Corporate financialization in practice: ratchet behaviour, sticky payouts and the consequences for investments.

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Abstract

The rise of the payout ratio and the fall of investments among stock-listed firms have both been ascribed by financialization scholars to shareholder value orientation (SVO). It remains unclear though, how SVO manifests itself and how SVO translates into the specific firm behaviour that causes the observations associated with SVO. Using data on all stock-listed firms from 1985 to 2022 this paper shows that SVO operates through the downward rigidity of shareholder payouts, i.e. SVO translates into ratchet behaviour, where firms maintain payouts when profits decline. Theoretically, graphically and econometrically (staggered difference in differences design), I show that increasing payout ratios and falling investments over time are not driven by rising payouts in good times, but by the reticence of payouts to fall in dire times. Corporate financialization in practice is ratchet behaviour, which leads to sticky payouts and crowds out investments.

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1 Introduction

The share of firm income that is being redistributed to shareholders has been increasing over the last decades, an empirical fact many scholars working on corporate financialization have established and that is shown in Figure 2 of the Appendix . Over the last decade, these studies have turned to firm-level data to explore the dynamics of shareholder primacy – or shareholder value orientation (SVO) (Lazonick & O'Sullivan, 2000) - across sectors and countries, and recently the scope of those studies has become broader, encompassing more firms and more countries, spanning longer time periods and displaying more granular decompositions in sectors (Baines & Hager, 2023). Whether investigated from a firm-level perspective or by using national accounts data, SVO can be seen as the rise of shareholders - the long dormant stakeholders of the firm - to power and can best be captured by analyzing how resources leave the firm (Valeeva et al., 2022) and are captured by shareholders, i.e. by measuring the toll shareholders extract from the firm simply for being its owners, or Keynes' functionless investors, the rentiers.

Scholars and the broad public alike are increasingly aware that shareholders claim a growing share of firm revenues and profits. As a concept, SVO is quite clear: it refers to a form of corporate governance that places the interests of shareholders above those of any other stakeholder. It is a central tenet of corporate financialization, and with the demise of the financial rentierization hypothesis (Rabinovich, 2018; Soener, 2021) maybe even the only one standing in literature (Soener, 2021). Many possible reasons have been advanced as to why shareholder power has increased over time, or why firms have come under the yoke of SVO: the co-optation of management through stock-based remuneration schemes as to liquidate the principal-agent problem (Aglietta & Rebérioux, 2005; Davis & Kim, 2015; Erturk et al., 2005), the fall of labour as countervailing power (Stansbury & Summers, 2020; Stockhammer, 2009), financial markets' deregulation (Horn, 2017), etc. However, what shareholder primacy means in practice remains shrouded in vagueness.

The financialization literature has blamed the prevalence of SVO for the rise of payout ratios but simultaneously pointed at the rise of payout ratios as proof of rising corporate financialization. SVO is thus firmly related to the extraction of firm resources by shareholders, but how precisely those shareholders claim an increasing share of firm income is glossed over in the literature. If you accept that shareholder power has increased, that somehow their grip on firm affairs has intensified, how then does this power translate into actual firm behaviour that leads to higher payout ratios and? What firm behaviour then causes the other phenomena associated with corporate financialization, such as falling investments and increasing indebtedness?

In this paper, I use micro-level data on all stock-listed companies in the world in order to uncover how SVO operates in practice. I will show evidence of SVO as a pervasive governance practice precisely by demonstrating how it constrains firms in their decision space when hit by a negative profit shock. When faced with falling profits, firms tend to keep their shareholder remunerations

steady, i.e. they display ratchet behaviour. This paper precisely shows how this behaviour causally leads to rising payout ratios over time and crowds out investments. In essence, I assess SVO empirically by identifying how SVO translates into firm behaviour which allows us to causally infer what this SVO-induced firm behaviour entails for other firm stakeholders and by aggregation for the economy and society at large. I show that it is not the growth of shareholder remunerations that causes rising payout ratios or crowds out investments, but precisely their downward rigidity. Therefore, I show that the praxis of SVO is ratchet behaviour.

The following section will explore firm behaviour empirically, will theoretically expand on how ratchet behaviour might cause the observations we associate with SVO, and will formulate the key empirical hypothesis that it is indeed the downward rigidity of shareholder remunerations that causes persistently higher payout ratios and persistently lower investments. Sections 3 and 4 employ a staggered difference in differences research design in order assess the validity of this hypothesis. The last section concludes.

The data consists of all the world's stock-listed firms in the Refinitiv database, from 1985 until 2022, that do at some point in their lifetime remunerate their shareholders. Table 1 gives a regional breakdown of the number of observations and unique firms that will be effectively used in the figures and analyses of this paper. For more information on the data cleaning process and a description of further data manipulations required to reproduce the figures and analyses, I refer to Section 1 of the appendix.

Region	**Observations**	**Firms**
North America	223.375	12.910
Europe	169.577	10.366
East Asia	176.431	7.999
China	109.935	7.599
SE-Asia	116.311	7.078
Other Asia	67.397	3.919
India & co	58.912	3.649
Latin America	30.028	1.676
NZ/AU	25.935	1.636
Africa	23.097	1.362
Total	**1.000.998**	**58.194**

Table 1: Regional breakdown of firms that do at some point have payouts
Notes : This table gives a regional breakdown of the number of observations and unique firms effectively used in this paper. The only selection criteria beyond basic data cleaning is that the firm must remunerate its shareholders at least once over the course of its lifetime. The universe of stock-listed firms in the world is extracted from Refinitiv using an R application programming interface (API). Due to basic cleaning and the payout requirement, some 250.000 observations are lost.

2 SVO, firm behaviour and hypotheses

Often it is implicitly assumed that rising payout ratios stem from some sort of shareholder bonanza, or shareholder exuberance (Soener, 2021, p. 823), which is also assumed to have detrimental effects on other stakeholders. Investments is of particular interest here due to its central place in the financialization literature. Many scholars in the post-keynesian tradition have theorized that shareholder payouts (and financial investments) can crowd out productive investments as increasing payouts to shareholders is argued to drain the internal funds available for investments (Epstein, 2005; Davis, 2018a; Tori & Onaran, 2018). In empirical models (Orhangazi, 2008; Barradas, 2017; Davis, 2018b; Tori & Onaran, 2018; Tori & Onaran, 2020) relating investments to financialization, the first are regressed on payouts normalized by some variable. It is assumed that the *level* or the *change* of payouts affects investments, or other variables of interest (Palladino, 2021). The same holds for the media and the general public, it is the absolute level of payouts or their increase that draws attention. This is exemplified by the attention given by the media and civil society to the payout behaviour of fossil fuel companies during the recent war and pandemic induced gas crisis. The ten biggest fossil energy companies in North America, for example, more than doubled their payouts in 2022, to over a hundred billion USD. Still, in that same year, their combined payout ratio fell by 10 percentage points, to its lowest level since 2014. What the general public and the empirical estimation strategies in the academic papers mentioned above would identify as the pinnacle of financialization are in fact not. Despite higher levels of - and massive increases in - payouts in 2022, these companies end up with a significantly lower payout ratio and more cash in hand to finance investments. The point is that we need to identify the exact firm behaviour that causes the observations ascribed to corporate financialization. Exuberance among shareholders as described above is not it.

This paper argues that the persistent rise in payout ratios over time, and the fall of investments that comes with it, is driven not so much by exuberant payouts in good times as by downward rigidity of payouts in dire times.

