This is a ``preproof'' accepted article for *Journal of Financial and Quantitative Analysis*.
This version may be subject to change during the production process.
DOI: 10.1017/S0022109024000231

Financing Payouts

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Abstract

We find that 43% of firms that make payouts also raise capital during the same year, resulting in 31% of aggregate payouts being externally financed, primarily with debt. Most financed payouts cannot be explained by payout-smoothing in response to volatile earnings or investment—rather, they are the result of firms persistently setting payouts above free cash flow. In fact, 25% of aggregate payouts could not have been paid without the firms simultaneously raising capital. Profitable firms with moderate growth use debt-financed payouts to jointly manage their leverage and cash, thus highlighting the close relationship between payout and capital structure decisions.

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I. Introduction

The notion that firms sometimes simultaneously pay out and raise capital is not new. In a classic paper, Easterbrook ((1984), p. 650) writes, "a combination of dividends and simultaneous raising of new capital is downright inexplicable. Yet the simultaneous or near-simultaneous payment of dividends and raising of new capital are common in business." In recent work, Ma (2019) argues that firms use debt-financed repurchases to engage in cross-market arbitrage in response to shifts in the relative valuations of debt and equity. Still, the conventional wisdom in much of the payout literature remains that payouts are primarily funded with internal funds (e.g., DeAngelo, DeAngelo, and Skinner (2008)). Accordingly, Ross et al. ((2022), p. 603) write in their textbook: "A firm should begin making distributions when it generates sufficient internal cash flow to fund its investment needs now and into the foreseeable future."

This paper has two key goals. First, we quantify just how common, large, and persistent externally financed payouts are. Second, we explore what motives, in addition to cross-market arbitrage, drive firms to finance their payouts—and in particular to do so persistently.

We find that, on average during our 1989-2019 sample period, 43% of firms that pay out also initiate a net debt or an equity issue during the same year. In addition to being widespread, payouts and firm-initiated security issues that take place during the same year (henceforth, "financed payouts") are substantial in dollar magnitude: 31% of the aggregate capital paid out by U.S. public firms is raised by the same firms during the same year via net debt or equity issues. The same is true if we define financed payouts at the quarterly level: 31% of all capital paid out in a given quarter is raised by the same firms during the same quarter.

Over 83% of firms that finance their payouts would be unable to sustain their payout and investment levels without raising capital, as their payouts surpass their free cash flow—even when we include cash reductions and employee-initiated equity issues as part of free cash flow. Crucially, such gaps between payouts and free cash flow are not the result of payout smoothing in the face of volatile earnings or investment: When we measure payout gaps over five-year intervals, their prevalence increases and their (annualized) aggregate magnitude remains unchanged. Thus, most financed payouts are the result of a *persistent* pattern of firms setting payouts above the level they can fund internally. Consistent with this, 45% of firms that externally finance their payouts in any given year finance them again in two or three of the following five years, and 19% finance them in four or five of the following five years—i.e., 64% of firms that finance their payouts do so at least every second year.

Debt is by far the most important source of payout financing: 30% of aggregate payouts are financed via net debt issues. Such debt-financed payouts represent a major use of debt-issuance proceeds: 41% of aggregate net debt proceeds are paid out by the same firms during the same year, and firms are often explicit in their public debt prospectuses that they intent to use the proceeds to finance payouts. By contrast, equity issues finance less than 3% of aggregate payouts if employee-initiated issues (typically the result of stock option exercises) are excluded, as we conservatively do throughout the paper.

Firms devote a larger fraction of the capital they raise to the financing of share repurchases than of regular dividends. This is true particularly since the mid-2000s. Hence, firms' well-known aversion to cut regular dividends (e.g., Brav, Graham, Harvey, and Michaely (2005)) does not explain the majority of financed payouts, which take the form of share repurchases.

The second part of the paper examines what motives, in addition to cross-market arbitrage (Ma (2019)), lead firms to finance their payouts—often on a persistent basis. We focus

https://doi.org/10.1017/S0022109024000231 Published online by Cambridge University Press

on debt-financed repurchases, given that they cannot be explained by firms' reluctance to cut dividends and that debt is the dominant source of payout financing. We find that firms' desire to increase their leverage without depleting their cash reserves is a key driver of debt-financed payouts. Indeed, debt-financed payouts are most common among firms with both low leverage and low cash, while firms with low leverage but high cash levels tend to fund their payouts internally.

Crucially, we show that firms with high investment opportunities as well as those with high and especially moderate sales growth are most likely to debt-finance their payouts—and to do so persistently. On the other hand, firms with low investment opportunities and low sales growth tend to fund their payouts using internal funds. The relation between firm growth and debt-financed payouts helps explain both how persistent debt-financed payouts can be sustained without leverage exploding and how they are distinct from internally funded payouts.

To see why, consider a moderately growing firm in the middle phase of its lifecycle that generates just enough profits to fund its investment—and so has zero free cash flow. As we show in Section IV.A, persistent debt-financed payouts make it possible for such a firm to grow and at the same time (1) prevent its leverage from falling (as would happen if it simply grew by re-investing its profits) and (2) prevent its cash holdings from being depleted or repatriated (as would happen if it used internally funded payouts to keep its leverage stable). To be sure, such a firm could choose to increase its leverage by raising debt without simultaneous payouts. But doing so would also increase its cash, thereby requiring the firm to raise more debt to reach the same leverage target and, as discussed below, undermining the debt-related tax savings.

By contrast, a fast growing firm with insufficient profits to fund its investment can keep both its leverage and cash stable by raising the right mix of debt and equity without paying out.

On the other end of the lifecycle, a profitable and slow-growing firm with excess free cash flow can use internally funded payouts to keep both its leverage and cash stable.

The quantitative impact of debt-financed repurchases on both leverage and cash is substantial. The median firm that debt-finances repurchases begins with leverage 5.0 percentage points below target; following the debt-financed repurchase, its leverage increases to just above target. In addition, we show that as many as 81% of firms with debt-financed repurchases would run out of cash if they attempted to achieve the same leverage increase by simply repurchasing more without simultaneously raising debt.[1]

Taxes are one key reason why firms may seek to actively manage their capital structure (e.g., Myers (2000)). We exploit two quasi-natural experiments to offer causal evidence of the role of taxes in motivating debt-financed payouts. First, the tax deductibility of interest payments means that debt-financed payouts allow firms to decrease their income taxes while ensuring that the tax savings are not offset by the taxable interest income that would be generated if the debt proceeds were retained as cash. Supporting a causal role of tax minimization motives, we find that debt-financed repurchases increase when the value of interest tax deductions rises exogenously due to state tax increases, using a difference-in-differences approach (Heider and Ljungqvist (2015)).

Second, we show that, until recently, the desire to minimize repatriation taxes was another significant driver of debt-financed payouts. Prior to the enactment of the Tax Cuts and Jobs Act (TCJA) in December 2017, U.S. firms were taxed on their worldwide income but could defer paying taxes on foreign earnings by retaining them overseas. Profitable multinationals

[1] Hovakimian, Opler, and Titman (2001) and Lie (2002) show that under-levered firms use share repurchases to move toward their leverage targets. Our results go one step further, showing that a substantial fraction of firms can only reach their leverage targets without depleting their cash reserves by combining repurchases and debt issues.

could use debt-financed payouts to prevent their leverage from falling due to their foreign earnings without having to repatriate them to fund payouts. The TCJA moved the U.S. toward a territorial tax system where foreign earnings are largely exempt from U.S. taxation regardless of their repatriation status, thus removing the avoidance of repatriation taxes as a motive for debt-financing payouts. Using a difference-in-differences approach, we show that firms with a higher tax cost of repatriating earnings were more likely to debt-finance their payouts and less likely to internally fund them during the pre-TCJA years—but not once the TCJA came into force.

In the last part of the paper, we study whether the market reaction to payout announcements depends on their funding source. Consistent with our claim that the source of payout funding is an important feature of a firm's payout policy, we find that investors react less positively to announcements of higher payouts when firms have a persistent history of debt-financing them. Importantly, though, the average announcement return for such firms is still positive; this suggests that investors view debt-financed payouts as positive events, perhaps because they allow firms to jointly manage their leverage and cash holdings.

Our paper makes two contributions. First, ours is the first paper to systematically quantify the prevalence, magnitude, and persistence of financed payouts. Our findings that 43% of payers externally finance their payouts and that almost two-thirds of such payout-financing firms do so at least every second year indicate that many managers do not follow the textbook advice to set payouts "low enough to avoid expensive future external financing" (Ross et al. ((2022), p. 603)).

Second, the large prevalence, magnitude, and persistence of debt-financed payouts inform our understanding of the drivers behind payout, capital structure, and cash policies. We show that profitable and growing firms with little if any free cash flow use debt-financed payouts to jointly manage their leverage and cash in a way that they could not replicate by using internally funded payouts. Our findings thus showcase firms' efforts to jointly manage their leverage and cash, a goal also emphasized by DeAngelo, Gonçalves, and Stulz (2022), and they suggest that capital structure and cash changes are not a by-product but a key objective of payout policy.

In particular, our results indicate that taxes are a key driver of debt-financed payouts, in line with trade-off theories of capital structure and the assumptions of Frank and Sanati's (2021) structural model of corporate growth. By contrast, the evidence rejects Myers' ((1984), p. 589) pecking-order prediction that "an unusually profitable firm … will end up with an unusually low debt ratio compared to its industry's average, *and it won't do much of anything about it*. It won't go out of its way to issue debt and retire equity to achieve a more normal debt ratio."

To be sure, prior papers have noted that firms sometimes use large debt-financed payouts (also known as leveraged recapitalizations or recaps) to rebalance their capital structure. For instance, Vermaelen (1981) studies 13 debt-financed share repurchases, Denis and Denis (1993) investigate 39 leveraged recaps, and Wruck (1994) examines one specific leveraged special dividend. More recent papers have used large leveraged recaps to identify firms making major capital structure adjustments (Danis, Rettl, and Whited (2014), Cooper and Lambertides (2018), Eckbo and Kisser (2021)). However, these prior papers define *large* leveraged recaps to be infrequent by construction, and so they cannot—nor aim to—quantify the overall prevalence, magnitude, or persistence of debt-financed payouts. We show that firms, particularly those in the middle phase of their lifecycle, use debt-financed payouts to jointly manage their leverage and cash by effectively conducting slow-motion, incremental leveraged recaps on a regular basis—and not just when they need to make large leverage adjustments.

https://doi.org/10.1017/S0022109024000231 Published online by Cambridge University Press

II. Aggregate Payout and Capital Raising Activity

A. Sample Selection

Our sample consists of all U.S. public firms that appear in the Compustat-CRSP merged files from 1989 to 2019. Throughout, we exclude firms in the year of their IPO to avoid capturing the IPO proceeds in our analyses of equity issues. As is customary, we also exclude financial firms (SIC 6) and utilities (SIC 49). The final sample consists of 11,557 unique firms and 106,407 firm-year observations for which all variables required for our analysis of financed payouts in Section III are available.

B. Variable Definitions: Paying Out and Raising Capital

The literature has shown that managers tend to avoid cutting their regular dividends (and even failing to deliver an expected dividend increase); by contrast, share repurchases and special dividends are seen as more flexible (e.g., Jagannathan, Stephens, and Weisbach (2000), Brav et al. (2005)). As a result, the motives why firms finance their regular dividends may be different than in the case of share repurchases and special dividends. Throughout the paper, we break down a firm's total payout into two components: (1) regular dividends, and (2) share repurchases plus special dividends. For brevity, we sometimes simply refer to these two components as "dividends" and "share repurchases," respectively.[2] Internet Appendix A provides further details on the definitions of these and all other variables used in the paper.

We define net debt issues as the difference between the amount of debt issued and the amount retired if this difference is positive, and zero otherwise.[3] On the equity side, we follow

[2] In the average sample year, share repurchases account for 98% of the sum repurchases and special dividends. Throughout the paper, we obtain very similar results if we break out total payouts into dividends and repurchases.

[3] Much of the proceeds of gross debt issues are used to retire prior debt. Our focus on *net* debt issues allows us to capture those proceeds that firms can use to fund investment, cash flow shortfalls, or—as we will show—payouts.

McKeon (2015) and break down the cash flows from equity issues into firm-initiated issues (SEOs and private placements) and equity issues initiated by a firm's employees (typically the strike price paid to the firm when employees exercise stock options).[4] An important conceptual difference exists between firm- and employee-initiated equity issues, as firms choose the timing of the former but not the latter. Thus, whenever we measure financed payouts, we conservatively focus our attention on payouts financed via net debt or firm-initiated equity issues.

C. Aggregate Payout and Capital Raising Activity

Figure 1 shows that both the percentage of firms that pay out and the dollar amount paid out have increased substantially during our sample period, an increase that has largely been driven by share repurchases. (All dollar figures reported in the paper are in real dollars of year 2012 purchasing power.) As expected, Figure 1 also shows that share repurchases have been much more volatile than dividends. On the capital raising side, Figure 2 indicates that net debt issues have been by far the most important source of external funds for public firms.

[INSERT FIGURE 1 ABOUT HERE]

[INSERT FIGURE 2 ABOUT HERE]

As Figures 1 and 2 show, aggregate payout and capital-raising activities are both largely procyclical. Of course, this does not imply that payouts and issuances are related at the firm level: Firms that pay out and those that raise capital may be different firms at different stages of their lifecycles, as standard lifecycle theories predict (e.g., Grullon, Michaely, and Swaminathan (2002), DeAngelo, DeAngelo, and Stulz (2006)). We next examine payout and issuance decisions *by the same firm* during the same year.

[4] Unlike, for instance, Fama and French (2005), our equity issuance measures do not only include issues that do not generate cash (such as stock-financed mergers, outright grants of stock to employees, or conversions of debt into equity), because we are only interested in capturing equity issues whose proceeds can be used to fund payouts.

III. How Prevalent and Large Are Financed Payouts?

This section investigates the frequency and magnitude of "financed payouts," defined as payouts made by a firm that also proactively raises capital during the same fiscal year.

A. Prevalence and Magnitude of Financed Payouts

Columns 1-3 in Table 1 report the annual number of firms that pay out and initiate a net debt or an equity issue in the same year, presented as fractions of the population of U.S. public firms, of firms that pay out capital, and of firms that initiate security issues, respectively. To conserve space, Table 1 reports annual figures averaged over five- or six-year intervals. Column 1 shows that, in the average year, 22% of all public firms pay out capital and initiate a net debt or an equity issue in the same year (we refer to payouts and security issues taking place during the same year as "simultaneous").[5] This represents just under 43% of all payout payers (column 2) and 48% of all firms initiating a security issue (column 3). In recent years, these fractions are even larger: During the most recent quinquennium (2015-2019), 28% of all public firms, 43% of all payout payers, and 58% of all firms initiating a security issue finance their payouts.

[INSERT TABLE 1 ABOUT HERE]

To better visualize time trends, the solid black line in the top panel in Figure 3 shows how the percentage of public firms that finance their payouts has evolved over our sample period. Two patterns stand out: Financed payouts are pro-cyclical, sharply falling during the 2001 and the 2007-2009 recessions, and they have been on an upward trend since the end of the 2001 recession through at least 2017.

[INSERT FIGURE 3 ABOUT HERE]

[5] Here and elsewhere in the paper, we require a firm to simultaneously pay out and raise at least $100,000 to identify it as having a financed payout; this ensures that we do not capture rounding errors as financed payouts.

Columns 4 and 5 in Table 1 examine the dollar magnitude of financed payouts. For each firm *i* and year *t*, we measure the dollar amount the firm raises and pays out in the same year—its financed payout—as $FinTP_{it} = \min\{TP_{it}, SI_{it}\}$, where TP_{it} denotes the firm's total payout and SI_{it} denotes the proceeds of the firm's firm-initiated security issues (net debt plus equity). Thus, a firm's financed payout measures how much capital the firm could have avoided raising without any change to its available funds if it had not simultaneously paid out that capital.

Column 4 shows that, on average over our sample period, 31% of the aggregate capital paid out by public firms is raised by the same firms during the same year. Conversely, column 5 shows that 37% of the capital raised via firm-initiated security issues is paid out by the same firm in the same year—and as much as 45% during the ten most recent sample years (2010-2019).

The bottom panel in Figure 3 shows how the dollar amount of payouts financed with external capital has evolved during our sample period. In dollar terms, the pro-cyclicality of financed payouts is even more pronounced than when examining firm counts, consistent with the model predictions of Begenau and Salomao (2019). Financed payouts peaked in 2015 at $320 billion; 2016 and 2017 still saw the second and third highest amount of financed payouts in our sample period, respectively, and then financed payouts fell sharply in 2018 to $154 billion. As we will see in Section IV.C.2, a major overhaul in the U.S. corporate tax system in late 2017 likely helps explain this late decline in financed payouts.

