-vis* capital.

This evolution was dubbed, with many nuances, financialization (van der Zwan, 2014). In addition to the commodification of multiple aspects of everyday life and the increasing penetration of financial motives, the disconnection of profits and accumulation has been a central issue in the literature (Durand & Gueuder, 2018; Stockhammer, 2004). Other important contributions have explored the role of household debt and financial wealth in the formation of demand regimes (Stockhammer & Kohler, 2019; Stockhammer & Wildauer, 2016), while recent research focuses on the rising use of securitization to support debt expansion and fund development policies and infrastructures through public-private partnership (Gabor, 2020b, 2020a).

Here, the emphasis is on non-financial corporations' investment behavior and, in particular, the intricacies of what the literature refers to as the SVO (Aglietta, 2000; Froud et al., 2000; Lazonick, 2017; Lazonick & O'sullivan, 2000). This paper deals with this specific dimension of financialization that we define as a shift in the uses of profits by non-financial corporations at the expense of overall productive investment. Our empirical inquiry covers the five biggest high-income economies (France, Germany, Japan, the United Kingdom, and the US) between 1980 and 2018. It consists of descriptive statistics built upon macro and micro datasets, in order to grasp dynamics occurring both at the country level and at the largest global firm-level.

We argue that, as far as the investment behavior of non-financial corporations is concerned, the apparent continuity over the last four decades suggested by the financialization label is misleading. Indeed, while the disconnection between profitability and investment is a robust stylized fact for most of the overall period, with cumulative detrimental consequences for labor, we contend that the underlying mechanisms changed meaningfully at the turn of the millennium.

We retain the year 2000 to distinguish between two periods. Although the choice of this specific year for the caesura is to some extent arbitrary, it is nonetheless a pivotal date along various dimensions that matters for our research. It signals the end of the digital economy boom in the US and the burst of the dot-com bubble, a sharp decrease of interest rates, the Doha agreement for global protection of intellectual property rights, and the entry of China into the WTO.

This contribution aims to establish -empirically and theoretically- two distinctive successive financialization regimes (Mark I and Mark II) and explain their evolutionary articulation.

Financialization Mark I received detailed attention from, among others, non-mainstream economists, sociologists, and geographers for the past quarter of a century. It is characterized by the empowerment of financial actors: in a context of high-interest rates and full-blown liberalization, diminishing retained earnings by non-financial corporations resulted in a dramatic slowdown of investment with cascading negative effects for labor. Contrastingly, Financialization Mark II is characterized by a strongly established financial hegemony with new forms of intellectual and financial monopoly. In this configuration, interest rates are low and global value chains are deeply seated. This fuels rampant deflationary pressure, which changes the overall dynamic of the profit-investment nexus. We argue that in Financialization Mark II, contrary to what occurred during Financialization Mark I, distributed profits are the consequence of slow investment, not the cause.

To elaborate on this argument, the rest of the paper is organized as follows. Section 2 outlines the fields of literature that address the issue of sluggish investment in the financialization era. Section 3 delineates conceptually the internal articulation of Financialization Mark I and Financialization Mark II and how they are evolutionarily related. Section 4 explains the operationalization of our categories and introduces our data sources. Section 5 presents descriptive statistics that document the continuities and differences of Financialization Mark I & II along several dimensions. Section 6 concludes with a discussion of these stylized facts and allows for a nuanced interpretation of the proposed conceptual framework.

2. Sluggish investment in the financialization era

For several decades, the literature has explored a wide array of debates about the disconnection between profits and investment in the context of financialization. As far as this paper is concerned, three dimensions are particularly relevant: (1) changes in corporate governance related to the rise of institutional investors and the affirmation of the primacy of the shareholder value; (2) changes in competition regimes; and (3) changes in demand growth and the formation of new demand regimes.

2.1. The shareholder orientation of corporate governance and the rise of financial investors

Shareholder value is nothing more than the net present value expected by investors in financial theory (Fisher, 1930; Modigliani & Miller, 1958). However, since the 1980s, the concept is used to legitimate changes in corporate governance both at the practical (Aglietta, 2000; Froud et al., 2000) and theoretical level (Jensen, 1986; Tirole, 2006). In practice, it promoted a change in corporate strategies, shifting from a “retain and

reinvest” model to a “downsize and distribute” model (Lazonick & O’sullivan, 2000). From the beginning of the 1980s, the diffusion of this model was fostered by the rise of institutional financial investors and their empowerment as activist shareholders, first in the US and then in other rich economies (Gillan & Starks, 2000; Jeffers & Plihon, 2001).

From the seventies on, a combination of various factors paved the way to what Hyman Minsky called “money manager capitalism” (eg. Whalen, 2001). In this multifold process of transformation of finance, three factors played a prominent role. First, in the US, the 1974 Employee Retirement Income Security Act fostered the deployment of asset management practices oriented toward diversification, following the principles of modern portfolio theory (Montagne, 2013). Second, the tightening of global monetary conditions, following the “1979 coup” by the US FED and other central banks to curb inflation (Duménil & Lévy, 2004; Smithin, 1996), reinforced the attractiveness of savings in particular in the booming mutual funds’ industry. Third, the dismantlement of capital controls, completed in the early nineties in the European Union, accelerated foreign investment by US money managers, the diffusion of the shareholder value orientation in coordinated market economies like France, Germany, and Japan (Ahmadjian & Robbins, 2005; Lantenois & Coriat, 2011; Morin, 2000) and, more broadly, reinforced the power of finance due to the deepening of global liquidity (Orléan, 1999).

High interest rates and the empowerment of financial investors resulted in a financial norm of high payouts to shareholders and a hurdle rate on productive investment projects (Boyer, 2000). Some authors point to the reduction in retained earnings as the main driver of the diminishing ability of firms to invest (Duménil & Lévy, 2004; Lazonick, 2010, 2017). Others indicate a greater alignment of managers’ and shareholders’ preferences resulting in a greater emphasis on profitability over growth (Dallery, 2009; Dobbin & Zorn, 2005; Stockhammer, 2004). Finally, some literature argues that outsourcing and offshoring of production are related to shareholder empowerment because they support higher profits and payouts without investment in real assets (Auvray & Rabinovich, 2019; Milberg, 2008; Orhangazi, 2018).

Two sets of empirical studies explore the negative relation between investment and the empowerment of financial investors. The first group includes econometric studies that rely on an investment equation derived from the work of Fazzari et al. (1988). A negative correlation between investment in capital expenditures and financial payouts, either in the form of interest payments or dividends and share buybacks, was observed for the US (Davis, 2018; Hecht, 2014; Orhangazi, 2008; Van Treeck, 2008), the UK (Tori & Onaran, 2018), France (Clévenot et al., 2010), and the European Union (Barradas, 2017). Other studies also claim that investment in capital expenditures is crowded out by investment in financial assets because the latter’s rate of return is higher than that of the former (eg. Krippner, 2005). Yet, despite some specific cases that may validate this thesis, it is not a general trend (Rabinovich, 2019).

The second body of empirical studies relates impatient or transient institutional ownership to the decline in investment by non-financial corporations. Bushee (1998) is the first to show that US corporations cut their R&D expenditures when benefits decline because their ownership structures are dominated by transient institutional owners, i.e. with a high portfolio turnover. Brossard et al. (2013) find similar results for innovative European companies. In the case of the US, Asker et al. (2015) show that listed corporations invest less than their non-listed counterparts and, among listed firms, those with higher transient institutional ownership have lower capital expenditures.

Gutiérrez and Philippon (2016) also show the negative correlation between impatient shareholders and investment.

In addition to the direct consequences of institutional investors' empowerment and shareholder value orientation on firms' investment behaviour, the internal dynamic of competition between financial investors also led to significant changes in the ownership of non-financial corporations. As will be expose next, the literature suggests that this transformation at the level of the overall ownership structure also affects firms' investment.

2.2. Competition regimes

Compared to the "relatively quiet and uncompetitive '60s" (Shleifer & Vishny, 1991, p. 54), the early 1980s were characterized by slowing inflation, high interest rates, low profits, and increased foreign competition (Fligstein & Markowitz, 1993; O'Sullivan, 2001a; Stein, 2010). Competitive pressures increased with European and Asian catching-up *vis-à-vis* the US and, more broadly, with the liberalization of trade and capital flows and the deregulation of internal markets. To some extent, this context of coerced competition compelled firms to invest to survive, but the destructive impact of rising overcapacities played a more prominent and detrimental role on global investment (Brenner, 2004; Crotty, 2003; Koo, 2018; Mazier et al., 1984; Petit, 1999).

Intensifying competition characterized the beginning of the financialization era. However, since then a multidimensional process of monopolization gained steam.

In the early eighties, the Bayh-Dole Act authorized US academic institutions to patent public-funded research results and to transfer this knowledge to private firms by providing exclusive licenses or creating joint ventures (Berman, 2011; Bok, 2003; Mowery, 2005; Orsi & Coriat, 2006). This was the beginning of a massive process of knowledge enclosures that, with the support of US, European and Japanese transnational corporations, expanded globally via the WTO and bilateral or regional trade agreement (Abbott, 2006; Drahos, 1995; Dreyfuss & Frankel, 2014; Sell, 2003, 2010; Shadlen, 2008). In this context, Pagano (2014, p. 1413) coined the term intellectual monopoly capitalism to account for a new stage in capitalism where the distribution of profits is increasingly explained by the centralization of intellectual property rights (IPRs) and defined intellectual monopoly as the "legal monopoly over some items of knowledge, which extends well beyond national boundaries".

Since the 2000s, empirical evidence shows that R&D efforts and the accumulation of IPRs contributed to increasing profits and concentration. R&D efforts were shown to be positively and significantly correlated with corporate net profits and with performance in the Standard and Poor's Stock Market Index (Lambert, 2019). Likewise, based on the distribution of cash holdings by US corporations, Schwartz (2016) suggested that an uneven distribution of IPRs explains profits' differentials. In the same vein, Orhangazi (2018) revealed that intangible-intensive industries' profit rate grew faster than their total assets. Beyond the US, an OECD report analyzed 26 countries (the US and a sample of European and Asian economies) between 2001 and 2014 and found that the mark-ups of firms at the top of the mark-up distribution grew, while the bottom half of the distribution exhibits a flat trend over time, and that mark-ups were higher in digital-intensive sectors (Calligaris et al., 2018). Furthermore, a recent joint OECD and European Union report shows that the top 2000 corporations in business expenditure in

R&D concentrated 60% of total IP5¹ patents between 2014 and 2016 (Dernis et al., 2019). Far from the ideal view of a reward to creativity, these studies suggest that IPRs and, more broadly, accumulation of intangibles generate detrimental rents.

In addition to the legal barriers built by IPRs, the rise of intangible assets and their economic properties (Corrado et al., 2012; Haskel & Westlake, 2018) generated supplementary intellectual monopoly dynamics resulting from predatory practices in global innovation networks (Rikap, 2020), the centralization of data, and the exploitation of differential returns to scale between tangible intensive and intangible intensives segments in the context of value chains (Durand & Milberg, 2020). More generally, these rents are characteristic of the digital economy, particularly in the case of tech giants (Durand, 2020; Foley, 2013; Rikap, Forthcoming). Overall, intellectual monopolies profit from these different types of rent that intersect and often reinforce each other. But the detrimental effect on investment is not limited to the fact that profits are channeled to firms largely protected from competition. Intellectual monopoly also prevents other firms to use and learn from privatized ideas and invest accordingly (Pagano & Rossi, 2009).

Corroborating this conjecture, empirical studies show that intangible accumulation is associated with market power that increases prices per unit of investment (Rabinovich, 2020) and can be regarded as one possible cause of weak investment *vis-à-vis* profitability and valuation since the early 2000s in the US (Gutiérrez & Philippon, 2016).

Besides, and with some overlapping with this intellectual monopolization, the transformation of the financial industry fueled a parallel dynamic of monopolization which is also considered to affect investment behavior.

Regarding asset management, the 2008 crisis has been the starting point of a huge centralization of savings in index funds and ETFs provided by the now Big Three asset managers, Blackrock, Vanguard, and State Street Global Advisors (Elhauge, 2016, Fichtner et al., 2017, Fisch et al., 2018, Bebchuk and Hirst, 2019, 2020, Azar, 2020, Fichtner and Heemskerk, 2020). Their business model relies on expanding market shares thanks to low fees allowed by passive asset management and the dilution of fixed costs via economies of scale. They also took advantage of intellectual monopoly dynamics related to the development of “digital asset management platforms” (Haberly et al., 2019).

As a consequence of savings centralization, portfolio diversification by these giant investors reaches such a point that they hold important shares in each of the companies of their portfolio. In the US, they collectively hold 20% in each of the S&P500 companies (Bebchuk & Hirst, 2019). They also have important holdings in European and Japanese companies (Fichtner & Heemskerk, 2020). This new trend challenges the short-term orientation of financial markets underlined by the literature because the exit option is not available for these investors that follow index composition changes. That is why Fichtner and Heemskerk (2020) label them “universal permanent owners”.

The literature has documented the effect of this common ownership on corporate behaviors in the US: i) common ownership in a specific industry is associated with oligopoly pricing by corporations of this industry, both in the airline industry (Azar et al., 2018) and the banking industry (Azar et al., 2019); ii) CEOs compensation is

¹ Patents in the 5 largest patent offices: European Patent Office (EPO), Japan Patent Office (JPO), Korean Intellectual Property Office (KIPO), National Intellectual Property Administration of the People's Republic of China (CNIPA) and the United States Patent and Trademark Office (USPTO).

correlated to industry performance rather than firm performance (Antón et al., 2016); iii) the decreasing share price of acquirers during M&As in a given industry is compensated by the increasing share returns of the targeted and other firms of the industry, M&As increasing the average share return of an industry (Anton et al., 2020).

These analyses indicate that the interest of these permanent universal investors relies more on sectoral performance rather than individual firm performance. Accordingly, they foster managers to restrain to invest to avoid the uncertainties of intra-industry competition and their possible negative effects on overall sectoral profits. Moreover, rents from monopoly pricing and the increasing output price per investment mechanically restrain incentives to invest.

2.3. Depressed demand growth and the formation of new demand regimes

The deep interconnection and reinforcement between the set of neoliberal policies and weak investment has been widely noticed in the literature and is linked to several dimensions of the formation of demand regimes.

First, neoliberal policies implied a deteriorating income distribution given by a shift in power from labor to capital, both a de- (and also re-) regulation of various markets, a reduced direct economic involvement of the state given by privatization, and a shift in monetary policy going from full employment to price stability (Stockhammer, 2008; Vercelli, 2015).

In the US, the socio-economic shock was particularly brutal with a loss close to 10% of the value of real hourly earnings for production and non-supervisory workers between 1979 and 1998 (O’Sullivan, 2001b, p. 198). More generally, the gap between productivity and wages increased for most of the period at the expense of labor in the US (Fleck et al., 2011; Lazonick, 2014), but also in other OECD countries (Elgin & Kuzubas, 2013; Erumban & Vries, 2016).

Also for the case of the US, Autor et al. (2017) showed that the rise of what they dubbed as superstar firms that concentrate sales within industries and are less labor-intensive than other firms and industries, contributes to explaining the fall in the labor share. Beyond the US, considering a group of OECD countries, Kohler et al. (2019) found that financial liberalization broadens exit options for firms and has negative effects on the wage share. More specifically, the negative link between wages and payout to shareholders was established for France, Germany, the UK, and the US (Alvarez, 2015; Duenhaupt, 2011; Lin & Tomaskovic-Devey, 2013; Onaran & Guschanski, 2018; Willman & Pepper, 2020).

