Who Borrows Against Persistent Profits?*

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Abstract

Firms borrow against lasting profits, not temporary ones. We split operating profitability into persistent and transitory components. In the top three size quintiles, net debt issuance is 19 to 25 cents higher per dollar of persistent profit than of transitory profit. Firms with losses, mostly small, raise less external finance when persistent profit is higher. Rated firms borrow more against persistent profit. The response weakened for speculative grade firms when the high yield market collapsed. After the early 2000s defense expansion, debt rose detectably only among rated contractors. Lower leverage does not indicate less borrowing.

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1 Introduction

More profitable firms have lower book leverage (Titman and Wessels, 1988; Rajan and Zingales, 1995; Frank and Goyal, 2009). The usual interpretation is that internal funds substitute for external finance, so a firm that earns more needs to borrow less (Myers, 1984; Fama and French, 2002). That logic is reasonable for a one time windfall. It is less reasonable for a lasting improvement in profitability. A lasting improvement can raise the return to expanding and the earnings a firm can borrow against. Consistent with this, profitable firms issue debt even as their leverage declines (Frank and Goyal, 2015), and firms issue more debt after long lived cash flow shocks than after temporary ones (Byun et al., 2018).[1] But borrowing against future earnings requires a lender. Whether lasting profits turn into borrowing should depend on a firm's access to debt markets. The literature provides little direct evidence on that connection.

In this paper, we show that public firms, other than those covering operating losses, borrow against profits that last and not against profits that are temporary. How much they borrow depends on their access to debt markets. We split the operating profitability of Compustat firms from 1971 to 2019 into persistent and transitory components with a standard state space model (Harvey, 1989; Durbin and Koopman, 2012). The persistent component follows a random walk, and the transitory component dies out quickly. A one sided Kalman filter (Hamilton, 1994, Chapter 13) estimates the components each year from the firm's profitability history through that year. We then relate each component to net debt issuance within annual size quintiles. The evidence on access comes from credit ratings, from the collapse of the high yield market in 1989 and 1990, and from the defense expansion of the early 2000s.

Our main idea is simple. A persistent improvement can raise the return to expanding by more than it raises current cash flow, as in standard investment models (Gomes, 2001). The firm then wants to spend more than the profit provides. If lenders are willing to lend against the higher earnings (Lian and Ma, 2021), the firm can finance some of the addi-

[1] On dynamic interpretations of the leverage relation, see Hennessy and Whited (2005), Strebulaev (2007), Danis et al. (2014), and Eckbo and Kisser (2021). On persistent and transitory shocks in theory, see Gorbenko and Strebulaev (2010) and Décamps et al. (2017).

tional spending with debt. A transitory improvement adds cash but does little to change either the return to expanding or what lenders will lend. We make three connected points to establish our idea.

Our starting point is that firms borrow more when lasting profits are higher. But not when temporary profits are higher.[2] In the top three size quintiles, net debt issuance is 25 to 27 cents higher per dollar of persistent profit. In the baseline it is at most 6 cents higher per dollar of transitory profit. Under every measure of persistence that we use, the response to persistent profit is the larger of the two. The response to persistent profit also remains positive when we address simultaneity by lagging the components or excluding acquisition years.

The borrowing accompanies expansion. Capital spending, working capital, and acquisitions together rise by about 70 cents per dollar of persistent profit. Payouts rise by only 6 to 14 cents. Without years of sizable acquisitions, the response to persistent profit is about half as large. The gap between the responses to persistent and transitory profit is about the same.

Firms covering losses are the exception. We classify a firm year by whether operating income was negative in the prior year. Such loss years are 39 percent of firm years in the smallest quintile and 2 percent in the largest. In the smallest quintile, loss firms raise 54 cents less net debt and 94 cents less external finance per dollar of persistent profit. Profitable firms of the same size do not borrow less. In every quintile, loss firms borrow less against persistent profit than profitable firms do. The negative response of the smallest quintile as a whole, about 22 cents, thus reflects its loss firms. For a firm covering losses, higher persistent profitability means smaller losses and less need for outside money.

Our second point is that the response is stronger for firms with good access to public debt markets. Using a prior year S&P issuer rating as a marker of access (Faulkender and Petersen, 2006; Lian and Ma, 2021), we find that rated firms borrow about 19 cents more per dollar of persistent profit than unrated firms of similar size. There is no such gap for transitory profit. The gap is largely in years with acquisitions. It is about 10 cents without

[2] Profitability and financing flows are both scaled by lagged assets, so coefficients are in cents of financing per dollar of profit. They describe conditional associations in regressions with firm and year effects, except in the two episodes.

years of sizable acquisitions, and it is not statistically significant without any acquisition years. Rated firms are known to make more acquisitions (Harford and Uysal, 2014). Ratings are not randomly assigned, however. Rated firms may simply have better investment opportunities, which is also consistent with our idea. This evidence is descriptive.

Our third point is that two real world episodes provide evidence that goes beyond a pure cross sectional difference. The first is the contraction in credit supply associated with the collapse of the high yield bond market in 1989 and 1990. It sharply reduced credit to speculative grade firms relative to investment grade firms (Lemmon and Roberts, 2010). Classifying firms by their ratings before the collapse, we find that the response of speculative grade firms falls by about 37 cents per dollar of persistent profit relative to investment grade firms. Their own response falls from 87 to 52 cents, while that of investment grade firms is essentially unchanged. The decline is clearest from 1990 and is still present in 1994, after issuance had resumed. The estimate for 1988 and 1989 is already negative but imprecise. Tighter credit thus weakened the response of borrowing to lasting profits, in addition to reducing borrowing.

The second episode is the U.S. defense expansion of the early 2000s. The defense budget had begun to recover by fiscal 2000, and the September 11, 2001 attacks produced a large and lasting increase in expected defense spending (Ramey, 2011; Blau et al., 2022). We measure each contractor's exposure from Department of Defense contracts awarded before the attacks, using only contracts without government financing. Greater exposure raises persistent profitability among both rated and never rated contractors. We cannot reject that the two increases are equal, although their difference is imprecisely estimated. The financing differs. Among rated contractors, the debt stock of the most exposed rises relative to the least exposed by about 23 percent of fiscal 2000 assets. Among never rated contractors there is no detectable change. Neither episode separates lenders' willingness to lend from firms' demand for funds.

These findings change how the leverage fact should be interpreted. Book leverage is lower when persistent profitability is higher in every size quintile, including those in which firms borrow more. We do an accounting decomposition of the additional borrowing. Asset growth is the largest positive term, so more borrowing need not mean higher

leverage. Lower leverage is therefore not evidence that profitable firms borrow less. Nor is a negative pooled coefficient. In a pooled regression the coefficient of net debt issuance on persistent profit is negative. But it is actually positive in quintiles that contain more than four fifths of firm years.

1.1 Related Literature

Our paper is closest to Byun et al. (2018) and Frank and Goyal (2015). Byun et al. (2018) show that debt financing responds differently to long lived and temporary cash flow shocks, and Frank and Goyal (2015) that profitable firms issue debt as leverage declines. We show that the response to persistent profits depends on access to debt markets, using two episodes in addition to the panel. Byun et al. (2018) also examine how the response varies with firm size, which they use as a measure of financial constraints. We find that borrowing against persistent profits is stronger among larger firms and rated firms, and that the negative response of the smallest firms comes from firms with operating losses. More broadly, we follow Frank and Goyal (2003) in studying financing flows, and we add to evidence that persistent and transitory shocks affect corporate policies differently (Décamps et al., 2017; Chang et al., 2014; Ma et al., 2025).

We also contribute to work on debt market access. Rated firms have more leverage (Faulkender and Petersen, 2006) and make more acquisitions (Harford and Uysal, 2014), and the high yield collapse reduced financing and investment by speculative grade firms (Lemmon and Roberts, 2010). Lian and Ma (2021) distinguish borrowing against earnings from borrowing against assets (see also Rampini and Viswanathan, 2013; Greenwald, 2019; Drechsel, 2023; Benmelech et al., 2024). We draw a distinction within earnings. Borrowing is more closely tied to the part of earnings that lasts, and more so for firms with access to public debt markets.

Section 2 describes the data and the decomposition. Sections 3 to 5 present the panel results and the two episodes. Section 6 studies real activity and the sources and uses of funds, Section 7 examines leverage, and Section 8 concludes.

2 Data and Measurement

2.1 Sample and Financing Variables

The baseline sample is drawn from the merged Compustat Fundamentals Annual and CRSP from 1971 through 2019. We exclude financial firms and utilities, require positive assets and sales, require the variables needed to construct financing flows and lagged controls, and drop firms with only one usable observation. These screens yield 137,628 firm years. Our baseline analysis additionally requires sufficient operating profitability history to construct the persistent and transitory components described in Section 2.3. After imposing this history requirement and requiring nonmissing variables in the baseline financing specification, the baseline estimation sample contains 109,502 firm years. The history requirement is not neutral with respect to size. It retains 70.1 percent of the firm years of small firms and 93.0 percent of those of large firms (Internet Appendix A.1). Table 1 reports summary statistics for this sample, both pooled and by annual quintiles of lagged real assets.

Our main financing outcome is net debt issuance, scaled by lagged book assets. We also study net equity issuance and external finance, the sum of net debt and net equity issuance. The gross flow of funds analysis uses long term debt issuance, debt retirement, short term debt, gross equity issuance, investment, cash accumulation, dividends, repurchases, acquisitions, and working capital. The construction follows the financing flow approach of Frank and Goyal (2003). Flow variables are scaled by lagged assets and, unless an accounting identity requires otherwise, winsorized at the first and ninety ninth percentiles within annual size quintile. The baseline controls are lagged market to book, asset tangibility, industry year median leverage, and cash holdings. Analyses that require additional data or specific institutional settings use the corresponding subsamples described when those tests are introduced. In particular, rating based regressions use the 1985 to 2016 period because the S&P issuer rating is not available over the full sample. Detailed variable definitions are provided in Appendix Table A2, and the sample construction steps are reported in Appendix Table A1.

2.2 The Flow of Funds Framework

The paper ultimately asks not only whether debt rises with persistent profit, but how that change fits into the firm's broader sources and uses of funds. It is therefore useful to state the accounting framework before turning to the statistical decomposition. Scaling quantities by lagged assets, let cf denote internal cash flow, s^g gross equity issuance, ℓ^g gross long term debt issuance, f^{st} the net change in short term debt, i investment, Δb cash accumulation, d^{div} dividends, d^{rep} repurchases, ℓ^r long term debt retirement, and r the residual set of investing and financing flows. The gross flow of funds identity is

$$\underbrace{cf_{it} + s^g_{it} + \ell^g_{it} + f^{st}_{it}}_{\text{sources}} = \underbrace{i_{it} + \Delta b_{it} + d^{div}_{it} + d^{rep}_{it} + \ell^r_{it} + r_{it}}_{\text{uses}}. \tag{1}$$

We write the conventional net financing margins as

$$s_{it} = s^g_{it} - d^{rep}_{it}, \qquad \Delta\ell_{it} = \ell^g_{it} - \ell^r_{it} + f^{st}_{it}, \qquad e_{it} = s_{it} + \Delta\ell_{it}. \tag{2}$$

Equation (1) is useful for a different reason than the net flow regressions. The net debt coefficient is the paper's headline financing object, but the gross identity lets us ask where a persistent profit dollar is accompanied by additional sources and uses. Stating the identity gross also avoids double counting repurchases, which enter net equity issuance but are economically a use of funds. In the allocation exercise, we estimate every term on a common sample and do not separately winsorize the individual components, so that the source and use coefficients add exactly. The exact adding up is a diagnostic on the accounting exercise, not a causal interpretation of the individual coefficients. Gatchev et al. (2010) impose the same constraint that sources equal uses when they estimate financing and investment decisions jointly.

2.3 Persistent and Transitory Profitability

The paper's central measurement separates operating profitability into a persistent and a transitory component. Let

$$c_{it} = \frac{OIBDP_{it}}{A_{i,t-1}}, \tag{3}$$

winsorized at the 1st and 99th percentiles of its pooled distribution before estimation. We write

$$c_{it} = p_{it} + \varepsilon_{it}, \tag{4}$$

where the persistent component follows a random walk with drift,

$$p_{it} = p_{i,t-1} + \mu + \eta_{it}, \tag{5}$$

and the transitory component follows a stationary AR(1),

$$\varepsilon_{it} = \rho\varepsilon_{i,t-1} + \nu_{it}, \qquad |\rho| < 1. \tag{6}$$

The innovations are mutually and serially uncorrelated. Equations (4) to (6) form a state space model in which p_{it} and ε_{it} are unobserved states and operating profitability c_{it} is observed. We estimate the common parameter vector $\psi = (\mu, \rho, \sigma_\eta^2, \sigma_\nu^2)$ by maximizing the Gaussian likelihood, pooled across firms with at least eight annual observations. Because profitability is not normally distributed, we treat this as quasi maximum likelihood. Given $\hat{\psi}$, the one sided Kalman filter delivers

$$\hat{p}_{it} = E\left[\, p_{it} \mid c_{i1}, \ldots, c_{it}; \hat{\psi} \,\right], \qquad \hat{\varepsilon}_{it} = c_{it} - \hat{p}_{it}. \tag{7}$$

Because the measurement equation has no separate noise term, the filtered components add up to observed profitability in every firm year. From here on, p_{it} and ε_{it} denote these filtered estimates. The estimated transitory persistence is $\hat{\rho} = 0.4420$, so the transitory component mean reverts rapidly.

The one sided filter matters because financing decisions at date t cannot condition on future cash flow realizations. In contrast, smoothed, two sided estimates incorpo-

rate future information into the date t components. We therefore use the one sided filter throughout, which constructs the components using profitability observations only through date t, conditional on $\hat{\psi}$.[3] Internet Appendix Table IA1 reports a timing placebo that adds next year's transitory component to the current financing regression. The placebo t statistic is -0.1 under the one sided filter, compared with -1.9 under the two sided filter. This evidence is consistent with the timing assumption underlying our decomposition.[4]

Section 5 provides a consistency check from outside the statistical model. After an independently identified persistent shift in demand, the profitability increase loads on p_{it}, while ε_{it} does not respond.

2.4 Debt Market Access

We use the S&P long term issuer rating as an observable marker of debt market access. Our baseline measure classifies a firm as rated in year t if it carried a nonmissing rating in year $t-1$. We lag rating status because a contemporaneous rating may be obtained in connection with a debt issue in the same year, creating a mechanical link between the access measure and financing. The one year lagged classifier is therefore our baseline measure. Internet Appendix Table IA10 shows that the results are robust to alternative contemporaneous, absorbing, and ever rated definitions.

Although rating status is predetermined by one year, it is not randomly assigned. Some firms can access debt markets without carrying a public rating, and firms that obtain ratings differ in characteristics that may also shape financing behavior. We therefore interpret rated minus unrated comparisons as evidence of heterogeneity associated with debt market access, conditional on size, rather than as causal effects of obtaining a rating. Section 4 instead exploits the 1989 to 1990 high yield credit supply contraction to generate external variation in debt market access.

[3] The parameter vector $\hat{\psi}$ is estimated using the full sample, so the components are not strictly real time estimates. Internet Appendix A.1 describes the state space model and its estimation.

[4] Under the model, $\varepsilon_{i,t+1} = \rho\varepsilon_{it} + \nu_{i,t+1}$. Conditional on the date t components, the placebo coefficient captures the relationship between current financing and next year's transitory innovation. We expect a zero coefficient if firms do not anticipate future temporary profit surprises and current financing does not affect next year's operating profit. The placebo provides a timing diagnostic rather than proof that the components are free of future information, a property determined by their construction.

2.5 Federal Procurement Data

The defense expansion analysis in Section 5 uses federal procurement records from USAspending.gov, which reports federal contract transactions drawn from the Federal Procurement Data System. The unit of observation is a contract action. Each record identifies the awarding agency, vendor, action date, and federal action obligation, defined as the dollar amount obligated or deobligated by that action. We download all federal prime contract actions for fiscal years 2001 to 2019 and retain the awarding department, allowing us to distinguish obligations from the Department of Defense (DoD) from those of civilian agencies. Following Brogaard et al. (2021), we match vendors to Compustat firms using standardized vendor names and aggregate contract actions to the matched firm.

For each firm, we compute total and DoD obligations, contract and transaction counts, and the DoD share of federal obligations. Our primary obligation measures use positive action obligations, excluding deobligations. Positive obligations better capture newly committed federal demand during the short preshock window, whereas deobligations can reflect cancellations, contract modifications, or closeouts of commitments made earlier.

Each record also reports the contract's financing terms and pricing type. We use these fields to separate unfinanced contracts from financed contracts. Unfinanced contracts are fixed price contracts with an explicit no financing code, which the government pays on delivery. Financed contracts carry progress payments, performance based payments, advance payments, or cost reimbursement terms, under which the government pays as costs are incurred. Our exposure measure uses unfinanced contracts only. Government contract financing can substitute for private borrowing, so restricting exposure to unfinanced contracts mitigates the concern that procurement financing explains the debt response to this exposure. For each contractor, we compute the share of its own DoD dollars that is on unfinanced contracts. The median of this firm level share, with each contractor counting once regardless of size, is 96 percent. The median is high because the typical contractor is a small or mid sized firm that sells on fixed price contracts without government financing, not a large prime contractor.

3 Who Borrows Against Persistent Profits?

3.1 Persistent Profitability and the Debt Response across Firm Size

To characterize how financing responds to persistent and transitory profitability across firm size, we estimate a separate regression within each annual quintile of lagged real assets. For financing outcome y_{it} and quintile q,

$$y_{it} = \alpha_i^q + \lambda_t^q + \theta_p^q \, p_{it} + \theta_\varepsilon^q \, \varepsilon_{it} + \Gamma_q' X_{i,t-1} + u_{it}^q, \qquad (i,t) \in \mathcal{S}_q, \tag{8}$$

where $\mathcal{S}_q = \{(i,t) : Q_{i,t-1} = q\}$, $Q_{i,t-1}$ is the annual quintile of lagged real assets, and $X_{i,t-1}$ contains the lagged controls. The coefficients θ_p^q and θ_ε^q measure how financing responds to a dollar of the persistent or transitory component for firms in size quintile q. Each quintile regression has its own firm effects, year effects, and control coefficients. Standard errors are clustered two way by firm and year.

Table 2 and Figure 1 present the baseline financing responses across firm size. The table reports the responses of net debt issuance, net equity issuance, and external finance to persistent and transitory profitability by size quintile. The figure focuses on the paper's main financing outcome, net debt issuance, and plots the persistent and transitory profit responses across the five quintiles. Together, the two exhibits reveal a sharp contrast. The debt response to persistent profitability reverses sign near the bottom of the size distribution, whereas the response to transitory profitability is much weaker outside the smallest firms.

The persistent profit response reverses sign across size. Net debt issuance falls by 0.219 per persistent dollar in the smallest quintile and rises by 0.137, 0.255, 0.272, and 0.252 in the other four quintiles. Figure 2 examines the same pattern at a finer partition of the size distribution. The response crosses zero near the bottom of the distribution, and a Wald test strongly rejects a linear relation between the response and size. The pattern is therefore better characterized as a sign reversal than as a smooth size gradient.[5]

[5] Financing outcomes are winsorized at the 1st and 99th percentiles within annual size quintiles. Internet Appendix Table IA3 reports a robustness check using pooled winsorization cutoffs instead. The signs and statistical significance of all coefficients remain unchanged, and the differences between persistent and

The transitory component behaves differently. Net debt issuance falls by 0.183 and 0.096 in Q1 and Q2, but the Q3 to Q5 responses are economically small, at 0.007, 0.020, and 0.062. Wald tests based on the same regressions reject equality of the persistent and transitory profit net debt responses in Q2 to Q5 ($p < 0.001$ in each quintile), but not in Q1 ($p = 0.593$). The persistent response exceeds the transitory response by about 19 to 25 cents per dollar in Q2 to Q5, compared with essentially no difference in Q1. In the smallest quintile, higher profitability of either kind is associated with less net issuance; above Q1, the borrowing response is stronger for persistent profitability. The persistent and transitory contrast also clarifies why we use operating income before depreciation (EBITDA) as the baseline profitability measure. Profit measures defined after interest expense mechanically mix operating performance with financing costs.[6]

Net equity and total external finance reinforce the distinction without changing the headline. In Q1, net equity issuance falls as both persistent and transitory profitability rise, with a particularly large response to the transitory component. External finance therefore also falls sharply. From Q3 onward, persistent profitability is associated with positive external finance, whereas the response to transitory profitability is much smaller. We keep the main table focused on net debt, net equity, and total external finance and report the remaining gross financing margins in Internet Appendix Table IA4.