B. Breaking Down Share Repurchases and Dividends

Columns 6-9 in Table 1 show the same analyses as columns 1-2 and 4-5, but substituting total payouts with the sum of share repurchases and special dividends; similarly, columns 10-13 focus on regular dividends. As it turns out, the annual fraction of public firms that finance their share repurchases is larger than in the case of dividends: 16% (column 6) vs. 14% (column 10) of all public firms on average over our sample period. Financed repurchases are also larger in dollar magnitude: 24% of the aggregate proceeds of firm-initiated security issues are simultaneously paid out via share repurchases (column 9), while 21% are paid out via dividends (column 13).[6]

Figure 3 shows that financed repurchases have been both more prevalent and larger than financed dividends since the late 1990s, except during recessions. Thus, even if one were to assume that all financed dividends are motivated by managers' desire to avoid dividend cuts, this desire cannot explain the majority of financed payouts, which take the form of repurchases.

C. Payouts Financed During the Same Quarter

Our definition of financed payout focuses on firms that pay out and raise capital during the same fiscal year. Defining financed payouts at the annual level is natural given that most firms set annual payout targets, particularly for dividends (Brav et al. (2005)). Interestingly, though, Table 2 shows that while the prevalence of financed payouts is reduced somewhat when we define financed payouts at the quarterly level (columns 1-2), our key finding that close to one-third of aggregate payouts are financed remains unchanged (columns 3-4), underscoring the close relationship between the payout and issuance decisions. We observe broadly similar patterns for financed repurchases (columns 5-8) and dividends (columns 9-12).

[INSERT TABLE 2 ABOUT HERE]

D. Breaking Down Debt and Equity Issues

Table 3 examines the extent to which firms finance their payouts via net debt and firm-initiated equity issues (Panels A and B, respectively), returning to define financed payouts at the

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[6] The sum of a firm's financed repurchases and financed dividends can be larger than its financed total payout. To illustrate why, consider a firm that raises \$80 of debt, repurchases \$60 worth of shares, and pays a regular dividend of \$30. We measure such a firm's financed total payout as min{*TP*, *SI*} = \$80, its financed repurchases as min{*Rep*, *SI*} = \$60, and its financed dividends as min{*Div*, *SI*} = \$30. In particular, by *not* defining a firm's financed total payout as the sum of its financed repurchases and financed dividends, we ensure no double counting.

annual level. For completeness, we also document how often firms pay out and raise capital via simultaneous employee-initiated equity issues (Panel C).[7]

[INSERT TABLE 3 ABOUT HERE]

Panel A shows that debt is the dominant form of payout financing: 19% of all public firms (column 1), representing 38% of payout payers (column 2), finance at least part of their payouts via simultaneous net debt issues. In dollar terms, on average 30% of aggregate payouts are financed via net debt issues (column 4). By contrast, Panel B shows that only 8% of payout payers (4% of public firms) finance at least part of their payouts via firm-initiated equity issues; in dollar terms, such equity issues finance just under 3% of aggregate payouts. Debt dominates the financing of both share repurchases and dividends (columns 8 and 12). In addition, Figure 4 shows that the growth in financed payouts shown in Figure 3 has almost exclusively been driven by debt-financed payouts, as payouts financed via firm-initiated equity issues have remained flat.

[INSERT FIGURE 4 ABOUT HERE]

Panel C shows that 68% of payout payers receive a simultaneous equity inflow via employee-initiated issues (column 2). Consistent with the notion that stock option exercises provide capital infusions whose timing firms do not control, 81% of the proceeds of employee-initiated equity issues are simultaneously paid out (column 5). While we conservatively do not include such employee-funded payouts in our definition of financed payouts, column 4 shows that they account for 10% of aggregate payouts.

Panel A in Table 3 also shows that much of the debt firms raise is used to finance payouts: 41% of the annual proceeds of net debt issues are paid out during the same year by the same issuers (column 5). Most debt used to finance payouts is long-term debt: of the 30% of

[7] To conserve space, Table 3 shows annual figures averaged over all sample years. Table IA.1 provides a time-series breakdown analogous to Table 1 (Tables IA.1-IA.8 are all in the Internet Appendix).

aggregate total payouts financed via net debt issues, 92% are financed with net issues of long-term debt (untabulated). To illustrate, in February 2015, Apple issued $6.5 billion of notes with maturities ranging from 2020 through 2045. The intended use of proceeds was "for general corporate purposes, including repurchases of our common stock and payment of dividends under our program to return capital to shareholders" (Apple Inc. ((2015), p. S-3)). Indeed, Apple repurchased $7.1 billion of shares and paid $2.7 billion in dividends during the first quarter of 2015; the next quarter, it repurchased $10.7 billion of shares and paid $3.1 billion in dividends.

How often are firms explicit about their intention to use the proceeds of debt issues to finance payouts, similar to the Apple example—as opposed to relying on generic labels, such as "general corporate purposes"? To shed light on this question, we take the 100 unique firms with the largest quarterly debt-financed payouts from our sample and search for all their debt issuance prospectuses in the SEC's EDGAR database during the quarter of the debt-financed payout.[8] Of those debt-financed payouts for which a prospectus is available, as many as 73% mention stock buybacks and/or payment of dividends as an intended use of debt proceeds.

E. The Gap Between Payouts and Free Cash Flow

Table 1 shows that 31% of payouts are raised by the same firms during the same year via firm-initiated security issues. To what extent are these firms' decisions to raise and pay out capital during the same year related? To help answer this question, we analyze the degree to which financed payouts are conducted by firms that, given their profit and investment levels,

[8] To maximize the likelihood of finding prospectuses, we focus on quarterly debt-financed payouts involving long-term debt issues of at least $50 million taking place after 1996, the first year when all SEC reporting firms had to file electronically (SEC, 2021). Even so, prospectuses are not always available, as only public issues require them.

https://doi.org/10.1017/S0022109024000231 Published online by Cambridge University Press

https://doi.org/10.1017/S0022109024000231 Published online by Cambridge University Press

would have been unable to fund their payouts without raising capital—both when we measure the firms' cash flows over one- and five-year horizons.[9]

1. One-Year Gaps

We first express firm *i*'s total payout in year *t* in terms of its sources and uses of cash:

(1) Total payout (TP_{it}) = Free cash flow (FCF_{it}) – Change in cash (CC_{it}) + Firm-initiated security issues (SI_{it}) + Employee-initiated equity issues (EE_{it}),

where free cash flow (FCF_{it}) is the sum of operating and investment cash flow. Motivated by this identity, we define a firm's (one-year) total payout gap as:

(2) $$TPGap_{it} = \min\{\max\{TP_{it} - (FCF_{it} + CR_{it} + EE_{it}), 0\}, TP_{it}\},$$

where $CR_{it} = -\min\{CC_{it}, 0\} \geq 0$ captures positive cash flows from cash reductions. By adding cash reductions and employee-initiated equity issues to free cash flow, it follows from equation (1) that whenever a payout payer has a total payout gap (i.e., $TP_{it} > FCF_{it} + CR_{it} + EE_{it}$), the firm needs to initiate a security issue to finance at least part of its payout (i.e., $SI_{it} > 0$).

To illustrate the total payout gap definition, consider a firm that pays out \$25, has free cash flow of \$25, and issues \$50 of net debt, which it uses to increase its cash reserves (i.e., $SI_{it} = CC_{it} = \$50$). According to our financed payout definition, this firm finances its entire \$25 payout ($FinTP_{it} = \min\{TP_{it}, SI_{it}\} = \min\{25, 50\} = \$25$). But it does not have a total payout gap, because its free cash flow is sufficient to fund its payout ($TPGap_{it} = \min\{\max\{25 - 25, 0\}, 25\} = \$0$).

Column 1 in Table 4 shows that, on average over our sample period, 84% of firms that pay out and raise capital during the same year have a total payout gap. How large are total

[9] DeAngelo et al. (2022) conduct a related analysis that examines the relation between leverage increases and cash squeezes, defined as situations where a firm would have run out of cash without raising external capital had it kept all other decisions—including investment and payouts—unchanged. Using DeAngelo et al.'s language, our goal in this section is to measure the extent to which financed payouts are conducted by firms facing a cash squeeze.

payout gaps ($TPGap_{it}$) relative to financed payouts ($FinTP_{it}$)? We answer this question in two complementary ways: First, for each firm-year with a financed payout, we define the ratio $TPGap_{it} / FinTP_{it}$ and then calculate the average of these ratios for each year in our sample period. The average of these annual averages from 1989 through 2019 is 79% (column 2). Second, we define a dollar-weighted version of the column 2 measure by computing, for each year, the aggregate ratio $\frac{\sum_i TPGap_{it}}{\sum_i FinTP_{it}}$. The average of these annual aggregate ratios is 80% (column 3). In sum, regardless of whether we examine the prevalence or the size of total payouts gaps relative to financed payouts, we reach the same conclusion: Around 80% of financed payouts correspond to firms whose payouts are larger than their internal funds (where we conservatively include cash reductions and employee-initiated equity issues). Together with the fact that 31% of aggregate dollars paid out are externally financed (Table 1), these findings imply that just over 25% of aggregate payouts could not have been paid had the firms not raised external capital.

[INSERT TABLE 4 ABOUT HERE]

We reach a similar conclusion when we examine repurchase gaps in columns 4-6 of Table 4: Around 80% of financed repurchases could not have been funded internally without simultaneous security issues. The corresponding fraction for financed dividends is lower, between 48% and 64% depending on the measure (columns 7-9).[10] These findings reinforce the notion that the desire to avoid dividend cuts cannot explain the majority of financed payouts.

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[10] In line with the payout literature (e.g., Jagannathan et al. (2000)), our definitions of repurchase and dividend gaps in Table 4 assume that firms prioritize the payment of dividends over repurchases. To illustrate, consider a firm that pays $25 in regular dividends and repurchases $30 of shares, has $40 of free cash flow, and a net debt issuance of $50. According to our definitions, this firm's debt-financed total payout is $50, its debt-financed repurchase is $30, and its debt-financed dividend is $25. However, the firm does *not* have a dividend gap, since its free cash flow is sufficient to fund its dividend, but it does have a $15 repurchase gap (and also a $15 total payout gap).

Consistent with this, Figure 5 shows that both total payout gaps and repurchase gaps are strongly pro-cyclical, mirroring the pro-cyclicality of financed payouts and financed repurchases.

[INSERT FIGURE 5 ABOUT HERE]

2. Five-Year Gaps

Are payout gaps the result of firms smoothing their payouts relative to their free cash flow, leading to temporary mismatches between both (e.g., Leary and Michaely (2011), Lambrecht and Myers (2012))? If so, measuring payout gaps over longer horizons should allow us to better capture intertemporal smoothing behavior and thus result in smaller gaps. To see whether this is the case, we define a firm's five-year total payout gap as follows:

(3) $$TPGap_{it}^{5} = \min\left\{\max\left\{\sum_{j=0}^{4} TP_{it+j} - \sum_{j=0}^{4}\left(FCF_{it+j} + EE_{it+j}\right) - CR_{it}^{5}, 0\right\}, \sum_{j=0}^{4} TP_{it+j}\right\},$$

where $CR_{it}^{5} = -\min\{\sum_{j=0}^{4} CC_{it+j}, 0\} \geq 0$ captures positive cash flows from any cumulative cash reductions over the five-year interval, and all other variables are defined as in equation (2).

Table 5 compares the prevalence (columns 1-6) and dollar magnitude (columns 7-12) of five-year and one-year payout gaps. Column 1 shows that, during the six five-year intervals from 1990 to 2019, on average as many as 41% of all public firms have a five-year total payout gap—almost double the 21% that have a one-year total payout gap on average over the same period (column 2). In addition, the table shows that the aggregate magnitude of five-year total payout gaps is similar to the cumulative magnitude of one-year gaps over the same intervals: Five-year gaps average $476 billion over our sample period (column 7), whereas the sum of aggregate one-year gaps over the same five years averages $484 billion (column 8). Repurchase gaps (columns 3-4 and 9-10) and dividend gaps (columns 5-6 and 11-12) exhibit broadly similar patterns.

[INSERT TABLE 5 ABOUT HERE]

Thus, contrary to what we would expect if one-year payout gaps were the result of payout smoothing or of firms avoiding dividend cuts when facing temporary cash flow shortfalls, measuring the gaps over longer horizons increases their prevalence and leaves their (annualized) magnitude unchanged. In particular, Table 5 indicates that the majority of payout gaps and the ensuing financed payouts are not one-off events—rather, they are the result of a persistent pattern of firms setting payouts above the level they can fund internally without raising capital.

F. The Persistence of Financed Payouts

Table 6 directly examines the persistence of financed payouts. Column 1 shows that only 36% of firms that finance their total payouts in any given sample year go on to finance their payouts in at most one of the following five years, and so can be seen as rare payout financers. The remaining 64% of firms that finance their total payouts do so on a regular basis, at least every second year: 45% of firms that finance their total payouts in any given sample go on to finance their total payouts in two or three of the following five years (column 2) and 19% finance them in four or five of the following five years (column 3). The persistence of payout financing behavior is even greater in the most recent sample years: 72% of firms that financed their total payouts in 2014 also did so in at least two of the following five years.

[INSERT TABLE 6 ABOUT HERE]

Payout financing behavior is more persistent for regular dividends (columns 7-9 of Table 6) than for share repurchases and special dividends (columns 4-6). Still, even in the case of often volatile repurchases, the persistence of payout-financing behavior is notable, with 51% of firms that finance their share repurchases in any given sample year—and 70% of those that financed them in 2014—also financing them in at least two of the following five years.

IV. Debt-Financed Payouts as a Capital Structure and Cash Management Tool

The prevalence, magnitude, and persistence of financed payouts are hard to reconcile with standard payout theories that study payouts as a standalone corporate financial policy. Indeed, a common assumption in much of the payout literature is that firms rely on free cash flow to fund their payouts, whether these payouts are motivated by agency (e.g., Chetty and Saez (2010)), signaling (e.g., Miller and Rock (1985)), or other considerations (see Farre-Mensa, Michaely, and Schmalz (2014) for a review). Along these lines, Grullon et al. (2002) and DeAngelo et al. (2006) present a lifecycle view of payouts whereby mature, cash-rich firms distribute excess free cash flow to their investors, whereas young, growing firms raise but do not pay out capital.

To be sure, in a world without transaction costs or financing frictions in which firms can always raise capital at prices that reflect their fundamental value, financed payouts simply shift the timing of distributions without altering the present value of a firm's total net distributions (Miller and Modigliani (1961)). However, the literature suggests that most firms face a non-trivial wedge between their external and internal costs of funds. Direct transaction costs (e.g., Altinkilic and Hansen (2000)), asymmetric information discounts (Myers and Majluf (1984)), taxes, and deadweight bankruptcy costs can imply that for many firms, "the cost of new debt and equity may differ substantially from the opportunity cost of internal finance generated through cash flow and retained earnings" (Fazzari, Hubbard, and Petersen ((1988), p. 142)).

Given that firms face non-trivial costs when they rely on the capital markets to finance their payouts, they must perceive significant benefits in doing so. In this section, we seek to better understand these benefits. Throughout the section, we focus on debt-financed repurchases, for two reasons: Financed repurchases cannot be explained by firms' well-known reluctance to cut their regular dividends, and debt is by the far the most important source of payout financing.

A. Characteristics of Firms That Debt-Finance Their Payouts

We begin our investigation of the benefits of debt-financed payouts by analyzing the characteristics of the firms that engage in this behavior—and of those that do not. Table 7 shows the results of estimating the following probit model in the full sample of public firms:

$$(4) \qquad Y_{it} = \Phi\, X_{it-1} + \mu_j + \gamma_t + \varepsilon_{it}\ ,$$

where the dependent variable Y is an indicator set equal to one if the firm conducts a debt-financed repurchase (column 1, our focus), an internally funded repurchase (column 2), a debt-financed dividend (column 3), or an internally funded dividend (column 4). Throughout, we define a repurchase as internally funded if it is not debt-financed. The vector X includes (lagged) controls for firm size, having an investment-grade credit rating, operating cash flow, market-to-book, leverage, cash, and sales growth tercile; μ_j denotes industry (3-digit SIC) fixed effects; and γ_t denotes year fixed effects. For ease of interpretation, throughout the paper we report conditional marginal effects evaluated at the means of the independent variables when estimating probit or other non-OLS models.

[INSERT TABLE 7 ABOUT HERE]

Columns 1 and 2 show that larger firms are more likely to conduct both debt-financed and internally funded repurchases. Firms with an investment-grade credit rating are also more likely to conduct debt-financed repurchases, but less likely to have an internally funded repurchase. To illustrate, column 1 indicates that, for the average public firm, having an investment-grade rating is associated with a 3.0 percentage point increase in the probability that the firm conducts a debt-financed repurchase, all else equal. This represents a 20% increase relative to the unconditional probability of conducting a debt-financed repurchase in our sample (15%). The interpretation of all other coefficient estimates is analogous. Our analysis of debt-financed dividends in column 3 yields largely similar results to its repurchase counterpart in column 1. As noted above and to conserve space, we focus our discussion on repurchases.