The impact on economic growth brought about by these distributive changes has been largely studied in the post-Keynesian literature built around the Bhaduri-Marglin models. Most of these studies has found wage-led demand regimes for the countries considered in this article (Ederer et al., 2007; Hein & Vogel, 2008; Onaran et al., 2011; Onaran & Galanis, 2014; Stockhammer et al., 2009). The combination of wage-led economic regimes with pro-capital distributional policies is what Stockhammer and Lavoie (2013) call “neoliberalism in practice” –in contrast with “neoliberalism in theory”- an unstable regime that has to rely on exogenous growth drivers.

This points to the second link between financialization and demand growth: recessionary tendencies have -to some extent- been contained by external sources of demand. The most relevant sources of exogenous growth can be found in government

expenditures, consumer credit, residential investment, and exports (Girardi & Pariboni, 2016). From a Kaleckian point of view, these other sources of effective demand partly explain the declining trend of the investment-profit relation as they have compensated for the reduction in investment, allowing profits to remain high (Cordonnier, 2006).

These various sources of external demand play different roles according to each country and/or region: export-driven growth models characterize Nordic European countries while debt-driven appear more prominently in Anglo-Saxon and southern European countries (Hein, 2012; Stockhammer, 2009). In fact, debt-fuelled consumption has been one of the hallmarks associated with financialization and the aforementioned falling wages, which coexisted with social patterns pushing for high consumption (Barba & Pivetti, 2009; Cynamon & Fazzari, 2008; Frank et al., 2014). In terms of public expenditures, their stagnation or decrease over GDP in OECD countries is a common feature since the 1980s up to the great financial crisis (Stockhammer, 2008). In the immediate aftermath, the surge in public expenditure has been too short-lived and insufficient to overcome stagnation tendencies that were, on the contrary, aggravated by austerity policies (Botta & Tori, 2018; House et al., 2020; Kohler & Stockhammer, 2020).

All those autonomous expenditures were put together, for the USA, in a “supermultiplier” model following the Sraffian tradition (Girardi & Pariboni, 2016). Their results indicate that long-run decline in output growth was mainly due to the decline of public expenditures. Similar outcomes have been found by the IMF (2015), where simple accelerator models proved to have high explanatory power to predict investment.

Besides the specific dynamics of government expenditures, consumer credit, residential investment, and exports; the liberalization of trade and international financial flows has added a high degree of volatility and uncertainty to the economy that worsens the overall picture for demand and investment (Arestis & Glickman, 2002; Orhangazi, 2008).

Overall, this rapid outlook on the literature indicates that, since the eighties, three main factors have affected adversely -and unevenly in space and time- non-financial firms' investment behavior. First, the empowerment of financial investors and the related shareholder value orientation. Second, monopolization dynamics related both to intellectual monopoly and a rapid concentration of ownership by gigantic asset managers. Third, more indirectly, the cumulative effects of neoliberal policies and the empowerment of shareholders have contributed to constrain workers' consumption, which depressed investment via the channels of managers anticipation and the formation of palliative sources of demand less favorable to investment.

The next section proposes a conceptual analysis of the transformation of these diverse dimensions of financialization and proposes an articulation of the shift between two distinctive phases or financialization regimes.

3. Payout as a cause then as a consequence of low investment: a stylized story of financialization

As far as the investment behavior of non-financial corporations is concerned, the apparent continuity along the last four decades suggested by the financialization label is

misleading. Indeed, while the disconnection between profitability and investment is a robust stylized fact for most of the period, with cumulative detrimental consequences for labor (see sections 2 and 5), we contend that the underlying mechanisms changed meaningfully at the turn of the millennium.

This section outlines the conceptual framework we propose to explain the internal logic of two successive configurations of financialization. The labels Mark I and Mark II are freely adapted from the Schumpeterian literature on innovation (Malerba & Orsenigo, 1995). It allows putting forward two distinctive logics contributing to a similar phenomenon, innovation in their case, profit without investment in ours.

The articulation proposed is highly stylized. However, it allows bringing together theoretical links that are usually set apart. Indeed, in addition to delineating the key defining relations of each regime, our conceptual framework proposes a theoretical articulation to account for the evolutionary shift from Financialization Mark I to Financialization Mark II. As exposed in Diagram 1, Financialization Mark I and Mark II are two regimes of accumulation characterized by slow investment and high financial payments, but they differ in their internal logic although they are evolutionarily related.

As we have seen in section 2, Financialization Mark I received detailed attention from non-mainstream economists for already a quarter of a century. It is characterized by the empowerment of financial actors. Financial deregulation paved the way for the rise of financial investors eager to extract payouts to maximize shareholder value in the short run. In this period, facing high inflationary pressure and widespread social unrests, the FED's decision to raise its key interest rates constrained most of the central banks to follow, which unleashed the revenge of finance. The resulting rise of real interest rates weighed on firms' internal finance. Moreover, high rates created a financial norm calling for higher distributed earnings to shareholders and acting as a hurdle rate to non-financial capital valorization.

This change of monetary conditions and the rise of a *financial norm* was a general constraint weighting on non-financial corporations' ability to fund their investment. This was all the more the case that competitive pressures grew tenser with industrial catching-up and the liberalization of trade and capital flows. Facing the primacy of a competitiveness agenda, management was more incentivized to focus on increased efficiency than on expansion.

In summary, in Financialization Mark I, the rationale of the surge in financial payments and the slowdown of investment responded to the combined influences of (i) the empowerment of financial investors at the expense of the unions, (ii) monetary tightening, and (iii) growing competitive pressure. Another outcome of Financialization Mark I was the deterioration of workers' bargaining power as a result of weaker labor demand and ongoing neoliberal reforms of the labor market and the welfare state. In turn, this contributed to depress investment through weaker consumer demand.

In the meantime, competition between financial institutions to attract fund management resulted in a general tendency toward portfolio diversification. According to Modern Portfolio Theory (Fama et al., 1969; Samuelson, 1974), investors cannot beat the market, which means that they cannot do better than to adopt a mimetic behavior (Orl an, 1989). And indeed, market movements explain more than 95% of the stock returns of US defined benefits pension funds over 1990-2008 (Aglietta et al., 2012), and about two-thirds of US professional equity funds are outperformed by the S&P's 500-Stock Index from the 1970s to the 2000s (Burton G Malkiel, 1995; Burton G. Malkiel, 2005; Burton

Gordon Malkiel, 2019). Passive investment was consistently more profitable than active investment, which paved the way for the rapid development of mega index-tracking funds and the rapid consolidation of the sector. Finally, at the institutional level, the deepening of marketization policies led to a more stringent definition and wider enforcement of IPRs and provided a generally supportive regulatory framework for the unfolding of emerging digital industries.

Financialization Mark II emerges out of these transformations. This new structural configuration is also characterized by weak investment and a further deterioration of labor bargaining power. However, several key relations took new prominent importance.

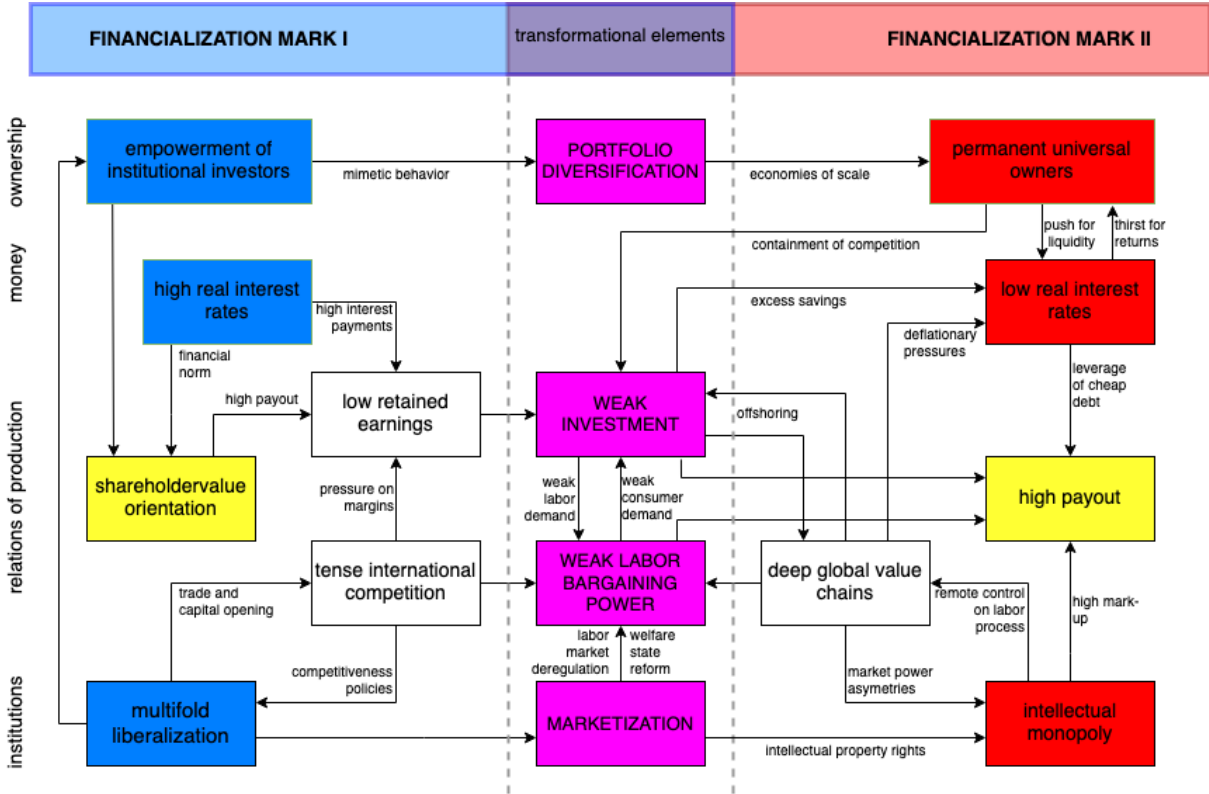
First globalization. Liberalization of international economic relations and technological breakthroughs in logistics and communications allowed for a spectacular increase in the fragmentation of productive processes, initially in manufacturing and increasingly in a wide array of (digital) services. This mobilization of cheap labor in the global south under the control of mostly northern lead firms was perfectly consistent with the reluctance to commit capital for investment and contributed to further weakening labor bargaining power. Moreover, the establishment of wide networks of value chains allows for a deepening of the international division of productive knowledge, with the concentration of intellectual monopoly forces in the global north and further entrenchment of lead firms' market power, providing them with an ample room of maneuver to serve generous financial payout to their shareholders.

In parallel, weakening investment was less and less able to absorb global saving while deep and flexible global value chains fueled rampant deflationary pressure. This contributed to pushing down interest rates and encouraged central bankers to adopt drastically accommodative policies.

These monetary conditions, radically distinct from the first age of financialization, relieved firms from the hardship of high-cost debt, inciting them to leverage these favorable terms to increase their payments to shareholders. Overabundant liquidity depressed returns and pushed investors out of bond markets and toward equities, which contributed to the reinforcement of centralized investors' funds. At this level of ownership structure, the centralization of institutional ownership led to a new configuration where permanent universal investors at least partially control most of the listed firms. The extension of control through common ownership is essentially relevant at the sectoral level where funds can manage competition and limit investment to protect the overall quantity of profits.

With globalization, intellectual monopoly, and permanent universal investors, weak investment and high financial payments take place in an economic logic distinct from Financialization Mark I. In Financialization Mark II, distributed profits are the consequence of slow investment, not the cause (as it was the case in Financialization Mark I).

Diagram 1: From Financialization Mark I to Financialization Mark II



During Financialization Mark I, high financial payout (payments to shareholders and interest) slowed investment due to the lack of internal funds. It was the empowerment of finance that drained retained earnings via interest payments and higher distributed profits. In Financialization Mark II, low investment and high payment to shareholders are symptomatic of a lack of sufficiently profitable opportunities for investment due to insufficient demand and monopoly power.

The next sections of this paper will document to what extent this investment famine became the main driver of Financialization Mark II in place of the financial squeeze of firms’ internal funds, characteristic features of Financialization Mark I.

To assess the distinction between Financialization Mark I, from 1980 to 1999, and Financialization Mark II, between 2000 and 2018, we will present and discuss stylized facts related to the six dimensions delineated in Table 1. If our stylized story is consistent and focusing on non-financial corporations, we should find that:

- The level of investment relative to profits further declined.
- Labor bargaining power cumulatively deteriorated.
- Payout to shareholders relative to profits expanded in the first period to attain a high level in the second.
- Globalization expanded, reaching a high level in the second period.
- Interest payments were high in the first but low in the second period.
- The competition regime dramatically shifted from generally increasing competitive pressure to a new situation characterized by intellectually (intangibles) driven monopolization and financial ownership centralization.

Table 1: Empirical dimensions of financialization Mark I and II

	FINANCIALIZATION I 1980-1999	FINANCIALIZATION II 2000- 2018
INVESTMENT	low	lower
LABOR POWER	weak	weaker
GLOBALIZATION	expanding	high
SHAREHOLDERS PAYMENTS	expanding	high
INTEREST PAYMENTS	high	low
COMPETITION	competitive regime	monopoly

4. Operationalizing our categories: scope, data, and sources

To map the contrast between Financialization Mark I and Financialization Mark II, we empirically analyze the changes in the six dimensions outlined in Table 1.

The term *investment* refers to the accumulation of productive (tangible and intangible) capital by non-financial corporations. *Labor bargaining power* denotes the ability of workers to act collectively to set their income and to protect or improve their working conditions. *Globalization* refers to increasing trade relations, foreign direct operations, and international segmentation of productive processes. *Shareholders payments* and *interest payments* refer to the two main forms of financial payments by non-financial corporations to financial entities. Finally, *Competition* refers to the configuration of the competitive struggle resulting both from operational forces and financial distribution of controlling stakes.

A difficulty to capture these six dimensions results from the fact that financialization is a global phenomenon and not merely an international one. In a Bank of International Settlement (BIS) report, Avdjiev et al. (2018, p. 1) argue that the global reach of companies and ownership and the dispersion of economic activity (among others organized in global value chains) results in tension when it comes to data and policies, which are still determined at what the authors call “island” and “between islands” levels. The “island” metaphor refers to how the most used unit of analysis is the so-called economic area (a country, a region, or union). Starting from this perspective results in an approach to globalization in terms of transactions “between islands”, losing sight of dynamics occurring at the global level. Therefore, a growing tension emerges “between the nature of the economic activity and the measurement system”.

Since a global measurement system remains a blind spot, to partially overcome this tension, our analysis considered both macroeconomic level data and firm and ownership structure level data. This allowed us to move beyond methodological nationalism without losing the national dimension which, regardless of globalization, remains a relevant unit of analysis.

We focused on the major developed economies, namely: the United States of America, the United Kingdom, France, Germany, and Japan from 1980 to 2018, covering the two phases of financialization we hypothesized. When data were not available for the full

period, we used a shorter series. We built summary indicators to present stylized facts in a condensed manner. The figures with full series were included in the appendix.