The additional financing margins sharpen this interpretation. Gross debt issuance rises with transitory profitability in Q3 to Q5 even though the corresponding net debt responses are close to zero. Thus, the small net debt response among larger firms does

transitory profitability responses are nearly identical. Pooled cutoffs impose more aggressive trimming on the relatively volatile financing flows of small firms, resulting in somewhat smaller coefficient magnitudes in Q1.

[6] Internet Appendix Table IA2 shows that this accounting distinction is quantitatively important. In Panel A, when we instead use the alternative cash flow measure, $ib + dp$, defined as income before extraordinary items plus depreciation and amortization, the estimated response of net debt issuance to the transitory component becomes strongly negative in Q3 to Q5, at -0.233, -0.217, and -0.156, respectively. Adding interest expense back attenuates these estimates sharply, to -0.085, -0.055, and -0.021, while the corresponding EBITDA based responses are 0.007, 0.020, and 0.062. Panel B decomposes the accounting wedge between $ib + dp$ and EBITDA. The interest expense component has by far the largest and most consistently negative loading on net debt, ranging from -1.002 in Q1 to -2.488 in Q4, whereas the loadings on taxes, special items, and the residual component are substantially smaller and less systematic. Together, the two panels show that much of the negative net issuance association with transitory profitability under the conventional cash flow measure reflects the fact that this measure is constructed after interest expense, rather than a financing response to temporary operating profitability.

not reflect an absence of debt market activity, but rather offsetting gross financing flows.

Pooling across size obscures this heterogeneity. Without size interactions, the persistent profit coefficient on net debt is -0.066 (s.e. 0.024), even though the response is negative in Q1 and positive in each of Q2 to Q5. Internet Appendix Table IA5 reports the corresponding pooled estimates for net debt, net equity, and total external finance. The pooled debt coefficient therefore averages financing responses of opposite sign and does not characterize the response of any particular part of the size distribution.

A natural concern is that the size reversal reflects the state space model rather than the data. The filter imposes a random walk persistent component and common parameters across firms. Table 3 therefore replaces the filter with three measures that do not use it. The first two define the persistent component as the trailing three or five year mean of operating profitability and the transitory component as the deviation of current profitability from that mean. The third estimates a separate AR(1) for each firm with at least eight annual observations and uses the fitted value as the persistent component and the residual as the transitory component.

The sign reversal appears under every measure. The persistent profit response of net debt issuance ranges from -0.233 to -0.260 in Q1 and is positive and statistically significant in Q2 to Q5. In Q3 to Q5 it ranges from 0.185 to 0.251, close to the baseline estimates of 0.252 to 0.272. The transitory responses of larger firms are more positive under the five year mean and the firm specific AR(1), between 0.098 and 0.138 in Q3 to Q5, but remain small under the three year mean. This pattern is expected. Trailing means adjust slowly to a persistent innovation, and a firm specific AR(1) residual contains the part of a lasting shift that the fitted value has not yet absorbed, so both measures assign some persistent variation to the transitory component.

Even so, the persistent response exceeds the transitory response above Q1 under every measure. Untabulated Wald tests reject equality of the two responses at the 1 percent level in Q2 to Q5 under both trailing means, where the gap is 12 to 21 cents per dollar. Under the firm specific AR(1), the gap is smaller, 6 to 12 cents, and equality is rejected at the 1 percent level in Q2 and Q3, the 5 percent level in Q4, and the 10 percent level in Q5. In Q1, as in the baseline, the two responses are not significantly different at the 5 percent level

under any measure.

A further concern is timing. The components p_{it} and ε_{it} use profitability in year t, the year in which financing is measured. An acquisition financed with debt in year t adds the target's operating income and raises net debt issuance in the same year. Internet Appendix Table IA8 reports two checks. The first replaces both components with their values in year $t-1$. The persistent response is then -0.122 in Q1 and between 0.153 and 0.174 in Q3 to Q5, each significant at the 1 percent level. The sign pattern therefore does not depend on profitability measured in the financing year. The Q3 to Q5 responses are 62 to 66 percent of the baseline estimates on the same firm years.

The second check drops firm years with sizable acquisitions, defined as acquisition spending above 10 percent of lagged assets. The persistent response in Q3 to Q5 is then between 0.116 and 0.136, about half of the baseline, and each estimate is significant at the 1 percent level. The Q1 response is -0.213, close to the baseline. The transitory response is negative and significant in every quintile. In Q3 to Q5 the persistent response therefore exceeds the transitory response by 23 to 27 cents per dollar, compared with 19 to 25 cents in the baseline. Dropping every firm year with acquisition spending gives similar estimates.

Years with sizable acquisitions thus account for about half of the borrowing associated with persistent profit among larger firms. They do not account for the difference between persistent and transitory profit. Without them, larger firms borrow more when persistent profit is higher and less when transitory profit is higher. These samples are selected on an outcome, so we treat them as diagnostics.

Internet Appendix Table IA6 reestimates the baseline specification over 1985 to 2016, the period used in the rating analysis, and obtains the same sign pattern. Thus the size reversal is also present in the sample used for the debt market access tests.

3.2 Operating Losses and the Smallest Firms

The smallest quintile differs from the others in more than size. It is the only quintile in which mean operating profitability is negative, and its firms raise external finance equal

to 16 percent of lagged assets in an average year (Table 1). For a firm covering losses, higher persistent profitability means smaller losses and so less need for outside money. The negative response in Q1 may therefore reflect losses and not size.

To separate the two, we classify each firm year by whether operating income before depreciation was negative in the prior fiscal year. Using the prior year avoids sorting on the profitability that is being decomposed. Loss years are 38.9 percent of the classified firm years in Q1, 19.1 percent in Q2, and 1.8 percent in Q5. We estimate equation (8) separately for loss and profitable firm years within each size quintile. Table 4 reports the estimates for net debt issuance and external finance.

The negative response in Q1 comes from loss firms. Among them, net debt issuance is 0.543 lower and external finance is 0.936 lower per dollar of persistent profit. Among profitable firms in Q1, the net debt response is 0.065 (s.e. 0.050), and the external finance response is 0.201, significant at the 5 percent level. Small profitable firms therefore do not use persistent profit in place of external finance.

Loss status matters in every quintile. The persistent response of net debt issuance is lower for loss firms than for profitable firms by 0.218 to 0.567, and each difference is significant at the 1 percent level. The loss cells in Q4 and Q5 contain only 547 and 280 firm years, so their separate coefficients are imprecise.

Size also matters, mainly among loss firms. Panel C compares Q1 with Q2 and Q3 within each group. Among loss firms, the persistent response of net debt issuance is 0.277 lower in Q1, and that of external finance is 0.774 lower. Among profitable firms, the corresponding differences are 0.099 and 0.054, and the second is not statistically significant. Outside Q1, the net debt response of loss firms is not significantly different from zero, although in Q2 their external finance is 0.320 lower per dollar of persistent profit.

Transitory profit behaves differently. Profitable firms in Q1 issue 0.213 less net debt and raise 0.418 less external finance per dollar of transitory profit. This is the substitution of internal funds for external finance that the usual interpretation describes. It is much weaker or absent in the larger quintiles. Loss firms in Q1 show no significant net debt response to transitory profit, although their external finance is 0.585 lower.

The reversal across size in Table 2 is therefore largely a difference between firms with

and without operating losses, and it is most pronounced among the smallest loss firms. Internet Appendix Table IA7 classifies loss years by income before extraordinary items instead. The results are similar. In Q1 the net debt response to persistent profit is -0.484 among loss firms and 0.083 (s.e. 0.061) among profitable firms.

3.3 Debt Market Access and the Size of the Borrowing Response

Above the smallest quintile, firms borrow more when persistent profitability is higher. We now ask whether the size of that response depends on access to debt markets. Firm size and access are related, but they are not the same thing. Larger firms are more likely to issue public debt, yet access differs substantially among firms of similar size. We use a prior year S&P long term issuer rating as an observable marker of access to public debt markets. An unrated firm is a firm without observed access to rated public debt. It is not necessarily unable to borrow or financially constrained.

Rating status does not account for the negative response in the smallest quintile, which Section 3.2 attributes largely to operating losses. There are no rated firm years in Q1 over 1985 to 2016, and only 21 in Q2. Among unrated firms alone, the persistent response is -0.337 in Q1 and between 0.093 and 0.226 in Q2 to Q5 (Table 5, Panel A). The comparison that follows therefore concerns how much firms borrow against persistent profits, among the firms that do.

Table 5 and Figure 3 compare rated and unrated firms within annual size quintiles. Panels A and B reestimate equation (8) separately for rated and unrated firms within each annual size quintile over 1985 to 2016. The table reports the persistent and transitory profit coefficients and their difference. Figure 3 plots the corresponding persistent profit responses by rating status and size quintile.

Panels A and B show that, in the quintiles with sufficient observations for both groups, rated firms have a stronger net debt response to persistent profitability. In Q4, the persistent profit coefficient is 0.525 for rated firms, compared with 0.197 for unrated firms; in Q5, the corresponding estimates are 0.315 and 0.193. The Q3 estimate for rated firms is also positive but considerably less precise because the rated cell is much smaller. We

therefore emphasize the Q4 and Q5 comparisons. Because these comparisons are made within annual size quintiles, they indicate that participation in rated public debt markets is associated with a stronger borrowing response to persistent profitability even among similarly sized firms.

The persistent and transitory comparison helps distinguish this result from a general tendency of rated firms to borrow more when profitability increases. Among unrated firms, the persistent response exceeds the transitory response from Q2 to Q5. Among rated firms, the distinction is especially pronounced in Q4, where the persistent profit response is 0.525 and the transitory profit response is -0.191, a difference of 0.716. In Q5, the corresponding responses are 0.315 and 0.138, a difference of 0.177. Thus, the stronger borrowing response associated with rated debt market access is most evident for persistent profitability, rather than reflecting a uniformly stronger response to profitability of either type.

Panel C further examines whether the rated minus unrated gap can be explained by differences in firm size or other observable characteristics. We pool rated and unrated firms and interact both persistent and transitory profitability with rating status, while progressively allowing profitability responses to vary with size and other firm characteristics. Let $R_{i,t-1}$ indicate whether firm i was rated in the prior year. Column (1) estimates

$$y_{it} = \alpha_i + \lambda_t + \sum_{q=1}^{5} \left(\theta_p^q \, p_{it} + \theta_\varepsilon^q \, \varepsilon_{it}\right) \mathbf{1}\{Q_{i,t-1} = q\} + \delta_p \, R_{i,t-1} \, p_{it} + \delta_\varepsilon \, R_{i,t-1} \, \varepsilon_{it} + \kappa \, R_{i,t-1} + \Gamma' X_{i,t-1} + u_{it}, \tag{9}$$

where $X_{i,t-1}$ contains the lagged controls from equation (8), and size quintile intercepts are also included. The coefficients θ_p^q and θ_ε^q allow the responses to persistent and transitory profitability to vary freely across size quintiles, accounting for the differences across size documented earlier. The coefficient of primary interest is δ_p, which measures the rated minus unrated difference in the financing response to persistent profitability, conditional on firm size and other controls.

Column (1) estimates $\delta_p = 0.192$, statistically significant at the 1 percent level, indicating that the rated minus unrated gap persists after the profitability responses are allowed to differ across size quintiles. Column (2) restricts the sample to the range of firm

sizes with substantial overlap between rated and unrated firms and yields a similar estimate of 0.220 (s.e. 0.093). Column (3) further allows the response to persistent profitability to vary with firm characteristics by interacting persistent profitability with seven lagged firm characteristics (book leverage, tangibility, cash holdings, market to book ratio, cash flow volatility, R&D intensity, and log firm age) and including their levels as additional controls. The estimated rated minus unrated gap is 0.314 (s.e. 0.048). The rated minus unrated difference in the response to persistent profitability therefore remains economically large and statistically significant after flexibly accounting for firm size and other observable characteristics. In contrast, the interaction between rating status and transitory profitability is small and statistically insignificant across all three specifications, indicating that the rated minus unrated gap is concentrated in the response to persistent profitability.

A remaining concern is that the rated minus unrated gap may depend on how debt market access or profitability persistence is measured. Internet Appendix Table IA10 examines these choices directly. Panel A shows that the gap remains positive and statistically significant under alternative definitions of rating status, while Panel B shows similar results under alternative measures of persistent profitability. In Panel C, the gap remains positive and statistically significant when observations are weighted by lagged assets, when flows are scaled by average assets, and under wild cluster bootstrap inference.

Because an unrated status may be a less informative indicator of debt market access among the largest firms, we also examine the part of the size distribution where rated and unrated firms overlap more closely. Consistent with this concern, the rated minus unrated difference is smaller in magnitude among the largest firms. When we restrict the sample to the region with greater size overlap, however, the gap remains positive and statistically significant. This result suggests that the baseline difference is not driven by comparisons at the extreme upper end of the size distribution.

The gap is concentrated in years with acquisitions. Panel C of Internet Appendix Table IA8 repeats column (1) under the timing and sample alternatives of Section 3.1. With the components measured in year $t-1$, δ_p is 0.146 (s.e. 0.039). Without firm years with

acquisition spending above 10 percent of lagged assets, it is 0.096 (s.e. 0.038). Without any firm year with acquisition spending, it is 0.065 (s.e. 0.041) and not statistically significant. Section 6.1 shows that rated firms have stronger acquisition responses to persistent profitability and no stronger capital spending response. Much of the additional borrowing by rated firms thus accompanies acquisitions, consistent with Harford and Uysal (2014).

Lagging rating status by one year mitigates contemporaneous simultaneity, but it does not eliminate selection into rated debt markets. We therefore interpret the rated minus unrated difference as cross sectional evidence that the borrowing response to persistent profitability varies with an observable marker of public debt market access, conditional on size and other firm characteristics, rather than as the causal effect of obtaining a rating. The next section turns to the 1989 to 1990 contraction in speculative grade credit to obtain external variation in debt market access.

4 Contracting Debt Market Access: The 1989 to 1990 High Yield Contraction

The evidence in Section 3 suggests that the borrowing response to persistent profitability depends importantly on firms' access to debt markets. Because debt market access is endogenous in the cross section, we next exploit an external contraction in credit supply that generates variation in access less subject to this selection concern. We use the collapse of the high yield market around 1989 to 1990, which sharply reduced credit availability for speculative grade issuers relative to investment grade issuers. We fix firms' rating classes before the contraction and compare groups whose access the contraction affected differently. We ask whether this deterioration in access changes the *marginal sensitivity* of borrowing to persistent profitability.

4.1 Institutional Setting and Sample

The U.S. high yield market experienced a major contraction around 1989 to 1990. Several developments reduced the supply of credit to below investment grade issuers. FIR-

REA, enacted in August 1989, prevented thrifts from making new below investment grade investments and required them to dispose of existing holdings. Drexel Burnham Lambert, a major intermediary in the high yield market, failed in February 1990. Around the same time, changes in insurance regulation reduced life insurers' demand for below investment grade private placements. Together, these developments sharply reduced an important source of financing for speculative grade firms.

Lemmon and Roberts (2010) use this episode to identify a contraction in credit supply to speculative grade issuers and document declines in their financing and investment. We use the same institutional setting for a different but related test. Rather than asking only whether exposed firms issue less debt after the contraction, we ask whether they become less responsive to persistent profitability when making borrowing decisions. This distinction is important for our mechanism. The prediction is not simply that tighter credit reduces debt issuance, but that it reduces the amount of additional debt associated with a given level of persistent profitability.

We classify firms using the last S&P long term issuer rating observed during fiscal 1986 to 1988, before the main contraction. Firms rated BB+ or below are classified as speculative grade, while firms rated BBB- or above are classified as investment grade. Firms with no S&P issuer rating observed during fiscal 1986 to 1988 are excluded, so that both the treatment and comparison groups have an observed preshock rating classification. This provides a direct comparison between speculative grade firms, whose credit supply was affected by the high yield contraction, and investment grade firms, whose segment of the credit market was not directly affected. Fixing the classification before the contraction avoids assigning treatment status using ratings that may themselves respond to subsequent financing conditions. The estimation sample spans fiscal 1985 to 1994 and contains 471 speculative grade and 317 investment grade firms. Our baseline post period begins in fiscal 1990.

Our comparison group differs from the baseline in Lemmon and Roberts (2010), who match speculative grade firms to unrated firms because their outcomes are financing and investment levels and a comparison with investment grade firms may also reflect differential changes in capital demand. Our object is instead the sensitivity of borrowing to

persistent profitability. We therefore compare speculative grade with investment grade issuers that both had preshock access to rated debt markets. The high yield contraction then provides an external deterioration in credit supply specific to the speculative grade segment, allowing us to test whether the persistent profit borrowing response declines when access contracts.[7]

We first verify that the high yield contraction is associated with a decline in financing among speculative grade firms. For financing outcome y_{it}, we estimate

$$y_{it} = \alpha_i + \lambda_t + \delta \left(SPG_i \times Post_t \right) + \Gamma' X_{i,t-1} + u_{it}. \tag{10}$$

The coefficient δ captures the differential change after the contraction in the financing outcome for speculative grade firms relative to investment grade firms. Firm fixed effects absorb time invariant differences between the two rating groups, while year fixed effects absorb aggregate changes in financing conditions. We then ask whether the contraction also changes the sensitivity of borrowing to persistent profitability. For financing outcome y_{it}, we estimate

$$\begin{aligned} y_{it} = \alpha_i + \lambda_t &+ \beta_1 \left(p_{it} \times SPG_i \times Post_t \right) \\ &+ \beta_2 p_{it} + \beta_3 \left(p_{it} \times SPG_i \right) + \beta_4 \left(p_{it} \times Post_t \right) + \beta_5 \left(SPG_i \times Post_t \right) \\ &+ \gamma_1 \varepsilon_{it} + \gamma_2 \left(\varepsilon_{it} \times SPG_i \right) + \gamma_3 \left(\varepsilon_{it} \times Post_t \right) + \gamma_4 \left(\varepsilon_{it} \times SPG_i \times Post_t \right) \\ &+ \Gamma' X_{i,t-1} + u_{it}. \end{aligned} \tag{11}$$

SPG_i is an indicator equal to one for firms classified as speculative grade using their last S&P issuer rating observed during fiscal 1986 to 1988, and $Post_t$ is an indicator equal to one in fiscal 1990 to 1994. The specification includes the standard lagged controls and firm and year fixed effects, with standard errors clustered by firm. The coefficient of interest,

[7] Comparisons of speculative grade with investment grade firms have also been used in related credit supply studies. Custódio et al. (2013) use the 1989 contraction and find that speculative grade firms reduce their use of long term bonds relative to investment grade firms. The comparison does not eliminate the possibility that capital demand evolves differently across rating groups; Section 4.3 addresses this concern using the preshock dynamics.

β_1, captures the differential change after the contraction in the response of borrowing to persistent profitability for speculative grade firms relative to investment grade firms. The $p \times Post$ interaction allows the persistent profit response of investment grade firms to change after 1989, thereby absorbing common changes in the relation between profitability and borrowing over the same period. The term $SPG_i \times Post_t$ allows the mean borrowing of speculative grade firms to shift after 1989, as shown in Panel A of Table 6.

4.2 The Supply Contraction and the Persistent Profit Sensitivity

Table 6 presents the main results. Panel A first verifies that the high yield contraction produces the expected decline in financing among speculative grade firms. Relative to investment grade firms, speculative grade firms reduce net debt issuance by 0.052 of lagged assets after 1989. External finance falls by 0.065, while net equity issuance also declines by 0.014 rather than offsetting the reduction in debt. Book leverage falls by 0.057. These estimates reproduce the broad credit supply contraction documented by Lemmon and Roberts (2010) in our sample.

Panel B asks whether the contraction changes the sensitivity of borrowing to persistent profitability. The main coefficient of interest is the interaction of persistent profitability, speculative grade status, and the period after the contraction. This coefficient is -0.367 and statistically significant at the 5 percent level, indicating that after 1989 the borrowing response of speculative grade firms falls by about 37 cents per persistent dollar relative to investment grade firms. By contrast, the change after the contraction for investment grade firms is small and statistically insignificant. The relative decline is therefore concentrated among speculative grade firms.

Before the contraction, both groups borrow strongly against persistent profitability. The responses are 0.791 for investment grade firms and 0.867 for speculative grade firms, both statistically significant at the 1 percent level. After the contraction, the speculative grade response falls to 0.516, which remains positive and statistically significant at the 1 percent level but is substantially smaller than before. Thus, the high yield contraction weakens the borrowing response to persistent profitability without eliminating it. The

corresponding interaction for transitory profitability is positive but imprecisely estimated (0.572, s.e. 0.337). It reflects a sharp decline after 1990 in the transitory response of investment grade firms rather than an increase for speculative grade firms, whose transitory response also falls. Relative to investment grade firms, the decline in the borrowing response of speculative grade firms is therefore concentrated in the persistent component.