Both a firm's size and credit rating are thought to be negatively correlated with its debt transaction costs (Altinkilic and Hansen (2000)) and other frictions associated with raising debt (Whited (1992), Hennessy and Whited (2007)). Thus, debt-financed repurchases are more common among those firms for which the cost of raising debt is likely lower. Still, it is worth emphasizing that 51% of all firm-years that conduct debt-financed repurchases are *not* in the top quartile of the firm size distribution and 72% of them do *not* have an investment-grade credit rating (untabulated), and so they are likely to face non-trivial financing frictions (Whited (1992), Hennessy and Whited (2007), Campello et al. (2010)).

More profitable firms are more likely to conduct debt-financed repurchases, all else equal (the same is true for internally funded repurchases). This result is consistent with the finding in Table 5 that financed payouts are not the result of temporary mismatches between payouts and free cash flow induced by, for instance, temporary profitability shortfalls.

Market-to-book is negatively associated with the probability of conducting internally funded repurchases, consistent with such firms repurchasing shares to take advantage of potential equity undervaluation (e.g., Dittmar (2000)). Interestingly, though, market-to-book is *positively* associated with debt-financed repurchases.[11] One likely explanation is that firms with high market-to-book, in addition to being relatively highly valued, also have higher investment opportunities. Debt-financed repurchases allow growing firms to conserve cash for investment while at the same time preventing their leverage from falling.

Our finding that firms with higher profitability and higher investment opportunities are more likely to conduct debt-financed repurchases helps shed light on the persistence of debt-financed payouts documented in the prior section—as well as their sustainability. To illustrate, consider a profitable firm with moderately high investment opportunities whose profits are just enough to fund its investment (and thus has zero free cash flow). Regular debt-financed payouts make it possible for such a firm to invest in its growth while at the same time (1) preventing its leverage from falling (as would happen if it simply grew by re-investing its profits) and (2) without depleting its cash reserves (as would happen if it paid out without raising debt). Of course, the firm could choose to increase its leverage by raising debt without simultaneous payouts. But doing so would also increase its cash, thereby requiring it to raise more debt to reach the same leverage target and generating additional taxable interest income from the higher cash holdings.[12]

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[11] This is not to say that debt-financed repurchases are not used as part of market-timing strategies. To the contrary, Ma ((2019), p. 3041) shows that firms use debt-financed repurchases to engage in cross-market arbitrage "when credit markets are a particularly cheap source of funding." Consistent with this, Table IA.2 shows that firms are less likely to conduct debt-financed repurchases when the cost of debt financing is high (as measured by the economy-wide credit and term spreads, or by the credit and term premia), whereas low equity valuations (as captured by the Shiller earnings-price ratio) tend to be positively associated with debt-financed repurchases. Our conclusions from Table 7 remain unchanged if we include these macroeconomic controls in equation (4) instead of year fixed effects.

[12] The following example captures these mechanics. Consider a firm that has a 30% target leverage ratio with $30 of debt and $70 of equity, has a 15% cash ratio and so holds $15 in cash, and generates $10 in profits. The firm needs to invest $10, so it has zero free cash flow. If the firm simply reinvests its profits, its leverage will fall to 27.3% (=30/110). The firm could keep its leverage stable without raising any debt by paying out $10, but doing so will decrease its cash to $5 (5% ratio). Alternatively, the firm could issue $3.53 of debt and pay out half of it, which will keep its leverage at 30% (=33.53/(110+3.53/2)) and its cash ratio at 15% (=(15+3.53/2)/(110+3.53/2)). By contrast, if the firm did not pay out, the firm would need to raise $4.29 of debt to keep its leverage at 30% (=34.29/114.29), and its cash holdings would increase to $19.29 (with a cash ratio of 16.9% (=19.29/114.29)). Raising debt and paying part of it out is the only way such a firm can keep both its leverage and cash ratios stable.

Contrast the moderately growing firm in the above example with firms at the opposite ends of the growth spectrum: A profitable firm without good investment opportunities and thus low growth can use internally funded repurchases to keep both its leverage and cash stable; a fast growing firm with negative free cash flow can simply use the right mix of debt and equity issues—instead of debt-financed payouts—to manage both its leverage and cash holdings.

The above discussion suggests a non-linear relationship between firm growth and debt-financed payouts. This is exactly what we find. Column 1 in Table 7 shows that firms in the middle sales growth tercile are more likely to conduct debt-financed repurchases than those in the highest growth tercile (the base group) and even more so than those in the lowest tercile.[13] Debt-financed payouts are thus most useful to firms in the middle phase of their lifecycle, which tend to be profitable and moderately fast growing (e.g., Anthony and Ramesh (1992)). As firms mature and their growth slows down, debt-financed repurchases become less attractive and internally funded repurchases become relatively more attractive (compare columns 1 and 2).

Consistent with the notion that leverage and liquidity considerations are a key driver of debt-financed payouts, column 1 in Table 7 shows that debt-financed repurchases are more common among firms with both low leverage and low cash holdings.[14] By contrast, while internally funded repurchases are also more common among firms with low leverage, they are more likely among firms with *high* levels of cash (column 2). Taken together, these findings point to debt-financed payouts being used by firms with no excess cash that wish to increase their leverage. We further explore this motive in Section IV.C below.

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[13] Accordingly, if instead of the sales growth tercile indicators we include sales growth as a linear control in column 1, its coefficient is positive but insignificant (p=0.169).

[14] On the other hand, equity-financed payouts are more common among highly-leveraged firms (Table IA.3).

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As noted above, equation (4) includes 3-digit SIC industry fixed effects. How much of the cross-sectional variation in firms' tendency to finance their payouts is explained by these fixed effects? To help answer this question, we re-estimate equation (4) with and without industry fixed effects using linear probability models and examine the change in the R^2. Table IA.4 shows that the industry fixed effects explain a relatively small fraction of the propensity to conduct debt-financed repurchases, with the inclusion of the fixed effects increasing the R^2 from 11.6% to 12.9%—an 11.7% increase. The increase is only slightly larger when we model the propensity to internally fund repurchases (a 16.0% increase) or to debt-finance dividends (an 18.5% increase). By contrast, the increase is much larger when modeling the propensity to internally fund dividends (48.5%), in line with Grennan's (2019) finding that there are strong industry peer effects in dividend policy (but not in repurchases). Thus, our results suggest that such dividend peer effects are largely driven by internally funded rather than by debt-financed dividends.

B. Characteristics of Firms That Persistently Debt-Finance Their Payouts

Before further analyzing the motives behind debt-financed payouts, we first explore whether the same firm characteristics that correlate with debt-financed payouts also correlate with engaging in a *persistent* policy of payout financing. To do so, in Table 8 we estimate the following model within the samples of firms with debt-financed repurchases (columns 1-2) and debt-financed dividends (columns 3-4) in year t:

(5) $$N_{it+1\rightarrow t+5} = \Phi X_{it} + \mu_j + \gamma_t + \varepsilon_{it+1\rightarrow t+5},$$

where the dependent variable N is each firm's number of debt-financed repurchases (columns 1-2) or debt-financed dividends (columns 3-4) over the following five years. The vector X and the fixed effects are the same as in equation (4). Given that the dependent variable is a count from zero to five, we estimate both OLS models (in columns 1 and 3) and generalized linear binomial models (n=5) with logit as the canonical link function (in columns 2 and 4).

[INSERT TABLE 8 ABOUT HERE]

The results in Table 8 are in line with their counterparts in columns 1 and 3 of Table 7, even though equation (5) already conditions on firms that debt-financed their payouts in year t. In particular, the finding that slow-growing firms are the least likely to persistently debt-finance their payouts is consistent with our earlier discussion that only firms that grow can sustain a persistent policy of debt-financing payouts. Table 8 thus suggests that our hypothesis that moderately growing firms in the middle phase of their lifecycle rely on debt-financed payouts to manage their leverage and cash can also explain why firms *persistently* finance their payouts.

C. Using Debt-Financed Payouts To Manage a Firm's Leverage and Cash

In order to further explore this hypothesis, we begin by examining the quantitative impact that debt-financed repurchases have on leverage and cash holdings. The solid black line in Figure 6, Panel A shows that the median firm that conducts a debt-financed repurchase in year $t = 0$ was 5.0 percentage points (p.p.) below its target leverage the prior year (year $t = -1$). Median leverage climbs to 0.5 p.p. above target in year $t = 0$, and then it stays close to the target level through year $t = 5$. (We define a firm's target leverage as the predicted level of leverage for a firm of its size, market-to-book, profitability, asset tangibility, industry, and year.)

[INSERT FIGURE 6 ABOUT HERE]

To isolate the impact of debt-financed repurchases on leverage, we create a counterfactual sample of firms where we mute the effect of debt-financed repurchases. Specifically, for any firm i that has a debt-financed repurchase in year $t = 0$ and so for which $\min\{Rep_{it}, ND_{it}\} > 0$ (where ND denotes the proceeds of net debt issues and Rep the sum of

https://doi.org/10.1017/S0022109024000231 Published online by Cambridge University Press

repurchases and special dividends), we counterfactually set ND_{it} equal to $ND_{it} - \min\{Rep_{it}, ND_{it}\}$ and Rep_{it} equal to $Rep_{it} - \min\{Rep_{it}, ND_{it}\}$ for year $t = 0$ and any subsequent year $t + j$ for which $\min\{Rep_{it+j}, ND_{it+j}\} > 0$. The dotted red line in Figure 6, Panel A shows that without debt-financed repurchases, median counterfactual leverage would still initially increase, as our counterfactual analysis allows firms to either raise debt or repurchase shares—it simply undoes the effect on leverage of those debt issues that are simultaneously paid out via repurchases. However, this initial increase would fall 2.3 p.p. short of reaching the target level of leverage in year $t = 0$. In subsequent years, when our counterfactual analysis continues to mute debt-financed repurchases, median counterfactual leverage would further deviate from its target level, falling 7.2 p.p. below target in year $t = 5$.

We next switch our attention to cash. Consistent with the notion that debt-financed repurchases allow firms to increase their leverage without depleting their cash reserves, Panel B in Figure 6 shows that firms with a debt-financed repurchase in year $t = 0$ maintain a steady level of cash through year $t = 5$ (solid black line). In addition, the figure shows the results of a second counterfactual exercise showing what would happen if firms with debt-financed repurchases attempted to achieve the same leverage increases captured in Panel A by repurchasing more without raising debt. In this counterfactual scenario, median cash would turn negative in year $t = 0$ (dotted red line), and it would become even more negative as the firms continue to increase repurchases to replicate the leverage effects of debt-financed repurchases in the following years. In fact, only 18.7% of firms with debt-financed repurchases have enough cash to achieve the same leverage increase in year $t = 0$ by repurchasing more without simultaneously raising debt.

In sum, Figure 6 illustrates how firms use debt-financed repurchases to increase their leverage—by over 5 p.p. for the median firm—while keeping their cash steady. These firms' desire to keep a steady cash level does not imply that they perceive themselves as financially constrained. Rather, and in line with the finding in the literature that unconstrained firms have lower cash holdings than their constrained counterparts (e.g., Acharya, Davydenko, and Strebulaev (2012)), it suggests that the firms have no excess cash that they can use to increase their leverage via internally funded payouts.

1. Debt-Financed Payouts and the Tax Benefits of Debt

Capital structure theory suggests that taxes could be one key reason why firms choose to increase their leverage by debt-financing their payouts: Issuing debt allows firms to minimize their tax bill because interest payments can be deducted from taxable income; paying out the debt-issuance proceeds ensures that the taxable interest income that would be generated if firms retained the proceeds as cash (Azar, Kagy, and Schmalz (2016)) does not offset the tax savings.

Are debt-financed repurchases motivated at least in part by firms' desire to increase their leverage to take advantage of the tax benefits of debt? We begin by offering descriptive evidence showing that the tax benefits of debt accrued by firms with debt-financed repurchases can be substantial: The marginal corporate income tax rate faced in year $t-1$ by firms with debt-financed repurchases in year t averages 24.4%, and the median equals 34.0%; for comparison, the mean and median marginal rates faced by firms without debt-financed repurchases are significantly lower, at 19.0% and 15.4%, respectively ($p<0.001$ in both cases).[15]

To investigate whether there is a causal relationship between corporate tax rates and debt-financed payouts, we exploit staggered changes in state corporate income taxes as plausibly exogenous shocks to the value of interest tax deductions. Following Heider and Ljungqvist

[15] The rates we report are based on the after-interest-deduction marginal federal corporate income tax rate estimates described in Graham (1996) and updated in Prof. Graham's website, to which we add state tax rates following Graham (2000). We observe similar tax rate patterns for debt-financed dividends.

https://doi.org/10.1017/S0022109024000231 Published online by Cambridge University Press

(2015), we use a difference-in-differences (diff-in-diff) approach in first-differences. Specifically, we estimate the following probit model:

$$(6) \qquad Y_{it} = \beta\, Tax\ increase_{st-1} + \Phi\, \Delta X_{it-1} + \Psi\, \Delta Z_{st-1} + \mu_j + \gamma_t + \varepsilon_{it}\ ,$$

where the dependent variable Y is an indicator set equal to one if the firm conducts a debt-financed repurchase or dividend.[16] The variable *Tax increase* measures corporate income tax increases in the firm's headquarter state; the vector X includes standard controls used in leverage models (return on assets (ROA), firm size, tangibility, market-to-book, and the economy-wide default spread measured at fiscal year-end); μ_j denotes industry (3-digit SIC) fixed effects; and γ_t denotes year fixed effects.

Heider and Ljungqvist (2015) study the determinants of state corporate income tax increases and discuss potential threats to the parallel trends assumption necessary for identification. In particular, they find that states are more likely to raise taxes when the local economy is weaker. To ensure that these state-level economic differences do not confound our diff-in-diff analyses, we follow their approach and control for economic conditions in a firm's headquarter state by including the growth rate in gross state product and the state unemployment rate in the vector Z.

[INSERT TABLE 9 ABOUT HERE]

Table 9 reports the results of estimating equation (6) to examine whether firms are indeed more likely to conduct debt-financed payouts when taxes increase. The sample in columns 1-2 includes all public firms except those with zero marginal tax rate in year $t-1$, as only firms with profits to shield from tax have incentives to increase their leverage when taxes increase; columns

[16] The dependent variable Y is the intersection of two indicators capturing whether the firm increases its debt (by issuing net debt) and whether it reduces its equity (by paying out); thus, Y is itself in first-differences.

3-4 report placebo tests that include only firms with zero tax rate in year $t-1$. Column 1 shows that a firm's probability of conducting a debt-financed repurchase increases by 0.8 p.p. (p=0.008) following a 1 p.p. tax increase in its headquarter state relative to firms not affected by tax increases—but not, as expected, if the firm's marginal tax rate is zero (column 3). There is no significant evidence that firms use debt-financed dividends to raise their leverage following tax increases (column 2, p=0.232), consistent with firms seeing state tax increases—and the leverage changes they induce—as one-off events best handled via flexible share repurchases.

The results in Table 9 thus suggest that the desire to minimize income taxes is a significant driver of debt-financed repurchases. Importantly, while tax changes like those exploited in this section for identification are relatively rare, such changes are by no means the only reason why a firm may use debt-financed payouts to adjust its capital structure. In particular, as noted earlier, debt-financed payouts allow a profitable and moderately growing firm to invest in its growth while keeping leverage and cash stable at their optimal levels given the (constant) tax rates it faces. We next investigate a second tax-related motive for debt-financed payouts.

2. Debt-Financed Payouts and the Tax Cost of Repatriating Foreign Earnings

Prior to the enactment of the Tax Cuts and Jobs Act (TCJA) in December 2017, U.S. firms were taxed on their worldwide income, but foreign earnings were only taxed when they were repatriated. Upon repatriation, foreign earnings were subject to U.S. taxation at a federal rate of up to 35%, with a credit for foreign taxes paid. Repatriations typically resulted in a net U.S. tax obligation because the U.S. tax rate was higher than the foreign rate (Tax Policy Center (2020)). By retaining the earnings overseas, U.S. firms could defer paying taxes on foreign earnings—potentially until a repatriation tax holiday like the one in 2004 enabled them to repatriate earnings at a reduced rate.[17] This created incentives for profitable U.S. multinationals to accumulate large cash reserves overseas (Foley, Hartzell, Titman, and Twite (2007)). Debt-financed payouts made it possible for such multinationals to offset the reduction in leverage induced by their retained foreign earnings while still avoiding repatriation taxes.[18]

The TCJA, which became effective in 2018, has moved the U.S. toward a territorial corporate tax system where foreign earnings are now largely exempt from U.S. taxation regardless of whether they are repatriated or not.[19] The law thus provides an ideal setting to identify whether firms' desire to minimize repatriation taxes was a causal driver of debt-financed payouts during the pre-TCJA tax regime, using a diff-in-diff framework.[20]

To do this, Table 10 estimates the following modified versions of equation (4) in the full sample of public firms during the years surrounding the TCJA tax change (2016-2019):

$$(6) \qquad Y_{it} = \beta_1 \, \textit{Tax cost of repatriating earnings}_{it-1} + \beta_2 \, \textit{Post TCJA}_t \times \textit{Tax cost of repatriating}_{it-1} + \Phi \, X_{it-1} + \mu_j + \gamma_t + \varepsilon_{it} \, ,$$

where the dependent variable Y is an indicator set equal to one if the firm conducts a debt-financed payout (odd columns) or an internally funded payout (even columns). Following Foley et al. (2007) and Hanlon, Lester, and Verdi (2015), we define the variable *Tax cost of repatriating earnings* (both before and after the TCJA) by first multiplying a firm's foreign

[17] Firms conducting debt-financed payouts could wait for a tax holiday to repatriate their foreign earnings and then use them to repay the debt. Indeed, as noted by Faulkender and Petersen (2012), debt repayment was an acceptable use of repatriated funds under the 2004 repatriation tax holiday, whereas directly funding payouts was not.