4.1. Macro-indicators at the country level

At the macroeconomic level, we used OECD, World Bank, National Accounts, FRED, the IMF, BIS, United Nations, the US National Science Foundation, and the United States Patent and Trademark Office (USPTO) data to build stylized facts for the different dimensions of analysis that we are using to distinguish between the two phases of financialization. For each dimension, Table A1 (appendix 1) presents the indicators we built and their corresponding data source.

To assess the evolution of investment we included an indicator of tangible capital accumulation (Gross fixed investment for non-financial corporations as a proportion of gross operating surplus) and an indicator of intangible capital accumulation. We defined the latter as intellectual property assets between years t_0 and year $t-1$ as a proportion of gross operating surplus in t_0 . A limitation of this variable is that we could only measure part of total intangible assets. Data on organizational capital and training was not available, so our intangible capital accumulation indicator only includes: i) computer software and database, ii) entertainment, literary or artistic originals, and iii) research & development.

In the case of labor bargaining power, we analyzed labor share -defined as the share of labor compensation in GDP- and unionization rates.

To study globalization, we tracked the evolution of trade as a percentage of GDP, imports from emerging and developing countries (1980-2018), and used Carballa et al. (2020) index for the GVC participation rate in 1995 and 2011, due to data availability. This index is defined as the sum of the non-primary product portion of domestic value-added in exports plus intermediate imports over GDP.

Shareholder payments were tracked by considering the evolution of non-financial corporations' net dividend payments and non-financial corporations' listed shares redemption. Due to data availability, Japan's series and 1990s figures for the US were proxied with the negative flow of listed shares issuance by non-financial corporations. In turn, we computed data for three variables concerning interest payments: the annual evolution of the real interest rate, non-financial corporations' net interest payments, and credit to non-financial corporations.

Finally, our competition data at the macroeconomic level is focused on the emergence of intellectual monopoly capitalism. We considered the annual evolution of non-financial corporations' intellectual property assets as a share of total fixed assets, patents per researcher, and we looked at the ratio of the top 10 patent holders in total USPTO patents in 1995 and 2019. In the case of patents per researcher, we used total researchers full-time equivalent for every country except for the USA since this variable was not available. We used instead individuals employed in science and engineering (S&E) occupations. Additionally, we include information from the Executive Opinion Survey of the World Economic Forum on executives' opinion about the degree of intellectual property protection in their respective countries.

A summary of all these variables with their corresponding sources and descriptions is available in Appendix 1 (Table A1) and Appendix 2 (Figures MAC1 to MAC15).

4.2. Firm-level financial and ownership data

We complemented the macroeconomic information with data from non-financial listed firms using Compustat North America and Compustat Global. Although these firms represent only a minority of the total number of companies, they play a significant role in all the dimensions we are covering.

We kept all active and inactive, publicly listed non-financial corporations incorporated in the countries we consider, excluding financial firms identified by the primary SIC codes from 6000 to 6799. We used different starting dates based on the quality and availability of the information: for the USA, since 1980 and for the rest of the countries, 1998. Therefore, comparisons between the Financialization Mark I and II are done on an end-of-period basis. We converted all the information into dollars to add it up and compute all firms together.

Most of the financial information was retrieved directly from Compustat. This was the case of capital expenditures, operating income before depreciation, long-term debt, net payouts (purchase of common and preferred stock + cash dividends - sale of common and preferred stock), net interest payments (interest expense - interest income), intangible assets and sales.

The only variable that was built rather than gathered directly was intangible investment, where we followed Peters and Taylor (2017, p. 256-257). It was calculated by adding two types of investment: organizational and knowledge investment. The latter was computed with R&D. For the former, in Compustat, 'selling, general and administrative expenses' (SG&A) also includes R&D unless the firm allocates it in cost of goods sold. Moreover, SG&A sometimes also includes the in-process R&D expense. Hence, R&D and in-process R&D were subtracted from SG&A. Also following Peters and Taylor (2017), we considered the exception when R&D exceeded SG&A but was less than the cost of goods sold. In this case, SG&A was kept with no further adjustment.

For the European countries, a problem faced with the accounting data is that before the adoption of International Financial Reporting Standards (IFRS) in 2005, many European firms did not separate spending on SG&A (Döttling et al., 2017). Before that year values are therefore artificially low. Since Japan adopted IFRS very recently (Tsunogaya et al., 2015), we excluded it from intangible investment calculations.

We also used ownership information from Thomson Eikon to calculate the share of total outstanding stocks held by the Big3 (BlackRock, Vanguard, and State Street) among the ten most important shareholders in a replication of specific indexes for all countries - except Japan because we were not able to obtain information. We use the indexes SP500 (for the USA), DAX30 (for Germany), FTS100 (for the UK) and CAC40 (for France) by taking the top 500, 30, 100, and 40 firms by sales in each year for those countries respectively and calculated the ownership by Big3 in those firms. To further assess Big 3 concentration we compared their Equity funds (from Pension and Investment) to the world market capitalization (World Bank data), and to the total world equity funds (Financial Stability Board data).

Finally, to give a further account of digital concentration, we analyzed the public cloud computing market. We retrieved figures for the size of data stored in the public cloud as a share of total data storage worldwide from IDC and market shares for top providers of public cloud Infrastructure as a Service (IaaS) from Statista. In the public cloud, firms and other organizations pay for what they use. Hence, market shares for IaaS can be considered as a proxy of data storage shares. We used these data to estimate the share

of the data stored in each main public cloud provider *vis-à-vis* global data storage. Due to data availability, we compared figures for 2015 and 2018, both for the public cloud market shares and the shares of total data storage worldwide that is stored in the public clouds of the top three providers (Amazon, Microsoft, and Google).

With these various databases, we were able to build firm-level indicators related to all the dimensions discussed in this article except those involving labor bargaining power and globalization. Information on employees and wages tends to be poor with many missing observations. Similarly, information on international activities is poor for the USA and non-existent for the rest of the countries. Anyway, this is not a significant limitation considering the availability of macroeconomic data for these same variables.

A summary of all these variables with their corresponding sources and descriptions is available in Appendix 1 (Table A2-A3) and Appendix 3 (Figures MIC1-MIC9).

5. Tracking Financialization Mark I and Mark II

This section exposes the features exhibited by the descriptive statistics we compiled. They allow capturing the distinctiveness and similarities of Financialization Mark I and Mark II along the various dimensions we identified in our conceptual framework: investment, labor bargaining power, globalization, corporate finance (shareholder and interest payments), and competition.

5.1. Investment

The weakening in the investment-profit relation given by the alternative uses of funds at the expense of investment is maintained throughout Financialization Mark I and II. Fixed capital formation, using national accounts data, goes from 63.3% (1995-1999) to 59.4% (2000-2018) of gross operating surplus. Similarly, intellectual capital formation decreases from 2.9% to 2.1% (Table 2).

These broad averages hide some national specificities, especially the case of France who portrays a declining trend through Mark I but increasing during Mark II. In the rest of the countries, the ratio increases post-2010 but does not reach its previous levels (Figure 1MAC). In the case of intellectual capital formation, it drops in the aftermath of the dot-com bubble in Germany, France, the UK, and the USA. However, before and after that point in time, trends are more stable than with capital formation, and differences, smaller (Figure 2MAC).

Similar figures built with firm-level data indicate the same pattern and have a further advantage, as it was discussed in the data section, of consolidating firms' activities worldwide. The comparison, this time on a year vs. year basis, still indicates lower capital expenditures: 55.26% vs. 43.63% when all firms are considered and 61.34% vs 42.59% when the average is computed on a national basis (Table 2).

In the case of intangibles investments, the firm-level data shows a higher investment in Mark I compared to Mark II contrary to macro data. We can attribute this to several different reasons. First, calculations are different: only intellectual capital is considered in the national accounts whereas the firm-level definition is broader (and also more imprecise) as it takes a percentage of SG&A for all firms. Second, R&D tends to be very concentrated in the larger companies with the top 10 firms spending 15%, top 50, 40%, and top 100, 52% of the total (European Commission, 2019).

In any case, the important point is that even if there is an increase in intangible investment due to the shift toward more intangible intensive economic processes and an increased assetization of knowledge, this rise is still modest and does not compensate for the decline of fixed capital investment. Overall, the trend of total investment (both fixed and intangibles) is clearly downward.

Table 2: Investment in Financialization Mark I & II

	INDICATOR	MARK I	MARK II
MACRO DATA <i>Average of country</i>	Fixed capital formation <i>NFCs, % of GOS</i>	63.3 (1995-99)	59.4 (2000-18)
	Intellectual capital formation <i>NFCs, % GOS</i>	2.9 (1996-99)	2.1 (2000-17)
FIRM-LEVEL DATA <i>All firms average</i>	Capital expenditures <i>NFCs, % GOS</i>	55.3 (1999)	43.63 (2018)
	Intangible investment <i>NFCs, % GOS</i>	43.5 (1999)	44.3 (2018)

5.2. Labor bargaining power

A shared feature of financialization Mark I and Mark II is the overall continuous weakening of labor position, which suffered an increasing commodification and a relative devaluation *vis-à-vis* capital (Table 3).

Beyond the general trend, it should be noted that the share of labor compensation in GDP shows a clear downward trend for all our selected countries throughout both periods excepting for the UK (Figure 3MAC). In this respect, Onaran and Guschanski (2018) found that social government spending has an important effect on wage share determination in the UK and France. In the UK, social government spending rose from 1998 until 2013, which could at least partially explain labor's share recovery.

Unsurprisingly, given the evolution of the wage share in both periods, unionization shows a continuous downward trend in Financialization Mark I and Mark II (Figure 4 MAC). The only exception in the overall trends was the case of Germany in the year 1990. However, it is already known that after the fall of the Berlin Wall Western Germany's unions expanded into the east taking over members from East Germany's state trade union which explains the bump in 1990 (Fichter, 1997; Schnabel & Wagner, 2003). In any case, since then, the unionization rate returned to its falling trend.

Table 3: Labor in Financialization Mark I & II

	INDICATOR	MARK I	MARK II
MACRO DATA <i>Average of countries</i>	Labor Compensation <i>(% GDP)</i>	61.1 (1993-99)	60.2 (2000-18)
	Unionization rate <i>(% employees)</i>	25.4 (1980-99)	17 (2000-18)

5.3. Globalization

Globalization has clearly expanded throughout the last decades as it is indicated in Table 4: all our chosen measures have higher averages in Mark II than in Mark I. In terms of international trade, not only levels are higher but also the rate of growth followed a similar path. Except for the USA, the comparison between the starting and last year of Mark I and Mark II shows a higher increase for the latter (Figure 5MAC). The highest increases, on the other hand, are verified in France and Germany as a result of the development and further integration of the European Union.

The expansion has also been higher in Mark II than in Mark I for imports from emerging and developing countries (Figure 6MAC). In this case, the aforementioned entry of China into the WTO plays a major role in the explanation of this trend.

For participation in global value chains, we only compared two specific years. As it is shown in Figure 7MAC, the increase in Mark II is verified for all countries but is especially pronounced for Germany as a consequence of the expansion of its industrial value chains eastward as the European trading block that has become increasingly regional, especially since the 2000s (World Bank, 2020). Likewise, Japan verifies an increase, also associated with the expansion of a regional trading block, but in this case the East Asian and Pacific one.

Table 4: Globalization in Financialization Mark I & II

INDICATOR		MARK I	MARK II
MACRO DATA <i>Average of countries</i>	Trade <i>(% GDP)</i>	35.9 <i>(1980-99)</i>	49.3 <i>(2000-18)</i>
	Imports from emerging and developing countries <i>(% total imports)</i>	16.2 <i>(1980-99)</i>	27.1 <i>(2000-18)</i>
	Participation in global value chains <i>(index)</i>	19.6 <i>(1995)</i>	25.2 <i>(2011)</i>

5.4. Corporate finance

Important financial payments characterize both Financialization Mark I and Mark II. The distinctive feature of Financialization Mark I is the high level of real interest rate and net interest payment while the main objective of central banks and governments is a shift from a debtor-friendly regime to an investor-friendly regime at the turn of the 1980s. Once the fight against inflation was won, the decrease of interest rate and interest payments was offset by the rise in dividends and share buybacks from the mid-1990s onwards, while US institutional investors spread the shareholder value orientation in a world without capital controls.

As shown in Table 5, macro data provide clear figures for the decreasing role of interest payments in the investment squeeze, with real interest rate declining from 4.3% to 1.3% and net interest payments decreasing from 14.5% to 9.3% of gross operating surplus. However, macro data indicates only a slight increase in net dividends payments, going from 18.3% to 20.4% of GOS. Adding share buybacks approximated by share redemption to net dividend payments, the total payout of cash to shareholders

increased from 23% of GOS in 2003 to 30% in 2018, which is much higher than the 1980s burden of interests. Such buybacks have been fueled by the growing leverage of non-financial corporations from 75% to 87% of GDP, made possible by low interest rates.

These numbers are very coherent with micro data, which show a strong rise in payouts to shareholders, from 6.4% in 1999 to 30.5% in 2018, while net interest payments decrease from 13.3% to 8.7%, the same orders of magnitude than macro data.

Table 5: Corporate finance in Financialization Mark I & II

INDICATOR		MARK I	MARK II
MACRO DATA <i>Average of country</i>	Net dividend payment <i>NFCs, % GOS</i>	18.3 (1995-99)	20.4 (2000-17)
	Listed shares redemption <i>NFCs, % GOS</i>	n.a.	8.2 (2003-17)
	Long-term real interest rate	4.3 (1980-99)	1.3 (2000-18)
	Net interest payment <i>NFCs, % GOS</i>	14.5 (1980-99)	9.3 (2000-17)
	Credit <i>NFCs, % GDP</i>	75.2 (1980-99)	87.3 (2000-18)
FIRM-LEVEL DATA <i>All firms average</i>	Long term debt <i>NFCs, % Total Assets</i>	22.0 (1999)	24.8 (2018)
	Net interest payment <i>NFCs, % operating income before depreciation</i>	13.3 (1999)	8.7 (2018)
	Net payouts <i>NFCs, % operating income before depreciation</i>	6.4 (1999)	30.5 (2018)

5.5. Competition

Financialization Mark I and Mark II exhibit meaningfully different competition regimes. The latter is characterized by an increase in market concentration as it is shown in Figure 6MIC: within each country's top 500 non-financial corporations, the share of the sales of the top 30 grows. This general average is also verified for all countries but Japan.

To account for intellectual monopoly, we considered several variables. At the macro-level, due to data availability, we analyzed the weight of intellectual property assets in relation to total fixed assets (Table 6). We found that it increased significantly in the second period *vis-à-vis* the first one with the only exception of the UK (Figure 13MAC). This could be due to a change in the relative importance of different types of intangibles mainly from software (which is included in Figure 13MAC) towards organizational capital and training (whose figures are not available for all the countries; thus, we could not include them in Figure 13MAC) (O'Brien, 2018).

