Financing Asset Growth

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ABSTRACT: We document the existence of a debt anomaly that is in addition to the asset growth anomaly: for a given asset growth rate, firms that issue more debt, as well as firms that retire more debt, have lower stock returns in the 12 months starting 6 months after the calendar year of asset growth. Exploring the reasons for debt issuance, we find that managers of firms for which analyst expectations are more over-optimistic, which suffer from declining investment profitability, and whose earnings-price ratios are relatively high are inclined to rely more heavily on debt financing. On the other hand, firms that retire more debt for a given asset growth rate tend to have improving profitability but to be over-priced. We also find that the financing decision is influenced by the prior debt ratio, the asset growth rate, profitability, and CEO pay sensitivity. We interpret our results in terms of managerial incentives, signaling, and market timing.

KEYWORDS: Capital structure, financing policy, managerial incentives

JEL-CLASSIFICATION: G12, G14, G32

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1 Introduction

In this paper we present new evidence on the controversial issue of corporate capital structure, by examining the way that corporations finance corporate growth. We take the view advanced by Myers (1984) and Baker and Wurgler (2002) that corporate capital structures are the result of past financing decisions, which implies that the best way to understand current capital structures is to analyze the financing decisions that gave rise to them. Our starting point is the asset growth anomaly, the finding that asset growth is a strong predictor of future stock returns: firms that grow rapidly have lower future returns.[1] We confirm that, parallel to the asset growth anomaly, there is a debt growth anomaly: firms whose growth in debt financing is high relative to their asset value have low future stock returns, while firms whose debt growth is low or negative have high future stock returns. Moreover, we show that the debt growth anomaly interacts with the asset growth anomaly: for example, for value weighted portfolios, the negative returns on the highest asset growth decile of firms in months (7,18) are mainly accounted for by the subsets of firms within this decile that have either the highest debt growth rate or the highest debt retirement rate. The importance of financing for future returns is consistent with prior evidence that capital raising activities, such as issues of stock or debt, lead to lower future returns,[2] while returns of capital to investors through share repurchases or debt retirements are associated with higher future stock returns. It is also consistent with the finding of Cooper *et al.* (2008) that only debt financed investment is significantly associated with lower future returns for *medium* size firms, while only stock financed investment is associated with lower future returns for *large* firms.[3]

Our main contribution is to provide empirical evidence of a link between corporate financing decisions and managerial incentives and to show how this link provides an explanation for the poor returns that are realized by firms that rely heavily on debt to finance their asset growth. We advance a new motive for debt financing which we label the 'making the numbers' motive. The basic idea is that managers are concerned with reported earnings among other things, and that they will take account of the effect of financing decisions on reported earnings. Debt financing will tend to raise reported earnings per share when the cost of debt is less than earnings-price ratio, and managerial concern with reported earnings will be especially acute when managers are under pressure to perform as a result of poor past performance, of over-optimistic analyst expectations, or of declining profitability.

Considering first the decision to issue or to retire debt, we find that firms are more likely to issue debt the higher is their asset growth rate, the lower is their debt to assets ratio, their asset risk, past stock returns and market-to-book ratio. They are also more likely to issue debt the higher is their earnings-price ratio, and it is when the earnings-price ratio is high relative to the cost of debt

[1] Important references include Titman, Wei and Xie (2004) and Cooper *et al.* (2008). See also Polk and Sapienza(2008).

[2] Spiess and Affleck-Graves (1999).

[3] Fama and French (2008) argue that 'there is no asset growth anomaly in the average returns on the big stocks that account for more than 90% of total market cap.' Daniel and Titman (2006) find that future returns are strongly negatively related to growth that is financed by stock issuance.

financing that debt financing will tend to increase reported earnings per share. We also find that firms whose managers are under pressure because of over-optimistic analyst expectations or future declines in operating profitability are more likely to choose to issue debt than to retire it.

We find that for firms that do issue debt, stock returns in the year following the asset growth and debt financing are strongly negatively related to the amount of debt financing, but not to asset growth; that they are positively related to changes in returns on assets and on equity and negatively related to analyst earnings forecast errors. Moreover, we show that future changes in returns on assets and equity are strongly negatively related to debt financing and (more weakly) positively related to asset growth. Similarly, analyst earnings forecast errors are strongly positively related to debt financing and negatively related to asset growth. Thus debt financing forecasts a deterioration in fundamentals which is not fully anticipated by analysts, and when the deterioration is realized negative stock returns ensue.

For debt retiring firms on the other hand, stock returns in the year following the debt retirement are negatively related to debt retirement, especially for the high asset growth deciles of firms and, for these firms, stock returns are also negatively related to asset growth. Future abnormal stock returns are positively related to changes in returns on assets and equity and negatively related to analyst forecast errors for retirers as for issuers. In contrast to the findings for debt issuers, for retirers futures changes on returns on assets and on equity are strongly positively to debt retirement and (less strongly) to asset growth.

The finding that debt issuance or retirement is important in predicting future stock returns raises issues that are additional to those raised by the growth anomaly, because few topics in finance are as contentious as corporate debt policy. Since the classic contribution of Modigliani-Miller, a plethora of explanations have been offered for corporate financing decisions, including taxes and bankruptcy costs, the free cash flow theory which emphasizes the disciplinary role of debt, the indirect costs of debt associated with debt overhang, a 'pecking order' of financing choices induced by asymmetric information, asset substitution or risk shifting, and asset fire sales.[4] However, despite the many empirical studies that have sought to test these hypotheses, Welch (2004) writes that 'corporate issuing motives themselves remain largely a mystery.' We suggest that an important source of corporate financing motives lies in the incentives of managers, who are concerned both with compensation and with security of tenure, to meet or beat the (accounting) earnings expectations of analysts and investors. We do not claim that this is the whole story. Undoubtedly, other considerations also are at work, and indeed we find evidence that is consistent with market timing and signaling as well as with managing earnings. As Myers (2002) remarks 'There is no universal theory of capital structure, and no reason to expect one...Each factor could be dominant for some firms or in some circumstances, yet unimportant elsewhere.' We have suggested that pressure on managers to raise reported earnings will

[4] Myers (1984), Myers and Majluf (1984).

be especially strong when managers are under pressure to perform, and that is what we find.

The 'making the numbers' or MTN hypothesis, according to which managerial decisions are influenced by their effects on reported earnings, is motivated by the observation that extant executive compensation schemes do not take explicit account of risk, being typically based on share prices, earnings per share, or return on equity metrics. Other things equal, managers would prefer that the risk of their firms be low since much of the manager's wealth and human capital are tied up in the firm. However, to the extent that most compensation contracts have option like features as a result of limited liability, a manager has an incentive to increase risk through leverage, and to 'roll the dice', when future prospects look relatively poor.[5] The MTN hypothesis is consistent with the survey evidence of Graham and Harvey (2001) that 'when issuing equity, respondents are concerned about earnings per share dilution and recent stock price appreciation'.[6] It is also consistent with the evidence reported by Graham *et al.* (2005) that managers place a very high importance on earnings rather than on cash flows or other metrics,[7] as well as with the evidence of Zeckhauser *et al.* (1999) that managers manage earnings to beat analyst expectations.

The MTN hypothesis is also motivated by the suspicion aroused by recent public discussions about bank capital, that managers of banks do not accept the Modigliani-Miller framework but believe instead that equity is more expensive than debt, which leads them to rely more on debt financing when the future returns on investments are expected to be low in order to achieve their target earnings per share and return on equity.[8] Indeed, some academics appear to share this view: for example, Mishkin and Aekin (2009, p. 444) write that that: 'Banks do not want to hold too much capital because by so doing they will lower the returns to equity holders.' Unlike behavioral models of corporate finance,[9] the MTN hypothesis does not presume irrationality on the part of either investors or managers. Rather it assumes that managers are rational but that at least a part of managerial compensation depends on observable accounting variables and that managers rationally take account of this in making decisions.

Turning to the debt issuance decision itself, we find in support of the MTN hypothesis that high debt issuance firms tend to be firms that are under stress in terms of past performance, excessive

[5] Matsunaga and Park (2001) find that failure to meet analysts consensus estimates results in paycuts for the CEO.

[6] They also find 'very little evidence that executives are concerned about asset substitution, asymmetric information, transactions costs, free cash flows, or personal taxes.

[7] 'Our results indicate that CFOs believe that earnings, not cash flows, are the key metric considered by outsiders. The two most important earnings benchmarks are quarterly earnings for the same quarter last year and the analyst consensus estimate. Meeting or exceeding benchmarks is very important. Managers describe a trade-off between the short-term need to deliver earnings and the long-term objective of making value-maximizing investment decisions. Executives believe that hitting earnings benchmarks builds credibility with the market and helps to maintain or increase their firms stock price.' They also report that 'Second, managers are interested in meeting or beating earnings benchmarks primarily to influence stock prices and their own welfare via career concerns and external reputation, and less so in response to incentives related to debt covenants, credit ratings, political visibility, and employee bonuses that have traditionally been the'.

[8] For example the Chairman of Deutsche Bank, Josef Ackerman was quoted as saying that Demands for Tier-1 capital ratio of 20%... could depress ROE to levels that make investment into the banking sector unattractive relative to other business sectors. Ackermann (2010, p. 5.)

[9] For a survey see Baker, Ruback and Wurgler (2007).

analyst earnings expectations, and declining returns on assets; there is also a tendency for such firms to have appointed a new CEO in the current or immediate past year. In terms of past performance, firms that choose high debt financing ratios have lower returns on assets in the current and immediately preceding year; they also have more negative risk adjusted returns over the previous 12 months, and lower market-to-book ratios at the end of the previous year. External pressure on the managements of these firms is manifest in excessive analyst earnings expectations: the analyst earnings forecast errors for such firms are exceptionally high, so that market expectations exceed what is achieved, putting pressure on management to 'make the numbers'.

We find strong evidence that leverage is being used to offset declining investment opportunities. First as noted above, high debt issuance is a strong predictor of a future decline in return on assets, holding constant asset growth rates and the current return on assets. Moreover, debt financing is positively associated with the earnings yield and it is when the earnings yield is high that debt financing is most likely to increase reported earnings per share. There is also some evidence that, faced with declining profitability, managers not only rely more heavily on debt financing, but also undertake more risky investments: for each asset growth category, there is a U-shaped relation between debt issuance and the risk of future returns as measured by the cross-sectional standard deviation of return on assets within an asset growth/debt issuance category of firms. However, the non-linear relation between debt issuance and asset risk that we find in the portfolio sorts is not significant in multiple regressions that include additional explanatory variables.

The evidence for debt retiring firms is rather different from that for debt issuers. First, despite the fact that debt retirement forecasts negative future stock returns, it forecasts *positive* future changes in profitability and, if anything *reduces* analyst forecast errors. There is no evidence that the managers of debt retiring firms are under pressure to 'make the numbers': current and past stock returns and returns on assets are positively associated with debt retirement and there is no evidence of an association between analyst over-optimism and retirement. Asset risk and prior debt ratios are positively associated with retirement. Most significantly, the market-to-book ratio is significantly positively related to debt retirement and it is strongly negatively related to future stock returns, which suggests that market timing may be a significant factor in debt retirements. For debt issuers on the other hand, while debt issuance is related to the market-to-book ratio, it is unrelated to future stock returns. Debt retirements are also negatively associated with the ratio of the earnings yield to bond yields, suggesting that the effects of debt retirement on reported earnings per share are of concern to debt retiring firms as they are for debt issuers.

We also identify a debt signaling element: debt retirement is positively associated with future changes in operating profitability. Thus we find evidence that is consistent with three considerations: making the numbers and risk reduction, which are both consistent with managerial career concerns, and debt signaling.[10]

Finally, we find that a measure of the sensitivity of the CEO's earnings to stock returns is negatively associated with debt issuance and positively associated with debt retirement. These associations are consistent with managerial risk aversion and the findings of Tufano (1996) on corporate risk management.

The rest of the paper is organized as follows. In section 2 we discuss some related literature. In section 3 we describe the data. Section 4 reports on the bivariate relations between asset growth and future returns and between debt growth and future returns. Section 5 analyzes portfolios constructed by sorting on both asset growth and debt growth and considers the determinants of the choice between debt issuance and retirement. Sections 6 and 7 consider the characteristics of debt issuers and retirers in more detail and section 8 concludes.

2 Related Literature

Our findings that asset and debt growth predict future stock returns are consistent with the evidence of Titman, Wei and Xie (2004) and Cooper *et al.* (2008), as well as with the evidence that capital raising activities, such as issues of stock or debt, lead to lower future returns, while returns of capital to investors through share repurchases or debt retirements are associated with higher future stock returns. Cooper *et al.* (2008) confirm the robustness of the asset growth effect against a variety of alternatives and show that, while for *all* firms it is debt and equity financed asset expansions that are associated with lower future returns, the results differ according to firm size: for *small* firms the results mirror those of the full sample, for *medium* size firms only debt financed investment is significantly associated with lower future returns, and for *large* firms only the component of asset expansion that is financed by stock issues is associated with lower future returns.[11] Our paper builds on these results by exploring the motives of managers for choosing particular financing mixes for a given asset growth rate and relating the motives of managers to the abnormal returns that are observed.

Our finding that debt retirement is related to overpricing of the stock is consistent with the findings on market timing by Baker and Wurgler (2002) as well as DeAngelo *et al* (2010) who describe market timing as 'the most prominent theoretical explanation for SEOs'. Our focus on firms' financing choices is related to the extensive literature concerning the choice between bond and stock issuance.[12] A significant difference between our approach and that of these papers is that we consider *all* types of debt financing while these papers focus on predicting which firms will issue bonds and which will issue stock, and implicitly ignore the possibility that the equity issuer may be simultaneously borrowing

[10] Brennan and Kraus (1987), Constantinides and Grundy (1989).

[11] Fama and French (2008) argue that 'there is no asset growth anomaly in the average returns on the big stocks that account for more than 90% of total market cap.' Daniel and Titman (2006) find that future returns are strongly negatively related to growth that is financed by stock issuance.

[12] See for example Baxter and Cragg (1970), Marsh (1982), Jung *et al.* (1997).

from the bank, and the debt issuer may be repaying bank debt.

Our making the numbers hypothesis, which is based on the incentives faced by managers, is related to models such as Zwiebel (1996), Morellec (2004) and Lambrecht and Myers (2008) which recognize the discretionary role of management and focus on the conflict of interest between managers and shareholders. Stulz (1990) also relates corporate capital structures to managerial incentives.

There is relatively little empirical work relating managerial incentives to corporate financing decsisions. Early work by Friend and Lang (1988), Mehran (1992) and Firth (1995) provides mixed evidence on the relation between managerial ownership and leverage. Friend and Lang and Firth found a negative relation between executive ownership and leverage which they attributed to managerial risk aversion. On the other hand, Mehran (1992) reports a positive relationship between the firm's leverage ratio and the percentage of executives' total compensation in incentive plans, and the percentage of equity owned by managers. Berger *et al.* (1997) report that entrenched CEO's tend to avoid debt and that leverage increases following involuntary CEO replacements. However, they also find that leverage is positively associated with CEO stock and option ownership. More recently, Birkeland *et al.* (2011) report that leverage of Nordic firms is negatively related to managerial holdings of both stock and options. However, these studies are plagued with endogeneity problems and, as Welch (2011, p.16) remarks, 'although the (empirical) literature has uncovered some forces that contribute on the margin to explaining managerial capital structure activity, the first-order managerial motives still remain largely a mystery.' Jung *et al.* (1996) show that stock price reactions to equity issues depend positively on the firm's growth opportunities as measured by the market-to-book ratio, and argue that firms that issue equity, when they are predicted by a logit model to issue debt, do so in order to expand managerial discretion to make unprofitable investments that offer private benefits to managers. Although not directly comparable, this is somewhat in contrast to our finding that firms that rely most heavily on debt financing have worse future operating profit.

