More Frequent Than You Think: Revisiting Capital Structure Adjustment

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Abstract

This paper revisits the empirical evidence on capital structure adjustment and the prevalence of financing "inaction." We show that the conclusion of infrequent leverage adjustment is sensitive to two methodological choices: high adjustment thresholds and reliance on net balance-sheet changes. Using lower thresholds and gross flows from cash-flow statements, we find adjustment is substantially more frequent than previously documented—and that the pattern reveals substantial size-based heterogeneity. Smaller firms exhibit substantial inertia consistent with fixed costs; the largest firms (top 1% by assets) behave as if frictions are negligible. Frictionless recapitalization models thus better describe large-firm leverage dynamics.

Keywords: Capital Structure Adjustment, Balance Sheet, Cash Flow Statement, Size Heterogeneity

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1 Introduction

Leverage adjustment costs are a cornerstone of dynamic capital structure theory. Since Myers's (1984) influential observation that "large adjustment costs could possibly explain the observed wide variation in actual debt ratios," these frictions have been central to our understanding of corporate financing decisions. In theoretical models, fixed adjustment costs serve multiple critical roles: they provide a form of commitment that aligns active financing choices with static trade-off predictions (Fischer et al., 1989; Goldstein et al., 2001); they explain why firms might persistently deviate from their optimal capital structure; and they create a crucial friction that prevents firms from continuously recapitalizing to avoid default, thereby giving meaning to the "tradeoff" in tradeoff theory.[1] Without such costs, firms could face severe agency conflicts between different classes of investors, leading to leverage dynamics that diverge sharply from standard models (DeMarzo and He, 2021).

The prevailing empirical view, shaped significantly by the work of Leary and Roberts (2005), is that firms adjust their capital structures infrequently. Using quarterly financial statement data, they find that in approximately 72% of firm-quarters, companies make no significant changes to their debt or equity levels. This finding of widespread "inaction" has provided strong empirical support for dynamic models that feature substantial fixed adjustment costs, suggesting that firms only rebalance their leverage when deviations from the target become sufficiently large. Empirical researchers have therefore either focused on capital structure choices at "active" rebalancing points, or the determinants of the "inaction" region (e.g. Fischer et al., 1989; Strebulaev, 2007).

In this paper, we revisit this conclusion and argue that the picture of leverage adjustment is more nuanced than previously documented. Our analysis reveals that the perception of infrequent adjustment hinges critically on two methodological choices: the thresholds used to define a "significant" change and the reliance on balance sheet data. First, we show that the high frequency of inaction reported by Leary and Roberts (2005) is largely an artifact of their relatively high adjustment thresholds (e.g., 5% of assets for debt changes). When we explore a range of lower thresholds, a pattern of more frequent, smaller adjustments emerges.

Second, Leary and Roberts (2005) rely on balance sheet data to measure changes in debt financing. For our purposes, the cash flow statement has the advantage of showing actual debt inflows and outflows, allowing us to measure debt issuance and repayment separately. In contrast, balance sheet data only captures the quarterly net changes in debt, which reflect the difference between issuance and repayment.[2] The gross adjustment

[1] The literature starting from Leland (1994) and Leland and Toft (1996), followed by He and Xiong (2012); He and Milbradt (2014), invoke "covenants" to prevent firms from adjusting their book debt in the future, representing the extreme version of transaction cost.

[2] We discuss other important differences between balance sheet and cash flow statements in Section

data largely support our primary finding: debt and equity adjustment is more frequent than previously documented, especially for large firms.

We begin by documenting firms' *gross* adjustments in key liability categories–long-term debt, short-term debt, and equity—as a function of the adjustment threshold. For long-term debt, issuance frequencies are flatter than repayment frequencies, consistent with fixed costs of issuance (e.g., underwriting and market access) whereas repayment reflecting passive amortization. For equity, issuance frequencies rise sharply as the threshold approaches zero, while repurchase frequencies remain relatively flat. This contrast reflects higher adjustment costs for repurchases, whereas issuance—such as stock-based compensation and at-the-market offerings—can occur with lower or negligible fixed costs.[3]

Our most striking result emerges when we examine heterogeneity by firm size. The largest firms — e.g. those in the top 1% by assets — behave as if they face negligible fixed adjustment costs. For this group, financing activity is nearly continuous—for instance, long-term debt and equity issuance occur in 72.3% and 67% of total firm-quarter observations for these large firms. After including reductions, the resulting frequency of debt and equity adjustment for this group is also substantial, approaching 91.8% for debt changes and 77.8% for equity changes.[4] In contrast, smaller firms exhibit far more inertia, consistent with the presence of meaningful fixed costs. This heterogeneity suggests that a one-size-fits-all approach to modeling adjustment costs is inadequate. While models with significant fixed costs and inaction regions may aptly describe smaller firms, models assuming frictionless adjustment—such as that in DeMarzo and He (2021) and Hu et al. (2024)—appear more suitable for the largest, most economically significant firms.

We synthesize our empirical findings by developing a simple framework in which firms face size-independent fixed costs of adjustment and size-proportional benefits, generating a cutoff rule for adjustment. Our model predicts that smaller firms, for which fixed costs are relatively large, exhibit truncated small adjustments, leading to flat frequency-threshold profiles at low thresholds, lower unconditional adjustment rates, but larger conditional adjustments when they do act. In contrast, for larger firms, fixed costs are negligible, so adjustment frequencies decline smoothly with thresholds. The framework also accommodates differences across financial instruments via variation in effective fixed costs. Empirical evidence on long-term debt issuance and repayment strongly supports these predictions: unconditional adjustment rates and the probability of action increase

3.4—including M&A and financing leases—and how they affect the measurement of debt and equity adjustments in the context of our paper.

[3]Treating stock-based compensation (SBC) as a financing activity, we include it in our equity issuance measure. The prevalence of small equity issuances persists even when SBC is excluded; see Figure II. At-the-market offerings, in particular, sell shares gradually into the secondary market (through a designated broker-dealer) with negligible fixed costs.

[4]These numbers are based on a threshold of zero. If we use a 0.1% threshold, then long-term debt and equity issuance occur in 56.5% and 35% of total firm-quarter observations for these large firms, and the frequency of capital structure adjustment is 78.2% for debt changes and over 58.9% for equity changes.

with firm size, while conditional adjustment magnitudes display the opposite pattern, consistent with fixed-cost-driven truncation effects.

Transaction costs are a key friction shaping the optimal behavior of economic agents in standard models (Eberly, 1994; Stokey, 2008). In a classic single-agent dynamic optimization setting, transaction costs affect the frequency of actions, often by determining the size of the inaction region. However, as emphasized at the outset of the introduction, in the context of firm leverage dynamics, transaction costs affect not only shareholders' issuance strategies but, more importantly, their ability to commit to future leverage choices. Given agency conflicts between different classes of investors, this commitment channel is central to dynamic capital structure theories: Commitment shapes the equilibrium pricing of newly issued debt by rational investors and, in turn, feeds back into shareholders' optimal issuance decisions (DeMarzo et al., 2023). As a result, the commitment role of transaction costs determines the equilibrium outcome of the dynamic game between shareholders and debtholders, and as shown by DeMarzo and He (2021), the absence of commitment produces leverage dynamics and debt pricing that diverge sharply from static trade-off predictions. In their model, leverage mean reverts gradually, and tax benefits are fully offset by expected default costs in equilibrium, leaving little scope for the standard static trade-off theory to identify an "optimal" leverage.

The remainder is organized as follows. Section 2 describes the sample. Section 3 revisits Leary and Roberts (2005), documenting the sensitivity of inaction frequency to thresholds and to balance-sheet-versus-cash-flow data. Section 4 analyzes debt and equity issuance and repayment, presenting our main size-heterogeneity findings and a simple framework linking them to adjustment costs. Section 5 concludes.

2 Data and Sample

We use the quarterly Compustat–CRSP merged sample during the period of 1984-2018, constructed following Leary and Roberts (2005). Applying the same sample filters as in Leary and Roberts (2005) for the identical period 1984–2001,[5] we obtain a sample twice as large as that in the original study (259,938 firm-quarter observations versus 127,308), reflecting improvements in Compustat–CRSP linking and expanded coverage. By updating the sample to 2018, we nearly double it again (479,999 firm-quarter observations). Our sample ends in 2018 to minimize the impact of the accounting rule changes related to operating leases.[6]

[5]The filter removes financial (SIC 6000–6999) and utility (SIC 4900–4999) firms and drops observations with missing book assets, debt, or equity flows, or with fewer than 16 quarters. We do not apply the annual CPI adjustment of Leary and Roberts (2005), since it would mechanically introduce changes at the zero threshold.

