Financing Payouts * †

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Abstract

We study the extent to which firms rely on the capital markets to fund their payouts. We find that 42% of firms that pay out capital also initiate debt or equity issues in the same year, resulting in 32% of aggregate payouts being externally financed. Most firms with simultaneous payouts and security issues do not generate enough operating cash flow to fund both their investment and payouts without the proceeds of these issues. Firms devote more external capital to finance their share repurchases than to avoid regular dividend cuts. Debt is the main source of capital used to externally finance payouts, particularly when credit market conditions are favorable. Firms' desire to jointly manage their capital structure and liquidity policies—for tax or agency reasons—appears to be a key driver of their decision to simultaneously raise and pay out capital.

Key words: Payout policy, financing decisions, debt issues, equity issues, capital structure.

JEL classification: G35; G32.

The payout literature has long argued that payouts are primarily funded with internal funds. For instance, DeAngelo, DeAngelo, and Skinner's (2008) influential review accurately summarizes the state of the literature by noting that "the available evidence […] supports the view that the need to distribute FCF [free cash flow] is a first-order determinant of the overall value and timing of payouts" (pp. 97-98). Accordingly, Ross, Westerfield, and Jaffe (2013) write in their corporate finance textbook that "a firm should begin making distributions when it generates sufficient internal cash flow to fund its investment needs now and into the foreseeable future," advising managers to set payouts "low enough to avoid expensive future external financing" (payout chapter, pp. 607-608).

At the same time, Fama and French (2005) and Grullon et al. (2011) show that firms often issue equity (much of it to employees) and make payouts to shareholders in the same year. What is more, tradeoff theories of capital structure predict that firms should actively counteract unexpected decreases in leverage by, for instance, issuing debt to finance dividends or repurchase equity. Examples of such leveraged recapitalizations have been documented in the academic literature (e.g., Denis and Denis 1993; Wruck 1994), discussed in the press,[1] and are even prominently featured in the same textbook that prescribes that payouts should be funded with internal funds (Ross et al., capital structure chapter, pp. 495-496). Of course, firms that issue equity or debt while simultaneously paying out capital can pay out more than their free cash flow—and they can do so over prolonged periods of time. This fact points to a possible disconnect between the payout literature view of payouts as being primarily funded with free cash flow and the possibility that firms can finance their payouts by raising external capital. No paper to date, however, has analyzed the extent to which firms rely on the capital markets to finance their payouts, how pervasive or persistent this phenomenon is, or what its motivations are.

The goal of this paper is to shed light on these questions by conducting the first systematic study of how firms fund their payouts and, in particular, of the role that the debt and equity markets play in

[1] For instance, see "Buybacks jump as companies borrow for stock purchases" (*Bloomberg*, September 20, 2010); "Bondholders pay price of share buybacks" (*Financial Times*, February 26, 2014); "The new bond market: Debt investors wary as offerings fuel buybacks" (*The Wall Street Journal*, September 21, 2015).

financing payouts. We find that on average during our 1989-2012 sample period, 42% of payout payers initiate a net debt or an equity issue during the same year they pay out. In addition to being widespread, simultaneous payouts and security issues (henceforth, "financed payouts") are substantial in dollar magnitude: 32% of the aggregate capital paid out by public U.S. firms is raised by the same payers during the same year they pay out via net debt or firm-initiated equity issues.[2]

Crucially, the above figures do *not* include payouts that are financed via employee-initiated equity issues, which, as Fama and French (2005) note, have become ubiquitous in recent years: Since 2001, on average 78% of each year's payout payers have had a simultaneous employee-initiated equity issue, typically the result of stock option exercises. Given that we focus on understanding whether and why firms choose to finance their payouts in the capital markets, we will exclude from most analyses in this paper payouts financed by employees. This different focus distinguishes our findings from those reported by Fama and French.

We find that firms devote a larger fraction of the capital they raise to financing their *discretionary* payouts (i.e., the sum of their share repurchases, special dividends, and regular dividend increases) than their *non-discretionary* payouts (those required to avoid regular-dividend cuts): On average over our sample period, 23% of the aggregate proceeds of firm-initiated security issues are simultaneously paid out via discretionary payouts (and as much as 35% since 2005), whereas 19% are simultaneously paid out via non-discretionary payouts (20% since 2005). Therefore, although the aversion to cutting dividends (Lintner 1956) likely helps explain why some firms simultaneously raise and pay out capital, this aversion cannot explain the majority of financed payouts, which predominantly take the form of share repurchases.

The vast majority of firms with simultaneous payouts and firm-initiated security issues do not generate enough operating cash flow to fund their investment and payouts without the proceeds of these issues: 41% of all payout payers—and also 41% of all discretionary payers—set their payouts

[2] Much of the proceeds of gross debt issues are used to roll over prior debt. Our conservative focus on *net* debt issues (i.e., debt issues net of debt repurchases) allows us to capture those proceeds that firms can use to fund investment, cash-flow shortfalls, or—as it turns out—payouts.

above their free cash flow, even after we conservatively count cash reductions and the proceeds of employee-initiated equity issues as part of a firm's free cash flow. When we aggregate firms' cash flows over four-year intervals, both fractions *increase* to 50%, which suggests that firms persistently rely on external funds to finance their payouts. We find that the fraction of payout-to-free-cash-flow gaps that are the result of unusually low profits is around 20%; most financed payouts are thus not the result of underperforming firms that continue paying out. Investment spikes play a more important—but by no means the only—role in driving payout gaps: up to 40% of both the instances and dollar magnitude of gaps correspond to firms with unusually high investment.

The importance of investment spikes in driving payout gaps raises the following question: What fraction of gaps are attributable to firms that would have to raise capital to fund their investments (or cover their losses) even if they did not pay out? Such firms, which would have to pay the fixed costs associated with raising capital regardless of their payout level, average 67% of firms with a gap over our sample period, and less than 60% in recent years. Importantly, though, we show that the additional capital these firms raise to finance their payouts is substantial, representing over a quarter of their total funding need.

Even when fixed costs are excluded, raising so much capital and simultaneously paying it back can be costly. These costs include underwriting and other direct issuance expenses (Altinkilic and Hansen 2000), as well as asymmetric-information discounts on newly issued securities and deadweight bankruptcy costs (Myers and Majluf 1984; Hennessy and Whited 2007). In fact, most firms that finance their discretionary payouts do not have an investment-grade credit rating nor are they in the top size quartile, which suggests that their financing costs can be substantial. Their managers must thus perceive sizeable benefits in following a policy of financing payouts.

To shed further light on these benefits, we analyze the extent to which firms initiate debt or equity issues to finance their payouts, a choice with obvious implications for the firms' leverage. Debt is by far the most important source of payout financing: close to 33% of aggregate discretionary payouts are financed via simultaneous net debt issues. Conversely, each year debt issuers pay out on average 25% of that year's aggregate net debt proceeds via discretionary payouts—and 39% if non-discretionary payouts are also included. By contrast, firm-initiated equity issues finance only 3% of both total and discretionary payouts, which indicates that equity is not an important source of payout financing once employee-initiated issues are excluded. However, when firms do initiate equity issues, they pay out a non-negligible 10% of the proceeds via discretionary payouts the same year of the issuance (19% via total payouts).

The fact that debt is the dominant source of payout financing points to leverage increases as the reason for many of these actions. But if firms want to increase their leverage, why do they choose to combine payouts with (potentially costly) debt issues instead of simply using payouts? A unique feature of debt-financed payouts is that they allow firms to quickly increase their leverage without depleting their cash reserves (or without triggering repatriation taxes). Consistent with the notion that firms' desire to manage their capital structure while maintaining their level of cash is a key driver of debt-financed payouts, those firms that finance their discretionary payouts with debt—but not with equity—tend to have lower leverage than their industry peers. Debt-financed payouts play an important role in increasing the firms' leverage: We find that, without those debt-issuance proceeds that they simultaneously pay out, the leverage of firms conducting a debt-financed payout in a given year would be on average 3.3 percentage points below the target leverage for a firm of their size and industry five years later. In addition, we show that such firms tend to have low cash holdings, which they are able to avoid further depleting by combining payouts with debt issues. What is more, our counterfactual analysis reveals that only 16% of firms with a debt-financed payout have enough cash to attain the same leverage increase by paying out more without simultaneously raising debt.[3]

Further supporting capital-structure motives, we show that firms use debt-financed discretionary payouts to increase their leverage when the value of interest tax deductions increases exogenously.

[3] Hovakimian, Opler, and Titman (2001) and Lie (2002) show that firms with low levels of leverage use share repurchases to move toward their leverage targets. Our results go one step further, showing that firms combine simultaneous debt issues and share repurchases to accelerate the move toward their target leverage without exhausting their cash reserves.

We exploit staggered changes in state corporate income taxes as plausibly exogenous shocks to the value of interest tax deductions, following Heider and Ljungqvist's (2015) difference-in-differences approach. We find that, following a tax increase in a firm's headquarter state, the likelihood that the firm simultaneously raises debt and pays out capital experiences a 14% increase relative to its unconditional probability. By simultaneously paying out the debt-issuance proceeds, firms can ensure that the tax savings associated with the new interest payments are not offset by the taxable interest income that would be generated if they retained the debt proceeds as cash.

In addition to tax considerations, another reason why firms may jointly manage their capital structure and cash holdings using debt-financed payouts is to mitigate agency problems (e.g., Grossman and Hart 1982; Stulz 1990). We find that firms without a strong institutional investor presence are more likely to debt-finance their payouts. To the extent that institutional investors can be seen as limiting managerial discretion (e.g., Harford, Mansi, and Maxwell 2008), these findings suggest that externally financed payouts can substitute for other governance mechanisms, in the spirit of Zwiebel's (1996) model.

We also investigate the hypothesis that the decision to simultaneously raise and pay out capital may be the result of managers' attempts to engage in equity market timing. We find some support for this hypothesis: Firms with high idiosyncratic volatility of stock returns, whose managers have more opportunities to engage in market timing to exploit equity misvaluation (Warusawitharana and Whited 2016), are more likely to issue and repurchase shares in the same year.

We also show that firms are more likely to debt-finance their payouts in expansionary times, when credit-market sentiment tends to be elevated and debt is more likely to be overvalued (Gilchrist and Zakrajsek 2012; Lopez-Salido, Stein, and Zakrajsek 2016). This result is consistent with Ma (2016), who argues that firms may engage in cross-market arbitrage by simultaneously issuing debt and repurchasing equity (or vice versa). This motive could operate on its own; but it could also act in conjunction with firms' desire to jointly manage their cash and capital structure, helping determine the timing of when firms conduct the debt-financed repurchases needed to attain their target leverage.

In addition, we find suggestive evidence that firms' decisions to debt-finance their discretionary payouts can be fueled by government debt-market policies. Debt-financed payouts tend to be lower when the government bond supply is high, consistent with the notion that government borrowing can crowd out corporate borrowing (Graham, Leary, and Roberts 2014). Conversely, our analyses indicate that the Federal Reserve's quantitative easing (QE) program was associated with an increase in debt-financed payouts beyond the level expected given the macroeconomic and fiscal conditions prevailing at the time of the program, as hypothesized by Stein (2012)—though we stop short of drawing causal inferences from these findings. By contrast, even though activist hedge funds have been shown to trigger some payout increases (Brav et al. 2008), they do not appear to be a significant driver of debt-financed payouts.

These findings contribute to the literature in three ways. First, this paper is the first to systematically analyze how firms fund their payouts. The vast literature on payout policy has investigated in detail the determinants of the form of payouts (dividends or repurchases), their motivations, and the effect that payout decisions have on equity returns. (See DeAngelo et al. (2008), and Farre-Mensa, Michaely, and Schmalz (2014) for recent reviews.) Yet, despite the high interest in payout policy, no paper to date has systematically examined how payouts are actually funded and, in particular, the extent to which firms rely on the capital markets to fund their payouts. In apparent contradiction to the view portrayed in popular corporate finance textbooks (e.g., Berk and DeMarzo 2011; Ross et al. 2013), we find that external capital is a substantial source of payout funding.

To be sure, we are not the first to show that firms sometimes raise external funds that they simultaneously pay out. Prominent examples are Denis and Denis (1993), who investigate 39 leveraged recapitalizations, and Wruck (1994), who examines Sealed Air Corporation's leveraged special dividend; also related is Frank and Goyal's (2003) finding of a positive relation between net debt issues and dividends. On the equity side, Fama and French (2005) and Grullon et al. (2011) find that firms often simultaneously raise and pay out equity—though, as noted above, their results are largely driven by employee-initiated equity issues, while we focus on payouts financed with firm-initiated issues. Our paper's key contribution is to provide the first quantification of the role that the debt and equity markets play in financing payouts. In particular, our findings that 32% of aggregate payouts are simultaneously raised in the capital markets—primarily through debt—and, conversely, that firms pay out 35% of the capital they raise—mostly via discretionary payouts—reveal that many firms do not heed the textbook advice of setting payouts "low enough to avoid expensive future external financing." To the contrary, 41% of payout payers appear to set their payout policies such that they can only sustain them with external funds (or, alternatively, with investment cuts).

Second, the large frequency and magnitude of externally financed payouts have direct implications for our understanding of the drivers of firms' payout and capital structure policies. We show that firms use simultaneous payouts and security issues to jointly manage their leverage and cash in a way that most firms would be unable to replicate by using payouts (or issuances) alone, thus suggesting that capital-structure changes are not a by-product but a key objective of payout policy. In particular, our findings support the notion that financed payouts are motivated by both tax and agency considerations, in line with trade-off theories of capital structure. By contrast, the evidence does not support Myers' (1984) 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" (p. 589).

Third, our paper relates to the on-going policy debate regarding the effects of monetary policy on corporate behavior. Several commentators have expressed concern that the recent boom in share repurchases has been fueled by the Federal Reserve's accommodative monetary policy and, in particular, by the QE program, which may induce firms to prioritize payouts over investment.[4] Although identifying the causal effects of monetary policy is beyond the scope of this paper, we do

[4] For instance, writing in the *Wall Street Journal*, Michael Spence and Kevin Warsh opine that "The Fed has hurt business investment—QE is partly to blame for record share buybacks and meager capital spending" (October 26, 2015). See also "Fed's low rates may be juicing stock buybacks at the expense of jobs" (*MarketWatch*, December 18, 2013) or "Why aren't low rates working? Blame dividends" (*Wall Street Journal*, June 5, 2016).

find evidence consistent with the notion that debt-financed discretionary payouts are higher when credit and term spreads are low and credit-market sentiment is elevated.

1. Aggregate Payout and Capital Raising Activity

1.1 Sample selection

Our sample consists of all public U.S. firms that appear in the Compustat-CRSP merged files from 1989 to 2012.[5] 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 10,198 unique firms and 86,609 firm-year observations for which all variables required for our analyses are available.

1.2 Non-discretionary and discretionary payouts

The literature has shown that firms tend to avoid cutting their regular dividends (e.g., Lintner 1956; DeAngelo et al. 2008); by contrast, share repurchases, special dividends, as well as regular-dividend increases are seen as more flexible, and so managers enjoy greater discretion in deciding whether to pay them (Jagannathan, Stephens, and Weisbach 2000; Brav et al. 2005). As a result, the reasons why firms finance their non-discretionary and discretionary payouts may be different. To be able to study these reasons separately, throughout the paper we break down a firm's total payout (the sum of dividends and share repurchases) in two components: the *non-discretionary* component, defined as the minimum of a firm's regular dividend and its prior-year regular dividend; and the *discretionary* component, defined as the sum of the firm's regular-dividend increases, special dividends, and share repurchases.[6]

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[5] The sample starts in 1989 because it is the first full year for which data from the statement of cash flow were standardized following the adoption of the Statement of Financial Accounting Standards 95.

[6] Share repurchases are, by far, the largest component of discretionary payouts: in the average sample year, they account for 89.6% of all aggregate discretionary payouts. Conversely, non-discretionary payouts are the largest component of total dividends: in our average sample year, non-discretionary payouts account for 87.6% of aggregate dividends. Throughout the paper, we obtain very similar results if instead of breaking down total payouts into their discretionary and non-discretionary components, we simply break them out in dividends and share repurchases.

1.3 Aggregate payout and capital raising activity

We start by briefly describing the aggregate payout and capital-raising activities of industrial public U.S. firms during our sample period. Figure 1 shows that both the percentage of firms with positive total payout and the dollar amount paid out have increased substantially. (All dollar figures reported in the paper are in real dollars of year 2012 purchasing power.) This increase has largely been driven by discretionary payouts—specifically, by share repurchases, which have been the most important payout vehicle since 1997 (except in 2009). As expected, Figure 1 also shows that discretionary payouts have been much more volatile and procyclical than their non-discretionary counterparts throughout our sample period.[7]

Figure 2 shows that net debt issues, defined as the difference between the amount of debt issued and the amount retired if this difference is positive, and zero otherwise, have been by far the most important source of external funds for public U.S. firms. On the equity side, we 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 when employees exercise their stock options (McKeon 2015).[8] An important conceptual difference exists between the two: firms determine the timing of debt and firm-initiated equity issues, whereas they do not directly control the timing of option exercises. Thus, throughout the paper, we distinguish between instances in which firms *actively* raise capital by initiating debt or equity issues, and instances in which the firms' employees trigger the capital-raising events. Figure 2 indicates that employee-initiated issues have become increasingly prevalent and are now an important—though perhaps unintended—source of capital for public U.S. firms.

As Figures 1 and 2 show, aggregate payout and capital-raising activities are both procyclical and have similar aggregate dollar magnitudes. Of course, these patterns do not imply that payouts and

[7] A number of recent papers have analyzed these patterns (see Farre-Mensa et al. (2014) for a review).

[8] 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 those issues whose proceeds can be used to fund payouts.

issuances are in any way related at the firm level: firms that pay out and those that raise capital may be different firms that are at different stages of their life cycles, as standard lifecycle theories predict (e.g., Grullon, Michaely, and Swaminathan 2002; DeAngelo, DeAngelo, and Stulz 2006). The next section examines simultaneous payout and issuance decisions *by the same firm*, in contrast to the aggregate statistics presented so far.

2. Simultaneous Payouts and Security Issues

In this section, we investigate how often the same firm pays out and raises capital during the same fiscal year (for brevity, we will refer to payouts and security issues that take place during the same year as "simultaneous"). Section 2.1 first examines the prevalence and economic magnitude of simultaneous payouts and security issues. We then analyze how our findings change if we focus only on *actively* issued securities, thus excluding equity issues that are the result of employee stock option exercises. Section 2.2 further disaggregates the securities that are issued simultaneously with payouts into net debt issues, firm-initiated equity issues, and employee-initiated equity issues.

2.1 All security issues vs. firm-initiated security issues

Columns 1-3 in Table 1, Panel A report the number of firms that pay out and raise capital in the same year, presented as a fraction of the whole population of public firms (column 1), the population of firms that pay out capital (column 2), and the population of firms that raise capital (column 3). (In Table 1 and all other tables in the paper, we report annual figures averaged over four-year intervals to conserve space.) This analysis shows that firms often pay out and raise capital during the same year. Specifically, column 1 shows that, in our average sample year, 40% of all public U.S. firms both paid out and raised capital. This percentage has been growing over time, peaking at 52% in 2012. Column 2 conditions the sample on firms that pay out capital, showing that 82% of payout payers raise capital in the same year. Analogously, column 3 conditions the sample on firms that issue securities, showing that in the average year over 50% of security issuers also pay out capital.[9]

Are simultaneous payouts and security issues economically important? Columns 4 and 5 investigate this question. For each firm-year, we measure the dollar amount the firm raises and pays out in the same year—its "financed payout"—as the minimum of the proceeds of its security issues (net debt issues plus equity issues, denoted SI_{it}) and its total payout (TP_{it}). Thus, a firm's financed payout captures the amount of capital the firm could have avoided raising without any change to its available funds if it had not simultaneously paid out that capital. To get a sense of the magnitude of simultaneous payouts and security issues relative to aggregate payouts and to aggregate issues, we construct the following two ratios for each year in our sample period: $R_t^{TP} = \sum_{i \in Pub_t} \min\left\{SI_{it}, TP_{it}\right\} / \sum_{i \in Pub_t} TP_{it}$ and $R_t^{SI} = \sum_{i \in Pub_t} \min\left\{SI_{it}, TP_{it}\right\} / \sum_{i \in Pub_t} SI_{it}$, where Pub_t denotes the set of all public firms in year *t*. R_t^{TP} captures the fraction of aggregate total payouts that is simultaneously raised through securities issued *by the same payers during the same year*, whereas R_t^{SI} captures the fraction of aggregate issuance proceeds paid out *by the same issuers during the same year*.

Column 4 in Table 1, Panel A shows that, on average over our sample period, 41% of the aggregate capital paid out by public U.S. firms is raised by the same payers during the same year. This fraction has decreased somewhat in recent years, indicating that simultaneous payouts and issues have not kept pace with the explosion of payouts captured in Figure 1—even though the fraction of aggregate issuance proceeds that are simultaneously paid out has grown over time, averaging 39% over our sample (column 5) and reaching 57% in 2011.

Taken at face value, these findings may appear surprising: most firms are thought to face a non-trivial wedge between their external and internal costs of funds, due to both the direct flotation costs

[9] All firm counts we report throughout the paper require variables to be greater than $100,000 to be considered positive. In this section, this requirement ensures that we do not capture firms that pay out and raise trivial amounts of capital. In addition, we complement all analyses of firm counts with analyses of their dollar magnitudes.

associated with issuing securities and to indirect costs stemming from information asymmetries between firms and investors (Myers and Majluf 1984; Hennessy and Whited 2007). As a result, we might expect that firms that need capital will cut their payouts before issuing any securities. In what follows, our goal is to better understand the benefits that lead so many firms to simultaneously raise and pay out capital despite the direct and indirect costs associated with such financed payouts.

We start by analyzing the extent to which employee-initiated equity issues drive our findings. Recall from Figure 2 that, in the later years of our sample, over two-thirds of all public firms experience such an issue. To the extent that the proceeds of employee-initiated issues can be seen as excess free cash flow that the firms do not actively seek to raise and may not need, it is only natural that these proceeds are paid out, a fact already documented by Fama and French (2005).