This paper is also related to an extensive accounting literature that documents the manipulation of corporate earnings either through accruals or by changes to real activities. The surveys of Bruns and Merchant (1990) and Graham *et al.* (2005) report a greater willingness on the part of managers to manipulate earnings through real activities than through accruals, even though the latter imposes real economic costs; and the tendency of firms to prune R&D expenditure to meet earnings targets is well attested.[13]

3 Data

Our main data source is the merged Compustat-CRSP data set. We restrict our analysis to firms with fiscal year ending in December, starting in 1968, ignoring non-financial firms with SIC codes 6000 and 6999. To mitigate back-filling biases we disregard the first year's observation for each firm.

[13] Baber *et al.* (1991), Deechow and Sloan (1991), Bushee (1998).

After disregarding inconsistent observations (e.g. negative debt positions) the accounting data consist of 97,954 firm-year observations and 87,803 of these observations can be double-sorted according to asset growth and debt growth. The number of firms in the accounting data sample ranges from 845 in 1968 to 2,593 in 2009 and averages 2,090 (at the end of each December). We combine these annual accounting data for the years 1968 to 2010 with stock return data for 1966 to 2011. We match 85,597 out of the 87,803 accounting data observations with stock return data. The number of sample firms with both accounting and stock return data ranges from 843 in 1968 to 2,529 in 2009 and averages 2,038. We also use the IBES data on analyst earnings forecasts for 1975 to 2010 and Execcomp data from Compustat from 1992 to 2010 for information about CEO appointments, compensation and exits.

Our primary variables of interest are:

Total Asset Growth (TAG): The proportionate change in the book value of the firm's total assets during the year.

Debt Growth: The change in the book value of all short and long term debt outstanding (excluding accounts payable) expressed as a proportion of the book value of the firm's assets at the beginning of the year. (Debt is defined as the sum of Compustat codes dlc and dltt.)[14]

Return on Assets: Operating income after depreciation (Compustat code: oiadp) divided by the lagged book value of assets (Compustat code: at).

Return on Equity: Income before extraordinary items (Compustat code: ib) divided by the lagged book value of equity (Compustat code: ceq).

Market to Book Ratio, M/B: Number of shares (Compustat code: csho) multiplied by end-of-year share price (Compustat code: prcc_f) divided by book value of equity (Compustat code: ceq).

Earnings forecast errors, FE: The scaled median analyst forecast errors for each year, y, where y is the year in which asset and debt growth are measured. We consider forecast errors for years y and $y+1$ made in the last quarter of year $y-1$ and for year $y+1$ made in the last quarter of year y; the forecast errors are scaled by the stock price at the end of the year in which they are made. The median forecast errors are taken from IBES.

CEO turnover: A dummy variable that is equal to unity if a new CEO is appointed in year y. Data are taken from Execcomp from 1992 to 2012.

Stock price sensitivity, SENSI: The sensitivity of the CEO's wealth to the stock price is calculated as the product of the share price and the sum of the number of shares and and one half the number of unexercised options held by the CEO. These data are from Execcomp for 1992 to 2010.

Baa_y: The annual average of weekly observations for year y on Moody's Seasoned Baa Corporate

[14]Welch (2011, p.4) objects to the use of the ratio of financial debt to assets as a measure of firm leverage, but admits that 'A universal best measure may not even exist, but might depend on the question being asked.' Our definition is motivated by the finding that future abnormal stock returns are associated with this measure, and by the fact that increases in financial debt are the result of managerial decisions whereas the behavior of other components of the liabilities may be beyond direct managerial control in a given year.

Bond Yield.

4 Asset Growth Portfolios and Debt Growth Portfolios

To relate our findings to earlier work, we start by examining the returns on portfolios formed on the basis of Total Asset Growth (TAG). Each year y, from 1968 to 2010, 10 portfolios are formed on the basis of the firm's TAG during the year. Define month 0 as the December of year y, the year in which TAG is measured. For each portfolio formation year y, equally weighted (EW) and value weighted (VW) portfolios are formed at the beginning of month 7, July of year $y+1$, and are held until the end of month 18, and are not rebalanced during this time window. In this way a time series of portfolio returns is formed for each portfolio for the time window [7,18].

The Fama-French (1992) three factor model is used to calculate abnormal returns on each of the portfolios by estimating the following regression:

$$R_{p,\tau} - R_{F,\tau} = \alpha_p + \beta_p^M (R_{M,\tau} - R_{F,\tau}) + \beta_p^{HML} HML_\tau + \beta_p^{SMB} SMB_\tau + \epsilon_{p\tau}, \tag{4.1}$$

where $R_{p,\tau}$ is the return on portfolio p in month τ, $R_{F,\tau}$ is the risk-free interest rate in month τ, $R_{M,\tau}$ is the return on the market portfolio, and HML_τ and SMB_τ are the returns on the Fama-French book-to-market and size factors, and α_p is the abnormal or risk-adjusted return on portfolio p. The regression is estimated using the whole sample of window [7,18] returns.

We report in Table 1 the abnormal returns in months [7,18] on decile portfolios constructed on the basis of Total Asset Growth. Confirming the results of Cooper *et al.* (2008), Panel A reports significant *negative* abnormal returns for the highest growth rate deciles of both EW and VW portfolios (and these significant negative abnormal returns persist in months [19-30]).[15] For the EW portfolios the returns are -0.6% per month in months [7-18] (and -0.3% per month in months [19-30]); they are approximately half as great for the VW portfolios. There are smaller but significant *positive* abnormal returns during months [7-18] for VW portfolios 2 and 7 and for EW portfolios 2-8. Thus the growth rate anomaly appears to be predominantly a high growth rate-negative return anomaly which is apparent only in the highest growth rate decile of firms for VW portfolios, although there is some evidence of a low growth rate high return anomaly for the EW portfolios. When we repeat the analysis for the period 1968 to 2003 which is the sample period of Cooper *et al.* (2008), we obtain results shown in Panel B that are very close to theirs: in particular, for EW portfolios the abnormal return is now a monotone decreasing function of the asset growth rate.

The average asset growth rates of firms that fall into the highest growth category are in the range of 75-300%. Such high growth rates suggest that this category may be dominated by firms that grow

[15] We do not report results for months [19-30] to conserve space.

by merger. To test whether the growth rate anomaly is simply a merger anomaly,[16] the sample is divided into firms that merged in year y and those that did not, and the analysis is repeated.[17] The patterns of abnormal returns in months [7-18] for the two subsamples are virtually identical for the VW sample shown in Panel C: in particular, the negative returns for decile 10 remain for the non-merger sample. Similar results are found for the EW sample shown in Panel D where the negative returns on the decile 10 portfolios remain highly significant ($t > 4.0$) for both subsamples, although significant positive abnormal returns on deciles 2-8 are observed only for the (larger) non-merger subsample. Overall, there is no evidence that the asset growth anomaly is attributable to firms that merge.

The analysis is repeated, this time forming portfolios on the basis of the growth in debt financing expressed as a proportion of the book value of assets at the beginning of the year - 'Debt Growth'. Debt is defined as the book value of all long and short term debt excluding accounts payable. Firms are allocated to 4 debt issuance portfolios (DI), a no change in debt portfolio (D$zero$), and 4 debt retirement portfolios (DR). The results, which are shown in Panel D, are strikingly similar to those obtained with the portfolios sorted on TAG. In months [7-18], there are significant negative abnormal returns, both EW and VW, for the high debt growth portfolios that are very similar to those found for the TAG portfolios; the significant negative returns continue for the EW portfolio in months [19,30] (not reported). In addition, we find significant positive abnormal returns for EW portfolios of debt retirers and D$zero$, although not for the quartile of biggest debt retirers. Thus there is a debt growth anomaly that is parallel and similar to the asset growth anomaly.

5 Asset and Debt Change Portfolios and the Choice between Debt Issuance and Debt Retirement

There is obviously a correlation between asset growth and debt growth so that the returns on the portfolios sorted according to one of these criteria cannot be attributed simply to that characteristic. Therefore, in this section we first examine the characteristics and risk-adjusted returns on portfolios that are sorted according to both asset growth (TAG) and debt growth as a proportion of assets. Each of the 10 portfolios formed on the basis of TAG is subdivided into 9 portfolios on the basis of their change in debt outstanding during year y expressed as a proportion of the book value at the beginning of the year; $DR1$-$DR4$ are debt retirers, D$zero$ no change in debt, and $DI1$-$DI4$ are the debt issuers. $DR4$ and $DI4$ are the extreme portfolios of firms that respectively retire and issue the most debt during the year. We also examine the determinants of the debt issuance/retirement decision.

[16]Negative returns to acquiring firms subsequent to mergers have been documented by Agrawal *et al.* (1992) among others.

[17] A list of mergers was obtained from the Securities Data Companys (SDC) U.S. Mergers and Acquisitions database.

5.1 Portfolio characteristics

Summary statistics based on equally weighted firm characteristics for the portfolios in the year of portfolio formation are presented in Table 2. Panel A shows that for the first 9 deciles of TAG there is little relation between asset growth and debt growth. On the other hand in TAG decile 10 the quartile of the highest debt issuers, $DI4$, has TAG almost twice as great as the quartile of the highest debt retirers and almost four times as great as that of more modest debt issuers. The assets of the first 3 TAG deciles actually shrink, and it is only in the deciles above the fifth that the asset growth rate is above 5%.[18] The portfolios of the highest TAG decile have average asset growth rates in year y that range from 86% to 303%. TAG decile 1 has average asset growth rates of -30% to -39%, implying significant asset disposals or write-downs. For TAG decile 2 the average growth rate is of the order of -10% and for decile 3 of -3%. The remaining deciles have modest but positive growth rates in the range of 1-9%. Deciles 7, 8 and 9 are high growth deciles with growth rates of around 12%, 18%, and 32% respectively. Decile 10 contains hyper growth firms in which the average growth rates range from 75% to 303%.

Panel B shows that debt retirements are modest in most cases except for $TAG1$and $TAG10$ where they reach 35% and 42% of assets respectively. It is striking that the average firm in the highest quartile of debt retirers, $DR4$, in $TAG10$ actually retires an amount of debt equal to 42% of its assets while more than doubling its total assets. Debt growth rates are mainly below 10% of assets except in the highest debt issuance quartile where they range up to 150% in the highest TAG decile.

Not surprisingly, equity growth is increasing in asset growth and decreasing in debt growth (the zero debt issuers are anomalous): Panel C shows that equity growth is negative in the north and east extremities of the table: firms whose assets shrink reduce their equity and the largest debt issuers also tend to be reducing the amount of equity on the balance sheet, through losses, dividends or share repurchases. We note again that the highest debt retirement quartile in TAG decile 10 is exceptional in that it increases its equity by 172% of assets while increasing its assets by only 157%.

Panel D shows that firms that neither increase nor decrease their debt outstanding, the *Dzero* category, tend to be much smaller than other firms in their asset growth category. We also note that debt retiring firms in the $TAG10$ category are only about 1/3 the size of debt issuers in the same growth category: Panel F shows that there tend to be few firms that are retiring debt while growing rapidly, and few firms that issue debt while shrinking their total assets.

5.2 Returns

Table 3 reports the abnormal returns on the Total Asset Growth and Debt Issuance or Retirement portfolios for months [7-18]. The most significant abnormal returns are for $TAG10$, the high asset

[18]In subsequent tables we leave a space after TAG decile 3 to remind the reader that the first three deciles have negative average asset growth.

growth portfolios, and, consistent with the asset growth anomaly, these are negative. There is an inverted U-shaped pattern between returns and debt financing for $TAG10$: among debt issuers the abnormal returns are decreasing in debt issuance, reaching *minus* 1% per month for $DI4$, and among debt retirers the abnormal returns are also decreasing reaching *minus* 80 *basis points* per month for $DR4$. In addition to the significant returns in $TAG10$, we note also that there are strong abnormal return effects associated with debt growth. Thus only two (one) out of ten of the returns in $DI4$ are positive for the VW (EW) portfolios, while only two out of ten of the returns in $DI1$ are negative (and three of them are positive and significant) for the EW portfolios; and for the VW portfolios the only return in $DI1$ that is negative is in $TAG10$. High debt issuance tends to associated with negative returns while first quartile debt issuance tends to associated with positive returns except in the highest asset growth deciles.

Among the debt retirers almost all the abnormal returns are positive for the first 8 TAG deciles and many of these are highly significant for the EW portfolios: debt retirement appears to be a strong signal of future good performance. While this is consistent with debt signalling models, the delayed price reaction seems inconsistent with the market grasping the implications of these corporate decisions. In contrast to the generally positive returns on debt retirers, we find that in the highest asset growth portfolios, $TAG9$ and $TAG10$, the abnormal returns on the quartile of highest debt retirers, $DR4$, are around *minus* 90 *basis points* per month and strongly significant, while the returns on the lower debt issuance quartiles (and $Dzero$) of these TAG deciles are small and insignificant.

The return patterns that we have described for months [7-18] continue in an attenuated form for months [19-30] (not reported): for the EW portfolios all but two of the $TAG2$-$TAG8$ portfolios that retire debt in year y have positive abnormal returns, all but two of the high debt issuance portfolios in $DI4$ continue to have negative returns, and in $TAG10$ there are significant negative abnormal returns for the debt issuing portfolios, reaching *minus* 50 *basis points* per month for the high debt issuance portfolio.

The general pattern of post-announcement returns can be summarized as follows: abnormal returns for months [7-18] tend to be positive for debt retirers and negative for debt issuers, and abnormal returns tend to be negative for the highest one or two asset growth deciles. In the highest asset growth decile there is an inverted U-shaped relation between abnormal returns and debt issuance, due primarily to the strongly significant negative returns on the debt retiring portfolio, $DR4$ (which is also reflected in $DR4$ of $TAG9$). The pattern carries over to months [19-30] in attenuated form and with reduced statistical significance.

5.3 The Choice between Debt Issuance and Retirement

Table 4 reports the results of panel logit regressions in which the dependent variable is a dummy variable that is equal to unity if a firm issues debt in year y. We ignore the D*zero* firms. In all the regressions the probability of debt issuance is positively related to asset growth, TAG_y. The coefficient of the prior year's debt ratio, D/A_{y-1}, is negative in most of the regressions but is not highly significant and is even significantly positive in regression (v) which omits the analyst forecast error and therefore has a large number of observations. Consistent with the idea that low past returns put more pressure on managers to make the numbers, the coefficient of the lagged stock return is negative in all the regressions and highly significant in those that do not include the forecast error, $FE(y-1, y+1)$, and so have a larger number of observations. This negative coefficient, as well as the generally negative coefficient of the lagged market to book ratio, is also consistent with a market timing interpretation:[19] we shall see below that there is some evidence of market timing among debt retirers but not among debt issuers for which greater debt issuance forecasts lower future returns which implies more current over-valuation of the stock. $SDROA_{y+1}$ is a measure of asset risk. It is calculated each year, y, as the cross-sectional standard deviation within the asset growth/debt growth portfolio to which the firm belongs of the change in Return on Assets between year y and year $y+1$. Although this is undoubtedly an imperfect measure of the risk of an individual firm, we find that it is a strong negative predictor of debt issuance: high risk firms tend to reduce rather than increase their debt. This is consistent with theories of capital structure that rely on costs of bankruptcy or financial distress. It is also consistent with managerial concerns over security of tenure.

More directly related to the MTN hypothesis that managers attempt to compensate for declining profitability by issuing debt is the variable ΔROA_{y+1}, the change in Return on Assets between year y and the subsequent year. The strong significance of this variable suggests that managers have some knowledge of changes in future profitability at the time they make the debt issuance/retirement decision, and issue debt when the prospects of future profitability are less favorable. The sign of the coefficient is at odds with bankruptcy cost/financial distress stories which predict that managers will reduce leverage rather than increase it when profitability is expected to decline. It is also at odds with market timing stories in which managers might be expected to issue more overpriced equity when they have private information about declining prospects, but it is consistent with the MTN hypothesis that managers issue debt in order to help them increase earnings per share in the face of declining profitability.