The corresponding triple interaction for external finance is also negative and statistically significant at the 10 percent level, while net equity issuance does not rise to offset the decline in debt. Taken together, the results indicate that tighter high yield credit conditions reduce the external financing response to persistent profitability rather than simply shifting financing from debt toward equity.

4.3 Timing and Alternative Explanations

Table 6, Panel C, and Figure 4 trace the change in the persistent profit borrowing response around the high yield contraction. The year by year estimates come from

$$\begin{aligned} y_{it} = \alpha_i + \lambda_{g(i),t} + \sum_{s=1985}^{1994} \left(\beta_s \, p_{it} + \beta_s^{SPG} \, p_{it} SPG_i\right) \mathbf{1}\{t = s\} \\ + \gamma \, \varepsilon_{it} + \gamma^{SPG} \, \varepsilon_{it} SPG_i + \Gamma' X_{i,t-1} + u_{it}, \end{aligned} \tag{12}$$

where $\lambda_{g(i),t}$ is a separate set of fiscal year effects for each rating class $g(i)$, speculative grade or investment grade. The specification generalizes equation (11) by allowing both the level of speculative grade borrowing and the borrowing response to persistent profitability to vary year by year. Because the year effects differ by rating class, the slope coefficients β_s^{SPG} are not driven by year specific shifts in the level of speculative grade borrowing. Figure 4 plots β_s^{SPG} relative to its 1985 to 1987 mean, with standard errors that account for estimation of that mean. Panel C replaces the year specific slopes with the periods 1988 to 1989, 1990 to 1992, and 1993 to 1994, each measured relative to 1985 to 1987, and retains the rating class by year effects. In Panel C the slopes on transitory profitability also vary by period.

The coefficients for 1985 to 1987 are flat, and a test of their equality does not reject

($p = 0.843$).[8] The 1988 to 1989 transition estimate is negative but imprecise, at -0.295 (s.e. 0.259). The estimates become larger and more precise once the high yield market closes. The speculative grade response is 0.504 lower (s.e. 0.181) during 1990 to 1992 and remains 0.575 lower (s.e. 0.215) in 1993 to 1994, after primary issuance resumes. The weakening of the borrowing response is therefore clearest after the withdrawal of market access, and it does not revert with the recovery of the market or the macroeconomy.

This timing matters for the baseline specification. We define $Post$ beginning in 1990, when the market closed, even though high yield credit conditions had begun to weaken in 1988 to 1989. The binned estimate for 1988 to 1989 is negative and about 60 percent as large as the estimate for 1990 to 1992, but it is not statistically significant. The data therefore do not date the break sharply. Treating 1988 and 1989 as years before the contraction works against finding a decline. Lemmon and Roberts (2010) document a similar timing pattern, with below investment grade issuance declining in 1989 before falling sharply in 1990 to 1991.

The dynamics also argue against a common decline in borrowing demand as the main explanation. Investment grade firms experience the same 1990 to 1991 recession, yet their persistent profit borrowing sensitivity changes little after 1989. Moreover, the speculative grade response remains substantially lower through 1993 to 1994 rather than reverting with the aggregate recovery. The differential change therefore lines up more closely with the disruption to speculative grade credit supply than with a common macroeconomic contraction.

Internet Appendix Table IA11 reports additional robustness tests. The decline in the speculative grade persistent profit response remains when we allow the response to vary flexibly with firm size, absorb Fama and French 48 industry by year shocks, exclude firms that default during the sample window, and restrict the sample to firms observed through 1993. A placebo that assigns a pseudo post period beginning in 1987 within the sample before 1990 gives -0.250 (s.e. 0.268). This estimate is not statistically significant, and its negative sign matches the transition estimate for 1988 to 1989. With raw EBITDA in place of

[8] When the slopes on transitory profitability also vary by year, the estimates are similar. The coefficients for 1990 and 1993 are -0.557 (s.e. 0.205) and -0.737 (s.e. 0.254), and the test of equality of the 1985 to 1987 coefficients gives $p = 0.884$.

the two components, the interaction is -0.165 (s.e. 0.159). A smaller estimate is expected if the decline is in the response to the persistent component, because raw EBITDA combines the two components. Specifications with additional balance sheet interactions are also reported in the Internet Appendix.

Taken together, the timing and robustness evidence supports interpreting the decline in the persistent profit borrowing response as associated with the contraction in high yield credit supply. The next section turns to an external increase in persistent profitability and asks whether the borrowing response differs with debt market access.

5 Raising Persistent Profitability: The Post-9/11 Defense Expansion

The high yield contraction varies credit supply while leaving profitability to evolve on its own. This section does the reverse. The defense expansion of the early 2000s raised the profitability of defense contractors for reasons outside their own financing decisions. The September 11, 2001 attacks were unanticipated, and they accelerated a recovery in defense spending that had already begun. We ask whether contractors with and without access to rated debt markets finance the same improvement in persistent profitability differently.

5.1 The Defense Expansion and the Measurement of Exposure

The September 11 attacks were unanticipated and marked a sharp and persistent shift in expected U.S. defense spending (Ramey, 2011). Blau et al. (2022) document positive abnormal returns for defense firms when U.S. equity markets reopened after September 11, with larger responses among firms expected to benefit more from future military contracts. Defense spending and DoD obligations subsequently rose sharply and remained elevated through 2008 (U.S. Government Accountability Office, 2008). Firms' exposure can be measured from procurement relationships established before the attacks, prior to any response by firms or procurement agencies to the subsequent expansion.

A concern with defense procurement as a profitability shock is that many defense contracts also finance the contractor. Under progress payments, performance based payments, advance payments, and cost reimbursement contracts, the government pays as costs are incurred, which can substitute for private borrowing independently of profitability. We therefore measure exposure only from contracts that the government pays on delivery. Using the procurement records described in Section 2.5, we define unfinanced defense dependence as the firm's positive DoD obligations between October 1, 2000 and September 10, 2001 on fixed price contracts with an explicit no financing code, divided by fiscal 2000 sales,[9]

$$\text{UnfinancedDependence}_i = \frac{\text{UnfinancedDoDContracts}_i}{Sales_{i,2000}}. \tag{13}$$

Restricting exposure to these contracts mitigates the concern that a debt response reflects government contract financing substituting for private borrowing, and the estimates are similar when we control for financed defense dependence (Internet Appendix Table IA12). The median across contractors of the firm level unfinanced share, the firm's unfinanced DoD dollars divided by its total DoD dollars, is 96 percent. Because the dependence ratio is strongly right skewed, the treatment variable $Rank_i$ is its percentile rank among all contractor firms, scaled to lie between zero and one. All inputs are determined before September 11, 2001, and profitability, procurement, and financing outcomes after the event play no role in the measure.

The sample consists of Compustat firms that were already federal contractors before September 11, 2001, defined as firms with positive federal contract obligations awarded between October 1, 2000 and September 10, 2001. Restricting the comparison to preexisting contractors holds fixed prior participation in federal procurement and compares firms with different predetermined dependence on unfinanced defense contracts. We split contractors by debt market access before the shock. Rated contractors are the 190 firms with an S&P long term issuer rating in any fiscal year from 1985 to 2000, and never rated contractors are the 304 firms without one.

[9] October 1, 2000 marks the beginning of U.S. federal fiscal year 2001.

Within each group, we estimate over fiscal 1994 to 2008

$$y_{it} = \alpha_i + \lambda_t + \theta \left(Rank_i \times Post_t \right) + u_{it}, \tag{14}$$

where $Post_t$ equals one in fiscal 2001 and later. Firm fixed effects absorb time invariant differences across firms, including the level of exposure, year fixed effects absorb aggregate shocks, and standard errors are clustered by firm. The coefficient θ measures the change in the outcome after the shock for a contractor at the top of the exposure distribution relative to a contractor at the bottom. Fiscal 2001 straddles the attacks for most firms, and counting it as part of the post period is conservative.[10] To test whether the two groups respond differently, we pool them, allow the year effects to differ by group, and report the coefficient on $Rank_i \times Post_t$ interacted with rated status.

We study four outcomes. The persistent and transitory components of operating profitability establish whether the shock raises profitability and which component it loads on. The debt stock, total debt scaled by the firm's fiscal 2000 assets, measures borrowing. Holding the denominator at its preshock value means that the ratio changes only when the dollar amount of debt changes, and not because assets grow. The fourth outcome is an indicator for net debt issuance above 2 percent of lagged assets, which measures the frequency of sizable issuance.

5.2 Profitability and Borrowing by Debt Market Access

Table 7 reports the estimates. The shock raises persistent profitability in both groups. Moving from the bottom to the top of the exposure distribution raises the persistent component by 0.023 (s.e. 0.014) among rated contractors, significant at the 10 percent level, and by 0.033 (s.e. 0.014) among never rated contractors, significant at the 5 percent level. These estimates correspond to 2.3 and 3.3 percentage points of assets. The difference between the two groups is -0.010 (s.e. 0.020). We cannot reject equal improvements in the two groups, although the difference is imprecisely estimated. The positive persistent

[10] The attacks fall in federal fiscal year 2001, but Compustat fiscal 2001 covers fiscal year ends from June 2001 through May 2002, and about 12 percent of firms close fiscal 2001 before September 11.

profitability response among rated contractors is robust to alternative treatment definitions. In particular, the estimate is significant at the 5 percent level when treatment is defined as the top quartile of defense exposure (Internet Appendix Table IA12, Panel C). The transitory component does not respond in either group, with estimates of -0.008 (s.e. 0.010) and 0.010 (s.e. 0.012). A shock known to be lasting thus loads on the component of profitability that our decomposition classifies as persistent.

The debt response differs by debt market access. Among rated contractors, the debt stock rises by 0.228 (s.e. 0.080) of fiscal 2000 assets, significant at the 1 percent level, or about 23 cents of additional debt per dollar of preshock assets. The outcome is the stock of debt, whereas the panel estimates concern annual issuance, so the two magnitudes are not directly comparable. Among never rated contractors, the estimate is -0.026 (s.e. 0.068), small and statistically insignificant. The rated minus never rated difference is 0.254 (s.e. 0.104), significant at the 5 percent level. The frequency of sizable net issuance points the same way, with estimates of 0.063 for rated and -0.023 for never rated contractors, but neither estimate nor their difference is statistically significant. Contractors with access to rated debt markets thus borrow more after an externally induced increase in persistent profitability, whereas contractors without such access show no detectable change in debt.

Figure 5 reports the dynamics of the debt stock, replacing $Post_t$ in equation (14) with fiscal year indicators and omitting fiscal 2000. Among rated contractors, the gap between more and less exposed firms widens after September 11. The coefficients for fiscal 2005 to 2008 range from 0.13 to 0.25 and are significant at the 5 percent level. For never rated contractors, no coefficient after the shock differs from zero. Before the shock, joint tests that the fiscal 1994 to 1999 coefficients are zero do not reject ($p = 0.38$ for rated and $p = 0.29$ for never rated contractors).[11] We interpret September 11 as an unexpected acceleration of a defense spending recovery that was already under way.

Internet Appendix Table IA12 reports alternative specifications. Controlling for fi-

[11] These tests concern the null hypothesis that the coefficients before the shock are jointly zero and are not a formal test of differential trends. Among rated contractors, the gap between more and less exposed firms is stable from fiscal 1994 to 1998 and begins to widen in fiscal 1999 and 2000, when the defense budget turned around. Two coefficients before the shock, for fiscal 1997 and 1998, are individually significant at the 5 percent level. The estimates for the period after the shock may also reflect the broader buildup that the attacks accelerated.

nanced defense dependence interacted with $Post_t$ leaves the estimates essentially unchanged. The magnitude of the rated debt response depends on how treatment is defined. It is 0.127 (s.e. 0.040) with an above median indicator. It is 0.057 (s.e. 0.061) and statistically insignificant when the top quartile is compared with the other three quartiles pooled. Internet Appendix B.2.2 discusses the reasons. Under every definition, never rated contractors show no detectable change in debt.

Together with the high yield evidence, these results are consistent with a financing response to persistent profitability that depends on debt market access. When credit supply to speculative grade firms contracted, their borrowing response to persistent profitability weakened. When persistent profitability rose for reasons outside the firm, contractors with access to rated debt markets increased their debt, and contractors without it did not. We regard the defense evidence as corroborating the high yield evidence.

6 Growth and the Financing Response

Above Q1, persistent profitability is associated with additional borrowing. It is also associated with operating expansion, with stronger responses among larger firms.[12] Within size quintiles, rated firms exhibit greater employment, PP&E, acquisition, and asset growth responses than unrated firms, but no statistically significant additional capital investment response. We examine operating outcomes, the associated sources and uses of funds, and the accounting relation between debt issuance and leverage changes.

6.1 Persistent Profitability and Operating Expansion

Table 8 relates persistent profitability to growth in sales, employment, PP&E, and assets, and to expenditure on capital investment and acquisitions. Panel A shows that higher persistent profitability is associated with greater operating expansion across all these outcomes in Q2 to Q5. The responses generally increase with firm size, particularly for sales, employment, investment, and acquisitions. Sales and employment are useful comple-

[12] Giroud and Mueller (2021) also relate firm borrowing to employment growth.

ments to asset growth because cash accumulation alone cannot generate either. They capture expansion of the firm's operating scale, although acquisitions can increase that scale without creating new capacity in the aggregate.

The smallest firms exhibit a less uniform pattern. Employment, PP&E, and asset growth, as well as investment and acquisitions, respond positively to persistent profitability, but sales growth responds negatively. Although the acquisition response is statistically significant, its magnitude is substantially smaller than in the other quintiles. Thus, the positive asset response in Q1 does not reflect the same broad pattern of operating expansion observed among larger firms.

Panel B compares rated and unrated firms within Q3 to Q5, where the two groups have overlapping size support. Rated firms exhibit significantly stronger responses in employment, PP&E, acquisitions, assets net of cash, and total assets across all three quintiles. The acquisition differences are particularly pronounced, while none of the rated minus unrated differences in investment scaled by lagged assets is statistically significant. This contrast suggests that acquisitions may help explain the stronger operating expansion among rated firms, rather than greater capital investment alone. However, acquisition spending does not directly measure the contribution of acquisitions to PP&E growth.

6.2 Sources and Uses Associated with Persistent Profitability

Table 9 uses the gross flow of funds identity in equation (1) to describe the associated sources and uses of funds. The common scaling by lagged assets gives the coefficients a dollar interpretation. Holding the denominator fixed, each coefficient is the change in a flow associated with a dollar increase in the persistent component of operating income. This is not the allocation of a one dollar cash transfer. Operating income differs from internal cash flow, and external financing can change as well. With identical samples and regressors and without separately winsorizing the component outcomes, the estimated sources and uses add up by construction.[13]

[13]The financing flow coefficients differ slightly in magnitude from those in Table 2 because the flow of funds decomposition requires nonmissing observations for additional components, resulting in a more restricted sample. Nevertheless, the estimates are quantitatively similar and exhibit the same patterns across firm sizes.

Across all size quintiles, higher persistent profitability is associated with greater internal cash flow and increases in investment, acquisitions, and working capital. For Q3 to Q5, these operating uses expand alongside additional long term debt issuance. The combined response of investment, acquisitions, and working capital is substantially larger than the response of dividends and repurchases. For example, in Q5, a dollar increase in persistent operating income is associated with $0.67 of additional cash flow, $0.34 of long term debt issuance, and smaller increases in gross equity issuance and short term financing. On the uses side, investment, acquisitions, and working capital increase by $0.25, $0.18, and $0.24, respectively, for a combined response of $0.67, compared with $0.14 for dividends and repurchases. These patterns indicate that operating expansion is a prominent use of funds associated with persistent profitability, although the accounting decomposition does not identify which financing sources fund particular expenditures or whether the expansion creates value. Consistent with Lintner (1956), dividends rise with persistent profitability in every quintile and do not rise with transitory profitability.

The smallest firms exhibit a different financing response. In Q1, a dollar increase in persistent operating income is associated with $1.52 of additional cash flow but reductions of $0.19 in gross equity issuance, $0.12 in long term debt issuance, and $0.11 in short term financing. Long term debt retirement shows essentially no response. Thus, the negative net debt response primarily reflects reduced borrowing rather than increased debt retirement. This distinction matters because Q1 firms are net debt issuers on average (Table 1). Despite the reduction in external financing, Q1 firms increase investment, cash holdings, and working capital. The comparatively large residual use of funds in Q1, particularly the portion not explained by acquisitions or working capital, also indicates that the reported expenditure categories do not exhaust the associated uses of funds. Section 3.2 shows that the reduction in external financing is concentrated among firms with operating losses.

6.3 Debt Flows, Asset Growth, and Changes in Leverage

Sections 6.1 and 6.2 show that the additional borrowing accompanies an expansion of the firm. We now ask how much of it simply keeps pace with that expansion and how

much changes the firm's leverage. Let D_{it} be total debt, A_{it} book assets, $L_{it} = D_{it}/A_{it}$ book leverage, and $g_{it} = (A_{it} - A_{i,t-1})/A_{i,t-1}$ asset growth. The change in the debt stock satisfies

$$\frac{D_{it} - D_{i,t-1}}{A_{i,t-1}} = L_{i,t-1}g_{it} + (L_{it} - L_{i,t-1})(1 + g_{it}). \tag{15}$$

The first term is the change in debt required to maintain the previous leverage ratio at the observed asset growth rate. The second captures the contribution of changes in leverage, scaled by the growth in assets. The identity allows debt to increase even when leverage declines, provided the growth term is sufficiently large.

Net debt issuance, denoted n_{it} here and $\Delta\ell_{it}$ in equation (2), need not equal the change in the debt stock. Define the stock and flow wedge as $w_{it} = (D_{it} - D_{i,t-1})/A_{i,t-1} - n_{it}$. Debt assumed in acquisitions, debt conversions, valuation adjustments, and differences between cash flow and balance sheet classifications can contribute to this wedge. It therefore cannot be interpreted as acquired debt alone.

Let $b_p(z)$ denote the estimated coefficient on persistent profitability from a regression with dependent variable z, where z represents net debt issuance or one of its accounting components. Using identical observations, regressors, fixed effects, and estimation weights for every outcome gives

$$b_p(n) = b_p(L_{t-1}g) + b_p\big(\Delta L(1 + g)\big) - b_p(w). \tag{16}$$

Table 10 reports these four coefficients by size quintile. Net debt issuance and the two balance sheet terms are winsorized separately, so the winsorized terms do not satisfy the identity $n_{it} = L_{i,t-1}g_{it} + \Delta L_{it}(1 + g_{it}) - w_{it}$ exactly. Column (4) is therefore net debt issuance less the winsorized growth and leverage change terms. It contains the stock and flow wedge w_{it} together with the effect of winsorizing the other three terms, and the four coefficients add up exactly. The decomposition describes the accounting components of the net debt issuance response to persistent profitability. It does not identify leverage targeting or allocate borrowing to particular expenditures. The coefficient on the leverage change term, $\Delta L(1 + g)$, differs from the coefficient on the unadjusted leverage change, ΔL.

The results reveal distinct patterns across firm sizes. In Q2 to Q5, the growth term is positive and statistically significant, ranging from 0.152 to 0.324. These coefficients are comparable to, and in Q2, Q4, and Q5 exceed, the corresponding net debt issuance responses. The leverage change term is also positive but substantially smaller, ranging from 0.036 to 0.072. Column (4) is negative in all four quintiles. Thus, additional net debt issuance among larger firms is associated primarily with the expansion of the asset base, while changes in leverage make a smaller positive contribution and column (4) partially offsets these responses. This accounting pattern helps explain how firms can increase borrowing substantially without comparably large changes in their leverage ratios.

The smallest firms exhibit a different pattern. In Q1, the net debt issuance coefficient is -0.253, significant at the 1 percent level. Neither the growth term (-0.038) nor the leverage change term (0.023) is statistically significant, and column (4) accounts for -0.239. The decline is therefore in issuance and not in reported debt outstanding. Table 9 shows where it occurs. Long term debt issuance and short term financing are lower, and debt retirement does not rise.

The measurement of short term debt does not explain the difference. Net debt issuance uses the change in current debt from the balance sheet when the cash flow statement item is not reported. On the 51 percent of Q1 firm years that report the cash flow item, the net debt issuance coefficient is -0.252 and column (4) is -0.219 (Internet Appendix Table IA9). We cannot identify why issuance and the change in debt outstanding differ among these firms. Conversions of debt into equity and write downs of debt are candidates. Our claim for the smallest firms therefore concerns issuance.

Overall, the decomposition shows that the positive net debt issuance response among larger firms is closely associated with asset growth. The negative response among the smallest firms is a decline in issuance that reported debt outstanding does not match. These results clarify the accounting relationship between debt financing, operating expansion, and leverage changes, without establishing a causal mechanism linking them.

7 Profitability and Book Leverage across Firm Types

Sections 3 to 6 show that firms above the smallest quintile borrow more when persistent profitability is higher. Yet more profitable firms are known to have lower book leverage. This section asks whether that negative relation also holds for the persistent component, and how it differs across size quintiles and between rated and unrated firms.