2.1 No shareholder bonanza, but downward rigidity

Figure 1 depicts the frequency of occurrence of each possible type of firm behaviour when it comes to the interrelation between profits and payouts, split by size group. Most often, when profits increase, payouts increase as well, but less so than profits do. In this case, the firm is left with more retained earnings than it did in the previous year. As such it is not likely that these rising payouts displace any investments nor raise the payout ratio substantially. In fact, on average, the payout ratio among those firms that already remunerate their shareholders falls by 6.5 percentage points.

Shareholder exuberance can of course be defined more strictly as situations where firms boost cash hand-outs to shareholders more than warranted by the increase in their profits, thus mechanically leading to higher payout ratios and

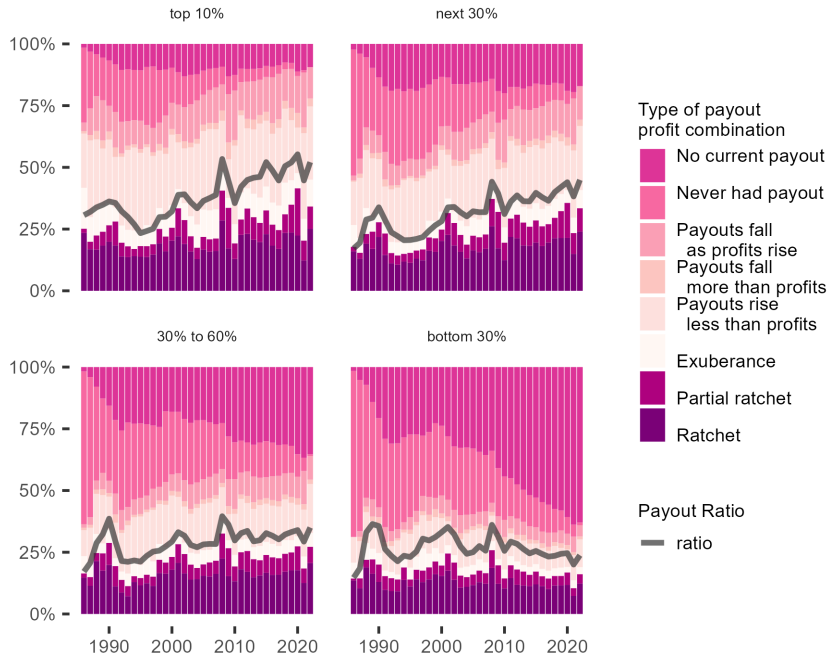

Figure 1: Mapping firm behaviour based on evolutions of payout and profits
Notes : This figures gives the yearly relative frequency of each type of behaviour relating to the evolution of profits and payouts. Ratchet is defined as a year when profits decline but (non-zero) payouts do not fall (or even rise). Partial ratchet is defined as a year when payouts are adjusted downwards but fall relatively less than profits. Exuberance is defined as years when payouts rise more than profits. The payout ratio depicted gives equal weight to all companies and is not driven by losses or outliers, following the methodology developed by Mertens(2023) and explained in the appendix.

reducing retained earnings. Exuberance defined as such, however, does not occur very often - as shown in Figure 1. This figure instead draws our attention to situations where profits decrease. Indeed, shareholders - the so-called residual claimants - seem to be less inclined to share in the cost of falling profits than they are to reap the rewards of rising profits. When profits fall, on many occasions, payouts remain steady ("Ratchet") or fall by less than profits do ("Partial ratchet"). Payouts thus seem to - just like a ratchet - fractionally adjust upwards in good times but to be downward sticky in bad times, i.e. shareholder remunerations are downward rigid. Firms thus display ratchet behaviour, asymmetrically adjusting payouts to changes in profits. This ratchet behaviour leads to sticky payouts through ratchet events, occasions where profits fall but payouts do not budge. Occasions that - as shown by the two bottom categories of Figure 1 - are quite frequent.

This type of behaviour is not only at odds with the idea of shareholders as risk-bearing residual claimants, it also by definition raises the payout ra-

tio, decreases retained earnings, and thus likely has real redistributive effects. The literature on SVO states that shareholders most often are fully diversified marginal owners that do not own shares out of interest for the firm itself, but simply because they expect a return on their investments. The firm as a product (or service) centered entity dissipates into a mere constituent of a portfolio of assets, whose value and return must be maximized (Aalbers, 2017; Crotty, 2005;Van Apeldoorn & Horn, 2007). Conceptually, ratchet behaviour perfectly fits this idea of SVO, as it requires shareholder wealth and returns to be maximized *whatever the circumstances or the cost*. SVO thus entails that shareholders pressure that constituent such that it must increase its payout yield whatever happens, at the cost of being dropped out of the portfolio, of management being replaced or of managers benefiting less from their stock options.

In normal times, when profits gradually increase, this requirement is easily met. A fraction of the profits increase can be allocated to shareholders without restraining the firm in its strategic decision space. However, during rainy days, when profits decrease, the requirement is harder to meet. Keeping payouts steady during a downturn, or even raising them to signal virtue, would not only cause a mechanical surge in the payout ratio - as is clearly visible from Figure 1 - but also per definition imply cutting back on other spending (investments or debt repayments, for instance) or would require additional cash from the sale of assets or new debt.

The idea that SVO is ratchet behaviour implies that it is specifically during these rainy days that the pressure for returns exerted by shareholders manifests and cause the observations associated with corporate financialization and SVO. A first indication of this can be derived from Figure 1. Indeed, the frequency of ratchet behaviour seems to be correlated with the aggregate payout ratio, i.e. the percentage of profits flowing to shareholders spikes whenever ratchet behaviour is abundant. But crucially, for this behaviour to be the embodiment of SVO, each ratchet event should cause the payout ratio to rise and investments to fall not only in the short but also in the long run, and not only in the aggregate but also at the firm level.

2.2 Persistent effects of downward rigidity?

The proposition that ratchet behaviour - and thus the downward rigidity of shareholder payouts - might indeed embody SVO gains weight through Figure 2. Panel A in Figure 2 groups the firms according to the frequency they display (full) ratchet behaviour and shows each group's aggregate payout ratio over time.

What is immediately clear is the strong stratification in the payout ratio based on the frequency a company displays ratchet behaviour. The more often it does so, the higher the payout ratio tends to be. This stratification pattern keeps clearly emerging when splitting the population in groups based on size, age, sector or geographical region of the firms (see appendix), which is a first indication that ratchet behaviour is an important driver of rising payout ratios

beyond these firm characteristics.

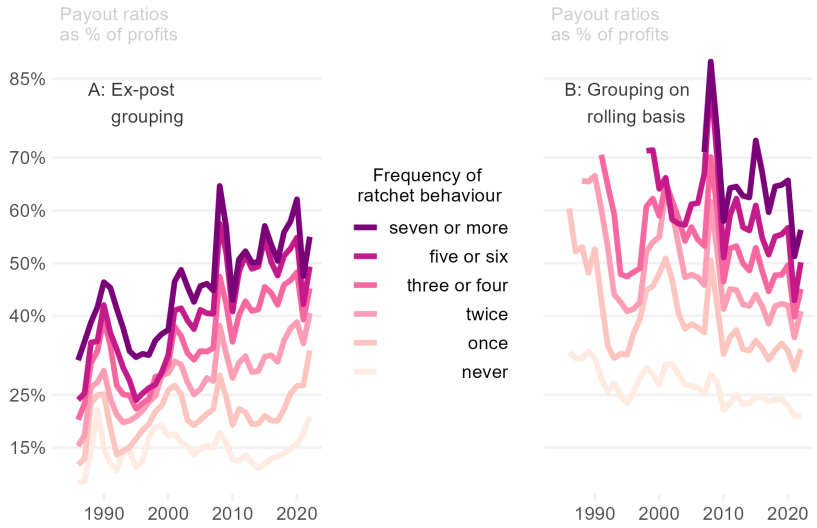

Figure 2: The frequency of ratchet behaviour coincides with higher payout ratios
Notes : In panel A the groups are determined on the basis of the ex-post frequency of ratchet behaviour. In panel B, each time a company displays ratchet behaviour, the company moves one place up in the ratchet hierarchy. For example, a company that will display ratchet behaviour seven times in total, the first in 2004 and the last in 2019, will appear in group "seven or more" during its entire existence in panel A, while only from 2019 onwards in panel B. The same pattern appears when controlling for firm characteristics such as size, age, sector and region of headquarters. The same patterns emerge across sectors, regions and firm sizes. Note finally that each category in panel B is only displayed from the moment it contains at least 50 constituents, in order to ensure visual clarity of the figure.