[6]Financial Accounting Standards Board Accounting Standards Update No. 2016-02, Leases (Topic 842), requires all U.S. public firms to recognize most leases – including operating leases – on the balance

We use both balance sheet and cash flow statement data in our analysis. In contrast to the balance sheet, which reports only the total book value of outstanding debt, cash flow statements separately identify debt issuance (gross increases) and debt repayment (gross decreases). These flows are further disaggregated into short-term and long-term components for both issuance and repayment. On the equity side, cash-flow statements similarly report gross equity activities, distinguishing between issuances and repurchases of common and preferred stock.

We obtain cash-flow statement data both from Compustat–CRSP merged sample and from the Capital IQ website using the standard template and period type "YTD." Long-term debt issuance, long-term debt repayment, equity issuance, and equity repurchase are available in Compustat–CRSP merged sample and are used directly. We additionally use Capital IQ, which began providing comprehensive coverage in 1994 for cash flow statements, because issuance and repayment data for short-term debt and total debt are not available in Compustat–CRSP merged sample.[7] We therefore construct a merged Compustat–CRSP–Capital IQ sample spanning 1994–2018,[8] with 8,585 unique GVKEYs and 343,812 firm-quarter observations of which 7,502 unique GVKEYs and 269,088 observations are linked from Capital IQ.[9]

3 Debt and Equity Adjustment: Balance Sheet and Cash Flow

This section revisits Leary and Roberts (2005) by examine debt and equity adjustments using two types of financial statement data. We show that the assessment of adjustment frequency is sensitive to the inaction thresholds used to define changes, and that this conclusion holds consistently across both earlier and more recent sample periods.

sheet as a right-of-use (ROU) asset and a lease liability after 2018. This change increases reported debt for a substantial fraction of firms, even in the absence of active financing decisions.

[7] We begin with the GVKEY–Company ID crosswalk provided by Capital IQ and download cash-flow statements using Company ID. For foreign firms, Capital IQ may report cash-flow statements in local currency; we exclude these observations.

[8] Except for Panel (a) in Figure I, we use Compustat-CRSP merged sample to reproduce Leary and Roberts (2005), who used an earlier sample period.

[9] Our short-term debt sample (which is based on Capital IQ data) has about 78% of the coverage as our sample for long-term debt and equity. In addition, following Leary and Roberts (2005), we do not exclude observations involving M&A. Such transactions often involve non-cash consideration—transfer of existing liabilities to the acquirer or equity issued to the target—which appears on the balance sheet but not in cash-flow measures. Filtering on M&A is therefore unnecessary, especially since our contribution rests on cash-flow data.

3.1 Measuring Debt and Equity Changes

For each liability item (debt or equity), throughout we use "decreases/increases" as the *net* changes of this liability item over a given quarter; only the net change can be observed using balance sheet data. For cash flow statement, for each liability item we can measure gross changes in both directions; and throughout we use "issuance/repayment" for debt gross changes and "issuance/repurchase" for equity gross changes.[10] Finally, we use the term "adjustment" to refer to any net or gross changes. Detailed variable definitions are provided in Appendix A.

Balance sheet (net change). For any given quarter-firm observation, we first follow Leary and Roberts (2005) to define the corresponding debt increase and debt decrease (calculated relative to the lagged book asset value). More specifically, define

$$\Delta book\_debt_t \equiv book\_debt_t - book\_debt_{t-1};$$

a debt increase is then defined as an indicator of whether $\Delta book\_debt_t$ scaled by lagged book assets exceeds a threshold percentage:

$$\mathbb{1}\left\{\frac{\Delta book\_debt_t}{asset_{t-1}} > threshold\right\}. \tag{1}$$

Similarly, a debt decrease is defined as an indicator of the debt change as a percent of lagged assets is below a negative threshold:

$$\mathbb{1}\left\{\frac{\Delta book\_debt_t}{asset_{t-1}} < -threshold\right\}. \tag{2}$$

For equity, following Lemmon et al. (2008) we define Δequity as the product of the split-adjusted change in shares outstanding and split-adjusted average stock price in the interval $(t-1, t)$; this captures the change in equity in dollar terms. We then scale by lagged book assets and follow the same approach as in (1) and (2) to define whether an equity increase or decrease occurred. Finally, an observation is coded as a "capital structure adjustment" if either a debt or equity adjustment occurs; we emphasize that this label need not imply a change in the debt-to-asset ratio.

Cash flow statement (gross change). To understand the mechanism of adjustment, the major advantage of the cash flow statement is that it includes *gross* debt issuance and repayment, as well as equity issuance and repurchase.

[10] Leary and Roberts (2005) label four variables debt issuance, debt retirement, equity issuance, and equity repurchase, but each reflects net change only. Since we contrast gross with net changes, we adopt issuance/repayment (debt) and issuance/repurchase (equity) for gross flows.

More specifically, for long-term debt, the Compustat quarterly variable *"dltisy"* is in year-to-date format, which we first convert to a quarterly value (*"dltissued"*) by taking the first difference across quarters within each fiscal year. The same is done to convert year-to-date long-term debt repayment (Compustat quarterly variable *"dltry"*) to a quarterly value (*"dltrepaid"*).[11] An issuance or repayment indicator is defined analogously to (1)–(2). Specifically, long-term debt issuance is an indicator defined as follows:

$$\mathbb{1}\left\{\frac{dltissued_t}{asset_{t-1}} > threshold\right\}, \tag{3}$$

and long-term debt repayment is defined as follows:

$$\mathbb{1}\left\{\frac{dltrepaid_t}{asset_{t-1}} > threshold\right\}. \tag{4}$$

Short-term debt reporting conventions in the cash flow statement are different from that of long-term debt. Specifically, short-term debt with original maturities of three months or less is reported on a net basis, rather than separately disclosing gross issuance and repayments.[12] Consequently, we are constrained to examining only net changes in short-term debt. We explain the construction shortly when constructing "net changes from cash flow statement."

On the equity side, following Hovakimian et al. (2001) we first convert year-to-date sale of common and preferred shares (Compustat quarterly variable *"sstky"*) and purchase of common and preferred stocks (Compustat quarterly variable *"prstkcy"*) to quarterly terms. Each of them gives the gross quarterly equity issuance and repurchase for each firm (from financing activities). We then define occurrence of equity issuance and repurchase relative to a threshold as in (3) and (4).

Compared to Leary and Roberts (2005), we further include quarterly Stock-Based Compensation (SBC) to equity adjustment.[13] We measure SBC using an income-statement variable *"stkcoq"* from Compustat-CRSP merged quarterly data, which includes the fair value of restricted stock units (RSUs) or vesting options. There are two reasons for this treatment. First, given one of the goals of this paper is to compare balance sheet and cash flow statements, it is useful to recognize that SBC helps explain the wedge between these two statements.[14] Second, we take the perspective that SBC serves as a form of

[11] Different from $\Delta book\_debt_t$ in (2) which uses balance sheet information, long-term debt repayment based on cash flow statement information is in positive value.

[12] See FASB Codification ASC 230-10-45-7 through 230-10-45-9 for details.

[13] We note U.S. GAAP only mandated reporting of SBC in the cash flow statement after 2005. Our estimates prior to this change therefore underestimate the amount of equity issuance. Finally, to enable a direct comparison to Leary and Roberts (2005), in Figure II we also calculate the equity adjustment excluding SBC to match their approach.

[14] For example, vested RSUs bring no cash inflow but appear at market value on the balance sheet; option exercises are recorded at market price on the balance sheet but at strike price on the cash flow statement.

financing activities; in essence, SBC is as if the firm gets financing from their employees.

Net changes from cash flow statement. To enable a comparison to balance sheet information, we also construct "net" changes—for both debt and equity—from the cash flow statement by netting the gross amounts. We further call positive net changes "increases" while negative ones "decreases." We then apply the inaction threshold as in (1) and (2)—that is, an increase/decrease occurs when the net change exceeds the corresponding threshold. As before, we define capital structure adjustment as the occurrence of equity or debt adjustments exceeding a particular threshold.

For short-term debt, as discussed above, we can only construct net changes due to the reporting convention. Specifically, when only one of issuance or repayment is reported, we treat the observed flow as the net change. When both are reported separately, we compute the net change as issuance minus repayment. We then obtain quarterly net changes by first-differencing the year-to-date values. Note that this treatment likely understates the true frequency of short-term debt adjustments.

