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Shareholder value orientation, corporate cash piles and the myth of financial accumulation

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Abstract

Financialisation scholars argue that the growing financial balance sheets of non-financial corporations indicate a "financial turn in accumulation" driven by the rise of shareholder value orientation (SVO). In this paper I test whether greater shareholder influence or shareholder-aligning managerial incentives can explain the more rapid accumulation of financial assets among non-financial corporations (NFCs) in the United States of America (USA). I find that shareholder power is associated with some increase in short-term financial assets – but only in the case of certain shareholder types, in particular, high-turnover institutional investors. The magnitudes of the effect are small, however, and only pertain to smaller firms. Moreover, ownership concentration by these impatient investor types is declining. The results suggest that changing corporate governance patterns have little capacity to explain balance sheet financialisation. I argue that mainstream accounts focused on the precautionary savings of new research-intensive firms and tax arbitrage among multinationals offer a better explanation for growing financial balances than the financial accumulation hypothesis. Neither of these implies a substitution of financial for real investment, which calls into question an important mechanism thought to connect financialisation to secular stagnation and rising inequality.

Keywords: financialisation, corporate governance, inequality.

Introduction

According to many accounts, one of the core processes of financialisation has been a reorientation of non-financial corporations (NFCs) towards financial activities (Crotty, 2005; Davanzati et al., 2019; Krippner, 2011; Lin and Tomaskovic-Devey, 2013; Orhangazi, 2008; Stockhammer, 2004). Specifically, a "financial turn in accumulation" is argued to have taken place, in which firms have increasingly looked to financial markets to supplement or substitute for profits generated in their ordinary lines of business. In the dominant view, these shifts have been driven by the increasing influence of shareholders over the firm (Davanzati et al., 2019; Davis, 2018; Hein and Truger, 2012; Krippner, 2011; Orhangazi, 2008; Stockhammer, 2004). Shareholders are assumed to have a preference for short-term, predictable returns and for a high rate of profit distribution, which encourages managers to favour quicker-yielding and easily reversible financial investments over new productive ventures. This paper critically evaluates the evidence of a "turn to finance" and, in particular, the connection between shareholder value orientation (SVO) and the growing financial balance sheets of NFCs.

Financialisation as a general term refers to a set of processes involving the encroachment of financial logics and actors over other parts of the economy (van der Zwan, 2014). The apparent abandonment of production for financial speculation by major corporations has become deeply emblematic of these broader processes. A now vast empirical literature links the increased financial investment of NFCs directly to some of the most regressive trends in contemporary capitalism, including secular stagnation (Pariboni et al., 2020) and spiralling inequality (Lin and Tomaskovic-Devey, 2013). Financial accumulation has been found to have a "crowding out" effect on productive activities, leading to slower investment (Orhangazi, 2008; Stockhammer, 2004; Tori and Onaran, 2020), declining productivity and value-added growth (Hein and Truger, 2012; Pariboni et al., 2020; Tomaskovic-Devey et al., 2015) and a weaker labour market (Lin, 2016). This is argued to have undermined the bargaining power of productive workers (Lin and Tomaskovic-Devey, 2013) while expanding the "exit" options of capitalists (Kohler et al., 2019) and buttressing the income shares and asset prices of financial agents (Huber et al., 2022). Empirically, this has thus been connected to declining labour shares at the levels of the firm (Alvarez, 2015; Guschanski and Onaran 2020), industry (Kristal, 2013; Lin and Tomaskovic-Devey, 2013) and at national level (Kohler et al., 2019), to income dispersion (Devey, 2013; Huber et al., 2022; Lin and Tomaskovic-Davanzati et al., 2019) and to de-unionisation (Dupuis et al., 2020; Kollmeyer and Peters, 2019). Some accounts even see financial accumulation as the cornerstone of an entirely distinctive phase of capitalism, marked by an increased tendency for profits to accrue through financial channels rather than through productive ones (Krippner, 2011).

Yet, despite the enormous importance accorded to it, the evidence of NFCs having undertaken any generalised turn to finance is surprisingly thin. The core problem confronted in empirical work is the non-availability of functionally disaggregated profit data, which would allow us to measure returns specifically from financial activities (Rabinovich, 2019). In practice, this means that the main evidence for the financial turn has come from balance sheets – in particular the increased size of financial portfolios relative to other assets. Using firm-level data from Compustat, I show that, for all except the most financialised firms, this increase has been entirely accounted for by one sub-category of financial asset, namely cash and short-term investments (Compustat item *che*). While this is not inconsistent with the theory that NFCs have engaged in widespread financial profit seeking, there are other accounts

of liquid asset accumulation that have been overlooked and not adequately controlled for in financialisation research (Bates et al., 2009; Faulkender, et al., 2019).

If financial accumulation is to be inferred from balance sheet financialisation, it becomes particularly important to establish a link between the latter and the main mechanism driving financial profit seeking: SVO. I seek to do this by examining the effect on balance sheet behaviour of a wide range of independent variables intended to capture two things: first, the extent of shareholder influence over the firm and, second, the extent to which managers have been incentivised to prioritise the interests of shareholders. Thus, instead of trying to proxy for (non-observable) governance orientations, I focus on the power and interest dynamics that have underpinned the shareholder value movement. One major advantage of this method is that it allows me to account for an important point of nuance generally omitted from the financialisation literature: shareholder heterogeneity. Previous research has linked financial accumulation to the influence of shareholders or institutional investors as a whole, but a different possibility is that only certain types of shareholder encourage financial profit seeking, given that shareholders differ in their preferences and enforcement capacities (Jackson, 2011).

My findings suggest that this is indeed the case. I find evidence that shareholder power can induce firms to accumulate more financial assets, but these effects are confined to certain types of "impatient" investor – those whose overall ownership share has been decreasing in recent years. The effects are small in magnitude and appear to hold only for smaller firms, which have made next to no contribution to the aggregate increase in financial holdings. I find, moreover, that passive index funds, which have dramatically increased their ownership shares in recent years, have a *discouraging* effect on balance sheet financialisation.

Governance dynamics, therefore, offer little in the way of an answer to the puzzle of growing financial portfolios. But far better answers are available from extensive empirical literature in mainstream economics and corporate finance (Bates et al., 2009; Faulkender et al., 2019; Graham and Leary, 2018). Financialisation researchers have generally ignored this work, possibly because of its apparently much narrower subject matter with a focus on the stockpiling of liquid assets, or simply "cash" in business jargon. But as we've already noted, the build-up of "cash" on NFC balance sheets is, in fact, all the evidence we currently have of widespread financial accumulation. Mainstream explanations of that build-up centre on two factors. Firstly, increased demand for precautionary savings, driven by smaller, newer, research and development (R&D) intensive firms (Graham and Leary, 2018). Secondly, the amassing of giant offshore portfolios by tech-intensive multinationals which face significant tax disincentives towards repatriating earnings, and which have significant capacities for profit shifting (Faulkender et al., 2019).

Neither of these explanations provides any room for financial profit seeking as a motive for portfolio expansion, nor do they suggest any likelihood that financial activities have displaced productive ones. Balance sheet growth for smaller firms appears to reflect an engagement with the financial sector on very traditional terms: as means of managing risk and liquidity. For large multinationals, it appears to be the outcome of arbitrage manoeuvres in a multi-jurisdictional tax system, and will be sensitive to the changing parameters of that system (Pozsar, 2018). Investment in financial assets is thus unlikely to have "crowded out" capital expenditure at any significant scale. It

is also unlikely to have had any significant impact on bargaining dynamics, given that most firms seem to have maintained their conventional reliance on producing and selling.

In short, this paper adds to a growing sceptical literature (Fiebiger, 2016; Kliman and Williams, 2014; Rabinovich, 2019; Soener, 2020). It argues that financial accumulation is something of a myth. While there are, no doubt, important instances of NFCs having turned away from their traditional lines of business towards financial activities, there is no evidence of this having occurred at scale. The best indirect indicator of that having happened – balance sheet financialisation – is far better explained by other factors that have little to do with a financial profit motive.

A note on terminology: the term "financialisation" is used in connection with NFCs to refer to a number of related but distinct phenomena including the adoption of shareholder governance norms, the increased distribution of earnings to shareholders and deepened engagement in financial activities and markets. In this paper I use the term exclusively in the latter sense. I define "financial accumulation" motivationally – it refers to attempts by NFCs to generate increased revenue through financial activities. The amassing of financial assets for different motives, such as to increase liquidity, is not financial accumulation. This paper makes use of a large number of acronyms – a glossary of terms is provided in Table 1.

Table 1: Glossary of terms

Acronym	Term	Explanation
CHE	Cash and short-term investments	Liquid, less risky assets such as cash, cash-like time deposits and conventional marketable securities like government bonds and stocks - as defined by COMPUSTAT. Duchin et al. (2019) argue that this line item in COMPUSTAT also includes a high amount of less liquid, risky assets.
FA1	Financial accumulation, Type 1	The pursuit of profits through financial activities, taking the form of trading and speculating in financial assets.
FA2	Financial accumulation, Type 2	The pursuit of profits through financial activities, taking the form of providing a financial service, usually through a subsidiary enterprise.
MTB	Market-to-book ratio	The ratio of the share value of a firm to the value of its assets minus liabilities. Used as an indicator of growth potential.
NFC	Non-financial corporation	Ant publically listed firm, excluding financial firms. Empirical sections of this paper also exclude utility companies.
NWC	Net working capital	A measure of liquidity, equal to a firm's current assets less cash, minus current liabilities.
SBR	Stock-based remuneration	Payment to managers in the form of equity rewards.
SVO	Shareholder value orientation	A more general and ambiguous term, referring to the prioritization of shareholder interests but also strategies and business models associated with this, such as those focussed on generating short-run returns at the expense of long-run growth

TCJA	Tax Cuts and Jobs Act	US legislation passed in 2017 involving a range of personal and business tax cuts and amendments, including amendments pertaining to repatriated earnings

Background and theory

Shareholder value orientation and financial accumulation

The possibility that financial investment might come to substitute fixed-capital investment was recognised early on, particularly by Marxist economists. As far back as 1929, Henryk Grossman (1929) predicted that when "money capital in search of investment can no longer be applied profitably in production" it would turn instead to the "stock market". A similar idea was raised within the mainstream by James Tobin (1965), who speculated that higher rates of return on financial assets may cause firms to divert available funds to financial markets, depleting resources for productive expansion (Orhangazi, 2008: 867). Various Marxist writers have argued that a prolonged re-direction of capital towards finance could result from conditions that led to persistently depressed real sector profitability. For Arrighi (1994), such episodes were a recurring feature of periods of hegemonic transition in the world system. For Sweezy (1994), an theorist of financialisation, it was monopolisation that stifled avenues for real accumulation and pushed capital towards finance.

These theories, which are still sometimes cited in contemporary research, suggest that a very simple mechanism underpins the financial turn – a sustained increase in the expected profitability of financial investment relative to productive investment, generally driven by a decline in the latter. However, direct evidence of this mechanism has never been supplied, and early Marxist theories were in general thin on empirical matter. Recent efforts to test their hypotheses show no relationship between higher financial investment and antecedent slowdowns in accumulation at the national level (Karwowski et al., 2020), nor between the former and declining profitability at the firm level (Soener, 2015).

More recent interest in financial accumulation was sparked by the work of Krippner (2005) and Crotty (2005). Drawing on aggregated statistics, they identified a sudden and dramatic increase in the demand for financial assets by US NFCs from around 1980. By end of the century NFC financial portfolios had increased twofold relative to tangible assets. Krippner's data also revealed a fourfold increase in the ratio of NFC portfolio income to profits over a similar period. Krippner later argued that these trends marked a deep transformation in the dynamics of contemporary capitalism, involving a tendency for profits to accrue "through financial channels rather than through trade and commodity production" – financialisation (2011: 174).

Similar to his Marxist precursors, Crotty argued that these trends reflected NFCs being impelled towards finance by shifting relative profit opportunities, although he emphasised the pull factor of elevated financial returns, a result of

liberalisation, rather than the push factor of a stagnating real economy (Crotty, 2005: 104). For Krippner (2011: 54), liberalisation was also a key factor, although operating through different channels. She argued that high and volatile interest rates pushed up hurdle rates of return, causing managers to withdraw from new productive investments and instead seek yield from financial assets that afforded greater liquidity. However, both authors also argued that changing frameworks of corporate governance, in particular the rise of shareholder value orientation, mediated the response of NFCs to profit stimuli and played an important role in directing them towards financial accumulation. Most recent accounts have dispensed of any reference to changing profitability dynamics and instead see the rise of SVO as a sufficient explanation for the financial turn (Davanzati et al., 2019*;* Hein and Truger, 2012; Krippner, 2011; Orhangazi, 2008; Stockhammer, 2004).

As I argue below, SVO is a somewhat imprecise term in financialisation studies but, at a basic level, it refers to a governance framework in which shareholder interests are prioritised over those of all other stakeholders. Most critical accounts argue that SVO encourages the adoption of a distinctive business model, organised around boosting share prices and maximising payouts through capital discipline and a ruthless focus on efficiency-enhancing reforms, which tend to be enacted at the expense of the firm's long-term health and innovative capacity (Lazonick and O'Sullivan, 2000). The shift of US corporations towards SVO frameworks was brought about firstly through institutional changes. These changes enhanced the power of shareholders and capital markets over the firm, notably through the re-concentration of ownership in the hands of large institutional investors (Davis, 2011). Subsequent governance reforms aimed to strengthen the monitoring and enforcement capacities of owners and bring the incentive structure of management into alignment with shareholder interests, for example, through the use of stock-based remuneration (Zorn et al*.,* 2004). Agency theory, a branch of financial economics, focused on the inefficiencies of manager-dominated firms, provided much of the ideological justification for the shareholder revolution and inspired its reform of corporate governance (Jensen and Meckling, 1979).

The literature has identified two main mechanisms linking SVO to financial accumulation. The first is ideational in nature, relating to the shifting cognitive frames through which managers come to understand the nature of the firm and its strategic objectives (Krippner, 2011; Stockhammer, 2004). In the Chandlerian era, the firm was understood to be a stable institution which supported a variety of stakeholders and was geared towards long-term reproduction through a strategy of market share growth and innovation. SVO, in contrast, encourages decision makers to adopt a "financial conception of the firm" which reduces it to a fungible bundle asset that is to be aggressively traded and re-arranged with the goal of maximising the returns of ultimate owners (Fligstein, 1993). The firm's productive assets, viewed through this lens, do not hold any inherent importance over other asset classes. Hence, they are regarded as freely interchangeable with financial investments based on narrow profitability criteria. More generally, SVO tends to empower managers with financial backgrounds and expertise. This means that the firm is more likely to turn to financial methods to resolve the strategic dilemmas it encounters.

The second and more frequently cited mechanism is rooted in the imposition of shareholder interests over the firm, rather than managers' cognitive alignments. Shareholders are thought to have a first order preference for maximising short-term returns. This refers to the intensified use of buybacks and dividends, both to "disgorge cash" and to pump up share prices. Pressure to sustain short-term payouts, in turn, translates into a stronger preference for financial investment, because the latter is deemed to be both quicker yielding, more easily reversible and more predictable than real investment projects (Davanzati et al., 2019; Davis, 2018; Hein and Truger, 2012; Stockhammer, 2004). SVO is also thought to lead firms to increase their leverage, because debt plays a useful role in disciplining managers and because of a concern to avoid over-issuance of equity which may result in diluted share prices. Higher debt-servicing obligations may further increase pressure to regularise cash flows and thus encourage financial accumulation.