Panel A of Figure 2 is a static representations of the ratchet effect, it calculates the ex post frequency of ratchet behaviour, constructs groups on the basis of the ex post number of ratchet occurrences and then calculates the evolution of payout ratios within each group. This shows only part of the picture. A more dynamic measure of ratchet behaviour would help understand the developments in the payout ratio as each additional ratchet event occurs. Panel B of Figure 2 does precisely that. Each firm starts in the "never" category and only switches to the next category on the year it exhibits ratchet behaviour. It then stays in that category until the moment it undergoes an additional ratchet event, at which it switches to the next category. For example, a company that in panel A is categorized as "seven or more", will first have to pass through all other categories in panel B. Note the sharp differences between the two panels of Figure 2. While the underlying data is strictly the same, the outcome is vastly different during all years but the last - which by definition yields the same results in both panels.

One can clearly see that each ratchet occurrence shifts the payout ratio up-

wards as compared to the previous category. While the stratification in panel A might be coincidence, panel B shows that it is indeed the ratchet event that drives the upward shift in the payout ratio, giving further weight to the hypothesis that rising payout ratios over time are due to ratchet behaviour. Crucially, it appears that each ratchet event might not only cause a temporary surge in the payout ratio, but also cause it to stay more elevated in the ensuing years. The maintained stratification suggests that ratchet events have persistent - or longer run - effects on the payout ratio. This persistence is the key to showing that SVO indeed manifests as ratchet behaviour, but for ratchet behaviour to be the key manifestation of SVO it must *cause* rising payout ratios and falling investments. Therefore the consequences of ratchet behaviour for payout ratios and investment must manifest not only in the aggregate, but at the firm level as well.

2.3 SVO as ratchet behaviour: hypotheses and justification

The core proposition of this paper is thus that SVO in practice is ratchet behaviour. To validate this hypothesis I need to show that the key observations associated with SVO do indeed stem from ratchet behaviour and thus that ratchet behaviour has persistent consequences for the payout ratio and investments at the firm level. Therefore I will propose two operational hypotheses, back them theoretically and test them empirically. The proof of these empirical hypotheses will validate the proposition that SVO in practice means ratchet behaviour.

2.3.1 Hypothesis 1: rising payout ratios due to downward rigidity

My first hypothesis is that ratchet behaviour causes the rise over time of the payout ratio at the firm level, i.e. that ratchet events persistently push up the firm-level payout ratio. This persistence can be driven by four not mutually exclusive reasons:

1. Profits recover slowly after a negative shock, which means that keeping payouts steady implies a higher payout ratio for as long as profits have not fully recovered.

2. Payouts tend to fractionally adjust upwards as profits increase, as shown by Figure 1. During the recovery, this means that a fraction of that recovery is allocated to shareholders, such that even with a swift recovery, the payout ratio stays higher for longer.

3. Ratchet events have consequences that are dynamic. If the gap in cash created by ratchet events is covered by increasing debts, the sale of assets or the reduction of investments, the ratchet event reduces future potential profits, ceteribus paribus, keeps the payout ratio more elevated in the long

run. These consequences are the object of hypothesis 2 and will be tested in Section 4.

4. A ratchet event is no singularity. If a firm, for whatever reason, feels compelled to ratchet during profit troughs, ratchet events can an do occur multiple times. Given the slow reversal of the payout ratio after each ratchet decision, each consecutive ratchet event pushes the ratio to new highs, as clearly shown in both panels of Figure 2.

Figure 3 illustrates how this works. It depicts the evolution of profits and payouts of a fictional firm. The firm's profits are characterized by a general upward trend, but are subjected to shocks leading to fluctuations. The share of profits allocated to shareholders, the payouts, reacts to profits in two ways.

First, shareholder remunerations increase as profits rise, but always less so than the rise in profits. Not only in absolute amounts but also relatively, which implies that each occurrence of rising profits effectively reduces the payout ratio. This reflects the fact that this is the most common behaviour of firms as shown in Figure 1. The second behavioural rule of the payout response is downward stickiness in the face of falling profits, payouts do not budge when profits have taken a temporary hit. The firm thus displays ratchet behaviour, i.e. upward adjustment in good times accompanied by a reluctance to cut back its shareholder payments during bad times.

The resulting payout ratio inherits a general and quite pronounced upward trend from these two behavioural rules but the rise of the payout ratio stems not from the exuberance of rising profits, but precisely - and solely - from the downward rigidity of shareholder payouts, from the firm's ratchet behaviour. Points one through four in the enumeration above apply here. Not only is not every recovery immediate, but clearly, part of every recovery is captured by shareholders, effectively meaning that a return to pre-shock profits coincides with a higher payout ratio. The strong rise certainly is also attributable to repeated ratchet behaviour induced by the volatility of profits. And finally, the trend growth rate of profits decelerates over time, reflecting that repeated ratchet behaviour comes at a cost. This deceleration slows down the reversal of the payout ratio after each negative shock, implying that the ratchet events relatively weigh more heavily on the payout ratio. A combination of profit volatility, downward rigidity and dynamic consequences is thus a sufficient - and I argue a necessary - condition for rising payout ratios over time.

The idea that the deceleration of trend profit growth is also attributable to ratchet behaviour is the object of hypothesis 2.

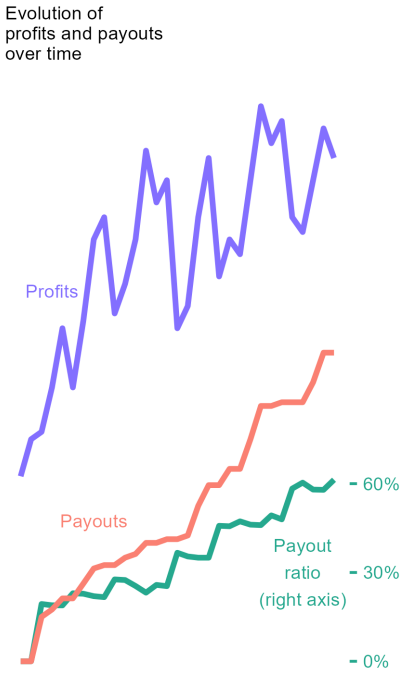

Figure 3: How ratchet behaviour alone can lead to rising payout ratios
Notes : This figure represents a model firm characterized by a rising trend with year on year volatility in profits, and downward rigidity in payouts. Payouts rise when profits rise, but always at a slower rate and payouts do not budge when profits fall. This effectively means that the payout ratio rises over time solely due to ratchet behaviour.

2.3.2 Hypothesis 2: (revised) crowding out

Similarly, I argue that it is - contrary to intuition - not rising payouts that crowd out investments, but precisely their reticence to fall. Ratchet events cause private investments to fall persistently over many years. This revised crowding out hypothesis can be explained as follows.

1. As profits decline and shareholder payments remain steady, retained earnings are reduced (or even negative), which can lead to short run cuts to investments. Cuts that wouldn't have been needed if payouts had been adjusted downwards.