Table 11 examines the relation between profitability and book leverage. Its firm fixed effects estimates describe conditional associations within firms over time, whereas Section 6.3 examines annual debt flows and their accounting relation to asset growth and leverage changes. The annual decomposition helps explain how additional borrowing can coexist with limited leverage adjustments, but it does not mechanically determine the profitability coefficient in a regression of the level of leverage.

The coexistence of greater debt issuance and lower leverage is documented by Frank and Goyal (2015), along with size differences in financing activity. Dynamic models also permit a negative relation between profitability and leverage (Strebulaev, 2007; Danis et al., 2014). We examine how persistent and transitory profitability contribute to the negative leverage relation and how this relation differs between rated and unrated firms.

Panel A separates the contributions of persistent and transitory profitability to the total profitability slope. Let β_p and β_ε denote their coefficients from a joint regression, and let tildes denote residuals after removing the same controls and fixed effects. Since $c = p + \varepsilon$, the total profitability coefficient satisfies

$$\beta_c = \beta_p \frac{\mathrm{Cov}(\tilde{p}, \tilde{c})}{\mathrm{Var}(\tilde{c})} + \beta_\varepsilon \frac{\mathrm{Cov}(\tilde{\varepsilon}, \tilde{c})}{\mathrm{Var}(\tilde{c})}. \tag{17}$$

Each contribution combines the component's leverage association with its covariance weight in total profitability. These are contributions to a regression slope, not causal shares or shares of explained variance.

Panel A shows that persistent profitability is negatively and significantly associated with book leverage in all five size quintiles. The persistent component accounts for most of the negative total profitability slope. In the pooled sample, its contribution is -0.316 out of a total coefficient of -0.379, or approximately 83 percent. Its contribution is es-

pecially pronounced among the smallest firms: in Q1, it accounts for -0.342 of the total slope of -0.375, or 91 percent. Among the largest firms, the persistent contribution is -0.128 of the total slope of -0.234, or 55 percent. In Q5, the persistent and transitory coefficients are nearly identical, at -0.233 and -0.236, respectively. Thus, although persistent profitability is negatively related to leverage throughout the size distribution, its relative contribution to the conventional relation between profitability and leverage is particularly large among smaller firms.

Panel B examines the persistent profitability relation separately for rated and unrated firms over 1985 to 2016. The coefficient is -0.605 for unrated firms, compared with -0.210 for rated firms; both are statistically significant. The negative association is therefore substantially larger in magnitude among unrated firms. This pattern is consistent with the financing differences documented earlier, where rated firms exhibit stronger borrowing responses to persistent profitability. However, the Panel B estimates come from separate regressions, and the groups differ in size and other characteristics. The coefficient comparison is descriptive and does not establish a rating effect holding firm size fixed.

Together, these results show that the negative relation between profitability and leverage is driven primarily by persistent profitability, particularly among smaller firms, and is more pronounced among unrated firms in the separate regressions. At the same time, firms above Q1 increase borrowing as persistent profitability rises, and rated firms exhibit stronger borrowing responses within comparable size groups. The negative leverage association is therefore not evidence that firms generally reduce debt issuance when persistent profitability increases. Rather, financing flows and leverage levels capture different dimensions of firms' financial responses, with asset growth and changes in leverage jointly determining how borrowing translates into leverage ratios.

8 Conclusion

Firms borrow against profits that last, not against profits that are temporary. Above the smallest size quintile, net debt issuance is higher when persistent profitability is higher. In the top three quintiles the difference is about 25 cents per dollar of persistent profit

and close to zero per dollar of transitory profit. The additional borrowing accompanies expansion. Capital spending, working capital, and acquisitions together rise by about 70 cents per dollar of persistent profit, and payouts rise by little. Without years of sizable acquisitions the borrowing response is about half as large, and the gap between persistent and transitory profit is about the same.

Firms covering losses are the exception, and most of them are small. In the smallest quintile, firms with an operating loss in the prior year raise less debt and less external finance when persistent profitability is higher. Profitable firms of the same size do not.

How much firms borrow depends on their access to debt markets. Within size quintiles, rated firms borrow about 19 cents more per dollar of persistent profit than unrated firms, with no such gap for transitory profit. Much of this gap is in years with acquisitions. Two episodes point the same way. When the high yield market collapsed in 1989 and 1990, the borrowing response of speculative grade firms fell by about 40 percent, while that of investment grade firms barely changed. When the defense expansion of the early 2000s raised the persistent profitability of exposed contractors, debt rose detectably only among those with a rating.

This evidence has limits. The panel coefficients describe associations with the level of persistent profitability and are not responses to identified shocks. Ratings are not randomly assigned, and neither episode separates lenders' willingness to lend from firms' demand for funds.

The findings change how the best known fact about profits and capital structure should be interpreted. Book leverage is lower when persistent profitability is higher in every size quintile, including those in which firms borrow more. The two facts coexist because assets grow along with the borrowing. Lower leverage is therefore not evidence that profitable firms borrow less, and a negative profitability coefficient is not evidence that internal funds substitute for external finance. In size quintiles that contain more than four fifths of firm years, lasting profits and borrowing rise together.

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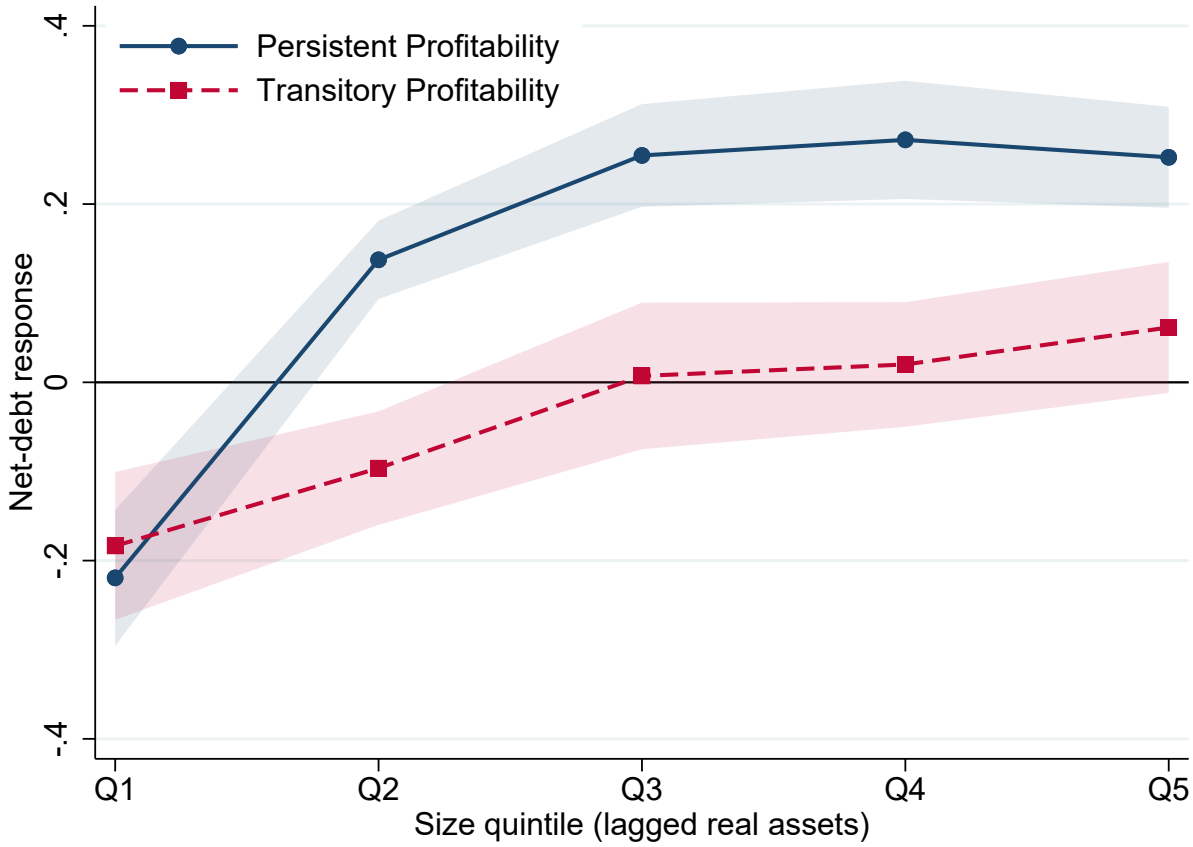
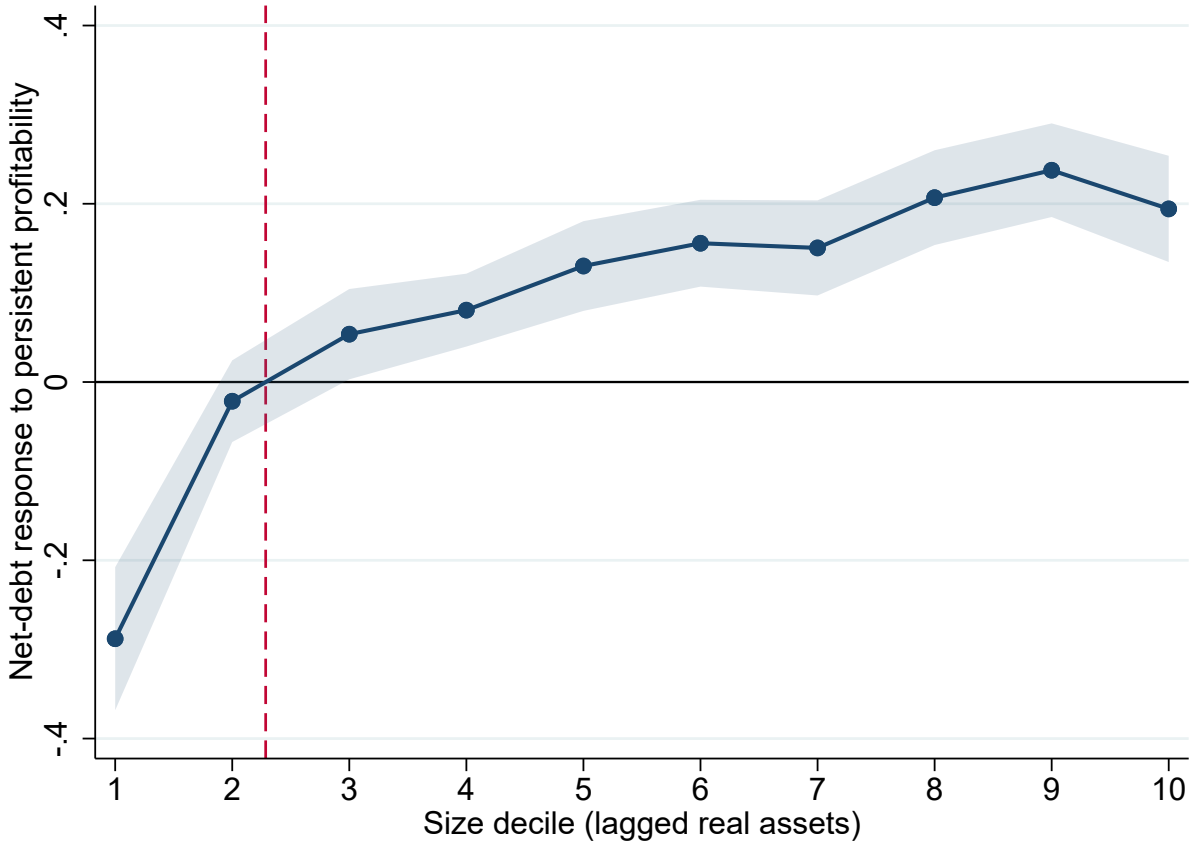
Figures and Tables

Figure 1: Net Debt Responses to Persistent and Transitory Profitability by Firm Size



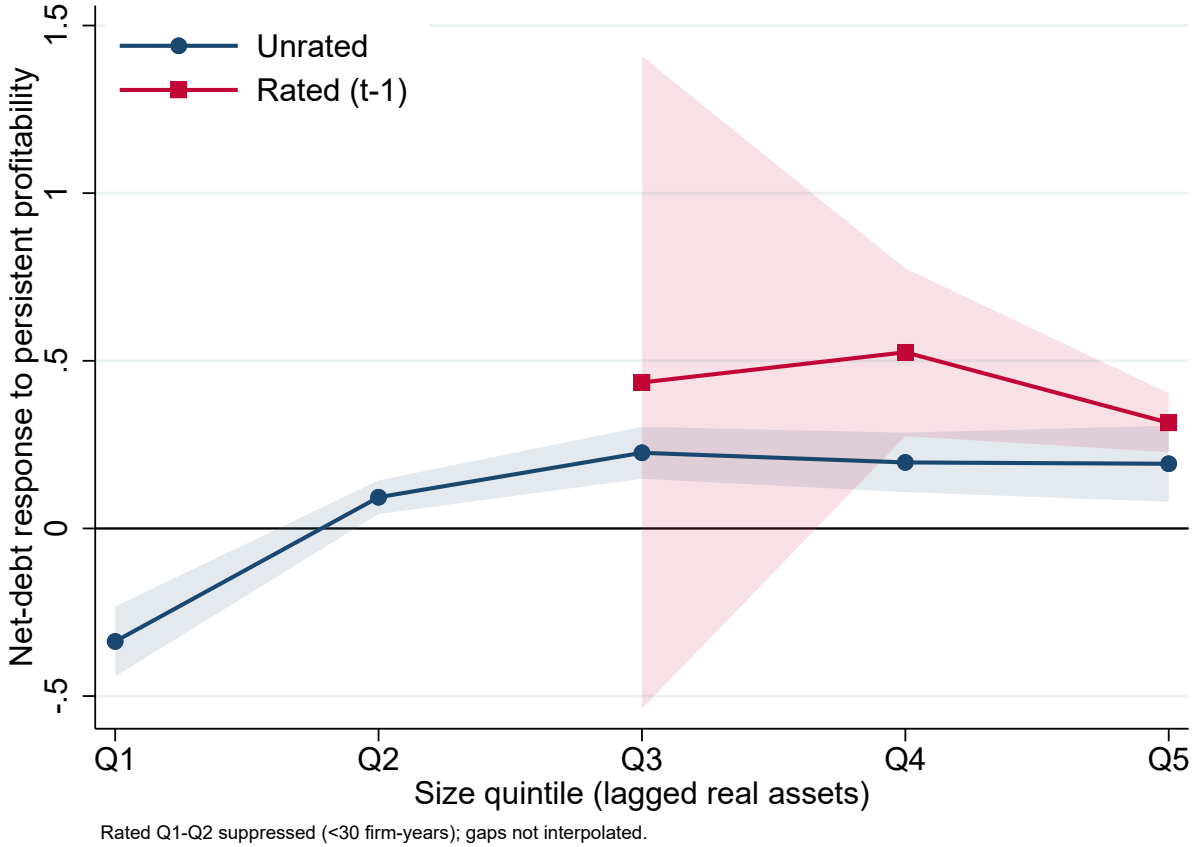
This figure plots the estimated response of net debt issuance to persistent and transitory operating profitability across annual size quintiles. Circles denote the response to persistent profitability, and squares denote the response to transitory profitability. Size quintiles are formed within calendar year based on lagged real assets. The regressions include both profitability components, firm and year fixed effects, and the standard lagged controls. Error bars denote 95% confidence intervals based on standard errors clustered by firm and year. The corresponding estimates are reported in Table 2. The sample period is 1971 to 2019.

Figure 2: Net Debt Response to Persistent Profitability across the Firm Size Distribution



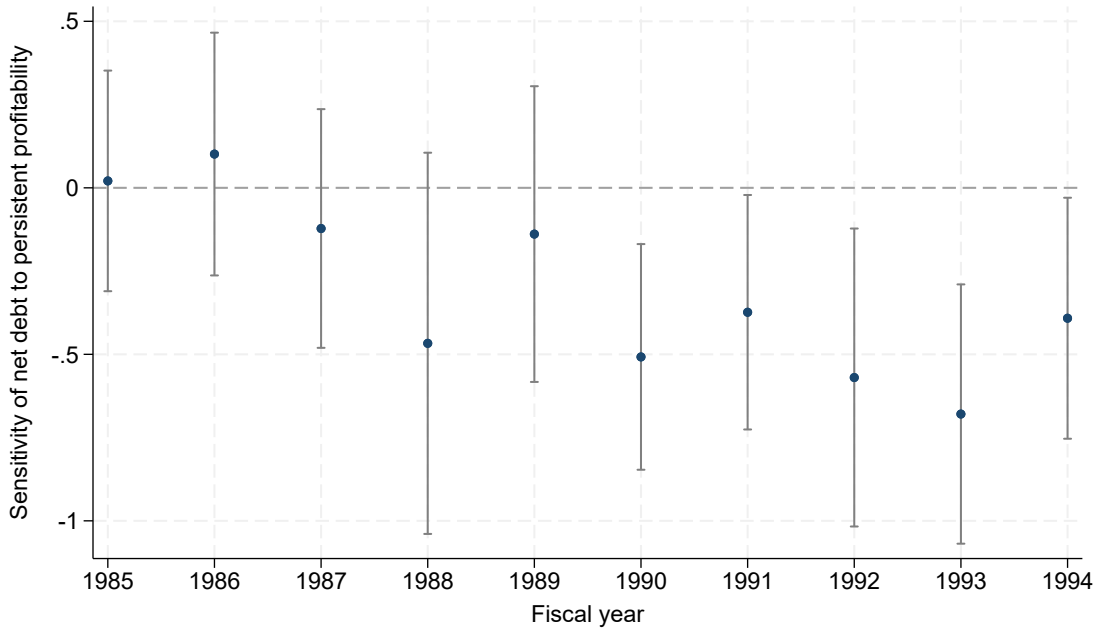
This figure plots the estimated response of net debt issuance to persistent operating profitability across deciles of firm size. Size deciles are formed within calendar year based on lagged real assets. The estimates are obtained from a single regression that interacts persistent profitability with size decile indicators and includes the decile indicators themselves, transitory profitability, firm and year fixed effects, and lagged market to book, tangibility, industry year median leverage, and cash. Net debt issuance is scaled by lagged assets and winsorized at the 1st and 99th percentiles within size quintile. Operating profitability is winsorized once before filtering, and its components are not winsorized again. Error bars denote 95% confidence intervals based on standard errors clustered by firm and year. The dashed vertical line marks the interpolated zero crossing. A Wald test rejects a linear profile across size deciles ($p < 10^{-8}$). The sample contains 109,502 firm years from 1971 to 2019.

Figure 3: Persistent Profit Response by Rating Status and Firm Size



This figure plots the estimated response of net debt issuance to persistent operating profitability by firm size and prior year rating status. Firms are classified as rated if they have a nonmissing S&P long term issuer rating in the prior year. Size quintiles are formed within calendar year based on lagged real assets. The underlying regressions include persistent and transitory profitability, firm and year fixed effects, and the standard lagged controls. Rated firms in Q1 and Q2 are not reported because those cells contain fewer than 30 firm years. The corresponding estimates are reported in Panels A and B of Table 5. The sample period is 1985 to 2016, when S&P rating information is available.

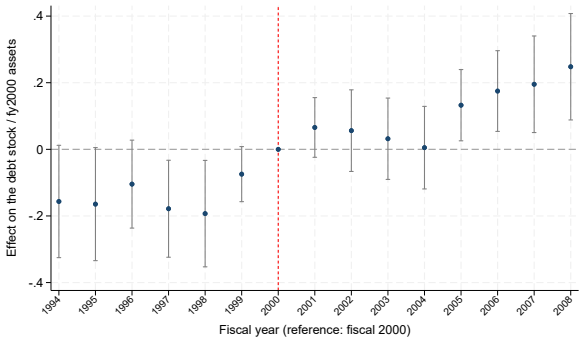
Figure 4: The Persistent Profit Borrowing Response around the High Yield Contraction



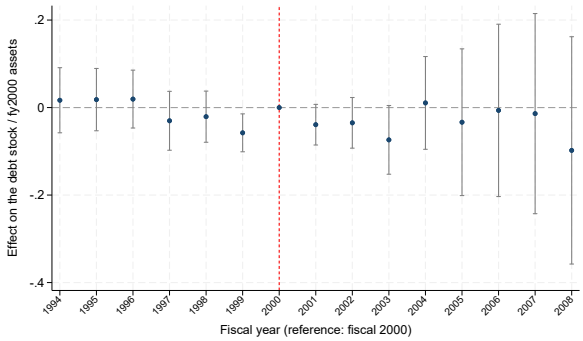
This figure plots year by year changes in the response of net debt issuance to persistent operating profitability for speculative grade firms relative to investment grade firms. We replace the $Post_t$ interactions in equation (11) with a full set of fiscal year interactions. Specifically, for each fiscal year s, the regression includes $p_{it} \times 1\{t = s\}$ and $p_{it} \times SPG_i \times 1\{t = s\}$, and the level shift $SPG_i \times 1\{t = s\}$ for every year except fiscal 1985. The transitory component and its interaction with SPG_i enter without year interactions. The figure plots the coefficients on $p_{it} \times SPG_i \times 1\{t = s\}$, recentered on their fiscal 1985 to 1987 mean. Thus, each coefficient measures the speculative grade minus investment grade difference in the persistent profit borrowing response in fiscal year s, relative to its average over 1985 to 1987. Error bars denote 90% confidence intervals based on firm clustered standard errors after the same transformation. Rating class is fixed using the last S&P issuer rating observed during fiscal 1986 to 1988; speculative grade is BB+ or below and investment grade is BBB- or above. The regression includes the standard lagged controls and firm and year fixed effects. A joint test of equality of the 1985 to 1987 coefficients yields $p = 0.843$.