It's worth noting that there are at least two distinct forms that financial accumulation can take, although the literature tends not to dwell much on their differences. The first, which I will term "FA1", involves a firm acting as financial *investor* or *trader:* buying and selling financial assets on its own account, and engaging in financial speculation. The second ("FA2") occurs when a firm becomes a financial *service provider*, offering credit or acting as an intermediary investor, often through a subsidiary or specialised division. Classic examples of these are the financial divisions established by large automakers, originally to provide consumer finance to their own customers (Lin and Neely, 2020). Note that this distinction many not always be so neat in practice. For example, Braeburn Capital is one of the largest asset managers in the world, a wholly owned subsidiary of Apple Inc. The majority of Braeburn's fund is supplied by Apple. Much of its activity therefore consists of trading and investing in its parent's capital (FA1). But Braeburn also opens its fund to other retail investors, to whom it is providing a financial service (FA2). In practice both FA1 and FA2 should result in a larger share of financial assets on the consolidated balance sheet of the firm, and so are accounted for by the empirical strategy I employ below.

Challenges to the financial accumulation thesis

Despite the macro-causal importance ascribed to it, evidence for the financial accumulation thesis is somewhat limited. Only two papers, to my knowledge, demonstrate any kind of link between SVO and financial orientation. Davis (2018) finds a positive relationship between the average industry level payouts – a proxy for SVO – and higher ratio of cash and short-term assets in a firm's balance sheet. She also finds that the gap between interest income and expenditure is associated with a higher proportion of liquid assets – potentially indicating that the growth of NFC financial balance sheets is linked to their engaging in the provision of financial services (FA2). Adopting a similar method in a cross-Latin American study, Rabinovich and Artica (2020) found a (small) positive association between financial income and short-term investments only in one case (Brazil), suggesting that other non-profit motives likely explain the build-up of cash holdings in those countries. Soener (2015) examined financialisation drivers in the apparel industry, although his model did not include governance variables. He finds evidence that branded marketers which tended to have more intangible, globalised business models had larger financial balance sheets.

More troubling for the financial accumulation thesis is the absence of robust descriptive evidence demonstrating a relative increase in the importance of financial channels of profit generation. As yet, none of the publicly available datasets employed in the financialisation literature disaggregate profits operationally in a way that would allow straightforward comparison between real and financial activities. It is generally possible to obtain information on the total income generated from the holding of financial assets and some measure of total financial expenditure[1]. However, much of this expenditure relates to the financing of real sector activities, which means it cannot be subtracted from financial income to obtain "pure" financial profit. The second-best approach adopted by most authors (Crotty, 2005; Davanzati, et al, 2019; Krippner, 2011; Lin and Neely, 2020) is to compare financial *income* (i.e. gross of costs) to total profit. But, as Crotty (2005: 105) himself warned long ago, this method severely biases the importance of financial income in an upwards direction because it compares a revenue stream to a profit (net of cost) stream (Rabinovich, 2019).

Consider, for example, a situation in which a firm has large interest-bearing items on both sides of its balance sheet. If interest rates were to suddenly go up, the resulting rise in financial incomes would be offset by increases in interest expenses, moderating any growth of financial profit. In Crotty's measure, however, interest expenditure forms part of total expenditure which is subtracted from total income to form the denominator of the term. Measured this way, financial accumulation would spike every time interest rates increase, since financial income would be boosted while the increase in total profit (the denominator) is moderated by the interest expenditure effect. It is therefore not surprising that Fiebiger (2016) finds the trend in aggregate "financial accumulation" to have closed tracked prevailing monetary conditions, giving it a historical evolution that is very difficult to square with the standard narrative of a "turn to finance" driven by shareholder norms. The Crotty measure suggests that financialisation crested in the late 1980s with high interest rates, and then has declined steadily since.

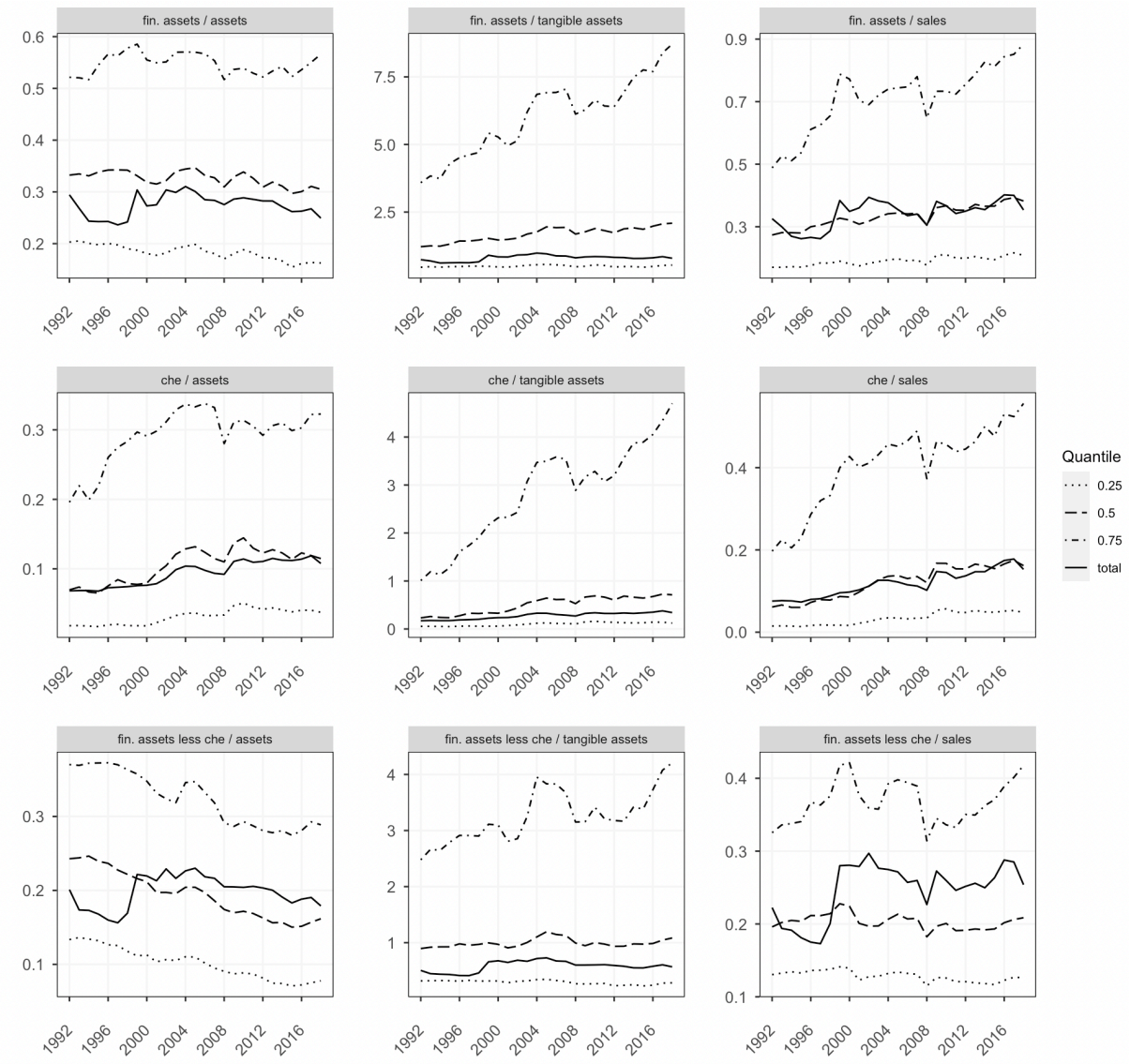
Direct evidence of the growing importance of financial income for US (and other) NFCs is therefore lacking. In practice, this has meant that the existence of financial accumulation as a generalised phenomenon has to be loosely inferred from the growing size of NFC financial portfolios – which I will henceforth refer to as "balance sheet financialisation". Here, too however, problems abound with the original evidence supplied for financial accumulation, which was largely based on aggregated statistics. Fiebiger (2016) shows increases in the relative of scale of NFC-owned financial assets in Bureau of Economic Analysis (BEA) data which appears to be driven by a miscellaneous category, while "conventional" financial assets comprised a steady share of around 26% of US GDP (gross domestic profit). A statistical note from the Federal Reserve cited by Rabinovich (2019: 10) explains that the

[1] A clearer measure of profit would in principle be derivable in cases where the firm has a separate financial division. However, many companies do not disaggregate profits from fully owned subsidiaries in their annual reports. In any case, only a small proportion of NFC financial activities are accounted for by subsidiary firms (Rabinovich, 2019).

category mostly comprises a wide range of different intangible assets, including goodwill, copyrights and patents, none of which can properly be considered financial assets.

Firm-level corporate databases, which allow for a more fine-grained disaggregation of balance sheets, offer a better vantage from which to study the financial habits of NFCs. However, Compustat, the most widely used dataset for public firms, appears, at first glance, to confute claims that NFC balance sheets have financialised. The first graph in the top panel of Figure 1 below displays ratios of financial to total assets of all available non-utility NFCs between 1980 and 2018, at different quartile breakpoints and in aggregate. It suggests that the long run trend has been towards *less* financialisation for most firms. Only among a quarter of the most financialised firms, by this measure, do we observe a steady increase of financial relative to total assets, occurring almost entirely between 1980 and 2000, following which the trend turns downwards. Soener (2020), in fact, finds that the same pattern holds for most OECD countries (Organization for Economic Cooperation and Development). The ratio of aggregate financial to total assets also trends down slowly from the mid-1980s.

Figure 1: Trends in balance sheet financialisation 1980–2018



Note: The numerator in the TOP panel, *fin. assets*, is total financial assets measured as total assets, minus plant and equipment, intangible assets, other assets, inventories and current assets other. The numerator in the MIDDLE panel, *che,* is "cash and short-term investments". The BOTTOM panel is total financial assets less *che*. All figures are based on the full population of Compustat firms for which data is available, less utilities and financial firms.

This conclusion is sensitive to the choice of denominator. Certain earlier studies reached stronger conclusions about financial accumulation by deflating financial assets by physical assets or sales. Here, we see more widespread balance sheet financialisation and fairly extreme patterns manifesting at the top of the distribution (Figure 1, TOP panel, centre and right). Financial to tangible assets for the median firm increased from 1.07 in 1980 to 2.08 in 2018. Increases for the top quartile of firms were nearly four times that. Much of the difference in trend from the first series is explained by the substantial increase in the importance of intangible capital for US NFCs over a similar period. Whether or not such capital ought to be excluded from calculations of balance sheet financialisation is not clear. One may object to that exclusion on the grounds that increasing intangible capital partly reflects the changing nature of production in a more digitised world. However, a major part of intangible capital is "goodwill" – estimations of the value accruing to the firm from previous acquisitions. If one excludes only this from the denominator, it still generally preserves the upward trend in relative financial balances.

Depending on how one measures it, therefore, total financial assets have been gaining relative weight, either moderately or not at all for most firms, while more substantial increases are observed at the top of the distribution. However, this changes when we examine a crucial sub-component of financial assets, namely cash and short-term investments, Compustat item *che*. Officially, this category consists of more liquid, less risky assets, such as cash, cash-like time deposits and most of the more conventional marketable securities, such as government bonds and stocks. However, a recent investigation, drawing on regulatory accounting disclosures, found that a substantial proportion of *che* – 23.2% on average – is comprised of risky securities, most of which are also illiquid (Duchin et al., 2017: 794). The graphs in the middle panel of Figure 1 plot the same ratios as before, but with the numerator switched to *che* instead of total financial assets. Here we see much stronger and more consistent upward trends. In fact, virtually all of the growth in total financial assets is accounted for *che* (bottom panel). For the median firm, *che* increased threefold as a proportion of total assets from 3% in the mid-late 1990s to around 9% at the time of the 2008 crisis. More financialised firms at the top of the distribution saw much more substantial increases of *che,* to around a quarter of total assets.

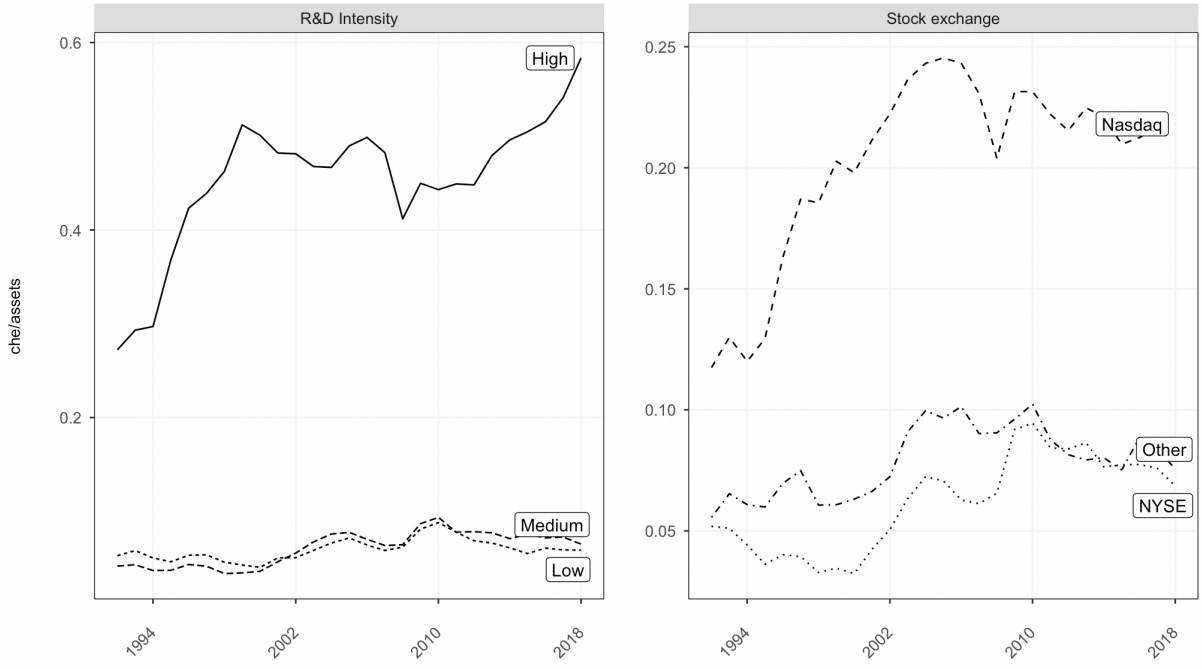
Balance sheet financialisation in the US therefore appears to be mostly a story about increased holdings of cash and short-term investments (henceforth "cash" or *che*). This is not necessarily inconsistent with the financial accumulation thesis – particularly if firms' involvement in financial markets takes the form of trading and speculating (FA1). Financial service provision (FA2) may be associated more with the accumulation of longer-term assets, but given the actual murkiness of *che* as a statistical category, as Duchin et al. (2017) discovered, it is not impossible that rising *che* balances also partially reflect this form of financialisation.

Mainstream accounts of *che* accumulation

There is, however, a very different interpretation of rising *che* balances to be found in mainstream economics and corporate finance research. Financialisation scholars often accuse those fields of suffering from a theory-induced myopia which blinds them to the fundamental shifts that have occurred in the architecture of modern finance. On this issue, the charge is unfair. Mainstream researchers have grappled for a long time with financial balance sheet expansion, although they have understood that expansion – accurately – to be accounted for overwhelmingly by short-term, liquid assets (Amess et al., 2015; Bates et al., 2009; Faulkender et al., 2019; Graham and Leary, 2018, Harford et al., 2008). Consequently, they have approached the problem from a fundamentally different angle and have arrived at different conclusions. Mainstream research has tended to look at *che* balances not primarily as a source of *interest* for NFCs but as a source of *liquidity*. The question it poses, therefore, is not why firms are turning to finance as a source of profit generation but why they are amassing precautionary savings, rather than disgorging those savings to shareholders or finding alternative outlets for investment.

The starting point for these accounts is a world in which financial and insurance markets are imperfect and, hence, firms face varying degrees of credit constraint, forcing them to hold "precautionary" balances of liquid assets. The demand of firms for cash is a function of their growth opportunities, uncertainty about future cash flow, and their access to credit (Amess et al., 2015: 424). In a landmark paper, Bates et al. (2009) showed that the increase in average cash balances was mostly a result of level changes in the characteristics of listed firms, rather than changes in the correlation between such characteristics and cash. This suggests a movement along, rather than a shift upwards, in demand schedule for liquid assets. However, Graham and Leary (2018) show that changing firm characteristics is largely about demographic shifts rather than changes in the nature of existing firms. They describe a "Nasdaq effect" in which the profile of the US corporate sector was transformed from the 1980s onwards by the rapid entrance of Nasdaq-listed firms, primarily in the health and high-tech sectors (Figure 2). These firms were typically smaller, had fewer fixed assets, lower profitability, more volatile growth prospects and, hence, higher demand for precautionary cash holdings. For older firms, within-firm changes in cash demand were largely constant throughout the period – a fact that challenges the financial accumulation thesis.