$FE(y-1, y+1)$ is the error in the consensus forecast of year $y+1$ earnings per share made in the last quarter of year $y-1$ scaled by the share price at the end of year $y-1$. We interpret this variable as a measure of the pressure on management to meet the numbers that is created by over-optimism on the part of analysts. The significant positive coefficient on the variable in regressions (i) and (iii) is consistent with this interpretation. To some extent this variable is a substitute for ΔROA_{y+1}, which also represents pressure on management and also depends on the year $y+1$ earnings realization, and we see that when $FE(y-1, y+1)$ is omitted in regressions (ii) and (v) the significance and size of

[19] Cf. Baker and Wurgler (2002)

the coefficient of ΔROA_{y+1} increases. Conversely, the coefficient of $FE(y-1, y+1)$ becomes larger and more significant when ΔROA_{y+1} is omitted from regression (iii).

We have suggested that the incentive to issue debt to make the numbers exists when the earnings yield is above the cost of debt. We attempt to capture this effect in two ways. First, we include the earnings yield at the end of the previous year, $(E/P)_{y-1}$, in the regression, and add annual dummy variables to capture the time-variation in the cost of debt. Consistent with our hypothesis, the coefficient of $(E/P)_{y-1}$ is positive and significant in regression (iv). Secondly, we include in the regression the ratio of the earnings yield to the average for the previous year of the weekly Moody's Seasoned Baa Corporate Bond Yield, $((E/P)/Baa)_{y-1}$. The coefficient of this variable in regressions (v) and (vi) is positive but not significant. As we shall see below, this variable is much more significant in explaining the *amount* of debt that is issued or retired by firms.

The dummy variable, $CEOstart_{y-1,y}$ is equal to one if a new CEO was appointed in year y or $y-1$; while the coefficient of the variable is positive, it is not significant. On the other hand, the coefficient of $SENSI_y$, which captures the sensitivity of CEO pay to the stock price, is negative and significant: CEOs who are more exposed to stock price risk are more inclined to retire debt rather to issue it. This is consistent with the finding of Berger *et al.* (1997) that the entrenched managers tend to have lower leverage.

In what follows we shall analyze the properties of debt issuers and retirers separately.

6 Debt Issuers

In exploring the asset and debt growth anomalies there are two issues to consider: why there are negative returns associated with asset growth and debt growth, and why these returns are delayed. We shall explore these issues by examining first the relations between the future abnormal returns of firms and their asset and debt growth characteristics, as well as analyst forecast errors and the market-to-book ratio. Then we shall establish the relation between asset growth and debt financing and future changes in profitability and analyst earnings forecast errors. Finally, we shall consider the determinants of the amount of debt that is used to finance asset growth.

6.1 Stock Returns, Changes in Fundamentals, and Forecast Errors

Table 3 shows that the abnormal return in months [7,18] on the high debt issuance quartile, $DI4$, is less than or equal to that of the the low debt issuance quartile, $DI1$, for virtually every TAG decile: the difference is significant at the 5% (10%) level for the EW (VW) high asset growth ($TAG10$) portfolios and is also significant for several other TAG deciles of EW portfolios. The average difference between the returns on the $DI4$ and $DI1$ quartiles across TAG deciles is minus 28 and 43 *basis points* per month or about 3.5% and 5% *per annum* for the VV and EW portfolios respectively.

The importance of debt issuance relative to asset growth for future abnormal returns is substantiated by regression analysis. The first two columns of Table 5 report the results of panel regressions of the abnormal returns for months 7-18 for the 40 debt issuance portfolios on the logarithms of asset growth and debt issuance.[20] In column (i) the first variable is the log of the simple asset growth rate and portfolios with negative average growth rates are omitted; in column (ii) all portfolios are included and the first variable is $\ln(1 + TAG)$. The results are striking. The coefficients of both asset growth and debt issuance variables are negative, but only the coefficients of debt issuance are statistically significant, and this is despite the fact that the portfolios were formed by sorting first on asset growth and then on debt growth. Regression (i) provides the higher explanatory power and, as one would expect, the results are more highly significant for the equally weighted portfolios shown in Panel B, where the $t - statistic$ on $\ln(DI)$ is close to five for regression (i) which explains over 9% of the abnormal returns.

To assess whether the abnormal returns in months [7-18] that constitute the asset (and debt) growth anomaly are related to news about fundamentals that is released during this time period, the abnormal returns on the 40 portfolios are regressed on the average changes in Return on Assets and Return on Equity on the firms in the portfolios between years y and $y+1$ ($\Delta ROA_{y+1}, \Delta ROE_{y+1}$), as well as on the average scaled error in the median analyst forecast of earnings per share for year $y+1$ that is made in the last quarter of year y, $FE(y, y+1)$. The scaling is by the stock price at the end of the year.[21] Note that all three variables become known during months [7-18].

The results of panel regressions are reported in columns (iii)-(vi) of Table 5. First, we note that the regression results are stronger for the EW portfolios than for the VW portfolios. Secondly, we note that the abnormal return is significantly associated with the change in Return on Equity for both VW and EW portfolios, and that for the EW portfolios the change in ROE has a much stronger effect on abnormal returns than the change in ROA: the $t - statistic$ of the former is less than three while on the latter it is in excess of six; when the changes in ROA and ROE are both included in the regression, for the VW portfolios neither variable remains significant, but for the EW portfolios only the change in ROE is significant. Thus, it appears that, at least for the smaller firms that dominate the EW regressions, investors are more concerned about the change in fundamentals that is represented in the Return on Equity than they are about the change in Return on Assets. This is surprising since the change in Return on Equity is the resultant of both the change in Return on Assets and the change in leverage: changes in the Return on Equity that are the product of changes in leverage are apparently not discounted by investors. This is at odds with the predictions of the Modigliani-Miller theorem, but is consistent both with the 'bankers' view' that what is important to investors is the Return on

[20] We use the abnormal returns of the *portfolios*, rather than computing abnormal returns of individual firms because of the difficulties of arising from changing *betas* for firms with strong asset asset growth and changing capital structures. Berk, Naik and Green (1999) discuss how corporate investment affects systematic risk.

[21] See Christie (1987).

Equity, and with the belief of CFOs reported by Graham *et al.*(2005)[22] that earnings are the key metric considered by investors.

In column (v) the independent variable is the (average for the portfolio of the) median forecast error for year $y+1$ earnings per share for forecasts made in the last quarter of year y scaled by the share price at the end of year y. Despite the shorter sample period necessitated by the availability of earnings forecast data, for both equal-weighted and value-weighted portfolios the abnormal returns are negatively associated with the forecast errors.

The regressions in columns (vi) and (vii) include the market-to-book ratio at the end of year y, M/B_y. There is no evidence that firms with higher market-to-book ratios have lower future returns. Thus there is no evidence that firms choose to finance more with debt when their stock is underpriced as market timing theories would suggest.

Thus, it seems that the significant future abnormal returns for debt issuers that we observe in Table 2 and the regressions reported in columns (i) and (ii) of Table 5 can be attributed, at least in part, to the failure of the market to make unbiased forecasts of future changes in ROA, ROE and earnings per share. Moreover, the fact that the abnormal returns on the portfolios are negatively associated with debt issuance, positively associated with changes in returns on assets and on equity, and negatively associated with errors in forecast earnings per share, suggests that debt issuance itself may be systematically associated with future changes in returns on assets and on equity and with forecast errors. In order to explore this, we regress these variables on debt issuance and asset growth using individual security data since there is no advantage to the use of portfolio data when risk-adjusted stock returns are not included in the regression analysis.

6.2 Changes in Fundamentals, Forecast Errors, and Growth and Financing Decisions

The first two columns of Table 6 report the results of panel regressions of future changes in ROA and ROE on the levels of these variables and the logarithms of asset growth and debt issuance for individual securities. ROA and ROE are winsorized at the 1% level. The sample includes all firms with positive debt issuance in year y ($DI_y > 0$) from 1968 to 2010, and there are over 33,000 firm year observations.

First, there is strong evidence of global mean reversion in both variables: the coefficient of the lagged variable being greater than 0.5 in absolute value and highly significant. More significantly, while the asset growth variable, $ln(1 + TAG_y)$, is positively and significantly associated with future changes in Return on Equity and Return on Assets, the debt issuance variable has a very strong negative association with the change in Return on Assets, and a smaller but still significant negative association with the change in the Return on Equity. This points to the importance for future returns

[22]See footnote 7.

of how asset growth is financed. Table 1 showed a strong negative univariate relation between asset growth and future abnormal returns but this disappeared in the regressions in Table 5 that include debt issuance. Table 6 shows that the debt issuance variable itself, $ln(DI_y)$, is a strong predictor of changes in both Return on Assets and Return on Equity: higher debt growth predicts lower returns on both assets and equity. The *t-statistic* for the return on assets equation is in excess of 13 and for the return on equity equation is approximately 3. Thus, we have found an explanation for the link between debt growth and future abnormal returns: debt growth predicts changes in profit fundamentals which are not anticipated by the market. In particular, high debt growth predicts lower future returns on assets and equity and, as we have seen in Table 5, when these lower accounting returns are realized stock prices fall. Note that the negative association that we have documented between debt issuance and future stock and accounting returns is inconsistent with market timing: more debt is issued when stock prices are too high and managers expect profitability to decline.

Further evidence of the link between unanticipated changes in fundamentals and asset growth and debt issuance is provided in columns (iii) and (iv) of Table 6 which report the results of regressions of errors in consensus analyst forecast earnings per share on asset growth and debt issuance. FE(y, y+1) is the forecast error of earnings per share for year $y+1$ made in the last quarter of year y scaled by the share price at the end of year y - the 'one year ahead' forecast error. Similarly, FE(y-1, y+1) is the forecast error of earnings per share for year $y+1$ made in the last quarter of year $y-1$ scaled by the share price at the end of year $y-1$ - the 'two year ahead' forecast error. We see that both one and two year ahead forecast errors for year $y+1$ earnings are strongly positively associated with debt issuance; the effect is approximately twice as strong for the one year ahead error. Analysts are more over-optimistic about firms that finance more with debt so that these firms have bigger forecast errors. This over-optimism about high debt issuers, as well as the negative future stock returns associated with debt financing shown in Table 5, provides further evidence against the market timing hypothesis for debt issuers, since the stocks of high debt issuers are, if anything, over-priced. On the other hand, the coefficients of the asset growth variable are both *negative* and highly significant: higher asset growth is associated with lower forecast errors. Thus the forecast errors that are associated with negative abnormal returns are driven, not so much by asset growth itself, but by the associated debt growth when the asset expansion is financed by debt.[23]

It is not altogether surprising that asset growth should be associated with higher returns on equity since presumably the asset growth is partly the result of good fundamentals in the future. But why should debt financing herald lower future returns? Our explanation is that, if debt financing is a tool that helps managers to 'make the numbers', then we should expect that firms that use the most debt, *ceteris paribus*, are those that are under the most pressure to make the numbers, and these will include firms whose future earnings prospects are poor. This will lead to an association between debt issuance

[23]Cooper *et al.* (2008) report that for medium size firms only debt financed investment is significantly associated with lower future returns, while for large firms only equity financed investment is associated with lower returns.

and subsequent declines in fundamentals which is what we observe.

Table 7 reports some measures of pressure on the managers of debt issuers to perform better. Comparing the high debt issuers in $DI4$ with the low debt issuers in $DI1$ we see in Panels A and B that for virtually every asset growth category the high debt issuers have significantly lower returns on both assets and equity in year $y-1$: this is consistent with cross section studies which typically find that the most profitable firms tend to borrow least.[24]

Panel C shows that the market-to-book (M/B) ratio at the end of year $y-1$ is almost always lower for $DI4$ than for $DI1$. This is consistent with the finding of Fama and French (2012) that equity issuance is positively related to the price to book ratio but that the variation in the mix of new debt and equity in response to this variable is 'typically modest'.[25] For TAG decile 10 a shallow 'U-shaped' relation between M/B and Debt Issuance quartile emerges. For the VW (EW) $TAG10$ portfolios the M/B ratio for $DI4$ is 4.03 (3.04) as compared with an average ratio for the two middle debt issuance quartiles of around 3.7 (2.7).

Panel D shows that firms that increase their debt the most in year y already tend to have the highest debt ratios in year $y-1$: in the three highest TAG deciles the leverage ratio for $DI4$ in year $y-1$ is around 30% as compared with less than 20% for $DI1$. This simple comparison reveals no evidence of mean reversion in debt ratios. However, we make no attempt to take account of different target leverage ratios for different firms. Previous authors who do take account of different target leverage ratios do find evidence of mean reversion using a regression approach but, as Fama and French (2012) point out, 'leverage targets are not generally a first order consideration in financing decisions', and in the regressions that we report below we shall find evidence of mean reversion once we account for other factors.[26] For positive growth firms, the debt ratio in year $y-1$ is a decreasing function of the TAG decile which is consistent with debt overhang theories of capital structure.[27]

Most importantly, as seen in Panel E, the managers of the high debt issuers face the problem that at the end of year $y-1$ analysts are over-estimating their earnings per share for year $y+1$ by much more than they are over-estimating the earnings of the low debt issuers. For every TAG decile the forecast errors are higher for $DI4$ than for $DI1$: on average by 5.3% (7.1%) for the VW (EW) portfolios; this difference is a multiple of the scaled forecast for the $DI1$ firms. Thus, to the extent that managers are under pressure to 'make the numbers' expected by analysts,[28] the managers of the

[24] Rajan and Zingales (1995), Wald (1999), Booth *et al.* (2001).

[25] Myers (2002) reports that there is a 'strong inverse relation between the market-to-book ratio and debt ratios'. This may be because highly profitable firms often use their earnings to pay down debt.

[26] Only 19% of the firms in the Graham, Harvey (2001) survey said they did not have a target debt ratio or target range.

[27] Myers (1977).

[28] That managers are under such pressure is suggested by the extensive literature on earnings management, and the tendency for reported earnings per share to cluster just above the consensus estimate. (DeGeorge *et al.* (1999)). Graham *et al.* (2005) report that managers are willing to take costly real actions in order to achieve earnings targets based on analyst consensus estimates.

firms that issue the most debt are under the most pressure.

Further evidence that the managers of firms in the high debt issuance quartile may be under pressure to perform is apparent in the average monthly abnormal returns for year $y-1$ shown in Panel F. Consistent with previous studies, we find that asset growth is positively associated with past returns. More significantly, for virtually every TAG decile the abnormal returns on the high debt issuance quartile are below those of the low debt issuance quartile. For $TAG10$ the difference is 70 (80) *basis points* per month or 8.4% (9.6%) per year for the VW (EW) portfolios. This difference could also be interpreted in terms of the market timing hypothesis: firms tend to rely on equity issuance after their stock price has risen.[29] But against this hypothesis is the lack of evidence in Table 3 of significant positive abnormal returns for the low debt issuance portfolios in months [7,18] following the financing year.[30]

Panel A of Table 8 shows for each asset growth/debt issuance category the proportion of firms that appoint a new CEO in either year y of year $y-1$. For all but the lowest TAG decile the high debt issuers are more likely to have appointed a new CEO than the low debt issuers, and for most of the deciles they are more than twice as likely. To the extent that new CEO's are under pressure to prove themselves by 'making the numbers', this is further evidence in favor of the MTN hypothesis.

Table 9 reports the results of panel regressions using individual firm data to predict DI_y, the growth in debt as a proportion of assets. In the regressions that include the earnings yield we include only firm-years for which the lagged earnings variable is positive. We include as regressors variables that capture the current debt ratio, the asset growth to be financed, profitability, and current and lagged stock returns. We also include variables that capture the pressure on management to 'make the numbers', as well as an earnings-price related variable which captures the ability of managers to 'improve the numbers' by debt financing. Regression (i) includes only the first set of variables and explains about 60% of the variation in normalized debt growth. The lagged debt ratio, D/A_{y-1}, is strongly and significantly negatively associated with debt issuance in all of the regressions, implying an element of global mean reversion in debt ratios. The product of the lagged debt ratio and the asset growth rate, $D/A_{y-1}TAG_y$, is the debt growth that would arise from asset growth if the debt to asset ratio remained constant; the positive and significant coefficient on this variable in all of the regressions implies a degree of inertia in debt ratios. However, the positive and highly significant coefficient on TAG_y implies that higher asset growth implies proportionately higher reliance on debt financing. The negative coefficient on ROA_y implies that *ceteris paribus* 16-26% of the pre-tax return on assets is available to finance asset growth. The change in return on assets from year $y-1$ to year y, ΔROA_y, is negatively associated with the amount of debt financing. Since we have already accounted for the effect of current profitability, ROA_y, the influence of this variable cannot be through the financing

[29] See Hovakimian, Opler and Titman (2001).