[18] To the extent that cash can be seen as negative debt, raising debt without paying it out would not have accomplished the same goal.

[19] As a transition to the new system and to avoid a windfall for firms that had accumulated earnings abroad prior to 2018, the TCJA taxes these earnings (at lower rates) as if they were repatriated regardless of whether they actually are, thus removing any incentives to keep them overseas (Tax Policy Center (2020)).

[20] To be sure, in addition to altering U.S. firms' incentives to debt-finance their payouts, the TCJA impacted a number of other corporate policies. In particular, it reduced U.S. firms' incentives to invest overseas (Albertus, Glover, and Levine (2022)) and to acquire foreign companies (Amberger and Robinson (2023)).

pretax earnings by 35%, then subtracting the firm's foreign taxes (an estimate of its foreign tax credit), and finally scaling the resulting difference (which we set to zero if negative and for firms with no foreign earnings) by total assets.[21] The *Post TJCA* indicator equals one for years 2018-2019, and zero for 2016-2017. The vector *X* (not reported in Table 10) as well as the industry and year fixed effects are the same as in equation (4) (see Table IA.5 for full coefficient estimates).

[INSERT TABLE 10 ABOUT HERE]

Column 1 in Table 10 shows that, during the pre-TCJA years, each percentage point increase in the tax cost of repatriating earnings was associated with a 5.5 p.p. marginal increase in the probability of conducting a debt-financed repurchase ($p<0.001$). By contrast, in the post-TCJA years, the corresponding marginal increase is an insignificant 1.2 p.p. (=5.458 – 4.302, $p=0.183$). This finding supports our interpretation that the variable *Tax cost of repatriating earnings* captures the effect that firms' desire to manage their leverage while avoiding repatriation taxes had on their propensity to debt-finance payouts during the pre-TCJA years—and not a general association between multinational firms and debt-financed payouts.

If the desire to avoid repatriation taxes was a significant determinant of how firms funded their payouts pre-TCJA, firms facing high repatriation costs should be *less* likely to conduct internally funded repurchases pre-TCJA, all else equal—but not once the TCJA came into effect. This is exactly what we find in column 2: Pre-TCJA, each percentage point increase in the tax cost of repatriating earnings was associated with a 5.1 p.p. marginal decrease in the probability of conducting an internally funded repurchase ($p<0.001$). By contrast, since the TCJA came into

[21] In addition to moving the U.S. toward a territorial corporate tax system, the TCJA also reduced the U.S. statutory corporate tax rate from 35% to 21%. Yet, when defining the variable *Tax cost of repatriating earnings* for years 2018 and 2019, we continue using 35% as the U.S. tax rate. Doing so ensures that *Tax cost of repatriating earnings* correlates with being a multinational firm in a consistent manner in the pre- and post-TCJA periods.

effect, the *Tax cost of repatriating earnings* is no longer a significant predictor of the likelihood of conducting internally funded repurchases (p=0.835).

Columns 3-4 of Table 10 show the results of a placebo diff-in-diff centered around the 2014-2017 time window. As expected, we find no changes analogous to those in columns 1-2 in the association between the *Tax cost of repatriating earnings* and debt-financed or internally funded repurchases after 2015, i.e., during the two years preceding the TCJA's implementation (p=0.701 and p=0.248 in columns 3 and 4 for the placebo interaction terms, respectively). This finding is consistent with the TCJA—as opposed to some other secular trend—having decreased the preference of firms with low-taxed foreign earnings for debt over internal funds to fund their payouts. In addition, and also consistent with the parallel trends assumption, Panel A in Figure IA.1 in the Internet Appendix shows that the *Tax cost of repatriating earnings* was a significant predictor of debt-financed repurchases from 2010 through 2017, only becoming insignificant in 2018-2019 when the TCJA was in force. All these patterns are similar but less pronounced for regular dividends (see columns 5-8 in Table 10 and Panel B in Figure IA.1).[22]

Figure IA.2 seeks to further quantify the importance of repatriation taxes in driving debt-financed repurchases by plotting the annual fractions of aggregate share repurchases that are debt-financed by firms facing (1) positive and (2) zero repatriation tax costs. On average, firms facing positive repatriation costs debt-financed 39.9% of their repurchases from 2010 through 2017, but their fraction of debt-financed repurchases fell to 17.6% in 2018-2019. By contrast, firms facing no repatriation taxes (including those with no foreign earnings) debt-financed 32.4% of their repurchases from 2010 through 2017, and 33.6% in 2018-2019. This back-of-the-

[22] Table IA.6 shows that our Table 7 baseline findings remain unchanged if in equation (4) we also control for the tax cost of repatriating foreign earnings during the pre-TCJA years.

https://doi.org/10.1017/S0022109024000231 Published online by Cambridge University Press

envelope analysis suggests that up to half of debt-financed repurchases made by firms facing positive repatriation costs—which accounted for 69.0% of all debt-financed repurchases from 2010 through 2017—may have been motivated by their desire to minimize repatriation taxes.

Taken together, the findings in Tables 7-10 and Figure 6 indicate that firms use debt-financed payouts to jointly manage their leverage and cash in a way that would be impossible to replicate if they funded their payouts internally or retained all their debt issuance proceeds.

To be sure, the tax-motivated joint management of leverage and cash identified here and the cross-market arbitrage motive identified by Ma (2019) need not be the only drivers of debt-financed payouts. Agency considerations can be another driver. Even though agency theories of payout policy have focused mostly on the role of payouts in disgorging free cash flow to mitigate the agency costs associated with hoarding cash (e.g., Chetty and Saez (2010)), the insight that debt-financed payouts can mitigate agency problems goes back to at least Easterbrook (1984) and Jensen (1986). While undoubtedly important, the empirical identification of agency motives as a driver of debt-financed payouts poses a formidable challenge. Other potential drivers of debt-financed payouts include signaling and earnings-per-share management (Hribar, Jenkins, and Johnson (2006)).[23] We leave the identification of such additional motives for future research.

V. Does the Market Reaction to Payout Announcements Depend on the Source of Funding?

A key takeaway of our paper is that when analyzing a firm's payout policy, it is important to consider not just the magnitude and type of a firm's payouts, but also their funding source. If the payout funding source is indeed important, we would expect the market reaction to

[23] Debt-financed repurchases are less prevalent and smaller in magnitude in high-tech industries (defined as in Goldschlag and Miranda (2020, Table 7)): Among repurchasing firms, 30% of those in high-tech industries debt-finance them, compared to 42% of non-high-tech firms; in terms of dollar magnitude, 28% of repurchases in high-tech industries are debt-financed, compared to 36% in non-high-tech sectors. High-tech firms are more likely to use stock options as part of their compensation packages (Kahle (2002)), and thus these findings suggest that offsetting employee stock option exercises is unlikely to be a first-order driver of debt-financed repurchases.

payout announcements to be different for firms that have a history of financing their payouts by raising debt and for those that fund them internally. We test this prediction in Table 11.

We begin by estimating the following linear model in the sample of public firms announcing share repurchases of at least $10 million:[24]

$$(7) \qquad R_{ita-1\rightarrow a+1} = \beta \, Rep_{it-1} + \gamma \; Debt\text{-}finan.\; rep_{it-1} + \Phi \, X_{it-1} + \mu_j + \gamma_y + \varepsilon_{ita-1\rightarrow a+1} \;,$$

where the dependent variable R is the announcing firm's three-day cumulative abnormal return around the announcement date a. The control variables *Rep* and *Debt-finan. rep* are indicators set equal to one if the firm conducted a repurchase (regardless of the funding source) or a debt-financed repurchase, respectively, during the fiscal year immediately preceding the repurchase announcement. The vector X (reported only in Table IA.7) is the same as in equation (4);[25] we also include industry (μ) and announcement year (γ) fixed effects.

[INSERT TABLE 11 ABOUT HERE]

Column 1 in Table 11 shows that having conducted a share repurchase during the previous year is associated with an announcement return that is 0.69 p.p. lower (p=0.001), consistent with the repurchase announcement being less surprising to investors. Having debt-financed that prior year repurchase has no additional impact on announcement returns (p=0.53), perhaps because one year is not sufficient for investors to reliably determine a firm's source of payout funding.

[24] The $10 million threshold ensures we capture meaningful repurchase announcements. Following the literature (e.g., Michaely, Rossi, and Weber (2021)), we also impose an analogous size threshold when studying quarterly dividend change announcements. Specifically, our analysis of dividend increases in columns 3-4 of Table 11 focuses on increases in the (12.5%, 500%) range, while in columns 5-6 we focus on cuts in the (−100%, −12.5%) range.

[25] Table IA.8 shows that our conclusions are robust to controlling only for firm size instead of the full vector X.

Column 2 examines how our conclusions change when we test the relation between *persistently* debt-financing repurchases and announcement returns. To do so, we estimate a modified version of equation (7), where we substitute *Rep* and *Debt-finan. rep* for the fractions of the prior five years when the firm conducted repurchases or debt-financed repurchases, respectively. Column 2 shows that having a persistent history of debt-financed repurchases does mute the positive return typically associated with repurchase announcements: Having conducted debt-financed repurchases in five of the prior five years is associated with a 0.86 p.p. lower repurchase announcement return (p=0.039)—a decrease amounting to 57% of the mean announcement return (1.52%). This 0.86 p.p. lower return is over and above the insignificant 0.15 p.p. lower return (p=0.681) associated with having conducted share repurchases (regardless of the funding source) in five of the prior five years.

Columns 3-4 and 5-6 of Table 11 analyze the market reaction to announcements of quarterly dividend increases and cuts, respectively. Specifically, in columns 3 and 5 we estimate a modified version of equation (7), where we omit the control variable *Rep* and substitute *Debt-finan. rep* for an indicator set equal to one if the firm paid a debt-financed dividend during the year immediately preceding the dividend change announcement. Similarly, in columns 4 and 6 we estimate a modified version of the column 2 specification, where instead of controlling for the firm's history of repurchases and debt-financed repurchases we control for its history of dividends and debt-financed dividends.

While the market reaction to dividend increase announcements is not impacted by whether the firm paid a debt-financed dividend the prior year (column 3, p=0.399), investors do react less positively to dividend increase announcements if the firm has a persistent history of debt-financing its dividends (column 4). In particular, having paid debt-financed dividends in

https://doi.org/10.1017/S0022109024000231 Published online by Cambridge University Press

five of the prior five years is associated with a 0.71 p.p. lower announcement return (p=0.066)—a substantial decrease given that the mean dividend increase announcement return is 1%.

Taken together, the results in columns 1 through 4 of Table 11 tell a consistent story: Investors react less positively to announcements of higher payouts (regardless of their form) when firms have a persistent history of debt-financing them. Importantly though, both in the case of repurchase and dividend increase announcements, the average announcement return for firms with a persistent history of debt-financed payouts is still positive.[26] These findings suggest that investors view debt-financed payouts as positive events (though not as much as in the case of internally funded payouts), perhaps because by combining payouts and debt issues, firms are able to jointly manage their leverage and cash holdings, as discussed in Section IV.C.

Our analysis of (far rarer) dividend cut announcements in columns 5 and 6 of Table 11 yields analogous findings: Firms with a persistent history of debt-financed dividends experience a less pronounced negative return when announcing dividend cuts than firms with a similar history of internally funded dividends (p=0.039, column 6). That said, the mean dividend cut announcement return for firms with debt-financed dividends in at least four of the prior five years is still negative and sizable: −2.43% (p=0.014, untabulated).

VI. Conclusions

We show that externally financed payouts are widespread, economically large, and persistent: In the average year, 43% of firms that pay out capital also raise capital during the same year, resulting in 31% of all payout dollars being externally financed. The vast majority of firms engaging in this payout-financing behavior do not generate enough free cash flow to fund

[26] In untabulated findings, we find that the mean repurchase announcement return for firms with debt-financed repurchases in at least four of the prior five years is 0.80% (p=0.002); the mean dividend increase announcement return for firms with debt-financed dividends in at least four of the prior five years is 0.70% (p<0.001).

their payouts without initiating simultaneous security issues. This gap between payouts and free cash flow remains when measuring firms' sources and uses of funds over five-year intervals, thus underscoring the persistence of their need to externally finance dividends and repurchases.

Debt is by far the main source of funds used to finance payouts. We show that a key—but by no means the only—driver of debt-financed payouts is the desire of profitable and moderately growing firms with little free cash flow to increase their leverage without depleting, increasing, or repatriating their cash reserves. Using debt-financed payouts to jointly manage their leverage and cash allows firms to minimize corporate income taxes and, prior to 2018, repatriation taxes.

The growth in payouts—particularly share repurchases—over the last three decades has generated substantial debate among policymakers,[27] with the Inflation Reduction Act of 2022 recently imposing a 1% excise tax on repurchases. Our findings on the large magnitude of debt-financed payouts highlight the importance of considering the payout funding source when evaluating the welfare costs and benefits of taxes or other restrictions on payouts. At the same time, our paper suggests that an alternative to such restrictions may be to change those elements of the tax code—most notably, the tax deductibility of interest payments—that incentivize firms to use debt-financed payouts to minimize their tax bill.

Our results leave little doubt that the relationship between payouts, capital structure, and cash is far from mechanical when one considers not just the choice of the size of payouts, but also of how to fund them. Our paper thus underscores the importance of studying these policies jointly as interdependent elements of corporate financial management rather than as standalone policies.

[27] See, e.g., "President Trump Joins Democrats in Calls to Block Share Buybacks" (*WSJ*, March 22, 2020), "Biden Stock Buyback Tax: What to Know About the Latest Proposal" (*WSJ*, October 28, 2021).

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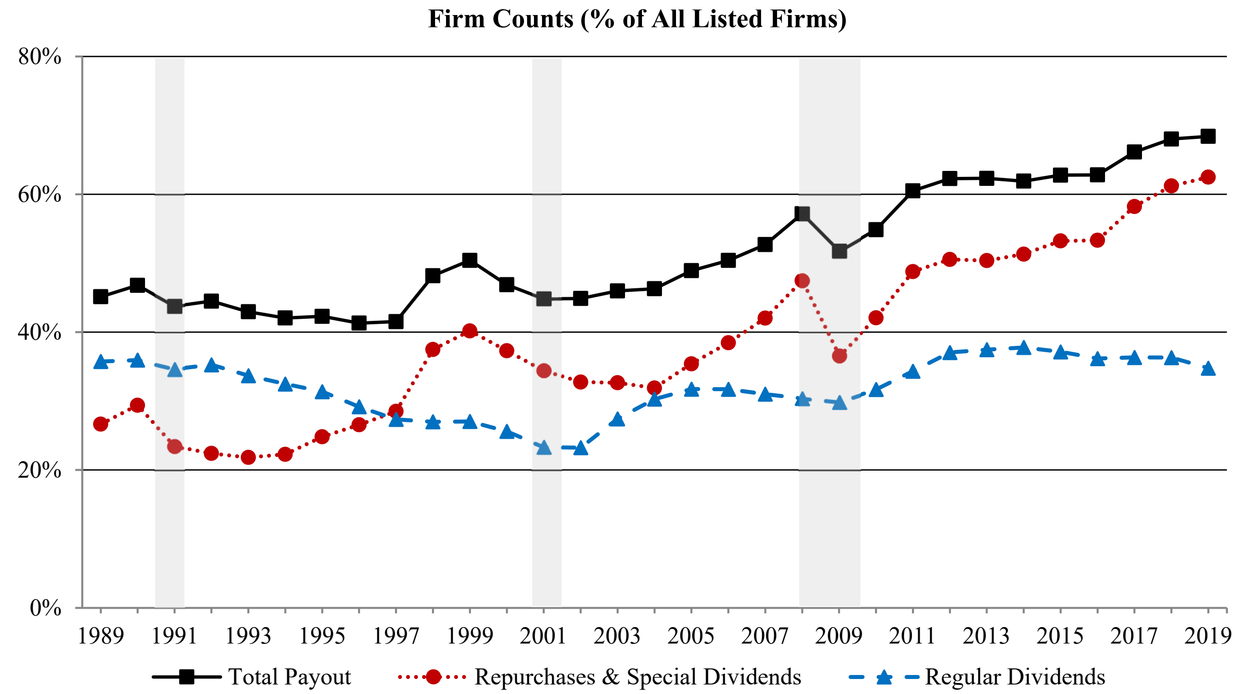
Figure 1. Aggregate Payout Activity.
For each year from 1989 to 2019, the top graph shows the percentage of U.S. public firms that are payout payers, i.e., pay a dividend or repurchase shares (solid line) as well as the percentage that repurchase shares or pay a special dividend (dotted line) and that pay a regular dividend (dashed line). The solid line in the bottom graph shows each year's aggregate total payout (i.e., the sum of dividends and share repurchases paid by all U.S. public firms that year) as well as its breakdown into share repurchases plus special dividends (dotted line) and regular dividends (dashed line). The grey bars identify NBER recessions. Dollar magnitudes are in billions of dollars of 2012 purchasing power.