Figure 2: Balance sheet financialisation by R&D intensity and stock exchange

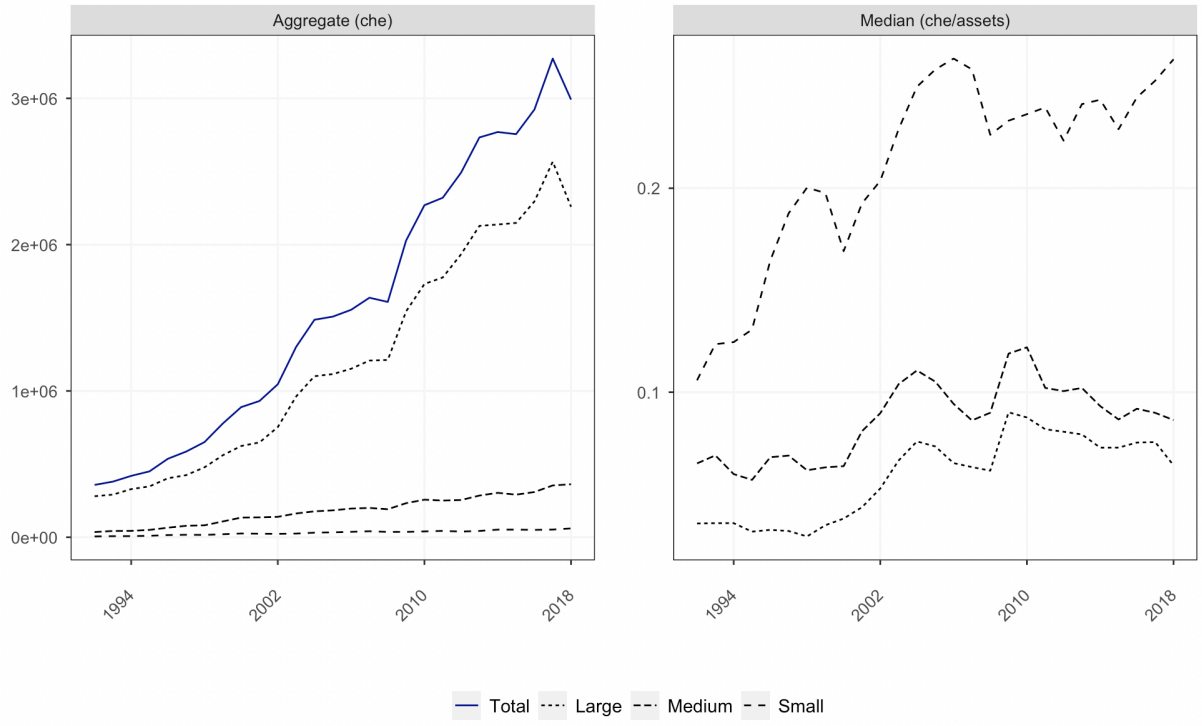


Note: Research intensity is calculated as R&D expenditure divided by total sales. High, medium and low R&D firms are the top, middle and bottom quintile of firms by R&D intensity. Lines represent median values. Based on the full population of non-financial, non-utility firms in Compustat for which data is available.

However, shifting firm characteristics do not contribute much to explaining increasing *aggregate* cash balances, which have been mostly driven by very large firms (Figure 3). Using non-public BEA data, Faulkender et al. (2017) demonstrate that 85% of the increase in *che* balances held by multinational corporations since the late 1990s is accounted for by offshore holdings. Precautionary motives, which are much more relevant for domestic savings,

explain little of this growth. Instead, Faulkender and co-authors find that expanding offshore balances are predominantly explained by falling overseas tax rates. This has a "passive" effect on inducing firms to leave foreign earnings on the books of their subsidiaries and an "active" effect on pushing them to engage in tax minimisation measures. Offshore balances are overwhelmingly concentrated in very big multinationals with large intangible asset stocks and high 'related sales' (between subsidiaries). Intangibilised firms tend to be more knowledge intensive and hence to have greater scope for shifting profits by re-assigning ownership of intellectual property, such as patents. Firms with high, related sales have more avenues for engaging in transfer pricing.

Figure 3: Balance sheet financialisation by firm size



Note:

Large firms are the top decile of firms by asset size. Medium firms are p50-p89 percentiles, small firms are the bottom 50 percentiles. Aggregate *che* is in current prices. Based on the full population of non-financial, non-utility firms in Compustat for which data is available.

Insofar as governance has been considered a factor in NFC's balance sheet behaviour, diametrically opposing hypotheses have been advanced: greater shareholder influence is expected to *discourage* the accumulation of financial assets, especially liquid ones (Harford, 2008). This is what Agency theory itself would seem to predict. The central impetus for that theory was the concern that unpoliced managers (the agents) would use firms' resources for privately beneficial objectives inconsistent with the maximisation of shareholder value (Jensen and Meckling, 1979). The surest way to prevent this is to insist on high hurdle rates for new investment projects and then to deprive managers of control over "excess" funds by demanding that free cash flow be immediately disbursed through dividends and buybacks. Demands to "disgorge the cash" have indeed been at the centre of many of the most prominent shareholder campaigns in recent years. Financialisation theorists have never dealt frontally with this

apparent challenge to their theory. It is not easy to see why shareholders who are generally anxious about principal-agent problems would consent to NFCs becoming financial intermediaries on their behalf, unless those companies have some comparative advantage in this role (such as the ability to engage in tax arbitrage). The most straightforward way for managers to deal with payout pressure, it would seem, is simply to pay out, rather than retain and invest earnings on account of the firm.

The situation changes when it comes to financial service provision, FA2. Here, financial balances would be likely to be seen as retained earnings and as productive assets related to the firm's business operations. They will not be subject to demands for disgorgement in the same way. But FA2 might be expected to elicit hostility from shareholder activists for a different reason, namely that it constitutes a form of (sectoral) diversification. Opposition to excessive diversification – on efficiency grounds and because it obstructs valuation – has been one of the most consistent tenets of the shareholder revolution (Zorn et al., 2004). That opposition is never unqualified of course: some instances of financialised diversification may be justified by synergies and existing proficiencies, such as automotive companies engaging in consumer finance. But, on balance, there may be good reasons to expect SVO to have a discouraging effect on FA2.

Thus, the financial accumulation thesis, despite the importance it has accorded to theories of financialisation, rests on somewhat shaky ground, both theoretically and empirically. Given the absence of strong quantitative evidence that growing financial portfolios are being amassed chiefly as a source of profit, it becomes more important to verify the key causal mechanism behind financial accumulation – that which is linked to shareholder pressure. That mechanism is subject to a competing and diametrically opposed theory from mainstream research. In this paper, I test the connection between SVO and financial accumulation, adopting a distinct "power and interests" approach to capturing changing dynamics of corporate governance. This method and its advantages over existing approaches in the heterodox literature are discussed in the next section.

Measuring shareholder power and manager incentives

In the financialisation literature "shareholder value orientation" is a somewhat slippery term, to which several distinct but closely interrelated definitions are applied. In its narrowest guise, "SVO" refers to a certain ordering of interests within the firm. It denotes an "orientation" in which managers prioritise the preferences of shareholders over all other stakeholders. Somewhat more expansively, "SVO" is used to encompass the actual strategies and practices that are thought to follow from this orientation, such as a focus on short-term returns and a stronger propensity to distribute earnings. Additionally, "SVO" is sometimes used to refer to a more comprehensive ideology – a set of conceptions among managers about the nature of the firm and its ultimate objectives.

However SVO is defined, it presents inherent challenges for empirical work because it is, at root, a set of dispositions or cognitive frames that are non-observable and which are held by managers. One way of trying to get at those dispositions could be to take managers at their word – examining their official statements for phrases that could directly or indirectly indicate the degree to which they prioritise different stakeholders. The problem here is that there is strong evidence of managers engaging in "symbolic management" – signalling their adherence to shareholder primacy through their language or surface level behaviour but, in practice, acting according to their own prerogatives (Westphal and Zajac, 1998). The main strategy for capturing SVO in the financialisation literature has been to proxy for it using one of its assumed behavioural correlates, such as shareholder payouts. But this, too, has limitations. Even where we can reliably assume that a tendency to favour shareholders promotes such behaviours, rarely is it their sole cause. This may become a source of bias. Payouts, for example, tend to increase when a firm experiences declining growth prospects or when it expects windfall profits – both of which may be related to cash holding decisions.

In this paper, I adopt the narrow definition of "SVO", using the term to refer to a situation in which shareholder interests guide the decision making of managers. It may be best to think of SVO as a continuous variable, with firms that are "more" SVO, giving greater weight to shareholder concerns. Shareholder primacy is most directly related to the second mechanism of financial accumulation discussed above – it implies stronger pressure and incentives for managers to increase payouts and engage in management of short-term earnings. However, shareholder primacy is also likely to encourage managers to embrace the ideologies associated with SVO and, therefore, will also be connected to the first – ideational – mechanism of financial accumulation.

Firms tend to give greater weight to shareholder interests when: (1) shareholders themselves gain more power over the firm and (2) managers develop common interests with shareholders as a result of changing incentive structures (Davis, 2011; Lazonick and O'Sullivan, 2000; Zorn et al., 2004). Rather than trying to proxy for SVO, I adopt a range of measures related to (1) and (2) as my main independent variables. These could be thought of as mechanisms of SVO. Category (1), consisting of variables measuring shareholder power, primarily comprises various measures of ownership concentration. More concentrated ownership increases the voting power that shareholders possess and, therefore, strengthens their ability to use *voice* to effectuate pressure, either by actually voting against management or through direct engagement underpinned by the *threat* of oppositional voting. It also strengthens shareholder's ability to use *exit* – selling shares or threatening to do so. In addition to ownership, I also examine variables that measure the extent to which the bylaws and board structure of the firm facilitate shareholder influence. Of principal interest in category (2) is a measure of stock-based remuneration which has been the main instrument for realigning managerial preferences (Stockhammer, 2004). I also examine the effect of CEO tenure – shorter tenures have been a way of de-entrenching managers from specific firms and aligning their career prospects with market metrics (Palley, 1997).

One key advantage of this method is that it allows me to account for a crucial element of complexity that is commonly elided, or assumed away, in the financialisation literature: heterogeneity in investor preferences. Research on financial accumulation has typically relied on a binary distinction between profit-centric shareholders and growth-centric (Chandlerian) managers (Hein and Truger, 2012; Stockhammer, 2004). But this overlooks potentially significant variation in the time horizons and investment strategies of different kinds of shareholder (Jackson, 2011). It seems likely that pressure to distribute earnings and to focus on short-run returns would be higher in the presence of certain kinds of "impatient" investor and may even be exclusive to the influence of those investor types, rather than being a feature shareholder primacy as such. Adding to the complexity is the fact that capacities for enforcement also differ, meaning that shareholder preferences would not translate equally into governance priorities.

There is no consensus on which kinds of institution are impatient, nor is the degree of impatience likely to be homogenous within institutional classes (Deeg and Hardie, 2016). In general, most investors with high portfolio turnover, who hold individual shares for short periods, would be impatient and focused on short-run returns. But longer holding periods are no guarantee of investor long-termism. Indeed, many of the institutions most associated with "short-termism", such as certain hedge funds and private equity firms, are long-hold investors who engage in activism to push through "value-enhancing" reforms, after which they typically exit the stock. I therefore adopt a dragnet strategy, using ownership data to separately examine the financialisation effects of a wide range of investor categories defined by both portfolio turnover and institutional type. These categories are described in the next section.

Data

I use firm-level data from Compustat from 1997 to 2018 and include all active and inactive publicly listed NFCs incorporated in the USA, excluding financial and utilities companies. Firms with missing or zero assets (Compustat item AT), net property plant and equipment (Compustat item PPENT), and sales (Compustat item REVT) are dropped. I restricted my sample to firms that have at least three consecutive years of data on all model variables. Observations are winsorised by 0.5% at the upper and lower bound in order to account for outliers. The ownership and governance variables described below are typically available only for a fifth to a third of firms in this constricted population (Table 2). Most estimations below are therefore based on a smaller sample of typically larger firms. Companies below the 40th percentile of the distribution of total assets are poorly represented in this sample, so should not be considered party to my results. These firms account for very little of the aggregate increase in financial balances. Firm-year observations tend to be fairly constant ranging between ~700 to ~1600 in different estimations, depending on the availability of SVO variables.

Table 2 presents descriptive statistics of all model variables. Focal SVO variables are divided in the table between those related to shareholder influence and those related to managerial reincentivisation. The former category primarily consists of measures of ownership concentration by different sub-types of investor, classified according

to the schema in Brossard et al. (2013). *TOP1* and *TOP5* are broad measures of concentration, calculated as the proportion of total outstanding stocks held by the biggest single and biggest five investors respectively. *INSTIT* is the outstanding stocks of institutional investors, defined in Thomas Eikon as "buy-side institutions that have discretionary power over assets under management (AUM) and make buy/sell decisions". This includes banks and trusts, endowment funds, finance companies, foundations, hedge funds, insurance companies, investment advisors, investment advisor/hedge funds, pension funds, private equity, sovereign wealth funds and venture capital.

Table 2: Descriptive statistics

Variable	Term	Observa-tions	Mean	Median	Min	Max	Std. dev
Dependent variable							
Cash and short term investments / net assets	che/n.assets	92774	0.69	0.14	0	16.7	1.94
Focal independent variables							
Indexes							
Shareholder influence	SVO_share-holder	8203	0.03	0.19	-2.03	1.79	0.93
Managerial reincentivisation	SVO_manager	8203	0.04	-0.04	-1.53	2.93	0.97
Ownership							
Concentration							
Largest shareholder	TOP1	31569	0.16	0.12	0.05	0.82	0.13
Top 5 shareholders	TOP5	31569	0.4	0.36	0.15	1.23	0.18
Type							
Institutional investors	INSTIT	31569	0.38	0.38	0.05	0.91	0.18
High turnover	INSTIT_HIGHT	31569	0.1	0.08	0	0.63	0.11
Low turnover	INSTIT_LOWT	31569	0.27	0.26	0	0.78	0.16
Big Three	INSTIT_LOWT_BIG3	31569	0.08	0.07	0	0.27	0.07
Hedge funds	INSTIT_LOWT_HEDGE	31569	0.09	0.06	0	0.47	0.09
Turnover							
High turnover	HIGHT	31569	0.12	0.08	0	0.69	0.12
Low turnover	LOWT	31569	0.35	0.34	0.03	0.94	0.18
Governance							
Financial director	DIR_FINANCIAL	11283	0.24	0.2	0	0.86	0.13
Outsider directors	DIR_OUTSIDERS	21198	0.82	0.86	0.25	1	0.1
E-INDEX	E-INDEX	22275	3.32	4	0.5	6	1.36
CEO stock based remuneration	SBR_CEO	29436	0.42	0.45	0	0.94	0.24
CEO tenure	CEOTENURE	20671	-9.41	-7	-62	0	8.37
Control variables							
Log(assets)	log(assets)	92774	5.83	5.77	1.79	11.51	2.2
Cash flow volatility	cf.volatility	87076	0.07	0.03	0	1.28	0.15
Leverage	leverage	92700	0.14	0.01	0	4.95	0.47
Market-to-book	mkt-to-book	81768	1.96	1.28	0.49	17.38	2.19
Capacity utilization	cap.util	92774	12.46	4.97	0.28	226.23	26.42
Capital expenditure	capx/assets	92207	0.06	0.03	0	0.53	0.08

Acquisition expenditure	aquis./assets	89254	0.03	0	0	0.48	0.07
Net working assets	nwc/assets	91067	0.03	0.02	-0.31	0.58	0.17
Profit rate	profitr	92774	-0.04	0.02	-0.65	0.4	0.21
R&D expenditure	r&d/sales	92774	0.7	0	0	47.73	4.49

Next I classify investors according to their portfolio turnover. *HIGHT* is the ownership share of the largest ten "high-turnover" investors, defined as any investor whose portfolio turnover is characterised as "moderate" or "high" in Thomson Eikon. Moderate turnover is defined as an average holding period of between one year and two years, whereas high turnover is less than one year. *LOWT* is the same for "low-turnover" investors. Since most research associates SVO specifically with institutional investors, I focus particular attention on this category and its various subcomponents, first distinguishing between high and low-turnover institutional investors (INSTIT_LOWT and INSTIT_HIGHT). Within the former category I then specifically examine the influence of the Big Three (Blackrock, State Street and Vanguard) passive index funds (INSTIT_LOWT_BIG3) and hedge funds (INSTIT_LOWT_HEDGE).