We also tracked the evolution of patents per researcher showing that the rate increase for Financialization Mark II in comparison with Mark I, which indicates an acceleration in process of privatization of knowledge production. At the global level, the ratio of the top 10 patent holders in total USPTO patents increased from 9.6% in 1995 to 10.7% in

2019. This suggests that the privatization gets along with an increasing concentration of knowledge, as perceived by executives. Moreover, this is verified in all countries (Figure 14MAC and Figure 15MAC)

At the firm-level, non-financial corporations' intangible assets as a share of total assets steadily grow during Financialization Mark II for the 5 countries, going from 9% in 1999 to 22% in 2018 (Table 6 and Figure 7MIC). Also within intangibles, the concentration of data stands out in Financialization Mark II. The public cloud computing business is a case in point. Infrastructure is offered as a service in the public cloud. According to IDC, data stored in the public cloud represented less than 5% of the worldwide data storage in 2010. It jumped to 10% in 2015 and, by 2018, it was already around 20%. As the share of data stored in the public cloud grew, concentration in this market intensified. As a result, our estimates indicate that the first three providers of infrastructure as a service on the public cloud (Amazon, Microsoft, and Google) concentrated around 4.8% of the global data stored worldwide in 2015 and 13.5% in 2018.

Finally, concentration at the market level and intellectual monopolization are accompanied in Financialization Mark II by concentration at the levels of ownership in comparison to Mark I. The share of ownership by the dubbed Big3 among the top ten institutional investors increases in each country (Table 8MIC). As expected, considering the literature (see section 2.2), ownership concentration of the Big3 rises sharply for the US since the beginning of Financialization Mark II. It is followed by an increase in the UK figures and, since the 2008 crisis, the Big3 expand their share among the top ten institutional investors also in France and Germany. This concentration is the consequence of the concentration inside the financial industry: the Big3 equity funds rise from 35% to 38% of the world equity funds, and from 8% to 12% of the world market capitalization between 2009 and 2018 (Figure 9 MIC).

Table 6: Investment in Financialization Mark I & II

	INDICATOR	MARK I	MARK II
MACRO DATA <i>Average of country</i>	Intellectual property assets <i>NFCs, % of fixed assets</i>	6.6 (1980-1999)	11.4 (2000-2017)
	Patents per Researcher	0.018 (1996-1999)	0.024 (2000-2018)
	Intellectual property protection (2011-2018)		5.47 (2011-2012)
	<i>Executives perception</i>		5.88 (2017-2018)
	Top 10 patent holders in total patents (USPTO)	9.6 (1995)	10.7 (2019)
FIRM-LEVEL DATA <i>All firms average</i>	Sales of top 30 NFC <i>% of top 500</i>	28.5 (1999)	29.3 (2018)
	Intangible assets <i>NFCs, % total assets</i>	9.0 (1999)	22.0 (2018)
	Data concentration in the Public Cloud		4.8 (2015)
	<i>top 3 providers- share of global data storage</i>		13.5 (2018)
	Ownership by Big3	2.1	8.3

<i>% in top 10 institutional investors</i>	(1999)	(2018)
Concentration of Big3 Equity funds <i>% world market capitalization</i>		9.5 (2009-2018)
Concentration of Big3 Equity funds <i>% world equity funds</i>		36.1 (2009-2018)

6. Concluding remarks

This paper contributed to the financialization literature concerned with non-financial corporations' investment behavior and, more specifically, to the analysis of a shift in the uses of profits by non-financial corporations at the expense of overall productive investment. We advanced a new interpretation of the changing internal logic of this dimension of financialization since the 1980s in three complementary ways. First, we distinguished two phases, namely Mark I and Mark II. Second, we proposed a conceptual articulation of their succession. And third, we documented the specific features of these two phases and the evolutionary process which supports them. We provided a wide array of descriptive statistics at the macro and firm levels in support of our argument. These stylized facts covered the five biggest high-income countries and their listed firms for the period 1980-2018. Nonetheless, they were reduced to a shorter timeframe in some cases due to data availability limitations.

The main proposal we elaborated is that during Financialization Mark I, the reduction of the share of profits used to invest is driven by pressure on firms' internal funds due to a rising cost of debt, rising shareholder claims, and uncertainty related to intensifying competition. On the contrary, monopolization tendency characterizes Financialization Mark II. Growing monopoly power has a twofold origin. On the one hand, it is explained by market power in global value chains, centralization of intangible assets, and growing privatization of knowledge. On the other hand, it is also expressed in the centralization of ownership rights by institutional investors specialized in ETF and index trading funds. This monopolization turned upside down the logic of financialization. In Financialization Mark II slow investment is the result of a lack of sufficiently profitable opportunities when it was the consequence of the lack of internal funds in the first period.

One important additional contribution is that we conceptualized this shift from Mark I to Mark II as the consequence of an evolutionary process through three main transformational dimensions. First, the empowerment of financial investors in the early phase paved the way to an internal competition within the financial industry that resulted in a very rapid concentration as a result of scale economies related to the implementation of portfolio diversification strategy. Second, sluggish investment favored an increasing reliance on foreign supplies in developing countries and a weakening of labor bargaining power which further depressed demand, constraining monetary authorities to adopt a very accommodative stance to try to stimulate economic activity and contain financial instability. The international segmentation of productive processes also allowed for an increasing polarization of knowledge in the international division of labor. Third, deregulation policies contributed to depress

demand –then investment- via the deterioration of labor position and favored increasing privatization, which legitimated the global expansion of intellectual property rights, closing innovation possibilities and investment venues while securing rents for lead firms.

This general story is corroborated by the stylized facts we presented. However, several aspects must be refined, nuanced, and strengthened, opening a stimulating research agenda. First, the overall argument we have put forward does not allow for institutional diversity. This is related to our willingness to emphasize the global nature of the transformation. Nonetheless, rhythms and positions in this transformative unfolding of financialization are uneven in terms both of countries, sectors, and firms. One can for example mention the case of France that did not follow the general pattern of decreasing investment (as a share of profits) since the 2000s. Here we need to bring in, among other factors, the creation of the Euro and the related lack of flexibility of exchange rates that dramatically affected France’s competitiveness (Clevenot et al., 2016). Nuances can also be outlined at the firm level. The monopolization we observed could be or not be accompanied by an increasing polarization between firms, depending on the relating strengths and articulation of intellectual monopoly tendencies and increasing common ownership in each sector.

Another limitation of this article is that the plausibility of our story and the stylized facts we provided do not exhaust possible interpretations. For example, we emphasized the lack of growth opportunity in Mark II in comparison to Mark I. However, the fact that the financial constraint was relaxed in Mark II -with very accommodating credit conditions- does not preclude the possibility that growth opportunity was also missing in Mark I. To what extent both the absence of growth opportunity and strain on internal funds could have been combined in Mark I should be the object of future investigations. Whatever the answer, our point is that the decline in interest rates and increasing monopolization indicate that the lack of growth opportunity, relatively to the strain on internal funds, is a more important factor in Mark II than in Mark I. This limitation suggests nonetheless that further empirical exploration of the reversal of the causal links we proposed would be a welcomed follow-up of this paper.

This follow-up investigation could also include the evolutionary effect of corporate taxing systems and tax havens favoring monopolization and financialization. For instance, the size of profit shifting in the US is so big that, by 2016, it generated losses of between 30 and 40% of the corporate tax base (Clausing, 2020). Hage and Baines (2020) showed that since the mid-1980s there is a regressive corporate tax structure. The top 10% of US listed corporations (in terms of their ratio of net profit to sales) pay a lower worldwide effective income tax rate than the rest of the US listed corporations. And this result holds when distinguishing between jurisdictions (US and foreign). These companies keep their offshored savings in US treasury and corporate bonds, collecting financial rents and taking debt in the US to pay to shareholders (Bryan et al., 2017; Pozsar, 2018). By the end of 2016, given that offshoring earnings is easier for intangible intensive firms, the top ten companies in terms of offshored savings should not be surprising (Apple, Microsoft, Cisco, Oracle, Alphabet, Johnson & Johnson, Pfizer, Qualcomm, Amgen, and Merck) (Pozsar, 2018).

Moving beyond listed corporations, future investigations could integrate venture capital and start-ups into our framework. Two interrelated phenomena should be considered. On the one hand, large corporations’ acquisitions have pervasive effects on venture capital generating what Kamepalli et al. (2020) dubbed a “kill zone”. On the other hand,

it is worth noting that big corporations² and major individual shareholders from big tech corporations are engaging in venture capitalism (Bradshaw & Thomas, 2020).

Finally, future research should also consider the place of China in the overall picture we have presented. While some of the features of this story seem to fit for China as well (such as the rise of intellectual monopoly capitalism), others are the other side of our story (for instance, the effects of globalization).

In terms of policy implications, this study invites readers to look at the detrimental effects of financialization from a multidimensional perspective. Considered in isolation, financial reforms such as corporate governance reforms, changes in dividends taxation, or financial regulation will not be enough to deal with the mounting contradictions resulting from four decades of an increasingly loose relation between profits and investment. To tackle the issue of the inadequate level of investment *vis-à-vis* profits and, incidentally, the issue of its quality (among others considering ecological effects), both regulation and/or control over intellectual and financial monopoly and the build-up of investment planning capabilities need to be considered, taking into account their international ramifications.

Neoliberalism was a success of capitalist classes as marketization, privatization, and light-touch regulation of finance contributed to drastically rebalance bargaining power in their favor, at the expense of labor. However, as Marx early on observed, in its thrive toward universality, capital “encounters barriers in its own nature” (Marx, 1858, sec. Notebook IV – The Chapter on Capital). The transformations of financialization from Mark I to Mark II illustrate this tendency. The unfolding of financialization created new internal obstacles to the process of capitalist accumulation. Tackling them and promoting a sustainable and just mode of development will require to move beyond monetary, fiscal, or regulatory policies and to retool states' capacities in order to allow public action in the realm of production.

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² For instance, Amazon provides Amazon Web Services credit to promising start-ups as a form of venture capital (Amazon, 2020)

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Appendix 1 - List and description of macro and micro indicators and data sources

Table A1: macro-indicators at the country level

	INDICATOR	DEFINITION	SOURCES
INVESTMENT	Non-financial corporations' fixed capital formation	Gross fixed investment for non-financial corporations as a proportion of gross operating surplus	OECD, Germany's Destatis, UK Office for National Statistics and US Economic Accounts
	Non-financial corporations' intellectual capital formation	Change in intellectual property assets between years t0 and year t-1 as a proportion of gross operating surplus t0	OECD, Germany's Destatis, UK Office for National Statistics and US Economic Accounts
LABOR BARGAINING POWER	Share of Labor Compensation in GDP	Labor Compensation as a proportion of GDP at Current National Prices	Federal Reserve Economic Data (FRED)
	Unionization rate (% of employees)	Labor Force survey data or Administrative data from unions (adjusted for non-active and self-employed members) divided by the corresponding total number of wage and salary earners taken from OECD Labor Force Statistics	OECD
GLOBALIZATION	Trade as % of GDP	Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product	World Bank, World Development Indicators
	Imports from emerging and developing countries	Imports from emerging and developing countries as a proportion of total imports	IMF trade statistics
	GVC participation rate	We followed Carballa et al. (2020) and defined GVC participation rate as the sum of the non-primary product portion of domestic value added in exports plus intermediate imports over GDP	OECD Stat's Trade in Value Added (TiVA) database, October 2015 version, in US dollars. The shares of primary products in total exports and imports are taken from UNCTADStat
SHAREHOLDERS PAYMENTS	Non-financial corporations' dividend payment	Corporation's distributed income as a proportion of gross operating surplus	OECD, Germany's Destatis, UK Office for National Statistics and US Economic Accounts
	Non-financial corporations' net dividend payment	Corporation's net distributed income as a proportion of gross operating surplus	OECD, Germany's Destatis, UK Office for National Statistics
	Non-financial corporations listed shares redemption	Redemptions of listed shares issued by non-financial corporations as a percentage of gross operating surplus	ECB, Bank of Japan, Bank of England, US FED. OECD for gross operating surplus
INTEREST PAYMENTS	Real interest rate	Long term interest rates less inflation (% per year)	OECD

	Non-financial corporations' net interest payment	Total interest payment (i.e. including FISIM) minus Total interest income (i.e. including FISIM) as a percentage of gross operating surplus	OECD, Germany's Destatis, UK Office for National Statistics
	Credit to non-financial corporations	Credit to non-financial corporations as a percentage of GDP	BIS
COMPETITION	Intellectual property assets of non-financial corporations	Intellectual property products as a share of fixed assets ratio	OECD
	Intellectual property protection (2011-2018)	Computation of executives' answers to the question "In your country, to what extent is intellectual property protected?" [1 = not at all; 7 = to a great extent]	World Economic Forum, Executive Opinion Survey
	Patents per Researcher	Total patent count as a percentage of total R&D personnel for every country excepting for the US where patents are presented as a share of researchers full-time equivalent or individuals employed in S&E occupations	UN data for France, UK, Japan and Germany. National Science Foundation data for the US, and USPTO
	Concentration of patent ownership	Top 10 patent holders share in total patents	USPTO

Table A2: Indicators at the firm level

	INDICATOR	DEFINITION	SOURCES
INVESTMENT	Non-financial corporations' capital expenditure	Capital expenditures for non-financial corporations as a proportion of operating income before depreciation	Compustat
	Non-financial corporations' intangible investments	Intangible investments for non-financial corporations as a proportion of operating income before depreciation	Compustat
SHAREHOLDERS PAYMENTS	Non-financial corporations' net payouts	Corporation's share buybacks + dividends – share issued as a proportion of operating income before depreciation	Compustat
INTEREST PAYMENTS	Non-financial corporations' long-term debt	Long-term debt as a proportion of total assets	Compustat
	Non-financial corporations' net interest payments	Interest expenses – interest income as a proportion of operating income before depreciation	Compustat
COMPETITION	Non-financial corporations' sales concentration	Sales of top30 non-financial corporations over top500	Compustat
	Non-financial corporations' intangible assets	Intangible assets as a proportion of total assets	Compustat

Data Concentration in the public cloud	Data stored by main public cloud providers as a share of worldwide stored data for selected years. Market shares public cloud IaaS	IDC and Statista
Ownership by Big3 in indexes	Total outstanding stocks held by Black Rock, State Street, and Vanguard in the ten most important shareholders	Thomson Eikon and Compustat
Concentration of Big3 equity funds	Total equity funds of the Big 3 as a share of the world market capitalization and of the world equity funds	Pension and Investment, World Bank, Financial Stability Board

Appendix 2 - Macro figures

Figure 1MAC: Non-financial corporations' fixed capital formation (1980-2018)