Figure 5: Debt Stocks around the Post-9/11 Defense Expansion, by Debt Market Access

(a) Rated contractors



(b) Never rated contractors



Each panel plots the coefficients on Rank $\times$ fiscal year indicators from the debt stock specification of Table 7, with fiscal 2000 as the omitted reference year (vertical line), together with 90 percent confidence intervals based on standard errors clustered by firm. Rank is the percentile rank of unfinanced defense dependence among all contractor firms. The outcome is the debt stock scaled by fiscal 2000 assets, and samples and fixed effects are as in the table. Joint tests that the fiscal 1994 to 1999 coefficients are zero do not reject ($p = 0.38$ for rated and $p = 0.29$ for never rated contractors). For rated contractors, the coefficients for fiscal 2005 to 2008 (0.13 to 0.25) are significant at the 5 percent level. For never rated contractors, no coefficient in the post period differs from zero.

Table 1: Summary Statistics

	Mean	SD	p25	Median	p75	N
Panel A. Pooled distribution						
External finance	0.057	0.282	-0.036	0.000	0.063	109,502
Net debt issuance	0.028	0.169	-0.026	0.000	0.048	109,502
Net equity issuance	0.027	0.189	-0.002	0.000	0.005	109,502
Size (ln real assets)	5.478	2.175	3.951	5.418	6.938	109,502
Lagged market to book	1.815	1.699	0.991	1.314	1.952	109,502
Cash flow	0.058	0.228	0.036	0.091	0.143	109,502
Lagged tangibility	0.294	0.214	0.125	0.246	0.412	109,502
Profitability	0.118	0.189	0.064	0.135	0.207	109,502
Persistent profitability	0.117	0.164	0.071	0.132	0.195	109,502
Transitory profitability	0.001	0.073	-0.024	0.000	0.026	109,502
Lagged cash	0.140	0.163	0.027	0.075	0.193	109,502
Lagged industry median leverage	0.222	0.094	0.160	0.233	0.276	109,502
Investment	0.072	0.087	0.022	0.046	0.089	108,763
	Q1	Q2	Q3	Q4	Q5	
Panel B. Means by size quintile						
External finance	0.161	0.054	0.041	0.033	0.016	
Net debt issuance	0.044	0.020	0.025	0.030	0.024	
Net equity issuance	0.105	0.034	0.015	0.003	-0.007	
Investment	0.066	0.069	0.073	0.076	0.076	
Size (ln real assets)	2.448	4.105	5.232	6.333	8.267	
Lagged market to book	2.532	1.686	1.673	1.654	1.649	
Cash flow	-0.077	0.057	0.086	0.098	0.102	
Lagged tangibility	0.231	0.261	0.279	0.311	0.363	
Profitability	-0.007	0.106	0.142	0.161	0.162	
Persistent profitability	-0.015	0.101	0.143	0.164	0.164	
Transitory profitability	0.007	0.005	-0.001	-0.003	-0.002	
Lagged cash	0.188	0.169	0.152	0.120	0.090	
Lagged industry median leverage	0.197	0.208	0.220	0.232	0.243	
Firm years	19,024	20,322	21,481	23,234	25,441	

This table reports summary statistics for the baseline Compustat and CRSP sample of nonfinancial, nonutility firms from 1971 to 2019 used in the main financing analysis. Panel A reports the pooled distribution and Panel B reports means by annual size quintile, where size is lagged real assets and Q1 contains the smallest firms. The sample requires operating profitability history to construct the persistent and transitory profitability components and nonmissing variables used in the baseline financing specification. The baseline sample contains 109,502 firm years. Flow variables are scaled by lagged book assets and winsorized at the 1st and 99th percentiles within size quintile.

Table 2: Financing Responses to Persistent and Transitory Profitability by Firm Size

	Q1	Q2	Q3	Q4	Q5
Panel A. Net debt issuance					
Persistent profitability	-0.219***	0.137***	0.255***	0.272***	0.252***
	(0.039)	(0.022)	(0.029)	(0.034)	(0.029)
Transitory profitability	-0.183***	-0.096***	0.007	0.020	0.062
	(0.042)	(0.032)	(0.042)	(0.036)	(0.037)
Panel B. Net equity issuance					
Persistent profitability	-0.231***	-0.055*	0.052**	0.015	-0.036**
	(0.036)	(0.030)	(0.025)	(0.017)	(0.018)
Transitory profitability	-0.391***	0.051	0.092***	0.069***	0.000
	(0.046)	(0.036)	(0.023)	(0.022)	(0.019)
Panel C. External finance					
Persistent profitability	-0.502***	0.069	0.316***	0.307***	0.222***
	(0.054)	(0.042)	(0.041)	(0.041)	(0.037)
Transitory profitability	-0.619***	-0.045	0.103*	0.079*	0.063
	(0.081)	(0.057)	(0.052)	(0.044)	(0.042)
Observations	19,024	20,322	21,481	23,234	25,441

This table reports financing responses to the persistent and transitory components of operating profitability across annual size quintiles. For each financing outcome and size quintile, the persistent and transitory profitability coefficients are estimated jointly in the same regression. Each quintile is a separate regression with its own fixed effects and control coefficients, as in equation (8). The regressions include firm and year fixed effects and lagged market to book, tangibility, industry year median leverage, and cash. Panels A, B, and C report results for net debt issuance, net equity issuance, and external finance, respectively; external finance is the sum of net debt and net equity issuance. Size quintiles are formed within calendar year using lagged real assets. Financing outcomes are scaled by lagged assets and winsorized at the 1st and 99th percentiles within size quintile. Operating profitability is winsorized once before filtering, and its components are not winsorized again. Standard errors, reported in parentheses, are clustered by firm and year. Firm year counts correspond to the net debt regressions. The sample period is 1971 to 2019. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 3: Net Debt Responses by Firm Size under Alternative Measures of Persistence

	Q1	Q2	Q3	Q4	Q5
Baseline (Table 2)					
Persistent profitability	-0.219***	0.137***	0.255***	0.272***	0.252***
	(0.039)	(0.022)	(0.029)	(0.034)	(0.029)
Panel A. Trailing three year mean					
Persistent profitability	-0.233***	0.086***	0.236***	0.218***	0.226***
	(0.032)	(0.021)	(0.029)	(0.023)	(0.021)
Transitory profitability	-0.177***	-0.080***	0.026	0.024	0.068*
	(0.028)	(0.023)	(0.031)	(0.034)	(0.038)
Observations	16,560	18,398	19,194	20,654	22,153
Panel B. Trailing five year mean					
Persistent profitability	-0.256***	0.077**	0.230***	0.226***	0.251***
	(0.046)	(0.031)	(0.036)	(0.029)	(0.025)
Transitory profitability	-0.167***	-0.038	0.098***	0.104***	0.128***
	(0.036)	(0.024)	(0.033)	(0.027)	(0.031)
Observations	10,694	12,906	14,201	15,903	18,153
Panel C. Firm specific AR(1) decomposition					
Persistent profitability	-0.260***	0.092***	0.233***	0.185***	0.202***
	(0.042)	(0.026)	(0.033)	(0.025)	(0.025)
Transitory profitability	-0.176***	-0.007	0.113***	0.114***	0.138***
	(0.029)	(0.023)	(0.025)	(0.029)	(0.030)
Observations	16,199	18,040	19,181	21,045	23,293

This table reports the response of net debt issuance to the persistent and transitory components of operating profitability by annual size quintile under three measures of persistence that do not rely on the state space filter. The first row reproduces the baseline persistent profitability coefficients from Table 2. In Panels A and B, the persistent component is the trailing three year or five year mean of operating profitability, computed from the current and two or four lagged annual observations, and the transitory component is current profitability minus that mean. In Panel C, the persistent component is the fitted value from a firm specific AR(1) estimated on the firm's own profitability history for firms with at least eight annual observations, and the transitory component is the AR(1) residual. Within each panel and quintile, both components enter the same regression, together with firm and year fixed effects and lagged market to book, tangibility, industry year median leverage, and cash. Size quintiles are formed within calendar year using lagged real assets. Net debt issuance is scaled by lagged assets and winsorized at the 1st and 99th percentiles within size quintile. Sample sizes vary with the history required to construct each measure. Standard errors, reported in parentheses, are clustered by firm and year. The sample period is 1971 to 2019. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 4: Operating Losses, Firm Size, and the Financing Response

	Q1	Q2	Q3	Q4	Q5
Loss share of firm years	0.389	0.191	0.090	0.041	0.018
Panel A. Net debt issuance					
Profitable in the prior year					
Persistent profitability	0.065	0.196***	0.310***	0.257***	0.265***
	(0.050)	(0.030)	(0.037)	(0.036)	(0.028)
Transitory profitability	-0.213***	-0.070**	0.044	0.045	0.058
	(0.053)	(0.033)	(0.044)	(0.036)	(0.043)
Observations	9,697	14,412	17,357	20,150	22,867
Loss in the prior year					
Persistent profitability	-0.543***	-0.060	-0.131	-0.189	0.387
	(0.070)	(0.061)	(0.130)	(0.305)	(0.264)
Transitory profitability	-0.064	-0.111*	-0.048	0.013	-0.263
	(0.060)	(0.058)	(0.110)	(0.281)	(0.211)
Observations	6,065	2,982	1,283	547	280
Loss minus profitable					
Persistent profitability	-0.380***	-0.218***	-0.252***	-0.317***	-0.567***
	(0.060)	(0.040)	(0.079)	(0.111)	(0.166)
Transitory profitability	-0.021	-0.070	-0.109	-0.166	0.043
	(0.066)	(0.056)	(0.075)	(0.118)	(0.116)
Observations	16,215	18,040	19,181	21,045	23,293
Panel B. External finance					
Profitable in the prior year					
Persistent profitability	0.201**	0.272***	0.448***	0.293***	0.248***
	(0.084)	(0.060)	(0.048)	(0.039)	(0.039)
Transitory profitability	-0.418***	0.070	0.166***	0.125***	0.061
	(0.094)	(0.061)	(0.054)	(0.045)	(0.045)
Observations	9,697	14,412	17,357	20,150	22,867
Loss in the prior year					
Persistent profitability	-0.936***	-0.320***	-0.272	-0.030	0.252
	(0.092)	(0.092)	(0.198)	(0.332)	(0.283)
Transitory profitability	-0.585***	-0.269***	-0.007	-0.178	-0.329
	(0.110)	(0.091)	(0.126)	(0.275)	(0.244)
Observations	6,065	2,982	1,283	547	280
Loss minus profitable					
Persistent profitability	-0.693***	-0.567***	-0.314**	-0.298*	-0.702***
	(0.105)	(0.073)	(0.118)	(0.158)	(0.162)
Transitory profitability	-0.352***	-0.286***	-0.172*	-0.180	0.110
	(0.112)	(0.090)	(0.095)	(0.146)	(0.121)
Observations	16,215	18,040	19,181	21,045	23,293

Table 4: Operating Losses, Firm Size, and the Financing Response

Panel C. Q1 minus Q2 and Q3, within loss status

	Net debt issuance		External finance		
	Persistent	Transitory	Persistent	Transitory	Observations
Loss in the prior year	-0.277***	-0.076	-0.774***	-0.191*	11,022
	(0.060)	(0.064)	(0.099)	(0.109)	
Profitable in the prior year	-0.099***	-0.187***	-0.054	-0.461***	42,107
	(0.035)	(0.055)	(0.069)	(0.096)	

This table reports financing responses to persistent and transitory operating profitability separately for firm years that follow an operating loss and firm years that do not. A firm year is a loss year if operating income before depreciation (`oibdp`) was negative in the prior fiscal year, and a profitable year otherwise. Firm years without a prior year observation are not classified. In Panels A and B, the profitable and loss rows estimate equation (8) separately within each annual size quintile and loss status, with firm and year fixed effects and the standard lagged controls. The loss minus profitable rows report the coefficients on each profitability component interacted with the loss indicator, from a regression on all classified firm years of the quintile, profitable and loss together, that also includes the loss indicator. Panel C uses the firm years of Q1 to Q3 with the indicated loss status and reports the coefficients on each component interacted with a Q1 indicator. These regressions include quintile intercepts and, unlike the other regressions in the paper, pool the fixed effects and control coefficients across the three quintiles. Outcomes are scaled by lagged assets and winsorized as in Table 2, and they are not winsorized again within the loss groups. Standard errors, reported in parentheses, are clustered by firm and year. The sample period is 1971 to 2019. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 5: Public Credit Ratings and the Persistent Profit Borrowing Response

	Q1	Q2	Q3	Q4	Q5
Panel A. Unrated firms					
Persistent profitability	-0.337***	0.093***	0.226***	0.197***	0.193***
	(0.053)	(0.026)	(0.039)	(0.045)	(0.058)
Transitory profitability	-0.135**	-0.099***	-0.012	0.062	0.068
	(0.056)	(0.036)	(0.046)	(0.055)	(0.071)
Persistent minus transitory	-0.202**	0.192***	0.237***	0.135*	0.125
	(0.095)	(0.047)	(0.066)	(0.071)	(0.101)
Observations	11,836	12,712	12,395	10,667	4,039
Panel B. Rated firms					
Persistent profitability			0.435	0.525***	0.315***
			(0.497)	(0.128)	(0.045)
Transitory profitability			0.261	-0.191*	0.138**
			(0.257)	(0.107)	(0.063)
Persistent minus transitory			0.174	0.716***	0.177**
			(0.684)	(0.202)	(0.081)
Observations	0	21	793	3,718	11,895
Panel C. Rated minus unrated difference					
			(1)	(2)	(3)
Persistent profitability $\times Rated_{t-1}$			0.192***	0.220**	0.314***
			(0.042)	(0.093)	(0.048)
Transitory profitability $\times Rated_{t-1}$			0.030	0.019	0.033
			(0.057)	(0.100)	(0.063)
Restricted firm size range			No	Yes	No
Persistent profitability $\times$ lagged firm characteristics			No	No	Yes
Observations			70,114	17,577	65,883

This table reports net debt responses to persistent and transitory operating profitability by firm size and prior year rating status. A firm is classified as rated if it has a nonmissing S&P long term issuer rating in the prior year; rating status serves as an observable marker of public debt market access. Panels A and B report results separately for unrated and rated firms within annual size quintiles. For each size quintile, the persistent and transitory profitability coefficients are estimated jointly in the same regression, and the third row reports their difference. The regressions include firm and year fixed effects and the standard lagged controls. Rated Q1 and Q2 coefficients are not reported, and their cells are left empty, because those cells contain fewer than 30 firm years. Panel C pools rated and unrated firms and reports the coefficient on persistent profitability interacted with prior year rating status. The regression includes the prior year rating indicator itself, quintile intercepts, and the interaction of transitory profitability with rating status, as in equation (9). All specifications allow the persistent profit response to vary across size quintiles. Column (1) reports the baseline specification. Column (2) restricts the sample to $\ln(\text{real assets}) \in [5.76, 7.50]$, where rated and unrated firms have common size support. Column (3) additionally allows the persistent profit response to vary with lagged book leverage, tangibility, cash, market to book, cash flow volatility, R&D intensity, and log firm age, and includes the levels of those characteristics. Standard errors, reported in parentheses, are clustered by firm and year. The sample period is 1985 to 2016, when S&P issuer rating information is available. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 6: The 1989 to 1990 High Yield Contraction

	Net debt issuance	Net equity issuance	External finance	Book leverage
Panel A. The supply contraction: speculative grade × post				
$SPG \times Post$	-0.052***	-0.014***	-0.065***	-0.057***
	(0.009)	(0.004)	(0.011)	(0.011)
Observations	5,519	5,519	5,519	5,517
Panel B. The persistent profit borrowing response				
Persistent profitability $\times SPG \times Post$	-0.367**	0.086	-0.311*	0.075
	(0.161)	(0.104)	(0.188)	(0.194)
Transitory profitability $\times SPG \times Post$	0.572*	-0.134	0.341	0.114
	(0.337)	(0.176)	(0.401)	(0.275)
Persistent profitability $\times Post$	0.017	-0.160**	-0.148*	-0.324***
	(0.076)	(0.069)	(0.087)	(0.083)
Persistent profitability $\times SPG$	0.076	0.120	0.261	-0.195
	(0.233)	(0.180)	(0.287)	(0.201)
Persistent profitability	0.791***	0.011	0.774***	0.023
	(0.169)	(0.133)	(0.198)	(0.154)
Transitory profitability $\times Post$	-1.062***	-0.107	-1.081***	-0.223
	(0.263)	(0.111)	(0.275)	(0.189)
Transitory profitability $\times SPG$	-0.341	0.137	-0.151	-0.176
	(0.258)	(0.125)	(0.319)	(0.166)
Transitory profitability	0.467***	0.128	0.554***	-0.195*
	(0.170)	(0.079)	(0.192)	(0.118)
$SPG \times Post$	-0.005	-0.028*	-0.028	-0.083***
	(0.025)	(0.017)	(0.029)	(0.029)
Observations	5,252	5,252	5,252	5,250
Implied response of speculative grade firms				
Persistent profitability, 1985 to 1989	0.867***	0.131	1.036***	-0.173
	(0.186)	(0.142)	(0.253)	(0.172)
Persistent profitability, 1990 to 1994	0.516***	0.057	0.576***	-0.421*
	(0.152)	(0.103)	(0.196)	(0.230)

Table 6: The 1989 to 1990 High Yield Contraction

Panel C. Binned dynamics of the interaction, net debt issuance (reference: 1985 to 1987)

	Net debt issuance		
	Transition	Closure	Reopening
	1988 to 1989	1990 to 1992	1993 to 1994
Persistent profitability $\times SPG\times$ period	-0.295	-0.504***	-0.575***
	(0.259)	(0.181)	(0.215)
Observations		5,252	
Speculative grade / investment grade firms		471 / 317	

This table examines the 1989 to 1990 contraction in the high yield credit market. Panel A reports estimates of equation (10), which tests whether financing outcomes decline differentially for speculative grade firms after the contraction. The coefficient on $SPG \times Post$ captures the change after the contraction in each financing outcome for speculative grade firms relative to investment grade firms. Panel B reports estimates of equation (11) and tests whether the borrowing response to persistent profitability changes differentially for speculative grade firms after the contraction. The coefficient on $p \times SPG \times Post$ captures this differential change, holding fixed the level shift $SPG \times Post$, which is estimated jointly. The rows under "Implied response of speculative grade firms" report the implied response of net debt issuance to persistent profitability for speculative grade firms in the two periods, computed as linear combinations of the estimated coefficients. The transitory profitability component enters Panel B with the same interaction structure. Panel C reports binned dynamics of the net debt issuance response to persistent profitability for speculative grade firms relative to investment grade firms. It replaces the single $Post$ interaction with separate indicators for 1988 to 1989, 1990 to 1992, and 1993 to 1994, and reports the corresponding $p \times SPG \times Period$ coefficients relative to the 1985 to 1987 benchmark. The estimation sample spans fiscal 1985 to 1994. Rating class is fixed using the last S&P long term issuer rating observed during fiscal 1986 to 1988. Firms rated BB+ or below are classified as speculative grade and form the treated group ($SPG_i = 1$); firms rated BBB- or above are classified as investment grade and form the control group ($SPG_i = 0$). Firms without an observed rating during the 1986 to 1988 classification window are excluded. $Post_t$ equals one in fiscal 1990 to 1994 and zero in fiscal 1985 to 1989. All regressions include the standard lagged controls and firm and year fixed effects. The Panel C regression also includes rating class by fiscal year effects and lets the slopes on transitory profitability vary by period. Financing flows are scaled by lagged assets. Standard errors are clustered by firm and reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

Table 7: Borrowing against the Post-9/11 Defense Expansion, by Debt Market Access