Two remaining variables on shareholder power capture the extent to which the governance structures of the firm facilitate shareholder influence. From the Directors database of the Institute of Shareholder Services (ISS) I calculate the percentage of the firm's directors who are outsiders (DIR_OUTSIDERS) and the percentage that have a financial background (DIR_FINANCIAL) (only available post 2008). Outsider directors are typically seen as having more autonomy from management, while those with financial backgrounds can be expected to be more sensitive to shareholder interests and ideologies. From the ISS Governance database, I construct the E-INDEX – widely used in corporate governance and management research – which is based on six provisions that have been shown to be the most relevant in determining the extent of managerial "entrenchment", such as whether the firm has a poison pill or golden parachutes for executives (Bebchuk et al., 2019).

I employ two variables related to managerial incentives. Firstly, using data from ExecuComp, I calculate stock-based remuneration of the CEO (CEO_SBR) as total stock reward, plus the total value of options awarded, divided by total compensation. Secondly, from the ISS Governance database, I calculate CEO tenure (CEO_TENURE) as the number of years the incumbent CEO has spent at the firm. Both these variables are averaged in instances where there are multiple CEOs.

While all these databases (Compustat, Thomson Eikon, ExecuComp, Institute for Shareholder Studies' Directors, ISS) contain the CUSIP identifier, the merging process was not straightforward due to the fact that CUSIPs are changed for various reasons, such as mergers. Although Wharton Research Data Services, which houses all of these datasets, does make an attempt to update CUSIPs to the latest usage, this still leaves a large number of inconsistencies, with the same firms identified by different CUSIPs across datasets. Agreement is far higher among Compustat, ExecuComp and Thomson Eikon than between these and the ISS databases. In order to accommodate this, I leveraged an additional identifier common to all databases – TICKER. Before joining datasets, I found

instances in which the join results in multiple firms with the same TICKERs for the same year. The CUSIPs for these firms were then altered (using a master key based on Compustat identifier) prior to the join in order to merge them – except when doing so would result in duplicated CUSIPs. Observations in which identifiers were altered in this way were then manually checked, along with observations in which firm names from different datasets failed a "fuzzy match". A more cursory manual scan of the full dataset was then performed by visually comparing firm names. This method revealed only a small handful (~22) of spurious mergers, which were then manually corrected.

I used principal-component factor analysis (PFA) to construct two indexes from these variables. Table 3 presents the results of the PFA with varimax rotation applied to four variables: CEO stock-based remuneration (CEO_SBR), CEO tenure (CEO_TENURE), holdings of the largest shareholder (TOP1) and the percentage of financial directors (DIR_FINANCIAL). The factors lend themselves to convenient interpretation. The first factor loads heavily on SBR_CEO and CEO_TENURE. These are variables that measure the extent of managerial alignment with shareholders. The second factor loads heavily on the variables related to shareholder power through ownership and governance structure. The first index I employ, SVO_manager, is thus constructed from the scores of factor 1 and can be thought of as capturing managerial reincentivisation. The second index, SVO_shareholder, captures shareholder influence.

Table 3: Results of Principal Component Analysis with Varimax Rotation

	Factor 1	Factor 2
CEO_SBR	0.78	-0.08
CEO_TENURE	0.74	0.14
TOP1	-0.06	0.76
DIR_FINANCIAL	0.1	0.72
SS loadings	1.17	1.12
Proportion Explained	0.51	0.49

Model and estimation strategy

I employ the following model:

$$\frac{che}{n.assets} = \beta_0 + \beta_1 \log(assets)_{i,t} + \beta_2 cf.volatility_{i,t} + \beta_3 leverage_{i,t} + \beta_4 cap.util_{i,t-1} + \beta_5 mkt - to - bk_{i,t} + \beta_6 \frac{capx}{assets_{i,t}} + \beta_7 \frac{aquis}{assets_{i,t}} + \beta_8 profit.r_{i,t} + \beta_9 \frac{nwc}{at}_{i,t-1} + \beta_{10} \frac{r\&d}{sales_{i,t-1}} + \beta_{11} sect_{i,t} + \theta_t + \varepsilon_{i,t} + \varphi_t \quad \dots (1)$$

Where *i* and *t* are individual firm and time subscripts. *Che/n.assets* is cash and short-term investments over net assets. *Log(assets)* is the log of total current and non-current assets. *Cf.volatility* is cash flow volatility, estimated as a five-year

moving average of the standard deviation of the ratio of cash flow to assets. *Leverage* is leverage calculated as total debt to total assets. *Cap.util* is a measure of capacity utilisation calculated as total sales normalised by property plant and equipment assets. *Capx* is capital expenditure, and *aquis* is acquisition expenditure, both of which are normalised by total assets. *Mkt-to-bk* is the market to book ratio, calculated as the market value of outstanding shares, minus total debt, minus deferred taxes and tax credit, deflated by total assets. The profit rate, *profit.r*, is calculated as interest before extraordinary items normalised by total assets. *nwc* is net working capital which is normalised by total assets. *R&d/sales* is research and development expenditure normalised by sales and *sect* is a set of nine sector dummies based on Fama-French 12 sectors (minus finance and utilities). θ_t are coefficients of a set of year dummies, while $\varepsilon_{i,t}$ represents nonobservable shocks and φ_t unobservable individual-specific effects. Descriptive statistics of these control variables, which are standard in the literature (e.g. Bates et al., 2009; Davis, 2018), are reported in Table 2, above.

From theory and previous research, I derive the following expectations for these control variables: *Log(assets)* should be negatively related to *che* as larger firms typically have better access to credit and, thus, lower precautionary demand. Firms that are more leveraged, and those with significant cash flow volatility, on the other hand, should generally have greater precautionary demand and thus higher *che*. Net working capital is a substitute for liquid financial assets and should thus be negatively related to *che*. Capacity utilisation and the firm's market-to-book ratio both capture expectations about growth potential. Higher *mkt-to-bk* indicates that financial markets predict strong growth opportunities for the firm, while a higher realised period of strong demand leads information-constrained, heuristic-driven managers to predict higher growth going forward. In both instances, firms should amass greater *che* in expectation of future expansion. Both expectation variables are included with one lag. *Capx* and *aquis* reflect outflows – they should deplete retained earnings and lead to lower *che*. A higher profit rate should boost cash holdings, thus controlling for other factors. Research intensity is expected to be positively related to *che* accumulation due to the financing complications it entails.

To each of these models I then add in governance variables separately for each estimation. The E-Index and CEO tenure variables are sign inverted, such that all variables have the same direction of association with SVO – higher values reflect either greater shareholder influence or closer alignment of managers to shareholder objectives. The financialisation literature predicts that these variables have a uniformly positive association with *che/n.assets*. It is possible, however, that investor heterogeneity is a factor, in which case we would be most likely to observe positive effects only with impatient investor types. Mainstream research proffers contrasting predictions for governance variables. Where shareholders are more powerful, and managers more attuned to and aligned with their interests, we should expect a tendency for firms to more quickly "disgorge cash" and, hence, lower financial holdings.

I employ two estimation methods, both of which test the impact of corporate governance on *changes* in financial holdings. First, I follow a frequent practice in the corporate finance literature, applying ordinary-least squares (OLS) but including a one-year lag of the dependent variable (Harford et al., 2008). Standard errors are clustered at the firm level in these estimations. Second, following the standard approach in the heterodox literature, I employ a within-effects model with firm-level and year fixed effects (FE) and robust standard errors (Davis, 2018). This has the principal benefit of controlling for endogeneity arising from unobservable individual heterogeneity, which would

lead to OLS results being biased. The inclusion of time fixed effects also allows me to control for elements that vary over time but affect firms in the same way, such as macroeconomic shocks as well as industry-specific factors. Sector dummies which have no within-firm variation are dropped from these estimations.

Results

Table 4 columns (1) and (4) present results from the baseline model without SVO variables, for OLS and FE estimations respectively. Results largely conform to expectations and foregoing research. Firms that are larger and have higher stocks of working capital, a potential substitute for liquid financial assets, have lower demand for *che* balances while those with large R&D expenditure hold more *che* on their books. Capital expenditure and acquisition outflows deplete financial balances while higher profits in the previous period increase them. Better growth prospects as reflected in lagged capacity utilisation and a higher market-to-book ratio is associated with greater *che* demand. What is less likely to be expected is that leverage is negatively correlated with *che* accumulation, which may relate to the potential substitutability between borrowed funds and retained earnings. Cash flow volatility has no statistically significant effect.

Table 4: OLS (LHS panel) and Fixed-Effects (RHS panel) estimations of model 1

	Dependent variable: che.nat					
	OLS			*FE*		
	[1]	[2]	[3]	[4]	[5]	[6]
SVO_shareholder		-0.003			-0.011	
		(0.00)			(0.01)	
SVO_managerial			-0.002			0.0003
			(0.00)			(0.01)
log(assets)	-0.024***	-0.012***	-0.010***	-0.028*	-0.071***	-0.069***
	(0.00)	(0.00)	(0.00)	(0.02)	(0.02)	(0.02)
cf.volatility	0.015	0.106	0.108	0.148	0.053	0.055
	(0.06)	(0.24)	(0.24)	(0.13)	(0.16)	(0.16)
leverage	-0.092***	-0.002	-0.002	-0.066***	0.001	0.001
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
mkt-to-bk	0.034***	0.00002	0.0005	0.024***	0.017**	0.018**
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
lag(cap.util)	0.001**	-0.0002	-0.0002	0.002***	0.001	0.001
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
capx/assets	-1.688***	-0.598***	-0.596***	-1.438***	-0.970***	-0.959***
	(0.07)	(0.10)	(0.10)	(0.10)	(0.15)	(0.15)
aquis./assets	-1.531***	-0.787***	-0.786***	-0.833***	-0.360***	-0.359***
	(0.05)	(0.06)	(0.06)	(0.05)	(0.04)	(0.04)

lag(nwc/assets)	-0.529***	0.001	-0.001	-0.474***	-0.096	-0.098
	(0.03)	(0.04)	(0.04)	(0.06)	(0.07)	(0.07)
profitr	0.05	0.084	0.085	0.243***	0.011	0.016
	(0.04)	(0.09)	(0.09)	(0.06)	(0.07)	(0.07)
lag(r&d/sales)	0.036***	0.478*	0.479*	0.036***	-0.077	-0.077
	(0.00)	(0.27)	(0.27)	(0.01)	(0.10)	(0.10)
lag(che/assets)	0.687***	0.796***	0.796***			
	(0.01)	(0.03)	(0.03)			
Constant	0.335***	0.148***	0.137***			
	(0.03)	(0.03)	(0.03)			
Observations	100,576	6,989	6,989	88,037	5,671	5,671
R^2	0.599	0.787	0.787	0.024	0.072	0.071
Adjusted R^2	0.599	0.786	0.786	-0.083	-0.084	-0.085
Residual Std. Error	1.082 (df = 100527)	0.216 (df = 6957)	0.216 (df = 6957)			
F Statistic	3,133.593*** (df = 48; 100527)	830.408*** (df = 31; 6957)	830.298*** (df = 31; 6957)	53.478*** (df = 37; 79331)	18.817*** (df = 20; 4852)	18.575*** (df = 20; 4852)

Note: Non-financial, non-utility firms. Period covered: 1998 - 2018 for specification (1) and (4). 2008 - 2018 for specification (2), (3), (5) and (6). OLS equations include 9 sector dummies based on Fama-French 12 sectors that are not reported. All specifications include time fixed effects, not reported. Standard errors are in parenthesis. *p<0.1**p<0.05***p<0.01.

In the next step, indexes for shareholder influence and managerial realignment were added to the model, which was then re-estimated on the much smaller sample of firms for which these variables are available. The coefficient on both indexes is negative but neither is statistically robust. The second panel of Table 4 repeats this format using FE estimations. Covariates generally show similar sign and significance to OLS estimations. Again, neither SVO index is found to have any statistically significant association with altered balance sheet behaviour. The same FE models were then re-estimated for the two size sub-samples: the bottom four quintiles of firms and the top quintile (Table 5). SVO indexes remained insignificant for both sub-samples. Note that FE models have an extremely small adjusted R-squared, which is consistent with the findings from elsewhere that within-firm changes have accounted for little of the overall change in *che* balances (Graham and Leary, 2018).

Table 5: Fixed-Effects estimations of model 1 for two size sub-samples

	Dependent variable:			
	che.nat			
	Smaller firms	Smaller firms	Large firms	Large firms
SVO_shareholder	-0.011		-0.009	
	(0.01)		(0.01)	
SVO_manager		0.009		-0.016
		-0.01		-0.014
log(assets)	-0.082***	-0.080***	-0.029	-0.026
	-0.03	-0.03	-0.028	-0.027
cf.volatility	0.373	0.374	-0.048	-0.024
	-0.379	-0.379	-0.131	-0.127
leverage	-0.008	-0.008	0.001	0.001
	-0.014	-0.014	-0.005	-0.005
mkt-to-bk	0.014	0.015	0.028***	0.028***
	-0.009	-0.009	-0.009	-0.009
lag(capacity.util)	0.0004	0.0004	0.002**	0.002**
	-0.001	-0.001	-0.001	-0.001
capx/assets	-1.316***	-1.315***	-0.519***	-0.483***
	-0.254	-0.254	-0.104	-0.102
aquis./assets	-0.385***	-0.386***	-0.428***	-0.419***
	-0.044	-0.044	-0.111	-0.105
lag(nwc/assets)	-0.035	-0.036	-0.169	-0.167
	-0.075	-0.075	-0.135	-0.138
profitr	-0.017	-0.009	0.084	0.086
	-0.11	-0.109	-0.06	-0.057
lag(r&d/sales)	-0.107	-0.107	0.056	0.036
	-0.107	-0.107	-0.84	-0.84
Observations	3,362	3,362	2,128	2,128
R^2	0.076	0.076	0.094	0.098
Adjusted R^2	-0.101	-0.101	-0.073	-0.069
F Statistic	11.544*** (df = 20; 2823)	11.531*** (df = 20; 2823)	9.335*** (df = 20; 1795)	9.752*** (df = 20; 1795)

Note: Smaller firms are the bottom two quintiles of firms by asset size, large firms are the top quintile. Sample comprises all non-financial, non-utility firms for which data is available. Period covered: 2008 - 2018. All specifications include time fixed effects, not reported. Standard errors, in parenthesis, are robust. *p<0.1**p<0.05***p<0.01.

Next, instead of indexes, each governance variable was added separately to the baseline model. Table 6 reports only the coefficients and standard errors from these variables for separate estimations – a full set of results is available in Appendix A. Columns (1) and (2) report results for OLS and FE estimations respectively, applied to the full sample of firms. The results suggest that greater ownership concentration among certain investor types can

encourage the accumulation of financial assets, as financialisation theory would predict. Broad concentration among the largest five investors (*TOP5*) is associated with larger *che* balances, significant at the 5% level. These effects are stronger in the case of institutional investors. In the FE estimation, a one within-firm standard deviation increase in the ownership share of institutional investors (*INSTIT*) is associated with a 4.7% increase in the ratio of *che* to net assets. Distinguishing between high- (*INST_HIGHT*) and low- (*INST_LOWT*) turnover institutions suggests that these effects are driven entirely by the former. In fact, ownership by the dominant investor type within the latter category, namely the Big Three passive index funds *(BIG3*), appears to have the opposite effect to high-turnover institutions. A one within-firm standard deviation increase in Big Three ownership is associated with a 4% *decline* in the ratio of *che* to net assets, using FE methods.