2. As companies bridge the ratchet induced gap between steady payouts and falling profits with new unproductive debt, as shown in Figure 6, the accrued levels of required debt repayments in the years following the ratchet event might weigh on the firm's capacity to finance new investment projects in the longer run.

The reaction of investments to ratchet events is a very important subject, as it not only determines the level of economic activity today through the aggregate demand channel but also shapes the capacity of firms to produce in the future. When investments are reduced, the consequences for the entire economy might be dire. Through econometric panel regressions, authors working on the crowding out hypothesis have shown that investments are indeed negatively correlated with shareholder primacy. But the causality of this crowding out has never been established, nor the precise mechanism through which it occurs. Due to the lack of a causal mechanism, reverse causality could never be ruled out, which left financialization scholars vulnerable to the critique that reduced investment opportunities precede - and indeed cause - the rise of the payout ratio (Grullon & Michaely, 2004). Section 4 will aim to remedy these shortcomings.

The idea is thus that firms tend to display downward sticky payouts in the face of falling profits, and that it is precisely those episodes of falling profits coinciding with downward rigid payouts that drive up the firm-level - and thus also aggregate - payout ratios and reduce investments. Not simply mechanically during the year that profits fall, but persistently over the subsequent years. In the case of the payout ratio due to a combination of slow mean-reversal - due to the dynamic consequences of the event and the fractional adjustments during the recovery - and periodic negative shocks. In case of investments due to reduced current and future retained earnings and accrued levels of unproductive debts. In Sections 3 and 4 we develop a staggered difference in differences methodology in order to test these two empirical hypotheses.

3 Ratchet behaviour causes persistently higher payout ratios

To answer the question whether ratchet events have lasting consequences for firm-level payout ratios, I implement a (staggered) difference in differences (DID) econometric methodology. When a firm displays ratchet behaviour it makes the discrete decision to keep payouts steady in the face of falling profits. The implication that other decisions can be made and are indeed made allows for a quasi-experimental econometric design, in which some firms are treated with a ratchet decision and others are not. This econometric design allows us to exploit the differences in the outcomes of treated versus untreated firms - i.e. the ratcheting firms versus those that do not - in order to infer what the impact of the treatment is on the outcome variable. In this case, we want to know what happens over time to the payout ratio of firms that have undergone the treatment, i.e. the ratchet event.

3.1 The ratchet event

First I need to define a ratchet event. The idea is simple, falling profits accompanied by steady or rising payouts, but in order to capture the conscious decision of management and shareholders to keep payouts steady in the face of a decline in profits, the definition needs to be narrowed down further. The profit decline must be sizeable and not simply reflect a minor glitch in an otherwise steady profit outlook. Therefore, only a profit decrease of at least 15% of last year's profits is considered. This way we make sure the ratchet decision is a conscious one, made in the face of really bad profit results. Of course, the company must have had payouts in the year of the event, so that steady payouts at zero are not included. As we will later on be interested in the effects of the treatment on fixed capital investments as well, and the focus of this paper is on *corporate* financialization, I additionally remove the financial and insurance sector altogether.This leaves us with 10.475 firms in the never treated group and 36.521 firms in the treated group. In total, there are 440.214 observations that are never treated or not yet treated and 403.674 observations that have already been treated.

3.2 The staggered difference in differences methodology

One problem with the *quasi* in quasi-experimental is that we actually observe only one of both potential outcomes. A firm either decides to ratchet or it does not. In order to measure the impact of ratcheting we would need to compare the payout ratio after a ratchet event with the outcome when that same firm did not display downward stickiness. In a real-world setting this is not possible, as the first potential outcome is observable, but the second is merely hypothetical. DID estimators overcome this by "implicitly imputing the counterfactual outcomes of treatment units using outcomes for the control units" (Baker et al.,

2022, p. 372). However, this requires the assumption that treatment and control units display parallel trends in the outcome variable, i.e. that the treated firm would behave similarly to the untreated firm in the hypothetical scenario that the treated firm would not have been treated.

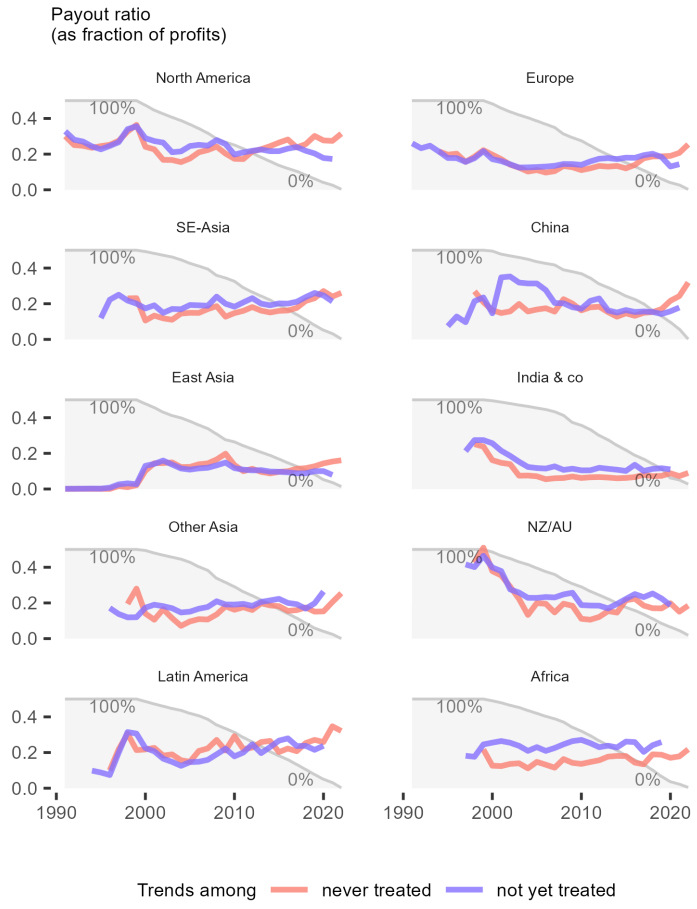

Figure 4: Parallel trends in payout ratios
Notes : As group sizes can become quit small in the early nineties, the figure only displays lines whenever there are at least 50 group constituents. Note that this figures excludes all firms from the moment they undergo a ratchet event. Trivially, if it did not do so, the divergence between treatment and control group would widen over time.

This parallel trends assumption is not directly testable, but Figure 4 displays the outcome variable of both the never treated - the control group - and the treated firms that are not yet treated. To be clear, the not yet treated are those firms that will at some point in the future undergo a ratchet event, but have

not done so in the specific year displayed. In addition, the shaded area reflects the proportion of those treated firms that are not yet treated, thus that have not yet undergone a ratchet event. Evidently, this proportion starts at 100% and ends at zero. Lines are only displayed as soon as there are at least 50 group - year, region, treatment - constituents.

One can see that the parallel trends assumptions does indeed seem to hold in the data, except for Chinese firms around the year 2000 (more on this later).

Another important assumption is that firms do not anticipate the treatment in advance. It is unlikely that a firm in year $t-1$ anticipates a strong decrease in profits in year t and already decides in advance that it will hold its payouts steady during that negative profit shock, certainly because most shareholder payments for year t are actually made in the early quarters of year $t+1$. Such anticipation would require a lot of foresight in the workings of the global economy and imply that the amount of cash distributed to shareholders is determined years in advance. Both hypotheses are very unlikely to hold from which I derive that ratchet events are not generally anticipated in the year let alone years prior to the event. If the assumption of no anticipation holds, then the parallel trends assumption can be relaxed a little bit and not yet treated observations can be used as controls as well, which I will do as a robustness test in Section 4. Even if there would be anticipation of ratchet events, it is virtually impossible that it would extend to two years prior the ratchet event.