Table 1, Panel B excludes employee-initiated equity issues from our analysis and focuses only on payout payers that initiate security issues in the same year—henceforth, we will refer to them as firms that "*actively* finance" their payouts. Column 1 shows that, in the average sample year, 20% of all public firms simultaneously pay out and raise capital by initiating a net debt or an equity issue. Column 2 further indicates that an average of 42% of all payers actively raise capital in the same year. Conversely, 46% of all firms that actively raise capital also pay out capital in the same year (column 3). A comparison of Panels A and B indicates that employee-initiated equity issues explain just under half of the instances of firms that simultaneously pay out and raise capital.

In terms of economic magnitudes, the role that employee-initiated equity issues play in explaining financed payouts is far less important. Columns 4 and 5 in Panel B show the analogous versions of the R_t^{TP} and R_t^{SI} ratios with *SI* substituted by *AI* in their definition, where *AI* includes only capital *actively* raised through net debt or firm-initiated equity issues. Remarkably, we still find that close to one-third (32%) of the aggregate capital paid out by public firms is financed through security issues initiated by the same firms during the same year, thus indicating that employee stock option exercises account for just a fifth of the aggregate dollar magnitude of financed payouts. Conversely, column 5 shows that 35% of the aggregate proceeds of firm-initiated issues are paid out by the same firms during the same year, a ratio that has increased markedly since 2003. In untabulated results, we find that the aggregate annual amount of actively financed payouts, $\sum_{i \in Pub_t} \min\{AI_{it}, TP_{it}\}$, averaged \$102 billion in our sample period and peaked in 2007 at \$227 billion.

Taken together, the findings in columns 1-5 of Table 1 indicate that the capital markets play an important role in financing payouts—and financing payouts appears to be a major function of the capital markets. These findings thus paint a very different picture from the common view in the payout literature that firms that (actively) raise capital are at different stages of their lifecycles and have very different cash-flow needs from those that pay out capital (e.g., Grullon et al. 2002; DeAngelo et al. 2006).

2.1.1 Non-discretionary vs. discretionary payouts

We next analyze the extent to which the desire to avoid cutting regular dividends can explain firms' decision to externally finance their payouts (Lintner 1956). Columns 6-9 in Table 1 show the same analyses as columns 1-2 and 4-5, but substitute total payouts with non-discretionary payouts; similarly, columns 10-13 substitute total payouts with discretionary payouts. For brevity, we focus our discussion here on actively financed payouts (Panel B).

The fraction of non-discretionary payouts that are actively financed is somewhat larger than that of discretionary payouts, both in terms of counts (44% of non-discretionary payers actively finance their payouts (column 7) vs. 42% of discretionary payers (column 11)) and dollar magnitudes (42% of aggregate non-discretionary payouts are actively financed (column 8) vs. 35% of discretionary payouts (column 12)). However, this finding reflects the fact that non-discretionary payouts have been less prevalent and of smaller aggregate magnitude than their discretionary counterparts, particularly in recent years. Indeed, a comparison of columns 6 and 10 reveals that, in absolute terms, firms are in fact *less* likely to actively finance their non-discretionary payouts (on average, 13% of all public firms do so) than their discretionary payouts (17% of all public firms do so).[10] If instead of comparing firm counts we focus on dollar magnitudes, we continue to find that financed discretionary payouts dominate: on average, 19% of the aggregate proceeds of firm-initiated security issues are simultaneously paid out via non-discretionary payouts (column 9) and 23% are paid out via discretionary payouts (column 13).[11] In fact, in recent years, the share of external capital used to finance discretionary payouts has grown considerably, peaking in 2011 at 47%.

Given that firms have little reason to smooth their discretionary payouts (Jagannathan, Stephens, and Weisbach 2000), maintaining discretionary payout levels is unlikely to be the motivation for such financed discretionary payouts. The coming sections aim to shed light on which other reasons could lead firms to finance their discretionary payouts.

2.2 Breaking down the role of debt and equity issues

Table 1 shows that simultaneous payouts and security issues represent a large fraction of both payout and capital-raising activities. The drivers of this behavior may critically depend on the types of securities issued: payouts financed via equity or debt issues have very different capital-structure implications, and thus they point to different motives for why firms raise and pay out capital during the same year. In this section, we analyze what securities firms issue to finance their payouts.

Table 2 examines the extent to which firms simultaneously pay out capital and issue net debt (Panel A), firm-initiated equity (Panel B), and employee-initiated equity (Panel C), following the same column structure as Table 1. To conserve space, the table shows annual figures averaged over all sample years, whereas Table IA.1 provides a time-series breakdown. (Tables IA.1 through IA.7 are all in the Internet Appendix.)

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[10] The same pattern emerges if we compare the fractions of firms actively raising capital that finance their non-discretionary payouts (29%) and their discretionary payouts (38%). (To conserve space, Table 1 does not show a breakdown of column 3 in non-discretionary and discretionary payouts.)

[11] The sum of columns 9 and 13 need not equal column 5. To illustrate why, consider the case of a firm that raises \$80 of debt, pays out \$30 in non-discretionary payouts (*NP*), and another \$60 in discretionary payouts (*DP*). For this firm, $\min\{AI, TP\} = \$80 < \min\{AI, NP\} + \min\{SI, DP\} = \$30 + \$60 = \$90$. The definition of payout gap that we introduce in Section 3 produces a disjoint partition of the fraction of financed payouts driven by non-discretionary and discretionary payouts by assuming that firms prioritize the payment of non-discretionary payouts.

Three results stand out. First, debt appears to be the dominant form of payout financing: Column 4 indicates that, in our average sample year, 30% of aggregate total payouts are financed via simultaneous net debt issues (Panel A), while firm- and employee-initiated equity issues finance 3% (Panel B) and 11% (Panel C) of aggregate payouts, respectively. Columns 8 and 12 show that debt dominates the financing of both non-discretionary and discretionary payouts.

Second, when examining firm counts, a somewhat different picture emerges. Column 2 shows that the percentage of payout payers with simultaneous net debt issues is a substantial 38% (Panel A). That said, this fraction is smaller than the 69% of payers with simultaneous employee-initiated equity issues (Panel C), reflecting the large number of firms with capital inflows from employee stock option exercises. On the other hand, simultaneous payouts and firm-initiated equity issues are relatively rare, with 7.5% of payout payers initiating equity issues during the same year (Panel B).

Third, relative to the total amount of capital firms raise, column 5 in Panel A shows that a sizable 39% of the annual proceeds of net debt issues ($97 billion of the $253 billion of aggregate net debt issues) are paid out during the same year by the same issuers—a larger amount via discretionary than via non-discretionary payouts (column 9 vs. column 13). In addition, Panel B shows that 19% of the proceeds of firm-initiated equity issues are also simultaneously paid out. Therefore, although the fact that SEOs and private placements are relatively rare implies that firms finance only a small fraction of aggregate payouts via firm-initiated equity issues, when firms do initiate equity issues, they pay out almost one-fifth of the proceeds during the same year.

As for employee-initiated equity issues, as much as 79% of these proceeds are simultaneously paid out (Panel C). This finding is consistent with the notion that option exercises often provide unneeded capital that is a by-product of firms' compensation policies, and so it may not be surprising that firms pay out these proceeds. At the same time, it is worth noting that approximately one-tenth of aggregate payouts can be seen as being directly financed by firms' employees.

3. The Gap between Payouts and Free Cash Flow

Section 2 shows that simultaneous payouts and security issues are widespread: They represent approximately one-third of both the dollar amounts that firms pay out and of the dollar amounts that they actively raise. What we have not yet analyzed is the extent to which the decisions to simultaneously raise and pay out capital are necessarily related—that is, the extent to which they are made by firms that, given their profit and investment levels, could not have funded their payouts without raising external capital.

3.1 Prevalence and dollar magnitude of payout-funding gaps

To identify those firms that, given their profit and investment levels, would have been unable to fund their payouts without simultaneously raising capital, we need to measure the gap between a firm's payout and its free cash flow. To do so, it is helpful to consider the following cash flow identity, which expresses firm *i*'s payout in year *t* in terms of its potential sources and uses of cash:

$$\text{Total payout } (TP_{it}) = \text{Free cash flow } (FCF_{it}) - \text{Change in cash } (CC_{it}) + \text{Security issues } (SI_{it}). \quad (1)$$

Free cash flow (FCF_{it}) is the sum of operating cash flow (OCF_{it}) and investment cash flow (ICF_{it});[12] as in Section 2, total payout (TP_{it}) is the sum of dividends and share repurchases, and security issues (SI_{it}) is the sum of the proceeds of net debt and equity issues.

Motivated by this identity, we define a firm's total payout gap as follows:

$$\text{Total payout gap } (TPG_{it}) \equiv \min\{\max\{TP_{it} - (FCF_{it} + CR_{it}), 0\}, TP_{it}\}, \quad (2)$$

where $CR_{it} \geq 0$ is the maximum potential cash reduction that would leave the firm with the expected level of cash for a firm of its size, industry, and year.[13] It then follows from equation (1) that

[12] The two main components of investment cash flow are capital expenditures and cash acquisitions, both of which enter the definition of investment cash flow with a negative sign because they represent cash outlays to acquire assets. Stock-financed acquisitions are not part of investment cash flow, because they have no direct cash impact. Our analysis is thus conservative: a stock acquisition is effectively the combination of an equity issue and a cash acquisition, and so free cash flow would be lower and payout gaps larger if stock acquisitions were recorded as such.

[13] To estimate a firm's expected cash, we first regress cash-to-assets on firm size and a full set of industry and year fixed effects. We then define expected cash as the firm's actual assets times the maximum of the predicted cash-to-assets ratio from that regression and the cash-to-assets ratio of the firm in the first quintile of the cash distribution (thus avoiding negative and very low cash predictions). All conclusions are robust to using alternative definitions.

whenever a payout payer has a total payout gap (i.e., $TP_{it} > FCF_{it} + CR_{it}$), the firm needs to issue securities while it simultaneously pays out (i.e., $SI_{it} > 0$).[14]

To illustrate this definition, consider the following three situations, where we assume that the firm has no spare cash. First, for a firm that pays out \$25, has operating cash flow of \$25, and invests \$25 (and so its free cash flow is \$0), the payout gap is \$25. Second, for a firm that pays out \$25 and has negative free cash flow of −\$50, the payout gap is still \$25 (our definition thus ensures that a firm's payout gap is never larger than the payout itself). Third, 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., $SI_{it} = CC_{it} = \$50$). This firm pays out and raises capital during the same year, and hence was captured in Section 2 as financing its entire \$25 payout ($\min\{TP_{it}, SI_{it}\} = \$25$). By contrast, according to our definition of payout gap, the firm does *not* have a gap, because its free cash flow is sufficient to fund its payout ($TPG_{it} = \min\{\max\{25 - (25 + 0), 0\}, 25\} = \$0$). This example illustrates the complementary nature of our analyses in Sections 2 and 3.

We emphasize that the definition of total payout gap takes both a firm's operating and investment cash flows as given. In particular, this means that it does not follow from our gap definition that firms with a payout gap *must* raise outside funds because of their payout—many of them would have to raise at least some capital even if they did not pay out, or they could avoid raising capital by cutting their investment while maintaining their payout, as in the case of the firm in the first above example. What our gap definition captures is how much capital firms could avoid raising by decreasing their payout while maintaining their profitability and investment levels and at least a normal level of cash. In Section 4.1 below, we analyze the extent to which payout gaps are driven by unusually low profits or unusually high investment levels.

[14] The only exception is if the firm is both able and willing to cover the gap $TP - (FCF + CR)$ with an additional cash reduction that leaves it with a cash level below what is expected for a firm of its size, industry, and year. This is rare: only 6% of firms with a payout gap do so. Throughout the paper, we obtain very similar results if instead of using CR in the definition of payout gap, we use each firm's actual cash reduction, i.e., $-\min\{CC_{it}, 0\} \geq 0$; in this case, an accounting equivalence exists between having a total payout gap and having to raise external capital.

The first four columns of Table 3, Panel A examine the prevalence of firms with a total payout gap and the dollar magnitude of their gaps. Columns 1 and 2 show that, in the average sample year, 21% of all public firms—representing 44% of all firms that pay out capital—have a payout-funding gap and thus could not have funded their payout without the proceeds of security issues. Importantly, payout gaps are also substantial in terms of their aggregate dollar magnitude: Columns 3 and 4 show that the ratios of the aggregate sum of total payout gaps to the aggregate capital paid out and raised by all public firms, $\sum_{i \in Pub_t} TPG_{it} / \sum_{i \in Pub_t} TP_{it}$ and $\sum_{i \in Pub_t} TPG_{it} / \sum_{i \in Pub_t} SI_{it}$, average 32% and 29%, respectively, over our sample period.[15]

To what extent are payout gaps driven by non-discretionary and discretionary payouts? We define a firm's non-discretionary payout gap analogously to how we define its total payout gap:

$$\text{Non-discretionary payout gap } (NPG_{it}) \equiv \min\{\max\{NP_{it} - (FCF_{it} + CR_{it}), 0\}, NP_{it}\}, \quad (3)$$

where *NP* denotes the firm's non-discretionary payout. Similarly, its discretionary payout gap is

$$\text{Discretionary payout gap } (DPG_{it}) \equiv \min\{\max\{DP_{it} - (FCF_{it} + CR_{it} - NP_{it}), 0\}, DP_{it}\}, \quad (4)$$

where *DP* denotes the firm's discretionary payout. By subtracting *NP* from *FCF* + *CR*, our discretionary-gap definition identifies firms for whom the sum of their operating cash flow and cash reduction is not enough to fund their discretionary payout after their investment and non-discretionary payout (if any) has been funded. This definition reflects the notion that firms prioritize funding their non-discretionary payouts (i.e., their prior-year regular dividends) before paying any discretionary payouts.

Columns 5-8 and 9-12 of Table 3, Panel A examine the prevalence and dollar magnitude of non-discretionary and discretionary payout gaps, respectively, following the same structure as columns 1-

[15] In untabulated results, we find that, for firms with a gap, the average ratio of their payout gap to their total payout, TPG_{it} / TP_{it}, is 82%. Thus, conditional on having a payout gap, gaps tend to be large relative to payouts. (The same is true in Panel B below when we focus on active gaps.)

4. In line with our results in Table 1, we find that discretionary payout gaps are more prevalent and larger in dollar magnitude than their non-discretionary counterparts.

3.2 Prevalence and dollar magnitude of active payout-funding gaps

How do our findings change if we modify our definition of payout gap to identify only payouts that, given firms' profit and investment levels, could not have been funded without the proceeds of *firm-initiated* security issues? To investigate this, we define a firm's *active* total payout gap as

$$\text{Active total payout gap } (ATPG_{it}) \equiv \min\{\max\{TP_{it} - (FCF_{it} + CR_{it} + EE_{it}), 0\}, TP_{it}\}, \quad (5)$$

where EE_{it} captures the proceeds of employee-initiated equity issues, and all other variables are as in equation (2). By adding employee-initiated equity issues to the sum of free cash flow and potential cash reduction, we measure only the *firm-initiated* net debt and equity issues that firms could have avoided raising by decreasing their payout, taking as given their profitability and investment levels. We define active non-discretionary and discretionary payout gaps analogously, adding EE_{it} to $FCF_{it} + CR_{it}$ in equations (3) and (4), respectively.

Table 3, Panel B shows that 41% of all payers—or 20% of all public firms—set payout levels that, given their investment level, they need to finance by raising external capital; the aggregate dollar magnitude of their active gaps amounts to 29% of aggregate payouts and 31% of aggregate firm-initiated (i.e., active) security issues. These figures are very close to those we found in Table 1, Panel B when we examined simultaneous payouts and firm-initiated issues, both in terms of firm counts and dollar magnitudes. Therefore, most firms that simultaneously raise and pay out capital could not have sustained their payout level without raising at least part of that capital or without cutting their investment.

Columns 5-12 in Table 3, Panel B show that active discretionary payout gaps are more prevalent than their non-discretionary counterparts (17% of all public firms have a discretionary gap, whereas 10% have a non-discretionary gap) and of a larger magnitude: discretionary gaps amount to 20% of aggregate firm-initiated security issues, whereas non-discretionary gaps amount to 10% of aggregate issues. These findings suggest that firms' desire to avoid cutting their regular dividends in the face of low profits or high investment is not sufficient to explain why many firms decide to set their payouts above the level they can fund using their internal funds. Section 4 aims to shed additional light on the motives behind this decision.

Figure 3 helps visualize how the aggregate dollar amounts of active discretionary and non-discretionary payout gaps have evolved over our sample period. The figure shows that active discretionary gaps (solid line) have consistently exceeded their non-discretionary counterparts (dotted line) since 1995. The figure also shows that discretionary gaps—like discretionary payouts themselves—are highly pro-cyclical, peaking in 2007, right before the onset of the Great Recession, at an aggregate value of $181 billion. Section 4.6 below further investigates this cyclicality.

3.3 Are payout gaps driven by temporary mismatches between free cash flow and payouts?

Before delving into the motives driving payout gaps, we first address the following question: Are gaps the result of firms' desire to smooth their payouts relative to their free cash flow, leading to temporary mismatches between them? If the answer were yes, measuring payout gaps over longer time horizons should reduce their magnitude. To investigate this, Panel C in Table 3 reports the same analysis as Panel B but with active total payout gaps defined over four-year intervals:

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

and analogously for non-discretionary and discretionary gaps. As it turns out, gaps are somewhat more prevalent and of larger magnitude relative to the total capital firms raise when defined over four-year intervals in Panel C than when defined annually in Panel B. These findings show that active gaps are persistent and do not simply reflect temporary mismatches between free cash flow and payouts. Thus, over 40% of payout payers do not appear to follow the textbook prescription of funding payouts with free cash flow.

Further supporting the notion that gaps are persistent, in untabulated analysis, we find that 46% of all firms that actively finance their payouts by initiating simultaneous security issues in a given year also do so in the next year; 64% of them do so in at least one of the next two years; and 73% of them do so in at least one of the next three years. Even in the case of discretionary payouts, which, by their own discretionary nature, tend to be volatile, the persistence of payout-financing behavior is notable: 39% of all firms that conduct a simultaneous discretionary payout and firm-initiated security issue in a given year also do so in the next year; and 55% and 65% of them do so in at least one of the next two and three years, respectively.

4. Why and When Do Firms Finance Payouts?

What are the reasons that drive over 40% of payout payers to set a payout level that they can sustain only by tapping the capital markets (or by cutting their investment)? We begin by exploring the role that profitability and investment shocks play in explaining payout gaps. We then turn our attention to analyzing the characteristics of those firms that are most prone to financing their payouts, as well as the macroeconomic conditions that lead them to do so. For the most part, our analysis is descriptive, and so we stop short of drawing causal inferences.

Given that our goal is to understand the reasons behind firms' decision to finance their payouts, throughout this section, we focus on firms that make a proactive decision to finance their payouts by initiating debt or equity issues, thus ignoring payouts financed via employee-initiated equity issues. In light of our focus on what in Sections 2 and 3 we call *actively* financed payouts and *active* payout gaps, in this section, we streamline the exposition by referring to them simply as "financed payouts" and "payout gaps." (The tables maintain the qualifier "active" to avoid any confusion.) In addition, throughout the section, we pay particular attention to financed *discretionary* payouts, because these cannot be explained by firms' well-known reluctance to cut their regular dividends.

4.1 Profitability and investment shocks

Section 3 shows that for the vast majority of firms that simultaneously raise and pay out capital, the sum of their free cash flow, potential cash reduction, and employee-initiated equity issues is not sufficient to fund their payouts. Hence, given their profitability and investment levels, such firms would not have been able to fund their payouts without raising capital. Table 4 examines the extent to which these firms' payout gaps are the result of the firms deciding to maintain their payouts in the face of shocks to their profits or investment needs that leave them with unusually low levels of free cash flow. To do so, we construct *counterfactual* payout gaps based on the firms' expected profits or investment, and we compare them to the firms' *actual* gaps (based on their actual profits and investment). If payout gaps were the result of one-off shocks to the firms' profits or investment, the gaps should all but disappear when we counterfactually assume that the shocks did not happen.

Column 1 in Table 4, Panel A shows that 33% of all payout payers would have a payout gap even if they had been *at least* as profitable as the median firm in their industry. Recall from Table 3, Panel B that 41% of all payers have an actual payout gap; therefore, 81% (=33%/41%, denoted in the table as "% of actual") of those firms with a gap would still have a gap even if we counterfactually assume that their profits were no lower than those of their industry's median firm. Columns 2 and 3 show that the aggregate dollar magnitude of such counterfactual gaps represents 27% and 28% of the aggregate magnitude of total payouts and firm-initiated security issues, respectively; thus, the aggregate magnitude of counterfactual gaps represents 91% of the magnitude of actual gaps. We find only slightly smaller ratios when we counterfactually assume that all firms are at least as profitable as they were the prior year (Panel B). These findings suggest that less than a fifth of payout gaps are incurred by firms that continue paying out in the face of unusually low profits—that is, by firms that would *not* have a gap had their profits been in line with those of their industry peers or with their own past profits. The reluctance to cut payouts when profits are unusually low also appears to have low explanatory power for non-discretionary payout gaps, explaining less than a quarter of all non-discretionary gaps (columns 4-6); and, as expected, it explains an even smaller fraction of discretionary gaps (columns 7-9).[16]

Panels C and D in Table 4 perform an analysis analogous to Panels A and B, showing counterfactual payout gaps when we assume that no firm invests more than the median firm in its

[16] To conserve space, Table 4 reports annual figures averaged over all sample years. Table IA.2 shows the same time-series breakdown as Table 3, with annual figures averaged over four-year intervals.

industry or than the firm itself did the prior year. The evidence indicates that investment shocks are a more important driver of payout gaps than profitability shocks—but by no means the only driver. Column 1 shows that 64% of firms with a payout gap would still have a gap if they had invested no more than the median firm in their industry (Panel C), and 74% would still have a gap if they had invested no more than they did the prior year (Panel D). Columns 2 and 3 show that the aggregate dollar magnitudes of payout gaps in these counterfactual scenarios represent 61% and 70%, respectively, of the actual magnitude of payout gaps. Therefore, firms that would not have a gap had their investment been at usual levels but that decide to continue paying out when their investment needs grow account for 30% to 40% of both the prevalence and aggregate magnitude of payout gaps. This ratio reaches 45% when we focus on the non-discretionary component of payout gaps (columns 4-6), whereas it stays below 36% when we focus on discretionary gaps (columns 7-9).