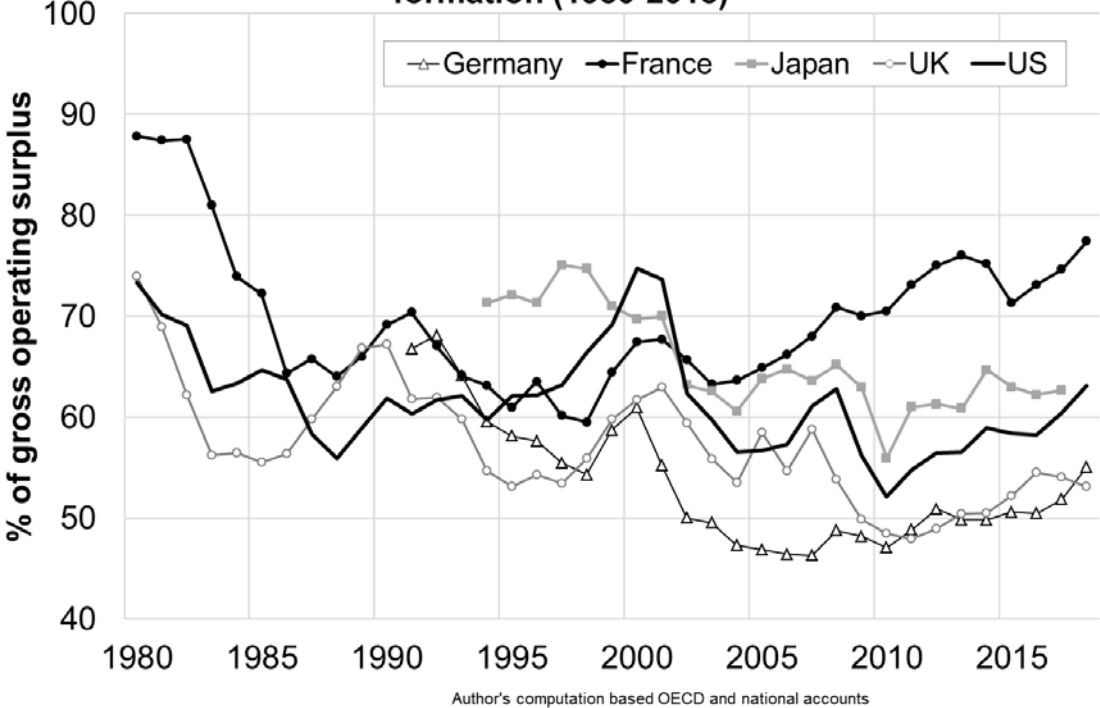


Figure 2MAC: Non-financial corporations' intellectual capital formation (1980-2018)

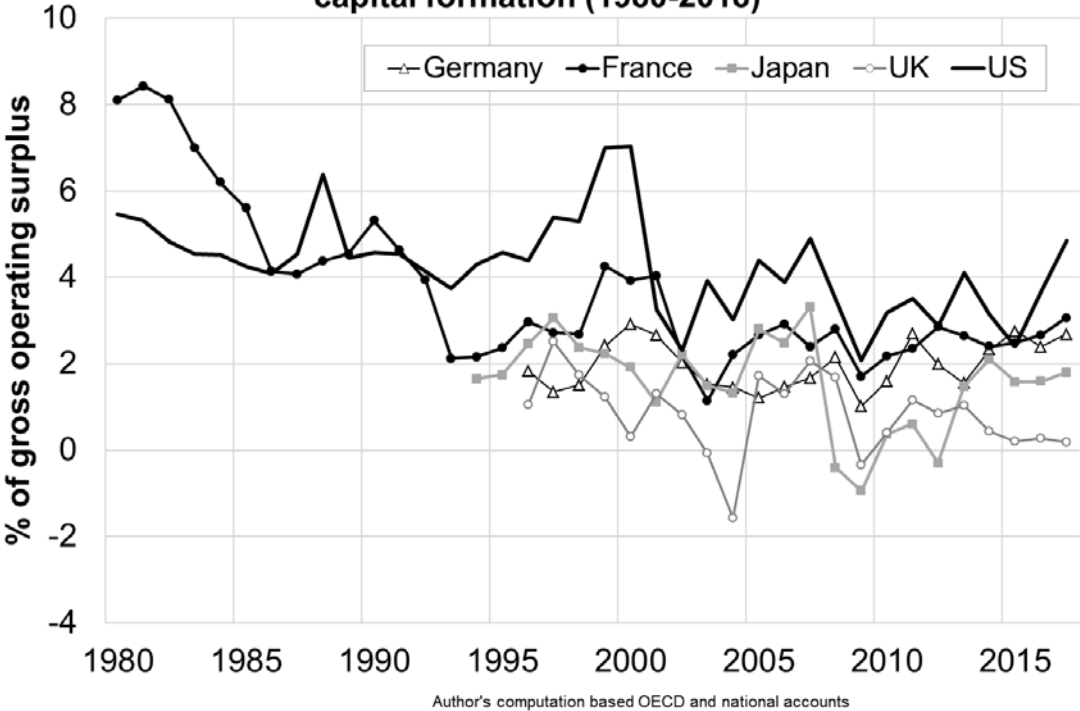


Figure 3MAC: Share of Labor Compensation in GDP (1980-2018)

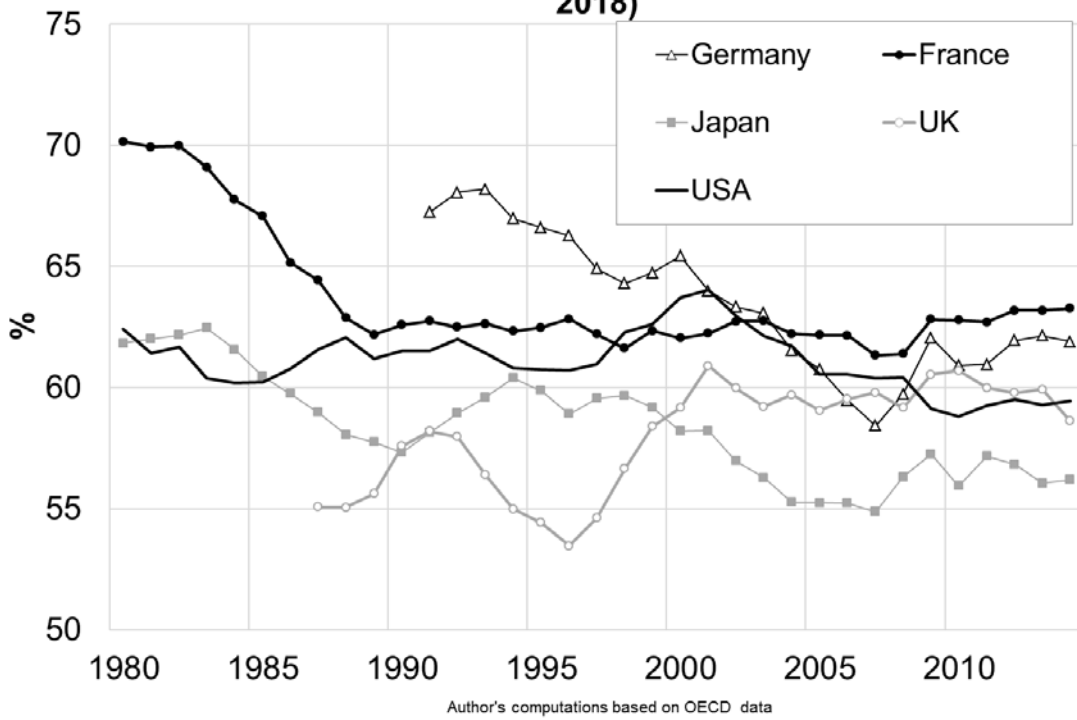


Figure 4MAC: Unionization rate

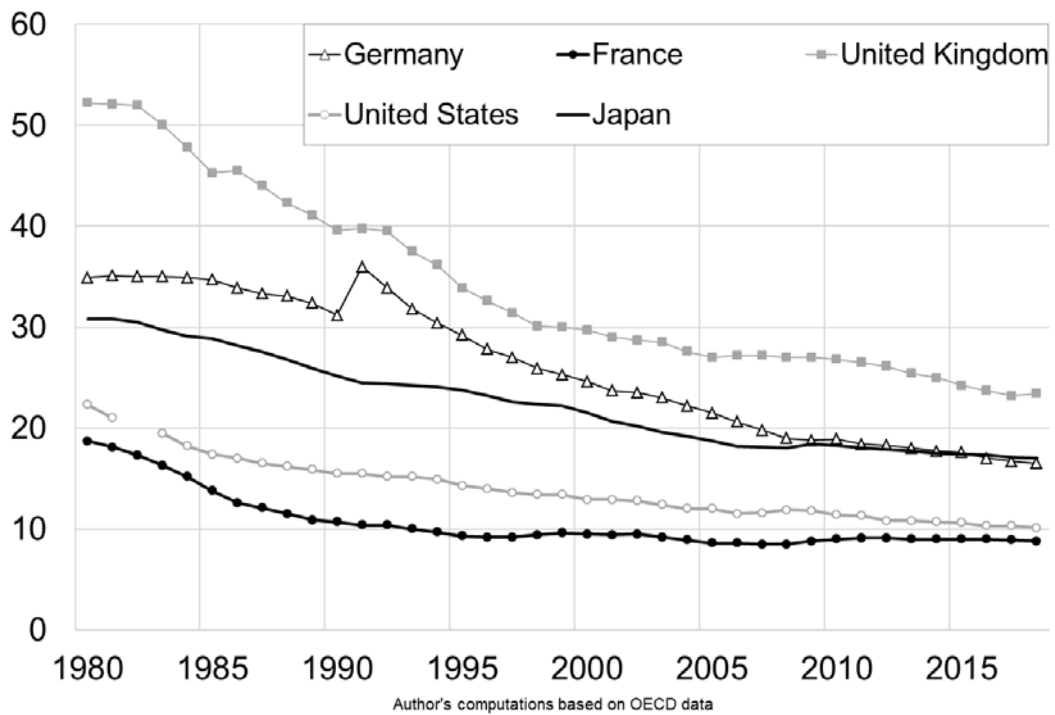


Figure 5MAC: Trade as % of GDP (1980-2018)

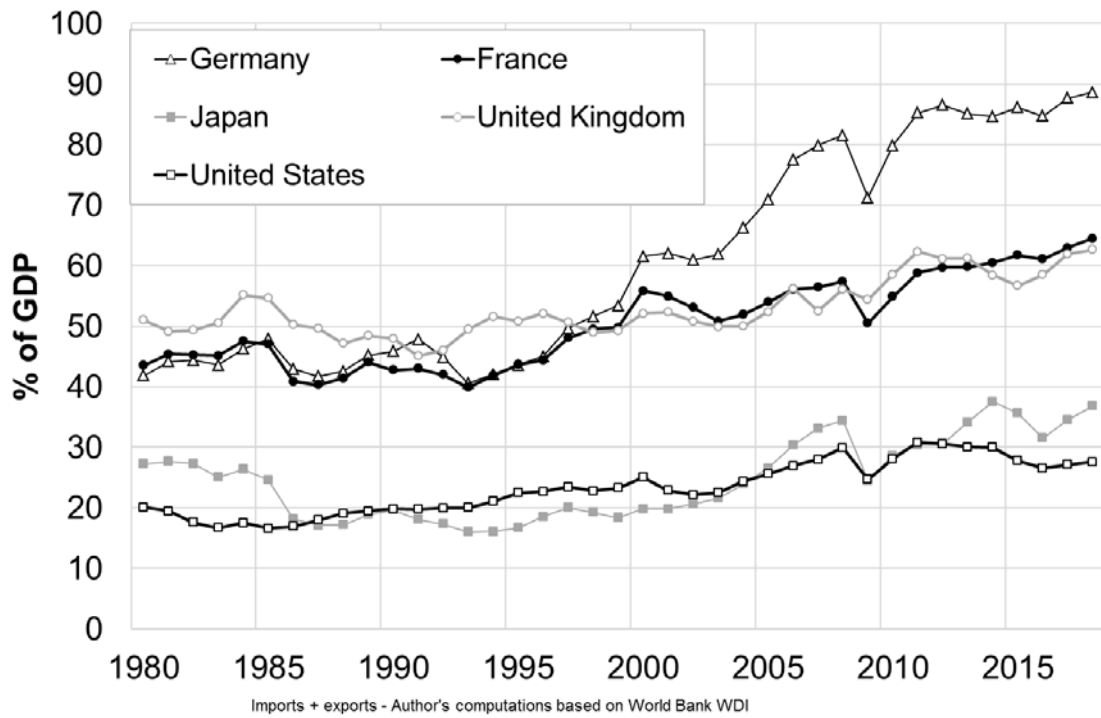


Figure 6MAC: Imports from emerging and developing countries (1980-2018)

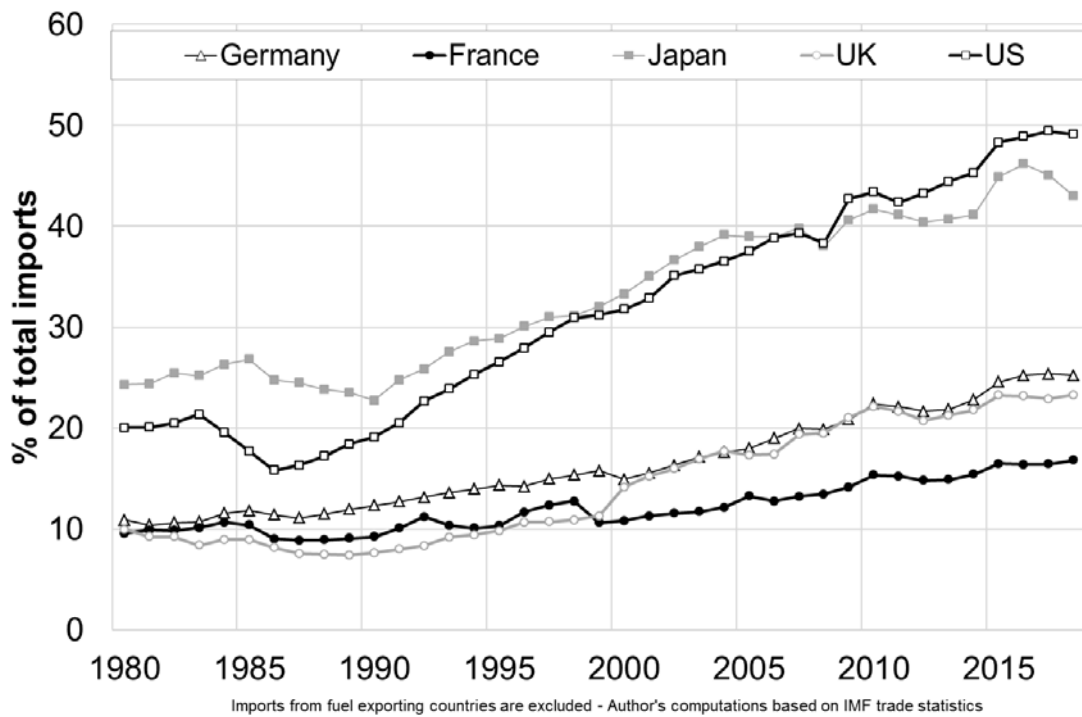
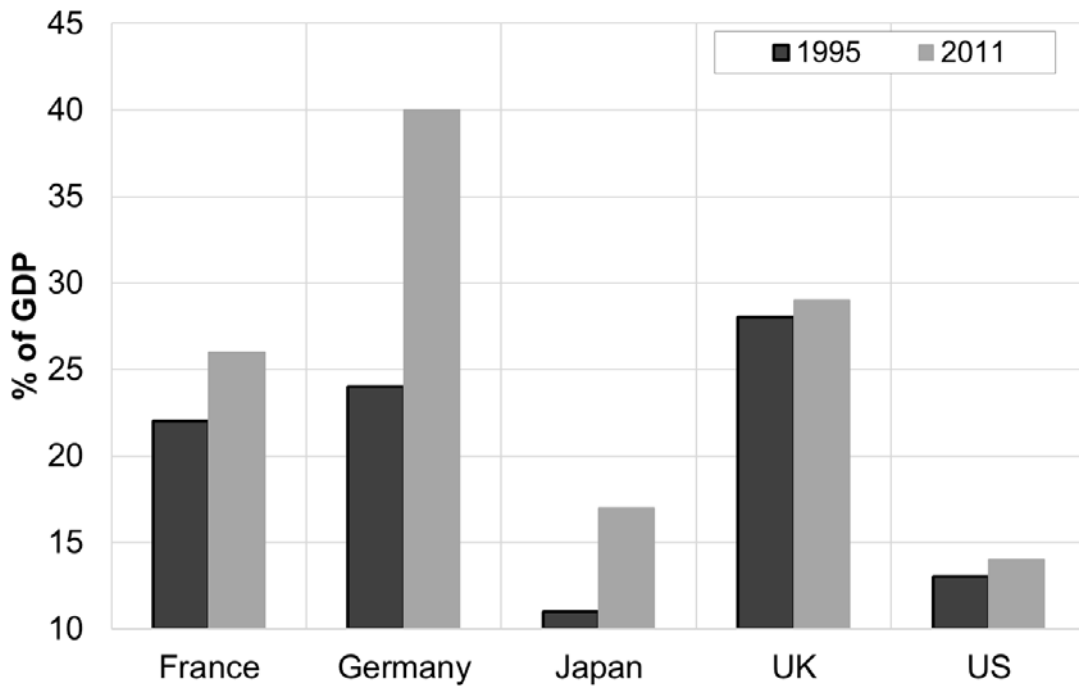
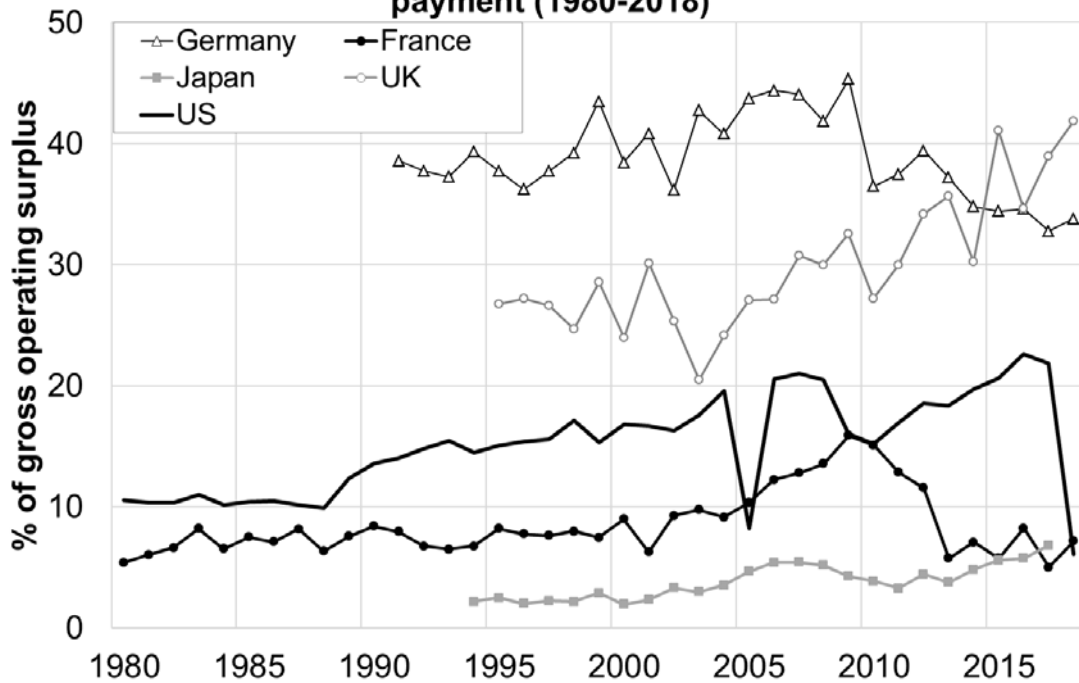