As ratchet behaviour is not coordinated, the treatment time differs from firm to firm, leading to staggered adoption of the treatment, hence, a staggered difference in differences methodology. However, this staggered adoption renders the standard two-way fixed effects DiD estimator potentially severely biased (Goodman-Bacon, 2019). Moreover, as stated earlier, our hypothesis is that ratchet events have lasting but diminishing effects on the payout ratio. This means that the treatment has a different effect on the outcome over time, i.e. a time-varying affect. In this case, I expect the payout ratio to (mechanically) rise on the time of treatment and then slowly revert back during the years following the treatment. This time induced heterogeneity in treatment effects can also lead to severe bias in standard (staggered) DID estimators (Baker et al., 2022). The econometric literature has developed ways to circumvent this bias, as "each [alternative] estimator modifies the units that can act as effective comparison units to avoid comparing treatment units to inappropriate controls" (Baker et al., 2022, p. 383).

The methodology developed by Sun and Abraham (2021) allows for both time and effect heterogeneity and only compares treated firms with the never treated. The Sun and Abraham estimator is implemented using the *fixest* package by Laurent Berge.

As a last asterix before diving into the results, I show in the appendix that Chinese ratcheting companies are particularly affected by ratchet behaviour. In this region ratchet behaviour has the same effects as in other regions, but much stronger so. Moreover, Figure 4 shows that teh parallel trends assumtpion might not hold in this region. Because of that and in order to reflect the behaviour of the average firm, the main results displayed below exclude the Chinese region.

Note however that the inclusion of the Chinese region would only strengthen the overall effects, both in this section and in Section 4.

3.3 Results

The hypothesis that ratchet behaviour has lasting consequences for the firm level payout ratio seems to be vindicated by Figure 5. The black squares represent the results based on the event definition described above, our baseline model. A ratchet event first mechanically pushes up the firm level payout ratio by reducing the denominator and keeping the nominator steady. But what is most interesting is of course the evolution of payout ratios during the subsequent years.

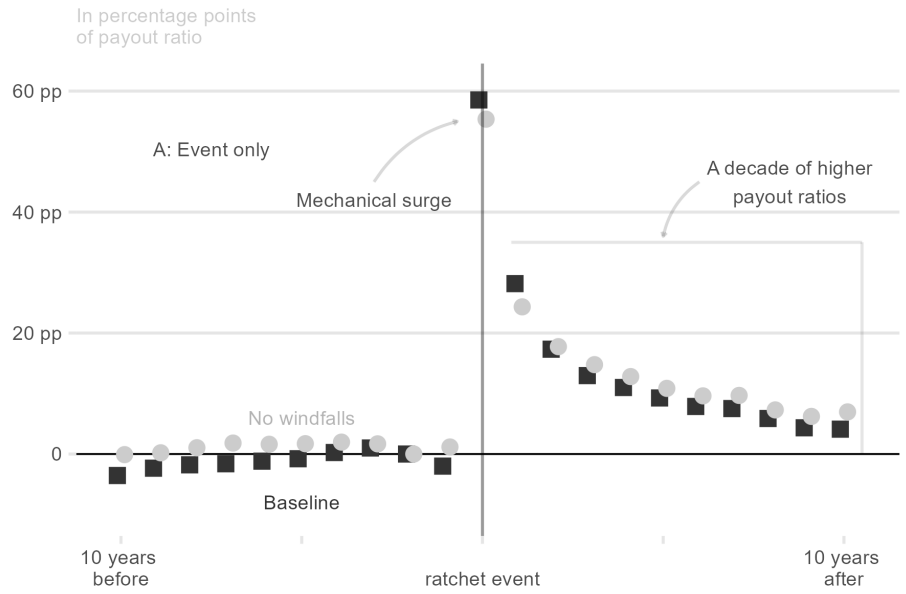

Figure 5: Ratchet events cause the firm level payout ratio to remain elevated for over a decade

Notes : The estimates show the difference between the treatment and the control group, caused by the treatment. Without any control variables, the adjusted R squared are 25.5% and 18.7% for respectively the baseline and the no windfall models. Each specification includes fixed effects for year, region, firm size and sector. The figure also includes 95% confidence intervals, but these are so small to be invisible.

Figure 5 first shows that indeed the ratchet event pushes the payout ratio upwards mechanically - and thus trivially - during the year of the event. Note the strength of the effect, which can be interpreted as the average percentage point deviation among ratcheting firms with respect to non ratcheting firms, while taking into account year, firm size, firm sector and region fixed effects. The initial strength of the effect probably explains the spikes in the aggregate payout

ratio observed during crisis years in Figure 1. However, this strong initial effect does not last. As per our hypothesis, the payout ratio reverts, which means the effect of the ratchet event is decreasing over time (hence our use of an estimator robust to heterogenous and time-varying effects). But crucially, the payout ratio of firms that decided to ratchet stays significantly higher relative to non-ratcheting firms for at least a *decade*. For example, a estimate of close to 0.3 in year $t+1$ effectively means that if the average payout ratio among non ratcheting firms is 35%, the average among ratcheting firms will be 30 percentage points higher, around 65%. This econometric design can thus answer the question whether ratchet behaviour has persistent effects on the firm-level payout ratio.

When splitting the population into regions, it is clear that in some regions ratchet events have stronger and longer lasting effects than in others. But in no region does the persistence drop below *7 years*. One caveat with the above observation is that this methodology measures the strength, persistence and significance among the ratcheting firms vis-à-vis their non-ratcheting peers. A stronger effect in China does not necessarily mean ratchet behaviour is more pervasive in that region, but simply that the ratcheting firms in China are more heavily impacted with respect to their peers. When splitting the population in fixed size groups (based on revenues) we can observe the same pattern emerging across size groups, although the larger the firm the longer lasting the effects tend to be (but even among the smallest firms, the persistence stays for at least seven years). Because in every subsample the units of comparison are more alike, each subgroup I apply this methodology to effectively serves as a robustness test for the overall findings.

One other thing needs to be mentioned, however. In the year directly prior to the ratchet event, ratcheting firms tend to display a puzzlingly lower payout ratio as compared to non-ratcheting firms, as shown by the significantly below zero black point estimate in year $t-1$. This behaviour is unanticipated but is due to windfall profits that push down the ratio. These windfall profits can cause the ratchet event, as a subsequent decrease (normalization) in profits is categorized as a more than 15% loss, while it is the windfall profits that constituted the abnormal event, and not per se the ratchet event as such. Therefore I add an additional requirement to the baseline definition of the ratchet event, such that ratchet events following windfall profits are not considered as such (see appendix for details about this alternative definition). The results of the same model but with a stricter event definition are shown by the grey circles in Figure 5. For a detailed interpretation of the differences between the results of the two models I refer to the appendix. Suffice it to say that the results described above are - as visible in Figure 5 robust to changes in the event definition.

Moreover, all the regression models and their results described above are not affected by applying them to random samples of the population, indicating that indeed ratchet behaviour and its consequence for the firm-level payout ratio is not some fringe behaviour, but very widespread. It also suggests the results shown above are quite robust - across regions, firm sizes, and event definitions. In the appendix I also discuss how the inclusion of control variables does not change the picture.

Ratchet behaviour thus persistently raises the payout ratio of ratcheting firms. This section has demonstrated that indeed payouts are downward sticky in the face of a fall in profits and that this stickiness reverbates over *a decade* after the ratchet event. It is clear that one key reason why payout ratios have trended upwards over time is because shareholders refuse downward adjustments of their remuneration in the face of falling profits. This - not only nominal but real - downward rigidity of shareholder payouts is the embodiment of shareholder value orientation and the behaviour that drives the payout ratio in the longer run. It is thus not exuberance that drives the rising payout ratio but precisely the reticence of payouts to fall.

