Capital Structure and Market Timing in the UK: Deviation from Target Leverage and Security Issue Choice

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Abstract

This paper examines the timing behavior of firms in the UK. We estimate intrinsic value of firms' equities and find that managers do indeed a time security issue which leads them to deviate away from target leverage levels. We further find that equity mispricing influences issue decisions as well as the issue choice. Equity mispricing increases the likelihood of firms making security issues. In addition, undervaluation increases the probability of firms opting for debt issues instead of equity. Firms also reduce equity and debt levels to reflect equity mispricing indicating that repurchase decisions are also timed. In addition, we find that firms are more like to issue debt accompanied with equity repurchases due to equity undervaluation and equity issues are supplemented with debt repurchases due to equity overvaluation.

Keywords: Market timing, equity mispricing, target leverage, repurchasing, UK firms, capital structure.

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I. Introduction

We study the market timing behavior by looking at equity mispricing in the UK. The market timing theory of capital structure posits that firms would issue debt during periods of undervaluation and equity during periods of overvaluation. If managers do adjust security issues accordingly, they would retire debt and repurchase shares based on equity mispricing as well. Thus, managers would be able to exploit equity mispricing to deliver value to the firms by changing the financing mix.

In this study, we examine the target leverage and the determinants of deviation from target leverage. Thus, we firstly estimate target leverage and then examine how equity mispricing influences deviation from target levels. Hovakimian (2004) finds that firms that have target debt ratios can engage in timing the equity market. Warr, Elliot, Koeter-Kant and Oztekin (2011) show the speed of adjustment towards target levels are faster if firms are over-levered (under-levered) and equity is overvalued (undervalued). Thus, managers do consider targeting behavior when timing security issues. Building on their work, we provide an alternative view whereby if firms increase (decrease) debt levels during periods of undervaluation (overvaluation), we conjecture that firms would be over-levered (under-levered). Thus our paper examines the determinants of deviation from target leverage and the influence of market timing in this deviation levels.

Flannery and Rangan (2006) argue that the pecking order coefficient (of the deficit variable) may simply reflect firm characteristics rather than changing market conditions. Huang and Ritter (2009) build on their work by relaxing the assumption in previous studies where it is implicitly assumed that the choice between issuing versus not issuing security is exogenous and firms resort to equity financing when the cost of equity is relatively low. We

scrutinize whether firms are more likely to issue (or remain passive) in the presence of equity mispricing. This paper looks at the issue decision not only as a resort of financing deficits, but driven by timing of equity markets. Our tests also consider repurchasing decisions (or remain passive). To provide evidence for UK firms and comparatively to US firms (see Elliot, Koeter-Kant and Warr, 2008), this paper further looks at the debt versus equity choice and the likelihood issue choices are influenced by equity mispricing which directly tests the market timing theory. The third aspect of this paper draws on the work of Rau and Vermaelan (2002) who document repurchasing in the UK to be tax driven. Contrasting their findings, Oswald and Young (2004) find that equity repurchases are driven by equity mispricing which mirrors the situation as documented in Ikenberry, Lakonishok and and Vermaelen (1995) for US firms. Thus, we test whether the repurchase decision is driven by equity mispricing, hence further affirming the market timing theory.

Lastly, we build on the findings of Baker and Wurgler (2002) and aim to examine whether equity mispricing influences firms' decision to actively alter the financing mix by issuing a particular type of security and simultaneously reducing another. If equities are overvalued, the cost of equity would hence be cheaper. Managers may be tempted to substitute existing debt with equity as well as opting for equity to finance deficit. This would further lower overall cost of capital of the company and thus further increase the value of company. We test this against a base of passive firms, which allows us to draw conclusions with regards to the influence of market timing on firms issue decisions.

We are able to draw several main findings and conclusions from our study. First, firms do increase debt levels when equities are undervalued and depress leverage levels when equities are overvalued. This leads them to deviate from optimal levels of capital structure. This

finding may suggest that timing of security issues work within a framework similar to the one proposed under the trade-off view of capital structure, as managers' trade off costs of deviating from target leverage with benefits from timing the market i.e. from resorting to a relatively cheaper source of financing. Secondly, we model issue size and issue choice, we find that both are influenced by equity mispricing and market timing considerations. Interestingly, equity mispricing plays a bigger role in issue size. Firms are more likely to issue debt during periods of undervaluation and equity during periods of overvaluation. Furthermore, firms are more likely to make debt (equity) reductions during periods of overvaluation (undervaluation). Lastly, we find that managers do actively issue debt and repurchase equity during periods of undervaluation. On the other hand, if equity is overvalued, we find that managers are also more likely to issue equity and retire debt. Thus, managers do swap one form of capital for the other suggesting that market timing considerations play a critical role in firms financing mix.

The remainder of this paper is organized as follows. Section 2 discusses the relevant literature and provides the motivation for this study. Section 3 describes the data, provides the definitions of the variables used, explains the methodology used to value equity and describes the basic models used in this paper. Section 4 develops empirical tests on how equity mispricing influences deviation from target capital structure. Section 5 empirically tests the security issue decisions in a logit and multinomial logit framework. The last section concludes the main findings and discusses the implication from this study.

II. Review of the Literature and Motivation

Studies on capital structure have shown that equity mispricing plays an important role in security issues. This section reviews the relevant literature and develops the main motivation for this paper. Firstly the review covers target leverage. Proponents of the trade-off theory

argue that firms have an optimal target capital structure. Cost of capital would be minimized at this optimal rate, thus maximizing firm value. However given that market imperfections such as asymmetric information and financing costs exist, firms may temporarily deviate from these targets.

Secondly this section looks as how market timing influences security issue choice. Older studies of capital structure have focused on the pecking order and trade-off explanation of capital structure decisions while timing issues is fast becoming a central theme in capital structure. Survey evidence by Graham and Harvey (2001) finds that managers actively engage in timing the market. In a more relevant survey, Brounen, de Jong and Koedijk (2006) also find that timing is a key element managers take into account when making security issue choices in the UK. Baker and Wurgler (2002) attempt take this into a contextual framework and propose that capital structure is the cumulative outcome of previous timing attempts.

A. Optimal Target and Deviation from Target

The trade-off theory proposes that firms have an optimal target capital structure which they aim to operate to maximize value. Managers would balance the benefit gained from issuing debt versus the cost of issuing debt such as bankruptcy costs. The inclusion of tax benefits of debt and the bankruptcy penalties would allow the determination of an optimal capital structure (Hirshleifer, 1966). The trade-off between the tax benefit of debt and the deadweight costs of bankruptcy is shown in Kraus and Litzenberger (1973). After a certain point, the two effects just balance to reach equilibrium, where further borrowing would decrease the value of the firm.

Empirical studies have provided mixed results on target adjustment behavior . Titman and Wessels (1988) find that transaction costs are an important determinant of capital structure suggesting that firms would balance costs vs. benefits of debt issues. Several other studies also support the notion of firms striving to maintain a target leverage.[1] In these studies the evidence indicates that managers do adjust issues and repurchasing to reach a particular target and the correlation between several firm specific characteristics such as the marginal or effective tax rate, the proxies for growth opportunities and size are in line with predictions from the trade off theory. Contrasting to this view, Shyam-Sunder and Myers (1999) find that the pecking order model outperforms the target adjustment model. The results theoretical implication stems from Myers (1977) where high growth firms should have a lower level of leverage, thus causing a negative correlation between growth proxies and leverage ratios.

Further evidence of target leverage is provided from survey results. Graham and Harvey (2001) find that managers admit to having a target ratio in mind when issuing debt. In the UK, Brounen, de Jong and Kodijk (2006) similarly find that managers take into account target levels of leverage when issuing debt. In addition to that the authors find that the tax advantage of interest payments, transaction costs of debt, debt levels of firms in similar industries and financial distress surrounding debt issues are important issues taken into consideration when managers make issue decisions. Further empirical evidence is provided by Hovakimian, Hovakimian and Tehranian (2004) who examine the role of dual issues and find that firms make dual issues to offset deviation from target levels that accumulate from earnings and losses. Leary and Roberts (2005) use a dynamic duration model to show that financing behavior is consistent with the presence of adjustment costs.

[1] See Graham (1996), Hovakimian, Opler and Titman (2001), Hovakimian (2004), Antoniou, Guney and Paudyal (2008).

Faulkender, Flannery, Hankins, and Smith (2007) suggest that a plausible reason why firms deviate from target capital structure would be due to managers having a target capital structure but also time security issues within a band around the target. In another recent study, Chang, Dasguta and Hillary (2006) find that firms that receive less analyst coverage issue equity less frequently and clumped in large issues. The authors show that there would be an inclination to time equity issues when conditions are more favorable. The theoretical underpinning would be that firms that receive less coverage would be faced with a higher degree of information asymmetry and thus their shares would be face more mispricing. If the equity was undervalued, these firms would have a stronger motivation to issue debt and thus move away from their target leverage. Once market conditions improve, firms would be inclined to issue equity to reduce reliance on debt and thus be able to reduce the deviation levels. Even if higher valuations would move firms closer to target market leverage levels, managers would still be inclined to issue more equity as they anticipate future difficulty in issuing. Managers are thus trading off the cost of being below their target leverage with the benefit of being over their targets in the future and building financial slack.

Further insight is provided by Hovakimian (2004) who shows that firms are able to pursue market-timing strategies because deviations and costs associated with deviating from target leverage induced by equity transactions are small and transitory. The author concludes that firms that have target debt ratios can engage in timing the equity market. . Alti (2006) also finds that firms time the market in the short-run but revert to target leverage eventually. In another recent study, Warr, Elliot, Koeter-Kant and Oztekin. (2011)show that firms that are over-levered would adjust faster to target leverage given that the present value of bankruptcy costs would be higher. More interestingly, over-levered firms would adjust faster to target leverage in the presence of overvaluation.

B. Security Issues and Repurchases

In a seminal study, Baker and Wurgler (2002) test the motivations for change in leverage ratios and find a strong link between external finance weighted average market to book ratio indicating that firms adjust leverage levels to suit external valuations. Thus managers would time issues when equity markets are favorable. The authors show that capital structure is the aggregate outcome of firms' historical attempts at timing the market. Further evidence on managers' attempts to time the market is provided by the survey evidence of Graham and Harvey (2001). In a more relevant survey study by Brounen, de Jong and Keodijk (2006) mangers indicate that the three of the four most significant factors affecting debt levels in the UK are related to market timing.[2] The authors also find that equity mispricing is the main factor looked at managers when deciding on equity issues. Further to that, Hovakimian, Opler and Titman (2001) report that SEOs in the US have a strong correlation with stock prices. Marsh (1982) documents a similar pattern in the UK where firms tend to time equity issues when prices are high.