3.2 Inaction Thresholds

One crucial parameter to this empirical exercise is the threshold of "inaction" or "no adjustment." In Leary and Roberts (2005), the threshold rule is "5% for debt increase, debt decrease, equity issuance, and 1.25% for equity repurchase, " where equity repurchases use a 1.25% cutoff because many repurchase programs are relatively small.[15]

However, the above threshold—e.g., 5% for debt changes—is quite high given our goal of detecting the presence of fixed adjustment costs and the implied "inaction region." We therefore explore the following five thresholds in a decreasing order, where the thresholds are set in proportion to the original one denoted by "5:"

- 3: 3% for debt and 0.75% for equity adjustments;
- 1: 1% for debt and 0.25% for equity adjustments;
- 0.5: 0.5% for debt and 0.125% for equity adjustments;
- 0.1: 0.1% for debt and 0.025% for equity adjustments;
- 0.05: 0.05% for debt and 0.0125% for equity adjustments;
- 0: 0% for all items.

[15] On page 2600 of Leary and Roberts (2005), the authors state: "With the exception of equity repurchases, all spike definitions use the 5% cutoff. Equity repurchases use a 1.25% cutoff to avoid missing the numerous smaller-sized repurchase programs in place."

3.3 Reproducing Leary and Roberts (2005)

To reproduce Leary and Roberts (2005), note that they identify debt adjustments based on balance sheet data but use the cash flow statement for equity adjustments; and adjustment is defined as "net" changes.[16] Second, they do not include SBC when they measure the firm's equity adjustment.

Following the exact definition as in Leary and Roberts (2005), we reproduce their "capital adjustment" frequency, which counts one whenever there is a debt or equity adjustment (excluding SBC) exceeding 5% rule over a quarter. In Figure I, Panel (a), the far-right point of the blue curve for 1984–2001 is about 27%, slightly below the 28% reported in Leary and Roberts (2005). The same panel repeats the exercise for the extended sample 1984–2018 (dashed red), yielding 25.4%. Given the small difference across samples, we focus on the longer period going forward.

Panel (a) also shows that the frequency of adjustment rises sharply as the threshold is lowered: at the zero threshold, ∼94.7% of firm-quarters are coded as adjusting (during 1984–2018).

3.4 Balance Sheets versus Cash Flows

We now compare adjustment frequency derived from the two financial statements.

Adjustment on capital structure. Panel (b) of Figure I compares the capital structure adjustments based on "net changes" calculated from the two financial statements. Relative to balance sheet data, cash flow statement data suggest slightly fewer capital structure actions (so greater inaction), likely because accounting rules may generate mechanical changes in balance sheet items that are not reflected in cash flows. Nevertheless, the difference in implied inaction frequencies across the two datasets and, perhaps more importantly, the patterns that emerge as we vary the thresholds, are broadly similar.

Debt adjustment. Moving to specific types of adjustment, we first study debt adjustment in Figure I Panel (c). While there is no noticeable difference between balance sheet and cash flow data on debt decreases, on debt increase we observe small differences, with balance sheets recording a higher likelihood of debt increase (36%) than cash flows

[16] We clarify two points on the choices by Leary and Roberts (2005). First, they focus on *net* changes. While the net change is appropriate for testing the trade-off theory of capital structure, we are interested in firms' actual adjustment *activity* on both the equity and debt sides, and therefore *gross* changes constitute the more natural object of study. Second, their use of cash-flow data follows Hovakimian et al. (2001), whose footnote 4 defines equity adjustment as the difference between cash flow statement item 108 "Sale of Common and Preferred Stock" (SSTK) and item 115 "Purchase of Common and Preferred Stock" (PRSTKC). For the question that Leary and Roberts (2005) is after, it is unclear which measure is better; in fact, Lemmon et al. (2008) uses balance sheet information to measure equity changes, and Leary and Roberts (2010) adopt both in their analysis.

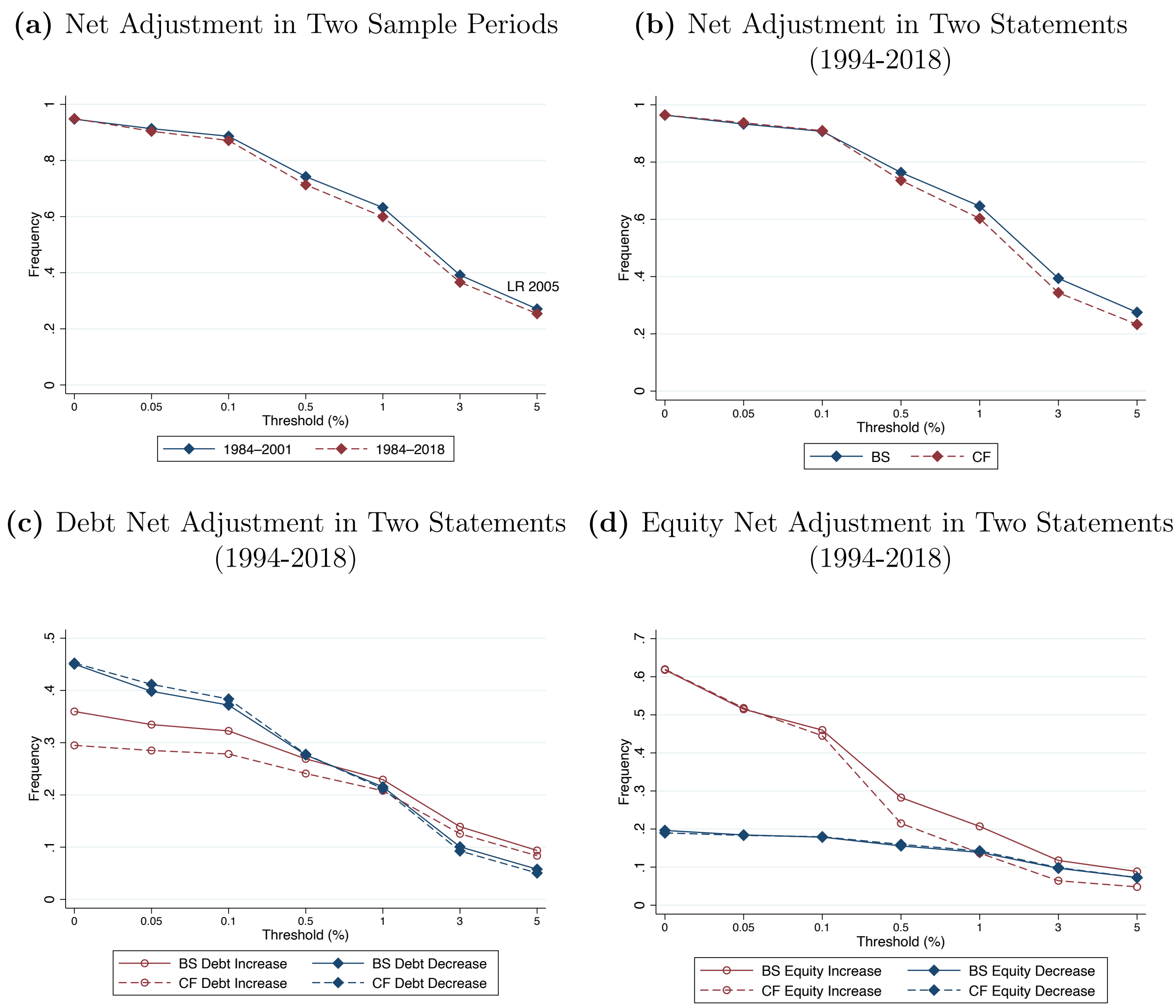

Figure I. Capital Structure Net Adjustment

This figure presents the frequencies of capital structure net adjustments across different thresholds. The adjustment definitions follow Leary and Roberts (2005) in Panel (a) for two sample periods: 1984–2001, as in Leary and Roberts (2005), and an extended period of 1984–2018. Panels (b)-(d) use both balance sheet data and cash flow statement information for the period 1994-2018, as specified in Section 3.1. For better comparison between two financial statements, "adjustment" in this figure is defined as occurrence when either debt or equity has a *net* change over a quarter exceeding a certain threshold; that is, we code a firm-quarter observation as with "capital structure adjustment" if the increase/decrease of equity/debt (relative to the lagged asset) is above a certain threshold. Cash-flow statement includes financing activities and SBC from operating activities. Detailed variable definitions are provided in Appendix A.

do (29.5%) at the zero threshold. In addition to M&A, another potential explanation of this differential is that financing leases are reflected immediately as new debt on the balance sheet, but will only be recorded subsequently as debt payments in the cash flow statement.