[30] During the announcement period, months [1,6], firms in the low debt issuance quartile, $DI1$ have higher returns than firms in the high debt issuance quartile, $DI4$, for virtually every TAG decile. These results are not reported here.

channel: we shall discuss it further below. Stock returns in the current and previous year, Ret_y and Ret_{y-1}, are significantly negatively associated with debt issuance. However, the effect is quantitatively modest: a 50% stock return spread over these two years would decrease debt financing by only 0.5% of assets in year y.

Operating risk, as measured by the standard deviation of the change in Return on Assets between years y and $y+1$ for all firms within the same asset growth/debt growth portfolio, $SDROA_{y+1}$, has a highly significant negative effect on debt issuance. This is consistent with bankruptcy cost and costly financial distress considerations, as well as with risk aversion on the part of managers.

Our most significant findings relate to the variables that capture pressure on management to 'make the numbers', and their ability to do so by issuing debt. Not only is the change in Return on Assets from the previous year, ΔROA_y, negatively and significantly associated with debt financing as we have observed, but regressions (ii) and (iii) show that debt issuance is strongly negatively related to the *future* change in return on assets, ΔROA_{y+1} also. This can only be because management, in making its financing decision in year y, takes into account its knowledge of changes in profitability in the current and following year. We conclude that managers faced with declining current and future profitability tend to rely more heavily on debt financing in order to 'make the numbers' by using leverage to mask the effects of the unprofitable investments on the firm's return on equity. Despite this, as we saw in Table 6, higher debt issuance is associated with lower increases in the Return on Equity (but even smaller increases in the Return on Assets). That is, the increased leverage is insufficient on balance to offset the negative effects of the relatively unprofitable investment. Regression (iv) shows a marginally significant relation between debt issuance and analyst forecast errors for year $y+1$ earnings made at the end of year y. This is consistent with the decline in profitability associated with debt issuance being only partially known by the market.

Regression (v) shows that the greater is the firm's under-performance relative to expectations in year y, as measured by the scaled earnings forecast error for year y, $FE(y-1, y)$, the more inclined management is to rely on debt; note that this is after taking account of the stock return in year y. Managers of firms that are under-performing relative to analyst expectations are more likely to feel pressure to 'make the numbers' and relying on debt financing is one way to accomplish this.

As previously noted, debt financing will only lead to an increase in earnings per share if the earnings yield is above the cost of debt. We include the lagged ratio of the earnings yield to the cost of debt as measured by the average of the weekly yields during the year on Moody's Seasoned Baa Corporate Bond Yield Index, $((E/P)/Baa)_{y-1}$, in regression (vi) to capture this effect. Consistent with the facilitating effect of a high earnings yield for debt financing to be efficacious in making the numbers, the coefficient is positive and significant. Similarly, when we include simply the lagged earnings yield, $(E/P)_{y-1}$, along with dummy variables for each year to capture time variation in the cost of debt finance, the coefficient of the earnings yield variable is positive and highly significant.

Finally, the coefficient of the dummy variable that captures new CEO appointments is positive but not significant, while $SENSI_y$, the relative sensitivity of CEO compensation to the stock price is significantly negatively associated with debt financing.

Thus at least a partial explanation can be offered for the delayed price reaction to debt growth. It is precisely managements that have experienced poor performance and have private information about poor future prospects who have the most incentive to attempt to disguise the decline in fundamental profitability by relying heavily on debt financing to improve the reported earnings figures. This deterioration in fundamentals can only be disguised for so long and when it becomes public information it results in negative abnormal returns in months [7,18] and months [19,30]. Of course this explanation does not explain why investors do not recognize the cue implicit in a high level of debt financing.

Table 10 reports the standard deviation of the change in the Return on Assets from year y to year $y+1$ within each debt issuance quartile for each TAG decile. If this variable captures asset risk and if debt issuance is negatively associated with asset risk, then we should expect that for each asset growth category the standard deviation would decrease monotonically as we move from $DI1$ to $DI4$. We do find that such a monotonic relation tends to hold for the first three debt issuance categories, at least for the positive asset growth deciles, $TAG4$-$TAG10$, and that the relation becomes more pronounced as we move to higher TAG deciles. However, the high debt issuance $DI4$ quartile is anomalous in that its standard deviation is *higher* than that of $DI1$ for all but one debt issuance category. Closer examination reveals a U-shaped relation between this measure of asset risk and debt issuance: the asset risk of both the low debt issuance category, $DI1$, and of the high debt issuance $DI4$, is higher than that of the intermediate debt issuance categories.[31] This U-shaped relation is inconsistent with low risk firms choosing higher leverage, but it is consistent either with a scenario in which managers who face a more uncertain future choose a high debt financing ratio in the hope that leverage will offset low returns on assets, or with a scenario in which managers who are faced with poor investment prospects 'roll the dice' both by making risky investments and by financing those investments with leverage. Some evidence that managers of high debt issuance firms may indeed be 'rolling the dice' is given in Panel B of Table 8 which shows that for all but two TAG deciles, the CEO's of $DI4$ are more likely to be replaced in years $(y+1)-(y+3)$ than are the CEO's of $DI1$ firms.

7 Debt Retirers

7.1 Stock Returns, Changes in Fundamentals, and Forecast Errors

Table 3 shows that statistically significant abnormal returns for months [7-18] among debt retirers are much more prevalent among the EW portfolios than among the VW portfolios, which is consistent with large firms being more efficiently priced than small ones. The abnormal returns are predominantly

[31]We note that when we included (the orthogonal component of) the squared risk variable in the regressions in Table 9 the coefficient was not significant.

positive in TAG deciles 1-8, and for the EW portfolios the more statistically significant positive returns tend to be in low debt retirement quartiles $DR1$-$DR3$, so that moderate debt retirement among moderately growing or shrinking firms is associated with positive returns. The significant positive returns on these portfolios are consistent with the role of debt retirement as a signal of good news, but it is a signal that, at least for the EW portfolios seems not to be fully incorporated into prices. However, more debt retirement does not seem to be a better signal: in virtually every TAG decile for both EW and VW portfolios, the abnormal returns for $DR4$ are *below* those for $DR1$.

Negative returns are concentrated in TAG deciles 9 and 10, and particularly in the high debt retirement quartile of these deciles which have significant negative returns of 80-90 *basis points* per month. We note that there is an average of only 11 and 9 firms in these portfolios. Moreover, we see from Table 2 that the firms in these deciles, and particularly those in the high debt issuance quartiles, are small. In what follows we shall investigate the sensitivity of our results to excluding these portfolios.

Regression (i) in Panel A of Table 11 shows that, although debt retirers have predominantly positive abnormal returns, the abnormal returns are significantly negatively related to the levels of both asset growth and debt retirement. However, these results are very sensitive to the inclusion of the high asset growth decile, $TAG10$. When this decile is omitted from the regression, for VW portfolios asset growth no longer has an effect on the abnormal returns and the significance of debt retirement becomes marginal. However both coefficients remain significant for the EW portfolios as seen in Panel B. The negative coefficient on debt retirement is particularly striking, since in Table 4 we found a negative coefficient for debt *issuance* which was attributed to its role in forecasting negative changes in ROA.

The coefficients of the regressions relating the abnormal returns to changes in ROA and ROE and the scaled forecast error are reported in columns (ii)-(iv). The parameter estimates are very similar to those that we found for debt issuers in Table 5. When the changes in both ROA and ROE are included in regression (v) only the change in ROA is significant for the VW portfolios although both variables are significant for the EW portfolios. However, for the EW portfolios this result is sensitive to the inclusion of $TAG10$; when these portfolios are excluded from the regression only the change in ROE is significant, which is consistent with the 'banker's' view that investors are only concerned with equity earnings. There is also evidence in regression (iv) of a negative association between forecast errors and the abnormal returns for debt retirers, but this is significant only when the $TAG10$ portfolios are included in the regression.

Regressions (vi) in Panel A show a significant negative relation between the market-to-book ratio, $(M/B)_y$, and the abnormal returns, and this is particularly strong for the EW portfolios. This is in contrast to the results for debt issuers shown in Table 5 where the market-to-book ratio has no predictive power for returns. However, the significance of the market-to-book ratio disappears for the

VW portfolios and is attenuated for the EW portfolios when the two highest asset growth deciles of firms are removed from the regression as seen in Panels B-G. Nevertheless, the significance of this variable suggests that debt retirement, particularly among the high TAG decile portfolios may be driven at least in part by market timing and overpricing considerations.

7.2 Changes in Fundamentals, Forecast Errors, and Growth and and Financing Decisions

We have argued that debt issuance is a negative predictor of stock returns because it is associated with lower changes in future Returns on Assets (and Equity). However, while debt retirement is also negatively associated with future stock returns, the first two columns of Table 12 show that it is strongly *positively* associated with changes in future Returns on Assets and Equity, consistent with models of debt retirement as a signal of improved future prospects; this association remains significant when TAG decile 10 (and 9) is excluded from the regression. Moreover, for debt retirers, unlike debt issuers, asset growth is also strongly positively associated with changes in profitability.

Columns (iii) and (iv) of Panels B and C of Table 12 show that earnings forecast errors are significantly negatively related to debt retirement after taking account of asset growth when firms in the TAG decile 10 portfolios are excluded: this is likely to be because debt retirement is associated with improved operating performance. The improved operating performance and reduced forecast errors associated with debt retirement pose the question of why the level of debt retirement is negatively related to abnormal returns as seen in Table 11. It does not appear that the association of debt retirement with negative abnormal stock returns is due to an association with disappointed earnings expectations as was the case with debt issuance.

When we look at the characteristics of the different quartiles of firms that retire debt we find in Panels A and B of Table 13 that, at least for the top 5 TAG deciles, firms that retire more debt are generally *less* profitable in year $y-1$ as measured either by ROA or ROE. Panel C shows that for most TAG deciles there is a U-shaped relation between debt retirement and the market-to-book ratio at the end of year $y-1$. Panel D shows that for all TAG deciles there is a monotonic relation between debt retirement and the debt ratio at the end of year $y-1$: higher debt ratios are associated with more retirement. There is no clear relation between either earnings forecast errors or abnormal returns in the previous year to debt retirement. Panel A of Table 14 reveals no clear relation between debt issuance and new CEO appointments in years y or $y-1$.

Table 15, which is similar to Table 9, relates debt retirement for individual firms to several different firm characteristics. Debt retirement is strongly positively related to the lagged debt to assets ratio, to stock returns in years y and $y-1$,[32] to current profitability, ROA_y, and to asset risk, $SDROA_{y+1}$. The relation to asset growth, TAG_y, is negative, but it is not significant in the regressions with the

[32] Ret_y is likely to be affected by the positive information content of the debt retirement.

largest numbers of observations. Debt retirement is strongly positively related to the market-to-book ratio, $(M/B)_{y-1}$ and to *future* changes in profitability, ΔROA_{y+1}. This is consistent with the role of debt retirement as a signal of improving profitability and, as we saw in Table 12, debt retirement is a strong predictor of future changes in profitability. On the other hand, there is no relation between debt retirement and analyst forecast errors, in contrast to the significant relation for debt issuance.

The other major determinant of debt retirements is asset risk as measured by $SDROA_{y+1}$: managers of risky firms are more inclined to reduce their financial leverage. This may be due to concerns about costs of bankruptcy and financial distress as well as to the risk termination, since the combination of high asset risk and high leverage provides a powerful incentive for managers who are concerned with job security to reduce their risk by reducing financial leverage through debt retirement. Table 14 shows that among high asset growth firms CEO turnover in years $y+1$ to $y+3$ is considerably higher in the high debt retirement quartile than in the low retirement quartile, and Table 16 shows that in all but one TAG decile the asset risk is higher among firms in the high debt retirement quartile than in the low retirement quartile. The positive and significant coefficient on $SENSI_y$, which measures the relative exposure of their compensation to changes in the stock price, provides further evidence that managers are concerned about the risk of their compensation.

Table 15 offers no evidence that the managers of debt retirers are under pressure to make the numbers: past market and accounting returns are positively associated with retirements, as is future expected profitability and the market-to-book ratio. There is no evidence of an association with analyst earnings forecast errors. On the other hand, the negative and significant coefficients on the two earnings yield variables in regressions (vi) and (vii) suggest that managers of debt retirers do take account of the effect of their decisions on reported earnings. The new CEO dummy variable is insignificant, and the coefficient of $SENSI_y$ is positive and significant, consistent with managerial risk aversion.

How then do we account for the pattern of abnormal returns that we observe in Table 3? Part of the answer seems to lie in columns (vi) and (vii) in Panel A of Table 11: when TAG decile 10 firms are included in the regression, we see that abnormal returns are significantly related to the market-to-book ratio at the end of year y, M/B_y. This variable has a negative coefficient in the univariate regressions (vi) for both EW and VW portfolios: for the EW portfolios the $t-statistic$ is in excess of four, and the variable remains significant even in the presence of ΔROA_{y+1}. When the TAG decile 10 stocks are excluded from the regression in Panel B the variable remains marginally significant only in the EW portfolio regressions. Thus, there is evidence that the negative abnormal returns among (high asset growth) debt retirers is due to overpricing, even though they are not significantly associated with analyst earnings forecast errors. The overpricing argument is re-inforced by the evidence in Table 15 that the market-to-book ratio, M/B_{y-1}, is a highly significant determinant of the amount of debt retirement as is the lagged stock return, Ret_{y-1}.

The other part of the explanation of the pattern of abnormal returns is the finding that, in contrast to debt issuance, the size of the debt retirement is positively related to future changes in profitability, ΔROA_{y+1}. The positive coefficients on ROA_y and ΔROA_y suggest either that managers are more inclined to make large retirements when their concern about reported earnings is alleviated by strong and improving fundamental profitability or that they are attempting to signal the improving prospects of the firm.

It seems then that the pattern of returns that we observe for debt retirers in Table 3 is the result of at least two offsetting influences. On the one hand is the positive role of debt retirement as a signal of good future operating performance. This is seen in the positive and highly significant coefficient on $lnDR_y$ in equations predicting changes in ROA and ROE reported in the first two columns of Table 11, and in the positive stock price response to changes in these variables seen in Table 12. On the other hand is the market timing motive which leads firms to retire more debt when stock prices are high as measured by the market-to-book ratio. We saw that this variable is associated with both increased debt retirements and lower future returns.

We have found evidence that managerial motives for debt retirement include market timing, risk reduction and signaling.

8 Conclusion

In this paper we have shown that the negative abnormal returns that occur after periods of high asset growth are mainly due to the negative returns realized by those firms that either issue or retire large amounts of debt. Multiple regressions reveal that it is the magnitude of debt issuance rather than of asset growth that accounts for the negative returns on debt issuers, while for debt retirers the magnitudes of both asset growth and debt retirement are important, particularly among the high asset growth deciles. We find that debt issuance predicts declines in profitability as measured by the Return on Assets, while debt retirement predicts improvements in profitability. We suggest that a significant motive for using debt to finance asset growth is that it may enable managers to report higher earnings per share which we call 'making the numbers'. Consistent with this, we find that reliance on debt finance is increasing in the ratio of the earnings-yield to the costs of debt finance, a variable that provides an indication of how much reported earnings can be improved by using debt finance. We also find that debt financing is increasing in variables that measure the pressure on managers to 'make the numbers' - excessively optimistic analyst forecasts and poor past performance, as well as declining future profit prospects. It seems that the market does not fully recognize the negative information implicit in the debt financing decision so that negative returns are realized when the bad news about profits is received. Debt financing is also affected by prior debt ratios, asset risk and the sensitivity of CEO compensation to stock returns.