Further support for the market timing theory is seen in Welch (2004) who finds that equity price shows have a persistent effect on a firms capital structure. The author however finds that firms do not rebalance their capital structure in response to shocks in market value in spite of active net issuing activity. Thus, stock returns are seen as the primary drive of capital structure changes. Elliot, Koter-Kant and Warr (2007) find that firms are more likely to issue equity to fund their deficit when equity is overvalued. Studying managerial timing attempts, Jenter (2005) finds that managers attempt to actively time the market in both their

[2] The top four attributes affecting leverage regimes in the UK are issuing debt when interest rates are particularly low, financing a deficit, equity undervaluation and changes in price of common stock.

own private trades and also at firm-level decisions. In a recent study, Hertzel and Li (2010) decompose the market-to-book ratio into two separate components, namely the growth and mispricing components. Their findings show that firms with higher element of mispricing decrease long-term debt and have a lower level of post-issue earnings. These results are consistent with the timing aspect of issuance activities.

In contrast to the above studies, several studies do not find support for the market timing theory. Hovakmian (2006) argues that the negative correlation between the market-to-book ratio and leverage is not driven by market timing considerations but rather it is capturing growth. In addition to this study, Flannery and Rangan (2006) find that more than half of the observed changes in leverage levels are brought about by targeting behavior. In their study, less than 10% of changes can be explained by market timing and pecking order considerations. Further to these studies, Mahajan and Tartaroglu (2008) show that the negative relationship between leverage and the market-to-book ratio is not attributed to market timing and the evidence in their study supports the dynamic trade-off theory. The debate is further extended by Liu (2009) who finds that the impact of time varying targets and adjustment costs indicates that the market-to-book ratio has a significant impact on leverage even when firms are not timing the market. The author further uses alternative proxies of market timing and is able to show they have no effect on leverage levels. Overall, Liu's study is more consistent with partial adjustment models.

The literature (e.g., Wansley, Lane and Sarker, 1989) suggests that firms repurchase shares for the following five reasons: reaching a target leverage, eliminating free cash flow, anti-takeover motive, signalling undervaluation and wealth transfer due to timing. Brockman and Chung (2001) and Chan, Ikenberry and Lee (2007) provide empirical evidence for timing

of managerial ability to time repurchases. Ikenberry, Lakonishok and Vermaelen (2000) show that equity price movements drive repurchasing behavior in the US. However, Rau and Vermaelen (2002) find that the majority of share buybacks in the UK are motivated by taxation purposes. This is in response to the regulation and taxes surrounding share repurchases in the UK. Oswald and Young (2004) however contend their findings for UK firms and show that as share prices fall, managers appear to respond by buying more shares and thus supporting the market timing framework to explain share buybacks. Interestingly, Doukas, Guo and Zhou (2010) find that firms also time debt issues by issuing during periods of hot debt markets showing that managers time debt issues as well as equity issues. Their results also show that firms issue more debt during hot periods to repurchase shares, suggesting that managers also actively substitute debt and equity.

3. Data and Empirical Approach

A. Data Description and Descriptive Statistics

We initially collect data for all firms in the U.K. available on Datastream during the period of 1981-2008.[3] Consistent with the literature we exclude financial firms from the sample and the selection is done based on the motif of measuring equity mispricing. The variables are defined as follows. Book debt, (BD), is defined as book debt divided by total assets. Market debt, (MD), is measured as the ratio of book value of total debt to market value of equity plus book value of total debt. The net debt issues, (Δdbl), is the net change in book debt over total assets. The net equity issues, (Δe), is the change in book equity less the change in retained earnings divided by total assets. The market-to-book ratio, (MTB), is measured as the ratio of book value of total assets less book value of equity plus market value

[3] Our sample includes dead firms to mitigate problems of survivor and selection bias.

of equity to book value of total assets. Non debt tax shield, (NDTS), are measured as the ratio of depreciation to total assets. SIZE is the natural logarithm of total assets in millions of 1981 pounds. Tangibility of assets, TANG, is defined as net plant, property and equipment over total assets. Effective tax rate, ETR, is total tax to total taxable income. Industry leverage, (INDL) is the median of the leverage levels of the industry the firm operates in. R&D and CAPEX are proxies for growth options defined as research and development expenses scaled by total assets, and capital expenditure divided by total assets, respectively. RDD is a dummy variable that takes the value of 1 if the data is not available in Datastream and zero otherwise. CASH is defined as cash and cash equivalents scaled by total assets.

[Insert table 1 about here]

To eliminate the outliers, we exclude firms year observations for values where BD, Δdbl and Δe that exceed 100% in absolute value. Missing firm-year observations are also excluded from the data set. The final sample comprises of 11,105 firm-year observations. The summary statistics of firm specific characteristics and financing activities are summarized in Table 1. Overall firms leverage levels do not change much as pre-issue leverage is about 16.37% and post issue leverage is about 16.89%. We find that pure debt issuers have equities that are undervalued 69% of the time while firms that issue debt and repurchase equity are undervalued 78% of the time. Given that the average leverage levels in the sample is about 16%, the pre-issue leverage of these firms also do not suggest that they were attempting to reduce deviation from target levels.[4] In both instances firms increase their leverage levels. Post issue leverage suggests that as firms increase debt issues during undervaluation periods, they deviate away from target levels. Interestingly profitability, (EBIT), for both categories of firms is higher than the overall average of 2.80%.[5] Cash levels

[4] This is assuming that firms would overall have a target close to the overall average of the sample.
[5] Profitability for pure debt issuers are 4.57% and 9.75% for firms that issue debt and repurchase equities.

for both categories of firms are also lower than the overall average suggesting that these firms purse a lower cash holding strategy.

Pure equity issuers on the other hand have equities which are overvalued 82% of the time. These firms also do not seem to be motivated by targeting behavior , in fact their attempts to time the equity market seems to drive them away from the average levels of debt in the UK. Firms that issue equity and retire debt on the other hand seem to be motivated by reaching a target and also timing their actions as their pre-issue leverage and post issue leverage suggests (from 31% to 16%). Equity for these firms are overvalued about 97% of the time. Both categories also have an inferior level of performance as seen in their profitability levels which are below the overall average. Pure equity issuers have higher levels of cash than the overall average of firms in the sample suggesting that they follow a strategy of higher cash holdings. Pure equity repurchases appear to be motivated by purely timing considerations as their equities are undervalued almost 58% of the time and their pre-issue leverage and post-issue leverages are quite similar. Pure debt reductions on the other hand appear to be motivated by both timing and targeting behavior as their pre-issue leverage and post issue leverages change drastically as well as the action is mostly accompanied with equity overvaluation (84% of the time). Thus we are able to infer that equity mispricing plays a significant role in financing and repurchasing behavior from the summary statistics.

B. Equity Mispricing

We measure mispricing with the ratio of intrinsic value (IV) to current market price (MP).[6] Intrinsic value is measured as follows:[7]

[6] We utilize an approach similar to Elliot, Koeter-Kant and Warr (2007) and Warr, Elliot, Koeter-Kant and Oztekin. (2011).

$$\boldsymbol{V_{equity}} = \sum_{t=1}^{\infty} \frac{\boldsymbol{FCFE_t}}{(1+r_e)^t} \quad (1)$$

$$\boldsymbol{V_{equity}} = \sum_{t=1}^{\infty} \frac{\boldsymbol{FCFE_t}}{(1+r_e)^t} = \sum_{t=1}^{N} \frac{\boldsymbol{FCFE_t}}{1+r_e^{\,t}} + \frac{\boldsymbol{Terminal\ Value}}{(1+r_e)^N} \quad (2)$$

Terminal value is calculated as:

$$\boldsymbol{Terminal\ Value} = \frac{\boldsymbol{FCFE_N(1+g)}}{(r_e - g)} \quad (3)$$

where g is the long-term FCFE growth. Given that FCFE occurs throughout the year we make adjustments as follows:

$$\boldsymbol{V_{equity}} = \left[\sum_{t=1}^{N} \frac{\boldsymbol{FCFE_t}}{(1+r_e)^t}\right](\mathbf{1} + \boldsymbol{r_e})^{\mathbf{0.5}}$$

$$= \left[\frac{\boldsymbol{FCFE(1+g)}}{1+r_e^{\,t}}\right](\mathbf{1} + \boldsymbol{r_e})^{\mathbf{0.5}} \quad (4)$$

$FCFE_t$ is free cash flow to equity at time *t* and r_e is the cost of equity. FCFE is the sum of net income plus depreciation minus change in non cash working capital minus capital expenditure minus principal repayments of debt capital plus new debt issued. A firm's cost of equity is calculated as below:

$$\boldsymbol{r_E} = \boldsymbol{r_{rf}} + \boldsymbol{\beta_i}(\boldsymbol{r_m} - \boldsymbol{r_{rf}}) \quad (5)$$

where short-term treasury bills are used as a proxy for the risk free rate (r_{rf}), and r_m is the total market return.[8] β_i is measured as:

$$\boldsymbol{\beta_i} = \frac{\boldsymbol{Cov_i market}}{\boldsymbol{\sigma^2 market}} \quad (6)$$

where FTSE All Share Index is used as a proxy for market.[9] Similar to Elliot, Koeter-Kant and Warr (2007), our purpose is to measure deviation from fundamental value. This is measured as:

[7] This is based on Benninga (2011).
[8] Elliot, Koeter-Kant and Warr (2008) use both Fama-French three factor model and single factor model. They find that the results are noisier with the former even if they generate similar regression results. Thus, we adopt the latter in this paper.

$$\boldsymbol{Misvaluation} = \frac{\boldsymbol{IV_{it}}}{\boldsymbol{MP_{it}}} \quad (7)$$

where IV_{it} is intrinsic value and MP_{it} is market value of equity. In our study we use a dummy variable, UNDVD, which takes the value of 1 if the firm is undervalued (indicating that misvaluation is greater than one).

C. Estimation Procedure

The first section of our empirical tests involves estimation procedure in two stages that are described as the following equations:

$$\boldsymbol{D_{it+1} = B_{0_{it}} + W_{it}\alpha + \varepsilon_{it}} \quad (8)$$

$$\boldsymbol{DIST_{it} = \beta_0 + \beta_1 UNDVD_{it} + \gamma[controls]_{it} + D_{(hi)it} + D_{(lo)it} + \varepsilon_{it}} \quad (9)$$

In the first stage, equation 8 as above, the debt (book and market) to asset ratio is regressed on a vector of explanatory variables, W, that have been used in past studies as determinants of capital structure.[10] We estimate the debt ratio at time t+1 similar to Flannery and Rangan (2006) where D_{it+1} would be a firm i's desired debt ratio at t+1. The purpose of this first stage would be to estimate a firm's target leverage that is defined as the debt ratio that the firms would choose to be at in the absence of transaction costs, asymmetric information and other adjustment costs. In the second stage we model the distance from the target which is measured as the fitted values from estimations in equation 8 minus actual debt ratio ($D^* - D_t$) with a set of explanatory and control variables. The key explanatory variable is the undervaluation dummy (UNDVD) which takes the value of one when firms equities are undervalued and zero when equities are overvalued. The D_{hi} and D_{lo} takes the value of one

[9] We estimate beta using a 36 month rolling approach. Our results are similar using a 60 month approach.
[10] See Hovakimian, Opler and Titman (2001), Hovakimian (2004), Hovakimian, Hovakimian and Tehranian (2004), Flannery and Rangan (2006), Antoniou, Guney and Paudyal (2008), and Warr, Elliot, Koeter-Kant and Oztekin (2011).