We highlight one noticeable pattern: At the 5% threshold we observe more debt increases than decreases, but when we lower the threshold toward zero, the frequency of debt decreases rises faster and ultimately exceeds that of debt increases. This pattern implies that debt decreases tend to be smaller and more regular than debt increases.[17]

[17] One can infer that there are ∼16.8% of no-debt-change observations in the 1984-2018 sample. Over 80% of these no adjustment cases are due to zero-leverage firms.

While the flattening of the debt increase frequency below the 0.1% threshold is suggestive of fixed costs, an important component of debt decreases is the repayment of maturing debt, which involves little cost.

Equity adjustment. Panel (d) reports equity changes from both statements. It shows that equity decrease from both statements match surprisingly well; and the gap in equity increase can be explained by M&A activities and the difference in treatment of SBC.[18] Note also that, for equity, increases become progressively steeper as the adjustment threshold is lowered, whereas decreases tend to flatten. This pattern is the opposite of what we observe for debt in Panel (c), suggesting the presence of fixed costs associated with share repurchases. In contrast, for debt, the fixed cost appears to be concentrated in issuance rather than repayment.

Overall, both data sources display similar patterns across thresholds (Figure I Panels (b)-(d)). Therefore we focus on cash flow statement data going forward.

4 Gross Adjustment of Debt and Equity

Cash flow statements separate gross issuance from gross repayment, providing a more granular view of firms' financing decisions than balance-sheet net changes. We therefore use this data going forward to enable a sharper characterization of firms' financing decisions and the timing of their leverage adjustments.

4.1 Issuance and Repayment Activities

Following the same adjustment definition in balance sheet data, we define issuance (repayment or repurchase) as occurring when the amount of debt or equity issued (repaid), scaled by lagged book assets, exceeds the threshold. We further separate debt into long-term debt and short-term debt (though for short-term note that only net changes are reported; see Section 3.1).

The results are reported in Figure II, with Panel (a) for debt issuance and repayment activities. Red diamonds (green triangles) denote the frequency of long-term debt issuance (remayment); as expected, both frequencies increase when lowering the threshold.

We highlight a clear empirical pattern: as a function of the threshold, the frequency of long-term debt issuance is flatter than that of long-term debt repayment. This pattern is consistent with the presence of a fixed cost associated with debt issuance but not with debt repayment; intuitively, issuance involves a costly underwriting and market-access process,

[18] As noted earlier, paying a target with new shares would affect the balance sheet but not the statement of cash flows. Conversely, stock-based compensation is not reflected in the balance sheet until options are exercised.

(a) Debt Gross Adjustment (b) Equity Gross Adjustment

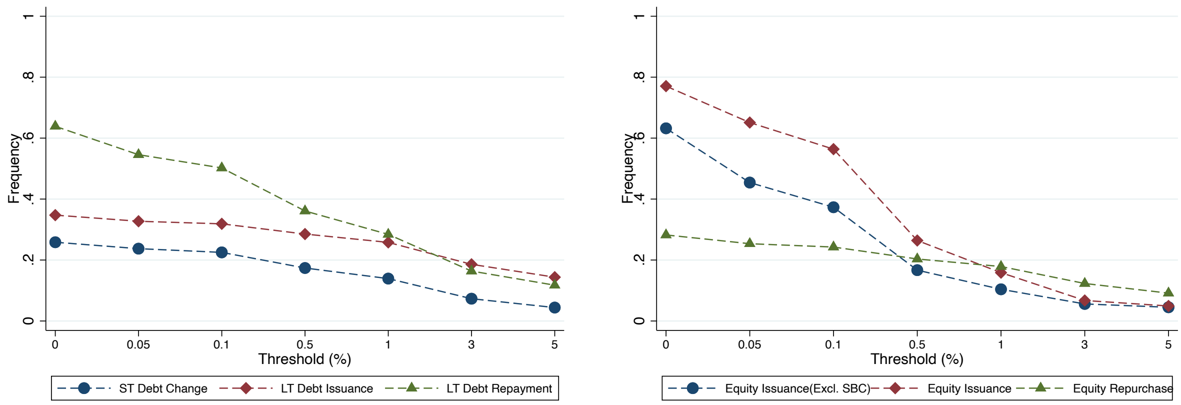

Figure II. Capital Structure Gross Adjustment (Cash Flow, 1994-2018)

This figure reports the frequencies of debt and equity gross adjustments using cash flow statement data during 1994–2018. An adjustment occurrence in a given quarter is identified when the dollar amount of gross adjustment, normalized by the lagged book assets, exceeds the corresponding threshold. Detailed variable definitions are provided in Appendix A.

whereas repayment largely reflects firms passively paying down outstanding obligations. Section 4.2 examines this further by firm size. Panel (a) also plots the adjustment on short-term debt (blue circles).

Panel (b) of Figure II reports equity issuance and repurchase. Issuance rises substantially as the threshold approaches zero, indicating frequent small issuances; repurchases stay roughly flat, consistent with a significant fixed cost (as in Panel (a)).

Finally, we clarify that the rising frequency of equity issuance toward the zero threshold, as shown in Panel (b) of Figure II, is not driven solely by SBC;[19] the alternative measure of equity issuance that excludes SBC exhibits a similar upward pattern when the threshold approaches zero (in blue circles). Instead, this is likely driven by activities such as at-the-market offerings of common or preferred shares, which involve relatively low fixed costs of equity issuance.[20]

4.2 Firm Size Heterogeneity

We now examine the frequency of adjustment by firm size. Figure III plots short-term debt changes and long-term debt issuance and repayment for different size groups in Panels (a) and (b)-(c), where firms are sorted into four groups based on their book assets at the end of the previous quarter: top 1%, top 10%, top 50%, and bottom 50%. Large firms engage more frequently in small debt adjustments (relative to their size) than small firms. In fact, for firms in the bottom 50% size group, there are almost no variations

[19] It is well recognized in the literature that SBC, that is, issues of stock to employees via options and grants, tends to be small but high frequency (Fama and French, 2005; Leary and Roberts, 2010).

[20] SBC represents about 20% of equity issuance. The rising frequency excluding SBC may still reflect activities on employee compensation: option exercises (number of units times strike price) are recorded as cash issuance, not SBC.