Figure 7MAC: GVC participation rate (1995 & 2011)



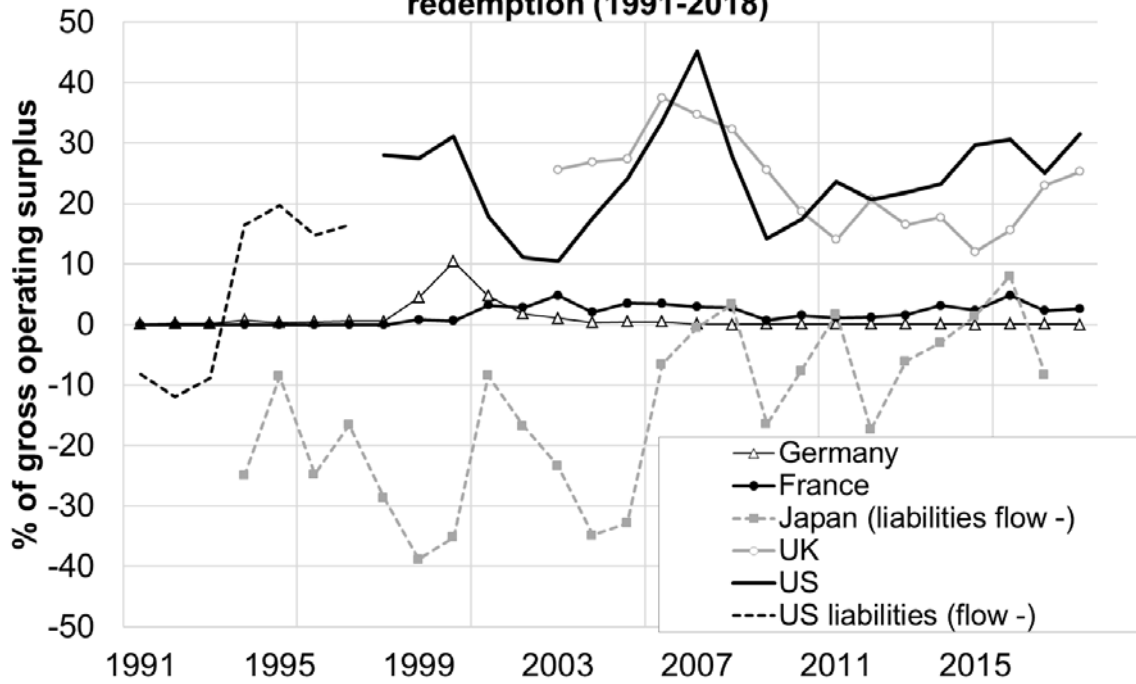
Author's computation based on Carballa Smichowski, Durand & Knauss

Figure 8MAC: Non-financial corporations' net dividend payment (1980-2018)



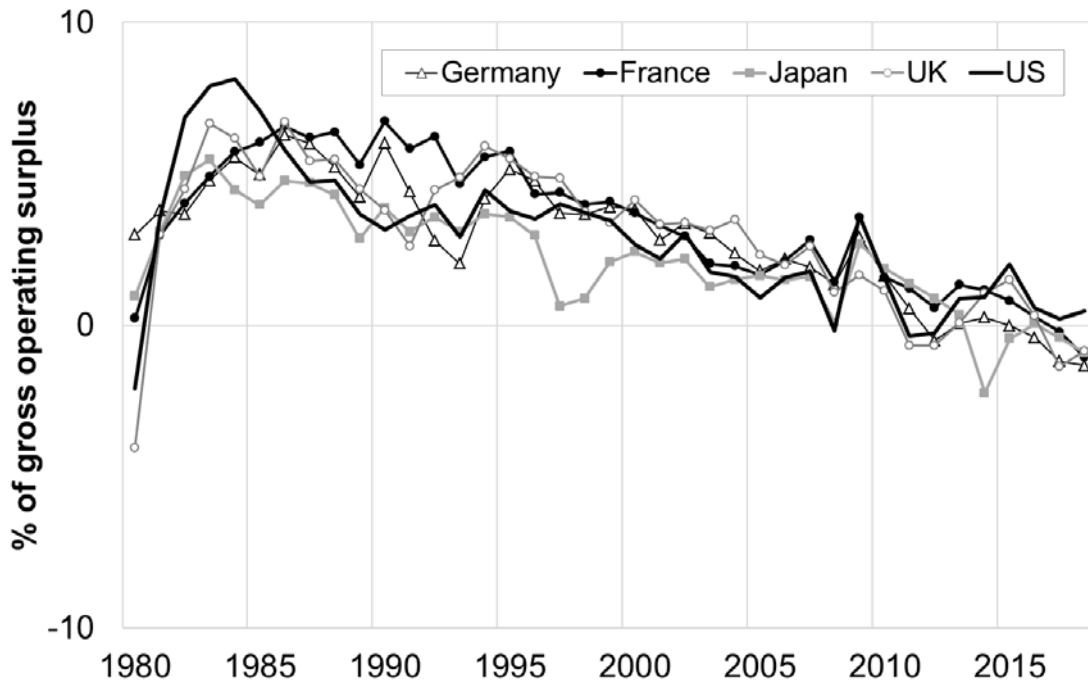
Author's computation based OECD and national accounts

Figure 9MAC: Non-financial corporations'listed shares redemption (1991-2018)



Author's computation based OECD, national accounts and central banks
buybacks are approximated from gross and net share issuance data

Figure 10MAC: Real interest rate (1980-2018)



Author's computation based OECD

Figure 11MAC: Non-financial corporations' net interest payment (1980-2018)

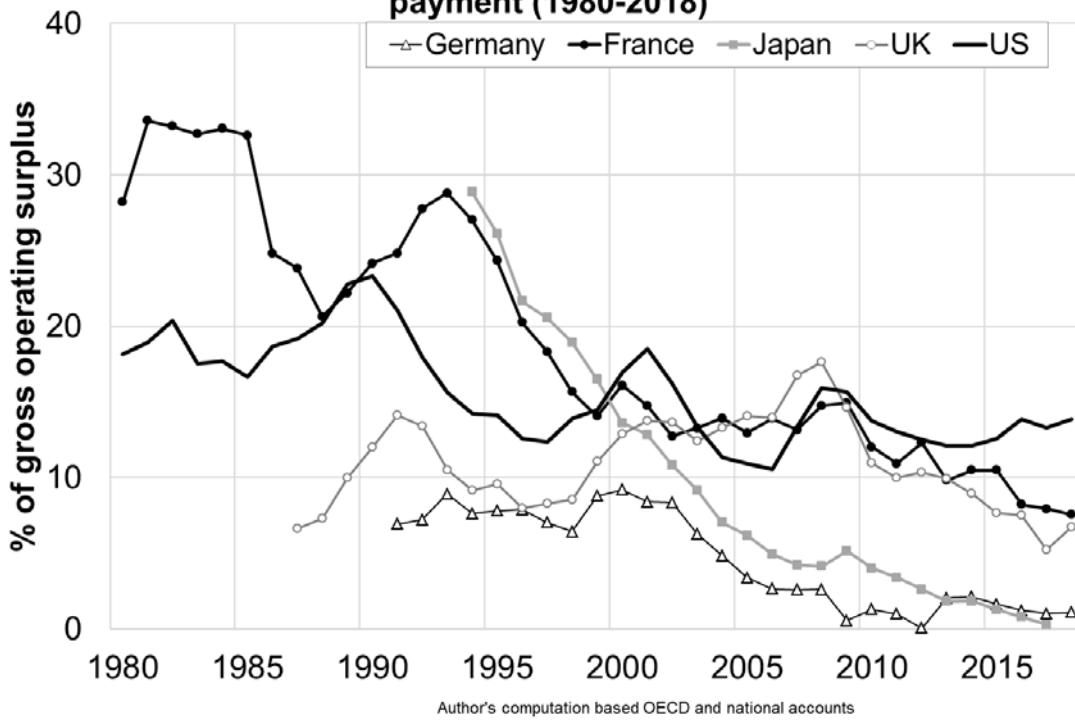


Figure 12MAC: Credit to non-financial corporations (1980-2018)

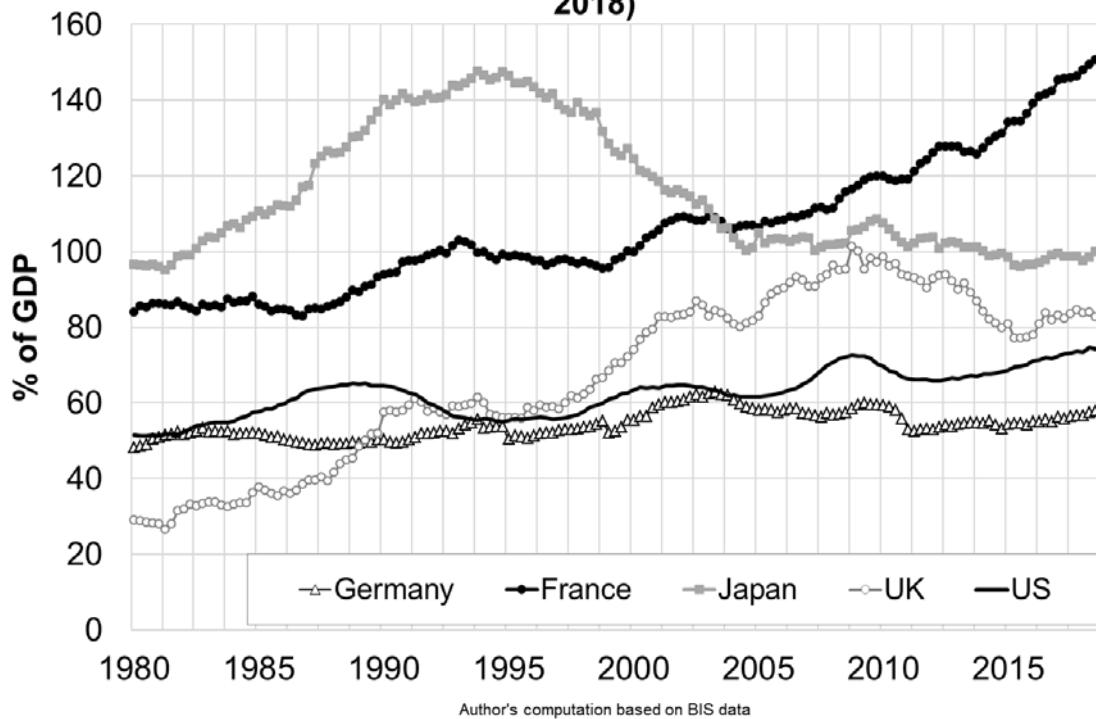


Figure 13MAC: Intellectual property assets of non-financial corporations (1980-2017)