(zero otherwise) if the debt ratio at the beginning of the period is in the top and bottom twentieth percentile correspondingly. These dummies are intended as a control to capture target adjustment behavior .

The second part of our empirical tests looks at the how well the undervaluation dummy predicts the likelihood that the firm will issue a particular type of security. Our approach is to use a binary variable to represent the issue type where the issue choice is modelled as follows:

$$\boldsymbol{Issue\ Decision_{it} = \beta_0 + \beta_1 UNDVD_{it} + \gamma[controls]_{it} + \varepsilon_{it}} \quad (10)$$

$$\boldsymbol{Issue\ Type_{it} = \beta_0 + \beta_1 UNDVD_{it} + \gamma[controls]_{it} + \varepsilon_{it}} \quad (11)$$

where Issue Decision take s the value of 1 if firms decide to raise capital and 0 if otherwise. Issue $Type_{it}$ takes the value of 1 if the firm issues debt and 0 if the firms issues equity. A firm is defined as issuing debt if the ratio of net debt issued to total assets exceeds 5%. Similarly, a firm is issuing equity if the ratio of net equity issued exceeds 5%.[11] The key explanatory variable is again the undervaluation dummy (UNDVD). Control variables are included based on the literature.[12]

4. Target Leverage and Deviation from Target Leverage

In this section we examine the first part of our empirical analysis which looks at what factors firms consider when determining their target leverage and deviating from this target.

[11] This approach is in line with similar studies in the literature i.e. Hovakimian (2004) and Hovakimian, Hovakimian and Tehranian (2004). Gaud, Hoesli and Bender (2007). We exclude firms that issue both equity and debt.

[12] See Hovakimian, Opler and Titman (2001), Hovakimian (2004), Hovakimian, Hovakimian and Tehranian (2004), Gaud, Hoesli and Bender (2007, and Elliot, Koeter-Kant and Warr (2008).

This is done by estimating the first stage of the regressions as expressed in equation 8. The list of the explanatory variables used to regress target leverage and distance from target leverage as well as their expected relation are described in the first column of table 2.[13]

A. Determinants of Target Leverage

The results from the regression to determine the target leverage D_{t+1} are reported in table 2. We estimate the expression from equation 8 using the Fama and MacBeth (1973) framework as suggested in Fama and French (2002). In order to provide further robustness of our results, we further utilise the approach used in Hovakimian, Opler and Titman (2001). Thus we also report estimates censored by the value of zero using a Tobit regression with censoring to provide a consistent estimate. In line with our expectations, we find that growth opportunities as captured by the market-to-book ratio has a negative coefficient and is highly significant for both the market and book debt target ratio suggesting that firms tend to protect their future growth opportunities by limiting its leverage. Flannery and Rangan (2006) and Warr, Elliot, Koeter-Kant and Oztekin (2011) report a similar correlation. The non-debt tax shields have a positive correlation with target debt ratio which is consistent with results in Titman and Wessels (1988) and Mao (2003). Firms that possess relatively more fixed assets that generate higher levels of depreciation and thus tax credits indicating that such assets would have higher collateral value for securing debt which in turn increases the debt capacity of firms allowing them to have higher level of target leverage (see Mackie-Mason, 1990). Firm size has a positive and significant coefficient as expected given that larger firms would be have a more diversified cash flow which would be less volatile and thus more secure in servicing interest payments. A less volatile cash flow would also increase profitability and

[13] We base our expectations based on Titman and Wessels (1988), Hovakimian, Opler and Titman (2001), Mao (2003), Flannery and Rangan (2006) and Warr, Elliot, Koeter-Kant and Oztekin (2011) as well as theoretical expectations.

thus allow firms to fully use the tax shield of debt and thus reduce the probability and expected bankruptcy costs (see Hovakimian, Opler and Titman, 2001).

[Insert table 2 about here]

Tangibility also has a positive and significant correlation with target debt leverage suggesting that tangible assets serve as collateral and thus allow firms a higher debt capacity. Flannery and Rangan (2006) also report similar findings. The estimates reveal an inversely significant correlation with the effective tax rate which could be due to reverse causality i.e. firms with lower levels of leverage pay higher effective tax rate.[14] It remains puzzling why firms do not increase leverage levels to minimize their tax burden. The industry leverage has a positively significant coefficient indicating that leverage levels are influenced by industry effects (see Roberts, 2002).

B. Deviation from Target Leverage and Equity Mispricing

In this section we utilize fitted values from the results in the earlier section to measure the distance from target leverage which is the difference between the target leverage and the actual leverage ($D^* - D_t$). If firms are over leverage the distance measure would be negative and if firms are below their target the distance measure would be positive. The average distance measured for firms with undervalued versus overvalued equities are presented in figure 1. It is clear that firms do deviate from target levels and the distance from such targets is influenced by equity mispricing. Firms whose equity are undervalued have a smaller distance relative to firms that have overvalued equities.

[Insert figure 1 about here]

[14] Antoniou, Guney and Paudyal (2008) also find a similar correlation.

We estimate the regression as expressed in equation 9 to model the determinants of deviation from target leverage. If firms timing behavior did not influence deviation from target leverage, the coefficient for the undervaluation dummy would not be different from zero. We expect the coefficient of the dummy to be negative as firms would issue more debt during periods of undervaluation relative to periods of overvaluation and thus have higher leverage levels. The results for this estimation are reported in the first four columns of table 3.[15] The coefficient of the undervaluation dummy is negatively significant as expected. The results are similar for market and book debt for both different sets of methods used to estimate target leverage. This suggests that the benefit of market timing outweighs the cost of deviating from target leverage.

[Insert table 3 about here]

Given that our estimations above assume that firms did not initially deviate from their target leverage, it is may suffer from endogeneity problems. To address this concern, we estimate the following regression:

$$\Delta \boldsymbol{DIST_{it}} = \boldsymbol{\beta_0} + \boldsymbol{\beta_1 UNDVD_{it}} + \boldsymbol{\gamma}[\boldsymbol{controls}]_{\boldsymbol{it}} + \boldsymbol{D_{(hi)it}} + \boldsymbol{D_{(lo)it}} + \boldsymbol{\varepsilon_{it}} \quad (12)$$

The undervaluation dummy again is intended to capture timing behavior . The average change in distance for firms are represented in figure 2. The chart indicates that when equities are overvalued, the changes in distance are larger (or less negative). If timing behavior does indeed influence deviation from target leverage, we expect that β_1 to be significantly different from zero and the coefficient to have an inverse relation with the change in distance from target leverage as firms would issue more leverage during periods of

[15] Regressions control for firm fixed effects, include unreported year dummies and report Rogers (1993) standard errors (see Peterson, 2009 for further details).

undervaluation. The results for estimating equation 11 are reported in the last four columns of table 3. We find that the coefficient for the undervaluation dummy to be negative and very significant. This indicates that firms are timing the market by increasing equity issues during periods of overvaluation and increasing debt issues during periods of undervaluation. Thus during periods of undervaluation, the change in distance from target leverage would be decreasing suggesting that firms would further be over-levered. The results further support the notion that the benefit gained from timing the market outweighs the cost of deviating from optimal levels.

[Insert figure 2 about here]

We provide further evidence of equity mispricing driving deviation from target capital structure by looking at firms that over their targets and below their targets separately. We would be able to draw more insights from these analyses. The market timing theory would predict that firms issue more debt during periods of undervaluation and thus we conjecture firms would then be temporarily over-levered.[16] In this section, we measure distance as an absolute measure of difference between the target and the actual debt ratio.[17] The results for regressions are reported in the first four columns of table 4. All four columns indicate that the coefficient is positive as expected, suggesting that firms increase leverage levels during periods of undervaluation and thus would be over-levered. The coefficients for the first two columns suggest that firms would be about 2% over their target leverage during periods of undervaluation. The coefficient of the undervaluation dummy for the next two columns are however not significantly different from zero. This could stem from the strong assumption that firms did not initially deviate from their target leverage. In order to address this concern, we estimate the difference in distance as expressed in equation 11. To control for target

[16] We initially assume that firms did not initially deviate from their target levels.
[17] Our approach draws from Hovakimian, Opler and Titman (2001) where leverage deficit is measured in absolute terms.

adjustment behavior affecting distance levels, we include the lagged leverage variable in the regression. The results are reported in the last four columns of table 4. We find that all the coefficients are positive and very significant as expected, thus confirming our earlier findings.

[Insert table 4 about here]

We further analyze firms which are below their target levels, where the current debt level is below the fitted values as determined from table 2. To consistently estimate the effect of equity mispricing we substitute the undervaluation dummy with the overvaluation dummy which takes the value of 1 if equities are overvalued (zero otherwise).[18] If firms were timing the equity market, they would increase reliance on equities during periods of overvaluation and thus depressing their leverage ratios. If we assume that firms did not initially deviate from their target levels, market timing would cause firms to increase their absolute distance levels. We regress the expression in equation 9 with the overvaluation dummy as the key explanatory variable and the results are reported in the first four columns of table 5. If firms were indeed timing the market, we expect the dummy to significantly different from zero and the coefficient to have a positive value. The results indicate that the dummy has a positive and very significant coefficient. Thus firms were indeed timing the market by issuing equities during periods of overvaluation and thus depressing the leverage ratio, causing firms to be under-levered. Relaxing the assumption that firms are operating at their target levels, we regress the change in distance and the results are reported in the last four columns of table 5. We find that the overvaluation dummy has a positive and significant coefficient as expected, confirming our earlier findings. Thus we are able conclude that firms indeed to adjust their issues to reflect equity mispricing. Managers increase equity issues during periods of

[18] This substitution is intended to ease interpretation of the results.

overvaluation and reduce reliance on debt levels causing firms to deviate from their target levels. In the presence of undervaluation, firms would resort to debt financing leading to the over-levered scenario.

[Insert table 5 about here]

5. Equity Mispricing and Security Issue Choice

In this section we discuss the second part of our empirical analysis. This section will look at how equity mispricing influences firms' security choice. In a multivariate analysis using logistic models, we test how well equity mispricing predicts the likelihood that a firm will issue a particular type of security. The key explanatory variable will be our mispricing measure, the undervaluation dummy and the estimates will done by including control variables drawn from previous studies of capital structure.[19] Given the predictions of the market timing theory, we expect the undervaluation dummy to have a positive coefficient in the debt vs. equity choice.