Table 6: Coefficients and standards errors (in parenthesis) for focal SDG variables based on OLS (column 1) and FE estimations (columns 2 - 6) of model 1

	OLS	FE				
	Full Sample	**Full Sample**	**2000s**	**2010s**	**Smaller firms**	**Larger firms**
Ownership						
TOP1	-0.034	0.053	0.098	0	0.447	-0.003
	(0.054)	(0.141)	(0.124)	(0.275)	(0.43)	(0.032)
TOP5	0.093*	0.212**	0.179*	0.32	0.612**	-0.024
	(0.052)	(0.106)	(0.103)	(0.209)	(0.291)	(0.025)
INSTIT	0.245***	0.441***	0.271*	0.532**	0.747*	-0.007
	(0.058)	(0.142)	(0.145)	(0.22)	(0.429)	(0.039)
INSTIT_HIGHT	0.514***	0.73***	0.362**	0.761***	1.311***	0.011
	(0.096)	(0.159)	(0.161)	(0.218)	(0.469)	(0.048)
INSTIT_LOWT	0.098	-0.019	-0.004	-0.052	-0.087	-0.014
	(0.06)	(0.104)	(0.096)	(0.152)	(0.343)	(0.028)
INSTIT_LOWT_BIG3	-0.397***	-0.782**	0.007	-0.556	-2.83*	0.266*
	(0.143)	(0.355)	(0.364)	(0.557)	(1.584)	(0.139)
INSTIT_LOWT_HEDGE	-0.026	0.122	-0.258	-0.008	0.104	0.027
	(0.088)	(0.155)	(0.187)	(0.21)	(0.472)	(0.068)
HIGHT	0.493***	0.583***	0.241*	0.751***	0.861**	-0.002
	(0.089)	(0.135)	(0.127)	(0.211)	(0.374)	(0.039)
LOWT	-0.027	0.013	-0.005	-0.022	0.199	-0.041
	(0.049)	(0.078)	(0.083)	(0.126)	(0.198)	(0.031)
Governance						
DIR_FINANCIAL	0.007	-0.014				
	(0.021)	(0.036)				
DIR_OUTSIDERS	-0.017	-0.041	-0.099	-0.123**	0.479	0.123
	(0.027)	(0.079)	(0.134)	(0.062)	(0.532)	(0.108)
E-INDEX	-0.001	-0.009	-0.005	0.001	0.033	-0.008
	(0.002)	(0.009)	(0.015)	(0.006)	(0.077)	(0.006)
SBR_CEO	0.025	0.025	0.036	0	-0.072	-0.037*
	(0.015)	(0.023)	(0.031)	(0.048)	(0.145)	(0.022)
CEO_TENURE	0	0	0.002*	-0.001	-0.002	0
	(0)	(0.001)	(0.001)	(0.001)	(0.006)	(0.001)

Note: Full results are available in Appendix A. Non-financial, non-utility firms. Periods covered: 1998 - 2018 for all specifications, except DIR_FINANCIAL (2008 – 2018). OLS equations include 9 sector dummies based on Fama-French 12 sectors that are not reported. All specifications include time fixed effects, not reported. Standard errors are in parenthesis. Smaller firms are the bottom two quintiles of firms based on asset size, large firms are the largest quintile. *p<0.1**p<0.05***p<0.01.

In columns (3) and (4) of Table 6, the FE model is re-estimated for each governance variable for two sub-periods, 2000–2008 and 2010–2018. The positive effects of high-turnover ownership hold across both periods, although they are stronger in the second. In columns (5) and (6), the FE model is re-estimated on two asset size sub-samples: "smaller firms" (the bottom two quintiles) and "large firms" (the top quintile). The results indicate that governance only really affects balance sheet behaviour for smaller firms. High-turnover institutional investors have a fairly strong effect on the demand for financial assets among these firms, but no impact on large firms. Even more striking is the effect of Big Three ownership. A one standard deviation increase in Big Three ownership decreases financial holdings for smaller firms by 13%. In contrast, Big Three ownership *increases* financial balances for large firms, although the effect is significant only at the 10% level.

Non-ownership governance variables, those related to both shareholder influence and managerial realignment do not, on their own, appear to have any substantive effect on balance sheet behaviour. None of these variables were found to be statistically significant below the 10% level. This could be because re-incentivisation instruments, such as stock-based remuneration, simply do not work as intended. As some have argued, such policies might allow managers to signal an alignment with shareholder interests, while in fact allowing them to continue serving their own priorities (Westphal and Zajac, 1998). A different possibility, suggested by the foregoing set of results, is that shareholder heterogeneity confounds the effects of these variables on firm behaviour. Re-incentivisation mechanisms might actually work in getting managers to cater more proactively to shareholder interests, but since they would in each case be serving a different mix of investors, with distinctive preferences, such mechanisms have no consistent association with behavioural outcomes on their own. To explore this further I interacted *CEO_SBR* with *TOP5*, *INSTITUT_HIGHT* and *INSTITUT_LOWT* and included these terms in three separate re-estimations of the FE model (Appendix B). Interaction and separate terms for *CEO_SBR* remained insignificant in the first and last cases, but the coefficient on the *CEO_SBR*INSTITUT_HIGHT* was fairly substantial (0.847) and significant at the 5% level, indicating that reincentivisation mechanisms may be effective in the presence of well-defined shareholder interests.

I tested the robustness of these results in two ways. First, I re-estimated the FE model for the full sample and both size sub-samples using lagged versions of the focal SVO variables (Appendix B). Positive effects of high-turnover investors are moderated and disappear in size sub-samples. In contrast, the negative effect of lagged Big Three ownership on financial asset demand is roughly twice as large, for both the full sample and smaller firms. Second, I re-regressed FE models, with both indexes and separate SVO variables, on two different measures of balance sheet financialisation. The first is long-term financial assets, calculated as total financial assets less *cbe*, normalised by net assets. SVO indexes were once again insignificant. Shareholders appear to affect this category of financial asset somewhat differently. Ownership concentration in low-turnover shareholders (*LOWT*), low-turnover institutions (*INSTIT_LOWT*) and, in particular, the Big Three (*INSTIT_LOWT_BIG3*) had small negative effects on demand for long-term financial assets, significant at the 1% and 5% levels. No other investor category had significant effects. Secondly, I calculated a variable that captures most of the marketable, interest-bearing assets that would be likely to attract firms engaged in financial accumulation. I added "other" investments and advances (Compustat item IVAO) to short-term investments (Compustat item IVST) and normalised this with net assets. Note that, while IVAO

comprises many longer-term, marketable financial assets, it also contains balance sheet items that do not fit this category, such as investments and advances to former subsidiaries. Results for this variable largely tracked those of *che*: positive effects were observed for high-turnover investor types, while the Big Three reported a small negative effect, significant only at the 10% level.

Discussion

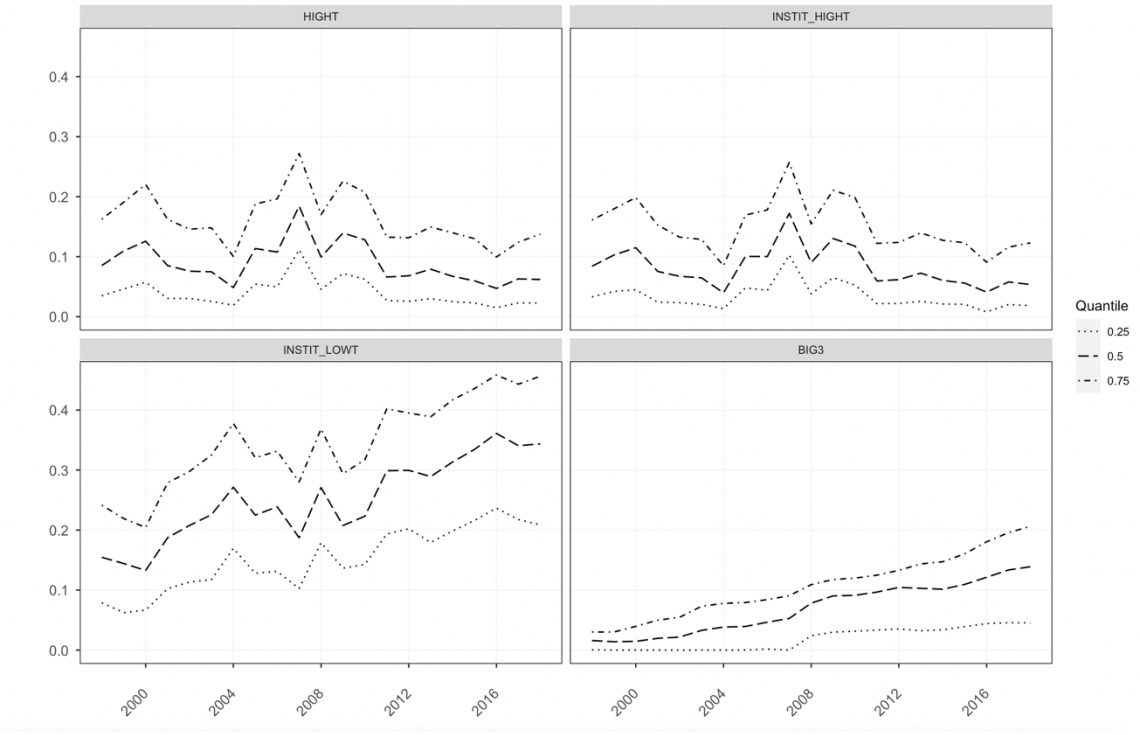
The results here appear to provide some support for financialisation theories. They suggest that, in certain cases, SVO can lead firms to accumulate more financial assets – contradicting what mainstream accounts would suggest. However, this result is subject to an important qualification, namely that shareholder heterogeneity matters. The financialisation literature has generally paid little attention to this issue, fixating instead on the general distinction between shareholder-oriented and manager-controlled firms. Financial accumulation was thought to be an effect of the ascendency of shareholders as a broad stakeholder category within the firm. But the results here challenge that assumption. They suggest that balance sheet financialisation emerges not from shareholder pressure as such but from pressure exerted by *specific kinds* of shareholder, in particular, institutional investors with high-turnover investment strategies. Given that they tend not to hold shares for any length of time, such institutions can be safely classified as "impatient" investors in the sense of being oriented towards short-run returns, with little concern for the firm's long-term viability. The fact that they would have stronger effects on balance sheet behaviour is thus consistent with the main mechanism of financial accumulation posited by financialisation theory, which hinges on the short-term constraints imposed by shareholders on the firm. So, too, is the fact that the Big Three index funds appear to have the opposite effect, assuming that it is correct to see such funds as generally disengaged from active stewardship (Bebchuk and Hirst, 2019). If they are, it would suggest that ownership concentration in passive indexers allows managers to claw back autonomy, and lessens the pressure for financial accumulation.

Note that the fact that financial accumulation appears to occur only in the presence of certain (short-termist) investor classes, casts doubt on whether the active mechanism driving it is the diffusion of financial ideologies or "conceptions of the firm". It seems to be, more prosaically, an effect of power and pressure.

Thus, even if it has tended to specify it too broadly, the financialisation literature appears to have identified an important and interesting mechanism that has contributed to the expanding financial balance sheets of NFCs – an increased preference for financial sources of profit as a response to the pressures exerted by short-termist investors. However, the magnitude of the effect associated with impatient investors is small. At their largest, in the case of high-turnover institutions *(INSTIT_HIGHT)*, a one (within-firm) standard deviation increase in ownership is associated with an increase of only 5.9% of the standard deviation of *che/nat*. Moreover, the investor classes associated with financial accumulation effects have been declining in influence, while those associated with financial *dis*-accumulation have been growing enormously. Indeed, median ownership by impatient capital declined faster

than almost any other category during the post-crisis period (Figure 4). The sub-period analysis discussed earlier (Table 6) showed that it was during this period in which financial accumulation effects were strongest. That same time frame saw a massive acceleration of "asset manager capitalism" with the Big Three index funds significantly expanding their holdings (Braun, 2020). This would suggest that, in fact, shifting patterns of ownership and shareholder empowerment have been a major *countervailing* force against growing financial portfolios, at least since the 2008 crisis.

Figure 4: Time series of ownership variables 1998–2018



Note: Lines represent quantile breakpoints. All non-financial, non-utility firms with available data in Thompson Reuters.

Finally, the financial accumulation effects of impatient capital do not hold for large firms. Recall that, due to large inter-firm inequalities, virtually all of the increase in aggregate financial balances, which is ultimately what most theories of a "financial turn" sought to explain, is accounted for by the top 20% or so of firms. None of our SVO variables had any statistically significant effect on the balance sheet behaviour of these firms. Collectively, these findings suggest that changing patterns of corporate governance can only account for an extremely small fraction of the overall accumulation of financial assets by NFCs. This prompts doubts about whether any *generalised* turn to financial accumulation ever took place.

It is worth acknowledging once more certain limits of the methods through which these results have been arrived at. Governance orientations cannot be observed directly, so what has been tested here are the effects of shifting power and incentive dynamics on balance sheet behaviour. Our ability to draw conclusions from this about how SVO affects financial decision-making rests on further assumptions, specifically that shifts in ownership and

incentives are strong causes of SVO at the firm level. More broadly, like most other firm-level empirical studies, we assume that SVO varies sufficiently among firms and within them over time. These assumptions may be open to doubt. One interpretation of the shareholder revolution conceives it as having brought about an epochal shift in governance, enshrining new norms and standards that eventually diffused universally (Lazonick and O'Sullivan, 2000; cf. Shin, 2013). Such concerns call for further study, ideally through longer-range datasets. But it should be noted that any theory starting from the premise of universalised SVO confronts a major problem: that the turn to finance has been far from universal itself. Considerable firm-level variation across firm type and sector has been one of the most basic stylised facts about financialisation.

The relative weakness and limited scope of SVO-based mechanisms for financial accumulation stands in contrast to what has been found regarding other theories. Mainstream research appears to offer an account capable of explaining most of the rise in both average and aggregate financial balances, centred on two main factors. One the one hand, increased demand for precautionary stocks of liquid assets, driven especially by the entrance into the market of small high-technology firms (Graham and Leary, 2018). These firms tended to have lower stocks of net working capital, were more reliant on research and design, and had lower capital expenditure. The results above confirm that all of these variables are significant in determining the demand for financial assets. Shrinking *nwc* stocks, in part, reflects a shift to just-in-time production (Gao, 2017) while research and design intensification and intangibilisation are emblematic features of a more information driven economy. In this sense, what larger financial portfolios reflect is not an attempt to escape from the "real" economy as Marxists have tended to argue, but an attempt by newer firms to adapt to changing modalities in a more globalised and digitised world.

On the other hand, mainstream accounts of portfolio expansion in large multinationals do bear some resemblances to the narrative of financial accumulation in certain Marxist theories, notably Sweezy's (1994). That narrative hinges on declining avenues for new investment as a result of monopolisation, which leads firms to channelling earnings into financial markets. Many of the firms engaged in offshore portfolio expansion have clearly achieved substantial market power, which has furnished them with excess profits and has likely reduced their rates of reinvestment. In fact, as Pozsar (2018) shows, just ten firms controlled over two thirds of the total stock of (disclosed) liquid offshore savings in 2017. The largest six portfolios were all held by technology majors: Apple, Microsoft, Cisco, Oracle, Alphabet and Qualcomm. Pharmaceutical giants J&J, Pfizer, Amgen and Merck comprised the remainder of the top ten. These are all archetypes of the tech-intensive "superstar firms" that have risen on the back "winner-take-all" dynamics and scalability in intangibilised markets (Autor et al., 2020). Their surplus profits have likely added to the build-up of *che* balances (Soener, 2020).

