Debt Rating Initiations and Accompanying Corporate Behavior

Abstract

We examine a company's decision to issue public debt for the first time by analyzing its behavior around the time of obtaining its first debt rating. Contrary to our expectations, we find that firms are more likely to pay dividends in the years *prior* to the initial rating rather than at or after the announcement date, and that the amount of dividend payments actually appears to *decline* (rather than increase). We posit that this may be attributable to the fact that firms initiate and/or increase dividend payments in anticipation of accessing the public debt markets for the first time.

This behavior leads us to consider other actions that firms might undertake in preparation for this event. We go on to find that firms' stock prices fall in the period following their initial debt rating. Further, there is strong evidence that earnings drop afterwards. We argue that these observations are consistent with the fact that firms "time" their decision to access public debt markets to follow periods of strong share price and earnings performance. This leads us to consider the possibility that companies may actively "manage" their earnings to make them appear as attractive as possible in the pre-rating period, and we find evidence to support this assertion.

1. INTRODUCTION

A major decision faced by corporations is whether or not to issue debt in the public bond markets. For smaller firms, this is not an option; however, once companies reach a certain size, public debt issuance becomes a viable option. There are numerous benefits and costs associated with this decision, which makes it an important one. In this paper, we investigate how a firm's corporate decisions are affected by this decision.

The most obvious benefits of issuing public debt include the potential to reduce the interest rate paid on the debt, and to avoid some of the tighter restrictions that may be imposed by private (i.e., bank-type) creditors. On the other hand, companies issuing public debt will have additional public disclosure requirements and issuing costs, among other things. Prior to issuing public debt, firms must obtain a public debt rating; therefore we examine the public debt decision by examining the behavior around the time of a firm obtaining its first debt rating.

We begin by examining the dividend behavior of newly rated firms as a follow up to the recent results of Aivazian et al (2006) who established that firms that access public debt markets are more likely to pay dividends than those do not. They argue that bank debt is informed debt in the Rajan (1992) sense, so that the need to signal or use dividends as an agency reduction tool is much reduced. Instead investors can simply key off the renewal of "informed" banking relationships. In contrast to informed bank debt, public market debt is largely arms-length debt purchased by large institutions such as insurance companies and pension funds. Given that these institutions are fiduciaries investing other people's money, they are governed by "prudent investor" rules that

dictate the types of investments they can make. Consequently, firms have a greater need to communicate with bond investors by adopting specific stable financial policies, with rating agencies providing external guidance on the credit quality of the firm's debt. Chan and Jegadeesh (2001) and Odders-White and Ready (2004) have also noted that dividend payments are useful for predicting bond ratings and thus the credit quality of a firm.

Since a company has the discretion to determine when dividends are paid, the discussion above implies that a reasonable hypothesis would be that firms begin paying (or increase the amount of) dividends around the time they intend to issue public debt, which generally coincides with the timing of obtaining their initial debt rating. Contrary to our expectations, we find that firms are more likely to pay dividends in the years *prior* to the initial rating rather than at the announcement date or afterwards, and that the amount of dividend payments actually appears to *decline* (rather than increase); although the decline is minor. A reasonable explanation for this is that firms initiate and/or increase dividend payments in anticipation of accessing the public debt markets for the first time.

Given the importance attached to dividend policy decisions, the discussion above leads us to wonder that if companies are willing to adjust their dividend payments in anticipation of entering the world of public debt, what else might they do? Indeed, our results go on to show that firms' stock prices fall in the period following their initial debt rating. Further, there is strong evidence that earnings drop afterwards. Combined, these findings suggest at least two possibilities: (1) the decisions to access public debt markets are well-timed on average, in the sense that they follow periods of strong share price and earnings performance, which suggests the firm will appear extremely healthy to potential

creditors (and rating agencies); and/or, (2) companies "manage" their earnings to some extent in the periods leading up to the time of the rating initiation. Further investigation produces evidence that firms do engage in some form of earnings manipulation surrounding the debt rating initiation period. To the best of our knowledge, we are the first researchers to document such evidence.

The rest of this paper is organized as follows: Section 2 discusses the data collected and sample characteristics. Section 3 considers the effect that the initial rating decision has on dividend policy, while Section 4 examines the stock price reaction and earnings patterns. Section 5 adds some conclusions and suggestions for further research.