The motives for debt retirement seem more mixed. We find strong evidence that debt retirements are associated with high asset risk and they are also positively associated with the stock price sensitivity of CEO pay which suggests that managerial risk control is an important consideration. We find little evidence that the managers of debt retirers are under pressure to 'make the numbers'. On the contrary, debt retirement is associated with good and improving profitability so that retirement is a positive signal of future prospects. At the same time, there is evidence, particularly among high growth firms, that debt retirement is associated with overpricing of the firm's equity as measured by the market-to-book ratio which for debt retirers, unlike debt issuers, predicts future abnormal returns, particularly among high growth firms.

More generally, we have demonstrated that managerial concerns are of importance in financing decisions and they deserve more attention. As the remarks of Myers quoted in the introduction suggest, these concerns will differ according to the condition of the firm and the manager and the terms and security of employment. It is unlikely that our primarily linear specifications have captured adequately the interactions between the various considerations that are important. But we hope to have shown that managerial concerns deserve a more important role in positive theories and empirical studies of corporate financing.

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Panel A: Asset Growth Portfolios: 1968-2010										
Portfolio:	Low	2	3	4	5	6	7	8	9	High
Value	0.001	0.001	0.002*	0.001	0.001	0.001	0.002*	0.001	0.001	-0.003**
Weighted	(0.54)	(0.91)	(2.10)	(1.66)	(0.79)	(1.25)	(2.31)	(0.63)	(0.92)	(-3.24)
Equally	0.002	0.004**	0.003***	0.003***	0.002**	0.002**	0.002**	0.001*	-0.002*	-0.006***
Weighted	(1.30)	(2.81)	(3.83)	(4.29)	(2.98)	(3.05)	(3.15)	(1.97)	(-2.18)	(-7.05)
Panel B. Asset Growth Portfolios: 1968-2003										
Value	0.001	0.001	0.001	0.001	0.000	0.000	0.001	-0.000	-0.000	-0.004***
Weighted	(0.51)	(0.96)	(0.98)	(1.10)	(0.45)	(0.37)	(1.43)	(-0.31)	(-0.03)	(-3.61)
Equally	0.004	0.004**	0.003***	0.002***	0.001	0.001	0.001*	0.000	-0.002***	-0.007***
Weighted	(1.91)	(3.17)	(3.49)	(3.58)	(1.61)	(1.91)	(2.24)	(0.77)	(-3.32)	(-7.56)
Panel C. Asset Growth Portfolios by Merger Status: Value Weighted Portfolios 1968-2010										
Merger	-0.004	0.000	0.005*	0.004	-0.000	0.000	0.001	0.001	0.001	-0.002
	(1.25)	(0.13)	(2.23)	(1.96)	(0.31)	(0.18)	(0.68)	(0.62)	(0.85)	(0.90)
Non-merger	0.001	0.002	0.001	-0.000	0.002	0.002	0.002	0.001	0.001	-0.003
	(0.45)	(0.99)	(1.21)	(0.07)	(1.57)	(1.93)	(1.88)	(0.35)	(0.40	(1.73))
Panel D. Asset Growth Portfolios by Merger Status: Equally Weighted Portfolios 1968-2010										
Merger	-0.003	0.003	0.002	0.000	0.002	0.001	0.001	-0.002	-0.002	-0.007***
	(1.25)	(0.13)	(2.23)	(1.96)	(0.31)	(0.18)	(0.68)	(0.62)	(0.85)	(0.90)
Non-merger	0.003	0.004*	0.003**	0.003***	0.002**	0.003**	0.003**	0.003**	-0.002*	-0.007***
	(1.09)	(2.35)	(3.15)	(3.68)	(3.17)	(3.20)	(3.19)	(2.63)	(2.34)	(4.90)

Panel E. Debt Growth Portfolios: 1968-2010									
	$DR4$	$DR3$	$DR2$	$DR1$	$Dzero$	$DI1$	$DI2$	$DI3$	$DI4$
Value	0.000	0.001	0.002*	0.002	0.002	0.001	0.001	-0.001	-0.002**
Weighted	(0.03)	(1.54)	(2.16)	(1.68)	(1.09)	(1.95)	(1.14)	(-1.02)	(-3.05)
Equally	0.000	0.004***	0.002**	0.003***	0.003*	0.002**	0.001	-0.000	-0.005***
Weighted	(0.48)	(5.32)	(2.95)	(3.83)	(2.43)	(2.70)	(1.36)	(-0.53)	(-5.94)

Table 1: **Abnormal Returns on Portfolios constructed on the basis of Total Asset Growth and Debt Growth in months [7-18].** Portfolios are formed each year on the basis of either the increase in total assets or the change in debt during the year as a proportion of the book value of assets at the beginning of the year. The asset growth portfolios are arranged from Low growth to High growth. The Debt Growth portfolios are formed by sorting firms into debt retirers (DR), no debt change ($Dzero$) and debt issuers (DI): $DR4$ is the portfolio of firms with the highest debt retirement rate and DI4 is the portfolio with the highest debt issuance rate. The table reports the alphas from regressions of the monthly excess portfolio returns on the three Fama-French factors for months [7-18] relative to December of the end of the fiscal year whose data are used to calculate the growth statistic on which the portfolios are based. The sample period is from 1968 to 2010. t-statistics are reported in brackets. Asterisks correspond to the following p-values: $*p < 0.05, **p < 0.01, ***p < 0.001$.

Debt Growth: Asset Growth	$DR4$	$DR3$	$DR2$	$DR1$	$Dzero$	$DI1$	$DI2$	$DI3$	$DI4$
					Panel A. Average Total Asset Growth				
Low	-0.389	-0.285	-0.274	-0.279	-0.359	-0.301	-0.299	-0.299	-0.331
2	-0.106	-0.098	-0.098	-0.098	-0.130	-0.100	-0.097	-0.100	-0.102
3	-0.036	-0.034	-0.033	-0.033	-0.046	-0.024	-0.025	-0.025	-0.026
4	0.004	0.004	0.006	0.006	-0.001	0.020	0.020	0.020	0.020
5	0.037	0.037	0.038	0.038	0.040	0.052	0.052	0.053	0.052
6	0.073	0.073	0.073	0.073	0.076	0.084	0.085	0.086	0.087
7	0.117	0.116	0.115	0.117	0.124	0.126	0.125	0.129	0.129
8	0.180	0.181	0.178	0.181	0.192	0.186	0.186	0.190	0.195
9	0.324	0.315	0.309	0.310	0.329	0.305	0.303	0.314	0.343
High	1.570	1.214	1.099	0.922	1.488	0.859	0.745	0.884	3.031
					Panel B. Average Total Debt Growth				
Low	-0.346	-0.119	-0.050	-0.012	0.000	0.007	0.025	0.062	0.225
2	-0.160	-0.068	-0.032	-0.008	0.000	0.006	0.022	0.051	0.195
3	-0.123	-0.049	-0.024	-0.006	0.000	0.005	0.017	0.039	0.143
4	-0.103	-0.038	-0.018	-0.004	0.000	0.005	0.018	0.039	0.107
5	-0.093	-0.032	-0.014	-0.003	0.000	0.006	0.021	0.042	0.115
6	-0.099	-0.029	-0.013	-0.003	0.000	0.008	0.027	0.051	0.115
7	-0.108	-0.030	-0.011	-0.003	0.000	0.013	0.041	0.070	0.144
8	-0.133	-0.031	-0.011	-0.002	0.000	0.019	0.060	0.102	0.192
9	-0.178	-0.041	-0.013	-0.002	0.000	0.032	0.102	0.170	0.296
High	-0.416	-0.070	-0.021	-0.004	0.000	0.077	0.254	0.445	1.518
					Panel C. Average Total Equity Growth				
Low	0.005	-0.111	-0.175	-0.221	-0.457	-0.265	-0.270	-0.314	-0.499
2	0.046	-0.015	-0.046	-0.067	-0.112	-0.085	-0.104	-0.118	-0.265
3	0.064	0.014	-0.006	-0.020	-0.036	-0.022	-0.032	-0.053	-0.148
4	0.075	0.027	0.014	0.008	-0.003	0.009	-0.001	-0.016	-0.081
5	0.094	0.048	0.033	0.026	0.031	0.026	0.019	0.004	-0.060
6	0.125	0.088	0.051	0.050	0.054	0.043	0.033	0.020	-0.029
7	0.167	0.091	0.082	0.075	0.091	0.067	0.048	0.030	-0.025
8	0.219	0.139	0.119	0.120	0.136	0.097	0.068	0.048	-0.016
9	0.346	0.250	0.221	0.219	0.240	0.169	0.114	0.076	0.004
High	1.717	1.063	0.945	0.729	1.224	0.568	0.303	0.267	0.833
					Panel D. Average Firm Value				
Low	1136	1804	1190	544	131	626	758	657	365
2	1764	2921	3586	1640	205	3744	1763	1044	986
3	2579	4761	4331	3338	382	4181	3600	2096	1925
4	3228	6685	6028	5463	462	5493	6308	4931	3691
5	2569	6682	7037	5669	642	9187	6992	7195	3499
6	2827	7334	6422	6607	798	9186	7530	6343	4251
7	3075	4624	5842	4987	911	6741	8573	7523	5459
8	2958	3749	6750	3602	1021	6426	5604	5879	2999
9	1406	3053	2669	2291	1686	5499	5363	5264	2484
High	680	777	921	1025	1262	3176	3881	3742	2466
					Panel E. Average Total Equity Value				
Low	181	352	200	177	36	116	-119	31	22
2	350	617	882	467	80	824	420	212	80
3	640	1102	1174	1022	170	1179	1008	508	332
4	751	1668	1521	1585	179	1433	1764	1202	536
5	612	1436	1894	1601	221	2457	1821	1700	735
6	698	1828	1589	1554	241	2289	1894	1428	1072
7	767	1216	1648	1167	273	1908	2140	1510	950
8	621	902	1554	978	256	1773	1372	1332	584
9	229	591	677	397	302	1406	1434	1058	509
High	119	205	285	233	231	848	1061	865	532

Debt Growth:	$DR4$	$DR3$	$DR2$	$DR1$	$Dzero$	$DI1$	$DI2$	$DI3$	$DI4$
Asset Growth									
				Panel F. Average Number of Firms					
Low	35	35	35	35	26	11	11	11	10
2	35	34	35	34	19	13	13	13	13
3	33	33	33	33	18	15	15	15	15
4	30	29	29	29	17	20	19	19	19
5	25	24	24	24	15	25	24	25	24
6	21	20	20	20	18	28	28	28	28
7	17	16	16	16	18	32	32	32	31
8	13	13	13	13	20	35	34	35	34
9	11	11	11	11	20	37	36	37	36
High	9	9	9	9	19	39	39	39	39
			Panel G. Average Number of Firms with Negative Total Equity						
Low	6	4	3	3	3	2	2	3	6
2	2	1	2	1	0	1	1	1	3
3	2	1	1	1	0	0	1	1	2
4	1	1	1	0	0	0	0	1	1
5	1	1	0	0	0	0	0	1	2
6	1	0	0	0	0	0	0	0	1
7	1	0	0	0	0	0	0	0	1
8	1	0	0	0	0	0	0	0	1
9	0	0	0	0	0	0	0	0	2
High	1	0	0	0	0	0	0	1	2

Table 2: **Average Annual Firm Characteristics for Portfolios formed on Total Asset Growth and Debt Growth.** The securities are sorted first into 10 portfolios on the basis of *Total Asset Growth*. The securities in each portfolio are then sorted by the change in the amount of total debt over the year divided by Total Assets at the beginning of the year, where firms in sub-portfolios $DR1$-$DR4$ reduce their debt and firms in sub-portfolios $DI1$-$DI4$ increase their debt. Portfolio $Dzero$ consists firms that do not change their debt outstanding. The sample period is from 1968 to 2010.

	DR4	*DR3*	*DR2*	*DR1*	*Dzero*	*DI1*	*DI2*	*DI3*	*DI4*
Asset Growth									
					Panel A. Value Weighted				
Low	-0.004	0.006*	0.001	-0.002	-0.004	0.003	0.002	-0.003	-0.003
	(-1.57)	(2.45)	(0.35)	(-0.85)	(-1.18)	(0.62)	(0.57)	(-0.54)	(-0.53)
2	0.001	0.006**	-0.002	0.002	0.004	0.001	-0.002	-0.000	-0.006
	(0.52)	(3.04)	(-0.92)	(1.18)	(1.23)	(0.28)	(-0.66)	(-0.01)	(-1.70)
3	-0.001	0.003	0.002	0.000	0.004	0.003	-0.001	-0.003	0.005
	(-0.29)	(1.93)	(1.10)	(0.05)	(1.37)	(1.64)	(-0.46)	(-1.34)	(1.87)
4	0.002	0.000	0.002	0.002	0.001	0.002	0.004*	0.001	-0.001
	(1.00)	(0.20)	(1.48)	(1.52)	(0.37)	(0.99)	(2.00)	(0.45)	(-0.46)
5	0.002	0.001	0.001	0.002	0.003	0.002	0.001	0.001	0.002
	(0.94)	(0.67)	(0.39)	(0.90)	(1.19)	(1.07)	(0.88)	(0.46)	(0.89)
6	0.002	0.001	-0.000	0.005*	0.001	0.002	-0.000	-0.000	0.001
	(0.80)	(0.44)	(-0.09)	(2.37)	(0.30)	(1.11)	(-0.01)	(-0.35)	(0.65)
7	0.002	0.002	0.003	0.006**	0.003	0.002	0.001	0.003*	-0.003*
	(0.70)	(0.91)	(1.68)	(2.72)	(1.57)	(1.34)	(0.66)	(2.36)	(-2.01)
8	0.004	-0.003	0.001	0.002	0.006**	0.000	0.000	-0.000	-0.001
	(1.23)	(-1.13)	(0.26)	(0.63)	(2.59)	(0.14)	(0.21)	(-0.36)	(-0.45)
9	-0.008**	0.002	-0.002	0.005	0.002	0.003	0.001	-0.005***	-0.001
	(-2.68)	(0.51)	(-0.81)	(1.59)	(0.77)	(1.91)	(0.83)	(-3.41)	(-0.33)
High	-0.009*	-0.003	-0.000	-0.006	-0.002	-0.003	-0.004*	-0.005**	-0.009***
	(-2.49)	(-0.79)	(-0.11)	(-1.59)	(-0.52)	(-1.52)	(-2.14)	(-3.05)	(-4.11)
					Panel A. Equal Weighted				
Low	-0.001	0.003	0.006*	0.003	0.001	0.006	0.000	-0.006	-0.002
	(-0.52)	(1.56)	(2.44)	(1.23)	(0.29)	(1.09)	(0.00)	(-1.34)	(-0.43)
2	0.002	0.005**	0.004**	0.004*	0.004	0.002	0.005	-0.000	-0.005
	(1.26)	(2.96)	(2.64)	(2.09)	(1.28)	(0.73)	(1.41)	(-0.05)	(-1.31)
3	0.003*	0.004**	0.004**	0.004**	0.002	0.003	0.001	-0.004	0.002
	(2.07)	(2.99)	(2.79)	(2.93)	(0.94)	(1.60)	(0.48)	(-1.84)	(0.66)
4	0.003*	0.004***	0.003*	0.003	0.006**	0.004**	0.004*	0.001	-0.003
	(2.00)	(3.71)	(2.45)	(1.94)	(2.87)	(2.69)	(2.51)	(0.91)	(-1.32)
5	0.002	0.003*	0.004*	0.003*	0.002	0.002	0.002	-0.000	0.000
	(1.56)	(2.14)	(2.31)	(2.09)	(0.97)	(1.48)	(1.42)	(-0.22)	(0.06)
6	0.000	0.001	0.003	0.005***	0.003	0.003**	0.002	0.000	-0.002
	(0.23)	(0.74)	(1.75)	(3.43)	(1.84)	(2.61)	(1.80)	(0.10)	(-1.22)
7	0.001	0.004	0.004*	0.004*	0.005*	0.001	0.002	0.002	-0.001
	(0.67)	(1.93)	(2.19)	(2.35)	(2.42)	(1.25)	(1.91)	(1.93)	(-0.70)
8	0.003	-0.001	0.001	0.004	0.004*	0.003*	0.001	0.001	-0.001
	(1.18)	(-0.31)	(0.26)	(1.82)	(2.00)	(2.27)	(0.56)	(0.75)	(-0.57)
9	-0.009***	0.001	-0.003	0.003	-0.000	-0.000	-0.002	-0.003*	-0.002
	(-3.57)	(0.41)	(-1.22)	(1.22)	(-0.09)	(-0.14)	(-1.41)	(-2.13)	(-1.28)
High	-0.008*	-0.002	-0.004	-0.006	-0.002	-0.005***	-0.005***	-0.008***	-0.010***
	(-2.35)	(-0.65)	(-1.24)	(-1.52)	(-0.71)	(-3.83)	(-3.71)	(-5.42)	(-6.36)

Table 3: **Abnormal Monthly Returns in months [7-18] on Portfolios sorted by Total Asset Growth and Debt Issuance or Retirement**. The table reports the intercepts from OLS regressions of monthly excess portfolio returns (value and equally weighted) on the three Fama-French factors. Each year 10 portfolios are formed by sorting firms on their *Total Asset Growth* during the year. Firms within each asset growth portfolio are then assigned to one of 9 sub-portfolios based on the change in the Total Debt during the year expressed as a proportion of the beginning of year total assets. Firms in sub-portfolios $DR1$-$DR4$ reduce their debt and firms in sub-portfolios $DI1$-$DI4$ increase their debt. Portfolio $Dzero$ consists firms that do not change their debt outstanding. The abnormal returns are shown for months [7-18] following December of the fiscal year which is used to construct the sorting criteria. The longest sample period is from 1968 to 2010. t-statistics are reported in brackets. Asterisks correspond to the following p-values: $*p < 0.05, **p < 0.01, ***p < 0.001$.