A. Determinants of Issue Choice and Issue Size

Similar to the previous studies we include known determinants as control variables. The non-debt tax shield is expected to have a negative coefficient as DeAngelo and Masulis (1980) argue that tax deductions for depreciations can substitute as tax benefits of debt financing. Size and tangibility are expected to have a positive coefficient as larger firms and firms with more tangible assets are more likely to issue debt over equity. We expect the sign of the effective tax rate to be positive. Similar to Elliot, Koeter-Kant and Warr (2008) we include leverage and the industry median leverage as a proxy for target leverage. In the spirit of

[19] Our controls are based on our empirical priors i.e. Rajan and Zingales (1995), Hovakimian, Opler and Titman (2001), Flannery and Rangan (2006), Hovakimian (2006) and Elliot, Koeter-Kant and Warr (2008).

Elliot, Koeter-Kant, and Warr (2007 and 2008) we exclude the market-to-book ratio to avoid the multiple interpretations associated with this ratio. Given that the main aim is to separate the growth and valuation measures in our regressions, we instead capture growth opportunities via the inclusion of capital expenditure and research and development expenses as well as the RDD dummy which takes the value of 1 if research and development expenses is not available in Datastream. We expect the coefficient of capital expenditure to be positive given that tangible investments would generate a more fixed stream of income and thus more likely to be financed via debt issues. Research and development on the other hand is expected to be negatively related with debt issues. Lastly we include cash and expect a negative relationship with debt issues.

Similar to Huang and Ritter (2009) we estimate a two step model to estimate the issue decision and issue choice.[20] This would implicitly endogenize the decision to issue or not to issue securities. The decision tree is represented graphically in figure 3. Firms would make an initial decision to issue (or to repurchase) versus a no issue base (or not to repurchase). In the second stage firms would choose between issuing (or repurchasing) debt or equity. We report the regressions as expressed in equation 10 and 11 in the first two columns of table 6 for issue versus no issue decisions and the second stage of pure debt issues versus pure equity issues.[21] The explanatory variables have some expected results and some surprising results. Cash, research and development expenses and non-debt tax shields have an inverse correlation as expected. Capital expenditure and firm size on the other hand have a positive sign as expected. Surprisingly the coefficients for asset tangibility and effective tax rate are negative.[22] More importantly the undervaluation dummy has a positive and is significant at

[20] Our study differs from their as we utilize a sequential logit model instead of a nested logit.
[21] All regressions contain unreported year dummies and robust standard errors clustered at firm level as discussed in detail in Peterson (2009).
[22] Antoniou, Guney and Paudyal (2008) document a similar correlation for effective tax rate.

1%. This suggests that equity mispricing strongly predicts security issue choice. The odds ratio for this coefficient is 7.7341. In the third and fourth column we report the results for all debt issues (which include simultaneous debt issues and equity repurchasing). The coefficient is larger and is significant at 1%. The odds ratio is also larger (about 12.2405). Next we consider the repurchase decision.[23] Given that the market timing theory would imply that firms repurchase equity during periods of undervaluation and retire debt during periods of overvaluation, we change the binary variable issue type to be 1 when firms are repurchasing equity and 0 when firms are retiring debt. The results for estimating pure equity repurchases versus pure debt retired are reported in column 5 and 6. We find that the undervaluation dummy is positive and significant as expected. The odds ratio is calculated to be 8.7717. Thus our results indicate that equity mispricing does indeed drive repurchasing behavior . Column 7 and 8 in the table further considers all equity repurchases versus all debt retired. The results are as expected where the undervaluation dummy has a larger coefficient and is significantly different from zero. The odds ratio is 16.8195, indicating that firms are more likely to retire debt during periods of overvaluation and repurchase equity during periods of undervaluation.

[Insert table 6 about here]

Hovakimian, Opler and Titman (2001) find that issue size should be considered differently from issue choice and thus we consider issue size separately. Following their definition of issue size (net debt issued scaled by assets at the beginning of the year), we report the results in the first column of table 7. Following Hovakimian, Hovakimian and Tehranian (2004) we include issue size and expect a negative correlation due to equity issues being larger than debt issue. We find that the undervaluation dummy is positive as expected and remains significant at 1%. In addition the effect is larger for issue size, hence the odds of

[23] Firms are defined as retiring debt when net debt issued scaled by assets is less than -5% and repurchasing equity when net equity issued is less than -5%.

firms issuing larger issues to reflect equity mispricing is higher as firms are more likely to make larger debt issues during periods of undervaluation and larger equity issues during periods of overvaluation. This indicates that the impact of market timing is larger on issue size relative to issue choice. The next column looks at all issue and reveals a similar positive significant coefficient. The effect is larger and the odds ratio is also larger. Further to that we consider repurchase size as well. The results for pure repurchase size are reported in the third column of table 8. Similarly, equity mispricing is significantly predicts repurchasing behavior where the odds ratio is calculated to be 12.4013. Furthermore, we consider all repurchases in the last column of the table and find that the effect is larger and significant. The odds ratio (20.5775) is also much larger. Thus, we are able to conclude that the market timing theory is able to predict security issue and repurchase choice as well as size.

[Insert table 7 about here]

B. Considering Passive Firms

In this section we consider issue choice for a firm against a no-transaction alternative. This allows us to examine how equity mispricing and market timing influences the decision to issue (or repurchase) versus a passive framework. This enriches our analysis at it allows to test whether market timing influences issue decision as well as type of issue. We estimate the following eight different scenarios relative to a no issue alternative:

i. Pure debt issue versus no issue

ii. Issue debt and repurchase equity versus no issue

iii. All debt issue versus no issue

iv. Equity repurchase versus no repurchase

v. Equity issue accompanied by debt reduction versus no issue

vi. All equity issue versus no issue

vii. Debt reduction versus no reduction

The results of the first scenario are reported in the first column of table 8. We find that the undervaluation dummy is positive and significant. The odds ratio of the undervaluation dummy is 4.5213, thus the probability of issuing debt versus no issue is higher during periods of undervaluation. The results in the second column shows that the undervaluation dummy has a larger coefficient (the odds ratio is also much higher, 6.2451) suggesting that equity mispricing plays a more important role in debt issues accompanied by equity reductions. The results in the third column are similar to that of the first column as expected. In the fourth column we report the fourth scenario, and find that the undervaluation dummy has a positive sign and is significant (the odds ratio is 2.2596). This suggests that equity reduction decision can be significantly attributed to equity undervaluation. The fifth to seventh column shows that the undervaluation dummy has a significantly negative coefficient as expected. Similar to the results for debt issues accompanied with equity reductions, equity issues accompanied with debt reductions are more likely to be influenced by equity mispricing as the odds ratio is also higher.[24] This suggests that equity mispricing plays an important role in firms' decisions to substitute one form of financing for another. The last column reports the decision to reduce to debt levels versus a no reduction scenario. The undervaluation dummy has a negative sign as expected and is statistically significant, where the odds ratio is 0.2431. This indicates that firms are more likely to retire debt during periods of overvaluation (when the undervaluation dummy takes the value of zero).

[Insert table 8 about here]

[24] The odds ratio for the undervaluation dummy for the fifth, sixth and seventh columns are 0.3956, 0.0483 and 0.2746. The odds indicate that the action studies in these columns are much more likely when the undervaluation dummy had a value of zero (equity was overvalued).

Next, we model firms' decisions to make security issues and reductions against passive firms' alternative in a multinomial framework. To provide robustness we estimate the multinomial logits with two different frameworks. Firstly we look at pure debt issue, pure equity issues, pure debt reductions, pure equity repurchases and passive firms. We model the issue type decision in equation type using passive firms as a base in a multinomial logit model. The results are reported in table 9. Consistent with the predictions of the market timing theory, the undervaluation dummy has a positive correlation with the pure debt issue decision as documented in the first column. The second column shows that the undervaluation dummy has a negative correlation as predicted by the market timing theory. The correlation for the pure debt reductions is also negative in the third column. This implies that during periods of overvaluation firms are more likely to reduce debt. The last column indicates that firms are also likely to repurchase equity during periods of undervaluation. The results imply that firms are more likely to issue debt rather than repurchase equity during periods of undervaluation. Further to that, firms are more likely to reduce debt during periods of overvaluation relative to issue equity.

[Insert table 9 about here]

Lastly, we include pure debt issues, debt issues accompanied with equity repurchase, pure equity issues, equity issues accompanied with debt reduction, pure equity repurchase and passive firms as a base. The results of the multinomial logit regression are reported in the table 10. Looking across the table, the signs of the undervaluation dummy is as expected and significant at 1% indicating that equity mispricing is a significant determinant of firms financing decisions. Looking at the first two columns we find that equity mispricing plays a more important role in firms issuing debt accompanied with equity repurchased than in pure debt issues. Columns 3 and 4 indicate that equity mispricing plays a more important role in

firms decisions to issue equity accompanied with debt reductions relative to pure equity issues. Comparing the results in the last two columns further confirms this notion.

[Insert table 10 about here]

To summarize, firms time the market and are more likely to issue debt relative to equity during periods of undervaluation. Debt reductions and equity repurchases are also equally influenced by equity mispricing suggesting that firms also time repurchases as well as security issues. Further, we show that issue and repurchase size is also determined by equity mispricing. We also find that firms are more likely to issue or repurchase relative to a no action base due to market timing considerations. Furthermore, market timing considerations influence timing of issues accompanied by reductions relative to pure issues or repurchases.

6. Conclusion

Previous studies have documented market timing plays an important role in firms issue decisions. In this paper we examine the issue decisions for UK firms. The findings reveal how firms time their issues and its influence on firms' capital structure. This paper looks at how such timing decisions influence deviation from target leverage levels. We further investigate the impact of market timing on issue choice and size as well as repurchasing choice and size. Expanding the empirical test, we scrutinize whether firms decision to simultaneously issue and repurchase securities are influenced by market timing considerations.[25]

Looking at the first section of our empirical specifications, we find that firms time security issues and these timing attempts causes them to deviate from target levels. This finding is robust whether we assume firms do or do not initially deviate from target leverage. These findings allow us to infer that firms are trading off the cost of deviating from target

[25] We estimate equity issues accompanied with debt reductions and debt issues accompanied by equity repurchasing.

with the benefit gained from timing the market. We further examine the effect for firms above and under their target levels and arrive at similar conclusions. The second section of our analysis looks at timing of security issues. We find that both security issue and repurchasing choice and size is driven by equity mispricing, indicating that market timing plays an important role in both decisions. Furthermore, we find that decision to issue versus a no issue alternative is also significantly determined by market timing considerations. Lastly we find that firms reduce (increase) debt levels and increase (decrease) equity issues in periods of undervaluation (overvaluation). This allows us to conclude that firms are actively substituting one form of financing with the other to lower overall cost of capital in order to maximize value.

We are thus able to conclude that firms significantly time the market. The effect is evident and leads to firms deviating from their target levels. Issuing and repurchasing behavior is also driven by market timing attempts. This is robust to considering issue choice and also issue size. Firms also actively change the financing mix to reflect equity mispricing and thus market timing plays a critical role in determining capital structure decisions.