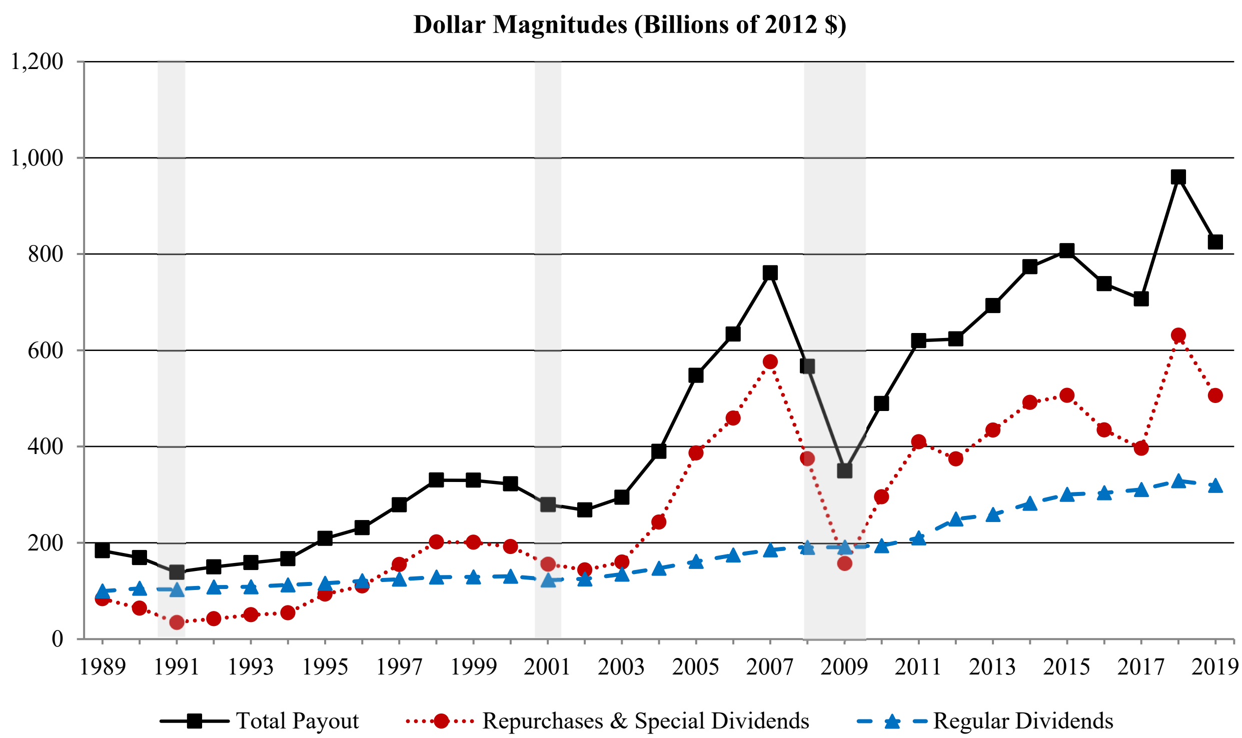
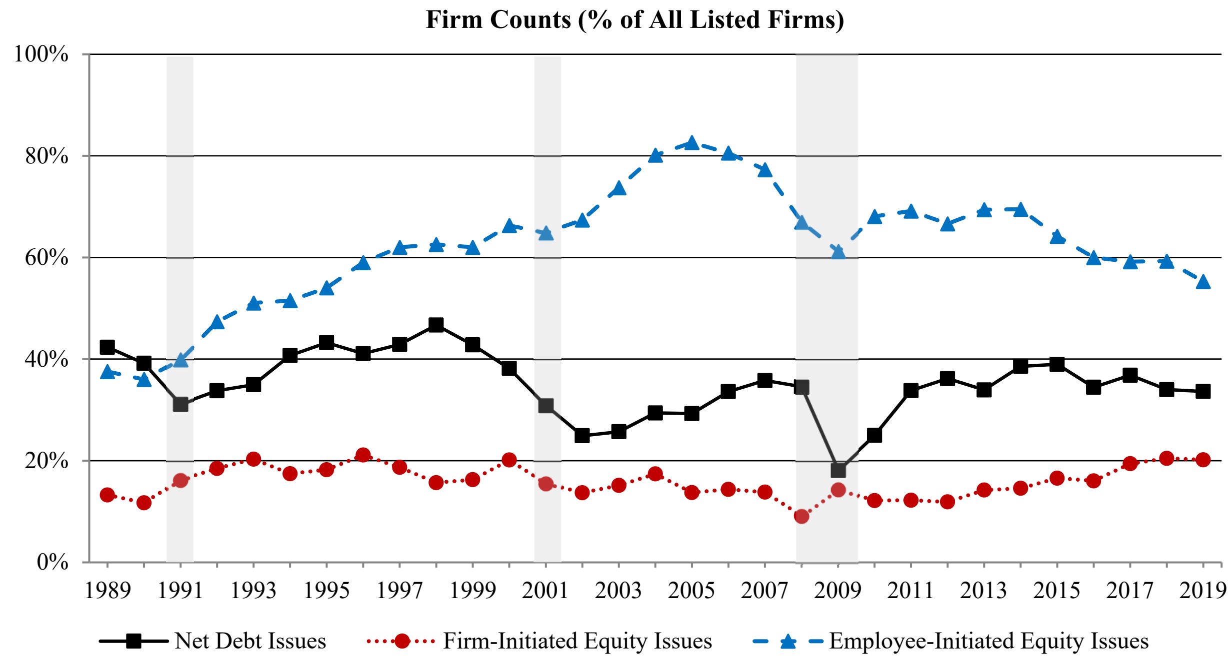


Figure 2. Aggregate Capital-Raising Activity.

For each year from 1989 to 2019, the top graph shows the percentage of U.S. public firms with positive net debt issues (solid line), firm-initiated equity issues (dotted line), and employee-initiated equity issues (dashed line). We define positive net debt issues as debt issues net of debt repurchases if this difference is positive, and zero otherwise. Following McKeon (2015), we identify a firm as initiating an equity issue during a quarter if the ratio of the equity raised during that quarter to the firm's end-of-period market equity is above 2.5%; otherwise, we classify the issue as employee initiated. The bottom graph shows the aggregate dollar amount raised via net debt issues (solid line), firm-initiated equity issues (dotted line), and employee-initiated equity issues (dashed line) by all U.S. public firms each year. The grey bars identify NBER recessions. Dollar magnitudes are in billions of dollars of 2012 purchasing power.



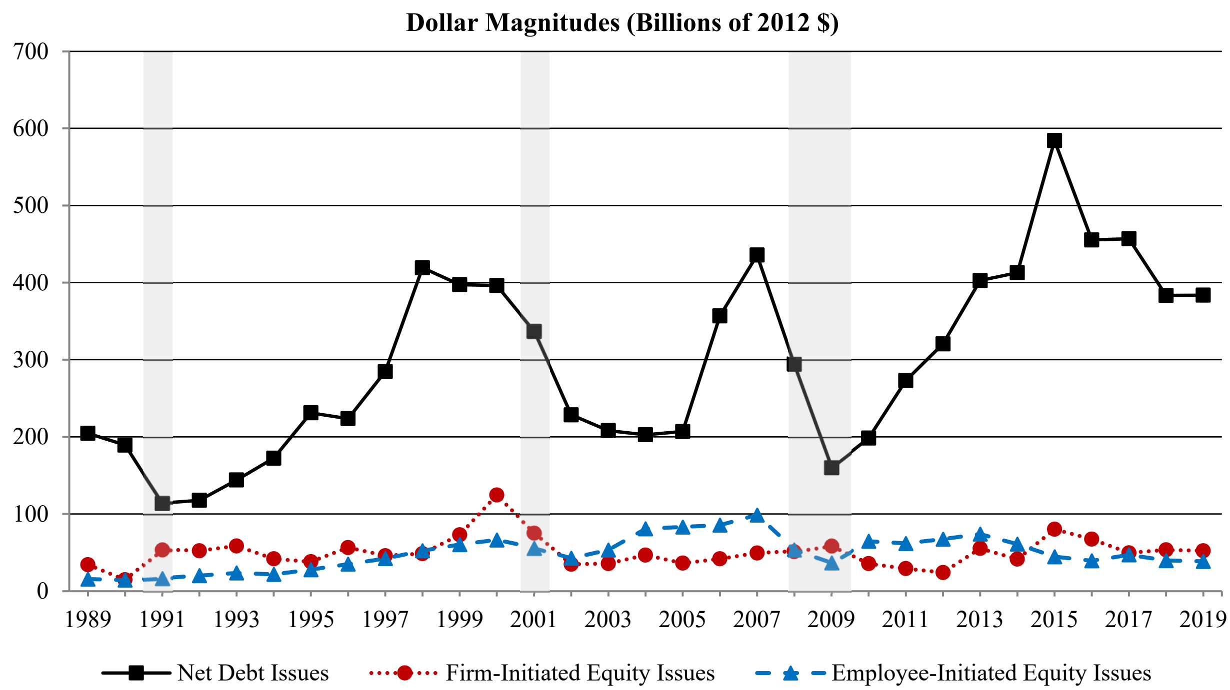


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Figure 3. Prevalence and Aggregate Magnitude of Financed Payouts.

For each year *t* from 1989 to 2019, the solid line in the top graph plots the percentage of U.S. public firms that simultaneously pay out capital and initiate a net debt or equity issue. The solid line in the bottom graph plots the dollar magnitude of such financed payouts aggregated across all public U.S. firms; i.e., the aggregate sum of $\min\{TP_{it}, SI_{it}\}$, where *TP* denotes total payout and *SI* denotes the sum of net debt issues and firm-initiated equity issues. The dotted lines show analogous plots for financed repurchases and special dividends, while the dashed lines show analogous plots for financed regular dividends. Recall that, as noted in Table 1, the sum of financed repurchases plus financed regular dividends need not equal total financed payouts. The grey bars identify NBER recessions. Dollar magnitudes are in billions of dollars of 2012 purchasing power.

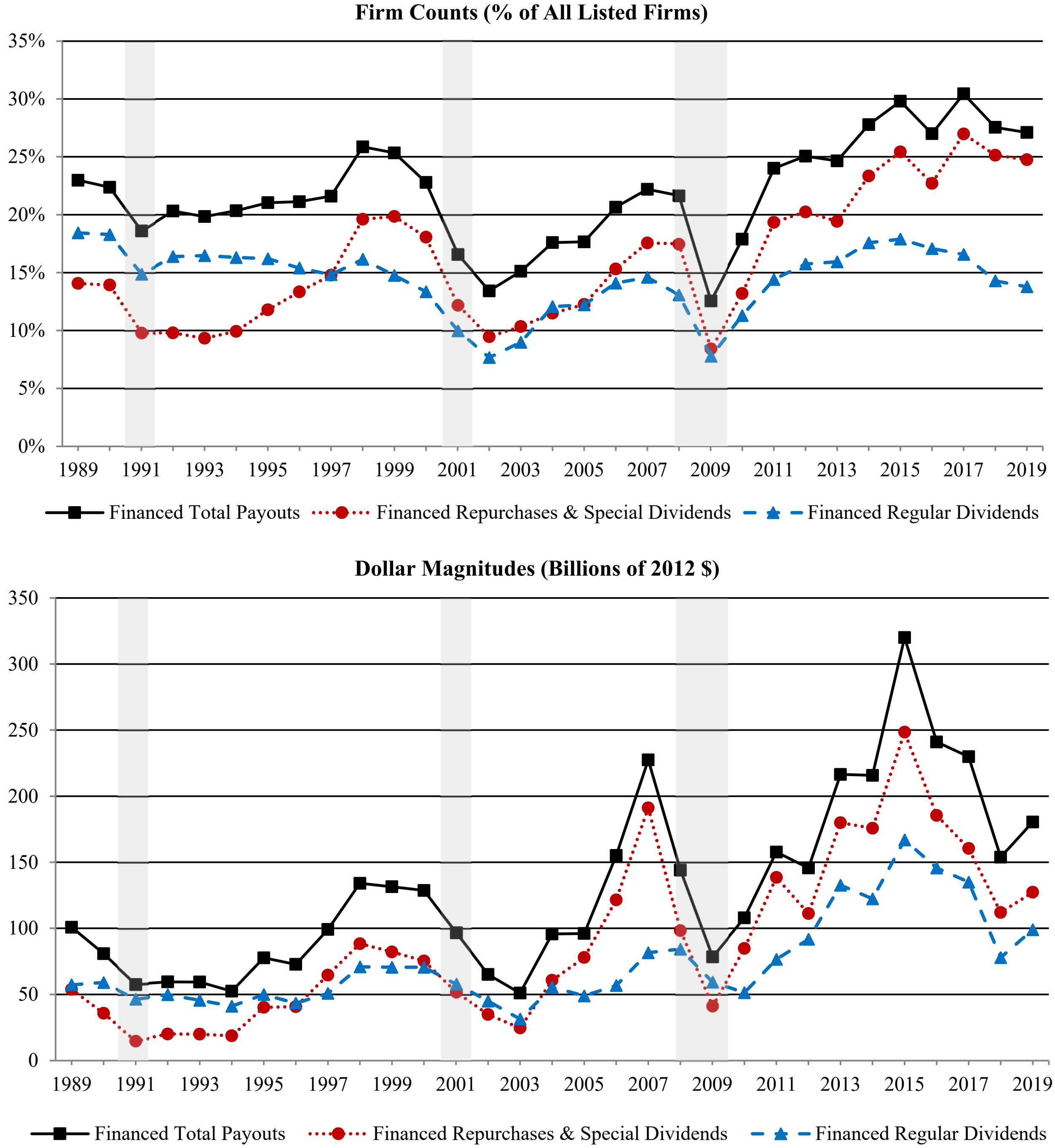

Figure 4. Prevalence and Aggregate Magnitude of Financed Payouts: Breaking Down the Role of Debt and Equity.

For each year *t* from 1989 to 2019, the top graph plots the percentage of U.S. public firms that simultaneously pay out capital and initiate a net debt issue (solid line), a firm-initiated equity issued (dotted line), or an employee-initiated equity issue (dashed line). The solid line in the bottom graph plots the dollar magnitude of debt-financed payouts aggregated across all public U.S. firms; i.e., the aggregate sum of min$\{TP_{it}, ND_{it}\}$, where *TP* denotes total payout and *ND* denotes the proceeds of net debt issues. Analogously, the dotted and dashed lines in the bottom graph show the aggregate dollar magnitudes of payouts financed via firm-initiated and employee-initiated equity issues, respectively. Recall that payouts financed via employee-initiated equity issues are *not* included in our baseline definition of financed payouts, and so they are not included in Figure 2. The grey bars identify NBER recessions. Dollar magnitudes are in billions of dollars of 2012 purchasing power.