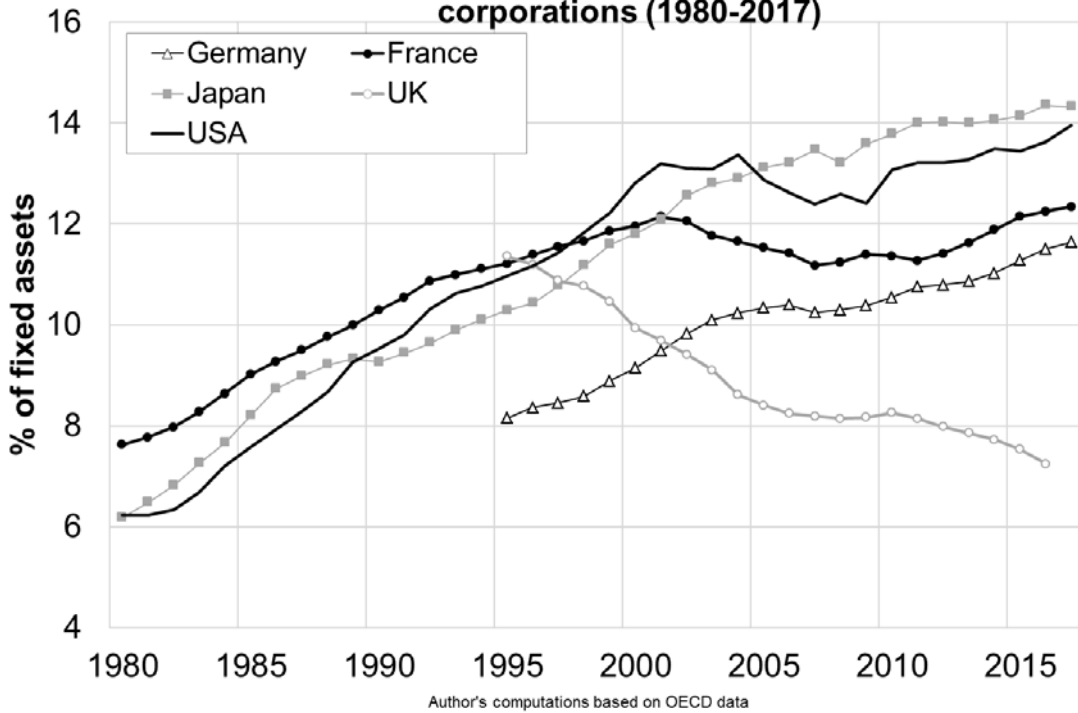


Figure 14MAC: Intellectual property protection (2011-2018)

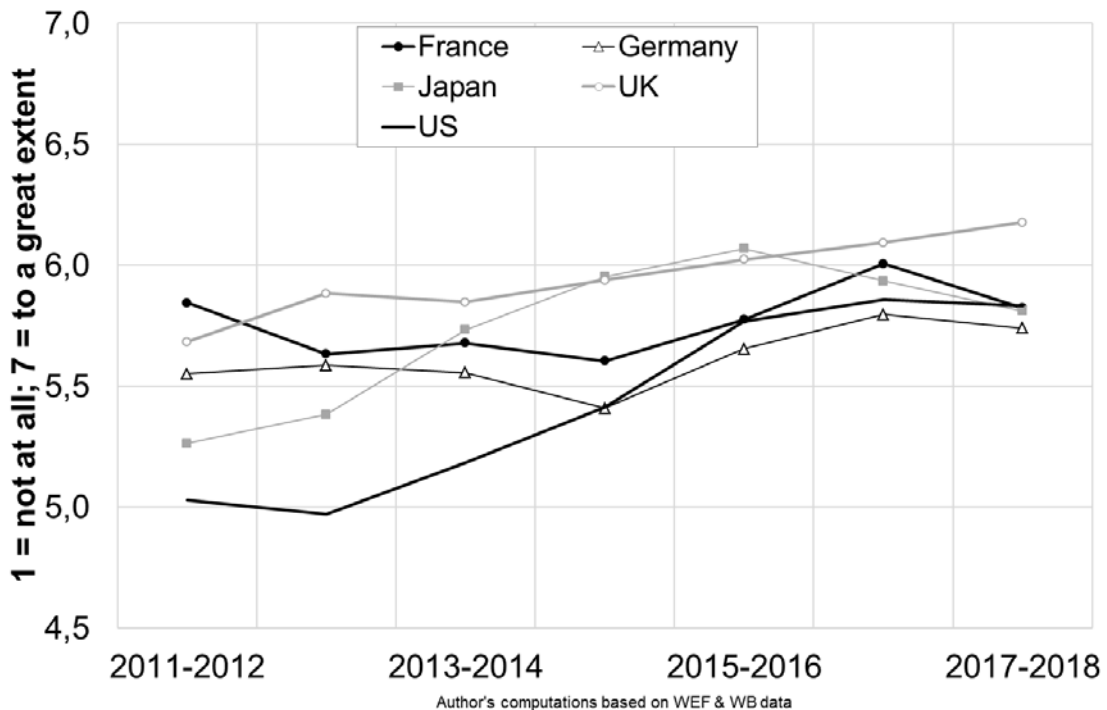
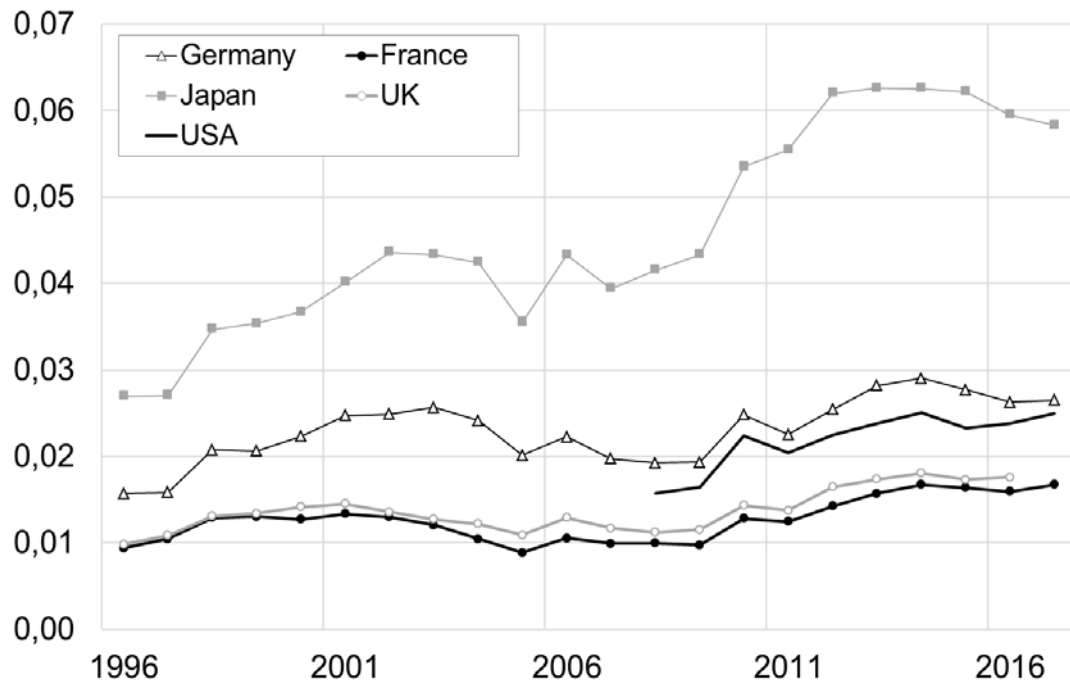


Figure 15MAC: Patents per researcher (1996-2018)



Author's computations based on USPTO, UN and National Science Foundation data

Appendix 3 - Firm level figures

Figure 1MIC: Non-financial corporations' capital expenditures (1980-2018)

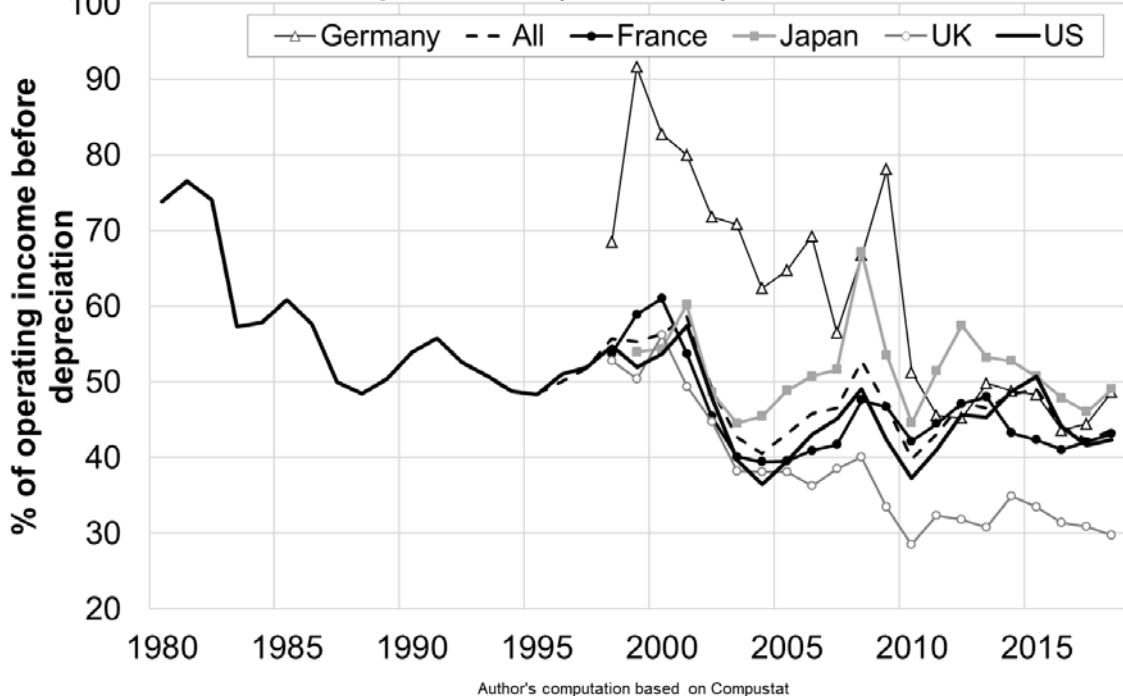


Figure 2MIC: Non-financial corporations' intangible investments (1980-2018)

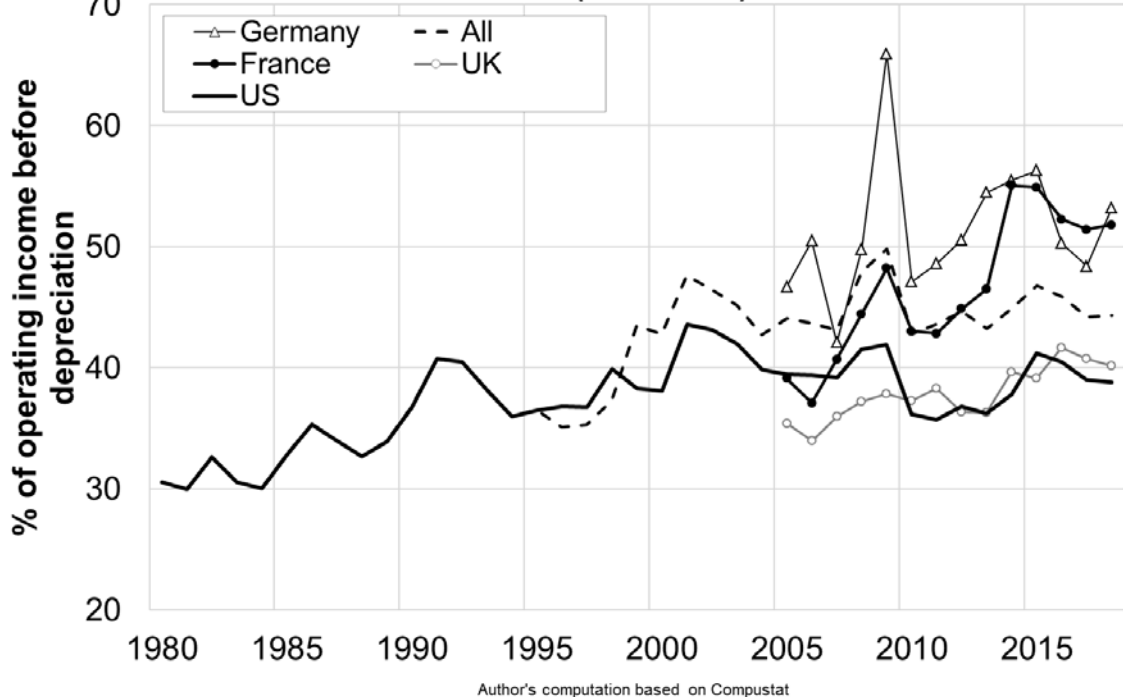


Figure 3MIC: Non-financial corporations' net payouts (1980-2018)

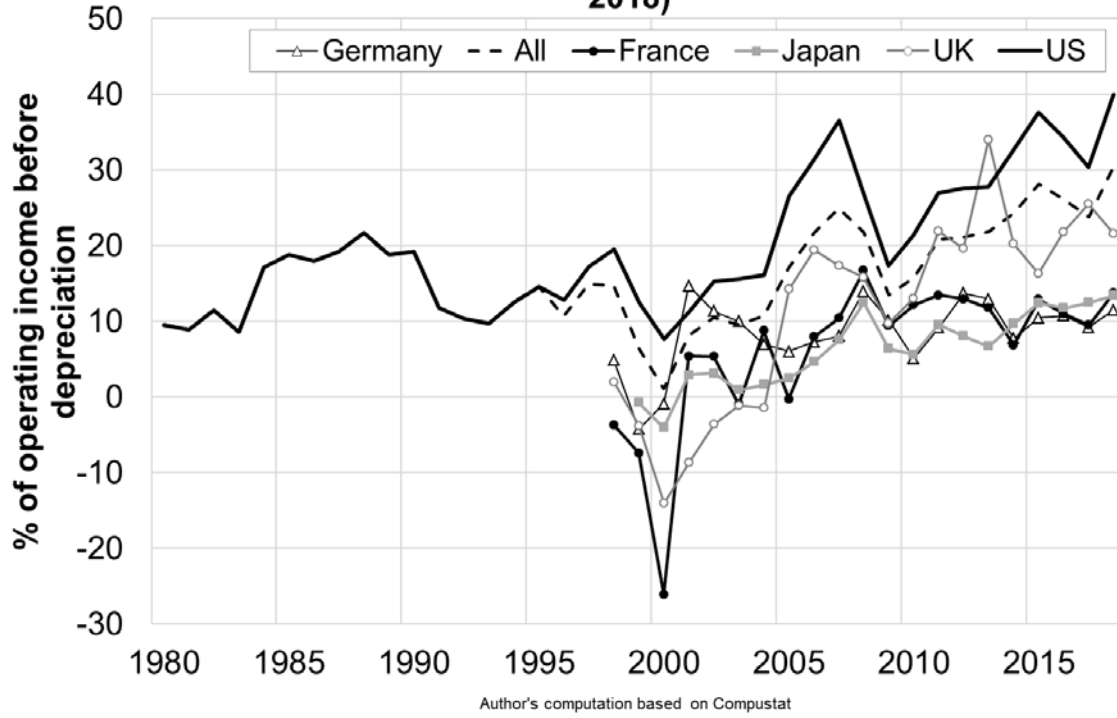


Figure 4MIC: Non-financial corporations' net interest payments (1980-2018)