Panel E takes our counterfactual exercise one step further and analyzes counterfactual gaps under the assumption that firms invest just enough to replace their depreciated assets, while Panel F takes the exercise to the extreme and assumes that investment is zero for all firms. Column 1 shows that 29% of payout payers would still have a gap even if their investment merely equaled their depreciation; this fraction represents 70% of those firms with an actual payout gap, whereas the aggregate magnitude of their counterfactual gaps represents 48% of the aggregate magnitude of all actual gaps (columns 2 and 3). In the limit case in which we assume zero investment, we still find that 13% of all payout payers would have a gap—by construction, these are firms that cannot fund their payouts internally even if we assume that they devote all their profits, proceeds of employee-initiated equity issues, and excess cash reserves to fund payouts. Such firms represent 31% of all firms with an actual payout gap, whereas the aggregate magnitude of their zero-investment counterfactual gaps represents 18% of the aggregate magnitude of actual gaps (32% and 25%, respectively, if we focus on discretionary gaps).

While the counterfactual assumption of zero investment is obviously extreme, the evidence in Panels C through F of Table 4 indicates that investment does play an important role in explaining payout gaps: Up to 35% of firms with a payout gap would not have a gap if their investment were in line with that of their industry peers or with their own past investment—and just over two-thirds of firms with a gap would not have a gap if their investment were zero. These findings raise the following question: To what extent are payout gaps driven by firms that would need to raise at least some capital to fund their investments even if they did not pay out? The decision of a firm that needs to raise capital to invest and decides to raise additional capital to fund payouts may be easier to explain than that of a firm that does not need external capital to invest but still raises net debt or equity to fund payouts. In particular, in the case of the first firm, the fixed costs of raising capital cannot be attributed to its payout decision; by contrast, the second firm's decision to set a payout level that it cannot fund internally given its profits and investment levels can be seen as triggering both the fixed and variable costs associated with raising capital. Investigating the relative importance of these two cases in the data can thus help shed light on why firms finance their payouts.

4.1.1 Would firms with a payout gap still have to raise capital even if they did not pay out?

Column 1 in Table 5 shows that, for 67% of firms with a payout gap, the sum of their free cash flow, potential cash reduction, and proceeds of employee-initiated equity issues is negative. These are firms that, like the firm in the first case above, would have to raise at least some capital to fund investment (or cover losses) even if they did not pay out, whereas the remaining one-third could have avoided raising any net external capital altogether with a lower payout level. Perhaps surprisingly, the fraction of firms that could have avoided raising any net external capital with a lower payout is larger when we focus on discretionary payouts (which firms should feel little pressure to maintain at any particular level) than on non-discretionary payouts (which can be costly to cut): 28% (=1 − 72%; column 5) vs. 19% (=1 − 81%; column 3).

To better visualize time trends, Figure 4 plots the fraction of firms with a discretionary payout gap that would not have to raise capital if their discretionary payout were zero. Two takeaways stand out. First, the percentage of firms with a discretionary gap whose external capital need is triggered by their discretionary payout—and thus cannot be attributed to high investment or operating losses—has been on an upward trend since the mid-1990s, peaking in 2007 at 44%. Second, this percentage has declined around the three recessions in our sample: the early 1990s recession, the early 2000s recession, and, most markedly, during the 2008-2009 financial crisis. These dynamics suggest that in recessionary years, when raising capital is costliest (e.g., Campello, Graham, and Harvey 2010; Erel et al. 2012), firms are reluctant to set discretionary payout levels that they need to finance by initiating security issues—but they seem to have fewer concerns doing so when the economy is (still) growing, like in 2007. Section 4.6 below further analyzes the relationship between firms' decision to finance their discretionary payouts and the prevailing macroeconomic and credit-market conditions.

For those firms that would still have to raise capital even if their payout were zero (the complement set of those captured in Figure 4), column 2 in Table 5 shows what fraction their payout represents of the total capital they need to raise. We find that, on average, payouts constitute a sizeable 27% of these firms' total funding need.[17] (This fraction is only slightly smaller in columns 4 and 6 when we focus on non-discretionary and discretionary gaps, at 24% and 22%, respectively.) Thus, while such firms' fixed costs of raising capital cannot be attributed to their payout decision, a substantial portion of the variable component of their issuance costs is a direct result of their decision to raise additional capital that they simultaneously pay out. And, as we discuss in Section 4.3, these variable issuance costs can be substantial.

Having established the mechanical drivers of financed payouts, the next sections deepen our investigation of their motives by analyzing the characteristics of firms that finance their payouts and the macroeconomic conditions they face. We maintain our focus on financed discretionary payouts, which cannot be explained by firms' well-known desire to avoid regular dividend cuts.

4.2 Analysis of the characteristics of firms that finance their discretionary payouts

We begin by establishing a benchmark for financed payouts by examining the characteristics of discretionary payout payers in general, whether or not their payouts are financed. Column 1 in Table

[17] The total funding need is given by $TP - (FCF + CR + EE)$. By construction, for firms that would still have to raise capital even if their payout were zero, the sum of free cash flow, potential cash reductions, and proceeds of employee-initiated equity issues is negative.

6 shows the results of estimating a tobit model in which the dependent variable is the dollar amount of discretionary payouts paid by the firm, scaled by the beginning-of-year market value of the firm's equity.[18] We find that higher discretionary payouts are associated with firms that are more profitable, invest less, are larger and more likely to have an investment-grade credit rating, have lower excess leverage and more excess cash, have a higher tax cost of repatriating foreign earnings, and have a higher share of institutional ownership. In addition, we find that firms whose stock returns are subject to high idiosyncratic volatility, which have been shown to have higher demand for precautionary cash (Warusawitharana and Whited 2016), pay out less. These findings are in line with those that prior literature has found for share repurchases (e.g., Dittmar 2000; Grinstein and Michaely 2005), which account for 90% of discretionary payouts.

In column 2, we introduce an indicator to control for whether the firm has been targeted by activist hedge funds. (This variable is only available for years 1995-2011, which is why we do not include it in our baseline specification in column 1.[19]) Consistent with the evidence in Brav et al. (2008), we find that after a firm is targeted by activist hedge funds, it tends to pay higher discretionary payouts. That said, given the descriptive nature of our analysis, we refrain from drawing any causal inferences from this or any of the other partial correlations reported in Table 6.

Columns 3 through 6 control for four standard measures of macroeconomic conditions (see, e.g., Cooper and Priestley 2009): real GDP growth, the output gap (the difference between actual and potential GDP as estimated by the Congressional Budget Office), the credit spread (the difference between Moody's Baa and Aaa corporate bond yields), and the term spread (the yield difference between ten-year Treasury bonds and three-month Treasury bills).[20] Consistent with the pro-

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[18] Table IA.3 shows that all conclusions are robust to scaling payouts by beginning-of-year assets, with the only exception of the (somewhat mechanical) change in the sign of the market-to-book coefficient, which goes from negative in Table 6 to positive in IA.3. All independent variables are defined in Appendix A.

[19] See Brav, Jiang, and Kim (2015) for details on how the data are collected.

[20] As expected, these four variables are highly collinear with each other and with the set of year fixed effects. For this reason, in columns 3 through 6 we introduce the macroeconomic variables one at a time and include a linear time trend instead of the year fixed effects we have in columns 1 and 2.

cyclicality of discretionary payouts documented by prior literature (e.g., Stephens and Weisbach 1998), discretionary payouts are higher when the economy is growing and GDP is high relative to potential GDP, whereas they are lower in times of elevated credit and term spreads.

Our next step is to examine the characteristics of firms that finance their discretionary payouts via simultaneous net debt or firm-initiated equity issues. For those firms with a positive discretionary payout, Table 7 reports the results of estimating a fractional logit model in which the dependent variable is the fraction of the firm's discretionary payout that is financed. Specifically, the dependent variable in columns 1 and 2 is $\min\{\textit{Net debt issues}_{it}, DP_{it}\}/ DP_{it}$, where *DP* denotes a firm's discretionary payout, whereas in columns 3 and 4, it is $\min\{\textit{Firm-initiated equity issues}_{it}, DP_{it}\}/ DP_{it}$. Columns 1 and 3 present our baseline results with the same independent variables as in column 1 of Table 6, whereas columns 2 and 4 in addition control for the presence of activist hedge funds, which restricts our sample to 1995-2011. For ease of interpretation, we report conditional marginal effects evaluated at the means of the independent variables.

Table 7 shows that a firm's operating profit is negatively associated with the fraction of its payout that it finances by issuing net debt or equity during the same year. At the same time, we also find that firms with high investment (and thus low free cash flow) finance a higher fraction of their payout. Both these results are consistent with the finding in Table 3 that the vast majority of firms that finance their payouts have a payout-funding gap and thus do not generate enough free cash flow to fund their payouts. To illustrate, column 1 indicates that, for the average discretionary payout payer, a 1-percentage-point increase in its investment-to-assets ratio is associated with a 2.3-percentage-point decrease in the fraction of its discretionary payout financed by debt. (The interpretation of all other estimates is analogous.)

The next sections continue the discussion of our findings in Table 7 and relate these findings to the potential costs and benefits associated with a policy of financing payouts.

4.3 Financing frictions and the costs of financed payouts

In a world with no issuance 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 and the identity of the recipients without altering the present value of a firm's total distributions—and thus without affecting the total value of the firm (Miller and Modigliani 1961). However, the evidence suggests that most firms face a non-trivial wedge between their external and internal cost of funds. First, direct flotation costs associated with raising external funds imply that external capital is more costly than internal capital for virtually all firms (e.g., Kaplan and Zingales 1997). These costs include underwriting spreads and other direct issuance expenses, which have sizeable fixed and variable components—in fact, Altinkilic and Hansen (2000) show that both debt and equity issuers faced U-shaped spreads. In addition, 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).

Although the wedge between a firm's external and internal cost of funds is not directly observable, the literature often points to large firms or those with an investment-grade credit rating as being less likely to be subject to financing frictions. For instance, Hennessy and Whited (2007) estimate that "for large (small) firms, estimated marginal equity flotation costs start at 5.0% (10.7%) and bankruptcy costs equal to 8.4% (15.1%) of capital" (p. 1705). We therefore expect large firms to be more prone to financing their payouts, because the cost of doing so should be lower for them.

The evidence in this regard is mixed. Table 7 shows that larger firms are indeed more likely to finance their discretionary payouts by issuing debt and, to a lesser extent, equity. However, firms with an investment-grade credit rating appear to be no more likely to finance their payouts by issuing debt and *less* likely to finance them by issuing equity than those without such a rating. In fact, in untabulated analyses, we find that less than half (49%) of those firms that pay a discretionary payout and simultaneously raise debt or equity are in the top public-firm size quartile, whereas only 26% have an investment-grade rating.

Therefore, although larger firms are more prone to financing their payouts, it is still the case that the majority of firms that engage in this behavior are unrated or high-yield and not very large. Even in expansionary years, when financed payouts are more common (Figures 3 and 4), we expect such firms to face a significant wedge between their external and internal cost of funds. In addition, these firms' decision to use the proceeds of their debt or equity issues to finance their payouts may come at the expense of financing profitable investment opportunities (Almeida, Fos, and Kronlund 2016; Asker, Farre-Mensa, and Ljungqvist 2015). Taken together, these findings suggest that many, if not all, of the firms that finance their payouts face non-trivial costs in doing so.

4.4 Using financed payouts to jointly manage a firm's capital structure and its cash holdings

For firms that choose to finance their payouts, standard economic theory suggests that the benefits associated with this behavior must be large enough to offset its costs—at least from the point of view of the firms' managers. We now turn our attention to exploring these potential benefits.

Table 2 showed that debt is by far the largest source of payout financing. Of course, such debt-financed payouts result in leverage increases, which suggests that firms may use them as a tool to actively manage their capital structure. A natural question then follows: If a firm wants to increase its leverage, why does it not simply pay out capital, instead of simultaneously raising debt and paying it out? Debt-financed payouts have two unique implications that internally funded payouts cannot replicate. First, while any payout causes leverage to increase, this effect is magnified when payouts are financed with debt. Second, by combining payouts with debt issues, firms can increase their leverage (as well as their leverage net of cash) without depleting their cash reserves. In particular, we have shown that firms with high levels of investment are more likely to finance their payouts; debt-financed payouts allow such high-investing firms to prevent their leverage from falling—as would be the case if they simply reinvested their profits—without depleting their cash reserves.[21]

Consistent with capital structure and cash considerations being key drivers of financed payouts, Table 7 shows that firms with high levels of leverage and cash relative to their industry peers are less likely to finance their discretionary payouts with debt—whereas, as expected, highly leveraged firms are more likely to finance their payouts with equity. Table IA.4 shows that these findings are robust to working with a narrower definition of financed payout where, following our Section 4.1.1 analysis, we estimate a probit model in which the dependent variable is an indicator equal to one if the firm has a discretionary gap that would not exist if its discretionary payout were zero and that it finances by issuing debt (column 1) or equity (column 2).

Figure 5 examines the quantitative impact that debt-financed payouts have on firms' leverage and cash holdings. Panel A compares the evolution of the average target leverage deviation for those firms that debt-finance their discretionary payouts in year $t = 0$ to how these same firms' leverage would have evolved had they not debt-financed their payouts. (We define the target leverage deviation as the difference between a firm's leverage and the predicted level of leverage for a firm of its size, industry, and year.) The solid line shows that firms with a simultaneous discretionary payout and net debt issue in year $t = 0$ are, on average, 1.9 percentage points (p.p.) below their target leverage in year $t = -1$. Their leverage climbs to 3.8 p.p. above target in year $t = 0$, and then in year $t = 1$ begins a gradual decline toward the estimated target level.

The dashed line shows the counterfactual evolution of leverage for these same firms under the assumption that they had no debt-financed discretionary payouts in year $t = 0$ or any subsequent

21 The following stylized example illustrates these mechanics. Consider a high-investing firm that initially has a 30% leverage ratio with \$30 of debt and \$70 of equity, holds \$15 in cash, and generates \$10 in profits. If the firm reinvests its profits, its leverage will fall to 27.27% (=30/110). The firm could keep its leverage stable without raising any debt by paying out \$10, but doing so will bring its cash down to \$5. Alternatively, the firm could issue \$3.53 of debt and pay out half of it, which will keep its leverage at 30% and its cash ratio at 15%. Raising debt and paying part of the proceeds out is the only way such a firm can keep both its leverage and cash ratios stable.

year.[22] The figure shows that without debt-financed payouts, counterfactual leverage would be on average 2.7 p.p. below actual leverage in year $t = 0$. This difference increases gradually over the following years, underscoring the persistent nature of financed payouts, and reaches 5.8 p.p. in year $t = 5$, when counterfactual leverage would be 3.3 p.p. below target. (Average actual and counterfactual leverage are significantly different in all years $t = 0$ through 5, $p < 0.001$.)

Panel B performs an analogous analysis comparing the evolution of average cash holdings with and without debt-financed discretionary payouts. Consistent with the notion that debt-financed payouts allow firms to increase their leverage without depleting their cash reserves, the solid line shows that firms with a debt-financed discretionary payout in year $t = 0$ are able to maintain a flat cash-to-assets ratio through year $t = 5$. Interestingly, the counterfactual dashed line shows that the average such firm does *not* have enough cash to attain the same leverage increase shown in Panel A by paying higher discretionary payouts without simultaneously raising debt—in fact, only 16% of firms have enough cash to do so.[23] (As in the case of leverage, average actual and counterfactual cash are significantly different in all years $t = 0$ through 5, $p < 0.001$.) Figure 5 thus illustrates how firms rely on debt-financed payouts to increase their leverage without altering their level of cash.

The capital-structure literature points to at least two key reasons why firms may find it optimal to actively manage their capital structure and cash holdings by debt-financing their payouts. First, issuing debt allows firms to minimize their tax bill because interest payments can be deducted from taxable income—a benefit recognized since at least Modigliani and Miller (1963). Paying out the debt-issuance proceeds ensures that the taxable interest income that would be generated if firms were to retain the proceeds as cash in their balance sheet does not offset the tax savings.

[22] Specifically, we counterfactually set ND equal to $ND - \min\{ND, DP\}$ and DP equal to $DP - \min\{ND, DP\}$, where ND denotes net debt issues and DP is discretionary payout. Therefore, this counterfactual analysis still allows firms to raise debt or pay out discretionary payouts—we simply zero out the effects of debt-financed payouts.

[23] Even when firms do have enough cash, using this cash to fund payouts can be costly for them if the cash is held overseas. Debt-financed payouts allow firms in this situation to increase their leverage without the tax costs they would face if they repatriated their foreign cash to fund payouts (e.g., Foley et al. 2007; Faulkender and Petersen 2012). Consistent with this interpretation, Table 7 shows that the tax cost of repatriating foreign earnings is positively associated with the fraction of a firm's discretionary payout that is financed with debt (but not with equity).

Table 8 investigates whether firms are indeed more likely to debt-finance their payouts when the value of interest tax deductions increases exogenously. Following Heider and Ljungqvist (2015), we exploit staggered changes in state corporate income taxes as plausibly exogenous shocks to the value of interest tax deductions, following a difference-in-differences approach. We find that a firm's likelihood of simultaneously raising debt and paying a discretionary payout increases by 2.1 p.p. (p = 0.025) following a tax increase in its headquarter state relative to firms not affected by a tax raise. This represents a sizeable 14% increase relative to the 15% unconditional probability of simultaneously raising debt and paying a discretionary payout, and it suggests that firms use debt-financed payouts to increase their leverage net of cash when the tax benefits of leverage increase exogenously. As expected, we find no evidence that firms respond to tax increases by equity-financing their payouts (p = 0.598). Nor do we find evidence that tax *decreases* affect firms' likelihood to finance their discretionary payouts by issuing debt or equity (p = 0.901 and 0.558, respectively), consistent with the dynamic-tradeoff-theory prediction that leverage should not respond to tax cuts (see Heider and Ljungqvist (2015) for details).

Second, debt can be used to mitigate the agency costs of free cash flow by reducing financial slack and the cash flow available for spending at the discretion of mangers (Grossman and Hart 1982; Jensen 1986). Indeed, as Jensen points out, "debt creation, without retention of the proceeds of the issue, enables managers to effectively bond their promise to pay future cash flows […] in a way that cannot be accomplished by simple dividend increases" (p. 324).[24] Table 7 presents suggestive evidence of the role that agency considerations play in firms' decision to finance their payouts. Specifically, we examine the relationship between financed discretionary payouts and a popular governance metric: the fraction of a firm's shares owned by institutional investors (e.g., Shleifer and Vishny 1986; Harford et al. 2008). We find that higher levels of institutional ownership tend to be

[24] By contrast, the most common view of the role of payouts in alleviating the agency costs of free cash flow is that "investors pressure managers to accelerate cash payouts because if they allow internal cash to build up unchecked, they give managers both the opportunity and the temptation to waste or otherwise misappropriate corporate resources" (DeAngelo et al. 2008; p. 118). Therefore, this most common view does not include financed payouts.

associated with a lower tendency to debt-finance payouts.[25] This evidence is consistent with Zwiebel's (1996) dynamic model in which entrenched managers (such as those without strong institutional investors) use their payout and capital-structure policies to voluntarily constrain their own future empire building. More generally, the evidence may suggest that the disciplining effect of leverage-increasing debt-financed payouts can be a substitute for external monitoring.

Taken together, the findings in Tables 7 and 8 and Figure 5 indicate that firms use debt-financed payouts to jointly manage their capital structure and cash holdings in a way that would be impossible to replicate if they funded their payouts internally. This evidence thus highlights the interdependent nature of firms' payout, cash, and capital-structure polices, which goes well beyond the mechanical effects that payouts have on cash and leverage.

4.5 Other potential drivers of financed payouts

4.5.1 Using debt-financed repurchases to increase earnings per share

The literature offers ample evidence that at least some public-firm managers are concerned about meeting or beating analysts' earnings forecasts (e.g., Bartov, Givoly, and Hayn 2002; Graham, Harvey, and Rajgopal 2005; Bhojraj et al. 2009). These forecasts are typically expressed in terms of earnings per share (EPS). EPS can be increased in the short term by repurchasing shares, and Hribar, Jenkins, and Johnson (2006) find that firms do indeed use repurchases to meet or beat EPS forecasts.

Firms can use share repurchases financed with debt to increase their EPS without depleting their cash reserves. We thus expect firms for which short-termist pressures to meet or beat analysts' forecasts are higher, such as those in industries in which stock prices are highly sensitive to earnings news (Asker et al. 2015), to be more prone to financing their repurchases by raising debt—but not

[25] Easterbrook (1984) notes that *equity*-financed payouts can also be driven by agency considerations if managers are forced to have such high payouts that they have to raise capital to finance any new investments, thereby subjecting investment decisions to the scrutiny of the capital markets. Consistent with this prediction, Table 7 shows that firms without strong institutional investors are more prone to financing their payouts with both debt and equity.

equity. The evidence in Table 7 is consistent with this prediction (recall that repurchases account for 90% of discretionary payouts).[26]

4.5.2 Hedge-fund activism

A number of public commentators have expressed concern that activist investors might be pressuring firms to increase their payouts, potentially at the expense of long-term investment.[27] Consistent with these concerns, Table 6 shows that firms that have been targeted by activist hedge funds tend to pay higher payouts, which raises the following question: To what extent are these payouts financed with simultaneous security issues?

Column 2 of Table 7 shows no significant association between hedge-fund activism and the fraction of a firm's discretionary payout financed by debt. This result is consistent with Brav et al. (2008), who find a moderate increase in leverage and a weak correlation between leverage and dividend increases in firms targeted by activist shareholders, and conclude that the "expropriation of creditors is unlikely to be a significant source of [activist] shareholder gain" (p. 1772).

By contrast, column 4 provides some weak evidence that firms targeted by activist hedge funds are more likely to finance their discretionary payouts by initiating equity issues in the same year (p = 0.084), perhaps suggesting that activist investors induce managers to engage in equity market timing.

4.5.3 Market timing

Survey evidence (e.g., Brav et al. 2005) leaves little doubt that managers believe in their ability to time the equity market. In particular, managers issue equity when (they believe) their firm is

[26] Cheng, Harford, and Zhang (2015) show that when a CEO's bonus is directly tied to EPS and EPS is right below the bonus-award threshold, her company is more likely to conduct a share repurchase. To further investigate whether managers' desire to boost EPS motivates debt-financed discretionary payouts, we re-estimate the same model as in Table 7 adding an indicator that captures whether the CEO's bonus is directly tied to EPS. Using data provided by Cheng, Harford, and Zhang (2015), we find that firms whose CEOs have EPS benchmarks in their bonuses indeed tend to finance a larger fraction of their discretionary payouts with debt (p = 0.093) but not with equity (p = 0.670). (The CEO bonus data are only available for 18% of our sample, which is why we do not include this variable in Table 7.)