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FIGURE 1
Distance from Target Leverage

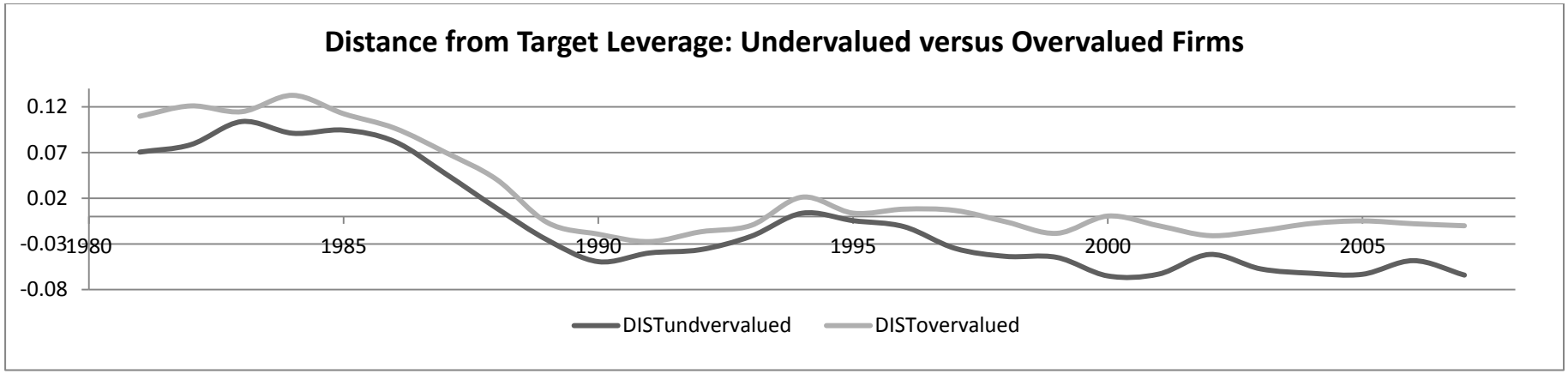

FIGURE 2
Change in Distance from Target Leverage

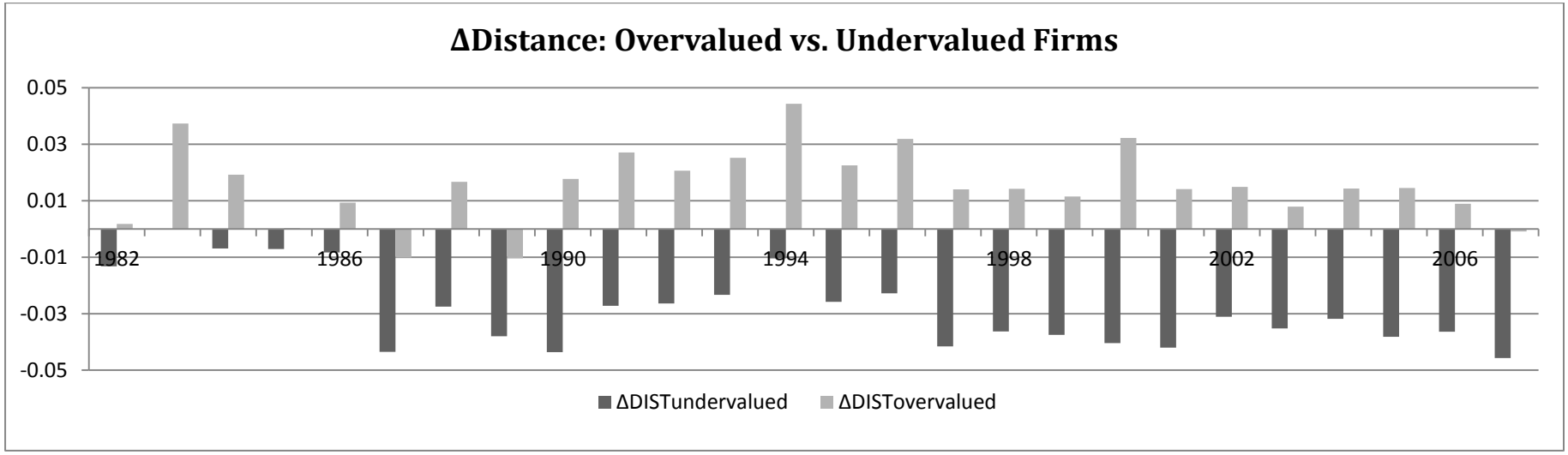

FIGURE 3
Firms Issuing and Repurchasing Decision Tree

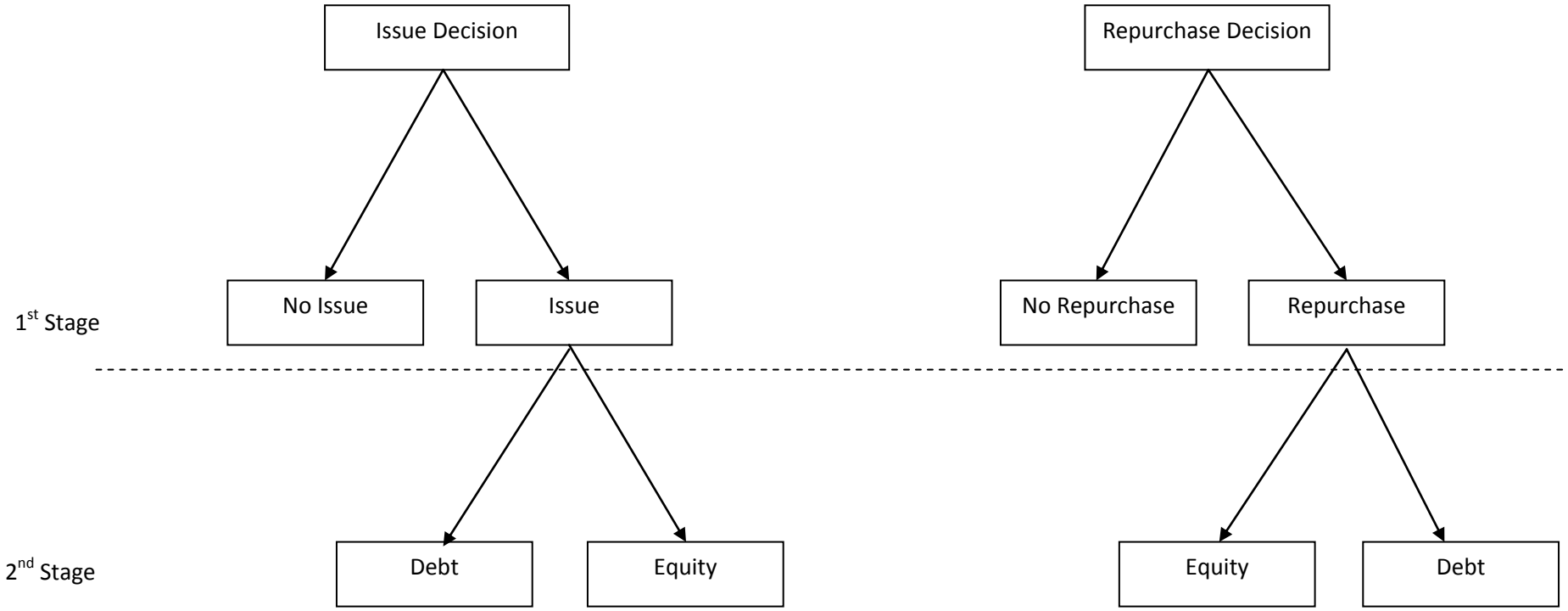

TABLE 1

Summary Statistics of Issuing and Repurchasing Firms

The figures report the mean values with standard deviation in parentheses. The first column reports figures for all firms in the sample. The second and fourth column reports figures for pure debt and equity issuers. The third and fifth column reports debt issues accompanied with equity repurchases as well as issue equities accompanied with debt reductions. The last two columns report figures for firms that are that purely reduce equity and debt. A firm is defined as issuing (repurchasing) debt when net debt issued is more (less) than 5%(-5%). Similarly, we define firms as issuing (reducing) equity when net equity issued is more (less) than 5%(-5%). Pre-issue leverage is leverage levels at the beginning of the year. Post-issue leverage is leverage levels at the end of the year. Net debt issued (NDI) is defined as net changes in leverage levels. Net equity issued is changes in book equity minus changes in retained earnings. Market-to-Book Ratio (MTB) is the ratio of book value of total assets less book value of equity plus market value of equity to book value of total assets. EBIT is defined as earnings before interest and taxes. Non debt tax shield, (NDTS), is measured as the ratio of depreciation to total assets. SIZE is the natural logarithm of total assets in millions of 1981 pounds. Tangibility of assets, (TANG), is defined as net plant, property and equipment. Effective tax rate, ETR, is total tax to total taxable income. Industry leverage, (INDL) is the median of the leverage levels of the industry the firm operates in. R&D and CAPEX are defined as research and development expenses and capital expenditure respectively. RDD is a dummy variable that takes the value of 1 if the data is not available in Datastream and zero otherwise. CASH is defined as cash and cash equivalents. All variables except size are scaled by total assets. UNDVD is a dummy variable which takes the value of 1 if firms are undervalued and 0 if firms are overvalued.

	All Firms	Pure Debt Issuers	Issue Debt and Repurchase Equity	Pure Equity Issuers	Issue Equity and Retire Debt	Pure Equity Repurchases	Pure Debt Reductions
Pre Issue Leverage	0.1637(0.1534)	0.1820(0.1423)	0.1642(0.1462)	0.1151(0.1531)	0.3108(0.1650)	0.1265(0.1441)	0.2687(0.1378)
Post Issue Leverage	0.1689(0.1553)	0.2737(0.1353)	0.2991(0.1540)	0.0956(0.1403)	0.1644(0.1624)	0.1366(0.1389)	0.1852(0.1430)
NDI	0.0123(0.1081)	0.1207(0.0761)	0.1542(0.1025)	0.0011(0.0206)	-0.1797(0.1441)	0.0002(0.0222)	-0.1198(0.1013)
NEI	0.0408(0.1619)	0.0007(0.0761)	-0.1418(0.1087)	0.2667(0.2345)	0.2550(0.1997)	-0.1228(0.1102)	-0.0003(0.0187)
MTB	1.6718(1.1696)	1.5595(0.8297)	1.9942(1.1196)	2.0395(1.6919)	1.6969(1.1993)	1.9433(1.2680)	1.4898(0.9411)
EBIT	0.0280(0.2056)	0.0457(0.1625)	0.0975(0.1764)	-0.0737(0.2561)	-0.0893(0.2729)	0.1001(0.1649)	0.0364(0.2240)
NDTS	0.0323(0.4099)	0.0323(0.0426)	0.0343(0.0472)	0.0297(0.0416)	0.0365(0.0414)	0.0310(0.0348)	0.0396(0.0503)
SIZE	10.452(1.9947)	10.856(1.8941)	10.873(1.8259)	9.6641(1.8955)	9.7746(1.9083)	10.805(2.0428)	10.446(1.9357)
TANG	0.3229(0.2465)	0.3851(0.2576)	0.3519(0.2155)	0.2392(0.2525)	0.3029(0.2363)	0.3257(0.2346)	0.3226(0.2288)
ETR	0.2972(1.2137)	0.2548(1.2955)	0.3762(0.7739)	0.1772(1.2346)	0.1400(0.8743)	0.3937(0.9707)	0.2215(1.1642)
CAPEX	0.0608(0.0653)	0.0858(0.0857)	0.0828(0.0760)	0.0507(0.0686)	0.0517(0.0583)	0.0566(0.0545)	0.0488(0.0468)
R&D	0.0191(0.0601)	0.0081(0.0328)	0.0137(0.0410)	0.0375(0.0965)	0.0225(0.0692)	0.0182(0.0430)	0.0160(0.0566)
CASH	0.1353(0.1689)	0.0696(0.0913)	0.0985(0.1061)	0.2009(0.2097)	0.1355(0.1617)	0.1640(0.1740)	0.0924(0.1266)
UNDVD	40.62%	69.07%	78.10%	17.31%	3.31%	57.85%	15.61%
N(observations)	11105	1514	380	1300	454	669	974

TABLE 2

Determinants of Target Leverage

The dependent variable in columns 1 and 3 is the book debt ratio in year t+1. The dependent variable in columns 2 and 4 is market debt ratio in year t+1. Regressions in column 1 and 2 are done based on a Fama and McBeth (1973). The table reports mean coefficients which is the average slope of the annual regressions. The time series standard errors are as in Fama and French (2002). Regressions in columns 3 and 4 utilise a censored Tobit framework, eliminating zero debt values as the lower limit. (*), (**) and (***) indicate that coefficients are significant at 10, 5 and 1 % level, respectively.