The straightforward next question is what - beyond a higher payout ratio - the consequences are of such ratchet behaviour. Just like the nominal downward rigidity in wages, the real downward rigidity of shareholder payouts has real consequences for the economy. These consequences will be explored in the next section with particular attention to hypothesis 2.

4 Ratchet behaviour causes persistent drops in investments

Section 3 showed that ratchet behaviour causes a persistent redistribution of firm income towards shareholders. This redistribution must come at the expense of some other stakeholder. Firms can incur new debt to pay for the suddenly narrowed (or negative) gap between profits and shareholder payments, they can cut back their investments or labour costs in the following years. In the best case scenario they can rely on their cash reserves. Any of these options likely affects firm performance down the road, as foregone investments (today or later on due to the reduced cash position), increased debt repayments or excessive restructuring of the labour force, all might weigh on the firm's ability to expand, innovate, or seize opportunities in the future. This can be harmful not only for the firm itself, but for the entire economy as well, through decreased output (and potential output), increased financial instability or increased inequalities.

Ratchet behaviour is thus, in essence, a redistributive result of the conflict between firm stakeholders. When profits fall and shareholders refuse to share in the hit, the firm needs to find the resources elsewhere.

Figure 6 tentatively shows that we indeed might need to worry about such ratchet events beyond their contributions to rising payout ratios. It depicts the average evolution of debt and investments over the event time horizon. Firms seem to incur debt and cut back their investments in order to free up cash to bridge the sudden gap between payouts and profits.

The debt incurred in order to pay for stable or increasing payouts during severe profit falls serves no productive ends, does not increase future capacity, nor does it develop new technologies. On the contrary, it precisely refrains firms from contributing to society, as these unproductive debts will have to be repaid later on. The only beneficiaries of such behaviour are of course shareholders, who are not likely to either consume or productively invest this extra cash, but probably simply contribute to the inflation of asset prices - be they residential property or shares. Such debt-financed redistribution away from productive investments towards wealthy shareholders does not only exacerbate inequalities on both accounts, but might pose a risk to financial stability as well. This section wants to establish whether ratchet events might be responsible for the negative correlation between payouts and investments found in previous studies. Below I try to establish the causality of the investment decline following ratchet behaviour using a very similar econometric design as in Section 3.

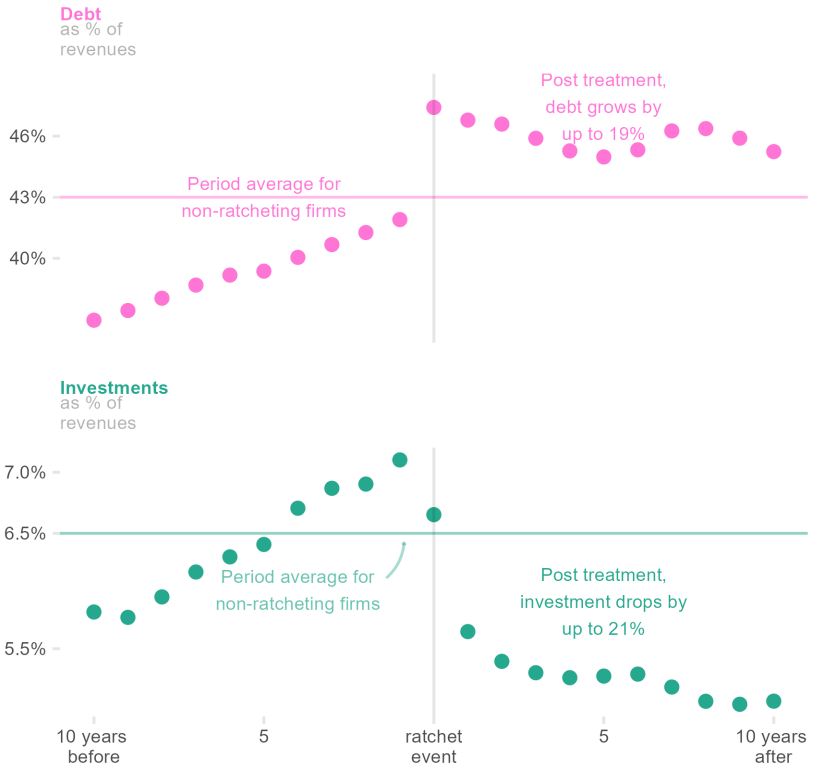

Figure 6: Ratchet events are not only significant for payout ratios

Notes : The points show the average of each variable in the years relative to the event. The light lines show the full period average of the same variables for non-ratcheting firms. In this figure, all variables are normalized by a rolling three year average of firm revenues, such that there is no dominance by big firms. This figure thus reflects the consequences of ratchet events for the average (in the non-mathematical meaning of the word) firm that is listed on the stock market, worldwide. The choice of the denominator does not change the picture, whether denominated by revenues, fixed capital, total assets or something else, ratchet events seem to constitute an important break for both indebtedness and investment ratios.

4.1 Staggered difference in differences

Using the same methodology as in Section 3 allows us to infer the effect of a ratchet event on firm level investment decisions. We already have the event definition from this previous section, as well as the data. The variable of interest is, however, no longer the firm level payout ratio, but rather firm level investments, as captured by the firm's ratio of net capital expenditures to its three year rolling average of total assets. I use a rolling average to reduce volatility in the denominator and to make sure that the effect captured reflects changes in investments and not changes in total assets.

I again need to check whether the assumption of parallel trends holds, now for investments instead of for payout ratios. Completely analogously to Figure 4, Figure 7 does just that. It should be clear that there is no reason to doubt that the assumption of parallel trends holds as the investment ratios of the never treated and the not yet treated nicely follow the same trend.

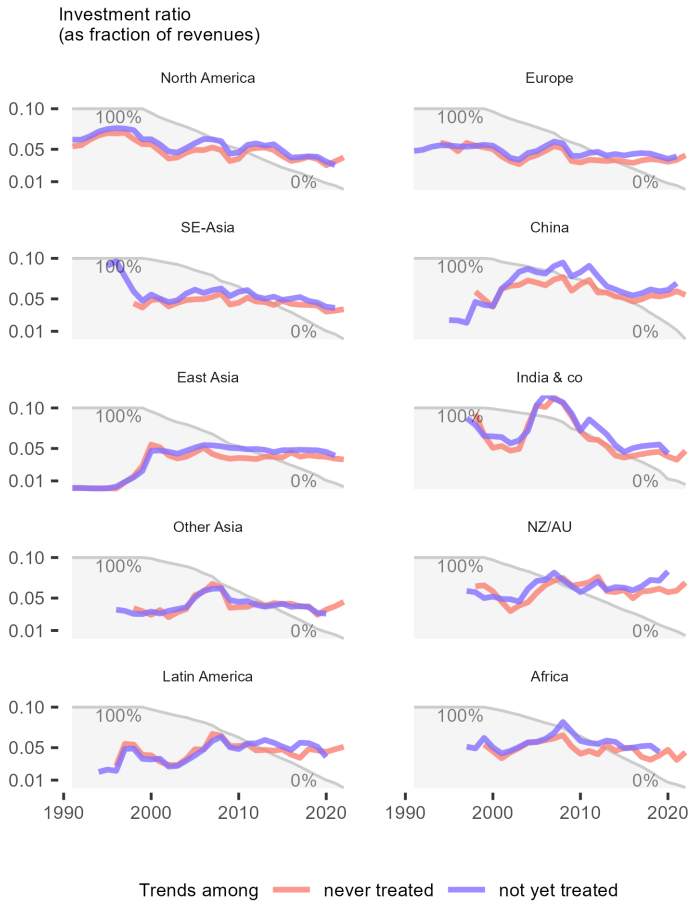

Figure 7: Parallel trends in investment ratios
Notes : Investment ratios are defines as net capital expenditures normalized by a three year average of revenues. As group sizes can become quite small in the early nineties, the figure only displays lines whenever there are at least 50 group constituents.