	(1) Persistent profit	(2) Transitory profit	(3) Debt stock / fy2000 assets	(4) $P(\text{issuance} > 2\%)$
Panel A. Rated contractors				
Rank × Post	0.023*	-0.008	0.228***	0.063
	(0.014)	(0.010)	(0.080)	(0.074)
Firm years	2,360	2,360	2,380	2,384
Firms			190	
Panel B. Never rated contractors				
Rank × Post	0.033**	0.010	-0.026	-0.023
	(0.014)	(0.012)	(0.068)	(0.043)
Firm years	3,412	3,412	3,497	3,508
Firms			304	
Rated − never rated difference	-0.010	-0.018	0.254**	0.085
	(0.020)	(0.016)	(0.104)	(0.085)
Firm fixed effects			Yes	
Fiscal year fixed effects			Yes	
Sample years		fiscal 1994 to 2008; Post = fiscal 2001 to 2008		

This table reports difference in differences estimates of the response of profitability and debt to predetermined unfinanced defense dependence around the post-9/11 defense expansion, separately for rated and never rated federal contractors. Unfinanced defense dependence is the firm's positive Department of Defense obligations over the preshock window (October 1, 2000 through September 10, 2001) on fixed price contracts with an explicit no financing code, divided by fiscal 2000 sales. The government pays these contracts on delivery, which mitigates the concern that a debt response to this exposure reflects government contract financing substituting for private borrowing. Rank is the percentile rank of unfinanced defense dependence among all contractor firms, scaled to lie between zero and one. The median across contractors of the firm level unfinanced share, the firm's unfinanced DoD dollars divided by its total DoD dollars, is 96 percent. Panel A (Panel B) contains contractors with (without) an S&P long term issuer rating in any fiscal year from 1985 to 2000. The outcomes are the persistent and transitory components of operating profitability from the decomposition in Section 2.3, the debt stock ($dltt + dlc$) scaled by fiscal 2000 assets and winsorized at the 1st and 99th percentiles within size quintile, and an indicator for net debt issuance above 2 percent of lagged assets. All regressions include firm and fiscal year fixed effects over fiscal 1994 to 2008, with $Post = \mathbf{1}\{t \geq 2001\}$. Standard errors are clustered by firm and reported in parentheses. The row labeled rated minus never rated difference reports the difference between the Rank × Post coefficients of Panels A and B from a pooled regression with group specific year effects. The shock loads on the persistent component, and transitory profitability shows no response in either panel. Alternative treatment definitions and the financing control are reported in Internet Appendix Table IA12, and Figure 5 reports the dynamics. The gap between more and less exposed contractors begins to widen with the defense budget turnaround around fiscal 2000 and widens further after September 11, 2001, which we interpret as an unexpected acceleration of that recovery. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 8: Real Activity Responses to Persistent Profitability

Panel A. Persistent profitability responses, all firms					
	Q1	Q2	Q3	Q4	Q5
Sales growth	-0.282***	0.232***	0.525***	0.591***	0.734***
	(0.067)	(0.060)	(0.071)	(0.062)	(0.065)
Employment growth	0.184***	0.550***	0.685***	0.694***	0.727***
	(0.045)	(0.050)	(0.066)	(0.057)	(0.052)
PP&E growth	0.546***	1.049***	1.346***	1.268***	1.186***
	(0.129)	(0.093)	(0.092)	(0.091)	(0.072)
Asset growth net of cash	0.367***	0.831***	1.238***	1.130***	1.265***
	(0.070)	(0.075)	(0.094)	(0.077)	(0.077)
Investment/assets	0.063***	0.129***	0.218***	0.241***	0.242***
	(0.011)	(0.015)	(0.018)	(0.023)	(0.019)
Acquisitions/assets	0.015**	0.105***	0.167***	0.198***	0.177***
	(0.006)	(0.013)	(0.022)	(0.023)	(0.020)
Total asset growth	0.490***	1.005***	1.276***	1.224***	1.237***
	(0.059)	(0.059)	(0.067)	(0.069)	(0.070)

Panel B. Rated − unrated difference in the persistent profitability response			
	Q3	Q4	Q5
Sales growth	0.244	0.365***	0.143*
	(0.221)	(0.127)	(0.080)
Employment growth	0.700***	0.280**	0.164**
	(0.203)	(0.122)	(0.070)
PP&E growth	0.609**	0.538***	0.172**
	(0.254)	(0.179)	(0.083)
Asset growth net of cash	0.993***	0.650***	0.431***
	(0.285)	(0.162)	(0.101)
Investment/assets	0.057	0.016	-0.007
	(0.064)	(0.038)	(0.023)
Acquisitions/assets	0.195***	0.147***	0.103***
	(0.066)	(0.048)	(0.027)
Total asset growth	0.507*	0.538***	0.288***
	(0.251)	(0.150)	(0.091)

This table reports the response of real activity to persistent operating profitability by annual size quintile. Panel A reports responses for all firms over 1971 to 2019. Each coefficient is estimated from a regression that includes persistent and transitory profitability, firm and year fixed effects, and the standard lagged controls. Sales, employment, PP&E, assets net of cash, and total assets are expressed as annual growth rates; investment and acquisitions are scaled by lagged assets. Panel B reports the rated minus unrated difference in the persistent profitability response over 1985 to 2016, the window over which the rating classifier is available, estimated within each quintile from a pooled regression that includes the rating indicator and interacts both profitability components with it. A firm is classified as rated if it has a nonmissing S&P long term issuer rating in the prior year. Differences are reported for Q3 to Q5, where rated and unrated firms have overlapping size support. Standard errors, reported in parentheses, are clustered by firm and year. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 9: Sources and Uses Associated with Persistent Profitability

	Q1	Q2	Q3	Q4	Q5
Sources					
Cash flow	1.517***	0.807***	0.776***	0.724***	0.672***
	(0.087)	(0.016)	(0.016)	(0.016)	(0.015)
Gross equity issuance	-0.187***	-0.069**	0.071***	0.025**	0.030***
	(0.046)	(0.034)	(0.023)	(0.011)	(0.009)
Long term debt issued	-0.120***	0.121***	0.220***	0.257***	0.339***
	(0.037)	(0.036)	(0.054)	(0.061)	(0.052)
Short term debt	-0.106***	0.039***	0.059***	0.009	0.030***
	(0.020)	(0.013)	(0.015)	(0.012)	(0.007)
Uses					
Investment	0.063***	0.132***	0.233***	0.238***	0.252***
	(0.012)	(0.014)	(0.020)	(0.023)	(0.020)
Cash balance	0.175***	0.184***	0.195***	0.153***	0.098***
	(0.026)	(0.029)	(0.027)	(0.025)	(0.019)
Dividends	0.017***	0.029***	0.036***	0.043***	0.074***
	(0.003)	(0.004)	(0.006)	(0.006)	(0.009)
Repurchases	0.011***	0.034***	0.024***	0.032**	0.067***
	(0.002)	(0.006)	(0.008)	(0.012)	(0.017)
Long term debt retired	0.000	0.018	-0.008	0.032	0.105**
	(0.019)	(0.027)	(0.037)	(0.050)	(0.040)
Residual	0.838***	0.502***	0.645***	0.516***	0.476***
	(0.071)	(0.036)	(0.043)	(0.041)	(0.040)
Acquisitions	0.018***	0.103***	0.195***	0.177***	0.177***
	(0.006)	(0.015)	(0.024)	(0.022)	(0.021)
Working capital	0.133***	0.290***	0.308***	0.260***	0.241***
	(0.022)	(0.026)	(0.028)	(0.022)	(0.020)
Remainder	0.688***	0.109***	0.142***	0.079**	0.057**
	(0.076)	(0.027)	(0.031)	(0.031)	(0.024)
Observations	16,002	17,765	18,856	20,580	22,778

This table traces the response to a persistent dollar of operating profitability through the gross flow of funds identity. Within each size quintile, every source and use of funds is regressed on persistent and transitory profitability using a common sample, firm and year fixed effects, and the standard lagged controls. The residual use of funds is further decomposed into acquisitions, operating working capital, and a remainder. The flow variables in the identity are not winsorized because separate winsorization would break the accounting adding up condition. Standard errors, reported in parentheses, are clustered by firm and year. The sample period is 1971 to 2019. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 10: Accounting Components of the Net Debt Response to Persistent Profitability

	(1) Net debt issuance n_{it}	(2) Growth term $L_{i,t-1}g_{it}$	(3) Leverage change term $\Delta L_{it}(1+g_{it})$	(4) Remainder (1)−(2)−(3)	Firm years
Q1	-0.253***	-0.038	0.023	-0.239***	16,187
	(0.046)	(0.038)	(0.039)	(0.041)	
Q2	0.138***	0.152***	0.036*	-0.049***	17,998
	(0.026)	(0.016)	(0.020)	(0.015)	
Q3	0.281***	0.254***	0.072***	-0.045**	19,123
	(0.033)	(0.022)	(0.026)	(0.018)	
Q4	0.241***	0.286***	0.059**	-0.104***	20,971
	(0.032)	(0.020)	(0.022)	(0.020)	
Q5	0.258***	0.324***	0.038*	-0.105***	23,238
	(0.028)	(0.022)	(0.023)	(0.015)	

This table decomposes the response of net debt issuance to persistent profitability into the asset growth term, the weighted leverage change term, and a remainder, as in equation (16). Columns (1) to (3) are winsorized at the 1st and 99th percentiles within size quintile. Column (4) is column (1) less columns (2) and (3). It contains the stock and flow wedge $-w_{it}$ and the effect of winsorizing the other three terms. Each entry is the coefficient on persistent profitability from a regression including persistent and transitory profitability, the standard lagged controls, and firm and year fixed effects. All four regressions within each annual size quintile use identical observations and regressors. The sample covers 1971 to 2019 and consists of 97,517 firm years with all accounting components available. Standard errors are clustered by firm and year and reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 11: Decomposing the Relation between Profitability and Leverage

Panel A. Persistence and the leverage relation

	Q1	Q2	Q3	Q4	Q5	Pooled
Regression on the persistent and transitory components						
Persistent profitability	-0.632***	-0.260***	-0.365***	-0.354***	-0.233***	-0.543***
	(0.100)	(0.038)	(0.040)	(0.050)	(0.054)	(0.053)
Transitory profitability	-0.071	-0.082**	0.009	-0.190***	-0.236***	-0.151***
	(0.095)	(0.033)	(0.035)	(0.035)	(0.041)	(0.040)
Total profitability regression						
Total profitability	-0.375***	-0.180***	-0.196***	-0.278***	-0.234***	-0.379***
	(0.037)	(0.020)	(0.022)	(0.023)	(0.029)	(0.029)
Contribution to the total profitability slope						
Persistent component	-0.342	-0.143	-0.200	-0.189	-0.128	-0.316
Transitory component	-0.033	-0.037	0.004	-0.089	-0.107	-0.063
Observations	19,009	20,292	21,430	23,174	25,398	110,892

Panel B. Persistent profitability relation by rating status, 1985 to 2016

	All firms	Unrated	Rated
Persistent profitability	-0.597***	-0.605***	-0.210**
	(0.066)	(0.071)	(0.081)
Observations	69,963	52,784	16,697

This table examines the relation between profitability and book leverage. Panel A reports regressions by annual size quintile and for the pooled sample over 1971 to 2019. The first specification includes both components of operating profitability, while the total profitability specification uses their sum. The contribution rows decompose the total profitability coefficient using equation (17), with the same sample, controls, and fixed effects within each group. Panel B reports persistent profitability coefficients from separate regressions for all firms, unrated firms, and rated firms over 1985 to 2016. All regressions include the standard lagged controls and firm and year fixed effects. Standard errors, clustered by firm and year, are reported in parentheses. Singleton firm year groups are dropped within each estimation sample, so pooled counts exceed the sum of the cell counts. Within each size quintile, the leverage sample is slightly smaller than the financing sample of Table 2 because the outcomes are not available for the same firm years. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Appendix A Data Definitions and Sample Construction

Table A1: Sample Construction

#	Screen	Firm years	Firms
1	Raw Compustat funda (INDL/STD/D/C)	502,110	40,702
2	Drop fiscal year < 1970	483,412	40,545
3	Drop SIC 6000 to 6999, 4900 to 4949, 9000+	343,244	28,781
4	Require U.S. firms reporting in U.S. dollars	274,778	22,507
5	Require fiscal years of 12 months	271,354	22,507
6	Drop zero/missing assets or sales	245,431	21,566
7	Drop duplicate gvkey fyear	245,431	21,566
8	Drop missing sales/cogs/xsga/ppegt	220,828	19,983
9	Drop missing fiscal year	220,828	19,983
10	Drop missing/zero lagged assets	197,256	18,733
11	Drop single observation firms	195,463	16,940
12	Require positive cogs/xsga/ppegt	194,499	16,891
13	Require nonmissing financing	162,200	16,250
14	Require nonmissing lagged controls	139,292	14,570
15	Drop single observation firms (estimation sample)	137,628	12,906
16	Require operating profitability history for profit decomposition	109,502	6,468

Table A2: Variable Definitions

Variable	Definition
Financing and profitability measures	
Gross equity issuance, s^g	Common and preferred stock issued (sstk), scaled by lagged book assets.
Net equity issuance, s	Common and preferred stock issued less purchases of common and preferred stock, (sstk − prstkc), scaled by lagged book assets.
Gross long term debt issuance, ℓ^g	Long term debt issuance (dltis), scaled by lagged book assets.
Long term debt retirement, ℓ^r	Long term debt reduction (dltr), scaled by lagged book assets.
Short term debt financing, f^{st}	Change in current debt, dlcch where available and otherwise the change in dlc, scaled by lagged book assets.
Net debt issuance, $\Delta\ell$	Long term debt issuance less long term debt reduction plus the change in current debt, dltis − dltr + Δdlc, scaled by lagged book assets. We use dlcch where available and otherwise construct the change in dlc. Thus $\Delta\ell = \ell^g - \ell^r + f^{st}$, as in equation (2).
External finance, e	Net debt issuance plus net equity issuance, $e = s + \Delta\ell$.
Internal cash flow, cf	Income before extraordinary items plus depreciation and amortization, (ib + dp), scaled by lagged book assets.
Operating profitability, c	Operating income before depreciation scaled by lagged book assets, $c_{it} = \texttt{oibdp}_{it}/\texttt{at}_{i,t-1}$.
Persistent profitability, p	Persistent component of operating profitability from the state space model in Section 2.3.
Transitory profitability, ε	Mean reverting component of operating profitability from the state space model in Section 2.3.
Investment	Capital expenditures (capx), scaled by lagged book assets.
Cash accumulation	Change in cash and short term investments, Δche, scaled by lagged book assets.
Dividends	Common dividends (dvc), scaled by lagged book assets.
Repurchases	Purchases of common and preferred stock (prstkc), scaled by lagged book assets.
Balance sheet measures and baseline controls	
Debt stock	Total debt, dltt + dlc.
Book leverage	Total debt divided by book assets, (dltt + dlc)/at.
Market to book	(at − ceq + csho × prcc_f)/at.
Tangibility	Net property, plant, and equipment divided by assets, ppent/at.

Table A2: Variable Definitions (continued)

Variable	Definition
Cash holdings	Cash and short term investments divided by assets, `che/at`.
Industry leverage	Fama and French 48 industry year median of book leverage. The baseline regressions use the lagged value.
Size	Natural logarithm of lagged real book assets, expressed in 2019 dollars. Annual size quintiles are formed within calendar year using lagged real assets.
Debt market access and high yield contraction	
Rated	Indicator equal to one if the firm has a nonmissing S&P long term issuer rating (`splticrm`) in the prior year. The baseline rating analysis uses 1985 to 2016.
Unrated	Indicator equal to one if the firm does not have an observed S&P long term issuer rating in the prior year.
Never rated, 1985 to 2000	Indicator equal to one for firms with no observed S&P long term issuer rating at any point during 1985 to 2000. Never rated contractors form Panel B of the post-9/11 analysis, and contractors with a rating in any fiscal year from 1985 to 2000 form Panel A.
Speculative grade, SPG	Indicator equal to one for firms whose last S&P long term issuer rating observed during fiscal 1986 to 1988 is BB+ or below. Rating class is fixed before the high yield contraction.
Investment grade	Firms whose last S&P long term issuer rating observed during fiscal 1986 to 1988 is BBB- or above. These firms form the comparison group in the high yield analysis.
High yield post, $Post$	Indicator equal to one in fiscal 1990 to 1994 and zero in fiscal 1985 to 1989 in the baseline high yield specification.
Post-9/11 defense expansion	
Pre-9/11 federal contractor	Compustat firm with positive federal contract obligations awarded between October 1, 2000 and September 10, 2001.
Unfinanced defense dependence	Positive Department of Defense obligations awarded between October 1, 2000 and September 10, 2001 on fixed price contracts with an explicit no financing code, divided by fiscal 2000 sales.
Rank	Percentile rank of unfinanced defense dependence among pre-9/11 federal contractors, scaled to lie between zero and one.
Debt stock to fiscal 2000 assets	Total debt, `dltt` + `dlc`, divided by the firm's fiscal 2000 book assets, winsorized at the 1st and 99th percentiles within annual size quintile.
Issuance indicator	Indicator equal to one if net debt issuance exceeds 2 percent of lagged book assets.
Defense post, $Post$	Indicator equal to one in fiscal 2001 to 2008 and zero in fiscal 1994 to 2000 in the post-9/11 specification.

Financing and other flow variables are scaled by lagged book assets unless otherwise noted. Unless an accounting identity requires otherwise, flow variables are winsorized at the 1st and 99th percentiles within annual size quintile.

Internet Appendices for *"Who Borrows Against Persistent Profits?"*

Internet Appendix A: Measurement and Baseline Robustness

Internet Appendix B: Identification and Additional Empirical Analyses

Internet Appendix C: Additional Tables and Figures

Internet Appendix A Measurement and Baseline Robustness

Internet Appendix A.1 Profitability Decomposition and Measurement

The paper's central measurement separates operating profitability into a persistent and a transitory component. We use an unobserved components state space model, estimated by Gaussian quasi maximum likelihood, together with the Kalman filter. This appendix documents the system, its estimation, the choice of one sided rather than smoothed estimates, and robustness to alternative measures of persistence.

State space system. Operating profitability, $c_{it} = \text{oibdp}_{it}/A_{i,t-1}$, is the sum of an unobserved persistent component and an unobserved transitory component,

$$c_{it} = p_{it} + \varepsilon_{it}, \tag{IA1}$$

with

$$p_{it} = p_{i,t-1} + \mu + \eta_{it}, \qquad \eta_{it} \sim (0, \sigma_\eta^2), \tag{IA2}$$

$$\varepsilon_{it} = \rho\, \varepsilon_{i,t-1} + \nu_{it}, \qquad \nu_{it} \sim (0, \sigma_\nu^2), \tag{IA3}$$

where η and ν are mutually and serially uncorrelated. These are equations (4) to (6) of the main text, in the same notation. The persistent component is a random walk with drift μ, and the transitory component is a stationary AR(1) with coefficient ρ. At the estimated $\rho = 0.4420$, the transitory component reverts to its mean quickly, with a half life of under one year. As in the main text, c_{it} is winsorized once, at the 1st and 99th percentiles, before filtering, and the filtered components are not winsorized again.

Estimation and the pooled filter restriction. The parameter vector $\psi = (\mu, \rho, \sigma_\eta^2, \sigma_\nu^2)$ is estimated from the likelihood pooled across firms with at least eight annual observations, so every firm's decomposition uses the same parameters. The filter is initialized at each firm's first observation, with the persistent component set to initial profitability and the transitory component set to zero. The initial state covariance matrix is diagonal, with

variance $\sigma_\nu^2/(1-\rho^2)$ for the transitory component and $\sigma_\nu^2/(1-\rho^2)+\sigma_\eta^2$ for the persistent component. The first observation does not contribute to the likelihood. The estimates are

$$\hat{\rho} = 0.4420, \qquad \hat{\sigma}_\eta^2 = 0.002518, \qquad \hat{\sigma}_\nu^2 = 0.009543, \qquad \hat{\mu} = -0.00388,$$

which imply a signal to noise ratio of $q \equiv \sigma_\eta^2/\sigma_\nu^2 = 0.264$.

The pooled restriction is not a literal description of the data. When we reestimate the system separately by firm size group, using the companion cash flow series, the signal to noise ratio ranges from 0.32 in the smallest size group to 0.11 in the largest. A likelihood ratio test rejects the pooled restriction (LR $= 54{,}707$, df $= 16$). Simulations nevertheless indicate that this heterogeneity does not mechanically generate the size pattern in the paper. When the signal to noise ratio varies with size and the true gradient linking the transitory component to size is zero, the pooled filter induces a bias of only -0.006 (Monte Carlo standard error 0.0007, 60 replications). When the true gradient is 0.044, the pooled filter recovers 0.047. Table IA1 reports the parameter estimates and the timing placebo discussed below.

The eight observation minimum is not neutral with respect to size. It retains 70.1% of the firm years of small firms and 93.0% of those of large firms, so small firms with short histories are underrepresented in the sample with available components. This restriction affects the scope of the estimates but not the construction of the annual size quintiles used in the main regressions.