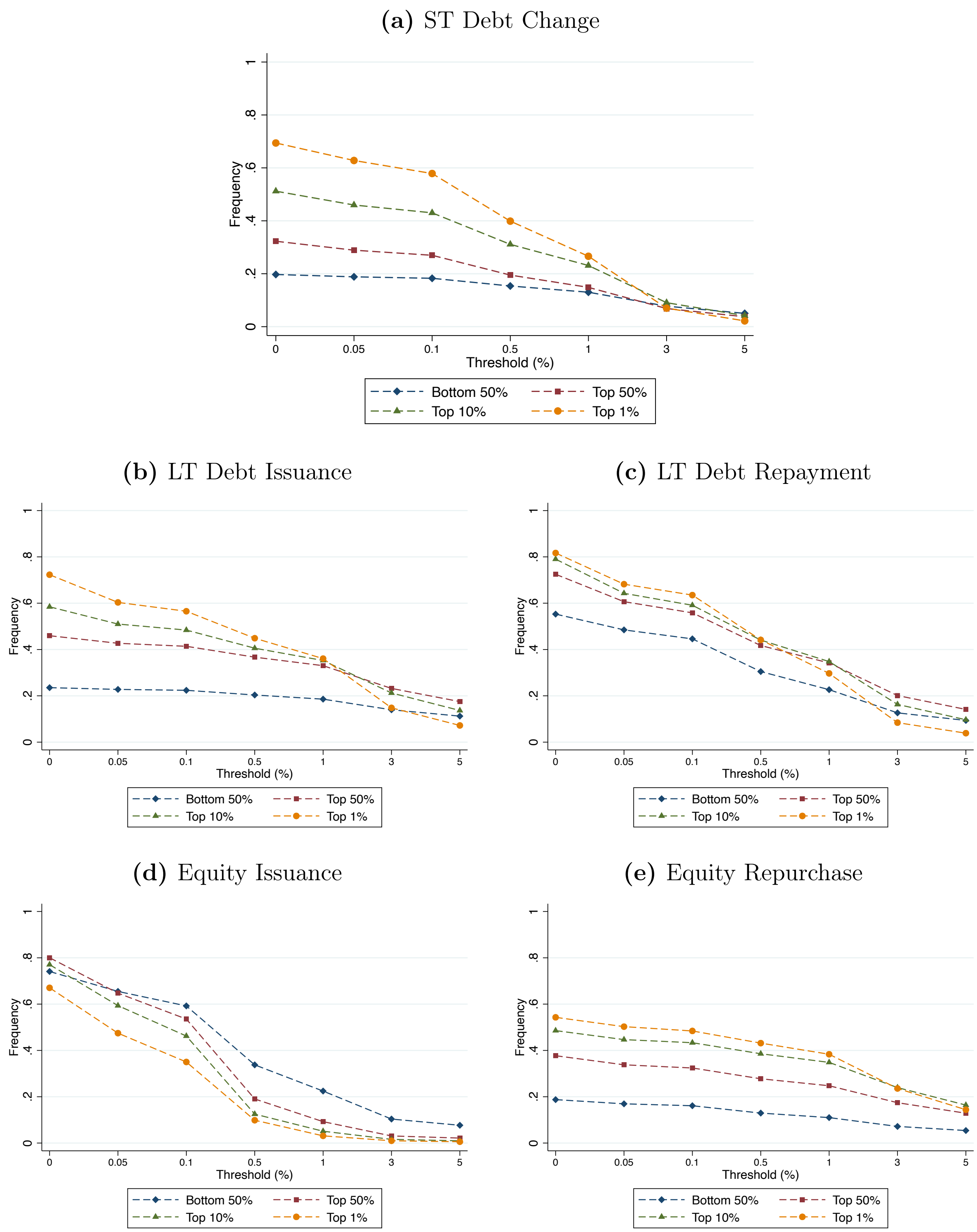

Figure III. Capital Structure Adjustments by Asset Size (Cash Flow, 1994-2018)

This figure reports the frequencies of debt and equity gross adjustments across different thresholds by firm asset size, using cash flow statement data for the period 1994–2018. An adjustment occurrence in a given quarter is identified when the dollar amount of gross adjustment, normalized by the lagged book assets, exceeds the corresponding threshold. Firms are grouped by lagged asset size into four categories: bottom 50%, top 50%, top 10%, and top 1%. The comparison highlights how debt adjustment behavior varies systematically across the firm size distribution. Detailed variable definitions are provided in Appendix A.

when we vary adjustment thresholds from 5% to zero. But for the largest (top 1%) firms, the change is significant: for short-term debt changes, the frequency rises from 2.2% to 69.4%; and for long-term debt issuance, the frequency rises from 7.2% to 72.3%.

Another interesting observation from comparing Panel (b) and Panel (c) is that small long-term debt repayment is more frequent than small long-term debt issuance. This pattern holds throughout, but is strongest for smaller firms. For example, for the bottom 50% by size (blue diamond dashed line), long-term debt repayments occur at more than double the frequency of long-term debt issuance. This asymmetry is quite natural: firms may have the option to repay long-term debt without any significant adjustment cost, while debt issuance typically involves some adjustment cost.

Finally, Figure III Panels (d)-(e) plot equity issuance and repurchase for firms across four size groups. Overall, we observe that larger firms issue less and repurchase shares more often than smaller firms;[21] in other words, larger firms pay out to their shareholders, while smaller firms finance from their shareholders. Focusing on low thresholds, Panel (d) reveals that firms frequently engage in small equity issuances. In contrast, Panel (e) shows that smaller firms tend to refrain from repurchasing small amounts of equity, while larger firms are much more inclined to do so. These patterns are likely driven by the fact that repurchases entail some fixed adjustment costs, whereas equity issuance often includes stock-based compensation for employees or at-the-market offerings, which involve little or no fixed costs.

4.3 Discussion and Additional Empirical Tests

To take a stock, the key empirical fact is not merely that debt or equity adjustment is more frequent than previously documented, but that its frequency varies sharply with firm size. That is, small firms display substantial inaction in debt issuance and equity repurchases, while the largest firms adjust much more frequently and show little evidence of a wide inaction region. A natural interpretation is that fixed adjustment costs matter, but their importance declines with firm size because many financing costs are fixed in dollar terms rather than proportional to assets. The same fixed cost can therefore generate substantial inertia for small firms while becoming nearly negligible for very large firms. The simple framework below makes this precise: it explains the relatively flat frequency-threshold relation for smaller firms, the immediate decline for the largest, and the increase in adjustment probability with size. We view it not as a full structural model, but as a parsimonious way to organize the evidence and clarify which features are naturally consistent with fixed adjustment costs.

[21]The overall pattern in Panel (d) remains the same if we exclude SBC from equity issuance.

A simple theoretical framework. Consider a firm i of size S_i that receives adjustment opportunities of random size $\tilde{\delta}_i \sim F(\cdot)$, where $\tilde{\delta}_i > 0$ is the gross adjustment as a fraction of firm size. The dollar benefit of acting on an opportunity is $b_i S_i \tilde{\delta}_i$, where $b_i > 0$ is a firm-specific parameter (independent of firm size) reflecting the value of capital structure optimization. Firms face a fixed cost $K > 0$ per adjustment, so firm i acts if and only if:

$$\tilde{\delta}_i \geq \bar{\delta}_i \equiv \frac{K}{b_i S_i}. \tag{5}$$

A firm can avoid incurring the fixed cost K for each transaction by setting up a trading desk ex ante, with infrastructure cost K_0; doing so is optimal when $b_i \geq \bar{b}(S_i)$, where $\bar{b}(S_i)$ is decreasing in S_i.[22] For such firms the fixed cost K drops to zero and hence $\bar{\delta}_i = 0$. Combining this with (5) the effective cutoff therefore becomes:

$$\bar{\delta}_i = \frac{K}{b_i S_i} \cdot \mathbf{1}\{b_i < \bar{b}(S_i)\}. \tag{6}$$

Equation (6) implies the threshold for action, $\bar{\delta}_i$, decreases with firm size S_i, and the frequency-threshold relationship is:

$$y_i(x) = 1 - F\big(\max(x, \bar{\delta}_i)\big). \tag{7}$$

That is, the frequency of adjustment y_i is flat for thresholds $x < \bar{\delta}_i$, and then strictly decreasing for $x > \bar{\delta}_i$.

Predictions. As firm size S_i increases, $\bar{\delta}_i$ declines through two reinforcing channels: directly, because the dollar benefit of any given percentage adjustment is larger; and indirectly, because larger firms are more likely to find it worthwhile to maintain a trading desk, setting $\bar{\delta}_i = 0$ entirely. Both forces reduce the flat region in $y_i(x)$ (that is, where $x < \bar{\delta}_i$), producing the continuously steepening frequency-threshold profiles across size groups in Figure III.

In our model, one can vary the fixed cost K to capture the heterogeneity across financing instruments, say a higher effective fixed cost for debt issuance than for debt repayment. A higher K raises $\bar{\delta}_i$ enlarges the inaction region, rendering a flatter frequency-threshold profile for issuance, consistent with Figure II.

The model has additional predictions for expected adjustment size, all driven by $\bar{\delta}_i$ declining with firm size:

[22] The threshold $\bar{b}(S_i)$ can be microfounded by assuming potential adjustments arrive at rate λ and K_0 is the per-period cost of maintain a trading desk. Then $\bar{b}$ is the endogenous level at which the expected savings from eliminating the per-transaction cost equal the infrastructure cost; that is, $\lambda K \cdot \Pr[\tilde{\delta}_i \geq K/(\bar{b}(S_i)S_i)] = K_0$. The left side is increasing in $\bar{b}$ for fixed S_i, ensuring $\bar{b}(S_i)$ is uniquely defined, and increasing in S_i for fixed $\bar{b}$, ensuring $\bar{b}(S_i)$ is decreasing in S_i.

1. The unconditional mean $\mathbb{E}[\tilde{\delta}_i] = \int_{\bar{\delta}_i}^{\infty}(1 - F(x))\,dx$ is strictly decreasing in $\bar{\delta}_i$, so it *increases* with firm size.

2. The conditional mean $\mathbb{E}\left[\tilde{\delta}_i \mid \tilde{\delta}_i \geq \bar{\delta}_i\right]$ *decreases* with firm size: as $\bar{\delta}_i$ declines, smaller opportunities enter the conditional distribution, pulling the conditional mean down from the upper tail of F.

3. The probability of action $\Pr\left[\tilde{\delta}_i \geq \bar{\delta}_i\right] = 1 - F(\bar{\delta}_i)$ *increases* with firm size.

We analyze these three patterns in Figure IV below.