[27] See, for example, "As Activism Rises, U.S. Firms Spend More on Buybacks Than Factories" (*The Wall Street Journal*, May 26, 2015).

overvalued, and repurchase shares when it is undervalued. When the cycles of over- and undervaluation take place during the same year, this strategy results in equity-financed repurchases.

The higher the idiosyncratic volatility of a firm's equity, the more frequent and pronounced are its manager's opportunities to exploit the firm's misvaluation by engaging in market timing (e.g., Warusawitharana and Whited 2016). Consistent with this prediction, column 3 in Table 7 shows that firms with higher idiosyncratic volatility of monthly stock returns are more likely to issue equity and pay a discretionary payout (typically repurchase shares) during the same year. Thus, the desire to time the equity market may help explain why, on average, 10% of the proceeds of firm-initiated equity issues are paid out via discretionary payouts by the same firms during the same year.

In recent work, Ma (2016) argues that firms can also engage in cross-market timing by simultaneously issuing in the debt market and repurchasing in the equity market, or vice versa. In particular, this prediction suggests that managers' attempts to profit from situations in which they believe their debt is overvalued relative to their equity could be an additional motive behind debt-financed repurchases. This motive could on its own motivate some of the debt-financed repurchases we observe in the data; but it could also act in conjunction with firms' desire to increase their leverage (whether for tax or agency reasons), helping determine the timing of when firms conduct the debt-financed repurchases required to reach their target leverage.

The evidence in Section 4.6 below is consistent with the notion that firms are more prone to conducting debt-financed discretionary payouts when debt-market conditions are favorable. That said, we recognize the difficulties associated with identifying the extent to which, when doing so, firms are exploiting true misvaluation or are simply responding to variation in risk premia driven by changes in fundamentals—particularly in light of the challenges inherent in measuring misvaluation.

4.6 Macroeconomic conditions, government debt-market policies, and debt-financed payouts

Recall from Figure 3 that the gap between firms' discretionary payouts and their internal funds is procyclical, which suggests that firms are more likely to raise external capital—principally debt—to finance payouts when raising capital is likely easiest (e.g., Campello, Graham, and Harvey 2010; Erel et al. 2012).[28] The results in Table 9 further support this conclusion. In columns 1 through 4, we regress the fraction of a firm's discretionary payout that is financed by debt on the four macroeconomic variables introduced in Table 6 and the same firm-level controls we have in Table 7. We find that firms' propensity to debt-finance their discretionary payouts is higher when real GDP is growing or is high relative to potential GDP. By contrast, firms avoid debt-financed payouts when credit or term spreads are high, which tend to be periods of recession and low credit-market sentiment (e.g., Gilchrist and Zakrajsek 2012; Lopez-Salido, Stein, and Zakrajsek 2016).[29, 30]

In a 2012 speech, then Federal Reserve Governor Jeremy Stein indicated that the (at the time) "unusually large divergence in the costs of debt and equity—due in part to the cumulative effects of our LSAP [large-scale asset purchases] policies—is likely to be one factor that makes debt-financed repurchases of equity attractive." This raises the following question: To what extent are debt-financed payouts fueled by government debt-market policies? This question poses a major identification challenge, given that government policies such as quantitative easing (QE) are implemented in direct response to specific macroeconomic shocks. Thus, disentangling the effects of the shocks from those of the policy responses requires a careful selection of counterfactuals that falls beyond the scope of our paper.

With these caveats in mind, Table 10 presents suggestive evidence that government debt-market policies can lead firms' use of debt-financed discretionary payouts to diverge from the level that

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[28] Figure 4 shows that this procyclicality persists if we focus on firms whose funding gap is triggered by their payout decision, in that they would not need to raise capital if they did not pay out (as opposed to those that would need to raise capital anyway to fund their investment). Therefore, the pro-cyclicality of payout gaps is unlikely to be driven by firms investing more during expansions.

[29] Given the time-series nature of this analysis, in columns 5 through 8 we verify that these findings are robust to including firm fixed effects instead of firm-level controls.

[30] Table IA.6 replicates the analysis in Table 9 with the fraction of equity-financed discretionary payouts as the dependent variable. In contrast to Table 9, we find somewhat noisy evidence that equity-financed payouts are *anti*cyclical. One potential reason for this result, which is in line with our market-timing evidence in Section 4.5.2, is that stock-market volatility tends to be higher during recessions (Schwert 1989), thereby giving rise to more intra-year cycles of over- and undervaluation. At the same time, Table IA.6 suggests that the finding in Dittmar and Dittmar (2008) that periods of economic expansion tend to be associated with higher aggregate levels of both equity issues and repurchases is unlikely to be driven by the same firms simultaneously issuing and repurchasing shares.

would be expected given the prevailing macroeconomic conditions.[31] We begin by studying the relationship between the government bond supply and debt-financed payouts. Consistent with the notion that government borrowing can crowd out corporate borrowing (Graham, Leary, and Roberts 2014; Ma 2016), columns 1 through 4 show that higher levels of government borrowing tend to be associated with a lower propensity for firms to debt-finance their payouts.[32]

In columns 5 through 8, we estimate the same regressions as in columns 1 through 4 but adding a control for the annual level of large-scale asset purchases conducted by the Fed under the QE program. Although we again caution against interpreting these estimates causally, the results are consistent with the notion that the program was associated with an increase in debt-financed discretionary payouts, as hypothesized by Stein in his 2012 speech.[33] Our findings thus suggest that a potentially unintended consequence of the QE program might have been to incentivize firms to hold a higher level of leverage than they otherwise would, thereby increasing the financial fragility of the economy (e.g., Schularick and Taylor 2012).

5. Conclusions

This paper is the first to systematically study the extent to which industrial public firms in the U.S. rely on the capital markets to finance their payouts. We find that, in the average year, 42% of firms that pay out capital also raise capital that same year, resulting in close to one-third of aggregate payouts being financed in the capital markets. Conversely, issuers pay out 39% of the aggregate proceeds of net debt issues and 19% of the proceeds of firm-initiated equity issues during the same year. The vast majority of firms engaging in this payout-financing behavior do not generate enough

[31] Table 10 focuses on GDP growth and the output gap as controls for macroeconomic conditions because they are less likely to be directly affected by government debt-market policies (and so suffer from a "bad control" problem (Angrist and Pischke 2009)) than the credit and term spreads.

[32] Ma (2016) shows that the government bond supply is positively associated both with higher aggregate levels of debt issuance and with higher share repurchases. The results in Table 10 indicate that this relation is, at least in part, driven by firms that simultaneously issue debt and repurchase shares.

[33] To be sure, the QE program cannot be the only driver of debt-financed payouts, as we have shown that financed payouts were prevalent long before QE began in late 2008.

operating cash flow—not even after adding excess cash reserves and the proceeds of employee-initiated equity issues—to fund their investment and payouts without the proceeds of these issues.

Approximately one-third of firms with a payout-funding gap would not have to raise net external capital if they did not pay out; for these firms, the payout decision can thus be seen as triggering their need to raise capital. Importantly, although the remaining two-thirds would still have to raise some capital even if they did not pay out, the additional capital they raise and simultaneously pay out is substantial, representing over a quarter of their total funding need. Firms devote 10% of the proceeds of the security issues they initiate to cover the gap between their prior-year regular dividend and their internal funds; an additional 20% goes to cover the gap between their internal funds and their share repurchases (primarily), regular dividend increases, and special dividends. Therefore, the majority of financed payouts cannot be explained by firms' well-known desire to avoid regular dividend cuts.

The vast majority of financed payouts are financed with debt. We find the most support for the notion that firms use these debt-financed payouts to adjust their capital structure—possibly for tax or agency reasons—without depleting their cash reserves (or triggering repatriation taxes). In particular, we show that debt-financed payouts allow under-levered firms to quickly increase their leverage in a way that, given their level of cash, they could not replicate by using payouts alone. Firms' decision to set a payout level that they need to finance externally appears to be pro-cyclical; in particular, we show that firms are more likely to finance their payouts with debt when credit and term spreads are low. We also find suggestive evidence that debt-financed payouts can be fueled by government debt-market policies such as the Federal Reserve's QE program. That said, whether the benefits of financed payouts outweigh the wedge between firms' external and internal cost of funds (Fazzari et al. 1988; Kaplan and Zingales 1997) remains a fascinating question for future research.

More fundamentally, and irrespective of the valuation consequences of financed payouts, our findings leave little doubt that the relation between payouts, cash, and capital structure is far from mechanical when one conditions on how payouts are financed. Our paper thus highlights the importance of studying these policies jointly as interdependent elements of the financial ecosystem.

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Appendix A. Variable Definitions.

Operating cash flow is defined as Compustat data items (*oancf* + *exre* + *txbcof*) scaled by beginning-of-year total assets (*at*).

Investment (capex + acquisitions) is defined as Compustat data items (*capx* + *aqc*) scaled by beginning-of-year total assets (*at*).

Market-to-book is defined as Compustat data items (*prcc_f* × *csho* + *pstkl* + *dltt* + *dlc* − *txditc*) / *at*, measured as of the beginning of the fiscal year.

Size is the logarithm of real total assets (Compustat data item *at*, deflated to 2012 dollars using the annual GDP deflator) as of the beginning of the fiscal year.

Investment-grade credit rating is an indicator equal to one if the firm has an investment-grade grade credit rating (Compustat data item *splticrm* equal to BBB− or better) as of the beginning of the fiscal year, and zero otherwise.

Excess leverage is defined as the difference between a firm's leverage (Compustat data items (*dltt* + *dlc*) / *at*) and the leverage of the median firm in its three-digit SIC industry as of the beginning of the fiscal year.

Excess cash is defined as the difference between a firm's cash (Compustat data items *che* / *at*) and the leverage of the median firm in its three-digit SIC industry as of the beginning of the fiscal year.

Tax cost of repatriating foreign earnings is the product of a firm's foreign earnings (Compustat data item *pifo*) times the statutory U.S. tax rate of 35% minus the firm's foreign tax credit (*txfo*), scaled by total assets (*at*) and multiplied by 100, if this quantity is positive, and zero otherwise (see Hanlon, Lester, and Verdi (2015) for a related approach).

Share of institutional investors is computed using data come from Thomson-Reuters Institutional Holdings (13F) Database. Specifically, for each firm-year, we add up the number of shares held by each of its institutional investors (Thomson-Reuters data item *shares*) at the beginning of the fiscal year (or the closest subsequent month for which Thomson-Reuters data are available) and divide it by the firm's total number of shares outstanding (as captured by CRSP data item *shrout* × 1000).

Earnings response coefficient (ERC) is computed following Easton and Zmijewski (1989). We estimate ERC separately for each industry j and fiscal year t by regressing abnormal returns SAR_{ijtq} on a constant and on unexpected earnings UE_{ijtq} using all firms i in industry j and all four quarters q in fiscal year t, requiring a minimum of 10 observations. ERC for industry j in year t is the coefficient estimated for UE_{ijtq}. SAR_{ijtq} is firm i's size-adjusted abnormal return in the three-day window centered on the day the firm announced quarterly earnings q. UE_{ijtq} is firm i's earnings surprise, measured as actual earnings-per-share less analyst consensus (i.e., the median outstanding earnings forecast from I/B/E/S data). We use the Fama and French (1997) classification of 30 industry groups, available from Kenneth French's webpage.

Idiosyncratic volatility is the idiosyncratic volatility of monthly stock returns. For each firm-year, we estimate a Fama and French (1993) three-factor model using the firm's monthly stock returns for the 24-month window ending at the end of the fiscal year, requiring at least 10 observations, and then compute the standard deviation of the predicted residuals. (We use monthly return data from CRSP (CRSP data item *ret*) and monthly Fama-French factors from Ken French's website.)

Firm targeted by activist hedge fund is an indicator equal to one if the firm is targeted by an activist hedge fund during the 12-month window ending at the end of the firm's third fiscal quarter, and zero otherwise. Data on hedge fund activism has been kindly provided by Alon Brav. See Brav, Jiang, and Kim (2015) for details on how the data are collected.

Real GDP growth is the percent change in annual real GDP from the preceding year, as reported by the Bureau of Economic Analysis (BEA).

Output gap is measured as log(real annual potential GDP, *GDPPOT*) − log(real annual GDP, *GDPC1*), both obtained from the Federal Reserve Economic Data (FRED).

Credit spread is the average difference in yields during each firm's fiscal year between Moody's seasoned Baa and Aaa bonds, both available monthly from FRED.

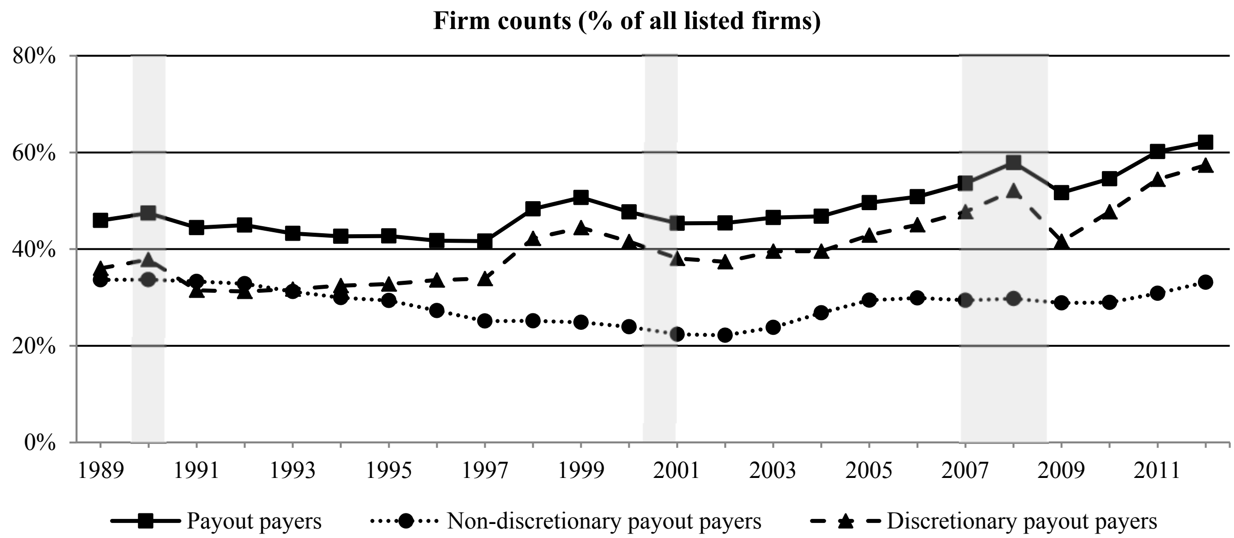
Term spread is the average difference in yields during each firm's fiscal year between ten-year Treasury bonds and three-month Treasury bills, both available monthly from FRED.

Government bond supply is measured as the annual change in data items (FL313161125.Q + FL313161400.Q − FL713061125.Q − FL263061120.Q) from the Federal Reserve's Financial Accounts of the United States, all measured as of the last quarter of each year, scaled by nominal annual GDP from FRED.

Quantitative easing is measured as the logarithm of the dollar amount of large-scale asset purchases conducted by the Federal Reserve (Fed) under the QE program during each firm's fiscal year. The QE program consisted of three phases, known as QE1, QE2, and QE3. We calculate the monthly volume of QE1 purchases from transaction-level data from the website of the Federal Reserve Bank of New York. The monthly volume of QE2 purchases is calculated based on the Fed's announcement on November 3, 2010, stating the goal to purchase $600 billion worth of assets by the end of the second quarter of 2011 "at a pace of about $75 billion per month." QE3 was announced on September 13, 2012, with an initial target of $40 billion worth of asset purchases per month; the target was increased to $85 billion per month on December 12 of the same year. The target was then reduced to $65 billion per month in February 2014. The QE program concluded on October 29, 2014.

Figure 1. Aggregate payout activity.

For each year from 1989 to 2012, the top graph shows the percentage of public U.S. firms that are payout payers (i.e., pay a dividend or repurchase shares). In addition, in the figure and throughout the paper, we break down each firm's total payout into two parts: the non-discretionary part, defined as the minimum of a firm's regular dividend and its prior-year regular dividend; and the discretionary part, which is made up of the sum of any regular dividend increases paid by the firm, special dividends, and share repurchases. The top graph shows the percentage of all public firms that are non-discretionary payout payers as well as the percentage of discretionary payers. (Note that these two categories are not mutually exclusive; in particular, any firm paying a regular dividend larger than its prior-year regular dividend is both a non-discretionary and a discretionary payout payer.) The bottom graph shows each year's aggregate total payout (i.e., the sum of dividends and share repurchases paid by all public U.S. firms that year). It also shows each year's aggregate non-discretionary and discretionary payouts. The grey bars identify NBER recessions. Dollar magnitudes are in billions of dollars of 2012 purchasing power.



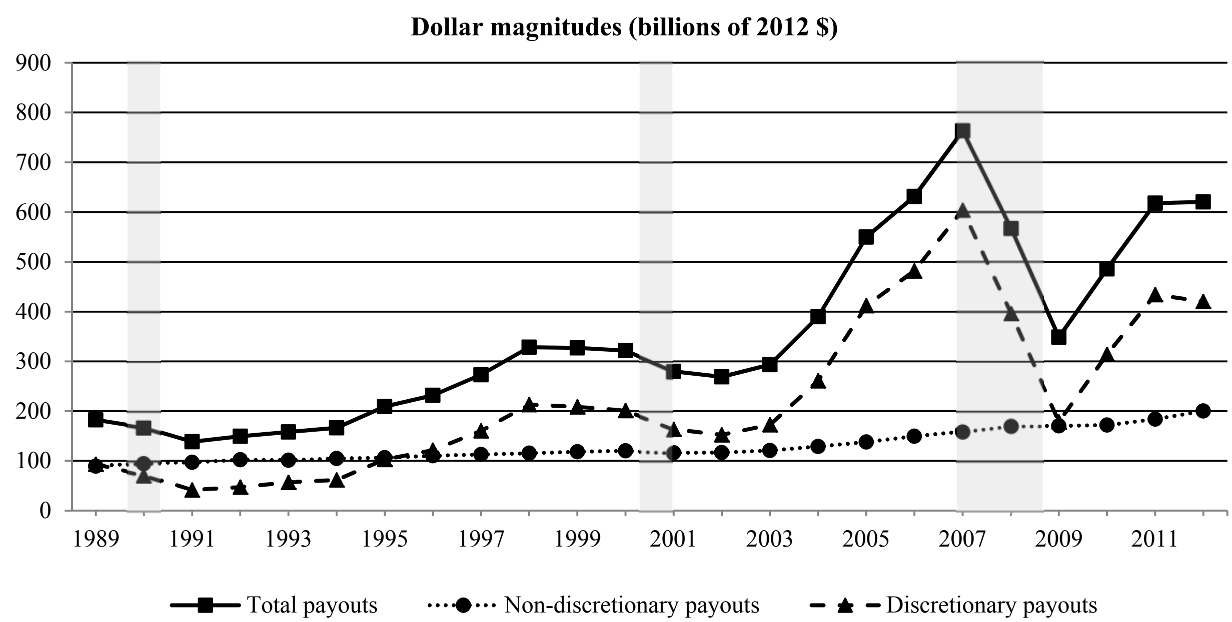
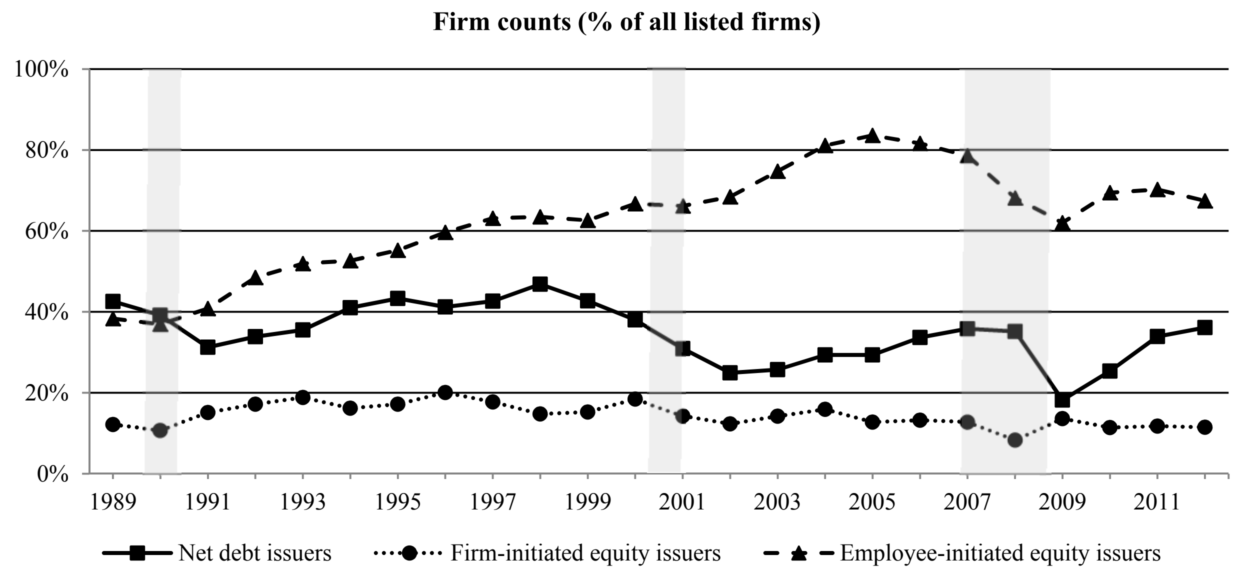


Figure 2. Aggregate capital-raising activity.

For each year from 1989 to 2012, the top graph shows the percentage of public U.S. firms with positive net debt issues (defined as debt issues net of debt repurchases if this difference is positive, and zero otherwise), firm-initiated equity issues, and employee-initiated equity issues. (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 end-of-period market equity is above 3%. Otherwise, we conservatively classify the issue as employee initiated. We then add up the quarterly proceeds of firm-initiated issues over all four quarters in a year, and analogously for employee-initiated issues.) The bottom graph shows the aggregate dollar amount raised via net debt issues, firm-initiated equity issues, and employee-initiated equity issues by public U.S. firms each year. The grey bars identify NBER recessions. Dollar magnitudes are in billions of dollars of 2012 purchasing power.