4.2 Results

What Figure 6 only suggests, Figures 8 and 9 can ascertain: ratchet events cause the firm to invest persistently and significantly less. It even seems that

the negative effect on investments might not be simply persistent but rather perpetual. At least *10 years* after a ratchet event firms invest significantly less than their non-ratcheting peers. The magnitude of the effect is not at all negligible, as post treatment investments flatline at a level on average 1 to 1.5 percentage points of total assets lower than before the ratchet event.

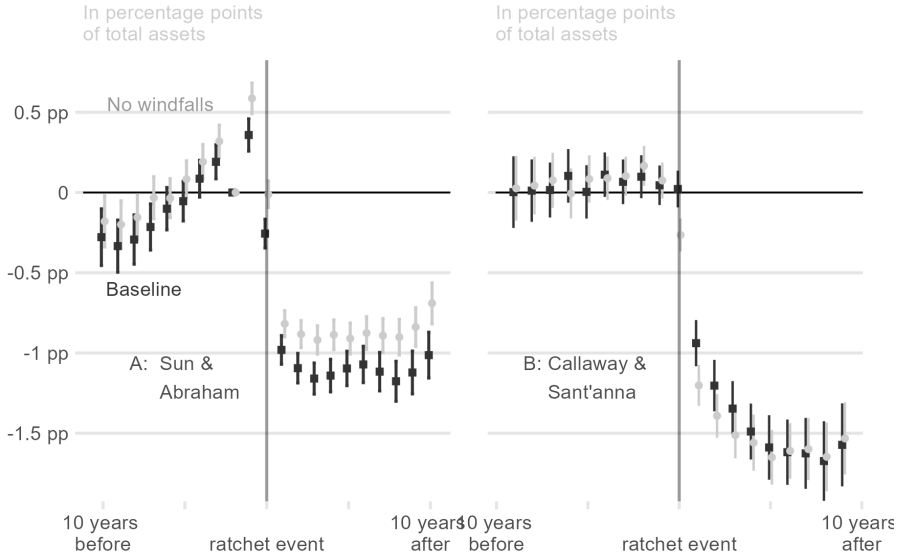

Figure 8: Ratchet events cause persistent drops in private investments
Notes : Panel A displays the results using the methodology developed by Sun & Abraham (2021) while panel B is the result of the methodology developed by Callaway & Sant'anna (2021). The two main differences between both are that 1) panel A contains fixed effects for year, region, firm size and sector and panel B does not and 2) the control group in panel A only includes the never treated while panel B also allows for the not yet treated to be used as comparison group. Adjusted R squared hover around 7.9 %.

Panel A of Figure 8 applies the same methodology as in Section 3, developed by Sun & Abraham (2021), again with the two different event definitions outlined in Section 3. However, the treatment groups seems to detach itself from the control group during the four years prior to the event, in both event definitions. Even though the strength of this pre-event effect is small when compared to the negative effect of the event on the investment ratio, it might still be problematic. As a robustness check I therefore perform the same analysis using a different unbiased estimator proposed by Callaway and Sant'Anna (2021), which addresses the biases introduced by time and treatment effect heterogeneity in a different way. Here the the control group not only contains the never treated but also the not yet treated, as these might better resemble their posterior selves than the never treated do. This is possible because of the staggered adoption of the treatment, which means that in year t, those firms that only undergo the ratchet

event in year $t + k$ can serve as controls because at that time - year t - they did not yet undergo the treatment. These models were implemented in practice using the *did* package by the authors of the paper. As both the effective control group and the estimator are different in the two different methodologies, similar results might be a sign of robustness of our findings. The results are shown in panel B of Figure 8. And indeed, the post-treatment results are very similar and the pre-treatment deviations are reassuringly gone. In any case, the post treatment effects are very strong and very clear from which I conclude that indeed, ratchet events have strong, significant and persistent negative effects on investments.

Note how the effect on the year of the ratchet event is much smaller than during subsequent years. This relatively slow reaction can be explained by the timing of investment decisions. These, and certainly the largest ones, are often decided and approved in the year(s) prior to their actual implementation, such that a sudden negative profit shock might not detract firms from a course already set. This nicely follows the preliminary evidence from Figure 6 which shows that the initial gap between falling profits and steady payouts if bridged through new debt issuance, only later followed by the full force of the cuts to investments. Our aim here is not to understand what drives firm-level investment decisions in general, but rather to capture the effect of ratchet behaviour for investments. Still, our event seems to be able to explain a full 7.9% of the variation in investments over time. The findings are robust to changes in the event definition (as shown by the light grey point estimates in Figure 8 compiling the results using the no windfall event definition as above) and to random sampling of the population. Moreover, the effect clearly appears in every region or firm size group (see Figure 9).

4.3 Counterfactual event definition

The evidence for a strong and persistent negative effect of ratchet behaviour on investments I presented above might however measure the effect of negative profit shocks as such instead of ratchet events per se. To test this I construct a counterfactual event definition. One that is very similar to our baseline definition used above, the only difference being the ratcheting part. Our counterfactual definition thus catches negative profit shocks of at least 15% that are instead met by downward adjustments of absolute payouts. Note that this definition still includes partial ratchets, where payouts are adjusted downwards but not enough to compensate for the fall in profits. Note also that in an environment where firms feel compelled to ratchet in the face of falling profits, this means that those firms that do not might well be the weaker ones, those that do not have the capacity to ratchet at all, or those hit hardest. This effectively means that the counterfactual I present here is in fact a worst case counterfactual, one that still contains partial ratchets and might reflect the weakest or hardest hit firms. If I can show that even this imperfect counterfactual event has a less negative effect on investments in the long run, this shows that it is indeed ratcheting that hurts investments, much more than the negative shock

as such.

Figure 9 juxtaposes the effect of our baseline event definition to that of our counterfactual definition, split in firm size groups. Note that panel A in figure 9 shows that same result as the dark estimates in panel A of figure 8, but now split in firm size groups.

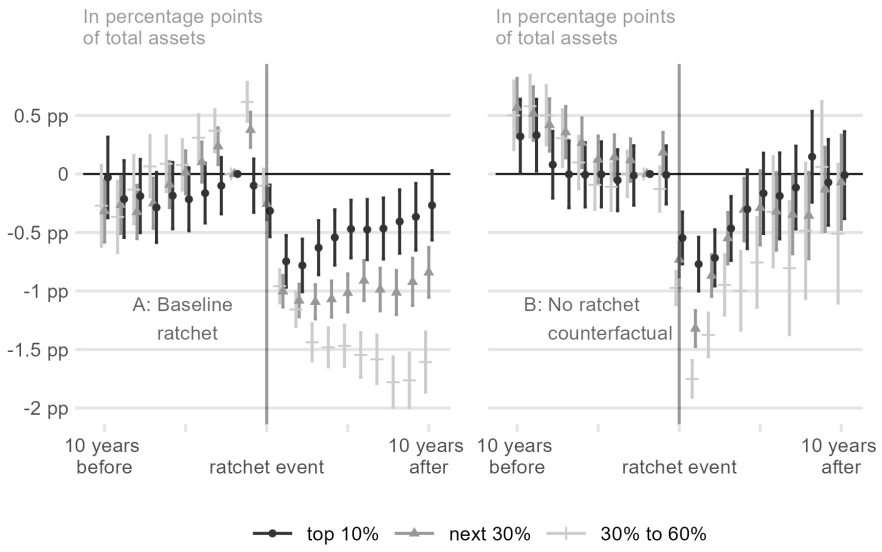

Figure 9: Ratchet events versus no-ratchet counterfactuals

Notes : Panel A displays the same result as the dark points in panel A of figure 8, while panel B shows the results of the no-ratchet counterfactual event definition. Each panel depicts the results for different firm size groups. Adjusted R squared are best for top 10% firms undergoing ratchet events (11% versus 9% for the no-rathet counterfactual) and worse for the smallest firms (6.4% versus 5.6%), with midsized firms in between (9.2% and 8.1%)