Mean long-term debt adjustment: unconditional versus conditional. We provide further evidence on long-term debt issuance and repayment to support the above theoretical framework. For each firm-quarter observation, we calculate the debt adjustment scaled by the lagged asset as $\delta_{it} = \frac{\Delta_{it}}{A_{i,t-1}}$. We then sort each firm-quarter observation into six bins based on the firm's lagged book assets using fixed dollar cutoffs, defined as [10,50), [50,250), [250, 500), [500,1000), [1000,2500), [2500, $>$) million dollars.

We are interested in two versions of the mean adjustment within each bin. The first is the unconditional mean $\mathbb{E}\left[\delta_{it}\right]$, regardless whether adjustment occurs (i.e., $\delta_{it} > 0$) or not (i.e., $\delta_{it} = 0$). The unconditional mean can then be decomposed as the mean conditional on adjustment, that is, $\mathbb{E}\left[\delta_{it}|\delta_{it} > 0\right]$, and the probability of action $\Pr[\delta_{it} > 0]$:

$$\mathbb{E}\left[\delta_{it}\right] = \Pr\left[\delta_{it} > 0\right] \cdot \mathbb{E}\left[\delta_{it}\,|\delta_{it} > 0\right]. \tag{8}$$

Figure IV supports the theory's three predictions for long-term debt issuance (blue circles). Panel (a) shows the unconditional mean $\mathbb{E}[\delta_{it}]$ rising from bin 1 to bin 5, then falling for the top group—likely because size-homogeneity fails for mega-firms. Panel (b) plots both the probability of action $\Pr[\delta_{it} > 0]$ and the conditional mean $\mathbb{E}[\delta_{it} \mid \delta_{it} > 0]$. The probability rises monotonically with size (smaller firms face larger fixed costs), while the conditional mean follows the opposite pattern; the smallest bin lies slightly below the second, likely reflecting a different $\tilde{\delta}_i$ distribution at the bottom.

Long-term debt repayment (red triangles) shows a similar but weaker size-dependence, most salient for the probability of action; again, this is consistent with smaller fixed costs for debt repayment.

A natural alternative: diversification. As detailed in Supplementary Appendix B, a natural alternative mechanism is that the size–frequency pattern reflects diversification rather than fixed costs: larger firms aggregate more independent business units, mechanically generating small frequent adjustments. But it cannot explain the rarity of tiny long-term debt issuances among bottom 50% firms, nor the opposing size patterns of conditional and unconditional means in Figure IV. Supplementary Appendix B provides

(a) LT Debt Adjustment Unconditional Mean (b) LT Debt Adjustment Conditional Mean

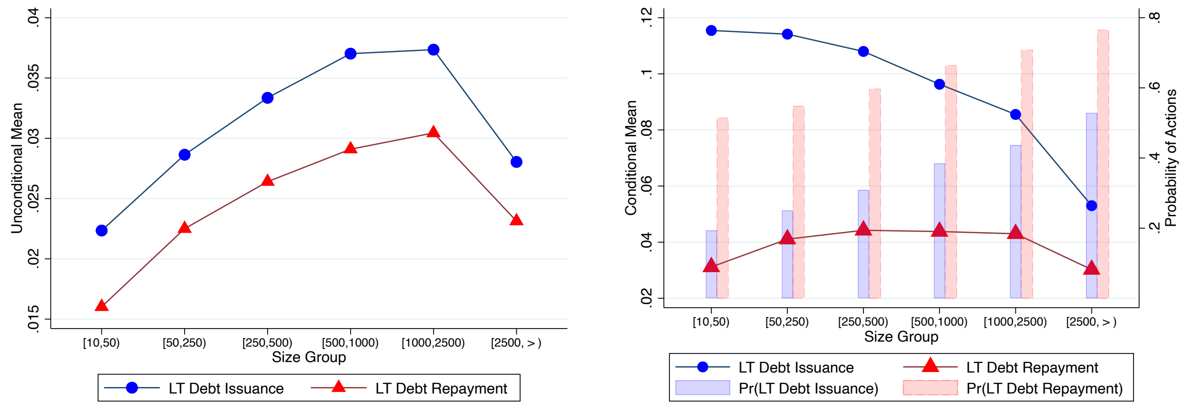

Figure IV. Debt Adjustment by Asset Size Group (Cash Flow, 1994-2018)

This figure reports the magnitude of debt adjustments across different thresholds by firm size, using cash flow statement data for the period 1994–2018. The long-term debt issuance (repayment) ratio is calculated as the dollar amount of long-term debt issuance (repayment), normalized by the lagged book assets. The unconditional mean is calculated based on all observations. The conditional mean is calculated for firm-quarters with non-zero long-term debt in both the current and previous quarters, and additionally with non-zero long-term debt issuance or repayment, respectively. Size groups are defined by lagged book assets (in million dollars). Detailed variable definitions are provided in Appendix A.

further supporting evidence by comparing single- and multi-segment firms in the top 10% of assets, matched on SIC3 industry-quarter and lagged size; Figure A.1 shows their long-term debt and equity adjustment frequencies are virtually indistinguishable, with differences appearing only for small short-term debt changes.

Persistence of small adjustments. Do these small, frequent adjustments accumulate into meaningful leverage changes, or instead offset over time? Supplementary Appendix C regresses future cumulative book debt and book leverage on current long-term debt issuance for top 1% firms, distinguishing 1–5% issuances from those above 5%. Small issuances persist over horizons up to six quarters; larger ones partially reverse. Frequent incremental adjustments thus appear at least as important as large, infrequent ones for these firms' leverage dynamics—consistent with capital structure managed through near-continuous fine-tuning rather than discrete rebalancing.

5 Concluding Remarks

We revisit the empirical evidence on capital structure adjustment in U.S. listed firms. The prevailing view, following Leary and Roberts (2005), is that firms adjust leverage infrequently, consistent with sizable fixed costs and wide inaction regions. We show that this conclusion hinges on two methodological choices: the threshold defining an adjustment and the reliance on balance-sheet data that capture only net changes. Lowering the threshold and using cash flow statements to measure financing activity reveals substantially more frequent adjustment.

At the same time, the pattern reflects pronounced heterogeneity by firm size rather than uniformly greater adjustment. Small firms continue to exhibit inertia, consistent with meaningful fixed costs in debt issuance and equity repurchases. In contrast, firms in the top 1% of the asset distribution display nearly continuous financing activity, with adjustment frequency rising sharply as the threshold falls. For these firms, the data align more closely with negligible fixed costs than with models featuring wide inaction regions.

These findings carry significant implications for both empirical and theoretical research. On one hand, they suggest caution in interpreting infrequent, large *net* balance-sheet changes as evidence of infrequent financing activity; *gross* financing flows contain vital information about active capital structure management that is often obscured in net measures. Furthermore, they imply that a single, universal model of adjustment costs is unlikely to fit the cross-section of firms. For the largest, most economically significant firms, the absence of an empirical inaction region suggests that the "commitment" provided by adjustment frictions is largely missing, making models—such as DeMarzo (2019); DeMarzo and He (2021); Hu et al. (forthcoming)—that allow nearly frictionless recapitalization a more relevant benchmark for thinking about their leverage dynamics.

More broadly, our results suggest that the empirical relevance of dynamic tradeoff models depends not only on whether adjustment costs exist, but on where in the firm-size distribution one looks. Acknowledging this heterogeneity is essential for interpreting existing evidence, calibrating dynamic capital structure models, and evaluating the role of financing frictions in corporate decisions.

Beyond the persistence of leverage adjustment discussed toward the end of Section 4.3, two further directions merit investigation. One is to quantify how adjustment costs vary across specific financing instruments, leveraging institutional features such as underwriting requirements to discipline these differences. The other is to incorporate these empirical patterns into structural models that allow adjustment frictions to decline with scale, enabling explicit analysis of the joint determination of firm size, financing activity, and equilibrium leverage.