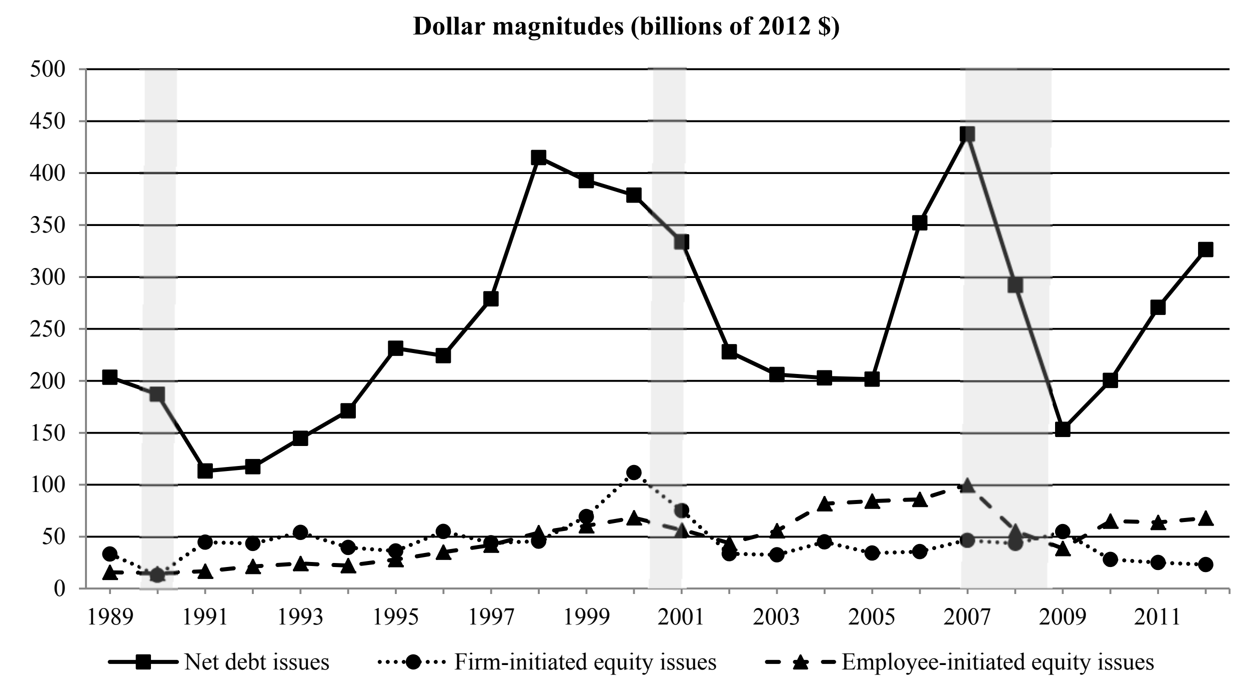


Figure 3. Aggregate magnitude of the gap between internal funds and payouts.
For each year t from 1989 to 2012, the solid line plots the sum of active discretionary payout gaps aggregated over all public U.S. firms; i.e., the aggregate sum of $ADPG_{it} \equiv \min\{\max\{DP_{it} - (FCF_{it} + CR_{it} - NP_{it} + EE_{it}), 0\}, DP_{it}\}$. ($DP$ is discretionary payout, the sum of share repurchases, regular dividend increases, and special dividends; FCF is free cash flow, the sum of operating cash flow and investment cash flow; CR is cash reduction, defined as in Table 3; NP is non-discretionary payout, the minimum of a firm's regular dividend and its prior-year regular dividend; and EE captures the proceeds of employee-initiated equity issues.) The dotted line plots the aggregate magnitude of active non-discretionary payout gaps; i.e., the sum of $ANPG_{it} \equiv \min\{\max\{NP_{it} - (FCF_{it} + CR_{it} + EE_{it}), 0\}, NP_{it}\}$ across all public firms. The grey bars identify NBER recessions. Dollar magnitudes are in billions of dollars of 2012 purchasing power.

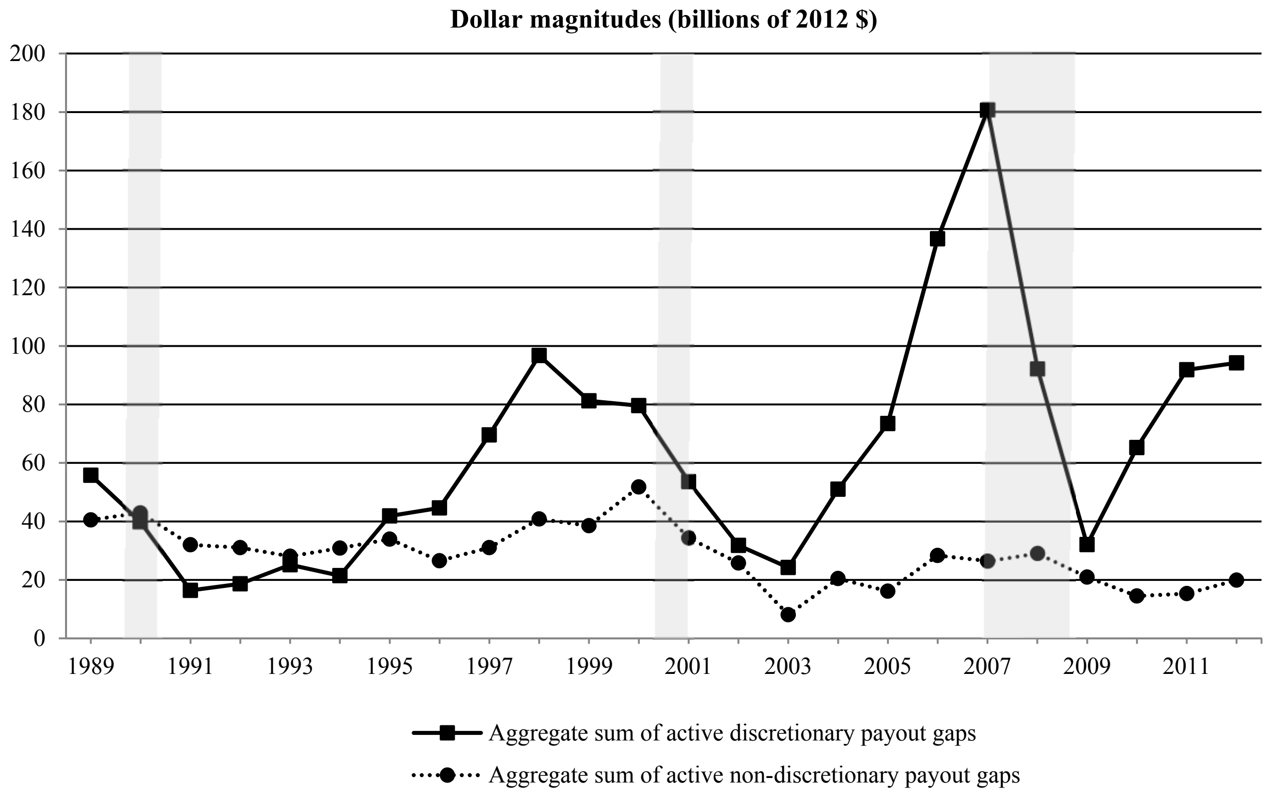


Figure 4. **Firms with a discretionary payout gap that would not have to raise capital if they did not pay out.** This figure helps illustrate the time variation in the fraction of firms with an active discretionary payout gap whose need to raise capital can be seen as being triggered by their payout decision. Specifically, for each year *t* from 1989 to 2012, the figure shows the percentage of firms with an active discretionary payout gap (i.e., $ADPG_{it} \equiv \min\{\max\{DP_{it} - (FCF_{it} + CR_{it} - NP_{it} + EE_{it}), 0\}, DP_{it}\} >> 0$) that would not have to raise capital if their discretionary payout were zero (i.e., $(FCF_{it} + CR_{it} - NP_{it} + EE_{it}) \geq 0$); i.e., one minus the fraction shown in Table 5, column 5. The grey bars identify NBER recessions.

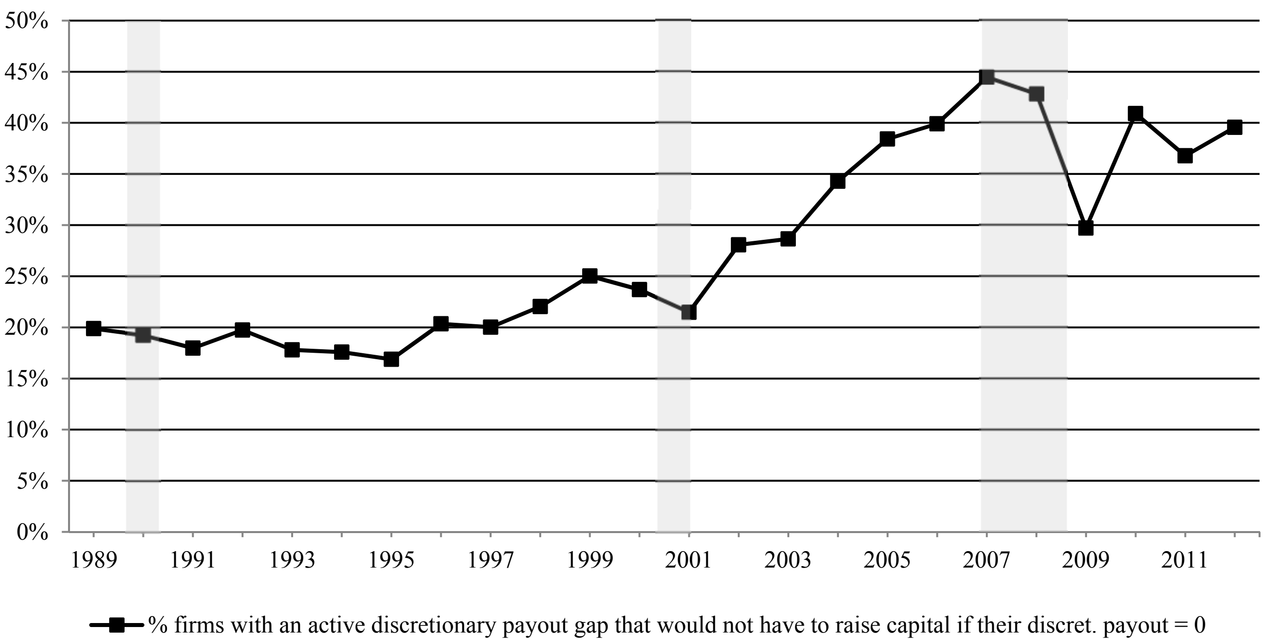
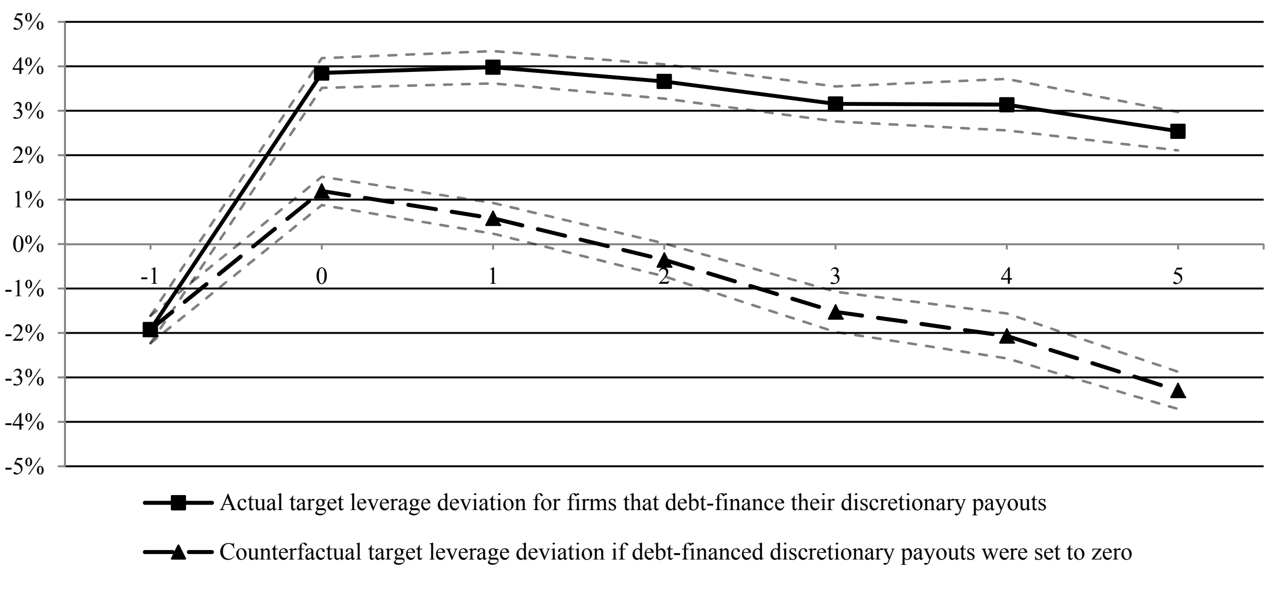


Figure 5. Relationship between debt-financed discretionary payouts, leverage, and cash.
This figure investigates the impact that debt-financed discretionary payouts have on firms' leverage and cash holdings. Specifically, the solid line in Panel A shows the evolution from year $t = -1$ to year $t = 5$ of the target leverage deviation averaged across all firms that debt-finance their discretionary payouts in year $t = 0$; i.e., across all firms for which $\min\{ND_{it}, DP_{it}\} >> 0$ in year $t = 0$. (ND denotes the proceeds of net debt issues and DP is discretionary payout. 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, industry, and year.) The dashed line in Panel A shows how the same set of firms' average target leverage deviation would have evolved had the firms not debt-financed their discretionary payouts in year $t = 0$ or any subsequent year: For any firm for which $\min\{ND_{it}, DP_{it}\} >> 0$ in year $t = 0$, we counterfactually set ND_{it} equal to $ND_{it} - \min\{ND_{it}, DP_{it}\}$ and DP_{it} equal to $DP_{it} - \min\{ND_{it}, DP_{it}\}$ for year $t = 0$ and any subsequent year $t + j$ for which $\min\{ND_{it+j}, DP_{it+j}\} >> 0$. (Note that 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 net debt-issuance proceeds that are paid out during the same year via discretionary payouts.) The solid line in Panel B shows the evolution of average cash-to-assets for the same set of firms that debt-finance their discretionary payouts in year $t = 0$, whereas the dashed line shows how cash would have evolved had these firms tried to attain the same leverage increase shown in Panel A without raising any net debt and instead paying a higher discretionary payout in year $t = 0$ as well as any subsequent year $t + j$ for which $\min\{ND_{it+j}, DP_{it+j}\} >> 0$. Specifically, if a firm with a debt-financed discretionary payout $\min\{ND_{it}, DP_{it}\} >> 0$ were to counterfactually set its net debt issues to zero, it would need to increase its discretionary payout to $DP_{it} + ND_{it}\,(TA_{it} - D_{it})/D_{it}$, where TA_{it} and D_{it} are the (actual) levels of total assets and debt the firm has at the end of year t, to attain the same leverage increase. Doing so would lead 84% of firms that debt-finance their discretionary payouts to end up with negative cash holdings already in year $t = 0$. To facilitate the comparison of the solid and dashed lines 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 total assets leads to even more pronounced results; in fact, the counterfactual discretionary payouts implied by our analysis in Panel B would need to be so high that by year 5, counterfactual total assets would be negative for 17% of firms.) Both panels show 95% confidence intervals around each mean (for actual cash in Panel B, the confidence interval is very narrow such that in the graph it appears to overlap with the mean).

Panel A. Target leverage deviation with and without debt-financed discretionary payouts.



Panel B. Cash holdings with and without debt-financed discretionary payouts.

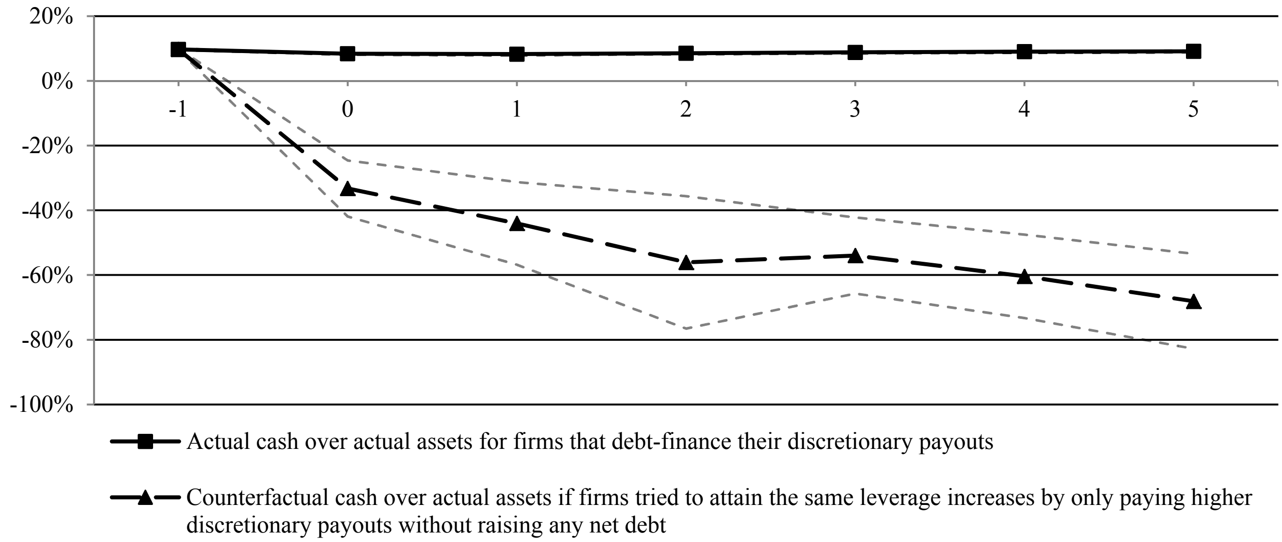


Table 1. Simultaneous payouts and security issues.

This table examines the extent to which firms simultaneously pay out and raise capital during the same fiscal year. In Panel A, we consider all security issues; specifically, *SI* is the sum of the proceeds of net debt issues (i.e., max{debt issued – debt repurchased, 0}), firm-initiated equity issues, and employee-initiated equity issues. In Panel B, we focus only on instances in which firms actively raise capital by considering only firm-initiated security issues; *AI* is thus defined as the sum of the proceeds of net debt issues and firm-initiated equity issues. On the payout side, columns 1-5 examine total payout (*TP*); columns 6-9 focus on the non-discretionary component of total payout (*NP*), defined as the minimum of a firm's regular dividend and its prior-year regular dividend; and columns 10-13 focus on the discretionary component of total payout (*DP*), defined as the sum of share repurchases, regular dividend increases, and special dividends.

Panel A. All security issues (net debt issues and all equity issues).

	Total payout (*TP*)					**Non-discretionary payout (*NP*)**				**Discretionary payout (*DP*)**			
	Firm counts			*$ magnitudes*		*Firm counts*		*$ magnitudes*		*Firm counts*		*$ magnitudes*	
				Aggregate sum of min{*SI*, *TP*} over …				Aggregate sum of min{*SI*, *NP*} over …				Aggregate sum of min{*SI*, *DP*} over …	
Annual figures averaged over …	% public firms that raise & pay out capital	% *TP* payers that also raise capital	% firms raising capital that also pay out capital	aggreg. sum of *TP*	aggreg. sum of *SI*	% public firms that raise capital & pay a non-disc. payout	% *NP* payers that also raise capital	aggreg. sum of *NP*	aggreg. sum of *SI*	% public firms that raise capital & pay a discret. payout	% *DP* payers that also raise capital	aggreg. sum of *DP*	aggreg. sum of *SI*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1989-1992	33.0%	72.2%	49.6%	51.3%	39.8%	24.7%	74.0%	58.7%	27.7%	25.3%	74.1%	60.2%	18.2%
1993-1996	33.7%	79.2%	43.3%	41.8%	29.9%	23.3%	79.1%	49.4%	19.9%	26.4%	80.9%	48.8%	15.3%
1997-2000	39.4%	83.8%	47.5%	48.4%	31.2%	20.6%	83.3%	62.7%	15.1%	34.3%	84.7%	53.9%	21.8%
2001-2004	39.4%	85.7%	47.2%	36.2%	32.4%	20.1%	84.1%	51.3%	18.0%	33.8%	87.5%	40.0%	21.8%
2005-2008	47.8%	90.3%	54.3%	33.9%	48.5%	26.3%	88.8%	55.6%	20.0%	42.9%	91.5%	38.2%	41.1%
2009-2012	47.6%	83.1%	59.4%	31.8%	50.1%	25.1%	82.2%	46.4%	25.9%	42.7%	84.7%	40.0%	40.4%
all years	40.2%	82.4%	50.2%	40.6%	38.6%	23.3%	81.9%	54.0%	21.1%	34.2%	83.9%	46.9%	26.5%

Panel B. Only firm-initiated security issues (net debt issues and firm-initiated equity issues).