One sided filtering and the timing placebo. The main analysis uses one sided filtered estimates because financing at date t cannot condition on cash flows the firm has not yet realized. Given $\hat{\psi}$, the date t components use profitability observations only through date t. The parameter vector itself is estimated on the full sample, so the components are not strictly real time. One sidedness is a property of how the components are computed, and no regression can confirm it.

Table IA1, Panel B, reports a timing placebo that adds next year's transitory component to the current financing regression. Under the model, $\varepsilon_{i,t+1} = \rho\varepsilon_{it} + \nu_{i,t+1}$. Once the date t components are in the regression, the placebo coefficient therefore measures

whether financing at date t is related to next year's transitory innovation. A zero coefficient is what we expect if firms do not borrow in anticipation of next year's temporary profit surprises and if financing at t does not itself change next year's operating profit. The model does not require it. The placebo t statistic is -0.1 under the one sided filter, compared with -1.9 when the components are smoothed, two sided estimates that already contain information from date $t+1$. The placebo is a diagnostic consistent with the timing assumption rather than a test of the filter, and the smoothed statistic is significant only at the 10 percent level.

Alternative measures of persistence. We also consider three alternative decompositions of the same profitability series that do not rely on the state space model. The two trailing mean measures define the persistent component as the average of operating profitability over the current and past two (four) fiscal years, and the transitory component as the deviation of current profitability from that average. The firm level autoregressive decomposition estimates a separate AR(1) for each firm with at least eight annual observations. It defines the persistent component as the firm specific fitted value given the previous year's profitability and the transitory component as the AR(1) residual. Table 3 in the main text reports the size profile of the net debt responses under each alternative, and Table IA10 reports the rating based access gap under the same decompositions, together with a Mundlak between firm variant. Because p_{it} and ε_{it} are generated regressors, we also use a firm block bootstrap that reestimates the filter in each draw. The resulting inference, which is not tabulated, is similar to that from the clustered standard errors in the main analysis.

Internet Appendix A.2 Data Treatment and Flow of Funds Construction

This appendix records the data treatment used in the financing and allocation exercises. Baseline financing flows are scaled by lagged assets and winsorized at the first and ninety ninth percentiles within annual size quintile. Pooled cutpoints clip the more volatile scaled flows of small firms more aggressively, so winsorization within quintile is better aligned with an analysis that conditions directly on firm size. Table IA3 reestimates the

main financing table with the outcomes winsorized at the pooled first and ninety ninth percentiles instead; signs and significance are unchanged in every cell, and the Q1 magnitudes are moderately attenuated. The persistent and transitory components are the filtered states and are not winsorized; the profitability ratio entering the filter is winsorized once, at the pooled first and ninety ninth percentiles, before filtering.

Internet Appendix A.3 Baseline Financing and Debt Market Access

Table IA5 reports the financing responses of Table 2 estimated on the pooled sample without size splits. The pooled net debt and external finance coefficients average a negative response among small firms with positive responses among larger firms, which is why the main analysis conditions on size throughout. Table IA2 examines how the debt response to transitory profitability depends on the definition of profitability. It compares the baseline EBITDA measure with the conventional cash flow measure, with and without interest expense added back, and decomposes the gap between the two definitions. Table IA4 reports the financing margins omitted from the main financing table: gross equity issuance, gross long term debt issuance, and short term debt.

Table IA6 reestimates the main size specifications over 1985 to 2016, the period in which S&P issuer ratings are available for the analysis of debt market access. The net debt response to persistent profitability remains negative in Q1 and positive in Q2 to Q5, while the response to transitory profitability remains concentrated among smaller firms. The size pattern in Table 2 is therefore already present in the shorter sample used for the rating analysis.

Table IA7 repeats the loss classification of Table 4 with a loss year defined by negative income before extraordinary items in the prior year, in place of negative operating income before depreciation. Under this definition, loss years are 48.7 percent of the classified firm years in Q1 and 12.7 percent in Q5. The pattern is the same. In Q1 the net debt response to persistent profitability is negative among loss firms and close to zero among profitable firms. Loss firms have a lower persistent response than profitable firms in every quintile.

Table IA8 reports the timing and acquisition checks discussed in Section 3.1 of the main text. The components of the prior year are available for fewer firm years, so the second row of each panel reestimates the baseline on those firm years. The first acquisition screen drops between 710 and 2,035 firm years per quintile, and the second between 1,684 and 10,839. Both screens select on an outcome of the financing decision, so the table is a diagnostic. Panel C reports the corresponding estimates of the rated minus unrated difference.

Table IA9 examines the measurement of short term debt behind Table 10. The cash flow statement item for the change in current debt is reported for 39 to 51 percent of firm years, depending on the quintile. On those firm years the Q1 coefficients are close to those for all firm years. The decline in Q1 issuance is in long term debt issued and in short term financing, with no change in debt retired.

Table IA10 reports the rating based access gap under alternative rating classifiers, alternative measures of persistence, and alternative weighting, scaling, and inference choices. Figure IA1 reports an event study around the first rating as a diagnostic for selection rather than as causal identification. The borrowing response is already rising before the first rating, and extrapolating the pretrend absorbs the apparent increase after the rating.

Internet Appendix B Identification and Additional Empirical Analyses

Internet Appendix B.1 The 1989 to 1990 High Yield Contraction

The main paper reports the timing of the change in the persistent profit borrowing response graphically and in binned form. Table IA11 reports the accompanying robustness tests: additional size and leverage interactions, industry by year fixed effects, survivorship and default screens, a placebo within the period before the contraction, and raw EBITDA in place of the persistent and transitory components.

Internet Appendix B.2 The Post-9/11 Defense Expansion: Data and Exposure

This subsection provides construction details for the post-9/11 defense expansion analysis in Section 5 of the main text.

Internet Appendix B.2.1 Procurement Data, Matching, and Preshock Exposure

The procurement data are federal contract transactions reported by USAspending.gov and drawn from FPDS. On the procurement side, the matching object is the reported parent company name; the final public company identifier is the Compustat GVKEY. We construct name aliases from CRSP historical company names and Compustat names. Exact matches are retained when the evidence identifies a unique GVKEY. Ambiguous cases are reviewed using historical names and validity dates, evidence on parents, subsidiaries, and acquisitions, UEI and DUNS identifiers, industry, and geography. Uncertain pairs and names that point to multiple GVKEYs are excluded. The final procedure accepts 4,146 pairs of standardized procurement names and GVKEYs, covering 4,013 unique GVKEYs, and maps them back to the transaction data using the exact raw procurement name and action year.

Exposure is constructed from DoD procurement activity between October 1, 2000 and

September 10, 2001, so transactions after the shock cannot enter treatment mechanically. A transaction is classified as DoD using the awarding agency identifier. Each DoD contract action in this window is then classified using its contract financing code and its pricing type. A contract is unfinanced when it carries an explicit no financing code and fixed price terms, so that the government pays on delivery. A contract is financed when it carries progress payments, performance based payments, advance payments, or commercial financing, or when it is priced on a cost reimbursement basis. Only unfinanced contracts enter the exposure measure, which mitigates the concern that a debt response to exposure reflects government contract financing substituting for private borrowing. The financed, unfinanced, and unclassifiable components sum to total positive DoD obligations for each firm. Financing codes are populated for 96.7 percent of positive pre-9/11 DoD obligation dollars. Unfinanced contracts account for 35.7 percent of aggregate pre-9/11 DoD dollars, but financed contracts are concentrated in a very small number of prime contractors with large dollar values, so the median across contractors of the firm level unfinanced share is 96 percent. Positive obligations measure newly committed funding, and deobligations do not enter the measure.

Unfinanced defense dependence scales unfinanced obligations by fiscal 2000 sales. Its percentile rank and its quartiles are computed across all contractor firms, rated and never rated together, so that a given rank or quartile denotes the same dependence in both groups. The first quartile consists of contractors with no unfinanced defense dollars. The second quartile extends to about 0.03 percent of sales, the third to about 0.22 percent, and the fourth lies above 0.22 percent, with a median of about 0.9 percent.

The contractor universe consists of firms with observed federal procurement activity before the shock. Noncontractors are excluded from the estimation sample. Contractors are split by rating history into 190 firms with an S&P long term issuer rating in any fiscal year from 1985 to 2000 and 304 firms never rated over that period. The rated group contains 38, 66, 55, and 31 firms in the four quartiles of unfinanced defense dependence, and the never rated group contains 107, 36, 69, and 92 firms. Fiscal 2000 is the event study reference year, and fiscal 2001 is counted as part of the post period.

Internet Appendix B.2.2 Alternative Treatment Definitions and the Financing Control

Table IA12 reports the robustness of Table 7. Panels A and B add financed defense dependence interacted with $Post_t$ as a control, and the estimates are essentially unchanged. The debt stock response is 0.243 (s.e. 0.084) for rated contractors and -0.036 (s.e. 0.069) for never rated contractors. In these specifications, the untabulated coefficient on financed dependence for rated contractors is negative for net debt issuance (-0.280, significant at the 1 percent level), consistent with government contract financing substituting for private borrowing. Panels C to F replace the rank with binary treatment definitions.

The magnitude of the rated debt response depends on how treatment is defined. With an above median indicator, it is 0.127 (s.e. 0.040). When the top quartile is compared with the remaining three quartiles pooled, it is 0.057 (s.e. 0.061) and statistically insignificant, while the response of issuance frequency is 0.141 (s.e. 0.049). The reason is that the debt stocks of rated contractors in the intermediate quartiles also rise without a corresponding profitability response. In the third quartile the debt stock response is 0.197 and the profitability response is 0.009. Pooling these quartiles into the comparison group lowers the estimate.

This pattern also shows that debt among rated contractors can rise for reasons other than the measured improvement in profitability. For this reason we regard the defense evidence as corroborating the panel and high yield evidence. Under every definition, never rated contractors show no detectable change in debt.

Internet Appendix C Additional Tables and Figures

Table IA1: Profitability Decomposition: Parameter Estimates and the One Sided Filter

Panel A. Baseline state-space parameter estimates	
Transitory persistence, ρ	0.4420
Persistent innovation variance, σ^2_η	0.002518
Transitory innovation variance, σ^2_ν	0.009543
Drift, μ	-0.00388
Signal-to-noise ratio, $\sigma^2_\eta/\sigma^2_\nu$	0.264
Firms / firm-years	6,468 / 111,096
Panel B. Timing placebo	
One-sided components used in the main analysis	-0.1
Smoothed components using future information	-1.9

This table documents the unobserved components decomposition of operating profitability described in Section 2.3, which produces the persistent and transitory components used in all estimates. Panel A reports the pooled quasi maximum likelihood parameter estimates; the drift is μ and the transitory persistence is ρ, as in equations (5) and (6). The filter is estimated on all firm years with usable operating profitability for firms with at least eight annual observations; the baseline regression sample of 109,502 firm years (Table 1) is the subset with nonmissing outcomes and controls. Panel B reports the timing placebo: the t statistic on next year's transitory component in the external finance regression, with the standard lagged controls, firm and year fixed effects, and standard errors clustered by firm. Once the date t components are in the regression, this coefficient measures whether financing at date t is related to next year's transitory innovation. A zero coefficient is expected if firms do not borrow in anticipation of next year's temporary profit surprises and if financing does not itself change next year's operating profit, but the model does not require it. The one sided components use data only through date t by construction, and the placebo is a diagnostic consistent with that timing rather than a test of it. The smoothed components embed information from date $t+1$ by construction.

Table IA2: Cash Flow Definition, Interest Expense, and the Debt Response to Transitory Profitability

	Q1	Q2	Q3	Q4	Q5
Panel A. Transitory-profit response of net debt issuance					
EBITDA (baseline)	-0.183***	-0.096***	0.007	0.020	0.062
	(0.042)	(0.032)	(0.042)	(0.036)	(0.037)
Conventional cash flow $(ib + dp)$	-0.256***	-0.175***	-0.233***	-0.217***	-0.156***
	(0.036)	(0.025)	(0.035)	(0.033)	(0.034)
Conventional cash flow with interest added back	-0.202***	-0.110***	-0.085**	-0.055*	-0.021
	(0.034)	(0.024)	(0.034)	(0.031)	(0.030)
Panel B. Accounting wedge components					
Interest	-1.002	-1.800	-2.403	-2.488	-1.775
Taxes	-0.276	-0.028	0.155	0.193	0.195
Special items	-0.205	-0.185	-0.232	-0.213	-0.194
Remainder	-0.215	-0.079	0.269	0.563	0.466

This table examines how the debt response to transitory profitability depends on the definition of the profitability series. Panel A reports the response of net debt issuance to transitory profitability by annual size quintile under three definitions, each decomposed with its own one sided state space filter: the baseline EBITDA measure used throughout the paper (operating income before depreciation, scaled by lagged assets), the conventional cash flow measure (income before extraordinary items plus depreciation), and the conventional measure with interest expense added back. Panel B decomposes the difference between the conventional cash flow measure and EBITDA into interest, taxes, special items, and an exact remainder, and reports the loading of each component in the net debt regression. Net debt issuance is scaled by lagged assets. Standard errors for Panel A are clustered by firm and year and reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table IA3: Financing Responses by Firm Size with Pooled Winsorization

	Q1	Q2	Q3	Q4	Q5
Panel A. Response to persistent profitability					
Net debt issuance	-0.160***	0.143***	0.272***	0.304***	0.289***
	(0.027)	(0.024)	(0.031)	(0.040)	(0.033)
Net equity issuance	-0.230***	-0.074*	0.062	0.048*	-0.029
	(0.035)	(0.043)	(0.049)	(0.025)	(0.019)
External finance	-0.450***	0.070	0.344***	0.367***	0.244***
	(0.046)	(0.053)	(0.061)	(0.056)	(0.041)
Panel B. Response to transitory profitability					
Net debt issuance	-0.157***	-0.088**	0.027	0.050	0.097**
	(0.030)	(0.035)	(0.046)	(0.042)	(0.048)
Net equity issuance	-0.373***	0.068	0.117***	0.097***	0.000
	(0.043)	(0.054)	(0.038)	(0.030)	(0.023)
External finance	-0.543***	-0.021	0.173**	0.174***	0.100*
	(0.064)	(0.068)	(0.067)	(0.059)	(0.051)
Panel C. Persistent versus transitory					
Difference, net debt issuance	-0.003	0.232***	0.246***	0.254***	0.192***
	(0.046)	(0.047)	(0.062)	(0.060)	(0.056)
p-value for equality	0.955	0.000	0.000	0.000	0.001
Firm years	19,024	20,322	21,481	23,234	25,441

This table repeats Table 2 with the financing outcomes winsorized at the first and ninety ninth percentiles of the pooled sample rather than within annual size quintile; the specification, sample, and variable definitions are otherwise identical, and each cell is estimated on the same firm years as the corresponding cell of Table 2. Within each quintile of lagged real assets, each outcome is regressed on the persistent and transitory profitability components, the standard lagged controls, and firm and year fixed effects. The persistent and transitory components are the filtered states and are not winsorized in either table. Panel C reports the difference between the persistent and transitory coefficients for net debt issuance with its two way clustered p value. Pooled cutpoints clip the volatile scaled flows of small firms more aggressively, so the Q1 responses are attenuated relative to Table 2; signs and significance are unchanged. The sample period is 1971 to 2019. Standard errors are clustered two way by firm and year and reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table IA4: Additional Financing Responses to Persistent and Transitory Profitability by Firm Size

	Q1	Q2	Q3	Q4	Q5
Panel A. Gross equity issuance					
Persistent profitability	-0.231***	-0.025	0.080***	0.044***	0.035***
	(0.036)	(0.030)	(0.023)	(0.011)	(0.009)
Transitory profitability	-0.391***	0.052	0.106***	0.118***	0.052***
	(0.047)	(0.036)	(0.022)	(0.018)	(0.010)
Panel B. Gross long-term debt issuance					
Persistent profitability	-0.113***	0.103***	0.188***	0.307***	0.338***
	(0.031)	(0.031)	(0.049)	(0.060)	(0.050)
Transitory profitability	-0.070**	0.061	0.282***	0.322***	0.235***
	(0.033)	(0.039)	(0.061)	(0.057)	(0.062)
Panel C. Short-term debt					
Persistent profitability	-0.093***	0.040***	0.053***	0.015	0.028***
	(0.018)	(0.011)	(0.012)	(0.011)	(0.007)
Transitory profitability	-0.079***	-0.063***	-0.040**	-0.019	0.004
	(0.023)	(0.014)	(0.017)	(0.012)	(0.009)

This table reports financing responses to persistent and transitory operating profitability for the financing margins not shown in Table 2: gross equity issuance, gross long term debt issuance, and the change in short term debt. The coefficients are estimated within each annual size quintile using the specification in equation (8), with both profitability components, firm and year fixed effects, and the standard lagged controls. Financing flows are scaled by lagged assets and winsorized at the 1st and 99th percentiles within size quintile. Standard errors are clustered by firm and year and reported in parentheses. The sample period is 1971 to 2019. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table IA5: Pooled Financing Responses to Persistent and Transitory Profitability

	Net debt	Net equity	External finance
Persistent profitability	-0.066***	-0.261***	-0.381***
	(0.024)	(0.022)	(0.038)
Transitory profitability	-0.108***	-0.138***	-0.275***
	(0.024)	(0.035)	(0.052)
Firm years	111,090	111,090	111,090

This table reports financing responses to the persistent and transitory components of operating profitability estimated on the pooled sample, without size splits. The specification is otherwise identical to Table 2. Each regression includes both profitability components, firm and year fixed effects, and the standard lagged controls. Outcomes are scaled by lagged assets and winsorized at the 1st and 99th percentiles within size quintile. Standard errors, reported in parentheses, are clustered by firm and year. The sample period is 1971 to 2019. Firm year counts slightly exceed the sum of the quintile samples in Table 2 because singleton observations are dropped within each quintile subsample but not in the pooled sample. Compared with Table 2, the pooled net debt and external finance coefficients average a negative response among small firms with positive responses among larger firms. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table IA6: Financing Responses by Firm Size, 1985 to 2016

	Q1	Q2	Q3	Q4	Q5
Panel A. Response to persistent profitability					
Net debt issuance	-0.318***	0.095***	0.249***	0.236***	0.291***
	(0.049)	(0.025)	(0.037)	(0.042)	(0.035)
Net equity issuance	-0.224***	-0.142***	0.057	-0.016	-0.042*
	(0.052)	(0.038)	(0.033)	(0.023)	(0.025)
External finance	-0.600***	-0.062	0.322***	0.250***	0.254***
	(0.071)	(0.053)	(0.062)	(0.051)	(0.047)
Panel B. Response to transitory profitability					
Net debt issuance	-0.136**	-0.100***	0.014	0.067	0.099*
	(0.052)	(0.035)	(0.045)	(0.042)	(0.049)
Net equity issuance	-0.405***	0.092*	0.127***	0.102***	-0.012
	(0.060)	(0.051)	(0.028)	(0.029)	(0.024)
External finance	-0.566***	-0.013	0.148**	0.170***	0.087
	(0.108)	(0.070)	(0.056)	(0.051)	(0.052)
Firm years	11,839	12,763	13,289	14,644	16,330

This table reestimates the financing specifications in Table 2 over 1985 to 2016, the period used for the rating based analysis. Panel A reports the response to persistent profitability, θ_p, and Panel B reports the response to transitory profitability, θ_ε, by annual size quintile. Each regression includes both profitability components, firm and year fixed effects, and the standard lagged controls. Financing outcomes are scaled by lagged assets and winsorized at the 1st and 99th percentiles within size quintile. Standard errors are clustered by firm and year and reported in parentheses. Firm year counts correspond to the net debt regressions. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table IA7: Operating Losses and the Financing Response: Losses Defined by Income before Extraordinary Items