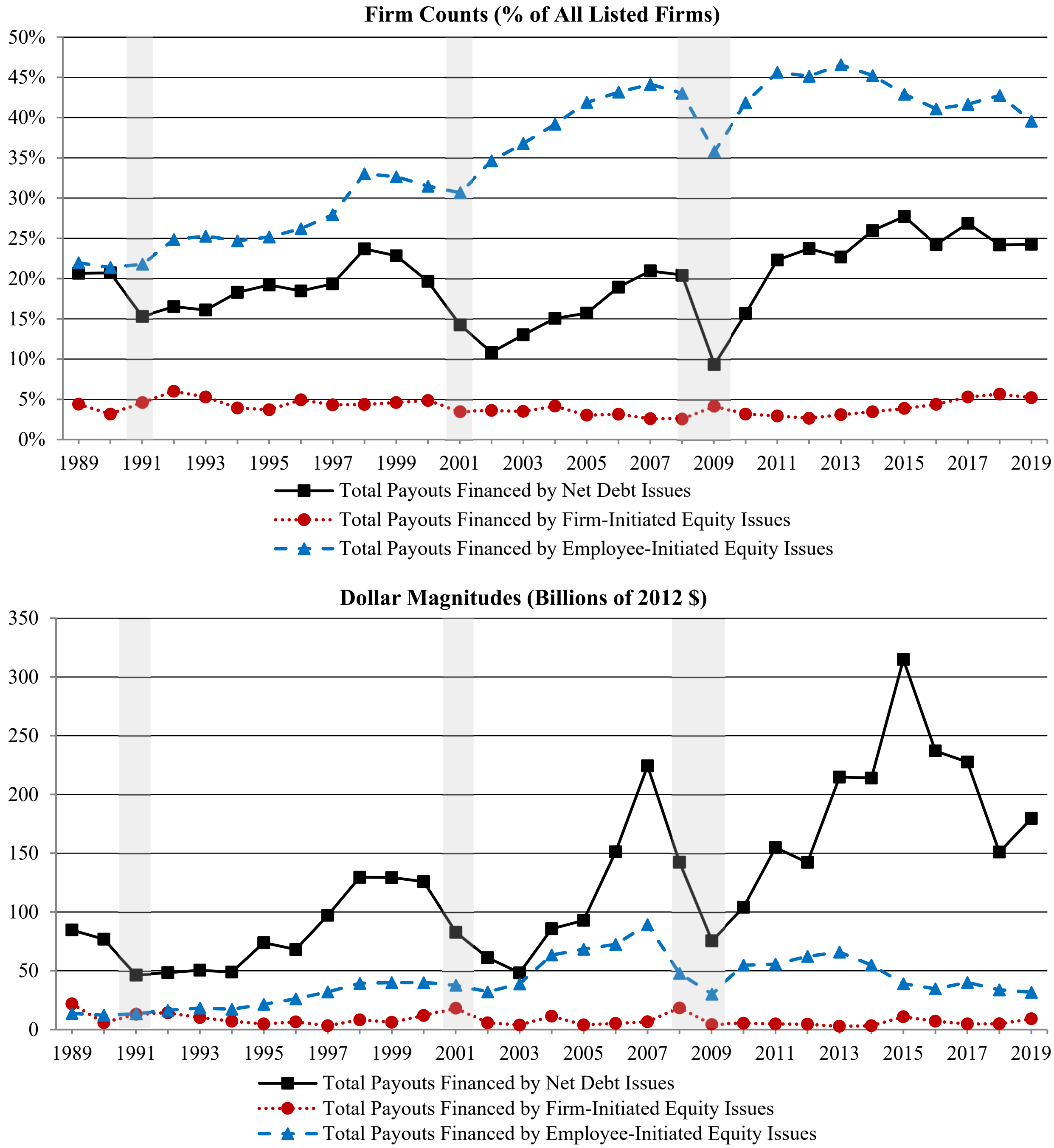

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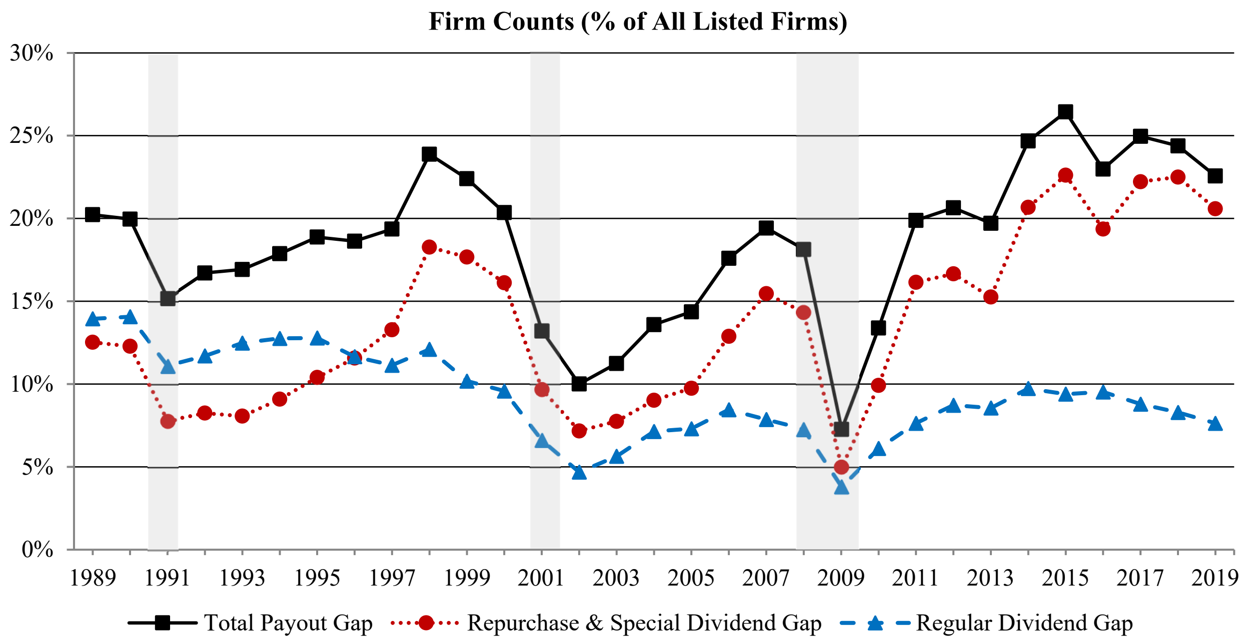
Figure 5. Prevalence and Aggregate Magnitude of the Gap Between Payouts and Internal Funds.

For each year t from 1989 to 2019, the solid lines in the top and bottom graphs plot the prevalence and aggregate magnitude, respectively, of total payout gaps. A firm's (one-year) total payout gap is defined as $TPGap_{it} = \min\{\max\{TP_{it} - (FCF_{it} + EE_{it} + CR_{it}), 0\}, TP_{it}\}$, where: TP is total payout; FCF is free cash flow, the sum of operating and investment cash flow; $CR \geq 0$ is cash reduction; and EE denotes employee-initiated equity issues (see Internet Appendix A for details). The dotted lines in the top and bottom graphs show analogous plots for (one-year) repurchase gaps, defined as $RepGap_{it} = \min\{\max\{Rep_{it} - (FCF_{it} + EE_{it} + CR_{it} - Div_{it}), 0\}, Rep_{it}\}$ (where Rep denotes the sum of share repurchases and special dividends and Div denotes regular dividends), while the dashed lines focus on (one-year) dividend gaps, defined as $DivGap_{it} = \min\{\max\{Div_{it} - (FCF_{it} + EE_{it} + CR_{it}), 0\}, Div_{it}\}$. The grey bars identify NBER recessions. Dollar magnitudes are in billions of dollars of 2012 purchasing power.



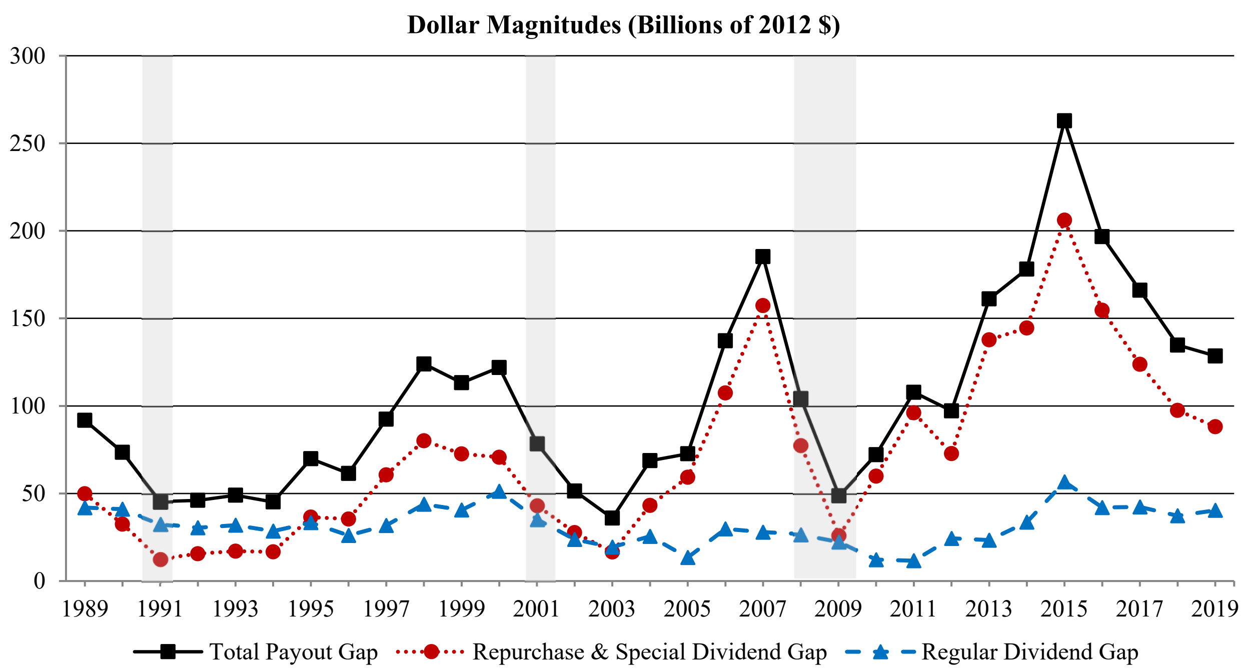


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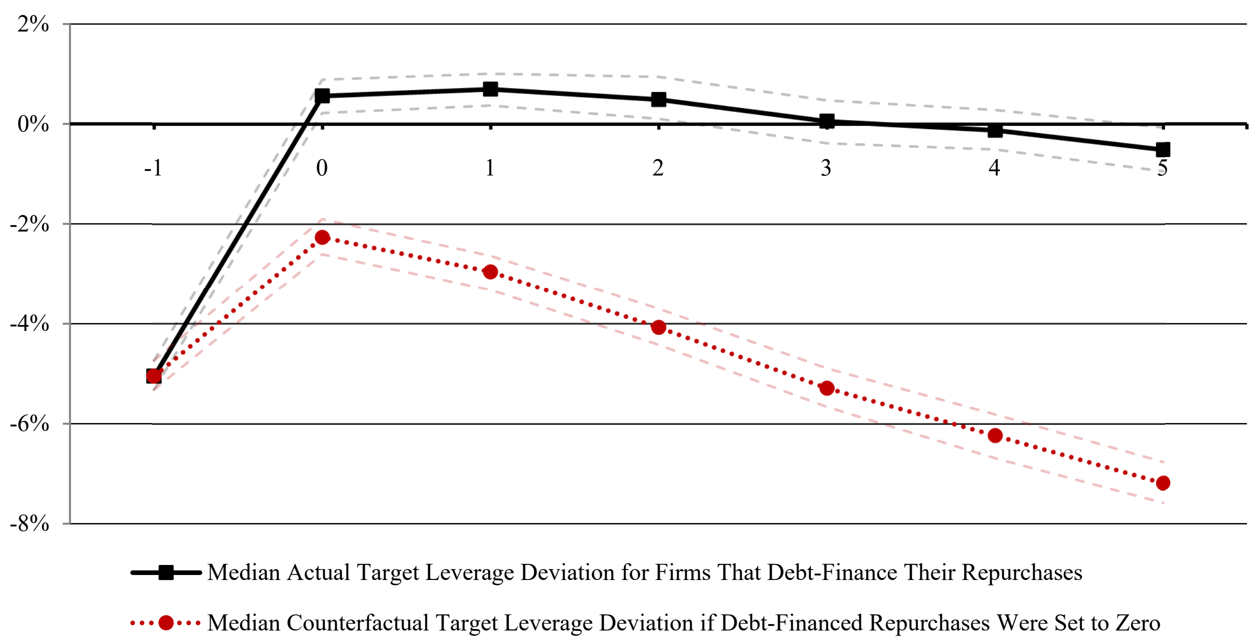
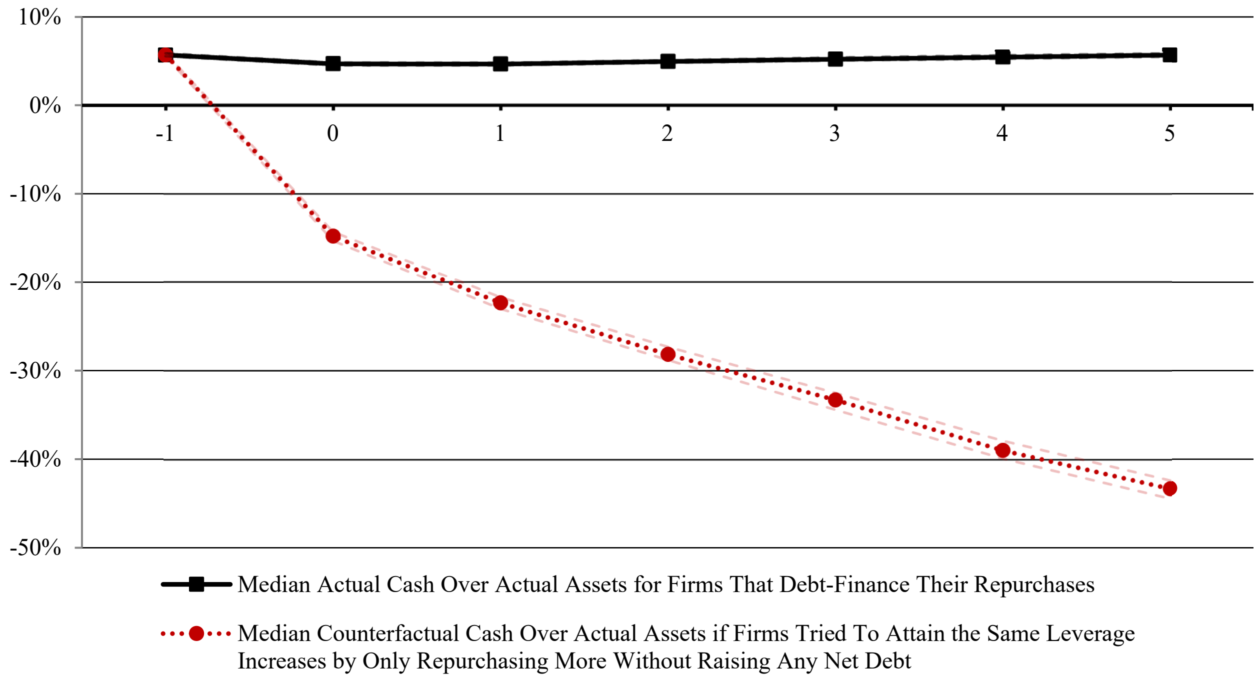
Figure 6. Quantifying the Impact of Debt-Financed Repurchases on Leverage and Cash.
This figure investigates the impact of debt-financed repurchases on firms' leverage and cash holdings. Specifically, the solid black line in Panel A shows the evolution from year $t = -1$ to year $t = 5$ of the median target leverage deviation for firms that debt-finance their repurchases in year $t = 0$; i.e., for firms for which $\min\{Rep_{it}, ND_{it}\} >> 0$ in year $t = 0$. (*ND* denotes the proceeds of net debt issues and *Rep* is the sum of share repurchases and special dividends; >> 0 means > \$100,000.) The target leverage deviation is defined as the difference between a firm's leverage and the predicted level of leverage for a firm of its size, market-to-book, profitability, asset tangibility, industry, and year. The dotted red line in Panel A shows how the same firms' median target leverage deviation would have evolved had the firms not debt-financed their repurchases in year $t = 0$ or any subsequent year. Specifically, for any firm for which $\min\{Rep_{it}, ND_{it}\} >> 0$ in year $t = 0$, we counterfactually set ND_{it} equal to $ND_{it} - \min\{Rep_{it}, ND_{it}\}$ and Rep_{it} equal to $Rep_{it} - \min\{Rep_{it}, ND_{it}\}$ for year $t = 0$ and any subsequent year $t + j$ for which $\min\{Rep_{it+j}, ND_{it+j}\} >> 0$. (This counterfactual exercise leaves total assets and cash unchanged and still allows firms to raise debt or pay out capital—it simply undoes the effect on leverage of those debt issues that are simultaneously paid out via repurchases.) The solid black line in Panel B shows the evolution of median cash-to-assets for firms that debt-finance their repurchases in year $t = 0$. The dotted red line in Panel B shows how median cash would have evolved had these firms tried to attain the same actual leverage increases shown in Panel A without raising any debt and instead making larger repurchases in year $t = 0$ as well as any subsequent year $t + j$ for which $\min\{Rep_{it+j}, ND_{it+j}\} >> 0$. Specifically, if a firm with a debt-financed repurchase $\min\{Rep_{it}, ND_{it}\} >> 0$ were to counterfactually set its net debt issues to zero, it would need to increase its repurchases to $Rep_{it} + ND_{it}\,(TA_{it} - D_{it})/D_{it}$, where TA_{it} and D_{it} are the firm's total assets and debt at the end of year *t*, respectively, to attain the same leverage increase. Doing so would lead 81.3% of firms with debt-financed repurchases to have negative cash holdings already in year $t = 0$. To facilitate the comparison of actual and counterfactual cash in Panel B, we scale both actual and counterfactual cash in year *t* by actual total assets in year *t* (scaling counterfactual cash by counterfactual assets leads to even more pronounced results). Both panels show 95% confidence intervals around each median (for actual cash in Panel B, the narrow confidence interval appears to overlap with the median).

Panel A. Target Leverage Deviation With and Without Debt-Financed Repurchases.



Panel B. Cash Holdings With and Without Debt-Financed Repurchases.



https://doi.org/10.1017/S0022109024000231 Published online by Cambridge University Press

Table 1. Financed Payouts: Simultaneous Payouts and Security Issues.