2. Data Collection and Sample Characteristics

Data Sources

The two major bond rating agencies are Standard and Poor's (S&P) and Moody's Investors Service (Moody's). Both firms have a policy of rating all US public corporate bond issues; however Moody's will also provide unsolicited ratings for structured securities and foreign bonds (Cantor and Packer (1994)). In practice, the vast majority of ratings are sought and paid for by the firm despite the fact that most issues would have been rated anyway (Kliger and Sarig (2000)). This is because the firm can provide sometimes confidential information to the rating agency, where the information is privileged, and it can then challenge a preliminary report for errors and omissions. The existence of an initial bond rating is therefore closely correlated with a conscious decision on the part of the firm to be rated and to access the public bond market.

We explore the extent to which an initial rating is associated with entry into the public debt market using the SDC Platinum database to establish the date of public debt issues for firms in our sample with initial ratings after 1970 (the year in which SDC data begins). We find that for firms with available data in SDC Platinum, 75% issue debt within 30 days of their initial rating. Firms that receive strong ratings are more likely to issue debt on the same day that the rating is announced.

The results in this paper are based on rating data provided by Moody's Investors Service. Moody's began assigning bond ratings in the early 1900s. Between 1919 and 2002, Moody's assigned ratings to over 17,000 organizations. However, the first year for which annual data is available in Compustat is 1950. Consequently, we restrict the sample to firms that received their first rating from Moody's for the period 1955-1997. The calendar year that a company first receives a bond rating is labeled year 0. Other company variables can then be examined for the five years prior to year 0 and the five subsequent years.

A firm enters our sample only once so that we ignore observations where a firm "regains" a Moody's rating after a lapse. Of the 6,707 initial ratings there were 2,762 matches in Compustat; the bulk of the remainder were for private firms without publicly available financial data or for special issues like securitizations.

Sample Characteristics

Table 1 summarizes the years in which our sample firms were first rated. Our sample is concentrated in the years 1985 to 1997 with over two-thirds of the initial ratings. This concentration reflects the expansion of the ratings business (Lyons (1996))

as both Moody's and S&P now operate in over 20 countries worldwide,[1] and the development of the corporate bond market to include smaller issuers. An example of the latter development is that in 2003, 14% of new issues were from new or rarely seen issuers. These issuers represented pharmaceuticals, small regional banks, and other industry sectors not traditionally represented in the corporate bond market.[2]

Table 1 also breaks out the sample by industry grouping based on SIC codes. Since firm policies may be influenced by the policies of their industry peers we follow Michaely, Thaler, and Womack (1995) and Benartzi, Michaely, and Thaler (1997) and also control for industry. Note that although we have data for eight broad industry groupings, the sample is concentrated in the manufacturing sector with approximately half the observations. Financial firms and those in transportation, (includes utilities and communications) are the next biggest groupings. It is common to exclude utilities from samples on the basis that they are subject to "regulation." However, there is nothing in rate of return regulation per se that impacts the rating decision or dividend policy per se.[3] Therefore, rather than excluding these observations we opt for SIC controls and robustness checks based on industry.

We use several variables to measure firm characteristics related to their financial policies including[4]: market to book ratio; profitability; capital expenditures; maturity; debt to assets; size, and tangibility. These variables are defined as follows:

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[1] Accordingly our sample includes Canadian companies with data in Compustat.

[2] Market statistics from Merrill Lynch Fixed Income Strategy report, Size and Structure of the World Bond Market: 2004.

[3] Rate regulation simply reflects a statutory requirement that rates be "fair and reasonable." This does impact capital structure and profitability but there is no link to dividend policy, particularly since the regulated entity is usually a subsidiary of the listed company.

[4] Since the overwhelming majority of sample firms are incorporated in North America, we ignore country specific factors.

- Market to Book Ratio: the closing stock price divided by the book value per share. This ratio is commonly used to proxy for the firm's investment opportunity set; firms with high market to book ratios are expected to have better investment opportunities and /or more intangibles.
- Profitability: net income before extraordinary items divided by total assets.
- Size: the natural logarithm of total assets. Larger firms are often mature firms with stable growth. Consequently, they may be more likely to make dividend payments as well as having freer access to public debt markets. Blume et al (1998) link size positively to bond ratings.
- Leverage: long term debt divided by total assets.
- Tangibility: net property plant and equipment divided by total assets. Tangible assets can be used as collateral for long term debt and reflect the maturity of the firm.
- Capital Expenditures: capital expenditures divided by total assets. Similar to the market to book ratio current capital expenditures reflect the firm's investment opportunities and available free cash flow.
- Maturity: cumulative retained earnings over total shareholders equity. Altman (1973) first introduced this proxy as large stable profitable firms have a larger share of stockholder's equity coming from retained earnings; young immature firms have the opposite.