But a dearth of profitable investment outlets is only one reason these firms have retained, and subsequently financialised, earnings. What also has to be accounted for is why so-called "cash piles" have not simply been distributed to shareholders, some of whom have fought hard for that to happen (contrary to what financialisation theory would predict) (Neate, 2013). Here tax incentives appear to be the overriding factor. Of the visible examples,

the firms involved in offshore stockpiling all have operations in low-tax jurisdictions, and ample means to shift income to those jurisdictions. That income has ended up "trapped" overseas due to repatriation taxes. Prior to the passage of the Tax Cuts and Jobs Act (22 December 2017), US corporations faced a 35% surcharge on the return of any profits made from 1987, net of amounts already paid in foreign jurisdictions. While managers cannot openly admit that their cash piles are the result of tax arbitrage strategies, this reality seems to be universally understood by market analysts and commentators. Faulkender et al. (2019) find that almost all of the aggregate increase in financial balances since early 2000 has taken place in offshore accounts and among R&D intensive firms (which have higher capacity for profit shifting). This suggests that monopolisation and surplus profits probably played little role *independently* of arbitrage incentives.

This puts a somewhat different spin on the connection between internationalisation and financial asset accumulation noted by numerous heterodox scholars. Explanations of this connection focus again on surplus profits garnered by lead firms in global value chains (Milberg, 2008; Milberg and Winkler, 2010; Soener, 2020), and on "Nikeification" and the shift to intangibilised business models (Auvray and Rabinovich, 2019; Pagano, 2014; Soener, 2020), which have made it easier to "recycle earnings into financial activity" (Soener, 2015: 550). Such accounts are plausible and potentially complementary to arbitrage-focused explanations. But they need to be directly verified by mechanism-focused empirical research; the current evidence in their favour does not go beyond a general association between internationalisation/intangibilisation and larger financial balance sheets.

While tech-based multinationals have deepened their involvement in financial markets for reasons very different to those proposed by financialisation theory, the end results have been in many ways similar. In an effort to generate yield on the giant "cash piles" they have retained, these firms have become heavily engaged in financial activities and have developed major financial wings, often under subsidiary asset management companies, such as Apple's Braeburn Capital and Oracle's Delphi. The scale of the funds at their disposal has made them systemically important players in key markets, such as US corporate bonds, where the 30 largest NFC investors accounted for 5% of outstanding debt in 2017 (Platt et al., 2017). Apple's total credit portfolio that year was only slightly smaller than JP Morgan's and considerably larger than Wells Fargo's (Pozsar, 2018: 15). Microsoft, which focused on treasuries rather than corporate bonds, had the second-largest public debt portfolio of any US entity, bigger than three of the top four banks (Pozsar, 2018: 16). An investigation of its balance sheet operations by the Financial Times suggested that it was emulating professional money managers, lending out its safe assets in transactions that resembled reverse repurchase agreements (Scaggs, 2017). In order to be able to pay out to shareholders while avoiding repatriation taxes, these firms have raised large amounts of their own debt in (US) domestic bond markets. Their financial strategy has thus come to hinge on the spreads earned between their own highly rated issuance and those of the other NFCs to which they are ultimate lenders (Pozsar, 2018).

A subset of major US multinationals has thus diversified heavily into finance and has, no doubt, generated handsome profits as a result. Yet, because the motives driving this process are very different from those proposed by the

financial accumulation thesis, so likely are the effects. It is very difficult to imagine that access to financial income has diminished the focus of these firms on core productive activities or has "crowded out" their capital expenditure. The most financialised are, as we noted, almost all "superstar firms" – a term coined to describe the divergence in fortunes between a handful of top-tier corporations and "the rest" of the global economy (Bajgar et al., 2019). Superstar firms stand out for extraordinary rates of profitability and productivity, and for the extent to which they have achieved dominance over the markets in which they operate. However successful their ventures into finance, they are unlikely to have any displacing effect on core operations, which are what have made such ventures possible in the first place. It seems similarly unlikely that financial incomes have significantly changed the balance of power between different stakeholders within these firms. Many superstar firms do not, in any case, have large productive workforces likely to be affected by financialisation, given their longstanding embrace of Nikeified business models. Even if negative bargaining power effects can be demonstrated, their relevance for macro inequality would be unclear, given that we are talking about only a handful of companies which, despite their systemic importance, account for only a small fraction of employment.

Conclusion

The field of financialisation comprises an extremely broad and diverse set of theories concerning the ways in which a more prominent and powerful financial sector is reshaping fields of action in different areas of social and economic life. This paper has investigated one well-defined sub-theory within that broader corpus: the claim that non-financial public firms have reoriented themselves, *en masse*, away from productive and towards financial activities. This theory underpins one of the major interpretive approaches to financialisation, which sees it as a distinctive "regime of accumulation" marked by a growing tendency for profits to accrue through financial channels rather than productive ones (Van der Zwan, 2014). Such approaches occupy an important place with the broader field because they connect financialisation to the macro-dynamics of contemporary capitalism. Numerous empirical studies have conceptualised and verified specific mechanisms through which financial accumulation has been a driver of secular stagnation (Stockhammer, 2004; Tomaskovic-Devey et al., 2015) and rising inequality (Huber et al., 2022; Lin and Neely, 2020).

This paper has argued that the financial accumulation thesis misinterprets the shifting terms of engagement between NFCs and the financial sector. Above, I have shown that the growth of financial balance sheets has been driven by short-term liquid assets. I found some evidence that SVO can, in certain cases, encourage the accumulation of such assets, but I also showed that it explains very little of the overall changes witnessed in the last several decades. Drawing on mainstream corporate finance and economic research, I offer an alternative account of financial balance sheet growth which has two parts to it. Firstly, growing demand for precautionary savings, particularly among newer, smaller research-intensive firms, which has driven up the average ratio of financial to other assets. Insofar as there has been a "financial turn" among these firms it has been driven by the conventional motives for engaging with finance – the need to manage risk and liquidity – rather than through a search for alternative forms of accumulation.

Secondly, the amassing of giant "cash piles" by large multinationals which has been discouraged by existing tax laws from repatriating and distributing earnings. Here, NFCs have turned to financial markets as an outlet for investment, rather than a source of liquidity or hedging. Their behaviour does not, however, reflect any fundamental shift in the underlying modalities of capitalist accumulation. Rather, it is far more institutionally contingent: an arbitrage response to a multijurisdictional tax regime. Accordingly, changing tax legislation appears to be having dramatic effects on the balance sheet behaviour of these firms and may eventually lead to the unwinding of their financial positions. President Trump's 2017 Tax Cuts and Jobs Act abolished the 35% profit repatriation tax, requiring instead that companies pay a one-off charge of between 8% and 15.5% on overseas earnings made from 1987, after which they can be freely repatriated. In the year following its enactment, a reported $1 trillion was returned to US jurisdictions (most of which was channelled quickly into massive stock buybacks, disappointing hopes for an uptick in investment). Apple alone returned over $100 billion to shareholders in 2021 as part of plans to become "cash neutral".

If this interpretation is accurate it would call into question many of the mechanisms thought to link the growth of financial balance sheets and incomes to changing patterns of investment and distribution. Further research stands to shed light on why it is the case, nevertheless, that so many studies have found an association between those outcomes and deeper financial engagement. Such findings may simply be derived from omitted variables or other sources of bias. Alternatively, or more promisingly, such findings may point to as-yet undiscovered mechanisms of interest arising from the constantly changing relationship between the financial and non-financial sectors.

Data availability

The data underlying this article were derived from sources in the public domain (Compustat, Institute for Shareholder Services' Directors database and ExecuComp are all available via Wharton Research Data Services https://wrds-www.wharton.upenn.edu/login/ ; Thomson Eikon is available at https://eikon.thomsonreuters.com/login). Merged datasets will be shared on reasonable request to the corresponding author.

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Appendix A

	Dependent variable:								
	che.nat								
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
TOP1	-0.034								
	(0.05)								
TOP5		0.093*							
		(0.05)							
INSTIT			0.245***						
			(0.06)						
INSTIT_HIGHT				0.514***					
				(0.10)					
INSTIT_LOWT					0.098				
					(0.06)				
INSTIT_LOWT_BIG3						-0.397***			
						(0.14)			
INSTIT_LOWT_HEDGE							-0.026		
							(0.09)		
HIGHT								0.493***	
								(0.09)	
LOWT									-0.027
									(0.05)
log(assets)	-0.026***	-0.024***	-0.031***	-0.025***	-0.028***	-0.020***	-0.026***	-0.024***	-0.026***
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
cf.volatility	-0.063	-0.055	-0.041	-0.052	-0.056	-0.062	-0.063	-0.053	-0.065
	(0.15)	(0.15)	(0.15)	(0.15)	(0.15)	(0.15)	(0.15)	(0.15)	(0.15)
leverage	-0.085***	-0.086***	-0.082***	-0.084***	-0.084***	-0.088***	-0.086***	-0.084***	-0.086***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
mkt-to-bk	0.030***	0.030***	0.031***	0.032***	0.030***	0.031***	0.030***	0.032***	0.030***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
lag(capacity.util)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
capx/assets	-2.186***	-2.196***	-2.195***	-2.212***	-2.188***	-2.186***	-2.188***	-2.214***	-2.185***
	(0.19)	(0.19)	(0.19)	(0.19)	(0.19)	(0.19)	(0.19)	(0.19)	(0.19)
aquis./assets	-1.493***	-1.492***	-1.516***	-1.522***	-1.496***	-1.494***	-1.492***	-1.527***	-1.492***
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
lag(nwc/assets)	-0.610***	-0.606***	-0.619***	-0.595***	-0.616***	-0.604***	-0.608***	-0.586***	-0.607***
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
profitr	-0.264***	-0.268***	-0.269***	-0.262***	-0.268***	-0.256***	-0.265***	-0.259***	-0.264***
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
lag(r&d/sales)	0.029***	0.029***	0.029***	0.030***	0.029***	0.029***	0.029***	0.030***	0.029***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
lag(che/n.assets)	0.700***	0.700***	0.698***	0.698***	0.700***	0.701***	0.700***	0.699***	0.700***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Constant	0.393***	0.331***	0.312***	0.342***	0.365***	0.399***	0.387***	0.329***	0.395***
	-0.064	-0.072	-0.064	-0.059	-0.063	-0.06	-0.062	-0.06	-0.069
Observations	27,507	27,507	27,507	27,507	27,507	27,507	27,507	27,507	27,507
R^2	0.65	0.65	0.65	0.651	0.65	0.65	0.65	0.651	0.65
Adjusted R^2	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65

Residual Std. Error (df = 27464)	1.161	1.161	1.161	1.16	1.161	1.161	1.161	1.16	1.161
F Statistic (df = 42; 27464)	1,214.727***	1,215.039***	1,216.919***	1,218.371***	1,214.950***	1,215.189***	1,214.707***	1,218.803***	1,214.729***

Table A1: OLS estimations of model 1, ownership variables.

Non-financial, non-utility firms. Period covered: 1998 - 2018. Equations include 9 sector dummies based on Fama-French 12 sectors that are not reported; and time fixed effects, not reported. Standard errors, in parenthesis, are clustered at the firm level. *p<0.1**p<0.05***p<0.01.

	Dependent variable:				
	che.nat				
	[1]	[2]	[3]	[4]	[5]
DIR_FINANCIAL	0.007				
	(0.02)				
DIR_OUTSIDERS		-0.017			
		(0.03)			
E-INDEX			-0.001		
			(0.00)		
CEO_SBR				0.025	
				(0.02)	
CEO_TENURE					-0.0003
					(0.00)
log(assets)	-0.021***	-0.018***	-0.022***	-0.031***	-0.016***
	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
cf.volatility	0.276	0.505***	0.107	0.360**	0.526***
	(0.25)	(0.15)	(0.25)	(0.17)	(0.15)
leverage	0.001	-0.01	0.002	-0.020*	0.00004
	(0.03)	(0.02)	(0.02)	(0.01)	(0.02)
mkt-to-bk	0.013	0.024***	0.017***	0.032***	0.023***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
lag(capacity.util)	-0.0003	-0.0004**	-0.0004	0.00001	-0.0005**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
capx/assets	-0.676***	-0.834***	-0.887***	-1.075***	-0.807***
	(0.12)	(0.07)	(0.07)	(0.07)	(0.07)
aquis./assets	-0.856***	-0.940***	-0.955***	-1.017***	-0.973***
	-0.042	-0.046	-0.039	-0.037	-0.05
lag(nwc/assets)	-0.088	-0.109***	-0.159***	-0.224***	-0.088**
	(0.06)	(0.04)	(0.04)	(0.04)	(0.04)
profitr	-0.026	-0.178**	-0.175*	-0.101	-0.189**
	(0.11)	(0.07)	(0.10)	(0.07)	(0.07)
lag(r&d/sales)	0.351	0.008	0.041**	0.057***	0.003
	(0.36)	(0.03)	(0.02)	(0.02)	(0.03)
lag(che/n.assets)	0.687***	0.718***	0.707***	0.651***	0.735***
	(0.07)	(0.05)	(0.04)	(0.03)	(0.05)
Constant	0.230***	0.232***	0.279***	0.303***	0.195***
	-0.051	-0.055	-0.043	-0.033	-0.038
Observations	9,678	19,160	21,207	30,683	17,277
R^2	0.671	0.652	0.699	0.637	0.661
Adjusted R^2	0.67	0.651	0.699	0.636	0.66
Residual Std. Error	0.284 (df = 9646)	0.353 (df = 19116)	0.446 (df = 21161)	0.485 (df = 30635)	0.353 (df = 17235)
F Statistic	633.917*** (df = 31; 9646)	833.735*** (df = 43; 19116)	1,094.483*** (df = 45; 21161)	1,141.497*** (df = 47; 30635)	817.918*** (df = 41; 17235)

Table A2: OLS estimations of model 1, governance variables.

Non-financial, non-utility firms. Period covered: 1998 - 2018. Equations include 9 sector dummies based on Fama-French 12 sectors that are not reported; and time fixed effects, not reported. Standard errors, in parenthesis, are clustered at the firm level. *p<0.1**p<0.05***p<0.01.

	Dependent variable:								
	che.nat								
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
TOP1	0.053								
	(0.14)								

TOP5		0.212**							
		(0.11)							
INSTIT			0.441***						
			(0.14)						
INSTIT_HIGHT				0.730***					
				(0.16)					
INSTIT_LOWT					-0.019				
					(0.10)				
INSTIT_LOWT_BIG3						-0.782**			
						(0.36)			
INSTIT_LOWT_HEDGE							0.122		
							(0.16)		
HIGHT								0.583***	
								(0.14)	
LOWT									0.013
									(0.08)
log(assets)	0.019	0.022	0.007	0.019	0.019	0.033	0.018	0.021	0.018
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
cf.volatility	0.123	0.125	0.131	0.126	0.123	0.12	0.124	0.124	0.123
	(0.31)	(0.31)	(0.31)	(0.31)	(0.31)	(0.31)	(0.31)	(0.31)	(0.31)
leverage	-0.067***	-0.067***	-0.067***	-0.068***	-0.068***	-0.068***	-0.067***	-0.067***	-0.068***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
mkt-to-bk	0.031*	0.031**	0.031**	0.031**	0.031*	0.032**	0.031*	0.031**	0.031*
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
lag(capacity.util)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
capx/assets	-2.204***	-2.202***	-2.209***	-2.223***	-2.206***	-2.217***	-2.206***	-2.220***	-2.206***
	(0.28)	(0.28)	(0.28)	(0.28)	(0.28)	(0.28)	(0.28)	(0.28)	(0.28)
aquis./assets	-0.881***	-0.881***	-0.877***	-0.895***	-0.880***	-0.888***	-0.881***	-0.896***	-0.880***
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
lag(nwc/assets)	-0.720***	-0.720***	-0.727***	-0.726***	-0.719***	-0.730***	-0.722***	-0.716***	-0.720***
	(0.15)	(0.15)	(0.15)	(0.15)	(0.15)	(0.15)	(0.15)	(0.15)	(0.15)
profitr	0.071	0.08	0.077	0.059	0.071	0.074	0.073	0.066	0.072
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)
lag(r&d/sales)	0.038***	0.038***	0.038***	0.038***	0.038***	0.038***	0.038***	0.038***	0.038***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Observations	24,800	24,800	24,800	24,800	24,800	24,800	24,800	24,800	24,800
R^2	0.026	0.027	0.028	0.029	0.026	0.027	0.026	0.028	0.026
Adjusted R^2	-0.056	-0.055	-0.054	-0.053	-0.056	-0.055	-0.056	-0.053	-0.056
F Statistic (df = 31; 22878)	19.749***	20.134***	20.906***	21.830***	19.740***	20.160***	19.777***	21.442***	19.739***

Table A3: Fixed-Effects estimations of model 1, ownership variables

Non-financial, non-utility firms. Period covered: 1998 - 2018. Equations include time fixed effects, not reported. Standard errors, in parenthesis, are robust. *p<0.1**p<0.05***p<0.01.