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Supplementary Appendix

Appendix A Variable Definitions

Balance Sheet Statement:

- *Total Book Debt*: $bdq_t = dlcq_t + dlttq_t$
- *Debt Increase*: an indicator of $\frac{bdq_t - bdq_{t-1}}{atq_{t-1}} > threshold$
- *Debt Decrease:* an indicator of $\frac{bdq_t - bdq_{t-1}}{atq_{t-1}} < -threshold$
- *Equity Increase:* an indicator of $\frac{(cshoq_t - cshoq_{t-1} * \frac{ajexq_{t-1}}{ajexq_t}) * (prccq_t + prccq_{t-1} * \frac{ajexq_t}{ajexq_{t-1}})/2}{atq_{t-1}} > threshold$
- *Equity Decrease:* an indicator of $\frac{(cshoq_t - cshoq_{t-1} * \frac{ajexq_{t-1}}{ajexq_t}) * (prccq_t + prccq_{t-1} * \frac{ajexq_t}{ajexq_{t-1}})/2}{atq_{t-1}} < -threshold$

Cash Flow Statement:

- *Net Debt Change: net debt issued* is the difference between *total debt issued* and *total debt repaid*. *net debt change*$_t$ is calculated by taking the first difference of the year-to-date value of *net debt issued* within a GVKEY-fiscal year. Data Source: Capital IQ
- *Net Equity Change:* $sstk_t + stkcoq_t - prstkc_t$, where $sstk_t$ and $prstkc_t$ are calculated by taking the first difference of the year-to-date value *sstky* and *prstkcy* within a GVKEY-fiscal year. Stock-based compensation ($stkcoq_t$) is included as part of the equity issuance.
- *Debt Increase:* an indicator of $\frac{net\ debt\ change_t}{atq_{t-1}} > threshold$. Data Source: Capital IQ
- *Debt Decrease:* an indicator of $\frac{net\ debt\ change_t}{atq_{t-1}} < -threshold$. Data Source: Capital IQ
- *Equity Increase*: an indicator of $\frac{net\ equity\ change_t}{atq_{t-1}} > threshold$
- *Equity Decrease:* an indicator of $\frac{net\ equity\ change_t}{atq_{t-1}} < -threshold$
- *Net Short-term Debt Change:* when only one of *short-term debt issued* or *short-term debt repaid* is reported, the observed flow is the net change; *net short-term debt change* is calculated as *short-term debt issued* - *short-term debt repaid* when both of them are reported. *net short-term debt change*$_t$ is calculated by taking the first difference of the year-to-date value *net short-term debt change* within a GVKEY-fiscal year. Data Source: Capital IQ
- *Short-term Debt Change:* an indicator of $|\frac{net\ short-term\ debt\ change_t}{atq_{t-1}}| > threshold$. Data Source: Capital IQ
- *Long-term Debt Issuance:* an indicator of $\frac{dltissued_t}{atq_{t-1}} > threshold$, where $dltissued_t$ is calculated by taking the first difference of the year-to-date value *dltisy* within a GVKEY-fiscal year.
- *Long-term Debt Issuance Unconditional Mean:* $\frac{dltissued_t}{atq_{t-1}}$, where $dltissued_t$ is calculated by taking the first difference of the year-to-date value *dltisy* within a GVKEY-fiscal year. The unconditional mean is calculated for all observations.

- *Long-term Debt Issuance Conditional Mean:* $\frac{dltissued_t}{atq_{t-1}}$, where $dltissued_t$ is calculated by taking the first difference of the year-to-date value *dltisy* within a GVKEY-fiscal year. The conditional mean is calculated for firm-quarters with non-zero long-term debt in both the current and previous quarters, and additionally with non-zero long-term debt issuance.
- *Pr(Long-term Debt Issuance):* $\frac{Long-term\ debt\ issuance\ unconditional\ mean_t}{Long-term\ debt\ issuance\ conditional\ mean_t}$
- *Long-term Debt Repayment:* an indicator of $\frac{dltrepaid_t}{atq_{t-1}} > threshold$, where $dltrepaid_t$ is calculated by taking the first difference of the year-to-date value *dltry* within a GVKEY-fiscal year.
- *Long-term Debt Repayment Unconditional Mean:* $\frac{dltrepaid_t}{atq_{t-1}}$, where $dltrepaid_t$ is calculated by taking the first difference of the year-to-date value *dltry* within a GVKEY-fiscal year. The unconditional mean is calculated for all observations.
- *Long-term Debt Repayment Conditional Mean:* $\frac{dltrepaid_t}{atq_{t-1}}$, where $dltrepaid_t$ is calculated by taking the first difference of the year-to-date value *dltry* within a GVKEY-fiscal year. The conditional mean is calculated for firm-quarters with non-zero long-term debt in both the current and previous quarters, and additionally with non-zero long-term debt repayment.
- *Pr(Long-term Debt Repayment):* $\frac{Long-term\ debt\ repayment\ unconditional\ mean_t}{Long-term\ debt\ repayment\ conditional\ mean_t}$
- *Equity Issuance:* an indicator of $\frac{sstk_t+stkcoq_t}{atq_{t-1}} > threshold$, where $sstk_t$ is calculated by taking the first difference of the year-to-date value *sstky* within a GVKEY-fiscal year. Stock-based compensation ($stkcoq_t$) is included as part of the equity issuance.
- *Equity Issuance (Excluding SBC):* an indicator of $\frac{sstk_t}{atq_{t-1}} > threshold$, where $sstk_t$ is calculated by taking the first difference of the year-to-date value *sstky* within a GVKEY-fiscal year.
- *Equity Repurchase:* an indicator of $\frac{prstkc_t}{atq_{t-1}} > threshold$, where $prstkc_t$ is calculated by taking the first difference of the year-to-date value *prstkcy* within a GVKEY-fiscal year.

Note: Unless otherwise noted, variables are sourced from the Compustat-CRSP Merged dataset.

Appendix B Alternative hypotheses and additional evidence

We discuss other alternative theories that may explain the empirical pattern we document based on the cash-flow statement. One reasonable alternative mechanism, which does not involve fixed cost but still generates the pattern in Figure III, is an additive model of firm growth.[1] Suppose that firms are large because they have many different and independent business units. Each business unit i can take an adjustment of $\tilde{\delta}_i > 0$ with $\tilde{\delta}_i \sim F(\cdot)$; without fixed adjustment cost the firm will take all adjustment activities.

What is the implication of this alternative model on firm size and frequency-threshold relationship as we plot in Figure III? For larger firms, the simple diversification effect will imply a steeper curve Panel (b)—that is, large firms, relative to their size, have more, frequent small adjustments but fewer, infrequent large adjustments.

Clearly, this alternative model alone cannot explain the key pattern that, as shown in Panel (b) in Figure III, the bottom 50% firms rarely have tiny long-term debt issuance. Also, without truncation (arising from fixed costs), it is conceptually difficult to generate the opposite patterns of conditional and unconditional means shown in Figure IV.

We present another empirical test that does not support this alternative view. Taking advantage of the Compustat data on business segments, we examine differences in capital structure adjustments across firms with varying organizational complexity. Specifically, we merge Compustat segment data to measure the number of business segments in which a firm operates. Because in general only large firms might have multiple business segments, to hold asset size relatively constant, we restrict the sample to firms in the top 10% of the asset distribution (by lagged book assets), and then match each single-segment firm to a multi-segment firm in the same SIC3 industry-quarter. We further limit the lagged book asset ratio between multi- to single-segment firms to the range of [90%, 110%].

Figure A.1 compares debt and equity adjustment behavior between single- and multi-segment firms.[2] Interestingly, we observe little difference in long-term debt and equity adjustments (Panels (b)-(e)) across two groups. For short-term debt changes in Panel (a), differences emerge only at low thresholds, indicating that multi-segment firms engage in more small short-term debt adjustments. One explanation is that short-term debt reflects segment-level business decisions that are not perfectly correlated across segments, whereas long-term debt is more likely to reflect centralized, headquarters-level decisions.

[1]One can view the model we propose in Section 4.3 is a multiplicative model, as the activity and benefit scale with size.

[2]Separating the sample at the median number of segments (three) yields qualitatively similar patterns.

Appendix C Are small leverage adjustments persistent?

If large firms engage in frequent, small leverage adjustments, as shown in Figure III, a natural question is whether these smaller incremental changes are persistent, and thereby accumulate into economically meaningful shifts in leverage over time, or instead largely offset one another.

To provide a preliminary answer, we focus on firms in the top 1% by size and examine how their future net changes in leverage respond to long-term debt issuance in the previous quarter. In particular, we study whether long-run responses differ by adjustment size by estimating the following regression for $k \geq 1$:

$$\Delta lev_{i,t+k} = \beta_1 \mathbb{1}\left\{\frac{dltissued_t}{asset_{t-1}} > 1\%\right\} + \beta_5 \mathbb{1}\left\{\frac{dltissued_t}{asset_{t-1}} > 5\%\right\} + control_{i,t} + \alpha_i + \alpha_t + \varepsilon_{it}. \quad (9)$$

We consider two measures of $lev_{i,t+k}$: i) the cumulative change in future book debt $\Delta BD_{i,t+k} \equiv BD_{i,t+k} - BD_{i,t}$ scaled by current assets, and ii) the cumulative change in book leverage, $\Delta BL_{i,t+k} \equiv BL_{i,t+k} - BL_{i,t}$. The omitted category in regression (9) consists of very small long-term debt issuances ($< 1\%$). Accordingly, β_1 captures the additional effect of issuing long-term debt in the 1–5% of assets range, while β_5 captures the incremental effect of issuing more than 5% relative to the 1–5% range.