	Total payout (*TP*)					Non-discretionary payout (*NP*)				Discretionary payout (*DP*)			
	Firm counts			*$ magnitudes*		*Firm counts*		*$ magnitudes*		*Firm counts*		*$ magnitudes*	
				Aggregate sum of min{*AI*, *TP*} over ...				Aggregate sum of min{*AI*, *NP*} over ...				Aggregate sum of min{*AI*, *DP*} over ...	
Annual figures averaged over ...	% public firms that actively raise & pay out capital	% *TP* payers that also actively raise capital	% firms actively raising capital that also pay out capital	aggreg. sum of *TP*	aggreg. sum of *AI*	% public firms that act. raise capital & pay a non-disc. payout	% *NP* payers that also actively raise capital	aggreg. sum of *NP*	aggreg. sum of *AI*	% public firms that act. raise capital & pay a discret. payout	% *DP* payers that also actively raise capital	aggreg. sum of *DP*	aggreg. sum of *AI*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1989-1992	21.2%	46.3%	46.3%	45.7%	38.5%	15.9%	47.5%	52.1%	26.8%	16.1%	46.8%	51.3%	17.1%
1993-1996	20.6%	48.5%	40.0%	34.3%	27.4%	14.7%	49.9%	39.6%	17.8%	15.9%	48.6%	38.6%	13.5%
1997-2000	23.8%	50.6%	45.2%	38.8%	28.2%	13.3%	53.7%	51.3%	13.9%	20.5%	50.7%	41.4%	18.9%
2001-2004	15.5%	33.6%	41.0%	24.9%	26.8%	8.6%	36.1%	36.1%	15.3%	12.7%	32.7%	24.3%	16.0%
2005-2008	20.7%	39.1%	49.9%	24.1%	42.1%	12.8%	43.1%	37.8%	16.7%	18.1%	38.4%	26.2%	34.6%
2009-2012	19.7%	34.1%	52.2%	23.1%	44.3%	11.1%	36.2%	33.4%	22.6%	17.3%	33.6%	28.8%	35.7%
all years	20.3%	42.0%	45.8%	31.8%	34.6%	12.7%	44.4%	41.7%	18.9%	16.8%	41.8%	35.1%	22.7%

Table 2. Simultaneous payouts and security issues—breaking down the role of debt and equity.
This table examines which securities firms issue when they simultaneously pay out and raise capital during the same year. Panel A focuses on net debt issues (with *ND* defined as max{debt issued – debt repurchased, 0}); Panel B examines firm-initiated equity issues (denoted *FE*); and Panel C focuses on employee-initiated equity issues (denoted *EE*). Columns 1-5 examine total payout (*TP*); columns 6-9 focus on the non-discretionary component of total payout (*NP*), defined as the minimum of a firm's regular dividend and its prior-year regular dividend; and columns 10-13 focus on the discretionary component of total payout (*DP*), defined as the sum of share repurchases, regular dividend increases, and special dividends. To conserve space, we show only annual figures averaged over all our sample years (1989-2012). Table IA.1 in the Internet Appendix provides a time-series breakdown analogous to that shown in Table 1, with annual figures averaged over four years.

	Total payout (*TP*)					**Non-discretionary payout (*NP*)**				**Discretionary payout (*DP*)**			
	Firm counts			*$ magnitudes*		*Firm counts*		*$ magnitudes*		*Firm counts*		*$ magnitudes*	
				For *S* = *ND*, *FE*, or *EE*, aggregate sum of min{*S*, *TP*} over ...				For *S* = *ND*, *FE*, or *EE*, aggregate sum of min{*S*, *NP*} over ...				For *S* = *ND*, *FE*, or *EE*, aggregate sum of min{*S*, *DP*} over ...	
Annual figures averaged over ...	% public firms that issue securities & pay out capital	% *TP* payers that also issue securities (*ND*, *FE*, or *EE*)	% firms issuing securities that also pay out capital	aggreg. sum of *TP*	aggreg. sum of *S*	% public firms that issue securities & pay a non-discret. payout	% *NP* payers that also issue securities (*ND*, *FE*, or *EE*)	aggreg. sum of *NP*	aggreg. sum of *S*	% public firms that issue securities & pay a discret. payout	% *DP* payers that also issue securities (*ND*, *FE*, or *EE*)	aggreg. sum of *DP*	aggreg. sum of *S*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Panel A. Net debt issues (*ND*).													
1989-2012	18.2%	37.6%	52.4%	29.7%	38.6%	11.8%	41.2%	39.6%	21.4%	15.1%	37.6%	32.9%	25.3%
Panel B. Firm-initiated equity issues (*FE*).													
1989-2012	3.5%	7.5%	24.6%	3.2%	18.8%	1.7%	5.9%	3.8%	10.8%	2.7%	7.1%	3.2%	10.1%
Panel C. Employee-initiated equity issues (*EE*).													
1989-2012	33.8%	69.0%	53.7%	11.2%	78.8%	19.4%	68.2%	19.5%	55.6%	29.4%	71.4%	15.9%	63.5%

Table 3. Do firms have sufficient internal funds to fund their payouts?

This table examines whether payout payers have sufficient internal funds to fund their payouts while maintaining the same level of profitability and investment. In Panel A, columns 1-4 show the prevalence of firms with a total payout gap, i.e., firms with $TPG_{it} \equiv \min\{\max\{TP_{it} - (FCF_{it} + CR_{it}), 0\}, TP_{it}\} >> 0$, as well as the economic magnitude of these gaps. (TP is total payout; FCF is free cash flow, the sum of operating cash flow and investment cash flow; and $CR \geq 0$ is the maximum cash reduction that would leave the firm with the predicted level of cash for a firm of its size, industry, and year.) Columns 5-8 show the prevalence and economic magnitude of non-discretionary payout gaps, defined as $NPG_{it} \equiv \min\{\max\{NP_{it} - (FCF_{it} + CR_{it}), 0\}, NP_{it}\}$, where NP is the minimum of a firm's regular dividend and its prior-year regular dividend. Columns 9-12 show the prevalence and economic magnitude of discretionary payout gaps, defined as $DPG_{it} \equiv \min\{\max\{DP_{it} - (FCF_{it} + CR_{it} - NP_{it}), 0\}, DP_{it}\}$, where DP is the sum of share repurchases, regular dividend increases, and special dividends. Panel B shows analogous results for *active* payout gaps. Specifically, a firm's active total payout gap is defined as $ATPG_{it} \equiv \min\{\max\{TP_{it} - (FCF_{it} + CR_{it} + EE_{it}), 0\}, TP_{it}\}$, where EE captures the proceeds of employee-initiated equity issues. Active non-discretionary and discretionary payout gaps are defined analogously by adding EE to $FCF + CR$ in their definitions. In Panels A and B, payout gaps are defined annually and, as in Table 1, we report annual figures averaged over four years to conserve space. By contrast, in Panel C, all sources and uses of funds are aggregated over four-year intervals, and we define a firm's four-year active total payout gap as follows: $ATPG^4_{it} \equiv \min\left\{\max\left\{\sum_{j=0}^{3} TP_{it+j} - \sum_{j=0}^{3}\left(FCF_{it+j} + CR_{it+j} + EE_{it+j}\right), 0\right\}, \sum_{j=0}^{3} TP_{it+j}\right\}$ (and analogously for non-discretionary and discretionary gaps).

Panel A. Payout gaps.

	Total payout gaps (*TPG*)				**Non-discretionary payout gaps (*NPG*)**				**Discretionary payout gaps (*DPG*)**			
	Counts		$ magnitudes		Counts		$ magnitudes		Counts		$ magnitudes	
Annual figures averaged over …	% public firms with a *TP* gap	% *TP* payers with a *TP* gap	Aggreg. sum of *TPG* over aggreg. sum of *TP* paid by all firms	Aggreg. sum of *TPG* over aggreg. sum of security issues	% public firms with a *NP* gap	% *NP* payers with a *NP* gap	Aggreg. sum of *NPG* over aggreg. sum of *NP* paid by all firms	Aggreg. sum of *NPG* over aggreg. sum of security issues	% public firms with a *DP* gap	% *DP* payers with a *DP* gap	Aggreg. sum of *DPG* over aggreg. sum of *DP* paid by all firms	Aggreg. sum of *DPG* over aggreg. sum of security issues
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1989-1992	21.0%	45.9%	45.3%	35.0%	13.7%	41.0%	40.8%	19.0%	15.8%	46.0%	52.0%	16.0%
1993-1996	21.5%	50.6%	35.6%	25.6%	13.1%	44.7%	30.4%	12.3%	16.6%	50.8%	42.4%	13.3%
1997-2000	25.2%	53.5%	42.1%	27.1%	11.1%	44.8%	37.1%	8.9%	21.8%	53.8%	45.2%	18.3%
2001-2004	16.0%	34.8%	23.4%	20.3%	6.7%	28.2%	20.4%	6.9%	13.4%	34.5%	25.5%	13.4%
2005-2008	23.9%	45.2%	26.4%	37.6%	9.3%	31.5%	17.8%	6.4%	21.0%	44.9%	29.1%	31.2%
2009-2012	20.7%	35.5%	19.6%	30.8%	7.6%	24.7%	10.7%	6.1%	18.3%	35.4%	24.3%	24.7%
all years	21.4%	44.3%	32.1%	29.4%	10.3%	35.8%	26.2%	9.9%	17.8%	44.2%	36.4%	19.5%

Panel B. Active payout gaps.

	Active total payout gaps (*ATPG*)				Active non-discretionary payout gaps (*ANPG*)				Active discretionary payout gaps (*ADPG*)			
	Counts		$ magnitudes		Counts		$ magnitudes		Counts		$ magnitudes	
Annual figures averaged over …	% public firms with an active *TP* gap	% *TP* payers with an active *TP* gap	Aggreg. sum of *ATPG* over aggreg. sum of *TP* paid by all firms	Aggreg. sum of *ATPG* over aggreg. sum of active security issues	% public firms with an active *NP* gap	% *NP* payers with an active *NP* gap	Aggreg. sum of *ANPG* over aggreg. sum of *NP* paid by all firms	Aggreg. sum of *ANPG* over aggreg. sum of active security issues	% public firms with an active *DP* gap	% *DP* payers with an active *DP* gap	Aggreg. sum of *ADPG* over aggreg. sum of *DP* paid by all firms	Aggreg. sum of *ADPG* over aggreg. sum of active security issues
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1989-1992	20.2%	44.2%	42.7%	35.9%	13.2%	39.4%	38.4%	19.5%	15.2%	44.2%	48.8%	16.4%
1993-1996	20.5%	48.2%	33.0%	26.4%	12.6%	42.6%	28.3%	12.7%	15.7%	48.2%	39.2%	13.6%
1997-2000	24.0%	51.0%	39.0%	28.4%	10.6%	42.8%	34.6%	9.3%	20.7%	51.2%	41.8%	19.1%
2001-2004	14.3%	31.1%	20.5%	21.5%	6.3%	26.4%	18.6%	7.5%	11.8%	30.5%	21.8%	14.0%
2005-2008	21.9%	41.3%	22.7%	39.8%	8.7%	29.5%	16.1%	7.1%	19.1%	40.6%	24.8%	32.8%
2009-2012	19.1%	32.9%	16.8%	32.3%	7.2%	23.4%	9.8%	6.8%	16.8%	32.5%	20.6%	25.5%
all years	20.0%	41.4%	29.1%	30.7%	9.8%	34.0%	24.3%	10.5%	16.6%	41.2%	32.8%	20.2%

Panel C. Active payout gaps defined over four-year intervals (sources and uses of capital aggregated over four years).

	Active total payout gaps (*ATPG*[4])				Active non-discretion. payout gaps (*ANPG*[4])				Active discretionary payout gaps (*ADPG*[4])			
	Counts		*$ magnitudes*		*Counts*		*$ magnitudes*		*Counts*		*$ magnitudes*	
Four-year intervals	% public firms with an active *TP* gap (1)	% *TP* payers with an active *TP* gap (2)	Aggreg. sum of *ATPG* over aggreg. sum of *TP* paid by all firms (3)	Aggreg. sum of *ATPG* over aggreg. sum of active security issues (4)	% public firms with an active *NP* gap (5)	% *NP* payers with an active *NP* gap (6)	Aggreg. sum of *ANPG* over aggreg. sum of *NP* paid by all firms (7)	Aggreg. sum of *ANPG* over aggreg. sum of active security issues (8)	% public firms with an active *DP* gap (9)	% *DP* payers with an active *DP* gap (10)	Aggreg. sum of *ADPG* over aggreg. sum of *DP* paid by all firms (11)	Aggreg. sum of *ADPG* over aggreg. sum of active security issues (12)
1989-1992	35.0%	50.6%	38.4%	42.9%	18.4%	40.0%	32.0%	21.8%	33.2%	50.9%	48.4%	21.1%
1993-1996	38.2%	58.3%	29.3%	34.0%	19.5%	47.0%	24.5%	15.7%	36.2%	58.3%	35.3%	18.2%
1997-2000	48.1%	65.3%	39.7%	39.3%	18.1%	52.3%	33.7%	12.3%	47.0%	65.4%	43.3%	27.0%
2001-2004	25.1%	35.9%	15.1%	23.6%	8.4%	26.0%	15.4%	9.4%	23.9%	35.7%	14.9%	14.1%
2005-2008	39.3%	52.7%	21.9%	51.9%	12.0%	31.5%	14.0%	8.2%	38.2%	52.3%	24.5%	43.7%
2009-2012	30.3%	40.2%	14.7%	38.9%	9.4%	24.0%	7.0%	6.6%	29.5%	40.0%	18.9%	32.2%
avg. of all intervals	36.0%	50.5%	26.5%	38.4%	14.3%	36.8%	21.1%	12.4%	34.7%	50.4%	30.9%	26.1%

Table 4. The role of profitability and investment shocks in explaining payout gaps.

This table examines the extent to which active payout gaps are driven by firms with unusually low profits or high investment. The table replicates the analysis in Panel B of Table 3 using six counterfactual definitions of active payout gaps. In Panel A, we assume that no firm is less profitable than the median firm in its industry and define $ATPG_{it}^{IndOcf} \equiv \min\{\max\{TP_{it} - (\max\{OCF_{it}, \textit{Industry median } OCF_{it}\} + ICF_{it} + CR_{it} + EE_{it}), 0\}, TP_{it}\}$, where *Industry median* OCF_{it} is the median ratio of operating cash flow/lagged assets in the firm's industry-year multiplied by the firm's lagged assets. (*TP* is total payout; *ICF* is investment cash flow; *CR* is cash reduction; and *EE* captures the proceeds of employee-initiated equity issues. Industry is defined at the 2-digit SIC level.) In Panel B, we assume that no firm is less profitable than it was in the previous year and define $ATPG_{it}^{LagOcf} \equiv \min\{\max\{TP_{it} - (\max\{OCF_{it}, OCF_{it-1}\} + ICF_{it} + CR_{it} + EE_{it}), 0\}, TP_{it}\}$. In Panel C, we assume that no firm invests more than the median firm in its industry and define $ATPG_{it}^{IndInv} \equiv \min\{\max\{TP_{it} - (OCF_{it} + \max\{ICF_{it}, \textit{Industry median } ICF_{it}\} + CR_{it} + EE_{it}), 0\}, TP_{it}\}$, where in *Industry median* ICF_{it} we substitute CAPEX and acquisitions by the median ratio of (CAPEX + acquisitions)/lagged assets in the firm's industry-year multiplied by the firm's lagged assets. In Panel D, we assume that no firm invests more than it did in the previous year and define $ATPG_{it}^{LagInv} \equiv \min\{\max\{TP_{it} - (OCF_{it} + \max\{ICF_{it}, \textit{Lagged } ICF_{it}\} + CR_{it} + EE_{it}), 0\}, TP_{it}\}$, where in *Lagged* ICF_{it} we substitute CAPEX and acquisitions by their lagged values. Panel E shows active gaps assuming that firms invest just enough to replace their depreciated assets (Dep_{it}); i.e., $ATPG_{it}^{Inv=Dep} \equiv \min\{\max\{TP_{it} - (OCF_{it} - Dep_{it} + CR_{it} + EE_{it}), 0\}, TP_{it}\}$. Panel F goes a step further and assumes that investment is zero for all firms; i.e, $ATPG_{it}^{Inv=0} \equiv \min\{\max\{TP_{it} - (OCF_{it} + CR_{it} + EE_{it}), 0\}, TP_{it}\}$. Counterfactual non-discretionary and discretionary gaps are defined analogously, following their respective definitions in Table 3. To conserve space, we show only annual figures averaged over all sample years, 1989-2012 (Table IA.2 in the Internet Appendix provides a time-series breakdown analogous to Table 3).

	Active total payout gaps (*ATPG*)			**Active non-discretionary payout gaps (*ANPG*)**			**Active discretionary payout gaps (*ADPG*)**		
Annual figures averaged over ...	% *TP* payers with an active *TP* gap (1)	Aggreg. *ATPG* over aggreg. *TP* (2)	Aggreg. *ATPG* over aggreg. active iss. (3)	% *NP* payers with an active *NP* gap (4)	Aggreg. *ANPG* over aggreg. *NP* (5)	Aggreg. *ANPG* over aggreg. active iss. (6)	% *DP* payers with an active *DP* gap (7)	Aggreg. *ADPG* over aggreg. *DP* (8)	Aggreg. *ADPG* over aggreg. active iss. (9)
Panel A. We assume that no firm is less profitable than the median firm in its industry.									
all years	33.5%	26.7%	27.9%	26.8%	21.5%	9.2%	34.0%	30.9%	18.7%
% of actual	80.8%	91.3%	91.3%	78.8%	88.6%	88.6%	82.5%	92.6%	92.6%
Panel B. We assume that no firm is less profitable than that same firm was in the previous year.									
all years	33.1%	24.6%	25.8%	26.2%	20.2%	8.7%	33.3%	28.0%	17.1%
% of actual	79.9%	84.9%	84.9%	76.9%	83.5%	83.5%	80.7%	85.6%	85.6%
Panel C. We assume that no firm invests more than the median firm in its industry.									
all years	26.7%	17.9%	18.6%	18.9%	13.5%	5.7%	26.8%	21.2%	12.8%
% of actual	64.5%	61.3%	61.3%	55.7%	54.6%	54.6%	64.9%	64.3%	64.3%
Panel D. We assume that no firm invests more than that same firm did in the previous year.									
all years	30.7%	20.7%	21.5%	22.9%	15.6%	6.8%	30.7%	24.6%	14.7%
% of actual	74.1%	69.9%	69.9%	67.3%	62.8%	62.8%	74.4%	73.2%	73.2%
Panel E. We assume that investment equals depreciation for all firms.									
all years	29.1%	13.9%	15.5%	19.5%	6.5%	3.0%	28.4%	19.3%	12.5%
% of actual	70.1%	51.7%	51.7%	57.2%	26.7%	26.7%	69.0%	63.0%	63.0%
Panel F. We assume that investment is zero for all firms.									
all years	13.0%	4.6%	5.3%	6.8%	1.1%	0.5%	13.0%	7.3%	4.8%
% of actual	31.3%	18.3%	18.3%	20.0%	4.7%	4.7%	31.7%	24.5%	24.5%

Table 5. Would firms with a payout gap still have to raise capital even if they did not pay out?
This table investigates whether the firms with an active payout gap identified in Table 3, Panel B have to raise capital as a direct consequence of their payout decision, or whether, by contrast, these firms would have to raise capital anyway, even if their payout were zero. Specifically, column 1 shows the percentage of firms with an active total payout gap (i.e., $ATPG_{it} \equiv \min\{\max\{TP_{it} - (FCF_{it} + CR_{it} + EE_{it}), 0\}, TP_{it}\} >> 0$) that would have a funding gap and thus would have to raise at least some capital even if their payout were zero (i.e., $(FCF_{it} + CR_{it} + EE_{it}) << 0$). Column 3 shows the percentage of firms with an active non-discretionary payout gap (i.e., $\min\{\max\{NP_{it} - (FCF_{it} + CR_{it} + EE_{it}), 0\}, NP_{it}\} >> 0$) that would have to raise capital even if their non-discretionary (and discretionary) payout were zero (i.e., $(FCF_{it} + CR_{it} + EE_{it}) << 0$). Column 5 shows the percentage of firms with an active discretionary payout gap (i.e., $ADPG_{it} \equiv \min\{\max\{DP_{it} - (FCF_{it} + CR_{it} + EE_{it} - NP_{it}), 0\}, DP_{it}\} >> 0$) that would have to raise capital even if their discretionary payout were zero (i.e., $(FCF_{it} + CR_{it} + EE_{it} - NP_{it}) << 0$). For those firms that would still have a funding gap and thus would have to raise capital even if their payout were zero, columns 2, 4, and 6 show the average magnitude of their payout relative to their total funding gap. Specifically, column 2 shows the average of the ratio $TP_{it} / (TP_{it} - (FCF_{it} + CR_{it} + EE_{it}))$ across all firms with an active total payout gap such that $(FCF_{it} + CR_{it} + EE_{it}) << 0$; column 4 shows the average of the ratio $NP_{it} / (NP_{it} - (FCF_{it} + CR_{it} + EE_{it}))$ across all firms with an active non-discretionary payout gap such that $(FCF_{it} + CR_{it} + EE_{it}) << 0$; and column 6 shows the average of the ratio $DP_{it} / (DP_{it} - (FCF_{it} + CR_{it} + EE_{it} - NP_{it}))$ across all firms with an active discretionary payout gap such that $(FCF_{it} + CR_{it} + EE_{it} - NP_{it}) << 0$.

	Active total payout gaps (*ATPG*)		**Active non-discretionary payout gaps (*ANPG*)**		**Active discretionary payout gaps (*ADPG*)**	
Annual figures averaged over ...	% firms with an active *TP* gap that would still have to raise capital even if *TP* = 0 (1)	For firms that would still have to raise capital even if *TP* = 0, avg. ratio of *TP* / (*TP* + non-payout-driven funding gap) (2)	% firms with an active *NP* gap that would still have to raise capital even if *NP* (and *DP*) = 0 (3)	For firms that would still have to raise capital even if *NP* = 0, avg. ratio of *NP* / (*NP* + non-payout-driven funding gap) (4)	% firms with an active *DP* gap that would still have to raise capital even if *DP* = 0 (5)	For firms that would still have to raise capital even if *DP* = 0, avg. ratio of *DP* / (*DP* + non-payout-driven funding gap) (6)
1989-1992	71.7%	29.4%	78.8%	27.6%	80.8%	20.9%
1993-1996	75.1%	25.9%	82.5%	24.1%	81.8%	19.2%
1997-2000	72.9%	25.8%	83.2%	21.3%	77.3%	23.6%
2001-2004	70.0%	26.1%	84.5%	22.3%	71.9%	22.3%
2005-2008	57.0%	27.5%	82.8%	22.0%	58.6%	24.5%
2009-2012	57.8%	26.0%	74.5%	24.5%	63.3%	22.2%
all years	67.4%	26.8%	81.0%	23.6%	72.3%	22.1%

Table 6. Characteristics of discretionary payout payers.

The table shows the results of a tobit model in which the dependent variable is a firm's discretionary payout scaled by the beginning-of-year market value of the firm's equity. (Table IA.3 in the Internet Appendix shows analogous results with payouts scaled by beginning-of-year assets.) Firm-level independent variables are measured as of the beginning of the fiscal year, except for operating cash flow and investment, which are scaled by beginning-of-year assets; all variables are defined in Appendix A. (Data on activist hedge funds are only available for years 1995-2011, which is why the sample size in column 2 is smaller.) Columns 1 and 2 include year fixed effects; columns 3-6 instead include a linear time trend because the set of year fixed effects is highly collinear with the macroeconomic control variables. The table reports the coefficient estimates of the tobit model, which capture the estimated marginal effect of each independent variable on the non-truncated latent dependent variable. Robust standard errors clustered at the firm level are shown in italics beneath the coefficient estimates. To maximize the number of informative digits shown, all coefficients and standard errors are multiplied by 100. We use ***, **, and * to denote significance at the 1%, 5%, and 10% level (two-sided), respectively.