	(i)	(ii)	(iii)	(iv)	(v)	(vi)
$\text{FE}(y-1, y+1)$	0.224*		0.396**	-0.030		
	(2.18)		(3.24)	(-0.16)		
TAG_y	4.298***	5.535***	3.555***	5.978***	7.289***	6.059***
	(13.02)	(10.22)	(12.37)	(17.51)	(12.98)	(12.19)
D/A_{y-1}	-0.304*	-0.093	-0.298*	-0.236	0.224*	-0.308
	(-2.40)	(-0.92)	(-2.52)	(-1.51)	(1.98)	(-1.58)
ΔROA_{y+1}	-1.097**	-2.204***		-2.570***	-3.535***	-3.241***
	(-3.13)	(-6.09)		(-6.46)	(-10.16)	(-5.91)
M/B_{y-1}	-0.028*	-0.025*	-0.018*	-0.005	0.004	0.013
	(-2.54)	(-2.22)	(-2.44)	(-0.38)	(0.26)	(0.72)
Ret_{y-1}	-0.140	-0.174**	-0.122	-0.282***	-0.276***	-0.291*
	(-1.10)	(-2.93)	(-1.11)	(-5.06)	(-4.74)	(-1.97)
SDROA_{y+1}	-11.391***	-15.538***	-9.248***	-13.918***	-18.093***	-10.843***
	(-8.02)	(-9.72)	(-6.78)	(-7.18)	(-10.11)	(-5.61)
(E/P)_{y-1}				2.362***		
				(3.58)		
(E/P)/Baa_{y-1}					0.013	0.097
					(0.33)	(1.13)
$\text{CEOstart}_{y-1,y}$						0.070
						(1.43)
SENSI_y						-0.237*
						(-2.55)
Constant	1.173***	1.482***	0.905***	1.462***	1.724***	1.277***
	(4.95)	(10.47)	(3.78)	(14.01)	(11.65)	(5.00)
Annual dummy variables	No	No	No	Yes	No	No
Obs.	15740	57920	16796	12795	47618	9879

Table 4: **Predicting Debt Issuance and Retirement.** The table reports the results of panel logit regressions for debt issuance or retirement in year y. The dependent variable is equal to unity for a firm that issues debt and zero for a firm that retires debt. FE(y-1,y+1) is the consensus forecast of earnings per share for year $y+1$ made at the end of year $y-1$, scaled by the share price at the end of year $y-1$. TAG_y is the Total Asset Growth rate during year y. D/A_{y-1} is the ratio of the book value of debt to total assets at the end of year $y-1$. M/B_y denotes the ratio between the market and book value of equity at the end of year y. ΔROA_{y+1} is the change in Return of Assets from y to $y+1$, and SDROA_{y+1} is the cross-sectional standard deviation of this variable across firms in the portfolio to which the security is assigned in Tables 2 and 3. Ret_{y-1} is the stock return in $y-1$. (E/P)/Baa_{y-1} is the ratio of the earnings per share to the average Baa corporate bond yield in year $y-1$. $CEO_{starty,y-1}$ is a dummy variable which is equal to one if a new CEO was appointed in year y or $y-1$. $SENSI_y$ is the proportional sensitivity of CEO pay to the stock price. In regressions that include the earnings yield, E/P, observations are omitted when the earnings yield is negative. All variables are winsorized at the 1% level and the errors are double-clustered. The longest sample period is from 1968 to 2010.

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)
				Panel A: Value Weighted				
$\ln(1+\text{TAG})_y$		-0.006						
		(-0.99)						
$\ln\text{TAG}_y$	-0.001							
	(-1.18)							
$\ln\text{DI}_y$	-0.001**	-0.001						
	(-3.24)	(-1.54)						
ΔROA_{y+1}			0.045*			0.037		0.038
			(2.49)			(1.75)		(1.83)
ΔROE_{y+1}				0.017**		0.006		0.005
				(3.48)		(0.88)		(0.80)
$\text{FE}(y, y+1)$					-0.013**			
					(-3.46)			
$(\text{M/B})_y$							0.000	0.000
							(0.56)	(0.95)
Cons	-0.005**	-0.002	0.000	-0.000	0.001	0.000	-0.000	-0.001
	(-3.23)	(-0.87)	(0.10)	(-0.24)	(0.67)	(0.06)	(-0.40)	(-0.56)
R^2	0.030	0.018	0.017	0.017	0.015	0.018	0.000	0.019
				Panel B: Equal Weighted				
$\ln(1+\text{TAG})_y$		-0.007						
		(-1.40)						
$\ln\text{TAG}_y$	-0.000							
	(-0.01)							
$\ln\text{DI}_y$	-0.002***	-0.001**						
	(-4.60)	(-2.99)						
ΔROA_{y+1}			0.066**			0.029		0.028
			(2.88)			(0.90)		(0.87)
ΔROE_{y+1}				0.035***		0.027*		0.026*
				(6.20)		(2.46)		(2.41)
$\text{FE}(y, y+1)$					-0.010**			
					(-2.73)			
$(\text{M/B})_y$							-0.001	-0.000
							(-1.55)	(-0.51)
Constant	-0.006***	-0.004	-0.000	0.000	0.001	0.000	0.002	0.001
	(-3.97)	(-1.59)	(-0.25)	(0.18)	(0.91)	(0.06)	(1.16)	(0.49)
R^2	0.070	0.041	0.028	0.048	0.012	0.045	0.005	0.045

Table 5: **Regression of Abnormal Returns for months 7-18 on selected variables for Debt Issuers.** The table reports the results of panel regressions of the abnormal return over months 7-18 on the 40 Debt Issuance VW and EW portfolios on selected variables which are the equal or value-weighted characteristics of the securities in the portfolios. TAG_y is total asset growth in year y; DI_y is debt issuance in year y; ΔROA_{y+1} (ΔROE_{y+1}) is the change in Return on Assets (Equity) from year y to year $y+1$; $FE(y, y+1)$ is the average median analyst forecast error for earnings per share in year $y+1$ made in the last quarter of year y scaled by the share price at the end of year y: it is set to missing if the share price is below one dollar. The sample period is from 1968 to 2010. Regressions that include $FE(y, y+1)$ start in 1980 and regression (i) includes only portfolios for which $TAG > 0$. All variables (except for log-variables and abnormal returns) are winsorized at the 1% level. The sample period is from 1968 to 2010. The reported standard errors are Driscoll-Kraay (1998) standard errors that correct for a variety of dependencies including spatial dependencies.

	(i)	(ii)	(iii)	(iv)
Dependent Variable	ΔROA$_{y+1}$	ΔROE$_{y+1}$	FE$(y, y+1)$	FE$(y-1, y+1)$
ln(1+TAG)$_y$	0.024**	0.016*	-0.063***	-0.080***
	(3.20)	(2.38)	(-4.20)	(-9.82)
lnDI$_y$	-0.006***	-0.003**	0.007***	0.004***
	(-13.50)	(-3.08)	(5.08)	(4.88)
ROA$_y$	-0.535***			
	(-40.24)			
ROE$_y$		-0.639***		
		(-28.24)		
Constant	0.007*	0.042***	0.097***	0.083***
	(2.50)	(7.55)	(12.39)	(25.83)
R^2	0.2912	0.2852	0.0056	0.0157

Table 6: **Regressions of Changes in Return on Assets, Return on Equity, and Forecast Errors on TAG and DI for Issuers.** The table reports the results of panel regressions of changes in Return on Assets and Return on Equity from year y to year $y+1$, and forecast errors of year $y+1$ earnings per share, on lagged values of the variables and asset growth (TAG) and debt issuance (DI) in year y. Firms are included in the regression only if their debt issue is positive in year y. ROE is set to missing if the share price is below one dollar. FE$(y, y+1)$ is the forecast error of earnings per share in year $y+1$ made at the end of year y scaled by the share price at the end of year y. All variables (except for logs) are winsorized at the 1% level. The sample period is 1968-2010. The reported standard errors are Driscoll-Kraay standard errors that correct for a variety of dependencies including spatial dependencies.

Asset Growth	Value Weighted					Equal Weighted				
	Panel A. Return on Assets: $y-1$									
	$DI1$	$DI2$	$DI3$	$DI4$	$DI4$-$DI1$	$DI1$	$DI2$	$DI3$	$DI4$	$DI4$-$DI1$
Low	0.013	0.008	0.004	0.030	0.017	-0.041	-0.045	-0.052	-0.045	-0.004
2	0.082	0.064	0.075	0.071	-0.011	0.025	0.030	0.031	0.035	0.010
3	0.091	0.105	0.082	0.098	0.007	0.072	0.070	0.059	0.056	-0.016
4	0.121	0.106	0.112	0.092	-0.029	0.09	0.088	0.083	0.063	-0.027
5	0.136	0.116	0.107	0.121	-0.015	0.105	0.098	0.089	0.083	-0.022
6	0.148	0.135	0.129	0.120	-0.028	0.118	0.105	0.102	0.090	-0.028
7	0.172	0.143	0.126	0.130	-0.042	0.133	0.113	0.104	0.094	-0.039
8	0.185	0.152	0.132	0.132	-0.053	0.14	0.122	0.116	0.094	-0.046
9	0.185	0.173	0.147	0.137	-0.048	0.147	0.134	0.124	0.104	-0.043
High	0.169	0.160	0.151	0.145	-0.024	0.128	0.126	0.127	0.103	-0.025
	Panel B. Return on Equity year $y-1$									
Low	-0.087	-0.064	-0.118	-0.158	-0.071	-0.163	-0.167	-0.193	-0.261	-0.098
2	0.068	0.009	0.057	-0.004	-0.072	-0.042	-0.040	-0.037	-0.084	-0.042
3	0.098	0.125	0.057	0.116	0.018	0.04	0.041	0.030	0.006	-0.034
4	0.155	0.137	0.147	0.110	-0.045	0.091	0.098	0.074	0.027	-0.064
5	0.150	0.158	0.152	0.151	0.001	0.111	0.115	0.102	0.065	-0.046
6	0.175	0.190	0.182	0.153	-0.022	0.129	0.128	0.124	0.089	-0.040
7	0.185	0.198	0.188	0.164	-0.021	0.141	0.134	0.129	0.093	-0.048
8	0.209	0.203	0.185	0.164	-0.045	0.149	0.139	0.146	0.088	-0.061
9	0.215	0.213	0.190	0.168	-0.047	0.152	0.151	0.148	0.112	-0.040
High	0.204	0.199	0.184	0.170	-0.034	0.112	0.135	0.130	0.098	-0.014
	Panel C. Market to Book Ratio year $y-1$									
Low	2.187	2.369	2.278	2.691	0.504	2.075	1.916	1.767	2.491	0.416
2	1.887	1.832	2.421	2.598	0.711	1.662	1.585	1.754	2.082	0.420
3	2.108	2.092	1.785	2.730	0.622	1.717	1.603	1.463	1.878	0.161
4	2.499	2.135	2.432	2.313	-0.186	1.685	1.646	1.607	1.682	-0.003
5	2.369	2.470	2.349	2.848	0.479	1.796	1.761	1.658	1.935	0.139
6	2.837	2.404	2.746	2.427	-0.41	2.089	1.835	1.822	1.862	-0.227
7	3.277	2.961	2.837	2.916	-0.361	2.229	1.998	1.919	1.925	-0.304
8	3.840	3.188	2.903	2.565	-1.275	2.536	2.185	2.092	1.963	-0.573
9	4.124	3.812	3.273	3.035	-1.089	3.076	2.481	2.316	2.305	-0.771
High	4.283	3.749	3.600	4.034	-0.249	3.449	2.708	2.692	3.038	-0.411
	Panel D. Leverage Ratio year $y-1$									
	$DI1$	$DI2$	$DI3$	$DI4$	$DI4$-$DI1$	$DI1$	$DI2$	$DI3$	$DI4$	$DI4$-$DI1$
Low	0.235	0.247	0.246	0.260	0.025	0.195	0.212	0.223	0.232	0.037
2	0.233	0.248	0.273	0.257	0.024	0.230	0.264	0.272	0.255	0.025
3	0.240	0.261	0.281	0.257	0.017	0.257	0.289	0.299	0.285	0.028
4	0.227	0.266	0.280	0.290	0.063	0.259	0.296	0.308	0.294	0.035
5	0.231	0.305	0.327	0.288	0.057	0.259	0.319	0.328	0.290	0.031
6	0.221	0.270	0.307	0.288	0.067	0.246	0.302	0.321	0.307	0.061
7	0.190	0.274	0.314	0.291	0.101	0.218	0.287	0.316	0.318	0.100
8	0.173	0.252	0.295	0.293	0.120	0.198	0.263	0.291	0.300	0.102
9	0.170	0.236	0.290	0.276	0.106	0.191	0.253	0.281	0.295	0.104
High	0.184	0.254	0.276	0.275	0.091	0.179	0.258	0.275	0.278	0.099
	Panel E. Scaled Error in Forecast of year $y+1$ Earnings made in year $y-1$									
Low	0.115	0.168	0.295	0.136	0.021	0.207	0.254	0.326	0.255	0.048
2	0.048	0.076	0.105	0.144	0.096	0.140	0.177	0.140	0.213	0.073
3	0.020	0.081	0.168	0.222	0.202	0.077	0.147	0.180	0.188	0.111
4	0.022	0.025	0.063	0.051	0.029	0.059	0.056	0.119	0.154	0.095
5	0.015	0.017	0.012	0.058	0.043	0.036	0.025	0.035	0.129	0.093
6	0.012	0.013	0.018	0.027	0.015	0.018	0.032	0.039	0.104	0.086
7	0.006	0.010	0.011	0.027	0.021	0.024	0.030	0.025	0.088	0.064
8	0.005	0.008	0.015	0.052	0.047	0.015	0.032	0.038	0.068	0.053
9	-0.001	0.013	0.014	0.023	0.024	0.028	0.034	0.027	0.066	0.038
High	0.010	0.015	0.025	0.038	0.028	0.057	0.044	0.067	0.104	0.047
	Panel F. Abnormal Returns: Months -23 to -11									
Low	-0.016	-0.021	-0.024	-0.020	-0.004	-0.011	-0.017	-0.018	-0.015	-0.004
2	-0.015	-0.015	-0.012	-0.010	0.005	-0.015	-0.014	-0.013	-0.008	0.007
3	-0.009	-0.008	-0.014	-0.013	-0.004	-0.005	-0.009	-0.007	-0.008	-0.003
4	-0.003	-0.001	-0.006	-0.007	-0.004	-0.004	-0.005	-0.006	-0.006	-0.002
5	-0.003	-0.003	-0.001	-0.005	-0.002	-0.001	-0.002	-0.004	-0.002	-0.001
6	0.001	0.002	-0.002	-0.003	-0.004	0.002	0	-0.001	-0.001	-0.003
7	0.002	0.002	-0.001	0.002	0.000	0.004	0.002	0.000	0.001	-0.003*
8	0.009	0.003	0.002	-0.003	-0.012***	0.008	0.008	0.005	0.001	-0.007***
9	0.011	0.005	0.007	0.002	-0.009***	0.015	0.011	0.009	0.004	-0.011***
High	0.016	0.008	0.007	0.009	-0.007***	0.030	0.020	0.015	0.022	-0.008***

Table 7: **Measures of Pressure on the Managers of Debt Issuers.** The portfolios are first sorted by *Total Asset Growth* (TAG) and allocated to 10 deciles in increasing order. The deciles are then sorted by the change in the amount of total debt over the year divided by Total Assets at the beginning of the year. The table reports results only for firms that increase their debt outstanding in year y ($DI_y > 0$). $DI1$ consists of firm that have a small increase in debt and $DI4$ of firms that have a big increase. The sample period is from 1968 to 2010. Asterisks correspond to the following p-values: $*p < 0.05, **p < 0.01, ***p < 0.001$.