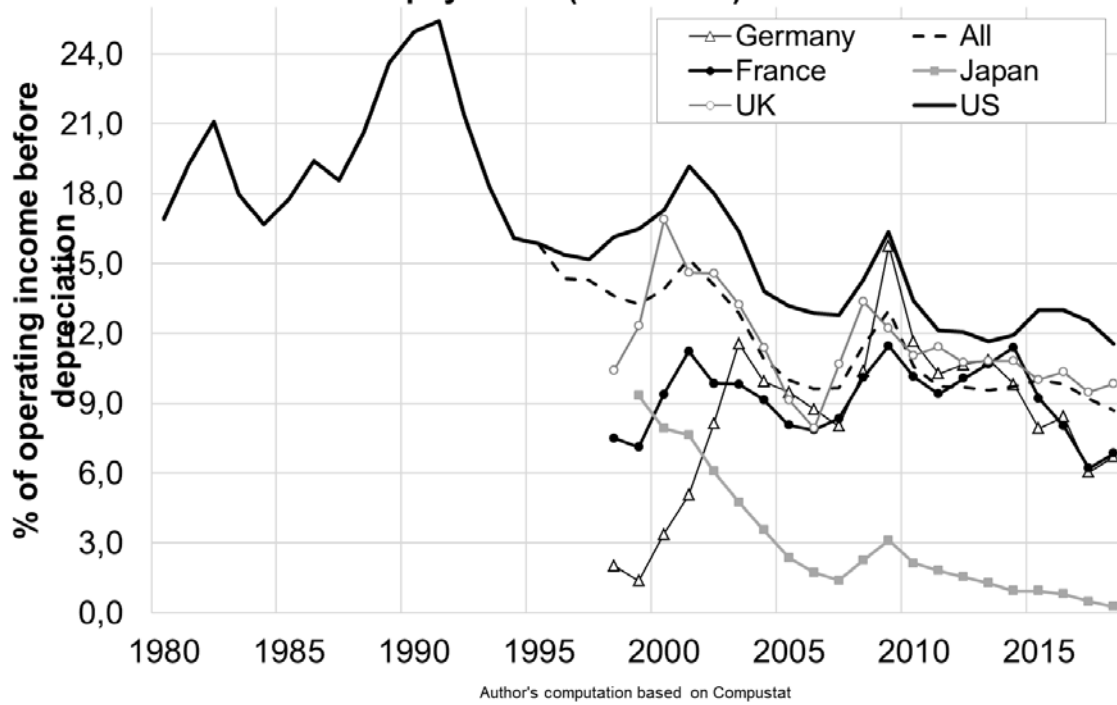


Figure 5MIC: Non-financial corporations' long-term debt (1980-2018)

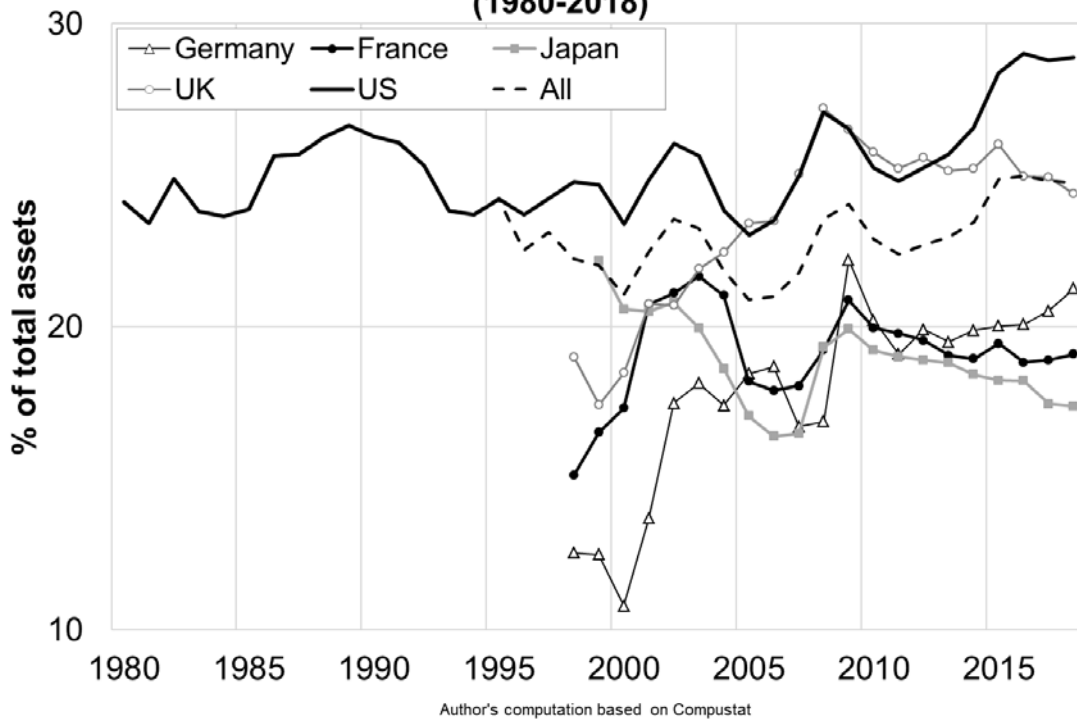


Figure 6MIC: Sales of top30 non-financial corporations over top500 (1980-2018)

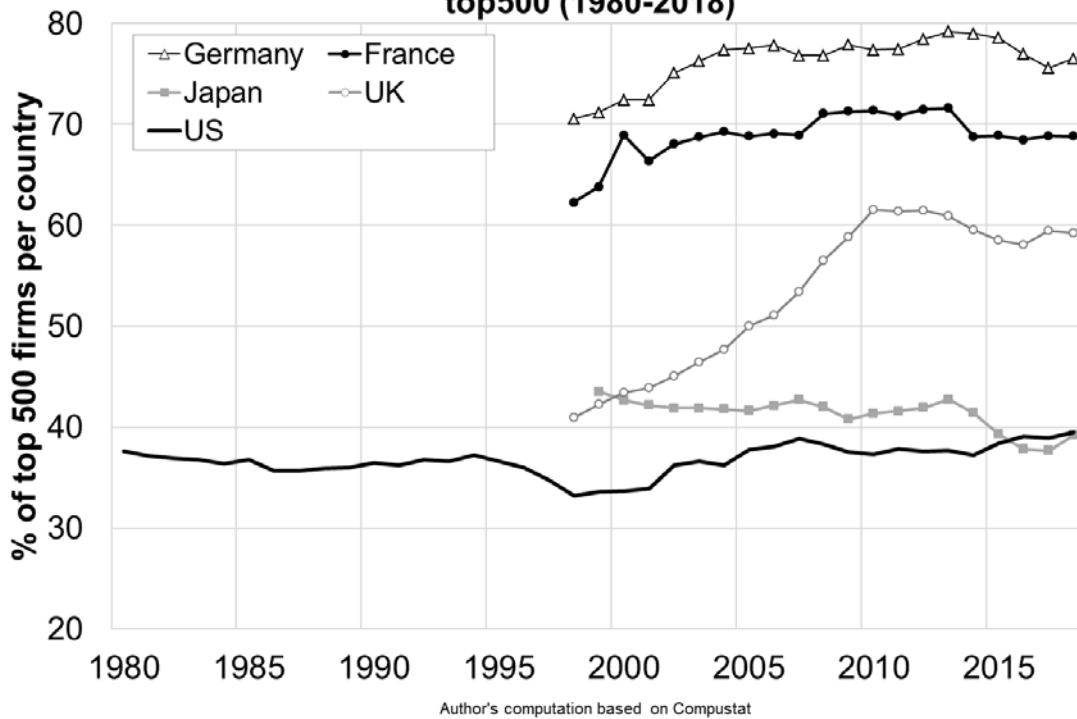


Figure 7MIC: Non-financial corporations' intangible assets (1980-2018)

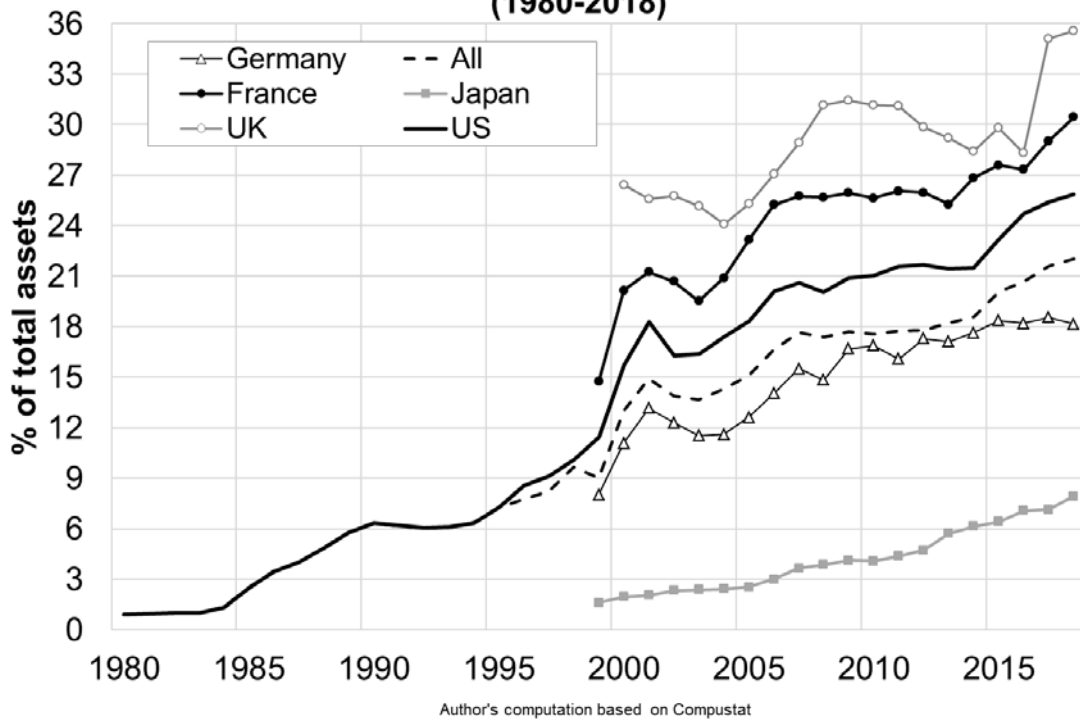


Figure 8MIC: Ownership by Big3 among firms belonging to indexes (1998-2018)

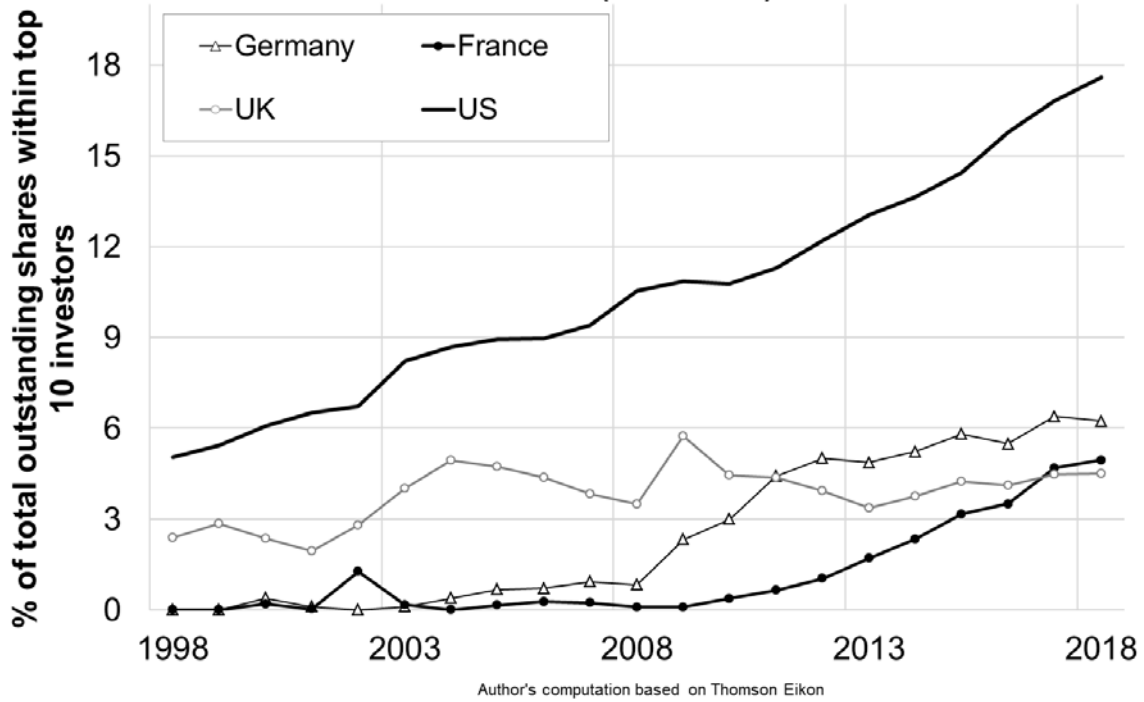
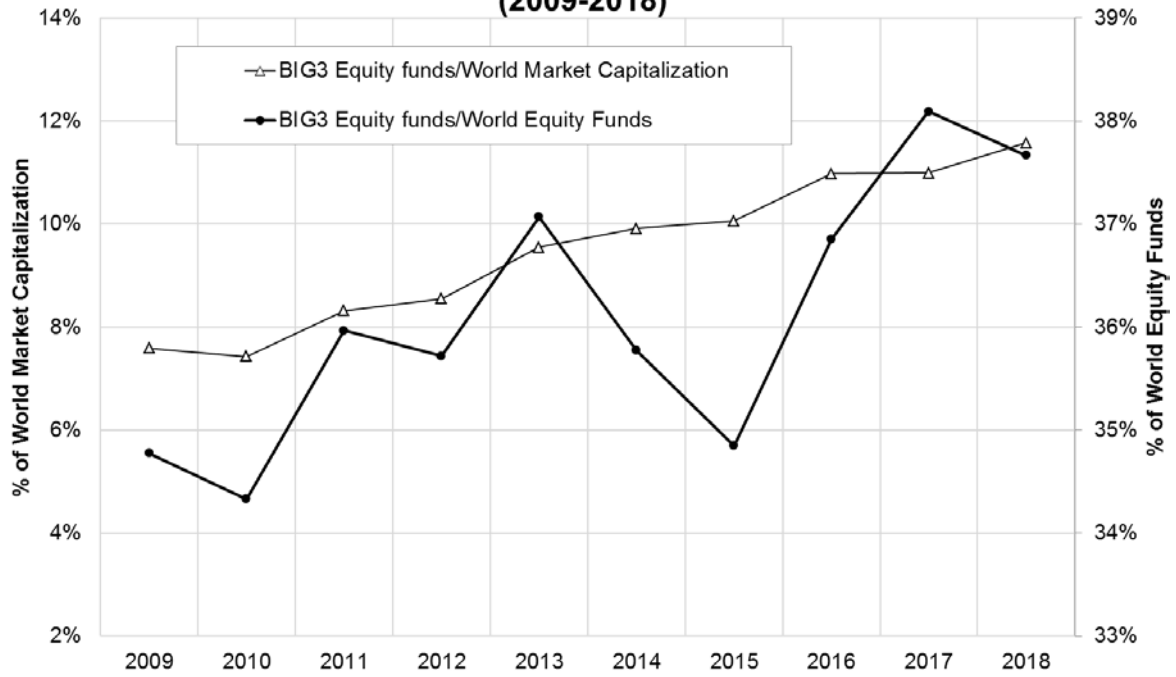


Figure 9MIC: BIG 3 Equity Funds Concentration (2009-2018)



Author's computation based on Pension & Investment, World Bank, and Financial Stability Board

Table A3: Data concentration in the Public Cloud (2015 and 2018)

	Year	Amazon	Microsoft	Google	Top 3 in 2018
Market shares public cloud IaaS	2015	39,80%	5,80%	1,50%	47,10%
	2018	47,80%	15,50%	4,00%	67,30%
Share of public cloud in data storage worldwide	2015	4,00%	0,60%	0,20%	4,80%
	2018	9,60%	3,10%	0,80%	13,50%

Sources: IDC and Statista