This table examines the extent to which firms finance their payouts, i.e., they pay out and raise capital during the same fiscal year. We conservatively focus only on instances in which firms proactively raise capital by considering only firm-initiated security issues (*SI*); *SI* is thus defined as the sum of the proceeds of net debt issues and firm-initiated equity issues. Columns 1-5 examine total payouts (*TP*); columns 6-9 focus on the sum of share repurchases and special dividends (*Rep*); and columns 10-13 focus on regular dividends (*Div*). All firm counts we report throughout the paper require variables to be greater than $100,000 to be considered positive.

	Total Payout (*TP*)					**Repurchases & Special Dividends (*Rep*)**				**Regular Dividends (*Div*)**			
	Firm Counts			*$ Magnitudes*		*Firm Counts*		*$ Magnitudes*		*Firm Counts*		*$ Magnitudes*	
				Ratio of Aggregate Sum of min{*TP*, *SI*} to…				Ratio of Aggregate Sum of min{*Rep*, *SI*} to…				Ratio of Aggregate Sum of min{*Div*, *SI*} to…	
Annual Figures averaged Over …	% Public Firms that pay Out Capital & Issue Securities	% *TP* Payers that Also Issue Securities	% Security Issuers that Also Pay Out Capital	Aggreg. sum of *TP*	aggreg. sum of security issues (*SI*)	% Public Firms that Repurchase or Pay Special Div. & Issue Securities	% *Rep* Firms that also Issue Securities	Aggreg. sum of *Rep*	Aggreg. Sum of Security Issues (*SI*)	% Public Firms that pay reg. Dividend & Issue Securities	% *Div* Payers that Also Issue Securities	Aggreg. sum of *Div*	Aggreg. Sum of Security Issues (*SI*)
	1	2	3	4	5	6	7	8	9	10	11	12	13
1989-1994	20.7%	46.9%	43.6%	42.2%	34.2%	11.1%	45.5%	47.6%	13.2%	16.8%	48.5%	47.2%	25.3%
1995-1999	23.0%	51.4%	42.6%	37.0%	28.3%	15.9%	50.3%	41.4%	17.1%	15.5%	54.6%	46.0%	15.9%
2000-2004	17.1%	37.3%	41.4%	28.2%	26.4%	12.3%	36.1%	27.5%	14.9%	10.4%	40.1%	39.6%	16.0%
2005-2009	18.9%	36.3%	47.8%	24.0%	40.5%	14.2%	35.2%	26.4%	29.8%	12.4%	39.9%	36.4%	20.5%
2010-2014	23.9%	39.4%	55.9%	26.0%	47.1%	19.1%	39.0%	33.9%	38.5%	15.0%	41.8%	38.9%	26.0%
2015-2019	28.4%	43.3%	58.5%	28.6%	43.3%	25.0%	43.5%	35.0%	31.9%	15.9%	44.0%	40.4%	24.0%
all years	22.0%	42.6%	48.2%	31.3%	36.6%	16.1%	41.7%	35.7%	23.9%	14.4%	44.9%	41.6%	21.4%

Table 2. Simultaneous Payouts and Security Issues: Comparing Analyses at the Quarterly and Annual Levels.

This table examines the extent to which firms pay out and raise capital during the same fiscal quarter (odd columns) and during the same fiscal year (even columns). As in Table 1, we conservatively focus only on instances in which firms proactively raise capital by considering only firm-initiated security issues (*SI*); *SI* is thus defined as the sum of the proceeds of net debt issues and firm-initiated equity issues. Columns 1-4 examine total payouts (*TP*); columns 5-8 focus on the sum of share repurchases and special dividends (*Rep*); and columns 9-12 focus on regular dividends (*Div*). The annual level results in the even columns are identical to those reported in columns 2, 4, 7, 8, 11, and 12 of Table 1; they are reproduced here to facilitate the comparison with the quarterly level results in the odd columns. Quarterly-defined financed payouts are not necessarily a subset of annually-defined financed payouts: A firm can have a financed payout in a quarter but not in the corresponding year if it has a positive net debt issue during that quarter but not during the whole year.

	Total Payout (*TP*)				**Repurchases & Special Dividends (*Rep*)**				**Regular Dividends (*Div*)**			
	% *TP* Payers that Also issue securities Within the Same		Ratio of Aggregate Sum of min{*TP*, *SI*} to aggreg. Sum of *TP* Within the Same		% *Rep* Firms that Also Issue Securities Within the Same		Ratio of Aggregate Sum of min{*Rep*, *SI*} to Aggreg. Sum of *Rep* Within the Same		% *Div* Payers that Also issue securities Within the Same		Ratio of Aggregate Sum of min{*Div*, *SI*} to Aggreg. Sum of *Div* Within the Same	
Quarterly or Annual Figures Averaged Over…	Quarter	Year	Quarter	Year	Quarter	Year	Quarter	Year	Quarter	Year	Quarter	Year
	1	2	3	4	5	6	7	8	9	10	11	12
1989-1994	38.9%	46.9%	40.8%	42.2%	39.5%	45.5%	46.2%	47.6%	39.9%	48.5%	42.8%	47.2%
1995-1999	41.2%	51.4%	38.0%	37.0%	41.3%	50.3%	42.4%	41.4%	43.3%	54.6%	43.3%	46.0%
2000-2004	30.8%	37.3%	28.3%	28.2%	30.1%	36.1%	28.1%	27.5%	33.1%	40.1%	36.2%	39.6%
2005-2009	28.6%	36.3%	24.7%	24.0%	27.9%	35.2%	26.6%	26.4%	31.8%	39.9%	31.8%	36.4%
2010-2014	28.3%	39.4%	25.8%	26.0%	28.1%	39.0%	30.1%	33.9%	30.7%	41.8%	30.4%	38.9%
2015-2019	31.3%	43.3%	27.4%	28.6%	31.8%	43.5%	31.5%	35.0%	33.3%	44.0%	34.2%	40.4%
all years	33.4%	42.6%	31.1%	31.3%	33.3%	41.7%	34.5%	35.7%	35.5%	44.9%	36.7%	41.6%

Table 3. Financed Payouts: Breaking Down the Role of Debt and Equity.

This table examines the type of security that firms issue when they pay out and raise capital during the same fiscal year. Panel A focuses on net debt issues (*ND*); Panel B examines firm-initiated equity issues (*FE*); and Panel C focuses on employee-initiated equity issues (*EE*). Recall that payouts financed via employee-initiated equity issues are *not* included in our definition of financed payouts, and so they are not included in Table 1. Columns 1-5 examine total payouts (*TP*); columns 6-9 focus on the sum of share repurchases and special dividends (*Rep*); and columns 10-13 focus on regular dividends (*Div*). To conserve space, we show annual figures averaged over all sample years (1989-2019). Table IA.1 provides a time-series breakdown analogous to Table 1.

	Total Payout (*TP*)					**Repurchases & Special Dividends (*Rep*)**				**Regular Dividends (*Div*)**			
	Firm Counts			*$ Magnitudes*		*Firm Counts*		*$ Magnitudes*		*Firm Counts*		*$ Magnitudes*	
				For *S* = *ND*, *FE*, or *EE*, Ratio of Aggregate Sum of min{*TP*, *S*} to ...				For *S* = *ND*, *FE*, or *EE*, Ratio of Aggregate Sum of min{*Rep*, *S*} to ...				For *S* = *ND*, *FE*, or *EE*, Ratio of Aggregate Sum of min{*Div*, *S*} to...	
Annual Figures Averaged Over ...	% Public Firms that Pay Out Capital & Issue Securities	% *TP* Payers that Also Issue Securities (*ND*, *FE*, or *EE*)	% Security Issuers that Also Pay Out Capital	Aggreg. Sum of *TP*	Aggreg. Sum of *S*	% Public Firms that Repurchase or Pay Special Div. & Issue Securities	% *Rep* Firms Payers that Also Issue Securities (*ND*, *FE*, or *EE*)	Aggreg. Sum of *Rep*	Aggreg. Sum of *S*	% Public Firms that pay reg. Dividend & Issue Securities	% *Div* Payers that Also Issue Securities (*ND*, *FE*, or *EE*)	Aggreg. Sum of *Div*	Aggreg. Sum of *S*
	1	2	3	4	5	6	7	8	9	10	11	12	13
Panel A. Net Debt Issues (*ND*).													
All Years	19.4%	37.9%	55.5%	29.7%	40.8%	14.3%	37.6%	34.0%	26.6%	13.1%	40.9%	40.0%	24.3%
Panel B. Firm-Initiated Equity Issues (*FE*).													
All Years	4.0%	8.0%	25.2%	2.9%	17.3%	2.4%	6.8%	3.0%	8.9%	2.3%	7.4%	3.4%	10.4%
Panel C. Employee-Enitiated Equity Issues (*EE*).													
All Years	35.3%	68.3%	56.6%	10.0%	81.4%	27.6%	71.5%	14.6%	64.8%	21.3%	66.9%	17.2%	61.6%

Table 4. Do Firms That Finance Their Payouts Have Sufficient Internal Funds To Fund Their Payouts? Analysis of Payout Gaps.

This table examines whether firms that finance their payouts have sufficient internal funds to fund their payouts or whether they have a payout gap and so they could not fund their payouts without raising external capital, all else equal. In columns 1-3, we define a firm's (one-year) total payout gap as $TPGap_{it} = \min\{\max\{TP_{it} - (FCF_{it} + CR_{it} + EE_{it}), 0\}, TP_{it}\}$, where: *TP* is total payout; *FCF* is free cash flow, the sum of operating and investment cash flow; $CR \geq 0$ is cash reduction; and *EE* denotes employee-initiated equity issues (see Internet Appendix A for details). Analogously, in columns 4-6, we define a firm's (one-year) repurchase gap as $RepGap_{it} = \min\{\max\{Rep_{it} - (FCF_{it} + CR_{it} + EE_{it} - Div_{it}), 0\}, Rep_{it}\}$, where *Rep* denotes the sum of share repurchases and special dividends and *Div* denotes regular dividends; in columns 7-9, we define a firm's (one-year) dividend gap as $DivGap_{it} = \min\{\max\{Div_{it} - (FCF_{it} + CR_{it} + EE_{it}), 0\}, Div_{it}\}$. Thus, the repurchase gap definition identifies firms whose free cash flow, cash reductions, and employee-initiated equity issues are not enough to fund repurchases after paying dividends, thereby reflecting the notion that firms prioritize the funding of dividends over share repurchases (Brav et al. (2005)). Financed payouts are defined as in Table 1.

	Total Payouts (*TP*)			**Repurchases & Special Dividends (*Rep*)**			**Regular Dividends (*Div*)**		
	Firm Counts	*$ Magnitudes*		*Firm Counts*	*$ Magnitudes*		*Firm Counts*	*$ Magnitudes*	
Annual Figures Averaged Over ...	% of All Firms Financing Their Total Payouts that Have a *TP* Gap	Ratio of *TP* Gap to Financed Total Payout, Average Across All Firms Financing Their Total Payouts	Ratio of Aggregate Sum of *TP* Gaps to Aggregate Sum of Financed Total Payouts	% of All Firms Financing Their Repurchases or spec. Div. that Have a *Rep* Gap	Ratio of *Rep* Gap to Financed Repurchase, Average Across All Firms Financing Their Repurchases	Ratio of Aggregate Sum of *Rep* Gaps to Aggregate Sum of Financed Repurchases	% of all firms financing their reg. Dividends that Have a *Div* Gap	Ratio of *Div* Gap to Financed Dividend, Average Across All Firms Financing Their Dividends	Ratio of Sum of *Div* Gaps to Aggregate Sum of Financed Dividends
	1	2	3	4	5	6	7	8	9
1989-1994	85.7%	82.0%	84.4%	86.4%	83.6%	86.7%	75.4%	70.8%	68.9%
1995-1999	89.6%	86.4%	89.3%	89.4%	86.3%	90.1%	74.7%	70.8%	61.8%
2000-2004	79.0%	75.5%	79.4%	79.5%	76.0%	79.0%	64.2%	60.6%	58.9%
2005-2009	79.1%	74.1%	76.1%	78.6%	73.7%	77.8%	55.6%	51.8%	36.8%
2010-2014	81.8%	76.1%	71.8%	81.6%	75.9%	72.9%	54.3%	50.2%	22.2%
2015-2019	85.5%	80.3%	79.0%	85.8%	81.3%	80.0%	54.9%	50.2%	36.6%
all years	83.5%	79.2%	80.1%	83.6%	79.6%	81.3%	63.6%	59.4%	48.2%

Table 5. Are Payout Gaps the Result of Short-Term Payout Smoothing? Analysis of Five-Year Payout Gaps.

This table examines whether payout gaps are the result of firms smoothing their payouts relative to their free cash flow. To that end, we define payout gaps over five-year intervals by aggregating firms' sources and uses of funds over five years, and we compare the prevalence (columns 1-6) and dollar magnitude (columns 7-12) of five-year payout gaps to those of one-year gaps. Specifically, in columns 1 and 7, we define a firm's five-year total payout gap as $TPGap_{it}^{5} = \min\{\max\{\sum_{j=0}^{4} TP_{it+j} - \sum_{j=0}^{4}(FCF_{it+j} + EE_{it+j}) - CR_{it}^{5}, 0\}, \sum_{j=0}^{4} TP_{it+j}\}$, where $CR^{5} \geq 0$ is cumulative cash reduction over the five-year interval and all other variables are defined as in Table 4. Analogously, a firm's five-year repurchase gap is defined as $RepGap_{it}^{5} = \min\left\{\max\left\{\sum_{j=0}^{4} Rep_{it+j} - \sum_{j=0}^{4}(FCF_{it+j} + EE_{it+j} - Div_{it+j}) - CR_{it}^{5}, 0\right\}, \sum_{j=0}^{4} Rep_{it+j}\right\}$ (columns 3 and 9), while its dividend gap is defined as $DivGap_{it}^{5} = \min\{\max\{\sum_{j=0}^{4} Div_{it+j} - \sum_{j=0}^{4}(FCF_{it+j} + EE_{it+j}) - CR_{it}, 0\}, \sum_{j=0}^{4} Div_{it+j}\}$ (columns 5 and 11). In column 2, for each year, we calculate the percentage of all public firms with a one-year total payout gap (defined as in Table 4) that year, and then we average those annual percentages over the five years in each five-year interval. In column 8, we calculate each year's aggregate dollar amount of one-year total payout gaps, and then we sum those annual aggregate amounts over the five years in each firm-year interval. The calculations for one-year repurchase gaps (columns 4 and 10) and one-year dividend gaps (columns 6 and 12) are analogous. The sample period begins in 1990 so that it encompasses six complete five-year intervals. When calculating one-year payout gaps, for each five-year interval, we restrict the sample to firms that remain in the sample during all five years in that interval. We do this to maintain a constant sample when comparing one-year and five-year payout gaps, as the definition of five-year gap requires data to be available for all five years in a five-year interval.

	Total Payouts		**Repurchases & Special Dividends**		**Regular Dividends**		**Total Payouts**		**Repurchases & Special Dividends**		**Regular Dividends**	
	% of all listed firms with a …						In each five-year interval, aggregate $ billion amount of …					
	Five-Year Total Payout Gap	One-Year Total Payout Gap	Five-Year Repurchase Gap	One-Year Repurchase Gap	Five-Year Dividend Gap	One-Year Dividend Gap	Five-Year Total Payout Gaps	The Sum Of One-Year Total Payout Gaps	Five-Year Repurchase Gaps	The Sum Of One-Year Repurchase Gaps	Five-Year Dividend Gaps	The Sum Of One-Year Dividend Gaps
	1	2	3	4	5	6	7	8	9	10	11	12
1990-1994	36.3%	20.4%	28.5%	10.8%	22.1%	15.1%	231.6	252.1	84.8	91.0	146.8	161.1
1995-1999	50.0%	24.6%	44.0%	17.1%	23.2%	14.5%	415.3	412.1	268.6	250.6	146.7	161.5
2000-2004	31.0%	15.2%	27.6%	11.2%	11.0%	7.8%	260.8	337.0	167.3	187.7	93.5	149.3
2005-2009	33.9%	17.3%	30.8%	13.2%	10.9%	7.7%	414.4	507.3	350.9	395.8	63.4	111.5
2010-2014	43.5%	21.1%	39.6%	17.1%	15.2%	8.9%	602.9	584.6	519.4	483.2	83.5	101.3
2015-2019	50.8%	25.9%	48.7%	23.1%	15.7%	9.4%	933.2	809.9	750.3	610.4	182.8	199.5
All intervals (average)	40.9%	20.8%	36.5%	15.4%	16.4%	10.6%	476.4	483.8	356.9	336.5	119.5	147.4

Table 6. How Persistent Are Financed Payouts?