	Predicted Sign	$BD_{(t+1)FM}$	$MD_{(t+1)FM}$	$BD_{(t+1)TOB}$	$MD_{(t+1)TOB}$
CONS		-0.1399***	-0.0556	-0.0341***	-0.1611***
		(0.0235)	(0.0397)	(0.0041)	(0.0513)
MTB	-	-0.0045**	-0.0730***	-0.0060**	-0.0534***
		(0.0020)	(0.0095)	(0.0029)	(0.0033)
NDTS	-/+	0.2435***	0.2072*	0.1767**	0.0200
		(0.0538)	(0.1127)	(0.0754)	(0.0748)
SIZE	+	0.0179***	0.0194***	0.0229***	0.0207***
		(0.0010)	(0.0019)	(0.0020)	(0.0023)
TANG	+	0.0946***	0.1041***	0.1590***	0.1828***
		(0.0174)	(0.0206)	(0.0157)	(0.0197)
ETR	+	-0.0135***	-0.0193***	-0.0055***	-0.0085***
		(0.0030)	(0.0038)	(0.0013)	(0.0015)
INDL	+	0.5450***	0.7295***	0.7442***	0.8523***
		(0.1024)	(0.1748)	(0.2175)	(0.2496)
Observations		11105	11105	11105	11105
F-Test/ Chi^2 Test (p-values)		0.0000	0.0000	0.0000	0.0000
Average R^2 / Log likelihood		0.1463	0.2162	2721	1005
Period		1981-2008	1981-2008	1981-2008	1981-2008

TABLE 3

Determinants of Deviation (DIST) from Target Leverage

The dependent variable is the distance from target leverage which is measured as target leverage minus actual leverage. Columns 1 and 3 measure the distance using the FM framework for book and market debt respectively. Columns 2 and 4 measure the distance using the Tobin censured approach for book and market debt respectively. Columns 5 and 6 measure change in distance using the FM framework for book and market debt respectively. Columns 7 and 8 measure change in distance using the Tobin censured approach for book and market debt respectively. Regressions control for firm fixed effects and include year dummies. Rogers (1993) standard errors are reported in parentheses. (*), (**) and (***) indicate that coefficients are significant at 10, 5 and 1 % level, respectively.

	Predicted Sign	$DISTBD_{FM}$	$DISTBD_{TOB}$	$DISTMD_{FM}$	$DISTMD_{TOB}$	$\Delta DISTBD_{FM}$	$\Delta DISTBD_{TOB}$	$\Delta DISTMD_{FM}$	$\Delta DISTMD_{TOB}$
CONST		0.0786***	-0.0942***	0.0993**	0.0114	0.0617**	0.0442	0.1837***	0.1426***
		(0.0340)	(0.0340)	(0.0407)	(0.0407)	(0.0297)	(0.0291)	(0.0404)	(0.0368)
UNDVD	-	-0.0175***	-0.0170***	-0.0123***	-0.0124***	-0.0626***	-0.0613***	-0.0608***	-0.0607***
		(0.0023)	(0.0022)	(0.0025)	(0.0028)	(0.0027)	(0.0027)	(0.0032)	(0.0030)
MTB		-0.0028	-0.0044**	-0.0456***	-0.0260***	-0.0057***	-0.0069***	-0.0339***	-0.0217***
		(0.0017)	(0.0017)	(0.0022)	(0.0022)	(0.0020)	(0.0020)	(0.0028)	(0.0024)
NDTS		0.1775***	0.1107**	0.1722***	-0.0151	0.1846***	0.1291*	0.1068	-0.0047
		(0.0448)	(0.0448)	(0.0459)	(0.0459)	(0.0672)	(0.0671)	(0.0671)	(0.0648)
SIZE		0.0031	0.0081**	-0.0006	0.0007	-0.0028	-0.0023	-0.0094**	-0.0104***
		(0.0033)	(0.0033)	(0.0035)	(0.0035)	(0.0028)	(0.0027)	(0.0036)	(0.0032)
TANG		-0.0090	0.0554***	-0.0013	0.0774***	0.0021	0.0242*	0.0044	0.0377**
		(0.0191)	(0.0191)	(0.0184)	(0.0184)	(0.0148)	(0.0145)	(0.0175)	(0.0163)
ETR		-0.0119***	-0.0038***	-0.0165***	-0.0057***	-0.0141***	-0.0053***	-0.0192***	-0.0079***
		(0.0007)	(0.0007)	(0.0008)	(0.0008)	(0.0006)	(0.0006)	(0.0009)	(0.0008)
D_{hi}		-0.2547***	-0.2456***	-0.3160***	-0.3595***	-0.1131***	-0.1123***	-0.1576***	-0.1555***
		(0.0080)	(0.0079)	(0.0085)	(0.0086)	(0.0078)	90.1123)	(0.0079)	(0.0079)
D_{lo}		0.0787***	0.0766***	0.0771***	0.0744***	0.0257***	0.0243***	0.0251***	0.0228***
		(0.0046)	(0.0043)	(0.0164)	(0.0053)	(0.0047)	(0.0046)	(0.0066)	(0.0059)
Observations		11105	11105	11105	11105	9397	9397	9397	9397
R^2		0.7683	0.7616	0.7779	0.7746	0.2644	0.2523	0.2683	0.2968
Adjusted R^2		0.7322	0.7245	0.7456	0.7395	0.1515	0.1376	0.1560	0.1889
Wald (p-values)		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Period		1981-2008	1981-2008	1981-2008	1981-2008	1982-2008	1982-2008	1982-2008	1982-2008

TABLE 4

Determinants of Distance and Change of Distance from Target Leverage: Over-Levered Firms

The dependent variable is distance from target leverage for columns 1 to 4 and change in distance for columns 5 to 8. Distance and change in distance is measured in absolute terms ($|D^*_{it} - D_{it}|$). Regressions control for firm fixed effects and include year dummies. Rogers (1993) standard errors are reported in parentheses. (*), (**) and (***) indicate that coefficients are significant at 10, 5 and 1 % level, respectively.

	Predicted Sign	$DISTBD_{FM}$	$DISTBD_{TOB}$	$DISTMD_{FM}$	$DISTMD_{TOB}$	$\Delta DISTBD_{FM}$	$\Delta DISTBD_{TOB}$	$\Delta DISTMD_{FM}$	$\Delta DISTMD_{TOB}$
CONST		-0.1358*	0.0227***	0.1761**	0.2460**	-0.1577***	-0.0625	-0.0366***	-0.1389**
		(0.0740)	(0.0068)	(0.0713)	(0.0749)	(0.0669)	(0.0645)	(0.0067)	(0.0641)
UNDVD	+	0.0214***	0.0232***	0.0064	0.0082	0.0454***	0.0409***	0.0437***	0.0394***
		(0.0040)	(0.0043)	(0.0051)	(0.0055)	(0.0037)	(0.0040)	(0.0048)	(0.0063)
MTB		0.0091*	0.0087*	0.0125***	-0.0058	0.0090**	0.0105**	0.0663***	0.0093*
		(0.0050)	(0.0049)	(0.0044)	(0.0044)	(0.0043)	(0.0042)	(0.0039)	(0.0050)
NDTS		0.0874	0.1252	-0.0638	-0.0159	-0.3170***	-0.2007*	-0.2577***	-0.1019
		(0.0969)	(0.0886)	(0.1016)	(0.0914)	(0.1082)	(0.1145)	(0.0902)	(0.1012)
Ln(asset)		-0.0171**	-0.0192***	-0.0026	-0.0072	0.0042	-0.0002	0.0032	0.0125**
		(0.0069)	(0.0067)	(0.0062)	(0.0062)	(0.0061)	(0.0063)	(0.0061)	(0.0057)
TANG		0.0934**	0.0603	0.0890**	0.0355	-0.0806***	-0.1138***	-0.0871***	-0.0825***
		(0.0397)	(0.0421)	(0.0397)	(0.0411)	(0.0257)	(0.0283)	(0.0264)	(0.0263)
ETR		0.0057***	0.0007	0.0065***	-0.0006	0.0161***	0.0067***	0.0238***	0.0070***
		(0.0014)	(0.0014)	(0.0021)	(0.0021)	(0.0013)	(0.0013)	(0.0016)	(0.0022)
BD/MD		-	-	-	-	0.6126***	0.6250***	0.6819***	0.4360***
		-	-	-	-	(0.0290)	(0.0333)	(0.0307)	(0.0337)
Observations		4978	4663	5259	4632	3881	3612	4075	3525
R^2		0.5947	0.5830	0.5492	0.5356	0.4719	0.4698	0.4797	0.3056
Adjusted R^2		0.5014	0.4848	0.4427	0.4187	0.3489	0.3433	0.3536	0.1261
Wald(p-values)		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Period		1981-2008	1981-2008	1981-2008	1981-2008	1982-2008	1982-2008	1982-2008	1982-2008

TABLE 5

Determinants of Distance and Change of Distance from Target Leverage: Under-Levered Firms

The dependent variable is distance from target leverage for columns 1 to 4 and change in distance for columns 5 to 8. Distance and change in distance is measured in absolute terms ($|D_{it}^{*} - D_{it}|$). Regressions control for firm fixed effects and include year dummies. Rogers (1993) standard errors are reported in parentheses. (*), (**) and (***) indicate that coefficients are significant at 10, 5 and 1 % level, respectively.