Table 2 provides descriptive statistics for these variables across SIC groupings. The median is provided as well as the mean, since accounting ratios are often highly skewed. The median dividend payments are very low for most types of firms, with the

exception of financial firms. This indicates that a large portion of our observations encompass years in which a firm did not pay a dividend. Not surprisingly, large average dividend payments are found for the transportation (which includes utilities) and finance categories. Firms in these two sectors are also substantially larger than firms in the remaining industry groups.

The median degree of investment, as indicated by capital expenditures over assets, does not vary significantly across industries. It ranges from 0.16 for the agribusiness to 0.25 for both construction and finance firms. Significantly higher mean values of investment in the financial and service industries however indicate that some firms had capital expenditures well above the median level. Firms with the most tangible assets are found in the transportation and mining sectors, which are obviously capital intensive. The protection afforded regulation indicates that for firms in transportation the higher tangibility translates into marginally higher leverage. The average long-term debt ratio for these firms is 0.49 compared to the sample average of 0.39.

The market to book ratio is skewed by the small number of service companies with very high ratios due to the presence of intangible assets not recorded on the balance sheet. Otherwise, median market to book ratios are highest in agribusiness, mining, manufacturing and retail where profitability is highest. However, again there are no pronounced industry differences.

These seven variables will be used for various purposes including being incorporated into a logit model that is used to predict the probability of a firm paying a dividend. Prior to using them, we estimate the probability of paying a dividend using ordinary least squares with these seven variables as independent variables. While strictly

speaking this regression does not estimate probabilities, since there is no constraint that the probability has to lie in the range 0 to 1, it does establish the extent of multi-colinearity among the independent variables. From this regression we can estimate the variance inflation factors (VIF) for each independent variable. As a rule of thumb, multi-colinearity is a problem if any one of the VIFs is extremely large (over 30) or the average significantly exceeds 1. For our seven variables the average is very close to one and none are larger than 2, indicating that multi-colinearity is not a problem.

The Influence of Debt Rating Initiation on Key Company Variables

Table 3 provides summary statistics according to year relative to the debt rating initiation event (denoted as Year 0). Many of the variables remain relatively constant throughout the 11-year window we examine including the market to book ratio and Capex/Assets, which are both related to investment opportunities, and Tangibility, which is a measure of the firm's asset mix. However, several other variables of note change substantially. First of all, we can see that the debt to total assets ratio increases dramatically as of Year 0, and then remains at this higher level for the next five years. This is consistent with the fact that firms would obtain the rating to proceed with a substantial sized public debt issue in the year of rating initiation. We explore the issue of debt ratings and capital structure in more detail in another study, and so do not pursue this matter further here.

Two other important observations are apparent in Table 3. First, while dividend payments as a percentage of EPS and EBIT remained relatively constant, the percentage of firms paying dividends actually declined. This is contrary to our expectations, based

on the recent observations of Aivazian et al (2006) that rated firms are more likely to pay dividends than those do not. The other interesting observation in this table is that both Profit/Assets and EBIT/Assets decline substantially after the debt rating initiation period. We examine both of these observations in greater detail in the two sections below.

3. Debt Rating Initiations and Dividend Policy

The Dividend Decision

In this section, we initially focus on the firm's decision to pay a dividend. As Baker and Wurgler (2004) note, the size of a dividend may be influenced by several factors. However the decision to pay a dividend is a policy decision and thus more clearly captures the impact of the incentive structure faced by the firm than the size of the dividend itself. Table 4 provides the results of a logit model where the dependent variable is a 0, 1 indicator for whether or not the firm paid a dividend.

Three specifications are presented: the first uses the relative year as the sole independent variable; the second includes the seven independent variables discussed above; the final adds the SIC industry classifications. In all models a single firm will represent multiple observations; ideally with complete data a single firm will be represented 11 times. Accordingly the results are based on robust standard errors that deal with this lack of independence with multiple observations from each firm. Year 0 is the base year so the coefficients on the relative year variable can be interpreted with reference to the rating initiation. Positive coefficients indicate that the probability of paying a dividend is higher, while negative coefficients indicate that it is lower.

Consistent with the data in Table 3, first note that proximity to the initial rating date has a definite impact on a firm's dividend decision: the indicator variables specifying the relative year are always significant for plus three years either side of the initial rating. This holds regardless of model specification, in fact the result is stronger when the independent variables and SICs are used than when the relative years are used on their own. What is most interesting is that prior to receiving an initial rating, the probability that a firm will pay a dividend is greater than afterwards. Regardless of specification, the estimated coefficients are all positive for the four years prior to the rating and are negative afterwards. Surprisingly, it appears that the decision to secure a rating decreases the probability that a firm will pay a dividend.