The results shown in Figure 9 demonstrate that indeed ratchet events are far worse for investments in the longer run than negative profit shocks during which payouts are instead adjusted downwards. Despite the fact that there is reason to believe that this counterfactual event should have strong and longlasting negative effects on investments, these are eclipsed by the negative effect of ratchet events. Where the persistence of the negative effect on investments of ratchet events stretches for at least *ten years*, the investments of firms that did instead adjust their payouts recovered fairly quickly. This clearly shows the importance of ratchet events for the evolution of investments.

Again, this stark differences in the duration of the effects on investments between our ratchet event and this counterfactual can be observed in every region and firm size group and the results are robust to random sampling and the alternative event definition. Ratchet events have much more persistent negative effects on investments than negative profit shocks an sich. This strongly

supports our hypothesis that it is indeed the downward rigidity of shareholder remunerations that adversely and lastingly affects investments and gives strong support to this revised post-keynesian crowding-out hypothesis, given substance through the identification of ratchet events.

4.4 Same pressure to ratchet, different capabilities

Figure 9 splits the effects of both the baseline and the counterfactual event into size chunks. I included this size decomposition because it offers a deeper insight in this phenomenon. First it shows that even though all size groups feel compelled to ratchet (see Figure 1) not all firms have equal capabilities to cope with the consequences of their ratchet behaviour. Indeed, some firm might better handle the increased load of unproductive debt incurred to finance the ratchet event than others. Firm size likely captures these differences in coping capabilities as size correlates with market power, margins, diversification, and thus also with cheaper debt servicing costs (lower interest rates).

Second, Figure 9 clearly shows a much more stratified effect of the ratchet event with respect to the counterfactual event, indicating that although all firm sizes tend to recover from a regular negative profit shock - the counterfactual event, the ratchet event hits much harder the smaller the firm. This shows that the longer run dynamic consequences of ratchet behaviour for investments partially pass through permanently reduced capability to finance future investments, not due to a negative profit shock, but precisely due to the downward rigidity of shareholder payments. The reduced capability to finance future investments originates in the downward rigidity of shareholder payments, exacerbated by ratchet induced higher and unproductive debt servicing costs which weigh on future profits that - combined with plateauing payouts - reduces the funds available to finance investments. Ratchet events thus persistently cause investments to be cut beyond the temporary effect of a negative profit shock.

4.5 Not reduced opportunities

In response to previous research into the post-keynesian crowding-out hypothesis, you could argue that the causality might just as well run in the other direction, i.e. due to reduced investments opportunities firms are left with a surplus of cash, which is then distributed to shareholders simply because there is no productive use for it.

However, if investments fall mainly due to these ratchet events, it becomes much harder to critique the financialization crowding out hypothesis based on this argument, as there is no reason that it is precisely in those years - which are different for each firm - where profits take a hit and payouts are kept steady that the reduced opportunities manifest themselves. Nor does it make sense that these opportunities never resurface in the years following the event. Certainly given that they do seem to resurface when the firm *does* adjust its payouts in response to a negative profit shock.

The size decomposition additionally shows that the fall of investments is not likely due to exogenously reduced investment opportunities. If falling investment ratios would simply reflect gradually disappearing investment opportunities - a disappearance that happens to happen during those years where firms exhibit ratchet behaviour - there is no reason why the stratification based on size would be clearer cut after the ratchet event versus the counterfactual one. If only opportunities were at play, then both events would show a similar stratification in the long run.

It is quite clear that ratchet behaviour has severe consequences across all firm sizes - even the global top 10% of firms. These consequences likely are not only significant on the firm level, but are of economic significance as well. Through a redistribution of firm income towards capital owners and lower investments, the downward rigidity of shareholder payouts affects current aggregate demand, future potential growth, employment and inequalities and even the transition towards a climate neutral economy. Economic significance is likely given that 1) these stock listed firms represent an important share of the total economy (in some countries more than in others), 2) a large share of the firm population does ratchet, across firm sizes, sectors or regions and 3) the statistical effect is quite strong: a 1 to 1.5 percentage point of total assets reduction in capital expenditures on average is indeed quite sizeable, given the average (4.5%) and median (3.0%) investment rates among the same population of firms.

5 Conclusions and further research

The corporate financialization literature has put forward shareholder value orientation (SVO) - a form of corporate governance placing shareholders' interests above all else's - as the culprit for rising payout ratios and falling investments among stock listed firms and thus the wider economy. However, it failed to connect the institution to the outcome, i.e. how does SVO as a form of corporate governance translate into its consequences? This paper answers this question by uncovering the actual firm behaviour associated with SVO that effectively leads to rising payout ratios and falling investments. It thus grounds the macro process of financialization into its micro foundations and therefore connects it – theoretically and empirically – to its implied outcomes.

Overlooking firm behaviour leads researchers and the general public to assume that these outcomes are driven by some form of shareholder exuberance. On the contrary, I find that it is not rising payouts that lead to rising payout ratios or that crowd out investments, but precisely their inability to fall. I show that SVO constrains the firm in its decision space through the downward rigidity of shareholder remunerations during negative shocks, i.e. through ratchet behaviour. Firms seem to be constrained to keep their payouts steady in the face of falling profits. Each negative profit shock is increasingly met with payouts that do not budge. I not only show that this behaviour is very common among stock-listed firms but also that it has the key redistributive consequences we

associate with corporate financialization. A staggered difference in differences design shows that instances where profits decline but shareholders do not share in the losses – ratchet events - push up the payout ratio for close to a decade, burden the firm with unproductive debt and cause investments to get cut for over ten years. Thanks to the identification of firm behaviour that embodies SVO, I not only show how payout ratios have been rising but also find strong causal evidence for the post-keynesian crowding out hypothesis.

Uncovering the mechanism through which SVO operates in practice is a key step that has been overlooked by the literature. Not only does it give solid form to a key concept of heterodox economics and help us to understand the toll SVO extracts from our firms and our economies, it also allows us to better investigate its causes. For instance, in our next paper I further explore the question why firms decide to ratchet - and why some don't, looking into shareholder characteristics, manager remuneration or pervasive norms. Moreover, using this methodology, researchers can investigate other existing hypotheses of corporate financialization, such as the causal effect of ratchet events on labour compensation, employment or inequality.

In essence, I find that shareholder pressure translates into ratchet behaviour, that shareholders exert a rigid and asymmetrical influence on firms by demanding increasing returns when times are good, but refusing to yield ground when times are bad. The downward rigidity of their payout expectations constrain the firm in its decision space precisely in those moments the firm is hit by an adverse shock. Both on the firm level and on the aggregate this ratchet behaviour drives up the payout ratio, crowds out investments and burdens the firm with unproductive new debts. This likely has consequences not only for the firm itself, but also for the wider economy, potentially through increased inequalities, reduced aggregate demand and inhibited future growth potential. Finally, I firmly believe that this paper opens new avenues to investigate the causes and consequences of corporate financialization empirically and can contribute to our understanding of how our economies operate.

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