Table A.1 presents the results, with Panel A focusing on $k = 1$. Column (1) includes time fixed effects and shows that, in the subsequent quarter, book debt increases slightly ($\beta_1 = 0.3\%$) for firms issuing long-term debt in the 1–5% of assets range, suggesting that small issuances are followed by additional issuance in the subsequent quarter, potentially leading to further amplification. In contrast, book debt declines ($\beta_5 = -0.7\%$) for firms issuing more than 5% of assets in the current quarter, relative to those in the 1–5% range. Column (3) reveals a similar pattern for book leverage, while columns (2) and (4) show that these results remain robust after including firm fixed effects and controlling for lagged leverage.

Turning to a longer horizon with $k = 6$, Panel B reports statistically insignificant estimates of β_1, suggesting that small adjustments (1–5% range) tend to persist. In contrast, larger adjustments (above 5%) exhibit partial reversal over time ($\beta_5 = -1.9\%$).

Our preliminary analysis suggests that frequent, incremental adjustments play a role at least as important as that of large, infrequent adjustments in shaping leverage dynamics, particularly for large firms. A more refined empirical design, as well as a systematic comparison across firm size groups, is left to future research; and distinguishing these patterns empirically would sharpen the link between the adjustment frequencies we document and the equilibrium leverage dynamics implied by competing theoretical frameworks.

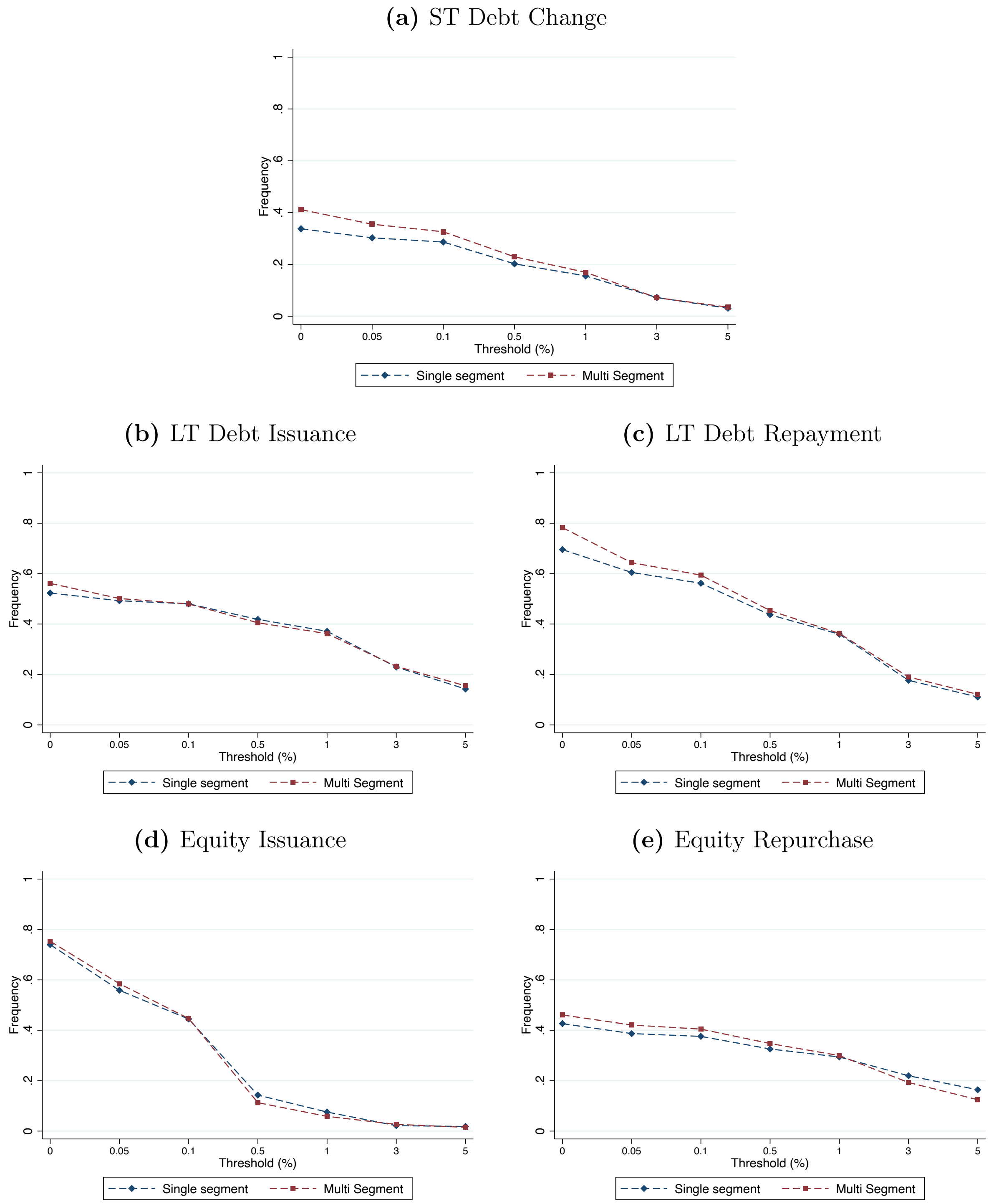

Figure A.1. Capital Structure Adjustments by Number of Segments (Cash Flow, 1994-2018)

This figure reports the frequencies of capital structure adjustments across different thresholds by single vs. multi-segment firms; the sample is firms with top 10% asset, cash flow statement data, during the period 1994-2018. Single-segment firms those with only one business segment reported in the Compustat Segment database. Each single-segment firm is matched to a multi-segment firm within the same SIC3 industry-quarter, with the ratio of lagged book assets (multi- to single-segment firm) constrained to the range of 90% to 110%. An adjustment occurrence in a given quarter when the dollar amount of gross adjustment, normalized by the lagged book assets, exceeds certain threshold. Detailed variable definitions are provided in Appendix A.

Table A.1. The Persistence of Leverage Adjustment

This table examines the persistence of leverage adjustment for firms with top 1% size based on (9). The unit of observation is at the firm-quarter level. In Columns (1) and (2), the dependent variable is the cumulative change in future book debt, $BD_{i,t+k} - BD_{i,t}$, scaled by today's assets. In Columns (3) and (4), the dependent variable is the cumulative change in book leverage, $BL_{i,t+k} - BL_{i,t}$. Standard errors are clustered at the firm level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1%, respectively.

(a) $k = 1$

	$(BD_{t+1} - BD_t)/Asset_t$		$BL_{t+1} - BL_t$	
	(1)	(2)	(3)	(4)
D($\frac{dltissued_t}{asset_{t-1}}$>1%)	0.003***	0.003**	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
D($\frac{dltissued_t}{asset_{t-1}}$>5%)	-0.007**	-0.007*	-0.005**	-0.006**
	(0.003)	(0.004)	(0.002)	(0.003)
$Book\ Leverage_{t-1}$		-0.042***		-0.067***
		(0.014)		(0.012)
Adjusted R^2	0.014	0.029	0.033	0.070
Time FE	Yes	Yes	Yes	Yes
Firm FE		Yes		Yes
Observations	3,160	3,151	3,201	3,191

(b) $k = 6$

	$(BD_{t+6} - BD_t)/Asset\_t$		$BL_{t+6} - BL_t$	
	(1)	(2)	(3)	(4)
D($\frac{dltissued_t}{asset_{t-1}}$>1%)	0.004	-0.002	-0.004	-0.008***
	(0.007)	(0.007)	(0.003)	(0.003)
D($\frac{dltissued_t}{asset_{t-1}}$>5%)	-0.017	-0.019*	-0.009	-0.012**
	(0.010)	(0.011)	(0.007)	(0.005)
$Book\ Leverage_{t-1}$		-0.281***		-0.387***
		(0.064)		(0.052)
Adjusted R^2	0.029	0.163	0.079	0.436
Time FE	Yes	Yes	Yes	Yes
Firm FE		Yes		Yes
Observations	2,820	2,812	2,859	2,851