	Predicted Sign	$DISTBD_{FM}$	$DISTBD_{TOB}$	$DISTMD_{FM}$	$DISTMD_{TOB}$	$\Delta DISTBD_{FM}$	$\Delta DISTBD_{TOB}$	$\Delta DISTMD_{FM}$	$\Delta DISTMD_{TOB}$
CONST		0.0802***	-0.0117	-0.1914***	0.1472***	-0.1182***	-0.1789***	-0.1141***	-0.1420***
		(0.0209)	(0.0235)	(0.0310)	(0.0307)	(0.0178)	(0.0189)	(0.0399)	(0.0348)
OVVD	+	0.0063***	0.0062***	0.0059***	0.0082***	0.0165***	0.0216***	0.0214***	0.0223***
		(0.0016)	(0.0018)	(0.0020)	(0.0020)	(0.0018)	(0.0018)	(0.0036)	(0.0023)
MTB		-0.0026***	-0.0034***	0.0400***	-0.0250***	-0.0044***	-0.0051***	-0.0464***	-0.0145***
		(0.0007)	(0.0008)	(0.0021)	(0.0019)	(0.0009)	(0.0009)	(0.0036)	(0.0029)
NDTS		0.1527***	0.1029***	-0.1026***	-0.0091	0.1848***	0.1399***	0.2103***	0.0769
		(0.0274)	(0.0284)	(0.0352)	(0.0351)	(0.0244)	(0.0294)	(0.0467)	(0.0467)
SIZE		0.0035*	0.0043**	0.0019	-0.0025	0.0112***	0.0133***	0.0174***	0.0089***
		(0.0020)	(0.0021)	(0.0026)	(0.0026)	(0.0015)	(0.0016)	(0.0040)	(0.0034)
TANG		0.0207*	0.0630***	-0.0072	0.0674***	0.0507***	0.0840***	0.0656***	0.0963***
		(0.0124)	(0.0134)	(0.0137)	(0.0145)	(0.0096)	(0.0107)	(0.0148)	(0.0131)
ETR		-0.0088***	-0.0035	0.0118***	-0.0050***	-0.0142***	-0.0059***	-0.0202***	-0.0071***
		(0.0010)	(0.0007)	(0.0012)	(0.0007)	(0.0008)	(0.0006)	(0.0012)	(0.0009)
BD / MD		-	-	-	-	-0.6356***	-0.6022***	-0.6846***	-0.4336***
		-	-	-	-	(0.0251)	(0.0237)	(0.0279)	(0.0272)
Observations		5816	6105	5433	6087	4579	4858	4269	4848
R^2		0.5691	0.6235	0.6313	0.6374	0.4493	0.4382	0.4571	0.3914
Adjusted R^2		0.4755	0.5449	0.5515	0.5626	0.3313	0.3225	0.3434	0.2690
Wald(p-values)		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Period		1981-2007	1981-2007	1981-2007	1981-2007	1982-2007	1982-2007	1982-2007	1982-2007

TABLE 6
Determinants of Issue Decision and Choice of Financing

The table reports results from the sequential logit regressions. For columns 1 to 4, the passive firms are the base for the first level and the dependent variable equals 1 when firms issue securities and 0 if otherwise. Equity issuers are the base for the second level and the dependent variable is 1 if firms issue debt and 0 if firms issue equity. For columns 5 to 8, passive firms are the base for the first level and the dependent variable equals 1 when firms repurchase security and 0 if otherwise. Firms that retire debt are the base for the second level and the dependent variable is 1 if firms repurchase equity and 0 if firms retire debt. All regressions contain unreported year dummies and robust standard errors clustered at the firm level are reported in parentheses. (*), (**) and (***) indicate that coefficients are significant at 10, 5 and 1 % level, respectively.

	Pure Issues		All Issues		Pure Repurchases		All Repurchases	
	Issue Decision Issue (vs. No Issue)	Choice Decision Debt (vs. Equity)	Issue Decision Issue (vs. No Issue)	Choice Decision Debt (vs. Equity)	Repurchase Decision Repurchase (vs. No Repurchase)	Choice Decision Equity (vs. Debt)	Repurchase Decision Repurchase (vs. No Repurchase)	Choice Decision Equity (vs. Debt)
CONST	0.5291	-1.9030***	0.7783**	-2.1047***	-0.7069*	-2.2966***	-0.1480	-1.9003***
	(0.3516)	(0.6112)	(0.3455)	(0.5512)	(0.4073)	(0.8728)	(0.3891)	(0.7122)
UNDVD	0.2890***	2.0456***	0.1347**	2.5048***	-0.3494***	2.1715***	-0.2812***	2.8225***
	(0.0604)	(0.1150)	(0.0565)	(0.5512)	(0.0731)	(0.1505)	(0.0626)	(0.1301)
NDTS	-2.8259***	-1.1041	-1.7199**	-2.2468	4.6297***	-14.0255***	3.3959***	-14.0150***
	(0.9278)	(1.4276)	(0.7962)	(1.3987)	(0.9750)	(2.4635)	(0.8102)	(2.6327)
SIZE	-0.1598***	0.0225	-0.1549***	0.0306	0.0110	0.0308	-0.0415**	-0.0267
	(0.0181)	(0.0367)	(0.0172)	(0.0325)	(0.0207)	(0.0433)	(0.0190)	(0.0347)
TANG	-1.4358***	-1.1821***	-1.3713***	-1.1540***	-0.3799**	1.1441***	-0.6691***	0.6568**
	(0.1952)	(0.2922)	(0.1794)	(0.2713)	(0.1883)	(0.3952)	(0.1732)	(0.3249)
ETR	-0.0758***	-0.0163	-0.0719***	0.0202	-0.0316	0.0023	-0.0314	0.0581
	(0.0220)	(0.0317)	(0.0209)	(0.0333)	(0.0229)	(0.0617)	(0.0208)	(0.0600)
LEVERAGE	4.0558***	8.0004***	4.3856***	6.6935***	1.3636***	-2.9097***	2.7791***	-0.0850
	(0.2763)	(0.7216)	(0.2658)	(0.5935)	(0.2868)	(0.6642)	(0.2503)	(0.4035)
INDL	0.0402	-1.5419	-0.4510	-1.5068	-2.0012	5.0152	-1.2850	2.9767
	(2.1211)	(3.6453)	(2.0453)	(3.2313)	(2.3516)	(4.9585)	(2.2425)	(3.9748)
CAPEX	5.5492***	8.5276***	5.0076***	9.4176***	-2.0479**	4.9925***	0.0516	7.8154***
	(0.6714)	(1.1129)	(0.6229)	(1.0733)	(0.8605)	(1.7796)	(0.6428)	(1.3463)
RD	2.1287***	-2.3999	1.9134***	-1.1743	-0.7292	0.6463	-0.0718	0.6045
	(0.5432)	(2.0086)	(0.5129)	(1.3889)	(0.8382)	(1.5005)	(0.7173)	(1.1832)
RDD	0.1028	0.0352	0.0930	-0.0784	-0.0213	-0.1899	-0.0115	-0.2074
	(0.0698)	(0.1395)	(0.0681)	(0.1260)	(0.0811)	(0.1613)	(0.0756)	(0.1337)
CASH	-0.4748**	-3.8340***	-0.4740**	-3.2555***	-0.9880***	3.4579***	-0.8647***	2.3004***
	(0.2036)	(0.5561)	(0.1920)	(0.4955)	(0.2519)	(0.6127)	(0.2165)	(0.4327)
Observations	7655		8384		6248		7128	
Chi^2 Test (p-values)	0.0000		0.0000		0.0000		0.0000	
Period	1981-2008		1981-2008		1981-2008		1981-2008	
Dependent = 1	2813	1513	3582	1869	1581	643	2401	1019
Dependent = 0	4842	1300	4802	1713	4667	938	4727	1382
Odds ratio for UNDVD	1.3351	7.7341	1.1441	12.2405	0.7051	8.7717	0.7459	16.8195

TABLE 7
Determinants of Issue and Repurchase Size

This table provides results from logistic regressions. In columns 1 and 2, the dependent variable equals 1 when firms issue debt and 0 when firms issue equity. In columns 3 and 4, the dependent variable equals 1 when firms repurchase equity and 0 when firms retire debt. All regressions contain unreported year dummies and robust standard errors clustered at the firm level are reported in parentheses. (*), (**) and (***) indicate that coefficients are significant at 10, 5 and 1 % level, respectively.

	Pure Issues Debt (vs. Equity)	All Issues Debt (vs. Equity)	Pure Repurchases Equity (vs. Debt)	All Repurchases Equity (vs. Debt)
CONST	0.9768	-0.7245	-2.6659**	-1.3773
	(1.1916)	(1.0715)	(1.2299)	(0.8765)
UNDVD	2.1921***	2.6910***	2.5178***	3.0242***
	(0.1505)	(0.1265)	(0.2016)	(0.15870
NDTS	-1.5525	-2.5804	-7.3370*	-9.2671***
	(2.4852)	(2.5653)	(4.1065)	(3.5240)
SIZE	-0.0512	0.0189	-0.0000	-0.0300
	(0.0482)	(0.0387)	(0.0582)	(0.0413)
TANG	-1.7870***	-1.3855***	1.9497***	1.1109***
	(0.3829)	(0.3255)	(0.4900)	(0.3818)
ETR	-0.0134	0.0093	0.0299	0.0705
	(0.0429)	(0.0389)	(0.0660)	(0.0602)
LEVERAGE	8.2234***	5.8641***	-2.7228***	-0.1630
	(0.9096)	(0.6507)	(0.8027)	(0.4389)
INDL	-1.9657	-2.4618	7.0570	0.2310
	(4.8815)	(3.9496)	(6.3583)	(4.4351)
ISSUE SIZE	-9.4374***	-3.4598***	-1.7476**	-1.5023***
	(0.8717)	(0.5353)	(0.7053)	(0.3830)
CAPEX	9.4456***	9.7504***	2.3020	5.6158***
	(1.7608)	(1.4713)	(2.2023)	(1.5280)
RD	-2.5880	-2.6862	1.4028	1.4114
	(2.5019)	(1.8523)	(1.8182)	(1.3693)
RDD	0.4096**	0.0088	-0.6549	-0.1685
	(0.1848)	(0.1536)	(0.2010)	(0.1576)
CASH	-2.8615***	-2.7981***	3.8292***	2.4841***
	(0.7489)	(0.6211)	(0.7122)	(0.5145)
Observations	1835	2613	1151	1883
Pseudo R^2	0.4743	0.4396	0.2958	0.3354
Chi^2 test (p-values)	0.000	0.0000	0.0000	0.000
Period	1981-2008	1981-2008	1981-2008	1981-2008
Dependent = 1	1072	1456	490	833
Dependent = 0	763	1157	665	1050
Odds ratio for UNDVD	8.9540	14.7464	12.4013	20.5775

TABLE 8

Determinants of Issue and Repurchasing Choice: Considering Passive Firms

This table provides results from logistic regressions. The dependent variable is 1 when firms issue and / or repurchase securities and 0 if firms are passive. All regressions contain unreported year dummies and robust standard errors clustered at the firm level are reported in parentheses. (*), (**) and (***) indicate that coefficients are significant at 10, 5 and 1 % level, respectively.