Dependent variable:	**Discretionary payout / market value of equity**					
	(1)	(2)	(3)	(4)	(5)	(6)
Operating cash flow	7.243***	7.202***	7.240***	7.272***	7.189***	7.307***
	0.337	*0.383*	*0.334*	*0.336*	*0.332*	*0.335*
Investment (capex + acquisitions)	-3.581***	-3.831***	-3.398***	-3.470***	-3.282***	-3.526***
	0.252	*0.280*	*0.250*	*0.250*	*0.249*	*0.250*
Market-to-book	-0.279***	-0.254***	-0.269***	-0.292***	-0.258***	-0.276***
	0.027	*0.030*	*0.027*	*0.027*	*0.027*	*0.027*
Size	0.497***	0.457***	0.538***	0.514***	0.541***	0.537***
	0.035	*0.040*	*0.035*	*0.035*	*0.035*	*0.035*
Investment-grade credit rating	0.657***	0.841***	0.656***	0.666***	0.654***	0.673***
	0.133	*0.154*	*0.133*	*0.133*	*0.133*	*0.133*
Excess leverage	-2.750***	-2.558***	-2.924***	-2.854***	-2.929***	-2.922***
	0.242	*0.277*	*0.243*	*0.243*	*0.243*	*0.242*
Excess cash	2.706***	2.590***	2.675***	2.717***	2.642***	2.689***
	0.253	*0.277*	*0.253*	*0.252*	*0.253*	*0.253*
Tax cost of repatriating foreign earnings	0.291***	0.324***	0.285***	0.328***	0.270***	0.272***
	0.096	*0.111*	*0.096*	*0.096*	*0.096*	*0.096*
Share of institutional investors	1.088***	1.221***	1.007***	1.010***	0.956***	0.936***
	0.196	*0.212*	*0.195*	*0.194*	*0.196*	*0.195*
Earnings response coefficient (ERC)	0.049	0.078	-0.056	-0.033	-0.046	-0.059
	0.064	*0.069*	*0.061*	*0.061*	*0.062*	*0.062*
Idiosyncratic volatility	-16.055***	-15.526***	-14.454***	-15.193***	-14.578***	-14.407***
	0.747	*0.824*	*0.681*	*0.683*	*0.682*	*0.679*
Firm targeted by activist hedge fund		0.927***				
		0.218				
Real GDP growth			20.280***			
			1.746			
Output gap				31.552***		
				1.608		
Credit spread					-0.536***	
					0.089	
Term spread						-0.506***
						0.024
Year fixed effects or time trend?	year f.e.	year f.e.	time trend	time trend	time trend	time trend
F test: all coefficients = 0	116.8***	107.3***	275.9***	286.1***	273.7***	289.4***
No. observations	79,623	57,357	79,623	79,623	79,623	79,623
No. firms	9,690	8,203	9,690	9,690	9,690	9,690

Table 7. Characteristics of firms that actively finance their discretionary payouts.
This table examines the characteristics of firms that actively finance their discretionary payouts through net debt or firm-initiated equity issues. We estimate a fractional logit model (Papke and Wooldridge 1996) in which the dependent variable is the fraction of a firm's discretionary payout that is financed through net debt issues (columns 1 and 2) or firm-initiated equity issues (columns 3 and 4). (Only firms that pay a positive discretionary payout are included in the analyses.) Specifically, the dependent variable in columns 1 and 2 is min{*Net debt issues*$_{it}$, *DP*$_{it}$}/*DP*$_{it}$, where *DP* denotes a firm's discretionary payout (i.e., the sum of its share repurchases, regular dividend increases, and special dividends). In columns 3 and 4, the dependent variable is min{*Firm-initiated equity issues*$_{it}$, *DP*$_{it}$}/*DP*$_{it}$. All columns include year fixed effects. All variables are defined in Appendix A; data on activist hedge funds are only available for years 1995-2011, which is why the sample size in columns 2 and 4 is smaller. 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. We use ***, **, and * to denote significance at the 1%, 5%, and 10% level (two-sided), respectively.

Dependent variable:	**% discretionary payouts financed by debt**		**% discretionary payouts financed by equity**	
	(1)	(2)	(3)	(4)
Operating cash flow	-1.244***	-1.094***	-0.159***	-0.131***
	0.048	*0.049*	*0.009*	*0.009*
Investment (capex + acquisitions)	2.289***	2.197***	0.151***	0.135***
	0.065	*0.069*	*0.006*	*0.007*
Market-to-book	-0.052***	-0.053***	0.002***	0.002***
	0.004	*0.004*	*0.001*	*0.001*
Size	0.031***	0.030***	0.003***	0.001
	0.003	*0.003*	*0.001*	*0.001*
Investment-grade credit rating	-0.009	-0.007	-0.014***	-0.019***
	0.010	*0.011*	*0.003*	*0.003*
Excess leverage	-0.088***	-0.070***	0.067***	0.058***
	0.024	*0.026*	*0.006*	*0.006*
Excess cash	-0.733***	-0.651***	-0.039***	-0.035***
	0.031	*0.032*	*0.006*	*0.006*
Tax cost of repatriating foreign earnings	0.024***	0.021**	-0.011***	-0.007*
	0.009	*0.010*	*0.004*	*0.004*
Share of institutional investors	-0.041**	-0.049***	-0.029***	-0.026***
	0.018	*0.019*	*0.005*	*0.005*
Earnings response coefficient (ERC)	0.050***	0.045***	-0.009***	-0.008***
	0.006	*0.006*	*0.003*	*0.003*
Idiosyncratic volatility	-0.617***	-0.566***	0.219***	0.183***
	0.078	*0.082*	*0.016*	*0.016*
Firm targeted by activist hedge fund		-0.028		0.013*
		0.020		*0.008*
χ^2 test: all coefficients = 0	2,376.3***	1,925.6***	2,116.4***	1,588.6***
No. observations	31,846	23,575	31,846	23,575
No. firms	5,883	5,009	5,883	5,009

Table 8. Do firms use debt-financed discretionary payouts to increase their leverage in response to state-level tax increases?

This table examines whether firms use debt-financed discretionary payouts to increase their leverage in response to exogenous increases in state corporate income taxes in their headquarter state. We follow a difference-in-differences approach that exploits the staggered nature of corporate income tax changes, using as controls firms that have not been affected by a tax change in their headquarter state. In column 1, the dependent variable is an indicator set equal to one for firms with a simultaneous discretionary payout and net debt issue (defined as in Table 2), and zero otherwise; in column 2, the dependent variable is an indicator set equal to one for firms with a simultaneous discretionary payout and firm-initiated equity issue (also defined as in Table 2), and zero otherwise. The variable "corporate tax increase at $t-1$" is an indicator that captures whether the state where the firm is headquartered increased its corporate income tax in year $t-1$ (following Heider and Ljungqvist (2015), we allow firms to respond to tax changes with a one-year lag), and analogously for the variable "corporate tax decrease at $t-1$." For the complete list of corporate income tax changes, see Heider and Ljungqvist (2015). Excess leverage and excess cash are defined in Appendix A. We screen out those firms with zero after-interest marginal tax rates in year $t-1$ (according to John Graham's estimates; see http://faculty.fuqua.duke.edu/~jgraham/taxform.html) because only firms with profits to shield from tax have an incentive to increase their leverage when taxes increase. In both columns, we estimate probit models with year fixed effects; results are similar if we estimate linear probability models. For ease of interpretation, we report conditional marginal effects multiplied by 100 evaluated at the means of the independent variables. Standard errors for the marginal effects (also multiplied by 100) are block-bootstrapped using 200 repetitions. We use ***, **, and * to denote significance at the 1%, 5%, and 10% level (two-sided), respectively.

Dependent variable:	**Simultaneous discretionary payout and debt issue?**	**Simultaneous discretionary payout and equity issue?**
	(1)	(2)
Corporate tax increase at $t-1$	2.132**	-0.227
	0.952	*0.430*
Corporate tax decrease at $t-1$	-0.079	-0.132
	0.634	*0.225*
Excess leverage	-16.903***	3.111***
	1.201	*0.371*
Excess cash	-31.236***	-0.096
	1.286	*0.407*
χ^2 test: all coefficients = 0	1,575.3***	239.7***
No. observations	71,702	71,702
No. firms	8,766	8,766

Table 9. Macroeconomic conditions and debt-financed discretionary payouts.

This table examines the relationship between macroeconomic conditions and firms' decision to debt-finance their discretionary payouts. In all columns, the dependent variable is min{*Net debt issues*$_{it}$, DP_{it}}/DP_{it}, where *DP* denotes a firm's discretionary payout (i.e., the sum of its share repurchases, regular dividend increases, and special dividends). (Only firms that pay a positive discretionary payout are included in the analyses.) In columns 1-4, we estimate the same fractional logit model as in column 1 of Table 7, with only two differences: (1) each column adds one of the four macroeconomic control variables introduced in Table 6; and (2) we do not include year fixed effects and instead add a linear time trend. (We introduce the macroeconomic variables one at a time and include a linear time trend instead of year fixed effects to avoid multicollinearity problems.) The coefficient estimates of the firm-level control variables are very similar to those in column 1 of Table 7; we thus do not report them here to conserve space and instead show them in Table IA.5 in the Internet Appendix. As in Table 7, for ease of interpretation, columns 1-4 report conditional marginal effects evaluated at the means of the independent variables. In columns 5-8, we estimate OLS regressions with firm fixed effects instead of firm-level controls as well as a linear time trend. All variables are defined in Appendix A. Robust standard errors clustered at the firm level are shown in italics beneath the coefficient estimates. We use ***, **, and * to denote significance at the 1%, 5%, and 10% level (two-sided), respectively.

Dependent variable:	**% discretionary payouts financed by debt**							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Real GDP growth	0.912***				1.746***			
	0.179				*0.158*			
Output gap		0.712***				1.240***		
		0.152				*0.143*		
Credit spread			-0.032***				-0.080***	
			0.010				*0.008*	
Term spread				-0.017***				-0.028***
				0.002				*0.002*
Additional controls	yes	yes	yes	yes	no	no	no	no
Firm fixed effects	no	no	no	no	yes	yes	yes	yes
χ^2 test: all coefficients = 0	2,284.1***	2,269.0***	2,262.0***	2,277.2***	127.5***	103.7***	112.3***	135.5***
No. observations	31,846	31,846	31,846	31,846	31,846	31,846	31,846	31,846
No. firms	5,883	5,883	5,883	5,883	5,883	5,883	5,883	5,883

Table 10. Government policies in the debt market and debt-financed discretionary payouts.
This table examines the relationship between government debt-market policies and firms' decision to debt-finance their discretionary payouts. In all columns, the dependent variable is min{*Net debt issues*$_{it}$, *DP*$_{it}$}/*DP*$_{it}$, where *DP* denotes a firm's discretionary payout (i.e., the sum of its share repurchases, regular dividend increases, and special dividends). (Only firms that pay a positive discretionary payout are included in the analyses.) In columns 1 and 5 (resp. 2 and 6), we estimate the same fractional logit model as in column 1 (resp. column 2) of Table 9, to which we add controls for government debt-market policies. The coefficient estimates of the firm-level control variables in columns 1-2 and 5-6 are very similar to those in column 1 of Table 7; thus, to conserve space, we do not report them here and instead show them in Table IA.7 in the Internet Appendix. As in Table 7, for ease of interpretation, columns 1-2 and 5-6 report conditional marginal effects evaluated at the means of the independent variables. In columns 3 and 7 (resp. 4 and 8), we estimate the same OLS model with firm fixed effects as in column 5 (resp. column 6) of Table 9, to which we add controls for government debt-market policies. All columns include a linear time trend. All variables are defined in Appendix A. Robust standard errors clustered at the firm level are shown in italics beneath the coefficient estimates. We use ***, **, and * to denote significance at the 1%, 5%, and 10% level (two-sided), respectively.

Dependent variable:	**% discretionary payouts financed by debt**							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Real GDP growth	0.661***		1.289***		0.681***		1.337***	
	0.201		*0.176*		*0.201*		*0.177*	
Output gap		0.461**		0.577***		0.960***		1.115***
		0.200		*0.199*		*0.214*		*0.221*
Government bond supply	-0.442**	-0.389*	-0.892***	-1.010***	-0.942***	-0.726***	-1.374***	-1.323***
	0.186	*0.217*	*0.169*	*0.210*	*0.211*	*0.223*	*0.199*	*0.217*
Quantitative easing					0.929***	1.299***	0.862***	1.233***
					0.204	*0.221*	*0.181*	*0.200*
Additional controls	yes	yes	no	no	yes	yes	no	no
Firm fixed effects	no	no	yes	yes	no	no	yes	yes
χ^2 / *F* test: all coefficients = 0	2,291.5***	2,275.3***	93.7***	77.1***	2,315.8***	2,316.6***	72.9***	63.5***
No. observations	31,846	31,846	31,846	31,846	31,846	31,846	31,846	31,846
No. firms	5,883	5,883	5,883	5,883	5,883	5,883	5,883	5,883

INTERNET APPENDIX

(NOT INTENDED FOR PUBLICATION)

Table IA.1. Simultaneous payouts and security issues— breaking down the role of debt and equity.
This table examines which securities firms issue when they simultaneously pay out and raise capital during the same year. Panel A focuses on net debt issues (with *ND* defined as max{debt issued – debt repurchased, 0}); Panel B examines firm-initiated equity issues (denoted *FE*); and Panel C focuses on employee-initiated equity issues (denoted *EE*). Columns 1-5 examine total payout (*TP*); columns 6-9 focus on the non-discretionary component of total payout (*NP*), defined as the minimum of a firm's regular dividend and its prior-year regular dividend; and columns 10-13 focus on the discretionary component of total payout (*DP*), defined as the sum of share repurchases, regular dividend increases, and special dividends. Table 2 in the main body of the paper provides a condensed version of this table showing only annual figures averaged over all sample years to conserve space.

Panel A. Net debt issues.

	Total payout (*TP*)					**Non-discretionary payout (*NP*)**				**Discretionary payout (*DP*)**			
	Firm counts			*$ magnitudes*		*Firm counts*		*$ magnitudes*		*Firm counts*		*$ magnitudes*	
				Aggregate sum of min{*ND*, *TP*} over ...				Aggregate sum of min{*ND*, *NP*} over ...				Aggregate sum of min{*ND*, *DP*} over ...	
Annual figures averaged over ...	% public firms that issue *ND* & pay out capital	% *TP* payers that also issue *ND*	% firms issuing *ND* that also pay out capital	aggreg. sum of *TP*	aggreg. sum of *ND*	% public firms that issue *ND* & pay a non-disc. payout	% *NP* payers that also issue *ND*	aggreg. sum of *NP*	aggreg. sum of *ND*	% public firms that issue *ND* & pay a discret. payout	% *TP* payers that also issue *ND*	aggreg. sum of *DP*	aggreg. sum of *ND*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1989-1992	18.6%	40.7%	50.7%	39.4%	41.0%	14.3%	42.7%	45.7%	29.2%	14.2%	41.1%	45.3%	18.3%
1993-1996	18.3%	43.0%	45.5%	31.7%	31.6%	13.5%	45.9%	37.3%	20.9%	14.1%	43.2%	35.8%	15.6%
1997-2000	21.5%	45.7%	50.5%	37.9%	32.6%	12.6%	50.9%	50.8%	16.3%	18.6%	45.9%	40.3%	21.7%
2001-2004	13.4%	29.1%	48.2%	22.5%	29.1%	7.8%	32.7%	33.6%	17.0%	11.0%	28.5%	21.9%	17.3%
2005-2008	19.4%	36.5%	57.6%	23.7%	46.9%	12.1%	41.0%	37.5%	18.9%	17.1%	36.4%	25.8%	38.6%
2009-2012	17.9%	30.8%	61.7%	22.7%	50.5%	10.5%	34.0%	32.7%	26.0%	15.9%	30.6%	28.4%	40.2%
all years	18.2%	37.6%	52.4%	29.7%	38.6%	11.8%	41.2%	39.6%	21.4%	15.1%	37.6%	32.9%	25.3%

Panel B. Firm-initiated equity issues.

	Total payout (*TP*)					**Non-discretionary payout (*NP*)**				**Discretionary payout (*DP*)**			
	Firm counts			*$ magnitudes*		*Firm counts*		*$ magnitudes*		*Firm counts*		*$ magnitudes*	
				Aggregate sum of min{*FE*, *TP*} over ...				Aggregate sum of min{*FE*, *NP*} over ...				Aggregate sum of min{*FE*, *DP*} over ...	
Annual figures averaged over ...	% public firms that issue *FE* & pay out capital	% *TP* payers that also issue *FE*	% firms issuing *FE* that also pay out capital	aggreg. sum of *TP*	aggreg. sum of *FE*	% public firms that issue *FE* & pay a non-disc. payout	% *NP* payers that also issue *FE*	aggreg. sum of *NP*	aggreg. sum of *FE*	% public firms that issue *FE* & pay a discret. payout	% *TP* payers that also issue *FE*	aggreg. sum of *DP*	aggreg. sum of *FE*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1989-1992	4.3%	9.4%	30.7%	8.2%	40.7%	2.6%	7.9%	9.0%	26.2%	3.1%	9.3%	9.1%	20.7%
1993-1996	4.1%	9.7%	22.9%	3.6%	14.2%	2.1%	7.2%	3.8%	8.6%	3.2%	9.8%	3.7%	7.0%
1997-2000	4.1%	8.8%	25.1%	2.2%	10.3%	1.4%	5.8%	2.6%	3.9%	3.4%	8.5%	2.3%	7.3%
2001-2004	3.3%	7.2%	23.4%	3.1%	18.4%	1.5%	6.1%	3.1%	7.2%	2.5%	6.6%	3.2%	11.9%
2005-2008	2.5%	4.8%	21.8%	1.3%	18.1%	1.3%	4.4%	2.7%	10.6%	1.8%	3.9%	0.7%	7.7%
2009-2012	2.9%	5.2%	23.8%	0.7%	11.0%	1.1%	3.7%	1.3%	7.9%	2.3%	4.7%	0.5%	6.2%
all years	3.5%	7.5%	24.6%	3.2%	18.8%	1.7%	5.9%	3.8%	10.8%	2.7%	7.1%	3.2%	10.1%

Panel C. Employee-initiated equity issues.

	Total payout (*TP*)					Non-discretionary payout (*NP*)				Discretionary payout (*DP*)			
	Firm counts			*\$ magnitudes*		*Firm counts*		*\$ magnitudes*		*Firm counts*		*\$ magnitudes*	
				Aggregate sum of min{*EE*, *TP*} over …				Aggregate sum of min{*EE*, *NP*} over …				Aggregate sum of min{*EE*, *DP*} over …	
Annual figures averaged over …	% public firms that issue *EE* & pay out capital	% *TP* payers that also issue *EE*	% firms issuing *EE* that also pay out capital	aggreg. sum of *TP*	aggreg. sum of *EE*	% public firms that issue *EE* & pay a non-disc. payout	% *NP* payers that also issue *EE*	aggreg. sum of *NP*	aggreg. sum of *EE*	% public firms that issue *EE* & pay a discret. payout	% *TP* payers that also issue *EE*	aggreg. sum of *DP*	aggreg. sum of *EE*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1989-1992	23.0%	50.4%	56.2%	9.1%	83.5%	17.6%	52.9%	12.9%	72.7%	18.0%	53.1%	15.8%	54.8%
1993-1996	25.8%	60.6%	47.2%	10.9%	76.6%	18.0%	61.2%	16.5%	64.2%	20.7%	63.3%	16.2%	49.0%
1997-2000	31.7%	67.4%	49.6%	12.0%	68.2%	16.3%	65.7%	19.7%	41.9%	27.9%	69.0%	16.6%	58.8%
2001-2004	35.9%	77.9%	49.4%	13.9%	72.8%	18.0%	75.2%	21.3%	43.2%	31.2%	80.7%	18.8%	59.2%
2005-2008	44.0%	83.2%	56.8%	11.1%	85.9%	23.9%	80.8%	27.4%	51.6%	40.0%	85.5%	13.9%	81.3%
2009-2012	42.4%	74.2%	62.9%	9.8%	85.9%	22.3%	73.2%	19.3%	59.6%	38.5%	76.5%	14.1%	78.0%
all years	33.8%	69.0%	53.7%	11.2%	78.8%	19.4%	68.2%	19.5%	55.6%	29.4%	71.4%	15.9%	63.5%

Table IA.2. The role of profitability and investment shocks in explaining payout gaps.

This table examines the extent to which active payout gaps are driven by firms with unusually low profits or high investment. The table replicates the analysis in Panel B of Table 3 using six counterfactual definitions of active payout gaps. In Panel A, we assume that no firm is less profitable than the median firm in its industry and define $ATPG_{it}^{IndOcf} \equiv \min\{\max\{TP_{it} - (\max\{OCF_{it}, \text{Industry median } OCF_{it}\} + ICF_{it} + CR_{it} + EE_{it}), 0\}, TP_{it}\}$, where *Industry median* OCF_{it} is the median ratio of operating cash flow/lagged assets in the firm's industry-year multiplied by the firm's lagged assets. (*TP* is total payout; *ICF* is investment cash flow; *CR* is cash reduction; and *EE* captures the proceeds of employee-initiated equity issues. Industry is defined at the 2-digit SIC level.) In Panel B, we assume that no firm is less profitable than it was in the previous year and define $ATPG_{it}^{LagOcf} \equiv \min\{\max\{TP_{it} - (\max\{OCF_{it}, OCF_{it-1}\} + ICF_{it} + CR_{it} + EE_{it}), 0\}, TP_{it}\}$. In Panel C, we assume that no firm invests more than the median firm in its industry and define $ATPG_{it}^{IndInv} \equiv \min\{\max\{TP_{it} - (OCF_{it} + \max\{ICF_{it}, \text{Industry median } ICF_{it}\} + CR_{it} + EE_{it}), 0\}, TP_{it}\}$, where in *Industry median* ICF_{it}, we substitute CAPEX and acquisitions by the median ratio of (CAPEX + acquisitions)/lagged assets in the firm's industry-year multiplied by the firm's lagged assets. In Panel D, we assume that no firm invests more than it did in the previous year and define $ATPG_{it}^{LagInv} \equiv \min\{\max\{TP_{it} - (OCF_{it} + \max\{ICF_{it}, \text{Lagged } ICF_{it}\} + CR_{it} + EE_{it}), 0\}, TP_{it}\}$, where in *Lagged* ICF_{it} we substitute CAPEX and acquisitions by their lagged values. Panel E shows active gaps assuming that firms invest just enough to replace their depreciated assets (Dep_{it}); i.e., $ATPG_{it}^{Inv=Dep} \equiv \min\{\max\{TP_{it} - (OCF_{it} - Dep_{it} + CR_{it} + EE_{it}), 0\}, TP_{it}\}$. Panel F goes a step further and assumes that investment is zero for all firms; i.e, $ATPG_{it}^{Inv=0} \equiv \min\{\max\{TP_{it} - (OCF_{it} + CR_{it} + EE_{it}), 0\}, TP_{it}\}$. Counterfactual non-discretionary and discretionary gaps are defined analogously, following their respective definitions in Table 3. Table 4 in the main body of the paper provides a condensed version of this table showing only annual figures averaged over all sample years to conserve space.