	Dependent variable:				
	che.nat				
	[1]	[2]	[3]	[4]	[5]
DIR_FINANCIAL	-0.014				
	(0.04)				
DIR_OUTSIDERS		-0.041			
		(0.08)			
CEO_SBR				0.025	
				(0.02)	
E-INDEX			-0.009		
			(0.01)		
CEO_TENURE					0.0001
					(0.00)
log(assets)	-0.063***	-0.041**	-0.055***	-0.085***	-0.042**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
cf.volatility	0.213	0.650**	0.471**	0.307	0.593*
	(0.14)	(0.30)	(0.23)	(0.23)	(0.31)
leverage	0.012	-0.008	-0.004	-0.025	-0.009
	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)
mkt-to-bk	0.025***	0.028***	0.025***	0.035***	0.029***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
lag(capacity.util)	0.0004	0.003***	0.002**	-0.001	0.003***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
capx/assets	-0.897***	-1.289***	-1.324***	-1.375***	-1.346***
	(0.12)	(0.18)	(0.19)	(0.17)	(0.20)
aquis./assets	-0.392***	-0.505***	-0.521***	-0.558***	-0.520***
	(0.04)	(0.05)	(0.05)	(0.04)	(0.05)
lag(nwc/assets)	-0.02	-0.430***	-0.397***	-0.412***	-0.387***
	(0.08)	(0.16)	(0.11)	(0.11)	(0.13)
profitr	0.054	0.031	0.052	0.006	0.017
	(0.08)	(0.10)	(0.10)	(0.11)	(0.11)
lag(r&d/sales)	0.315	0.045	0.042	0.060**	0.052
	(0.36)	(0.03)	(0.03)	(0.03)	(0.04)
Observations	7,882	15,781	16,106	27,041	13,987
R^2	0.058	0.048	0.053	0.047	0.048
Adjusted R^2	-0.109	-0.072	-0.075	-0.045	-0.076
F Statistic	20.677*** (df = 20; 6694)	22.148*** (df = 32; 14018)	24.600*** (df = 32; 14199)	33.632*** (df = 36; 24656)	20.621*** (df = 30; 12377)

Table A4: Fixed-Effects estimations of model 1, governance variables

Non-financial, non-utility firms. Period covered: 1998 - 2018. Equations include time fixed effects, not reported. Standard errors, in parenthesis, are robust. *p<0.1**p<0.05***p<0.01.

	Dependent variable:									
	che.nat									
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
	2000s	2010s	2000s	2010s	2000s	2010s	2000s	2010s	2000s	2010s

TOP1	0.098	0.0002								
	(0.12)	(0.28)								
TOP5			0.179*	0.32						
			(0.10)	(0.21)						
INSTIT					0.271*	0.532**				
					(0.15)	(0.22)				
INSTIT_HIGHT							0.362**	0.761***		
							(0.16)	(0.22)		
INSTIT_LOWT									-0.004	-0.052
									(0.10)	(0.15)
log(assets)	0.297***	0.094	0.301***	0.096	0.292***	0.081	0.294***	0.094	0.294***	0.095
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
cf.volatility	0.547	0.04	0.538	0.061	0.55	0.051	0.552	0.039	0.552	0.04
	(0.39)	(0.36)	(0.39)	(0.36)	(0.39)	(0.36)	(0.39)	(0.36)	(0.39)	(0.36)
leverage	-0.037	-0.021	-0.035	-0.021	-0.035	-0.021	-0.038	-0.022	-0.038	-0.021
	(0.04)	(0.03)	(0.04)	(0.03)	(0.04)	(0.03)	(0.04)	(0.03)	(0.04)	(0.03)
mkt-to-bk	0.050**	0.004	0.050**	0.004	0.050**	0.005	0.049**	0.005	0.049**	0.004
	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)	(0.03)
lag(capacity.util)	0.0002	-0.001	0.0002	-0.001	0.0002	-0.001	0.0003	-0.001	0.0002	-0.001
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
capx/assets	-2.074***	-2.582***	-2.078***	-2.556***	-2.094***	-2.555***	-2.102***	-2.568***	-2.079***	-2.583***
	(0.34)	(0.54)	(0.34)	(0.54)	(0.35)	(0.54)	(0.35)	(0.54)	(0.34)	(0.54)
aquis./assets	-1.174***	-0.933***	-1.175***	-0.927***	-1.172***	-0.923***	-1.183***	-0.950***	-1.173***	-0.935***
	(0.15)	(0.16)	(0.15)	(0.16)	(0.15)	(0.16)	(0.15)	(0.16)	(0.15)	(0.16)
lag(nwc/assets)	-0.506***	-0.613**	-0.500***	-0.616**	-0.514***	-0.628**	-0.509***	-0.613**	-0.506***	-0.612**
	(0.19)	(0.30)	(0.19)	(0.30)	(0.19)	(0.30)	(0.19)	(0.29)	(0.19)	(0.30)
profitr	0.484**	0.046	0.490**	0.063	0.483**	0.069	0.473**	0.051	0.484**	0.044
	(0.20)	(0.22)	(0.20)	(0.22)	(0.20)	(0.22)	(0.20)	(0.22)	(0.20)	(0.22)
lag(r&d/sales)	-0.007	0.027*	-0.006	0.027*	-0.006	0.027*	-0.006	0.027*	-0.007	0.027*
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Observations	8,098	11,901	8,098	11,901	8,098	11,901	8,098	11,901	8,098	11,901
R^2	0.041	0.022	0.042	0.022	0.042	0.023	0.042	0.024	0.041	0.022
Adjusted R^2	-0.132	-0.159	-0.131	-0.158	-0.131	-0.157	-0.131	-0.156	-0.132	-0.159
F Statistic	16.443*** (df = 18; 6857)	12.422*** (df = 18; 10048)	16.639*** (df = 18; 6857)	12.772*** (df = 18; 10048)	16.713*** (df = 18; 6857)	13.201*** (df = 18; 10048)	16.822*** (df = 18; 6857)	13.768*** (df = 18; 10048)	16.418*** (df = 18; 6857)	12.432*** (df = 18; 10048)

Table A5: Fixed-Effects estimations of model 1, period sub-samples, ownership variables A

Non-financial, non-utility firms. Period covered: 1998 - 2018. Equations include time fixed effects, not reported. Standard errors, in parenthesis, are robust. *p<0.1**p<0.05***p<0.01.

	Dependent variable:							
	che.nat							
	[1] 2000s	[2] 2010s	[3] 2000s	[4] 2010s	[5] 2000s	[6] 2010s	[7] 2000s	[8] 2010s
INSTIT_LOWT_BIG3	0.007	-0.556						
	-0.364	-0.557						
INSTIT_LOWT_HEDGE			-0.258	-0.008				
			-0.187	-0.21				

HIGHT					0.241*	0.751***		
					-0.127	-0.211		
LOWT							-0.005	-0.022
							-0.083	-0.126
log(assets)	0.294***	0.104	0.293***	0.094	0.295***	0.096	0.294***	0.094
	-0.077	-0.084	-0.077	-0.083	-0.077	-0.082	-0.077	-0.083
cf.volatility	0.552	0.036	0.554	0.04	0.554	0.037	0.552	0.04
	-0.387	-0.359	-0.387	-0.358	-0.387	-0.358	-0.387	-0.359
leverage	-0.038	-0.022	-0.039	-0.021	-0.037	-0.021	-0.038	-0.021
	-0.041	-0.027	-0.041	-0.027	-0.041	-0.027	-0.041	-0.027
mkt-to-bk	0.049**	0.005	0.049**	0.004	0.049**	0.005	0.049**	0.004
	-0.02	-0.028	-0.02	-0.028	-0.02	-0.028	-0.02	-0.028
lag(capacity.util)	0.0002	-0.001	0.0002	-0.001	0.0002	-0.001	0.0002	-0.001
	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002
capx/assets	-2.079***	-2.579***	-2.077***	-2.582***	-2.097***	-2.560***	-2.079***	-2.582***
	-0.343	-0.541	-0.342	-0.542	-0.344	-0.537	-0.343	-0.542
aquis./assets	-1.173***	-0.942***	-1.171***	-0.933***	-1.182***	-0.950***	-1.173***	-0.934***
	-0.151	-0.157	-0.15	-0.157	-0.151	-0.158	-0.15	-0.157
lag(nwc/assets)	-0.507***	-0.611**	-0.503***	-0.613**	-0.503***	-0.615**	-0.506***	-0.613**
	-0.186	-0.295	-0.186	-0.295	-0.186	-0.294	-0.186	-0.294
profitr	0.484**	0.05	0.478**	0.046	0.477**	0.055	0.484**	0.044
	-0.199	-0.218	-0.199	-0.217	-0.199	-0.216	-0.2	-0.217
lag(r&d/sales)	-0.007	0.027*	-0.007	0.027*	-0.006	0.027*	-0.007	0.027*
	-0.017	-0.016	-0.017	-0.016	-0.017	-0.016	-0.017	-0.016
Observations	8,098	11,901	8,098	11,901	8,098	11,901	8,098	11,901
R^2	0.041	0.022	0.042	0.022	0.042	0.025	0.041	0.022
Adjusted R^2	-0.132	-0.158	-0.132	-0.159	-0.131	-0.155	-0.132	-0.159
F Statistic	16.418*** (df = 18; 6857)	12.538*** (df = 18; 10048)	16.551*** (df = 18; 6857)	12.422*** (df = 18; 10048)	16.674*** (df = 18; 6857)	14.080*** (df = 18; 10048)	16.419*** (df = 18; 6857)	12.425*** (df = 18; 10048)

Table A6: Fixed-Effects estimations of model 1, period sub-samples, ownership variables B

Non-financial, non-utility firms. Period covered: 1998 - 2018. Equations include time fixed effects, not reported. Standard errors, in parenthesis, are robust. *p<0.1**p<0.05***p<0.01.

	Dependent variable:							
	che.nat							
	[1] 2000s	[2] 2010s	[3] 2000s	[4] 2010s	[5] 2000s	[6] 2010s	[7] 2000s	[8] 2010s
DIR_OUTSIDERS	-0.099	-0.123**						
	(0.13)	(0.06)						
E-INDEX			-0.005	0.001				
			(0.02)	(0.01)				
CEO_SBR					0.036	-0.0004		
					(0.03)	(0.05)		
CEO_TENURE							0.002*	-0.001
							(0.00)	(0.00)
log(assets)	-0.006	-0.086***	0.013	-0.082***	-0.047	-0.122***	-0.006	-0.082***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.05)	(0.03)	(0.03)
cf.volatility	1.774**	0.107	1.619**	0.127	0.543	0.179	2.012*	0.106
	(0.86)	(0.15)	(0.72)	(0.13)	(0.38)	(0.34)	(1.09)	(0.16)
leverage	-0.011	-0.006	0.003	-0.006	0.011	-0.015	0.012	-0.006
	(0.03)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)
mkt-to-bk	0.058***	0.016**	0.044***	0.016**	0.050***	0.059***	0.057***	0.017**
	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)
lag(capacity.util)	0.004**	0.0001	0.003*	0.0002	0.002	-0.005*	0.005***	0.0001
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
capx/assets	-1.339***	-0.900***	-1.196***	-0.867***	-1.472***	-0.995***	-1.137***	-0.880***
	(0.28)	(0.12)	(0.28)	(0.12)	(0.28)	(0.15)	(0.23)	(0.12)
aquis./assets	-0.700***	-0.351***	-0.717***	-0.359***	-0.755***	-0.388***	-0.638***	-0.363***
	(0.10)	(0.04)	(0.10)	(0.04)	(0.09)	(0.06)	(0.09)	(0.04)
lag(nwc/assets)	-0.063	0.186*	-0.129	0.177*	-0.143	0.157	-0.045	0.176
	(0.10)	(0.10)	(0.09)	(0.10)	(0.09)	(0.28)	(0.10)	(0.11)
profitr	0.226	0.096	0.259	0.099	0.258**	-0.101	0.204	0.067
	(0.16)	(0.10)	(0.16)	(0.09)	(0.12)	(0.27)	(0.15)	(0.10)
lag(r&d/sales)	0.074	-0.019	-0.006	-0.019	0.067	0.071	0.104	-0.007
	(0.05)	(0.25)	(0.02)	(0.25)	(0.07)	(0.05)	(0.08)	(0.25)
Observations	5,240	6,365	5,695	6,441	8,056	8,916	5,138	5,884
R^2	0.066	0.045	0.048	0.045	0.058	0.051	0.082	0.041
Adjusted R^2	-0.145	-0.156	-0.182	-0.154	-0.139	-0.13	-0.129	-0.171
F Statistic	16.765*** (df = 18; 4273)	13.777*** (df = 18; 5256)	12.789*** (df = 18; 4586)	13.973*** (df = 18; 5331)	22.708*** (df = 18; 6661)	22.261*** (df = 18; 7488)	20.714*** (df = 18; 4178)	11.519*** (df = 18; 4815)

Table A7: Fixed-Effects estimations of model 1, period sub-samples, governance variables

Non-financial, non-utility firms. Period covered: 1998 - 2018. Equations include time fixed effects, not reported. Standard errors, in parenthesis, are robust. *p<0.1**p<0.05***p<0.01.