	Pure Debt Issue (vs. No Issue)	Debt Issue & Equity Reduction (vs. No Issue)	All Debt Issues (vs. No Issue)	Equity Reduction (vs. No Reduction)	Equity Issue (vs. No Issue)	Equity Issue and Debt Reduction (vs. No Issue)	All Equity Issues (vs. No Issue)	Debt Reduction (vs. No Reduction)
CONST	-1.2079*	-2.3108**	-1.1082	-3.8692***	0.4141	-0.7137	0.7430	-0.8515*
	(0.7329)	(0.9219)	(0.7125)	(1.0212)	(0.7617)	(1.3139)	(0.6796)	(0.5146)
UNDVD	1.5088***	1.8318***	1.5330***	0.8152***	-0.9273***	-3.0300***	-1.2924***	-1.4141***
	(0.0944)	(0.1817)	(0.0881)	(0.1125)	(0.0941)	(0.2803)	(0.0899)	(0.1007)
NDTS	-8.4253***	-5.0509	-7.1614***	0.3998	1.1002	4.9136***	2.1065**	7.1144***
	(2.1452)	(4.0156)	(2.0807)	(1.5681)	(1.0096)	(1.5135)	(0.9151)	(1.3663)
SIZE	-0.1857***	-0.2205***	-0.1939***	0.0271	-0.1222***	-0.0840**	-0.1181***	0.0170
	(0.0253)	(0.0428)	(0.0235)	(0.0363)	(0.0264)	(0.0403)	(0.0230)	(0.0236)
TANG	-1.7395***	-1.3275***	-1.7796***	0.1747	-1.0186***	-0.7076**	-0.8709***	-0.6737***
	(0.2558)	(0.4121)	(0.2417)	(0.3059)	(0.2769)	(0.3500)	(0.2244)	(0.2327)
ETR	-0.0556*	0.0911*	-0.0352	0.0104	-0.0866***	-0.0735**	-0.0910***	-0.0454*
	(0.0326)	(0.0522)	(0.0309)	(0.0346)	(0.0266)	(0.0337)	(0.0264)	(0.0274)
LEVERAGE	7.7240***	8.8327***	8.2038***	-0.1742	-0.2685	2.4595***	0.5351	2.3061***
	(0.4440)	(0.5262)	(0.4302)	(0.5402)	(0.3989)	(0.4735)	(0.3304)	(0.3429)
INDL	-0.5031	-4.4273	-1.4223	1.5003	0.0764	-2.5854	-0.5558	-4.6889*
	(2.8832)	(4.7029)	(2.6259)	(3.8521)	(2.9413)	(4.4860)	(2.3003)	(2.7792)
CAPEX	11.0601***	8.7229***	10.9711***	0.0689	1.1771	-2.0892	0.2375	-3.8753***
	(1.1859)	(1.8306)	(1.1158)	(1.1362)	(0.8938)	(1.5265)	(0.7878)	(1.1812)
RD	-1.3357	4.0140***	0.4990	-1.0231	1.8789***	0.6857	1.6894***	-0.5050
	(1.7655)	(1.2399)	(1.2547)	(1.1679)	(0.5607)	(1.0799)	(0.5334)	(1.1592)
RDD	0.0379	-0.2191	0.0442	-0.0950	0.0804	0.1259	0.1178	0.0152
	(0.0954)	(0.1564)	(0.0861)	(0.1216)	(0.0986)	(0.1514)	(0.0927)	(0.1002)
CASH	-3.4184***	-0.6088	-2.8945***	0.7180**	-0.2015	-0.6455	-0.2547	-2.7916***
	(0.4386)	(0.6155)	(0.3732)	(0.3195)	(0.2430)	(0.4076)	(0.2237)	(0.4213)
Observations	6115	4960	6518	5240	5929	5295	6410	5572
Pseudo R^2	0.2815	0.3262	0.2972	0.0527	0.0917	0.1491	0.0948	0.1135
Chi^2 Test (p-values)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Period	1981-2007	1981-2007	1981-2007	1981-2007	1981-2007	1981-2007	1981-2007	1981-2007
Dependent = 1	1417	351	1820	635	1223	453	1669	934
Dependent = 0	4698	4609	4698	4605	4706	4842	4741	4638
Odds ratio for UNDVD	4.5213	6.2451	4.6320	2.2596	0.3956	0.0483	0.2746	0.2431

TABLE 9

Multinomial Logit Analysis of Pure Security Issues and Reductions (Passive Firms are the Base)

This table provides results from multinomial logistic regressions. Column 1 reports results for pure debt issuers, column 2 for pure equity issuers, column 3 for pure debt reductions and column 4 for pure equity repurchases. Passive firms the base in the regressions. All regressions contain unreported year dummies and robust standard errors clustered at the firm level are reported in parentheses. (*), (**) and (***) indicate that coefficients are significant at 10, 5 and 1 % level, respectively.

	Pure Debt Issue	Pure Equity Issue	Pure Debt Reductions	Pure Equity Repurchase
CONST	-2.3424***	-1.2445***	-1.3406***	-2.2811***
	(0.1020)	(0.0838)	(0.0872)	(0.1083)
UNDVD	1.4466***	-0.9716***	-1.3866***	0.6902***
	(0.0843)	(0.0875)	(0.0927)	(0.1039)
NDTS	-6.6032***	1.3343	5.1898***	0.9733
	(1.8351)	(1.0073)	(1.1623)	(1.3920)
SIZE	-0.1577***	-0.1157***	0.0168	0.0386
	(0.0226)	(0.0255)	(0.0216)	(0.0352)
TANG	-1.5851***	-1.0405***	-0.7586***	0.1560
	(0.2179)	(0.2692)	(0.2147)	(0.2828)
ETR	-0.0735**	-0.0771***	-0.0531**	0.0109
	(0.0305)	(0.0264)	(0.0264)	(0.0322)
LEVERAGE	6.7055***	-0.3803	2.5325***	-0.4718
	(0.3476)	(0.4452)	(0.3408)	(0.5566)
INDL	0.4898	0.0656	-4.3337*	0.9452
	(2.6750)	(2.8421)	(2.5245)	(3.4380)
CAPEX	10.0299***	1.3648	-3.3064***	0.3274
	(0.9122)	(0.9940)	(1.0680)	(1.0533)
RD	-1.5625	2.1508***	-0.0774	-0.4767
	(1.5915)	(0.5257)	(1.0141)	(0.9838)
RDD	-0.0166	0.0810	0.0332	-0.0986
	(0.0903)	(0.0955)	(0.0972)	(0.1163)
CASH	-3.3252***	-0.2309	-2.7124***	0.5947*
	(0.3947)	(0.2359)	(0.3697)	(0.3048)
Observations	9200	9200	9200	9200
Pseudo R^2	0.1276	0.1276	0.1276	0.1276
Chi^2 Test (p-values)	0.0000	0.0000	0.0000	0.0000
Period	1981-2007	1981-2007	1981-2007	1981-2007
Dependent = 1	1494	1277	963	661
Dependent = 0	4805	4805	4805	4805
Odds ratio for UNDVD	4.2486	0.3785	0.2499	1.9941

TABLE 10

Multinomial Logit Analysis of All Security Issues and Reductions (Passive Firms are the Base)

Column 1 reports results for pure debt issuers, column 2 firms that issue debt accompanied with equity repurchases, column 3 for pure equity issuers, column 4 for firms that issue equity and reduce debt, column 5 for pure debt reductions and column 6 for pure equity repurchases. Passive firms the base in the regressions. All regressions contain unreported year dummies and robust standard errors clustered at the firm level are reported in parentheses. (*), (**) and (***) indicate that coefficients are significant at 10, 5 and 1 % level, respectively.

	Pure Debt Issues	Issue Debt & repurchase Equity	Pure Equity Issues	Issue Equity & Retire Debt	Pure Debt Reductions	Pure Equity Reductions
CONST	-2.0219***	-3.8130***	-1.2450***	-1.9171***	-1.0888***	-2.3612***
	(0.0988)	(0.1708)	(0.0863)	(0.1225)	(0.0856)	(0.1112)
UNDVD	1.3377***	1.8689***	-0.9605***	-2.9475***	-1.4732***	0.7238***
	(0.0841)	(0.1520)	(0.0871)	(0.2646)	(0.0932)	(0.1042)
NDTS	-6.1374***	-4.4279*	1.4012	3.3021***	5.4366***	1.1594
	(1.7868)	(2.6495)	(0.9963)	(1.1296)	(1.0728)	(1.3391)
SIZE	-0.1362***	-0.1835***	-0.1171***	-0.1172***	0.0306	0.0368
	(0.0223)	(0.0361)	(0.0252)	(0.0348)	(0.0218)	(0.0349)
TANG	-1.5633***	-2.2254***	-0.9680***	-0.8387***	-0.7578***	0.2267
	(0.2130)	(0.3174)	(0.2644)	(0.3133)	(0.2133)	(0.2778)
ETR	-0.0717**	0.0165	-0.0833***	-0.0805***	-0.0562**	0.0112
	(0.0320)	(0.0465)	(0.0276)	(0.0294)	(0.0279)	(0.0327)
LEVERAGE	6.7653***	8.0703***	-0.2399	2.8581***	2.6277***	-0.5299
	(0.3319)	(0.3968)	(0.4365)	(0.4801)	(0.3369)	(0.5514)
INDL	0.4831	-4.6924	-0.0168	-0.4304	-3.8702	1.1823
	(2.6521)	(3.3574)	(2.7559)	(3.8569)	(2.5506)	(3.4127)
CAPEX	10.0492***	10.3052***	1.2884	-1.3115	-3.2599***	0.2115
	(0.8757)	(1.0576)	(0.9783)	(1.3534)	(1.0278)	(1.0430)
RD	-0.4277	1.6692	1.9510***	0.6737	0.4686	-0.8429
	(1.4470)	(1.4596)	(0.5303)	(0.9046)	(0.9941)	(0.9968)
RDD	0.0206	-0.2241	0.0839	0.1238	0.0428	-0.1069
	(0.0887)	(0.1451)	(0.0950)	(0.1374)	(0.0967)	(0.1168)
CASH	-3.8665***	-1.7800***	0.0539	-0.9838***	-2.7980***	0.8056***
	(0.4445)	(0.5229)	(0.2206)	(0.3580)	(0.3839)	(0.2799)
Observations	10077	10077	10077	10077	10077	10077
Pseudo R^2	0.1309	0.1309	0.1309	0.1309	0.1309	0.1309
Chi^2 Test (p-values)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Period	1981-2007	1981-2007	1981-2007	1981-2007	1981-2007	1981-2007
Dependent = 1	1503	379	1287	449	971	663
Dependent = 0	4825	4825	4825	4825	4825	4825
Odds ratio for UNDVD	3.8103	6.4812	0.3827	0.0525	0.2292	2.0623