The coefficients on the financial control variables are mainly as expected and consistent with results in Aivazian et al (2006) and Fama and French (2001). The probability of paying a dividend increases with profitability and size and decreases with indebtedness and the level of capital expenditures. As Aivazian et al (2006) also report, the impact of the tangibility of firm assets depends on the industry SIC controls; including these controls, firms with more tangible assets are more likely to pay a dividend. As others have also found the market to book ratio is not significant as a dividend predictor, although the coefficient has the right sign, which comment also applies to the maturity variable. None of the SIC indicators are significant although they clearly interact with the tangibility and maturity variables.

We ensure that these results are robust by examining whether any one observation significantly influences the estimated coefficients. To do this we calculate dfbetas, which summarize the impact of estimating the model with and without a single observation.

This is repeated for all observations and those with dfbetas greater than 1 are viewed to significantly influence the coefficients. In each of the three model specifications we find very few (5 or less) observations with dfbetas this high. A more stringent test identifies observations with dfbetas in excess of $2/\sqrt{n}$, where n is the total number of observations. In our case, regardless of the cutoff point used to define excessive influence, rerunning the analysis without these observations does not change the results. We confirm that a dividend payment is always more likely pre-rating than post, and that profitability, size, investment, and leverage are useful determinants of dividend payment.

It is possible that the results in Table 4 are driven by factors unrelated to the rating initiation. In other words, it could be the case that the behavior of some other variable changes dramatically over the course of our eleven event years. As a check, Table 5 reports the results of the logit model for each relative year.[5] The results are obviously noisier, since the sample size is much reduced. However, the basic results are the same. First the importance of profitability is highly significant across all years with the coefficient particularly large at and after the rating initiation. Second, the size and capital expenditures variables are also highly significant with no obvious trend, except that the coefficient on size declines each year consistent with an inflationary bias to total assets, which is measured in nominal dollars. The market to book ratio and tangibility variables have the right signs, but are even less significant due to the smaller sample size.

The added value to the results in Table 5 is for the impact of the leverage and maturity variables, both of which are plausibly related to the decision to issue public market debt. Altman (1973) uses the maturity variable to predict bankruptcy as it is a

[5] To conserve space we report only the estimated coefficients and their statistical significance. Full results are available on request.

cumulative profitability proxy. In the logit estimates it is a significant predictor of the probability of a firm paying a dividend for every year (except one) from year -5 to the rating initiation, after which the size of the coefficient drops dramatically and is usually insignificant. In contrast for leverage the coefficient is insignificant for years -5 to -3 after which it becomes highly significant as well as increasing in size to stabilize at year +1.[6]

The logic of the coefficients on the maturity and leverage variables is that cumulatively profitable firms are more likely to pay out a dividend until they have public market debt. After this point, whether because of dividend restrictions in the bond indenture or cash flow constraints, such firms are less likely to pay a dividend. Further while more debt always tends to reduce the probability of the firm paying a dividend, it is much more important as the firm seeks public market debt. Together these two variables indicate that it's the nature of public market debt and the importance of the bond rating that accounts for the increased importance of the level of long term debt and the decreased importance of cumulative profitability.

Table 6 provides two robustness checks. The first, presented in the left hand side panel excludes utilities and financials similar to Fama and French (2001), while the right hand side confines our analysis to ratings assigned after 1980 when Baker and Wurgler (2004) indicate that dividend payers traded at a discount. Both sets of results confirm our previous results: the influence of the independent and relative year variables is almost exactly the same. Consequently we believe that the results are robust.

[6] Results are again similar when additional robustness checks are conducted to account for the influence of individual observations.

Debt Ratings and Dividend Policy

Finally, as well as whether or not the firm pays a dividend and has a rating, we also have the quality of the rating itself. Others, for example, Aivazian et al (2006), Chan and Jegadeesh (2001) and Odders-White and Ready (2004) have used dividends as a predictor of the bond rating. However, bond ratings are known to be sticky under the "stable rating" philosophy adopted by the rating agencies. Under this philosophy, a rating is designed to reflect the credit quality of the firm throughout all stages of the business cycle. It is interesting therefore to see how important the dividend is to the initial rating decision. We test for this by asking whether a dividend payment itself is enough to elicit a higher rating and whether the size of the dividend, based on our two measures of dividend payout, has an impact.