Asset Growth	$DI1$	$DI2$	$DI3$	$DI4$	$DI4$-$DI1$	$DI1$	$DI2$	$DI3$	$DI4$	$DI4$-$DI1$
	A. New CEO in $y-1$ or y					B. New CEO in $y+1$ or $y+2$ or $y+3$				
Low	0.250	0.133	0.156	0.136	-0.114	0.114	0.133	0.250	0.273	0.159
2	0.133	0.254	0.244	0.200	0.067	0.120	0.169	0.222	0.150	0.030
3	0.109	0.088	0.122	0.118	0.009	0.109	0.184	0.122	0.132	0.023
4	0.071	0.122	0.057	0.123	0.052	0.093	0.169	0.101	0.090	-0.003
5	0.031	0.053	0.060	0.116	0.085	0.059	0.120	0.137	0.191	0.132
6	0.043	0.052	0.074	0.093	0.050	0.096	0.112	0.111	0.134	0.038
7	0.056	0.067	0.065	0.067	0.011	0.106	0.113	0.089	0.151	0.045
8	0.036	0.051	0.045	0.078	0.042	0.088	0.086	0.107	0.092	0.004
9	0.045	0.047	0.036	0.089	0.044	0.128	0.067	0.072	0.099	-0.029
High	0.028	0.050	0.039	0.035	0.007	0.099	0.112	0.142	0.106	0.007

Table 8: **Proportions of New CEO's for Debt Issuers** The table reports the proportions of new CEOs appointed around year y for firms in the respective asset and debt growth portfolios. The total number of CEO changes is divided by the total number of observations in each portfolio. The sample period is from 1992 to 2010.

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)
D/A_{y-1}	-0.207***	-0.209***	-0.242***	-0.242***	-0.230***	-0.198***	-0.192***	-0.274***
	(-12.73)	(-13.49)	(-16.51)	(-16.59)	(-14.63)	(-15.17)	(-14.30)	(-11.32)
$D/A_{y-1} \times TAG_y$	0.406***	0.407***	0.365***	0.368***	0.346***	0.337***	0.333***	0.149***
	(22.19)	(19.41)	(14.47)	(15.10)	(14.31)	(10.66)	(10.38)	(3.37)
TAG_y	0.264***	0.264***	0.285***	0.286***	0.298***	0.326***	0.327***	0.353***
	(24.09)	(24.42)	(21.06)	(20.62)	(21.46)	(26.95)	(27.23)	(25.29)
ROA_y	-0.157***	-0.195***	-0.211***	-0.167***	-0.180***	-0.264***	-0.243***	-0.210***
	(-7.93)	(-8.48)	(-4.99)	(-3.81)	(-4.31)	(-14.13)	(-12.05)	(-3.96)
Ret_y	-0.021***	-0.019***	-0.023***	-0.025***	-0.026***	-0.015***	-0.014***	-0.011**
	(-12.54)	(-11.01)	(-8.12)	(-8.30)	(-11.48)	(-5.88)	(-7.55)	(-2.84)
Ret_{y-1}	-0.012***	-0.012***	-0.018***	-0.019***	-0.019***	-0.007***	-0.006***	-0.013***
	(-6.64)	(-5.76)	(-5.63)	(-5.93)	(-7.15)	(-5.27)	(-5.73)	(-3.72)
$SDROA_{y+1}$	-0.147**	-0.172**	-0.198**	-0.196**	-0.161*	-0.196***	-0.225**	-0.410***
	(-2.63)	(-2.93)	(-2.81)	(-2.80)	(-2.46)	(-3.60)	(-3.25)	(-5.19)
ΔROA_y	0.018	0.012	0.015	0.016	0.031	-0.077***	-0.077***	-0.072*
	(1.18)	(0.87)	(0.87)	(0.91)	(1.76)	(-3.92)	(-3.53)	(-2.14)
$(M/B)_{y-1}$	-0.002***	-0.002***	-0.000	-0.000	-0.000	-0.000	-0.001	0.001
	(-4.91)	(-4.79)	(-0.80)	(-0.88)	(-0.73)	(-0.44)	(-1.65)	(1.22)
ΔROA_{y+1}		-0.086***	-0.080***			-0.065***	-0.049***	-0.035*
		(-5.58)	(-3.81)			(-7.19)	(-5.32)	(-2.27)
$FE(y, y+1)$			0.001	0.009*				
			(0.25)	(1.99)				
$FE(y-1, y)$					0.034***			
					(4.33)			
$(E/P)/Baa_{y-1}$						0.003*		
						(2.09)		
$(E/P)_{y-1}$							0.054***	0.035
							(3.86)	(1.40)
$CEOstart_{y-1,y}$								0.004
								(1.19)
$SENSI_y$								-0.027*
								(-2.18)
Constant	0.158***	0.158***	0.175***	0.173***	0.168***	0.136***	0.116***	0.148***
	(13.77)	(13.73)	(13.20)	(13.32)	(13.12)	(15.19)	(11.61)	(13.84)
R^2	0.580	0.587	0.599	0.597	0.592	0.636	0.642	0.689
Annual dummy variables	No	No	No	No	No	No	Yes	No
Obs.	36128	33806	19530	19532	19959	27845	27845	5453

Table 9: **Regression of Debt Growth in y for Debt Issuers.** The table reports the results of panel regressions of debt growth in year y on several explanatory variables. We include only firms that issue debt in year y ($DI_y > 0$). For regressions that include the earnings yield, E/P, only firms with positive earnings in year $y-1$ are included. See Table 4 for variable definitions. All variables are winsorized at the 0.1% level. The reported standard errors are Driscoll-Kraay standard errors that correct for a variety of dependencies including spatial dependencies. The longest sample period is 1968 to 2010.

	Standard deviation of change in Return on Assets from year y to year $y+1$						
	$DI1$	$DI2$	$DI3$	$DI4$	$DI4$-$DI1$	$DI4$ *minus* *Avg.*($DI2$,$DI3$)	$DI1$ *minus* *Avg.* ($DI2$,$DI3$)
Low	0.194	0.179	0.201	0.235	0.041	0.045	0.004
2	0.108	0.111	0.119	0.144	0.036	0.029	-0.007
3	0.064	0.079	0.085	0.112	0.048	0.030	-0.018
4	0.064	0.056	0.064	0.094	0.030	0.034	0.004
5	0.060	0.053	0.053	0.083	0.023	0.030	0.007
6	0.061	0.048	0.057	0.073	0.012	0.021	0.008
7	0.065	0.060	0.056	0.080	0.015	0.022	0.007
8	0.084	0.070	0.066	0.092	0.008	0.024	0.016
9	0.101	0.081	0.082	0.096	-0.005	0.015	0.020
High	0.171	0.126	0.125	0.187	0.016	0.062	0.046
Average	0.097	0.086	0.091	0.120	0.022	0.031	0.009

Table 10: **Risk Characteristics of Debt Issuers.** The portfolios are first sorted by *Total Asset Growth* (TAG) and allocated to 10 deciles in increasing order. The deciles are then sorted by the change in the amount of total debt over the year divided by Total Assets at the beginning of the year. The table reports results only for firms that increase their debt outstanding in year y ($DI_y > 0$). $DI1$ consists of firms that have a small increase in debt and $DI4$ of firms that have a big increase. The sample period is from 1968 to 2010.

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)
	Panel A: Value Weighted							Panel B: Equal Weighted						
$\ln(1+\text{TAG})_y$	-0.006*							-0.012***						
	(-2.41)							(-5.90)						
$\ln\text{DR}_y$	-0.001*							-0.001*						
	(-2.38)							(-2.35)						
ΔROA_{y+1}		0.052***			0.049***		0.050***		0.071***			0.044**		0.042**
		(8.88)			(6.09)		(6.14)		(5.39)			(3.08)		(3.12)
ΔROE_{y+1}			0.017***		0.005		0.003			0.037***		0.024*		0.019
			(4.81)		(1.19)		(0.86)			(4.59)		(2.28)		(1.91)
$\text{FE}(y, y+1)$				-0.015**							-0.007			
				(-2.71)							(-1.97)			
$(\text{M/B})_y$						-0.001*	-0.000						-0.002***	-0.001*
						(-2.58)	(-1.50)						(-4.31)	(-2.42)
Cons	-0.002	0.001	0.001*	0.001	0.001*	0.002**	0.002**	-0.000	0.002***	0.003***	0.001	0.003***	0.006***	0.005***
	(-1.31)	(1.86)	(2.18)	(1.34)	(2.07)	(3.19)	(2.71)	(-0.33)	(4.05)	(4.91)	(1.31)	(4.55)	(6.49)	(5.95)
R^2	0.016	0.027	0.016	0.005	0.031	0.005	0.033	0.060	0.044	0.054	0.003	0.063	0.029	0.071
	Panel C: Value Weighted excluding High Asset Growth decile							Panel D: Equal Weighted excluding High Asset Growth decile						
$\ln(1+\text{TAG})_y$	0.001							-0.009*						
	(0.24)							(-2.69)						
$\ln\text{DR}_y$	-0.001							-0.001*						
	(-1.87)							(-2.22)						
ΔROA_{y+1}		0.044***			0.038**		0.038***		0.069***			0.011		0.011
		(4.25)			(3.57)		(3.64)		(3.90)			(0.67)		(0.68)
ΔROE_{y+1}			0.012**		0.004		0.004			0.043***		0.040***		0.039***
			(3.25)		(1.15)		(1.03)			(5.75)		(4.67)		(4.45)
$\text{FE}(y, y+1)$				-0.009							-0.005			
				(-1.34)							(-1.07)			
$(\text{M/B})_y$						-0.000	-0.000						-0.001	-0.000
						(-1.02)	(-0.66)						(-1.95)	(-0.41)
Cons	-0.001	0.001**	0.002**	0.002*	0.001**	0.002*	0.002*	-0.001	0.003***	0.004***	0.002**	0.004***	0.005***	0.004***
	(-0.71)	(2.75)	(3.15)	(2.70)	(2.89)	(2.63)	(2.40)	(-0.35)	(4.75)	(5.74)	(2.88)	(5.78)	(4.90)	(4.22)
R^2	0.005	0.015	0.008	0.002	0.016	0.001	0.016	0.025	0.032	0.059	0.002	0.059	0.009	0.060
	Panel F: Value Weighted excluding Asset Growth deciles 9 & 10							Panel G: Equal Weighted excluding Asset Growth deciles 9 & 10						
$\ln(1+\text{TAG})_y$	0.004							-0.006						
	(0.88)							(-1.43)						
$\ln\text{DR}_y$	-0.000							-0.001						
	(-0.82)							(-1.49)						
ΔROA_{y+1}		0.030			0.020		0.022		0.055*			-0.005		-0.004
		(1.72)			(1.09)		(1.14)		(2.13)			(-0.20)		(-0.17)
ΔROE_{y+1}			0.010		0.006		0.006			0.040***		0.042***		0.041***
			(1.99)		(1.26)		(1.11)			(4.61)		(4.58)		(4.27)
$\text{FE}(y, y+1)$				-0.007							-0.003			
				(-0.66)							(-0.47)			
$(\text{M/B})_y$						-0.000	-0.000						-0.001	-0.000
						(-1.00)	(-0.88)						(-1.40)	(-0.31)
Cons	0.001	0.001*	0.002**	0.002**	0.002*	0.002**	0.002**	0.001	0.003***	0.004***	0.002**	0.004***	0.005***	0.004***
	(0.37)	(2.62)	(3.18)	(2.95)	(2.71)	(3.16)	(3.05)	(0.50)	(5.64)	(6.07)	(2.96)	(6.44)	(4.36)	(4.13)
R^2	0.004	0.005	0.005	0.001	0.007	0.001	0.007	0.010	0.016	0.044	0.001	0.044	0.005	0.044

Table 11: **Regression of Abnormal Returns for months 7-18 on selected variables for Debt Retirers.** The table reports the results of panel regressions of changes in Return on Assets and Return on Equity from year y to year $y+1$, and forecast errors of year $y+1$ earnings per share, on lagged values of the variables and asset growth (TAG) and debt issuance (DI) in year y. Firms are included in the regression only if their debt retirement is positive in year y. ROE is set to missing if the share price is below one dollar. $\text{FE}(y, y+1)$ is the forecast error of earnings per share in year $y+1$ made at the end of year y scaled by the share price at the end of year y. All variables (except for logs) are winsorized at the 1% level. The sample period is from 1968 to 2010. The reported standard errors are Driscoll-Kraay (1998) standard errors that correct for a variety of dependencies including spatial dependencies.

	(i) ΔROA_{y+1}	(ii) ΔROE_{y+1}	(iii) FE$(y, y+1)$	(iv) FE$(y-1, y+1)$
$\ln(1+TAG)_y$	0.046***	0.041***	-0.064***	-0.116***
	(5.87)	(5.91)	(-4.49)	(-8.68)
$\ln DR_y$	0.003***	0.003***	-0.001	-0.001
	(7.66)	(5.32)	(-0.58)	(-0.93)
ROA_y	-0.465***			
	(-38.26)			
ROE_y		-0.708***		
		(-50.72)		
Constant	0.041***	0.072***	0.054***	0.058***
	(18.16)	(20.98)	(10.51)	(9.88)
R^2	0.2142	0.4043	0.0049	0.0197
Panel B: excluding Asset Growth decile 10				
$\ln(1+TAG)_y$	0.029**	0.047***	-0.081***	-0.173***
	(3.13)	(3.71)	(-3.87)	(-8.86)
$\ln DR_y$	0.003***	0.003***	-0.002*	-0.004**
	(6.91)	(6.12)	(-2.22)	(-3.28)
ROA_y	-0.376***			
	(-25.22)			
ROE_y		-0.688***		
		(-51.72)		
Constant	0.037***	0.074***	0.046***	0.043***
	(14.40)	(18.26)	(11.56)	(8.81)
R^2	0.131	0.372	0.004	0.029
Obs.	33148	28112	17858	8935
Panel C: excluding Asset Growth deciles 9 &10				
$\ln(1+TAG)_y$	0.026**	0.044***	-0.083***	-0.174***
	(2.84)	(3.29)	(-3.77)	(-8.28)
$\ln DR_y$	0.003***	0.003***	-0.002*	-0.004***
	(6.71)	(6.15)	(-2.24)	(-3.54)
ROA_y	-0.345***			
	(-17.69)			
ROE_y		-0.683***		
		(-53.72)		
Constant	0.036***	0.075***	0.045***	0.042***
	(12.96)	(18.83)	(10.08)	(7.17)
R^2	0.107	0.360	0.004	0.026
Obs.	31420	26661	16816	8504

Table 12: **Regressions of Changes in Return on Assets, Return on Equity, and Forecast Errors on TAG and DI for Retirers.** The table reports the results of panel regressions of changes in Return on Assets and Return on Equity from year y to year $y+1$, and forecast errors of year $y+1$ earnings per share, on lagged values of the variables and asset growth (TAG) and debt issuance (DI) in year y. Firms are included in the regression only if their debt retirement is positive in year y. ROE is set to missing if the share price is below one dollar. FE$(y, y+1)$ is the forecast error of earnings per share in year $y+1$ made at the end of year y scaled by the share price at the end of year y. All variables (except for logs) are winsorized at the 1% level. The sample period is from 1968 to 2010. The reported standard errors are Driscoll-Kraay standard errors that correct for a variety of dependencies including spatial dependencies.