This table examines the persistence of simultaneous payouts and security issues (i.e., financed payouts), defined as in Table 1. Columns 1-3 examine the persistence with which firms finance their total payouts (*TP*); columns 4-6 examine the persistence with which firms finance the sum of share repurchases and special dividends (*Rep*); and columns 7-9 focus on the persistence with which firms finance their regular dividends (*Div*). Specifically, for all firms with a financed payout in 1990, row 1 shows the percentage of those firms that also had financed payouts in 0-1, 2-3, or 4-5 of the following five years. Rows 2 through 5 show the same breakdowns for all firms with financed payouts in 1996, 2002, 2008, and 2014, respectively, while the last row shows the same breakdown for any firm with a financed payout in any year during our 1989-2019 sample period.

	Conditional on a firm having a financed payout in a given year, how many financed payouts does it have in the next 5 years?								
	Total Payouts (*TP*)			**Repurchases & Special Dividends (*Rep*)**			**Regular Dividends (*Div*)**		
	0-1 Fin. Payouts	2-3 Fin. Payouts	4-5 Fin. Payouts	0-1 Fin. Payouts	2-3 Fin. Payouts	4-5 Fin. Payouts	0-1 Fin. Payouts	2-3 Fin. Payouts	4-5 fin. Payouts
	1	2	3	4	5	6	7	8	9
1990	34.3%	44.3%	21.4%	63.8%	28.1%	8.1%	30.7%	45.9%	23.4%
1996	28.4%	50.3%	21.3%	39.4%	43.7%	16.9%	26.3%	50.3%	23.4%
2002	45.5%	37.2%	17.3%	58.4%	29.2%	12.4%	35.9%	44.2%	19.8%
2008	41.0%	46.7%	12.2%	52.9%	38.3%	8.8%	37.0%	49.5%	13.5%
2014	28.3%	44.8%	26.9%	29.6%	45.5%	24.9%	28.8%	46.2%	25.0%
all years	35.9%	44.8%	19.3%	48.7%	38.3%	13.1%	31.4%	47.0%	21.5%

Table 7. Characteristics of Firms That Finance Their Payouts With Debt.
This table examines the characteristics of firms with debt-financed and internally funded payouts. In column 1, we estimate a probit model within the full sample of public firms where the dependent variable is an indicator set equal to one if the firm conducts a debt-financed repurchase (i.e., if min$\{Rep_{it}$, $Net\ debt\ issues_{it}\}$ > \$100,000, where *Rep* denotes the sum of share repurchases and special dividends). Column 3 reports the results of an analogous probit model for debt-financed regular dividends. In columns 2 and 4, we estimate analogous probit models where the dependent variable identifies firms with internally funded repurchases or special dividends (in column 2) or internally funded regular dividends (in column 4). We define a payout as internally funded if it is not debt-financed. Thus, our measure of internally funded payouts includes payouts that are financed via firm-initiated equity issues (which are rare, see Table 3) or employee-initiated equity issues (consistent with our treatment of these issues when analyzing payout gaps). All independent variables are defined in Internet Appendix A, and they are lagged (thus, for stock variables such as size, they are measured as of the end of the prior fiscal year or, equivalently, as of the beginning of the current one). The control variables also include indicators for a firm's (lagged) sales growth tercile; we exclude the high sales growth tercile indicator to avoid multi-collinearity. All columns include industry (three-digit SIC) and year fixed effects. For ease of interpretation, we report conditional marginal effects evaluated at the means of the independent variables. Robust standard errors clustered at the firm level are shown in italics beneath the coefficient estimates. ***, **, and * denote significance at the 1%, 5%, and 10% level (two-sided), respectively.

Dependent variable:	**Debt-Financed Repurchase?**	**Internally Funded Repurchase?**	**Debt-Financed Dividend?**	**Internally Funded Dividend?**
	1	2	3	4
Firm size (end of prior year)	0.030***	0.037***	0.029***	0.033***
	0.001	*0.002*	*0.001*	*0.002*
Investment-grade rating (end of prior year)	0.030***	-0.024***	0.048***	0.040***
	0.005	*0.007*	*0.006*	*0.009*
Operating cash flow (lagged)	0.166***	0.490***	0.104***	0.321***
	0.015	*0.019*	*0.014*	*0.024*
Market-to-book (end of prior year)	0.006***	-0.008***	0.007***	0.001
	0.001	*0.002*	*0.001*	*0.002*
Low sales growth (lagged)	-0.011***	0.046***	0.003	0.066***
	0.003	*0.004*	*0.003*	*0.004*
Medium sales growth (lagged)	0.019***	0.053***	0.026***	0.060***
	0.003	*0.004*	*0.003*	*0.004*
Leverage (end of prior year)	-0.095***	-0.189***	-0.095***	-0.164***
	0.008	*0.012*	*0.008*	*0.014*
Cash (end of prior year)	-0.230***	0.292***	-0.264***	0.022
	0.012	*0.013*	*0.013*	*0.017*
No. observations	94,369	94,374	94,176	94,198
No. firms	10,067	10,074	10,050	10,046
% observations with dependent variable = 1	14.9%	24.3%	14.2%	20.0%

Table 8. Characteristics of Firms That Persistently Finance Their Payouts With Debt.
This table examines the characteristics of firms that persistently finance their payouts with debt. The sample in columns 1-2 consists of all firm-years with debt-financed repurchases (defined as in Table 7) in year t and for which we can observe their payout financing behavior over the following five years (t + 1 through t + 5). The dependent variable is then the number of debt-financed repurchases that these firms have over the following five years. Analogously, the sample in columns 3-4 consists of all firm-years with debt-financed dividends (defined as in Table 7) and for which we can observe their payout financing behavior over the following five years. The dependent variable in this case is the number of debt-financed dividends that these firms have over the following five years. In columns 1 and 3, we estimate OLS regressions. Note however that the dependent variables take values 0, 1, 2, 3, 4, and 5. As a result, in columns 2 and 4, we also estimate generalized linear binomial (n = 5) models with logit as the canonical link function. All independent variables are defined in Internet Appendix A, and they are measured as of year t. All columns include industry (three-digit SIC) and year fixed effects. For ease of interpretation, columns 2 and 4 report conditional marginal effects evaluated at the means of the independent variables. Robust standard errors clustered at the firm level are shown in italics beneath the coefficient estimates. ***, **, and * denote significance at the 1%, 5%, and 10% level (two-sided), respectively.

Dependent variable:	**# Debt-Financed Repurchases in Next 5 Years**		**# debt-financed Dividends in Next 5 Years**	
Model:	OLS	GLM Binomial	OLS	GLM Binomial
	1	2	3	4
Firm size	0.177***	0.198***	0.142***	0.154***
	0.015	*0.016*	*0.018*	*0.019*
Investment-grade rating	0.078	0.041	0.139**	0.127**
	0.058	*0.060*	*0.060*	*0.063*
Operating cash flow	1.543***	2.313***	1.828***	2.445***
	0.177	*0.257*	*0.223*	*0.295*
Market-to-book	0.147***	0.133***	0.141***	0.136***
	0.020	*0.022*	*0.023*	*0.026*
Leverage	-0.776***	-0.828***	-0.676***	-0.719***
	0.125	*0.137*	*0.138*	*0.150*
Cash	-0.879***	-1.093***	-1.372***	-1.639***
	0.187	*0.231*	*0.233*	*0.276*
Low sales growth	-0.166***	-0.210***	-0.234***	-0.260***
	0.041	*0.045*	*0.044*	*0.047*
Medium sales growth	0.084**	0.074*	0.037	0.030
	0.037	*0.040*	*0.038*	*0.040*
No. observations	8,745	8,745	9,101	9,101
No. firms	2,559	2,559	1,959	1,959
Mean of dependent variable	1.72	1.72	2.17	2.17

https://doi.org/10.1017/S0022109024000231 Published online by Cambridge University Press

Table 9. Do Firms Use Debt-Financed Payouts To Increase Their Leverage in Response to State-Level Tax Increases?

This table examines whether firms use debt-financed payouts to increase their leverage in response to increases in state corporate income taxes in their headquarter state. Following Heider and Ljungqvist (2015), our identification strategy relies on a difference-in-differences approach in first differences that exploits the staggered nature of state corporate income tax increases. In columns 1 and 3, the dependent variable is an indicator set equal to one for firms that conduct a debt-financed repurchase or special dividend (defined as in column 1 of Table 7); in columns 2 and 4, the dependent variable is an indicator set equal to one for firms with a debt-financed regular dividend (defined as in column 3 of Table 7). For each firm-year, the variable *Tax increase at* t−1 *(in %)* measures corporate income tax increases in the firm's headquarter state that took effect during the prior year (like Heider and Ljungqvist (2015), we allow firms to respond to tax changes with a one-year lag); specifically, this variable equals zero if the state did not enact a corporate income tax increase, it equals 0.01 if it enacted a one percentage point tax increase, etc. The remaining independent variables follow Heider and Ljungqvist (2015) and are defined in Internet Appendix A. The sample in columns 1 and 2 includes all public firms except those with zero after-interest-deduction marginal corporate income tax rate in year $t-1$ (according to Graham's (1996) estimates, updated in his website), as only firms with profits to shield from tax have incentives to increase their leverage when taxes increase. In columns 3 and 4, we report the results of placebo tests that include only those firms with zero after-interest-deduction marginal tax rate in year $t-1$. In all columns, we estimate probit models with industry (three-digit SIC) and year fixed effects. For ease of interpretation, we report conditional marginal effects evaluated at the means of the independent variables. Robust standard errors clustered at the state level are shown in italics beneath the coefficient estimates. ***, **, and * denote significance at the 1%, 5%, and 10% level (two-sided), respectively.

Dependent variable:	**Debt-Financed Repurchase?**	**Debt-Financed Dividend?**	**Debt-Financed Repurchase?**	**Debt-Financed Dividend?**
Effective marginal tax rate at t−1:	Positive		Zero (placebo)	
	1	2	3	4
Tax increase at t−1 (in %)	0.785***	0.726	-4.943*	-0.761
	0.295	*0.608*	*2.539*	*0.491*
Lagged change in …				
ROA	0.048***	0.030***	0.006	-0.001
	0.009	*0.005*	*0.009*	*0.011*
firm size	0.018***	0.007*	0.022***	0.034***
	0.004	*0.003*	*0.005*	*0.010*
tangibility	0.061***	0.071***	0.039	0.022
	0.023	*0.020*	*0.025*	*0.028*
market-to-book	0.006***	0.009***	0.002	0.004***
	0.001	*0.001*	*0.001*	*0.001*
default spread	-1.710***	-0.816*	-0.009	1.168
	0.540	*0.489*	*1.507*	*1.617*
GSP growth rate	0.003	0.025	0.074	-0.041
	0.081	*0.041*	*0.127*	*0.127*
state unemployment rate	-0.205	-0.160	0.353	0.591*
	0.197	*0.193*	*0.415*	*0.335*
No. observations	86,972	86,770	6,621	6,652
No. firms	9,671	9,653	3,121	3,118
% observations with dep. var. = 1	15.8%	14.8%	4.3%	5.8%

Table 10. Did the Tax Cuts and Jobs Act of 2017 Decrease Firms' Use of Debt-Financed Payouts To Avoid Paying Repatriation Taxes?

This table uses a diff-in-diff approach to examine whether the Tax Cuts and Jobs Act of 2017 (TCJA) decreased firms' reliance on debt-financed payouts as a tool to avoid paying repatriation taxes. In columns 1 and 3, the dependent variable is an indicator set equal to one for firms that conduct a debt-financed repurchase or special dividend (defined as in column 1 of Table 7); in columns 2 and 4, the dependent variable is an indicator that identifies firms with an internally funded repurchase or special dividend (defined as in column 2 of Table 7). In columns 1 and 2, the sample focuses on a four-year window around 2018 (the year the TCJA became effective), with the *Post TJCA* indicator set equal to one for years 2018-2019, and to zero for years 2016-2017. Columns 3 and 4 report an analogous placebo analysis over the 2014-2017 window, with the *Post 2015* indicator set equal to one for years 2016-2017, and to zero for years 2014-2015. Columns 5-8 present analogous results for regular dividends, with debt-financed and internally funded regular dividends defined as in columns 3 and 4 of Table 7, respectively. All columns include all the same controls as Table 7: firm size, an indicator for firms with an investment-grade rating, operating cash flow, market-to-book, leverage, cash, and sales growth tercile. We do not report their coefficient estimates here for brevity; instead, we show them in Table IA.5. All independent variables are described in Internet Appendix A. In all columns, we estimate probit models in the full sample of public firms with industry (three-digit SIC) and year fixed effects (the year fixed effects subsume the non-interacted *Post TCJA* and *Post 2015* indicators). For ease of interpretation, we report conditional marginal effects evaluated at the means of the independent variables. Robust standard errors clustered at the firm level are shown in italics beneath the coefficient estimates. ***, **, and * denote significance at the 1%, 5%, and 10% level (two-sided), respectively.

Dependent variable:	Debt-Financed	Internally Funded	Debt-Financed	Internally Funded	Debt-Financed	Internally Funded	Debt-Financed	Internally Funded
	… Repurchase?		… Repurchase?		… Dividend?		… Dividend?	
Sample period:	2016 - 2019		2014 - 2017 (placebo)		2016 - 2019		2014 - 2017 (placebo)	
	1	2	3	4	5	6	7	8
Tax cost of repatriating earnings (lagged)	5.458***	-5.056***	5.460***	-3.486**	3.386***	-3.325***	3.779***	-2.054*
	1.009	*1.380*	*0.905*	*1.420*	*0.636*	*1.179*	*0.663*	*1.098*
Tax cost repatriating (lagged) × Post TCJA	-4.302***	4.802***			-2.692***	3.033***		
	1.119	*1.545*			*0.721*	*1.087*		
Tax cost repatriating (lagged) × Post 2015			-0.436	-1.855			0.424	-0.628
			1.136	*1.606*			*0.742*	*1.078*
Additional controls from Table 7	yes	yes	yes	yes	yes	yes	yes	yes
No. observations	8,568	8,644	8,781	8,833	8,360	8,569	8,635	8,781
No. firms	2,605	2,628	2,709	2,721	2,541	2,604	2,666	2,703
% observations with dependent var. = 1	24.4%	39.3%	24.7%	34.1%	16.7%	24.0%	18.6%	22.9%
χ^2 test: Tax cost repatriating + Tax cost repatriating × Post TCJA = 0 (*p* value)	0.183	0.835	0.000***	0.000***	0.206	0.730	0.000***	0.019**

Table 11. Market Reaction to Payout Announcements: Does the Source of Payout Funding Matter?

This table analyzes whether the market reaction to payout announcements depends on the source of payout financing. The dependent variable in all columns is the three-day cumulative return over the value-weighted market return around the payout announcement date (in percentage points). Columns 1-2 examine share repurchase announcements, columns 3-4 focus on quarterly dividend increase announcements, and columns 5-6 examine quarterly dividend cut announcements; we focus on announcements taking place between 1989 and 2020. Data on share repurchase announcements come from SDC Platinum. In order to capture meaningful transactions, we focus on announcements where the value of repurchased shares is at least $10 million. Data on dividend change announcements come from CRSP. We follow Michaely, Rossi, and Weber (2021) in screening dividend change announcements and in focusing on dividend increases and cuts in the (12.5%, 500%) and (−100%, −12.5%) range, respectively. By construction, all firms announcing a dividend change paid a dividend the prior year, and thus we omit the *Dividend last year?* indicator from columns 3 and 5. All columns include all the same controls as Table 7 (firm size, an indicator for firms with an investment-grade rating, operating cash flow, market-to-book, leverage, cash, and sales growth tercile), measured as of the end of the fiscal year immediately preceding the payout announcement. We do not report their coefficient estimates here for brevity; instead, we show them in Table IA.7. All independent variables are described in Internet Appendix A. In all columns, we estimate OLS regressions with industry (three-digit SIC) and announcement year fixed effects. Robust standard errors clustered at both the firm and announcement quarter level are shown in italics beneath the coefficient estimates. ***, **, and * denote significance at the 1%, 5%, and 10% level (two-sided), respectively.

Dependent variable:	**3-day CAR (in percentage points) Around Payout Announcement Date**					
Sample:	Share Repurchase Announcements		Dividend Increase Announcements		Dividend Cut Announcements	
	1	2	3	4	5	6
Repurchase last year?	-0.688***					
	0.209					
Debt-financed repurchase last year?	-0.121					
	0.192					
Debt-financed dividend last year?			-0.139		-1.274	
			0.164		*0.849*	
Fraction last 5 years with repurchases		-0.147				
		0.357				
Fraction last 5 years with dividends				-0.213		7.519*
				0.319		*4.217*
Fraction last 5 years with debt-financed repurchases		-0.863**				
		0.413				
Fraction last 5 years with debt-financed dividends				-0.712*		4.489**
				0.383		*2.147*
Log(size repurchase announced)	0.258***	0.410***				
	0.088	*0.091*				
Log(|size dividend change announced|)			0.679***	0.738***	-3.334***	-4.163***
			0.135	*0.151*	*0.900*	*1.075*
Additional controls from Table 7	yes	yes	yes	yes	yes	yes
No. observations	9,931	7,482	4,977	4,013	693	511
No. firms	3,151	2,331	1,349	1,097	479	347
Mean of dependent variable	1.52%	1.52%	1.08%	1.00%	-3.06%	-2.91%