	Dependent variable:									
	che.nat									
	[1] Smaller firms	[2] Large firms	[3] Smaller firms	[4] Large firms	[5] Smaller firms	[6] Large firms	[7] Smaller firms	[8] Large firms	[9] Smaller firms	[10] Large firms
TOP1	0.447	-0.003								
	(0.43)	(0.03)								
TOP5			0.612**	-0.024						
			(0.29)	(0.03)						
INSTIT					0.747*	-0.007				
					(0.43)	(0.04)				
INSTIT_HIGHT							1.311***	0.011		
							(0.47)	(0.05)		
INSTIT_LOWT									-0.087	-0.014
									(0.34)	(0.03)
log(assets)	0.432***	-0.032*	0.430***	-0.033*	0.374***	-0.032*	0.391***	-0.032*	0.425***	-0.032*
	(0.13)	(0.02)	(0.13)	(0.02)	(0.13)	(0.02)	(0.13)	(0.02)	(0.13)	(0.02)
cf.volatility	0.147	0.742	0.148	0.743	0.151	0.742	0.149	0.742	0.151	0.743
	(0.36)	(0.68)	(0.36)	(0.68)	(0.36)	(0.68)	(0.36)	(0.68)	(0.36)	(0.68)
leverage	-0.081*	0.003	-0.082*	0.003	-0.086*	0.003	-0.088*	0.002	-0.083*	0.003
	(0.05)	(0.01)	(0.05)	(0.01)	(0.05)	(0.01)	(0.05)	(0.01)	(0.05)	(0.01)
mkt-to-bk	0.03	0.032**	0.029	0.032**	0.027	0.032**	0.028	0.032**	0.03	0.032**
	(0.03)	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)
lag(capacity.util)	0.003	0.005	0.003	0.005	0.003	0.005	0.003	0.005	0.003	0.005
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
capx/assets	-3.772***	-0.670***	-3.767***	-0.671***	-3.760***	-0.671***	-3.761***	-0.669***	-3.798***	-0.671***
	(0.62)	(0.14)	(0.62)	(0.14)	(0.62)	(0.14)	(0.62)	(0.14)	(0.62)	(0.14)
aquis./assets	-2.633***	-0.335***	-2.648***	-0.335***	-2.644***	-0.335***	-2.641***	-0.335***	-2.613***	-0.336***
	(0.43)	(0.07)	(0.43)	(0.07)	(0.43)	(0.07)	(0.42)	(0.07)	(0.43)	(0.07)
lag(nwc/assets)	-0.827***	-0.589	-0.822***	-0.589	-0.820***	-0.589	-0.820***	-0.589	-0.816***	-0.589
	(0.27)	(0.46)	(0.27)	(0.46)	(0.27)	(0.46)	(0.27)	(0.46)	(0.27)	(0.46)
profitr	-0.367	-0.003	-0.348	-0.006	-0.345	-0.004	-0.370*	-0.003	-0.365	-0.005
	(0.22)	(0.08)	(0.22)	(0.08)	(0.22)	(0.08)	(0.22)	(0.08)	(0.22)	(0.08)
lag(r&d/sales)	0.032**	-0.003	0.032**	-0.003	0.033**	-0.003	0.032**	-0.003	0.032**	-0.003
	(0.01)	(0.22)	(0.01)	(0.22)	(0.01)	(0.22)	(0.01)	(0.22)	(0.01)	(0.22)
Observations	7,052	5,327	7,052	5,327	7,052	5,327	7,052	5,327	7,052	5,327
R^2	0.039	0.059	0.04	0.06	0.04	0.06	0.041	0.06	0.038	0.06
Adjusted R^2	-0.079	-0.042	-0.078	-0.042	-0.078	-0.042	-0.076	-0.042	-0.08	-0.042
F Statistic	8.125*** (df = 31; 6280)	9.808*** (df = 31; 4806)	8.449*** (df = 31; 6280)	9.823*** (df = 31; 4806)	8.378*** (df = 31; 6280)	9.808*** (df = 31; 4806)	8.717*** (df = 31; 6280)	9.809*** (df = 31; 4806)	8.040*** (df = 31; 6280)	9.811*** (df = 31; 4806)

Table A8: Fixed-Effects estimations of model 1, size sub-samples, ownership variables A

Non-financial, non-utility firms. Period covered: 1998 - 2018. Equations include time fixed effects, not reported. Standard errors, in parenthesis, are robust. *p<0.1**p<0.05***p<0.01.

Dependent variable:
che.nat

	[1] Smaller firms	[2] Large firms	[3] Smaller firms	[4] Large firms	[5] Smaller firms	[6] Large firms	[7] Smaller firms	[8] Large firms
INSTIT_LOWT_BIG3	-2.830*	0.266*						
	(1.58)	(0.14)						
INSTIT_LOWT_HEDGE			0.104	0.027				
			(0.47)	(0.07)				
HIGHT					0.861**	-0.002		
					(0.37)	(0.04)		
LOWT							0.199	-0.041
							(0.20)	(0.03)
log(assets)	0.477***	-0.032*	0.420***	-0.032*	0.404***	-0.032*	0.418***	-0.033*
	(0.13)	(0.02)	(0.13)	(0.02)	(0.13)	(0.02)	(0.12)	(0.02)
cf.volatility	0.153	0.736	0.151	0.741	0.147	0.742	0.149	0.744
	(0.35)	(0.67)	(0.36)	(0.68)	(0.36)	(0.68)	(0.36)	(0.68)
leverage	-0.083*	0.003	-0.083*	0.002	-0.085*	0.003	-0.083*	0.002
	(0.05)	(0.01)	(0.05)	(0.01)	(0.05)	(0.01)	(0.05)	(0.01)
mkt-to-bk	0.034	0.033**	0.03	0.032**	0.029	0.032**	0.029	0.032**
	(0.03)	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)
lag(capacity.util)	0.003	0.004	0.003	0.005	0.003	0.005	0.003	0.004
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
capx/assets	-3.811***	-0.664***	-3.797***	-0.671***	-3.797***	-0.670***	-3.794***	-0.671***
	(0.62)	(0.14)	(0.62)	(0.14)	(0.62)	(0.14)	(0.62)	(0.14)
aquis./assets	-2.638***	-0.331***	-2.618***	-0.335***	-2.621***	-0.335***	-2.619***	-0.338***
	(0.42)	(0.07)	(0.43)	(0.07)	(0.42)	(0.07)	(0.43)	(0.07)
lag(nwc/assets)	-0.845***	-0.591	-0.817***	-0.59	-0.798***	-0.589	-0.824***	-0.587
	(0.27)	(0.46)	(0.27)	(0.46)	(0.27)	(0.46)	(0.27)	(0.46)
profitr	-0.36	-0.005	-0.361	-0.001	-0.362	-0.003	-0.355	-0.009
	(0.22)	(0.08)	(0.22)	(0.08)	(0.22)	(0.08)	(0.22)	(0.08)
lag(r&d/sales)	0.032**	0.0002	0.032**	-0.002	0.032**	-0.003	0.032**	-0.004
	(0.01)	(0.22)	(0.01)	(0.22)	(0.01)	(0.22)	(0.01)	(0.22)
Observations	7,052	5,327	7,052	5,327	7,052	5,327	7,052	5,327
R^2	0.04	0.06	0.038	0.06	0.04	0.059	0.038	0.06
Adjusted R^2	-0.078	-0.041	-0.08	-0.042	-0.078	-0.042	-0.08	-0.042
F Statistic	8.369*** (df = 31; 6280)	9.954*** (df = 31; 4806)	8.039*** (df = 31; 6280)	9.814*** (df = 31; 4806)	8.462*** (df = 31; 6280)	9.808*** (df = 31; 4806)	8.092*** (df = 31; 6280)	9.862*** (df = 31; 4806)

Table A9: Fixed-Effects estimations of model 1, size sub-samples, ownership variables B

Non-financial, non-utility firms. Period covered: 1998 - 2018. Equations include time fixed effects, not reported. Standard errors, in parenthesis, are robust. *p<0.1**p<0.05***p<0.01.

	Dependent variable:							
	che.nat							
	[1] Smaller firms	[2] Large firms	[3] Smaller firms	[4] Large firms	[5] Smaller firms	[6] Large firms	[7] Smaller firms	[8] Large firms
DIR_OUTSIDERS	0.479	0.123						
	(0.53)	(0.11)						
CEO_SBR					-0.072	-0.037*		

					(0.15)	(0.02)		
E-INDEX			0.033	-0.008				
			(0.08)	(0.01)				
CEO_TENURE							-0.002	-0.0002
							(0.01)	(0.00)
log(assets)	-0.404	-0.042***	-0.445	-0.035**	-0.487**	-0.034***	-0.375	-0.043**
	(0.46)	(0.02)	(0.48)	(0.02)	(0.21)	(0.01)	(0.48)	(0.02)
cf.volatility	1.618	0.959	0.123	0.52	-0.713	0.77	1.613*	0.587
	(1.01)	(0.72)	(1.51)	(0.36)	(0.81)	(0.48)	(0.98)	(0.42)
leverage	-1.227	-0.004	0.087	-0.002	0.258	-0.004	-1.159	-0.0004
	(1.15)	(0.01)	(0.17)	(0.00)	(0.18)	(0.01)	(1.07)	(0.01)
mkt-to-bk	0.059*	0.020*	0.063**	0.020**	0.031	0.022**	0.055*	0.018
	(0.03)	(0.01)	(0.03)	(0.01)	(0.02)	(0.01)	(0.03)	(0.01)
lag(capacity.util)	0.0005	0.004**	0.001	0.002*	-0.002	0.003**	0.001	0.003*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
capx/assets	-1.873**	-0.718***	-2.145**	-0.649***	-2.273**	-0.605***	-2.001**	-0.642***
	(0.91)	(0.14)	(0.96)	(0.12)	(1.07)	(0.11)	(0.91)	(0.13)
aquis./assets	-0.673	-0.308***	-0.982*	-0.322***	-1.153***	-0.260***	-0.689	-0.326***
	(0.58)	(0.06)	(0.53)	(0.05)	(0.32)	(0.04)	(0.59)	(0.06)
lag(nwc/assets)	1.004	-0.503	0.617	-0.297	0.602	-0.356	1.011	-0.362
	(0.87)	(0.38)	(0.75)	(0.21)	(0.82)	(0.23)	(0.88)	(0.25)
profitr	-0.414	0.127**	-0.634	0.1	0.509	0.073	-0.405	0.134*
	(0.70)	(0.06)	(0.78)	(0.06)	(0.41)	(0.05)	(0.68)	(0.07)
lag(r&d/sales)	0.032***	0.079	0.051**	-0.118	0.110**	0.104	0.031***	0.077
	(0.01)	(0.18)	(0.02)	(0.14)	(0.05)	(0.16)	(0.01)	(0.18)
Observations	430	6,340	433	6,404	1,611	9,740	411	5,508
R^2	0.116	0.057	0.118	0.055	0.106	0.058	0.112	0.052
Adjusted R^2	-0.243	-0.068	-0.237	-0.078	-0.111	-0.048	-0.246	-0.077
F Statistic	1.253 (df = 32; 305)	10.581*** (df = 32; 5599)	1.291 (df = 32; 308)	10.154*** (df = 32; 5615)	4.259*** (df = 36; 1296)	14.903*** (df = 36; 8759)	1.234 (df = 30; 292)	8.798*** (df = 30; 4848)

Table A10: Fixed-Effects estimations of model 1, size sub-samples, governance variables

Non-financial, non-utility firms. Period covered: 1998 - 2018. Equations include time fixed effects, not reported. Standard errors, in parenthesis, are robust. *p<0.1**p<0.05***p<0.01.

Appendix B

	Dependent variable:		
	che.nat		
	[1]	[2]	[3]
CEO_SBR	-0.052	-0.089	-0.027
	(0.08)	(0.06)	(0.12)
TOP5	-0.054		
	(0.09)		
INSTIT_HIGHT		-0.198	
		(0.19)	
INSTIT_LOWT			-0.053
			(0.14)
CEO_SBR*TOP1	0.161		
	(0.17)		
CEO_SBR*INSTIT_HIGHY		0.847**	
		(0.38)	
CEO_SBR*INSTIT_LOWT			0.109
			(0.30)
log(assets)	-0.138***	-0.135***	-0.138***
	(0.03)	(0.03)	(0.03)
cf.volatility	0.157	0.151	0.159
	(0.33)	(0.34)	(0.34)
leverage	-0.03	-0.03	-0.03
	(0.03)	(0.03)	(0.03)
mkt-to-bk	0.027***	0.026***	0.027***
	(0.01)	(0.01)	(0.01)
lag(cap.util)	-0.003	-0.003	-0.003
	(0.00)	(0.00)	(0.00)
capx/assets	-1.738***	-1.751***	-1.732***
	(0.29)	(0.29)	(0.29)
aquis./assets	-0.478***	-0.482***	-0.478***
	(0.06)	(0.06)	(0.06)
lag(nwc/assets)	-0.482**	-0.484**	-0.481**
	(0.21)	(0.21)	(0.21)
profitr	-0.012	-0.008	-0.015
	(0.16)	(0.16)	(0.16)
lag(r&d/sales)	0.085**	0.085**	0.085**
	(0.04)	(0.04)	(0.04)
Observations	13,970	13,970	13,970
R^2	0.065	0.066	0.065
Adjusted R^2	-0.013	-0.011	-0.013
F Statistic (df = 33; 12897)	27.244***	27.840***	27.229***

Table B1: Fixed-Effects estimations of model 1 with interaction terms.

Sample comprises all non-financial, non-utility firms for which data is available. Period covered: 2008 - 2018. All specifications include time

fixed effects, not reported. Standard errors, in parenthesis, are robust.
*p<0.1**p<0.05***p<0.01.

	Full Sample	Smaller firms	Larger firms
Ownership			
lag(TOP1)	-0.004	0.099	-0.04
	(0.147)	(0.475)	(0.044)
lag(TOP5)	0.058	0.124	-0.037
	(0.105)	(0.305)	(0.034)
lag(INSTIT)	0.053	-0.373	0.003
	(0.126)	(0.39)	(0.049)
lag(INSTIT_HIGHT)	0.361***	0.049	-0.002
	(0.136)	(0.389)	(0.034)
lag(INSTIT_LOWT)	-0.229**	-0.576*	0.004
	(0.098)	(0.336)	(0.038)
lag(INSTIT_LOWT_BIG3)	-1.397***	-4.971***	0.167
	(0.374)	(1.663)	(0.12)
lag(INSTIT_LOWT_HEDGE)	0.015	-0.303	0
	(0.131)	(0.395)	(0.069)
lag(HIGHT)	0.244**	-0.13	-0.009
	(0.115)	(0.307)	(0.03)
lag(LOWT)	-0.066	-0.032	-0.02
	(0.073)	(0.184)	(0.024)
Governance			
lag(DIR_FINANCIAL)	0.011		
	(0.034)		
lag(DIR_OUTSIDERS)	-0.028	0.455	0.08
	(0.079)	(0.507)	(0.105)
lag(E-INDEX)	-0.009	-0.137	-0.01**
	(0.008)	(0.094)	(0.005)
lag(CEO_SBR)	-0.021	0.022	-0.027
	(0.026)	(0.208)	(0.017)
lag(CEO_TENURE)	-0.001	-0.002	-0.002
	(0.001)	(0.007)	(0.001)

Table B2: Coefficients and standards errors (in parenthesis) for lagged SDG variables based on FE estimations of model 1.

Full results are available in Appendix XX. Non-financial, non-utility firms. Periods covered: 1998 - 2018 for all specifications, except DIR_FINANCIAL (2008 – 2018). All specifications include time fixed effects, not reported. Standard errors, in parenthesis, are robust. Smaller firms are the bottom two quintiles of firms based on asset size, large firms are the largest quintile. *p<0.1**p<0.05***p<0.01.

Dependent variable:	Long-term fin. assets	Marketable assets
Indexes		
SVO_shareholder	-0.002	0.003
	(0.00)	(0.00)
SVO_manager	0.003	-0.007

	(0.00)	(0.01)
Ownership		
TOP1	-0.016	-0.014
	(0.014)	(0.078)
TOP5	-0.019*	0.066
	(0.01)	(0.057)
INSTIT	-0.018	0.208***
	(0.011)	(0.079)
INSTIT_HIGHT	0.015	0.358***
	(0.013)	(0.082)
INSTIT_LOWT	-0.028***	-0.012
	(0.01)	(0.057)
INSTIT_LOWT_BIG3	-0.076**	-0.37*
	(0.036)	(0.204)
INSTIT_LOWT_HEDGE	-0.007	-0.024
	(0.014)	(0.091)
HIGHT	0.01	0.291***
	(0.011)	(0.067)
LOWT	-0.022***	0.011
	(0.007)	(0.042)
Governance		
DIR_FINANCIAL	0.004	0.049*
	(0.013)	(0.027)
DIR_OUTSIDERS	0.005	0.003
	(0.016)	(0.057)
E-INDEX	-0.002	-0.01*
	(0.002)	(0.005)
SBR_CEO	0	0.029*
	(0.004)	(0.016)
CEOTENURE	0	-0.001
	(0)	(0.001)

Table B3: Coefficients and standards errors (in parenthesis) for lagged SDG variables based on FE estimations of model 1, alternate dependent variables.

Full results are available in Appendix XX. Non-financial, non-utility firms. Periods covered: 1998 - 2018 for all specifications, except DIR_FINANCIAL (2008 – 2018). All specifications include time fixed effects, not reported. Standard errors, in parenthesis, are robust. *p<0.1**p<0.05***p<0.01.