	Value Weighted					Equal Weighted				
Panel A. Return on Assets: $y-1$										
	DR4	DR3	DR2	DR1	DR4-DR1	DR4	DR3	DR2	DR1	DR4-DR1
1	0.045	0.049	0.052	0.023	0.022	0.008	0.004	-0.01	-0.035	0.043
2	0.094	0.085	0.077	0.071	0.023	0.059	0.053	0.04	0.026	0.033
3	0.110	0.098	0.104	0.092	0.018	0.082	0.076	0.069	0.057	0.025
4	0.136	0.114	0.116	0.122	0.014	0.099	0.089	0.091	0.086	0.013
5	0.136	0.132	0.136	0.141	-0.005	0.105	0.105	0.098	0.098	0.007
6	0.147	0.145	0.150	0.156	-0.009	0.115	0.114	0.115	0.116	-0.001
7	0.135	0.169	0.163	0.190	-0.055	0.118	0.122	0.128	0.14	-0.022
8	0.168	0.180	0.194	0.207	-0.039	0.133	0.129	0.132	0.162	-0.029
9	0.144	0.195	0.177	0.212	-0.068	0.127	0.139	0.12	0.17	-0.043
10	0.132	0.125	0.119	0.183	-0.051	0.133	0.085	0.063	0.123	0.010
Panel B. Return on Equity year $y-1$										
1	-0.043	-0.005	0.007	-0.040	-0.003	-0.204	-0.140	-0.11	-0.128	-0.076
2	0.046	0.066	0.068	0.059	-0.013	-0.038	-0.008	-0.015	-0.024	-0.014
3	0.101	0.106	0.115	0.089	0.012	0.039	0.051	0.048	0.028	0.011
4	0.154	0.138	0.148	0.139	0.015	0.078	0.081	0.086	0.075	0.003
5	0.149	0.170	0.172	0.177	-0.028	0.089	0.112	0.105	0.107	-0.018
6	0.181	0.185	0.185	0.174	0.007	0.112	0.122	0.13	0.122	-0.010
7	0.156	0.210	0.193	0.208	-0.052	0.094	0.133	0.144	0.144	-0.050
8	0.206	0.217	0.235	0.222	-0.016	0.119	0.123	0.151	0.165	-0.046
9	0.164	0.204	0.163	0.226	-0.062	0.069	0.122	0.105	0.158	-0.089
10	0.005	0.133	0.103	0.199	-0.194	0.027	0.031	-0.005	0.089	-0.062
Panel C. Market to Book Ratio year $y-1$										
1	2.141	1.91	2.016	2.056	0.085	1.445	1.394	1.403	1.683	-0.238
2	2.572	1.908	1.935	1.967	0.605	1.652	1.331	1.402	1.562	0.090
3	2.628	2.228	2.389	2.052	0.576	1.766	1.588	1.550	1.605	0.161
4	2.801	2.295	2.507	2.454	0.347	1.982	1.691	1.700	1.833	0.149
5	2.830	2.931	2.647	2.889	-0.059	2.202	1.993	1.874	1.951	0.251
6	3.463	2.888	3.014	2.907	0.556	2.360	2.053	2.156	2.097	0.263
7	3.262	3.890	3.195	3.911	-0.649	2.588	2.457	2.358	2.649	-0.061
8	4.104	3.663	3.934	4.102	0.002	2.926	2.693	2.782	3.146	-0.220
9	4.897	4.025	4.490	5.120	-0.223	3.616	3.205	3.647	4.048	-0.432
10	5.641	4.670	5.177	5.274	0.367	4.428	3.894	4.348	4.818	-0.390
Panel D. Leverage Ratio year $y-1$										
	DR4	DR3	DR2	DR1	DR4-DR1	DR4	DR3	DR2	DR1	DR4-DR1
1	0.479	0.369	0.293	0.210	0.269	0.520	0.363	0.283	0.184	0.336
2	0.391	0.349	0.296	0.228	0.163	0.422	0.356	0.303	0.204	0.218
3	0.342	0.324	0.289	0.250	0.092	0.389	0.337	0.305	0.226	0.163
4	0.321	0.301	0.268	0.224	0.097	0.362	0.317	0.294	0.220	0.142
5	0.338	0.270	0.236	0.206	0.132	0.348	0.291	0.253	0.213	0.135
6	0.294	0.250	0.218	0.195	0.099	0.325	0.254	0.244	0.177	0.148
7	0.280	0.211	0.196	0.139	0.141	0.309	0.227	0.208	0.141	0.168
8	0.280	0.203	0.170	0.112	0.168	0.327	0.212	0.182	0.104	0.223
9	0.296	0.213	0.143	0.086	0.210	0.333	0.218	0.149	0.088	0.245
10	0.387	0.203	0.164	0.091	0.296	0.410	0.203	0.147	0.070	0.340
Panel E. Scaled Error in Forecast of year $y+1$ Earnings made in year $y-1$										
1	0.190	0.065	0.197	0.138	0.052	0.198	0.138	0.190	0.276	-0.078
2	0.027	0.051	0.061	0.074	-0.047	0.069	0.102	0.132	0.141	-0.072
3	0.021	0.047	0.068	0.035	-0.014	0.032	0.055	0.057	0.078	-0.046
4	0.012	0.016	0.030	0.021	-0.009	0.044	0.042	0.040	0.060	-0.016
5	0.007	0.013	0.012	0.012	-0.005	0.012	0.023	0.031	0.032	-0.020
6	0.005	0.005	0.012	0.004	0.001	0.020	0.015	0.017	0.021	-0.001
7	0.015	0.002	0.002	0.006	0.009	0.008	0.034	0.013	0.017	-0.009
8	-0.005	0.010	-0.002	0.009	-0.014	0.022	0.018	0.018	0.033	-0.011
9	0.002	0.011	0.013	0.012	-0.010	0.039	0.003	0.003	0.018	0.021
10	0.103	0.012	0.032	0.066	0.037	0.079	0.083	0.077	0.116	-0.037
Panel F. Abnormal Returns: Months -23 to -11										
1	-0.019	-0.019	-0.023	-0.019	0	-0.023***	-0.022***	-0.021***	-0.016***	-0.007
2	-0.012	-0.013	-0.014	-0.014	0.002	-0.012***	-0.013***	-0.012***	-0.010***	-0.002
3	-0.007	-0.007	-0.009	-0.006	-0.001	-0.007***	-0.007***	-0.010***	-0.006***	-0.001
4	-0.004	-0.006	-0.002	-0.003	-0.001	0.000	-0.005***	-0.004**	-0.002	0.002
5	-0.002	0	-0.001	0.002	-0.004	0.000	-0.001	0.001	0.002	-0.002
6	0.006	0.002	0.002	0.004	0.002	0.008***	0.005**	0.004**	0.004	0.004
7	0.004	0.004	0.006	0.003	0.001	0.011***	0.006***	0.009***	0.007***	0.004
8	0.011	0.009	0.015	0.01	0.001	0.013***	0.016***	0.013***	0.013***	0.000
9	0.019	0.012	0.015	0.013	0.006	0.025***	0.021***	0.022***	0.024***	0.001
10	0.027	0.023	0.026	0.029	-0.002	0.030***	0.030***	0.037***	0.036***	-0.006

Table 13: **Measures of Pressure on Managers of Debt Retirers.** The portfolios are first sorted by *Total Asset Growth* (TAG) and allocated to 10 deciles in increasing order. The deciles are then sorted by the change in the amount of total debt over the year divided by Total Assets at the beginning of the year. The table reports results only for firms that reduce their outstanding debt in year y ($DR_y > 0$). $DR1$ consists of firm that have a small reduction in debt and $DR4$ of firms that have a big decrease. The sample period is from 1968 to 2010. Asterisks correspond to the following p-values: $*p < 0.05, **p < 0.01, ***p < 0.001$.

Asset Growth	DR4	DR3	DR2	DR1	DR4-DR1	DR4	DR3	DR2	DR1	DR4-DR1
	A. New CEO in $y-1$ or y					B. New CEO in $y+1$ or $y+2$ or $y+3$				
Low	0.171	0.163	0.185	0.209	-0.038	0.101	0.170	0.097	0.116	-0.015
2	0.106	0.136	0.170	0.142	-0.036	0.130	0.136	0.122	0.125	0.005
3	0.125	0.105	0.104	0.092	0.033	0.118	0.124	0.128	0.123	-0.005
4	0.073	0.080	0.088	0.061	0.012	0.094	0.105	0.135	0.131	-0.037
5	0.100	0.078	0.071	0.066	0.044	0.052	0.152	0.078	0.132	-0.080
6	0.048	0.071	0.069	0.091	-0.043	0.070	0.123	0.116	0.087	-0.017
7	0.038	0.046	0.038	0.085	-0.047	0.115	0.082	0.104	0.068	0.047
8	0.055	0.043	0.048	0.029	0.026	0.083	0.104	0.048	0.059	0.024
9	0.048	0.090	0.080	0.055	-0.007	0.113	0.141	0.091	0.077	0.046
High	0.000	0.000	0.000	0.021	-0.021	0.174	0.029	0.156	0.106	0.068

Table 14: **Proportions of New CEOs for Debt Retirers** The table reports the proportions of new CEOs appointed around year y for firms in the respective asset and debt retirement portfolios. The total number of CEO changes is divided by the total number of observations in each portfolio. The sample period is from 1992 to 2010.

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)
D/A_{y-1}	0.208***	0.207***	0.194***	0.194***	0.196***	0.178***	0.179***	0.207***
	(25.67)	(27.85)	(25.36)	(25.46)	(29.52)	(34.78)	(34.54)	(21.11)
$D/A_{y-1} \times TAG_y$	-0.249***	-0.241***	-0.173***	-0.174***	-0.237***	-0.238***	-0.234***	-0.337***
	(-9.32)	(-8.49)	(-5.11)	(-5.10)	(-6.84)	(-9.04)	(-9.08)	(-11.82)
TAG_y	-0.000	-0.002	-0.012**	-0.011**	-0.011***	-0.029***	-0.031***	-0.019**
	(-0.13)	(-0.55)	(-2.79)	(-2.67)	(-4.20)	(-5.01)	(-5.08)	(-2.65)
ROA_y	0.009	0.017**	0.025**	0.014*	0.030***	0.059***	0.067***	0.074***
	(1.70)	(2.78)	(3.15)	(2.16)	(4.45)	(7.40)	(8.23)	(5.22)
Ret_y	0.010***	0.010***	0.011***	0.011***	0.011***	0.011***	0.011***	0.013***
	(20.09)	(16.20)	(10.84)	(11.52)	(16.52)	(14.42)	(12.78)	(6.13)
Ret_{y-1}	0.005***	0.005***	0.005***	0.005***	0.006***	0.006***	0.007***	0.009***
	(7.96)	(8.90)	(10.62)	(10.77)	(7.93)	(7.61)	(15.51)	(7.00)
$SDROA_{y+1}$	0.152***	0.156***	0.164***	0.164***	0.148***	0.165***	0.171***	0.132***
	(8.24)	(8.05)	(9.03)	(8.98)	(8.84)	(8.80)	(8.46)	(6.18)
ΔROA_y	0.019***	0.018**	0.013	0.012	0.014**	0.021**	0.020**	0.023**
	(4.16)	(3.23)	(1.53)	(1.41)	(3.18)	(3.22)	(3.19)	(2.74)
$(M/B)_{y-1}$	0.002***	0.002***	0.001***	0.001***	0.001***	0.001***	0.001**	0.000
	(7.02)	(7.30)	(9.88)	(10.43)	(9.26)	(3.44)	(2.97)	(0.94)
ΔROA_{y+1}		0.014*	0.026***			0.002	0.004	-0.018
		(2.52)	(4.01)			(0.23)	(0.43)	(-1.13)
$FE(y, y+1)$			0.002	-0.000				
			(0.74)	(-0.10)				
$FE(y-1, y)$					-0.004			
					(-1.04)			
$(E/P)/Baa_{y-1}$						-0.002**		
						(-3.07)		
$(E/P)_{y-1}$							-0.023***	-0.010
							(-3.35)	(-0.96)
$CEOstart_{y-1,y}$								0.002
								(1.20)
$SENSI_y$								0.006*
								(2.51)
Constant	-0.042***	-0.043***	-0.046***	-0.046***	-0.045***	-0.043***	-0.048***	-0.060***
	(-14.63)	(-15.02)	(-17.35)	(-17.30)	(-14.91)	(-17.38)	(-17.90)	(-12.61)
R^2	0.240	0.242	0.210	0.209	0.224	0.221	0.227	0.258
Annual dummy variables	No	No	No	No	No	No	Yes	No
Obs.	32418	29886	16727	16728	17819	21344	21344	4546

Table 15: **Regression of Debt Reduction in y for Debt Retirers.** The table reports the results of panel regressions of debt reduction in year y on several explanatory variables. We include only firms that retire debt in year y ($DR_y > 0$). For regressions that include the earnings yield, E/P, only firms with positive earnings in year $y-1$ are included. See Table 4 for variable definitions. All variables are winsorized at the 0.1% level. The reported standard errors are Driscoll-Kraay standard errors that correct for a variety of dependencies including spatial dependencies. The longest sample period is 1968 to 2010.

	Standard deviation of change in Return on Assets from year y to year $y+1$						
	$DR4$	$DR3$	$DR2$	$DR1$	$DR4$-$DR1$	$DR4$ *minus* *Avg.*($DR2$,$DR3$)	$DR1$ *minus* *Avg.* ($DR2$,$DR3$)
Low	0.284	0.254	0.266	0.262	0.022	0.024	0.002
2	0.227	0.201	0.211	0.218	0.009	0.021	0.012
3	0.178	0.169	0.177	0.179	-0.001	0.005	0.006
4	0.161	0.137	0.148	0.154	0.007	0.019	0.012
5	0.175	0.139	0.134	0.128	0.047	0.039	-0.009
6	0.193	0.142	0.140	0.129	0.064	0.052	-0.012
7	0.213	0.139	0.117	0.136	0.077	0.085	0.008
8	0.219	0.173	0.149	0.140	0.079	0.058	-0.021
9	0.264	0.223	0.223	0.190	0.074	0.041	-0.033
High	0.324	0.312	0.301	0.264	0.060	0.018	-0.043
Average	0.224	0.189	0.187	0.036	0.151	0.036	-0.008

Table 16: **Risk Characteristics of Debt Retirers.** The portfolios are first sorted by *Total Asset Growth* (TAG) and allocated to 10 deciles in increasing order. The deciles are then sorted by the change in the amount of total debt over the year divided by Total Assets at the beginning of the year. The table reports results only for firms that reduce their debt outstanding in year y ($DR_y > 0$). $DR1$ consists of firms that have a small reduction in debt and $DR4$ of firms that have a big reduction. The sample period is from 1968 to 2010.