	Active total payout gaps (*ATPG*)			Active non-discretionary payout gaps (*ANPG*)			Active discretionary payout gaps (*ADPG*)		
Annual figures averaged over ...	% *TP* payers with an active *TP* gap	Aggreg. sum of *ATPG* over aggreg. sum of *TP* paid by all public firms	Aggreg. sum of *ATPG* over aggreg. sum of active security issues	% *NP* payers with an active *NP* gap	Aggreg. sum of *ANPG* over aggreg. sum of *NP* paid by all public firms	Aggreg. sum of *ANPG* over aggreg. sum of active security issues	% *DP* payers with an active *DP* gap	Aggreg. sum of *ADPG* over aggreg. sum of *DP* paid by all public firms	Aggreg. sum of *ADPG* over aggreg. sum of active security issues
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A. We assume that no firm is less profitable than the median firm in its industry.									
1989-1992	36.0%	38.5%	32.3%	31.7%	33.0%	16.7%	36.9%	46.6%	15.7%
1993-1996	40.3%	30.1%	24.0%	35.5%	24.6%	11.1%	41.0%	37.3%	13.0%
1997-2000	43.2%	36.9%	26.8%	35.9%	31.9%	8.6%	43.8%	40.0%	18.3%
2001-2004	23.3%	19.1%	19.9%	19.1%	17.1%	6.8%	23.4%	20.3%	13.0%
2005-2008	32.8%	20.6%	36.0%	21.4%	14.1%	6.2%	33.2%	22.6%	29.8%
2009-2012	25.3%	15.0%	28.7%	17.2%	8.5%	6.0%	25.5%	18.4%	22.7%
all years	33.5%	26.7%	27.9%	26.8%	21.5%	9.2%	34.0%	30.9%	18.7%
% of actual	80.8%	91.3%	91.3%	78.8%	88.6%	88.6%	82.5%	92.6%	92.6%

(cont.)

(cont.)

Panel B. We assume that no firm is less profitable than that same firm was in the previous year.									
1989-1992	35.0%	34.9%	29.3%	30.3%	30.6%	15.5%	35.7%	40.8%	13.8%
1993-1996	39.5%	28.3%	22.6%	34.7%	23.9%	10.8%	39.6%	34.1%	11.9%
1997-2000	42.5%	33.6%	24.5%	34.3%	29.0%	7.9%	42.9%	36.4%	16.6%
2001-2004	23.1%	17.9%	18.7%	18.5%	16.0%	6.4%	23.1%	19.1%	12.3%
2005-2008	33.6%	19.7%	34.3%	22.4%	13.9%	6.0%	33.4%	21.5%	28.2%
2009-2012	25.0%	13.2%	25.5%	16.7%	7.9%	5.5%	24.9%	15.9%	20.0%
all years	33.1%	24.6%	25.8%	26.2%	20.2%	8.7%	33.3%	28.0%	17.1%
% of actual	79.9%	84.9%	84.9%	76.9%	83.5%	83.5%	80.7%	85.6%	85.6%
Panel C. We assume that no firm invests more than the median firm in its industry.									
1989-1992	28.6%	25.8%	21.7%	22.8%	21.1%	10.8%	29.1%	32.3%	10.9%
1993-1996	33.2%	22.1%	17.6%	26.1%	18.6%	8.4%	33.4%	26.4%	9.2%
1997-2000	35.5%	24.7%	18.0%	25.1%	20.5%	5.6%	35.7%	27.2%	12.4%
2001-2004	18.5%	11.3%	11.9%	13.7%	9.6%	4.0%	18.1%	12.3%	7.9%
2005-2008	25.5%	14.6%	25.2%	14.8%	8.0%	3.4%	25.3%	16.6%	21.9%
2009-2012	19.1%	8.8%	16.9%	11.2%	3.3%	2.2%	18.8%	12.1%	14.7%
all years	26.7%	17.9%	18.6%	18.9%	13.5%	5.7%	26.8%	21.2%	12.8%
% of actual	64.5%	61.3%	61.3%	55.7%	54.6%	54.6%	64.9%	64.3%	64.3%
Panel D. We assume that no firm invests more than that same firm did in the previous year.									
1989-1992	34.8%	32.8%	27.7%	29.8%	28.3%	14.7%	34.9%	38.9%	13.0%
1993-1996	36.0%	23.2%	18.5%	29.2%	18.1%	8.2%	36.3%	29.5%	10.3%
1997-2000	39.7%	28.1%	20.6%	29.5%	21.9%	5.9%	40.0%	31.9%	14.6%
2001-2004	21.8%	13.9%	14.3%	17.0%	11.9%	4.8%	21.4%	15.2%	9.5%
2005-2008	29.7%	15.7%	27.5%	18.0%	9.3%	4.1%	29.4%	17.8%	23.5%
2009-2012	22.2%	10.6%	20.2%	13.7%	4.1%	2.9%	22.0%	14.3%	17.4%
all years	30.7%	20.7%	21.5%	22.9%	15.6%	6.8%	30.7%	24.6%	14.7%
% of actual	74.1%	69.9%	69.9%	67.3%	62.8%	62.8%	74.4%	73.2%	73.2%
Panel E. We assume that investment equals depreciation for all firms.									
1989-1992	31.7%	18.0%	15.1%	23.5%	11.8%	6.3%	30.9%	26.2%	8.8%
1993-1996	31.9%	13.5%	10.7%	23.6%	7.1%	3.3%	31.5%	21.8%	7.5%
1997-2000	36.0%	18.3%	13.4%	23.3%	6.9%	1.9%	35.8%	25.2%	11.5%
2001-2004	23.5%	10.2%	10.9%	18.3%	5.8%	2.3%	22.2%	13.0%	8.6%
2005-2008	29.1%	13.5%	23.7%	15.6%	3.9%	1.8%	28.8%	16.5%	21.9%
2009-2012	22.1%	9.9%	19.2%	12.6%	3.3%	2.3%	21.5%	13.3%	16.8%
all years	29.1%	13.9%	15.5%	19.5%	6.5%	3.0%	28.4%	19.3%	12.5%
% of actual	70.1%	51.7%	51.7%	57.2%	26.7%	26.7%	69.0%	63.0%	63.0%

(cont.)

(cont.)

Panel F. We assume that investment is zero for all firms.

1989-1992	12.9%	4.4%	3.6%	7.6%	1.3%	0.7%	13.1%	8.4%	3.0%
1993-1996	14.5%	5.0%	4.0%	8.7%	1.2%	0.5%	14.7%	10.1%	3.4%
1997-2000	17.3%	6.0%	4.4%	9.0%	1.5%	0.4%	17.5%	8.7%	4.0%
2001-2004	10.2%	3.8%	4.4%	5.9%	1.7%	0.7%	10.0%	5.2%	3.7%
2005-2008	14.2%	6.0%	10.5%	6.1%	1.0%	0.5%	14.1%	7.5%	10.0%
2009-2012	8.8%	2.5%	4.8%	3.7%	0.2%	0.1%	8.9%	3.9%	4.7%
all years	13.0%	4.6%	5.3%	6.8%	1.1%	0.5%	13.0%	7.3%	4.8%
% of actual	31.3%	18.3%	18.3%	20.0%	4.7%	4.7%	31.7%	24.5%	24.5%

Table IA.3. Characteristics of discretionary payout payers.

The table shows the results of a tobit model in which the dependent variable is a firm's discretionary payout scaled by beginning-of-year total assets. This table is similar to Table 6 with the only difference being that in Table 6, we scale payouts by the beginning-of-year market value of the firm's equity instead of by beginning-of-year total assets. Firm-level independent variables are measured as of the beginning of the fiscal year, except for operating cash flow and investment, which are scaled by beginning-of-year assets; all independent variables are defined as in Table 6. Columns 1 and 2 include year fixed effects; columns 3-6 instead include a linear time trend because the set of year fixed effects is highly collinear with the macroeconomic control variables. Robust standard errors clustered at the firm level are shown in italics beneath the coefficient estimates. To maximize the number of informative digits shown, all coefficients and standard errors are multiplied by 100. We use ***, **, and * to denote significance at the 1%, 5%, and 10% level (two-sided), respectively.

Dependent variable:	**Discretionary payout / total assets**					
	(1)	(2)	(3)	(4)	(5)	(6)
Operating cash flow	11.345***	11.635***	11.310***	11.334***	11.259***	11.378***
	0.496	*0.576*	*0.492*	*0.495*	*0.491*	*0.493*
Investment (capex + acquisitions)	-4.959***	-5.476***	-4.732***	-4.810***	-4.596***	-4.864***
	0.345	*0.392*	*0.341*	*0.341*	*0.341*	*0.342*
Market-to-book	0.458***	0.496***	0.472***	0.447***	0.483***	0.465***
	0.041	*0.047*	*0.041*	*0.041*	*0.041*	*0.041*
Size	0.492***	0.457***	0.529***	0.500***	0.534***	0.528***
	0.045	*0.054*	*0.044*	*0.044*	*0.044*	*0.044*
Investment-grade credit rating	1.051***	1.338***	1.042***	1.057***	1.039***	1.065***
	0.180	*0.218*	*0.181*	*0.180*	*0.181*	*0.181*
Excess leverage	-4.271***	-4.255***	-4.419***	-4.335***	-4.426***	-4.418***
	0.305	*0.364*	*0.305*	*0.305*	*0.304*	*0.304*
Excess cash	3.214***	3.154***	3.179***	3.225***	3.143***	3.190***
	0.349	*0.400*	*0.348*	*0.348*	*0.348*	*0.348*
Tax cost of repatriating foreign earnings	1.037***	1.145***	1.024***	1.076***	1.006***	1.007***
	0.161	*0.193*	*0.160*	*0.160*	*0.160*	*0.160*
Share of institutional investors	2.109***	2.332***	2.082***	2.082***	2.023***	1.994***
	0.261	*0.295*	*0.259*	*0.258*	*0.259*	*0.258*
Idiosyncratic volatility	-21.614***	-21.795***	-20.115***	-21.100***	-20.240***	-20.127***
	0.931	*1.068*	*0.857*	*0.860*	*0.857*	*0.855*
Earnings response coefficient (ERC)	0.056	0.102	-0.047	-0.018	-0.037	-0.048
	0.084	*0.094*	*0.081*	*0.081*	*0.082*	*0.081*
Firm targeted by activist hedge fund		0.895***				
		0.263				
Real GDP growth			25.594***			
			2.087			
Output gap				38.786***		
				1.944		
Credit spread					-0.713***	
					0.109	
Term spread						-0.598***
						0.029
Year fixed effects or time trend?	year f.e.	year f.e.	time trend	time trend	time trend	time trend
χ^2 test: all coefficients = 0	98.4***	93.9***	230.6***	237.5***	227.6***	242.1***
No. observations	79,623	57,357	79,623	79,623	79,623	79,623
No. firms	9,690	8,203	9,690	9,690	9,690	9,690

Table IA.4. Leverage and cash holdings of firms that have an active discretionary payout gap, but that would not have to raise capital if their discretionary payout were zero.

This table investigates how a firm's leverage and cash holdings relate to the decision to have a debt- (column 1) or equity-financed (column 2) active discretionary payout gap that is triggered by the firm's payout decision, in that the firm would not have to raise capital if its discretionary payout were zero. To do so, we estimate a probit model in which the dependent variable is an indicator set equal to one if the following three conditions are met: (1) the firm has an active discretionary payout gap (i.e., $\min\{\max\{DP_{it} - (FCF_{it} + CR_{it} + EE_{it} - NP_{it}), 0\}, DP_{it}\} >> 0$) that (2) would not exist if the firm had set its discretionary payout to zero (i.e., $(FCF_{it} + CR_{it} + EE_{it} - NP_{it}) \geq 0$) and that (3A) it finances by issuing net debt (in column 1) or (3B) firm-initiated equity (in column 2). Otherwise, the indicator is set to zero. As in Table 7, only discretionary payout payers are included in the analysis. Both columns include year fixed effects. For ease of interpretation, we report conditional marginal effects evaluated at the means of the independent variables and multiplied by 100 to maximize the number of informative digits shown. All variables are defined in Appendix A. Robust standard errors clustered at the firm level are shown in italics (also multiplied by 100) beneath the coefficient estimates. We use ***, **, and * to denote significance at the 1%, 5%, and 10% level (two-sided), respectively.

Dependent variable:	**Firm has a debt-financed active discretionary payout gap that is triggered by the payout decision?**	**Firm has an equity-financed active discretionary payout gap that is triggered by the payout decision?**
	(1)	(2)
Excess leverage	-5.068***	0.474**
	1.077	*0.220*
Excess cash	-18.430***	0.111
	1.000	*0.233*
χ^2 test: all coefficients = 0	618.7***	68.2***
No. observations	31,846	31,846
No. firms	5,883	5,883

Table IA.5. Macroeconomic conditions and debt-financed discretionary payouts.
This table examines the relationship between macroeconomic conditions and firms' decision to debt-finance their discretionary payouts. The dependent variable is min{*Net debt issues*$_{it}$, *DP*$_{it}$}/*DP*$_{it}$, where *DP* denotes a firm's discretionary payout (i.e., the sum of its share repurchases, regular dividend increases, and special dividends). (Only firms that pay a positive discretionary payout are included in the analyses.) In all columns, we estimate a fractional logit model with a linear time trend and, for ease of interpretation, report conditional marginal effects evaluated at the means of the independent variables. The results in this table are the same as those in columns 1-4 of Table 9, with the only difference being that here we report the coefficient estimates of all the firm-level control variables, which we omit in Table 9 to conserve space. All variables are defined in Appendix A. Robust standard errors clustered at the firm level are shown in italics beneath the coefficient estimates. We use ***, **, and * to denote significance at the 1%, 5%, and 10% level (two-sided), respectively.

Dependent variable:	**% discretionary payouts financed by debt**			
	(1)	(2)	(3)	(4)
Operating cash flow	-1.253***	-1.256***	-1.256***	-1.251***
	0.048	*0.048*	*0.048*	*0.048*
Investment (capex + acquisitions)	2.313***	2.318***	2.318***	2.312***
	0.065	*0.065*	*0.065*	*0.065*
Market-to-book	-0.053***	-0.053***	-0.053***	-0.053***
	0.004	*0.004*	*0.004*	*0.004*
Size	0.031***	0.030***	0.031***	0.031***
	0.003	*0.003*	*0.003*	*0.003*
Investment-grade credit rating	-0.010	-0.010	-0.010	-0.009
	0.010	*0.010*	*0.010*	*0.010*
Excess leverage	-0.087***	-0.085***	-0.088***	-0.087***
	0.024	*0.024*	*0.024*	*0.024*
Excess cash	-0.732***	-0.733***	-0.734***	-0.734***
	0.031	*0.031*	*0.031*	*0.031*
Tax cost of repatriating foreign earnings	0.027***	0.027***	0.026***	0.026***
	0.009	*0.009*	*0.009*	*0.009*
Share of institutional investors	-0.040**	-0.043**	-0.041**	-0.045**
	0.018	*0.018*	*0.018*	*0.018*
Earnings response coefficient (ERC)	0.048***	0.049***	0.047***	0.048***
	0.006	*0.006*	*0.006*	*0.006*
Idiosyncratic volatility	-0.591***	-0.623***	-0.590***	-0.595***
	0.072	*0.072*	*0.072*	*0.072*
Real GDP growth	0.912***			
	0.179			
Output gap		0.712***		
		0.152		
Credit spread			-0.032***	
			0.010	
Term spread				-0.017***
				0.002
χ^2 test: all coefficients = 0	2,284.1***	2,269.0***	2,262.0***	2,277.2***
No. observations	31,846	31,846	31,846	31,846
No. firms	5,883	5,883	5,883	5,883

Table IA.6. Macroeconomic conditions and equity-financed discretionary payouts.

This table examines the relationship between macroeconomic conditions and firms' decision to finance their discretionary payouts via firm-initiated equity issues. The table is thus similar to Table 9 with the only difference being that the focus here is on equity-financed instead of debt-financed discretionary payouts. In all columns, the dependent variable is min{*Firm-initiated equity issues*$_{it}$, *DP*$_{it}$}/*DP*$_{it}$, where *DP* denotes a firm's discretionary payout (i.e., the sum of its share repurchases, regular dividend increases, and special dividends). (Only firms that pay a positive discretionary payout are included in the analyses.) In columns 1-4, we estimate the same fractional logit model as in column 3 of Table 7, with only two differences: (1) each column adds one of the four macroeconomic control variables introduced in Table 6; and (2) we do not include year fixed effects and instead add a linear time trend. (We introduce the macroeconomic variables one at a time and include a linear time trend instead of year fixed effects to avoid multicollinearity problems.) The coefficient estimates of the firm-level control variables are similar to those in column 3 of Table 7 and thus, to conserve space, we do not report them here. As in Table 7, for ease of interpretation, columns 1-4 report conditional marginal effects evaluated at the means of the independent variables. In columns 5-8, we estimate OLS regressions with firm fixed effects instead of firm-level controls, as well as a linear time trend. All variables are defined in Appendix A. Robust standard errors clustered at the firm level are shown in italics beneath the coefficient estimates. We use ***, **, and * to denote significance at the 1%, 5%, and 10% level (two-sided), respectively.

Dependent variable:	**% discretionary payouts financed by equity**							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Real GDP growth	-0.173***				-0.029			
	0.062				*0.083*			
Output gap		-0.455***				-0.284***		
		0.052				*0.072*		
Credit spread			0.006*				0.000	
			0.003				*0.004*	
Term spread				0.007***				0.006***
				0.001				*0.001*
Additional controls	yes	yes	yes	Yes	no	no	no	no
Firm fixed effects	no	no	no	No	yes	yes	yes	yes
χ^2 / *F* test: all coefficients = 0	1,985.9***	2,026.7***	1,991.2***	2,020.5***	77.2***	81.1***	77.0***	86.3***
No. observations	31,846	31,846	31,846	31,846	31,846	31,846	31,846	31,846
No. firms	5,883	5,883	5,883	5,883	5,883	5,883	5,883	5,883

Table IA.7. Government policies in the debt markets and debt-financed discretionary payouts. This table examines the relationship between government debt-market policies and firms' decision to debt-finance their discretionary payouts. In all columns, the dependent variable is min{*Net debt issues*$_{it}$, *DP*$_{it}$}/*DP*$_{it}$, where *DP* denotes a firm's discretionary payout (i.e., the sum of its share repurchases, regular dividend increases, and special dividends). (Only firms that pay a positive discretionary payout are included in the analyses.) In columns 1 and 3 (resp. 2 and 4), we estimate the same fractional logit model as in column 1 (resp. column 2) of Table 9, to which we add controls for government debt-market policies. In all columns, for ease of interpretation, we report conditional marginal effects evaluated at the means of the independent variables. The results in this table are the same as those we show in columns 1-2 and 5-6 of Table 10, with the only difference being that here we report the coefficient estimates of all the firm-level control variables, which we omit in Table 10 to conserve space. All columns include a linear time trend. All variables are defined in Appendix A. Robust standard errors clustered at the firm level are shown in italics beneath the coefficient estimates. We use ***, **, and * to denote significance at the 1%, 5%, and 10% level (two-sided), respectively.

Dependent variable:	**% discretionary payouts financed by debt**			
	(1)	(2)	(3)	(4)
Operating cash flow	-1.252***	-1.255***	-1.253***	-1.255***
	0.048	*0.048*	*0.048*	*0.048*
Investment (capex + acquisitions)	2.309***	2.315***	2.307***	2.311***
	0.065	*0.065*	*0.065*	*0.065*
Market-to-book	-0.054***	-0.053***	-0.053***	-0.053***
	0.004	*0.004*	*0.004*	*0.004*
Size	0.030***	0.030***	0.030***	0.030***
	0.003	*0.003*	*0.003*	*0.003*
Investment-grade credit rating	-0.010	-0.010	-0.010	-0.010
	0.010	*0.010*	*0.010*	*0.010*
Excess leverage	-0.086***	-0.085***	-0.086***	-0.084***
	0.024	*0.024*	*0.024*	*0.024*
Excess cash	-0.731***	-0.732***	-0.731***	-0.733***
	0.031	*0.031*	*0.031*	*0.031*
Tax cost of repatriating foreign earnings	0.028***	0.027***	0.026***	0.026***
	0.009	*0.009*	*0.009*	*0.009*
Share of institutional investors	-0.039**	-0.042**	-0.036**	-0.038**
	0.018	*0.018*	*0.018*	*0.018*
Earnings response coefficient (ERC)	0.047***	0.048***	0.049***	0.050***
	0.006	*0.006*	*0.006*	*0.006*
Idiosyncratic volatility	-0.610***	-0.630***	-0.618***	-0.643***
	0.073	*0.073*	*0.073*	*0.073*
Real GDP growth	0.661***		0.681***	
	0.201		*0.201*	
Output gap		0.461**		0.960***
		0.200		*0.214*
Government bond supply	-0.442**	-0.389*	-0.942***	-0.726***
	0.186	*0.217*	*0.211*	*0.223*
Quantitative easing			0.929***	1.299***
			0.204	*0.221*
χ^2 test: all coefficients = 0	2,291.5***	2,275.3***	2,315.8***	2,316.6***
No. observations	31,846	31,846	31,846	31,846
No. firms	5,883	5,883	5,883	5,883