	Q1	Q2	Q3	Q4	Q5
Loss share of firm years	0.487	0.319	0.227	0.169	0.127
Panel A. Net debt issuance					
Profitable in the prior year					
Persistent profitability	0.083	0.159***	0.246***	0.218***	0.228***
	(0.061)	(0.032)	(0.041)	(0.038)	(0.030)
Transitory profitability	-0.151***	-0.022	0.057	0.109**	0.083*
	(0.048)	(0.037)	(0.043)	(0.043)	(0.045)
Observations	8,045	11,992	14,607	17,352	20,280
Loss in the prior year					
Persistent profitability	-0.484***	-0.083	0.035	0.108	0.130
	(0.062)	(0.052)	(0.089)	(0.118)	(0.099)
Transitory profitability	-0.094	-0.116**	-0.070	-0.212**	-0.138
	(0.060)	(0.050)	(0.087)	(0.094)	(0.089)
Observations	7,708	5,285	3,815	3,036	2,630
Loss minus profitable					
Persistent profitability	-0.211***	-0.191***	-0.213***	-0.116**	-0.145***
	(0.058)	(0.030)	(0.055)	(0.057)	(0.052)
Transitory profitability	-0.156**	-0.123**	-0.065	-0.212***	-0.074
	(0.059)	(0.048)	(0.060)	(0.072)	(0.080)
Observations	16,215	18,040	19,181	21,045	23,293
Panel B. External finance					
Profitable in the prior year					
Persistent profitability	0.143	0.244***	0.416***	0.264***	0.227***
	(0.091)	(0.058)	(0.052)	(0.044)	(0.038)
Transitory profitability	-0.241***	0.146**	0.165***	0.171***	0.090*
	(0.080)	(0.064)	(0.051)	(0.051)	(0.047)
Observations	8,045	11,992	14,607	17,352	20,280
Loss in the prior year					
Persistent profitability	-0.836***	-0.320***	-0.016	0.142	0.080
	(0.090)	(0.078)	(0.115)	(0.125)	(0.114)
Transitory profitability	-0.614***	-0.190**	0.032	-0.136	-0.217**
	(0.110)	(0.079)	(0.089)	(0.113)	(0.101)
Observations	7,708	5,285	3,815	3,036	2,630
Loss minus profitable					
Persistent profitability	-0.409***	-0.404***	-0.267***	-0.075	-0.163***
	(0.117)	(0.058)	(0.071)	(0.061)	(0.057)
Transitory profitability	-0.541***	-0.333***	-0.125**	-0.179**	-0.036
	(0.090)	(0.078)	(0.059)	(0.086)	(0.090)
Observations	16,215	18,040	19,181	21,045	23,293

Table IA7: Operating Losses and the Financing Response: Losses Defined by Income before Extraordinary Items

Panel C. Q1 minus Q2 and Q3, within loss status

	Net debt issuance		External finance		
	Persistent	Transitory	Persistent	Transitory	Observations
Loss in the prior year	-0.215***	-0.067	-0.672***	-0.268**	17,627
	(0.048)	(0.065)	(0.075)	(0.117)	
Profitable in the prior year	-0.072*	-0.131***	-0.060	-0.356***	35,421
	(0.037)	(0.049)	(0.074)	(0.086)	

This table reports financing responses to persistent and transitory operating profitability separately for firm years that follow an operating loss and firm years that do not. A firm year is a loss year if income before extraordinary items (`ib`) was negative in the prior fiscal year, and a profitable year otherwise. Firm years without a prior year observation are not classified. In Panels A and B, the profitable and loss rows estimate equation (8) separately within each annual size quintile and loss status, with firm and year fixed effects and the standard lagged controls. The loss minus profitable rows report the coefficients on each profitability component interacted with the loss indicator, from a regression on all classified firm years of the quintile, profitable and loss together, that also includes the loss indicator. Panel C uses the firm years of Q1 to Q3 with the indicated loss status and reports the coefficients on each component interacted with a Q1 indicator. These regressions include quintile intercepts and, unlike the other regressions in the paper, pool the fixed effects and control coefficients across the three quintiles. Outcomes are scaled by lagged assets and winsorized as in Table 2, and they are not winsorized again within the loss groups. Standard errors, reported in parentheses, are clustered by firm and year. The sample period is 1971 to 2019. The table repeats Table 4 with this alternative definition of a loss year. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table IA8: Timing, Acquisition Years, and the Net Debt Response

	Q1	Q2	Q3	Q4	Q5
Panel A. Persistent profitability					
Baseline (Table 2)	-0.219***	0.137***	0.255***	0.272***	0.252***
	(0.039)	(0.022)	(0.029)	(0.034)	(0.029)
Baseline, lag sample	-0.254***	0.137***	0.281***	0.242***	0.257***
	(0.046)	(0.026)	(0.033)	(0.032)	(0.028)
Components of year $t-1$	-0.122***	0.119***	0.174***	0.153***	0.171***
	(0.039)	(0.023)	(0.029)	(0.027)	(0.023)
No acquisitions above 10%	-0.213***	0.069***	0.136***	0.116***	0.136***
	(0.037)	(0.024)	(0.030)	(0.029)	(0.026)
No acquisition years	-0.214***	0.068**	0.133***	0.127***	0.143***
	(0.037)	(0.027)	(0.034)	(0.034)	(0.032)
Panel B. Transitory profitability					
Baseline (Table 2)	-0.183***	-0.096***	0.007	0.020	0.062
	(0.042)	(0.032)	(0.042)	(0.036)	(0.037)
Baseline, lag sample	-0.148***	-0.097***	0.012	0.025	0.052
	(0.047)	(0.034)	(0.041)	(0.035)	(0.041)
Components of year $t-1$	-0.088**	0.026	0.120***	0.129***	0.124***
	(0.038)	(0.029)	(0.037)	(0.028)	(0.028)
No acquisitions above 10%	-0.226***	-0.157***	-0.134***	-0.117***	-0.092***
	(0.047)	(0.029)	(0.034)	(0.028)	(0.030)
No acquisition years	-0.229***	-0.165***	-0.157***	-0.142***	-0.150***
	(0.048)	(0.029)	(0.038)	(0.034)	(0.036)
Observations					
Baseline	19,024	20,322	21,481	23,234	25,441
Lag sample	16,215	18,040	19,181	21,045	23,293
No acquisitions above 10%	18,286	19,073	19,685	21,131	23,601
No acquisition years	17,277	16,574	15,357	14,851	14,457

Panel C. Rated minus unrated difference, 1985 to 2016	Persistent	Transitory	Observations
Baseline (Table 5)	0.192***	0.030	70,114
	(0.042)	(0.057)	
Components of year $t-1$	0.146***	0.069	70,121
	(0.039)	(0.069)	
No acquisitions above 10%	0.096**	-0.014	64,673
	(0.038)	(0.053)	
No acquisition years	0.065	-0.019	48,389
	(0.041)	(0.064)	

This table reports the response of net debt issuance to persistent and transitory operating profitability under alternative timing and sample choices. Panels A and B report the coefficients from equation (8), estimated separately within each annual size quintile. The first row reproduces Table 2. The second row restricts the sample to firm years for which the components of the prior year are available (the lag sample). The third row replaces p_{it} and ε_{it} with $p_{i,t-1}$ and $\varepsilon_{i,t-1}$ on that sample. The fourth row drops firm years in which acquisition spending (aqc) exceeds 10 percent of lagged assets, and the fifth row drops all firm years with positive acquisition spending. Missing acquisition spending is treated as zero. Panel C reports the coefficients on persistent and transitory profitability interacted with prior year rating status from equation (9), as in column (1) of Table 5, Panel C, under the same alternatives. The two samples that exclude acquisition years are selected on an outcome and are reported as diagnostics. All regressions include firm and year fixed effects and the standard lagged controls. Net debt issuance is scaled by lagged assets and winsorized as in Table 2. Standard errors, reported in parentheses, are clustered by firm and year. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table IA9: Net Debt Issuance and Reported Debt Outstanding: Measurement of Short Term Debt

	Q1	Q2	Q3	Q4	Q5
Panel A. All firm years of Table 10					
Net debt issuance	-0.253***	0.138***	0.281***	0.241***	0.258***
	(0.046)	(0.026)	(0.033)	(0.032)	(0.028)
Growth term	-0.038	0.152***	0.254***	0.286***	0.324***
	(0.038)	(0.016)	(0.022)	(0.020)	(0.022)
Leverage change term	0.023	0.036*	0.072***	0.059**	0.038*
	(0.039)	(0.020)	(0.026)	(0.022)	(0.023)
Column (4) of Table 10	-0.239***	-0.049***	-0.045**	-0.104***	-0.105***
	(0.041)	(0.015)	(0.018)	(0.020)	(0.015)
Long term debt issued	-0.121***	0.113***	0.219***	0.275***	0.344***
	(0.036)	(0.036)	(0.053)	(0.061)	(0.052)
Long term debt retired	0.002	0.019	-0.007	0.044	0.103**
	(0.019)	(0.027)	(0.038)	(0.050)	(0.039)
Short term debt financing	-0.105***	0.038***	0.062***	0.009	0.029***
	(0.021)	(0.011)	(0.015)	(0.012)	(0.008)
Observations	16,187	17,998	19,123	20,971	23,238
Panel B. Firm years that report the change in current debt					
Share of firm years	0.514	0.453	0.405	0.392	0.430
Net debt issuance	-0.252***	0.086***	0.135***	0.216***	0.277***
	(0.058)	(0.027)	(0.038)	(0.041)	(0.049)
Growth term	-0.048	0.133***	0.180***	0.222***	0.312***
	(0.055)	(0.023)	(0.030)	(0.030)	(0.030)
Leverage change term	0.015	0.003	0.055	0.074**	0.070*
	(0.053)	(0.025)	(0.037)	(0.035)	(0.037)
Column (4) of Table 10	-0.219***	-0.051**	-0.099***	-0.080***	-0.104***
	(0.048)	(0.020)	(0.026)	(0.025)	(0.034)
Long term debt issued	-0.072*	0.093**	0.118*	0.226***	0.360***
	(0.039)	(0.036)	(0.065)	(0.079)	(0.084)
Long term debt retired	-0.005	0.024	-0.011	0.006	0.070
	(0.020)	(0.027)	(0.045)	(0.064)	(0.059)
Short term debt financing	-0.120***	0.019	0.001	-0.016	0.017
	(0.031)	(0.018)	(0.018)	(0.013)	(0.016)
Observations	8,199	7,916	7,428	7,961	9,850

This table asks whether the difference between net debt issuance and the change in reported debt outstanding in Table 10 reflects the measurement of short term debt. Net debt issuance uses the change in current debt from the cash flow statement (`dlcch`) where it is reported and the change in the balance sheet item (`dlc`) otherwise. Each entry is the coefficient on persistent profitability from a regression that includes persistent and transitory profitability, the standard lagged controls, and firm and year fixed effects, estimated within each annual size quintile. Panel A uses the sample of Table 10. Panel B uses the firm years in that sample that report `dlcch`. The first four rows of each panel are the columns of Table 10. The remaining rows are the gross debt flows, scaled by lagged assets and winsorized at the 1st and 99th percentiles within size quintile. Standard errors, reported in parentheses, are clustered by firm and year. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table IA10: Robustness of the Rating Based Difference in the Persistent Profit Borrowing Response

	Estimate (s.e.)	t	Firm years
Panel A. Alternative rating classifiers			
Contemporaneous	0.411*** (0.043)	9.58	78,002
Lagged one year	0.192*** (0.042)	4.57	70,114
Absorbing from first rating	0.418*** (0.049)	8.54	78,002
Ever rated	0.331*** (0.042)	7.92	78,002
Sample diagnostics			
Share of rated firm-years that are a first rating	0.121		21,428
Annual transition rate into rated	0.023		64,818
Panel B. Alternative profitability decompositions			
One-sided state-space filter	0.192*** (0.042)	4.57	70,114
Transitory-profit difference	0.030	0.53	
Trailing three-year mean	0.195*** (0.034)	5.75	69,766
Transitory-profit difference	0.044	0.74	
Trailing five-year mean	0.161*** (0.037)	4.39	52,764
Transitory-profit difference	0.092	1.82	
Firm-by-firm AR(1)	0.178*** (0.039)	4.57	70,102
Transitory-profit difference	0.080	1.72	
Mundlak between-firm specification	0.078** (0.032)	2.42	82,944
Transitory-profit difference	0.076	2.45	
Panel C. Weighting, scaling, and inference			
Lagged-asset weighted	0.112*** (0.043)	2.60	
Scaled by average assets	0.173*** (0.035)	4.97	
Wild cluster bootstrap by year	0.186	95% CI [0.091, 0.277]	

This table reports the rated minus unrated difference in the net debt response to persistent operating profitability under alternative specifications. The reported access gap is the coefficient on persistent profitability interacted with the rating indicator, after allowing the persistent profit response to vary across annual size quintiles. Panel A varies the definition of rated status. Panel B uses the rating indicator lagged one year and varies the construction of the persistent and transitory profitability measures; the indented rows report the corresponding rated minus unrated difference in the transitory profit response. The Mundlak specification reports the between firm component and includes year fixed effects. Panel C varies observation weights, the denominator used to scale financing flows, and the inference method. The weighted specification weights firm years by lagged book assets, the alternative scaling specification uses average assets in place of lagged assets, and the final row reports wild cluster bootstrap inference by year for the baseline specification. Unless otherwise indicated, regressions include firm and year fixed effects and the standard lagged controls. Standard errors are clustered by firm and year and reported in parentheses. The sample period is 1985 to 2016. Figure IA1 reports the accompanying event study around the first rating as a selection diagnostic. The rating level term, quintile intercepts, and the transitory interaction are included. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table IA11: Robustness of the High Yield Contraction Estimates

	Net debt issuance		External finance	
	$p \times SPG \times Post$	N	$p \times SPG \times Post$	N
Baseline	-0.367**	5,252	-0.311*	5,252
	(0.161)		(0.188)	
$+\, p\times$ size $\times Post$	-0.459***	4,856	-0.441***	4,856
	(0.148)		(0.164)	
$+\, p\times$ leverage $\times Post$	-0.254*	4,854	-0.257	4,854
	(0.147)		(0.173)	
$+$ both interaction sets	-0.274*	4,854	-0.312*	4,854
	(0.149)		(0.165)	
FF48 $\times$ year fixed effects	-0.491***	5,214	-0.454**	5,214
	(0.174)		(0.195)	
Firms observed through 1993	-0.332*	4,740	-0.312	4,740
	(0.171)		(0.199)	
Excluding defaulted firms	-0.444***	5,028	-0.390**	5,028
	(0.136)		(0.164)	
Placebo: 1985 to 1989, $Post$ from 1987	-0.250	2,788	-0.333	2,788
	(0.268)		(0.315)	
Raw EBITDA in place of p, ε	-0.165	5,252	-0.182	5,252
	(0.159)		(0.192)	

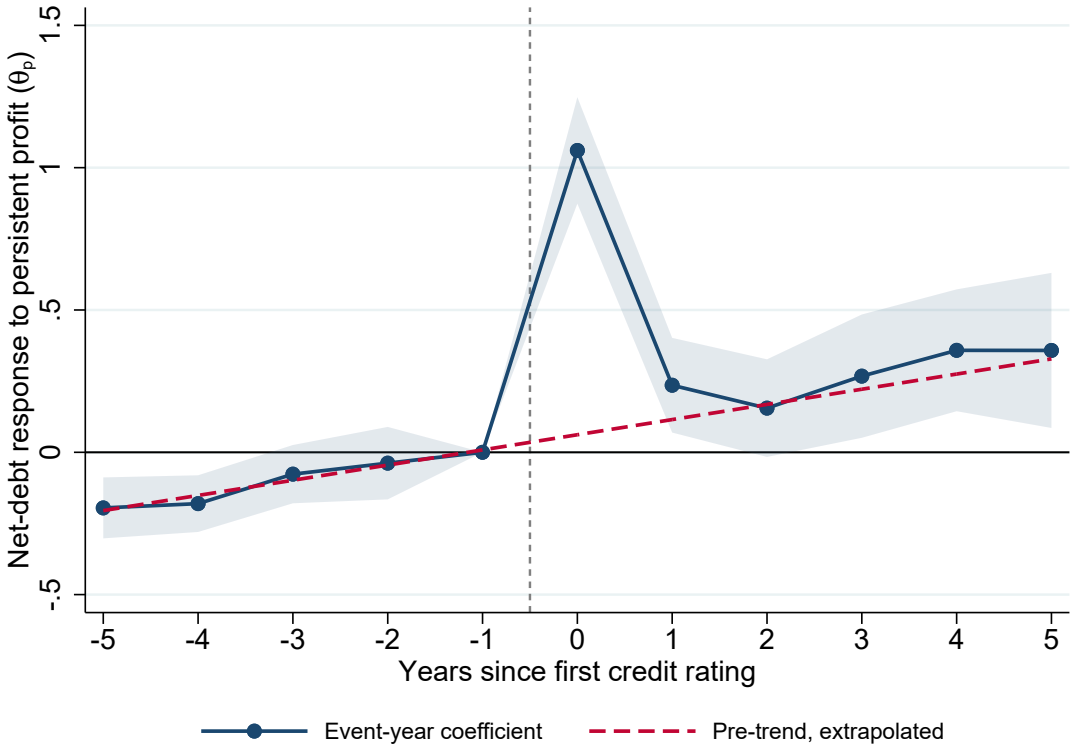
This table reports robustness tests for the differential change after the contraction in the persistent profit borrowing response, $p \times SPG \times Post$, reported in Table 6, Panel B. The baseline specification and sample follow Table 6. The size and leverage specifications allow the responses to both persistent and transitory profitability to vary with the indicated standardized lagged characteristic and with $Post$. The industry specification replaces year fixed effects with Fama and French 48 industry by year fixed effects. The survivorship specification restricts the sample to firms observed through fiscal 1993, and the default screen excludes firms rated C, SD, or D at any point during the sample period. The placebo restricts the sample to observations before 1990 and defines a pseudo post period beginning in fiscal 1987. The final specification replaces the persistent and transitory components with raw EBITDA and the corresponding interaction terms. Standard errors are clustered by firm and reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table IA12: Borrowing against the Defense Expansion: Alternative Treatment Definitions and the Financing Control

	(1) Persistent profit	(2) Transitory profit	(3) Debt stock / fy2000 assets	(4) $P(\text{issuance} > 2\%)$
Panel A. Rank, controlling for financed dependence × Post: rated contractors				
Rank × Post	0.025*	-0.010	0.243***	0.082
	(0.014)	(0.010)	(0.084)	(0.077)
Firm years	2,360	2,360	2,380	2,384
Firms			190	
Panel B. Rank, controlling for financed dependence × Post: never rated contractors				
Rank × Post	0.028*	0.010	-0.036	-0.032
	(0.015)	(0.012)	(0.069)	(0.045)
Firm years	3,412	3,412	3,497	3,508
Firms			304	
Panel C. Top quartile vs. rest: rated contractors				
Q4 vs. rest × Post	0.020**	0.002	0.057	0.141***
	(0.010)	(0.005)	(0.061)	(0.049)
Firm years	2,360	2,360	2,380	2,384
Firms			190	
Panel D. Top quartile vs. rest: never rated contractors				
Q4 vs. rest × Post	0.043***	0.014	0.008	-0.018
	(0.011)	(0.008)	(0.046)	(0.034)
Firm years	3,412	3,412	3,497	3,508
Firms			304	
Panel E. Above median exposure: rated contractors				
Above median × Post	0.015*	-0.007	0.127***	0.036
	(0.008)	(0.005)	(0.040)	(0.040)
Firm years	2,360	2,360	2,380	2,384
Firms			190	
Panel F. Above median exposure: never rated contractors				
Above median × Post	0.017	0.005	-0.049	-0.015
	(0.011)	(0.008)	(0.048)	(0.033)
Firm years	3,412	3,412	3,497	3,508
Firms			304	
Firm fixed effects			Yes	
Fiscal year fixed effects			Yes	
Sample years			fiscal 1994 to 2008; Post = fiscal 2001 to 2008	

This table reports the robustness of Table 7. Panels A and B reestimate its specification (Rank × Post) adding financed defense dependence × Post as a control, where financed dependence is the firm's pre-9/11 DoD obligations on contracts with progress, performance based, or advance payments or cost reimbursement terms, scaled by fiscal 2000 sales. The estimates are essentially unchanged. Panels C and D define treatment as the top quartile of unfinanced defense dependence versus the remaining three quartiles pooled, and Panels E and F define it as an above median indicator (quartiles Q3 and Q4 versus Q1 and Q2). Quartile cutpoints are computed across all contractor firms. Samples, outcomes, fixed effects, and clustering are as in Table 7. Estimated quartile by quartile against the zero exposure base, the rated panel's debt stock also drifts upward for the intermediate quartiles without a corresponding profitability response (Q3 debt stock response of 0.197, $p < 0.01$, versus a profitability response of 0.009). Given these firms' small exposures (below 0.22 percent of sales), this drift may reflect exposure correlated releveraging among rated contractors with intermediate dependence during the defense consolidation of the 2000s rather than the profit channel. The drift explains the pattern across the binary cuts. With the partially treated middle quartiles pooled into the control group (Panels C and D), the debt stock coefficient is mechanically smaller, while the issuance frequency contrast strengthens because the middle quartiles' issuance frequency drifts negative. The never rated profitability response is sharpest in Panel D, and the above median cut (Panel F) dilutes it by pooling the weakly responding third quartile into the treated group. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Figure IA1: Persistent Profit Borrowing Response around the First Credit Rating



This figure presents an event study around a firm's first observed S&P long term issuer rating. The plotted coefficients trace the net debt response to persistent operating profitability relative to the omitted period before the rating. The figure also reports the fitted trend before the rating, extrapolated into the period after it. The event study is a diagnostic for selection into rated status rather than a causal estimate of the effect of obtaining a rating.