To examine these questions we use an ordered logit model, where the dependent variable ranges from 1 for a Ca rating to 20 for an Aaa. With this specification, a positive coefficient on an explanatory variable indicates that the variable contributes to a higher bond rating. An advantage of the ordered logit model is that it estimates the cut-off points for each rating classification as well as the coefficient estimates. These cut-offs can be thought of as partitioning the underlying distribution from the rating process into a corresponding initial rating. The initial ratings vary widely, as the sample includes firms from each rating category from Ca to Aaa. Consequently, the ordered logit model estimates 19 cut-off points which we denote by μ_1 through μ_{19}.[7]

[7] We choose an ordered logit model to be consistent with our previous models predicting the probability that the firm makes a positive dividend payment. However, previous studies such as Blume et al (1998) have relied on an ordered probit methodology to predict bond ratings. We replicate our results using the ordered probit model and find that they are even stronger. A detailed discussion of the ordered probit can be found in Hausman, Lo, and MacKinlay (1992).

All rating agencies emphasize the importance of judgment as well as accounting and other quantitative data. However, several studies including early work by Pogue and Soldofsky (1969) and the more recent work of Blume, Lim, and MacKinlay (1998) have been successful at replicating bond ratings with public information. The list of explanatory variables is extensive, ranging from standard financial variables to qualitative estimates of a firm's governance mechanisms (Bhojraj and Sengupta, 2003) and equity market liquidity (Odders-White and Ready, 2004). It is not our intention here to replicate any of these studies,[8] but simply to see whether the payment of a dividend has any incremental explanatory power. For consistency, we use the variables previously discussed, which in practice encompass many of the variables used in these rating prediction papers.

Table 7 provides the estimates and consistent with our prior results all the variables are in line with expectations, except for the market to book ratio and the tangibility variables, where we now know the latter interacts with industry (SIC) classification. A firm's bond rating increases with its profitability, size, and maturity (cumulative profitability) and decreases with the rate of capital expenditures and its indebtedness. These results are consistent with the prior results and intuitive. However, more important is that a firm's dividend policy, as measured either by the observation of a dividend or its dividend payout, increases the quality of its rating. In comparing the significance of the two measures it appears that whether a firm pays a dividend or not has a greater influence on its rating than the actual amount paid out. Further note again, that the importance of the dividend is additional to the firm characteristics used to determine

[8] See Chan and Jegadeesh (2001) for an excellent survey.

the dividend. Although our second measure of payout, dividend over earnings before interest and taxes, also positively impacts the rating that is assigned, this impact does not appear to be significant.[9]

4. Debt Rating Initiations and Earnings

Earnings and Stock Return Patterns

The profitability data discussed in Section 2 provides clear evidence that profitability declines after the firm gets its initial rating. Up until the rating, the return on assets (profitability) ranges between 4.3%-6.2%, in the year of rating it drops to 3.5% and then for the next five years it drops precipitously into the 1.77%-2.37% range. This pattern is evident for both the median and adjusted average, although the fact that it is more pronounced for the average indicates that some firms face a disastrous drop in profitability.[10] Given the subsequent profit drop, it is possible that firms are able to "time" their access to the public bond markets, similar to the way firms have been shown to time their equity issues. On the other hand, given the absence of marginal dividend payments out of earnings post rating initiation, as well as the declining percentage of dividend payers, it is also possible that firms engage in window dressing with the rating agencies to enhance their initial rating.

Either way, our results suggest that firms seek to access public debt markets prior to a negative shift in profitability. To explore this issue in more depth, we first turn to the

[9] It is interesting however that when an ordered probit model is used all three measures of dividend payment are significantly related to higher assigned ratings.

[10] Profitability was also examined in calendar time by a least squares regression of profitability against relative year for each calendar year since 1955. The coefficient is negative in 95% of the years, indicating that the above statistics are not biased by business cycle effects.

stock returns of our rated firms. We anticipate that firms time their debt issue to follow periods of strong performance and lead periods of decline. While not all of our sample firms have publicly traded stock at the time of their initial rating, over 95% of them do. For these firms we establish their monthly excess stock returns for five years prior to year 0 and five years after. In this case, excess returns are defined as the difference between the stock return and the return on the equally-weighted portfolio of stocks from the NYSE, Nasdaq, and American Exchange.[11] We plot the average cumulative excess return for the sample firms over this period in Figure 1. The patterns in the figure are consistent with timing behavior. Figure 1 shows that cumulative returns increase dramatically prior to the rating but remain virtually flat in the following five years.

Earnings Management

It is possible that the strong earnings numbers in the pre-rating period may be the result of earnings management through the aggressive use of discretionary current accruals. In order to investigate this possibility, we focus only on firms for which SDC data was available, indicating that an issue took place between 1970 and 1997. we also require that firms receiving their initial Moody's rating in a particular year appear in the SDC public debt issues database for the first time in that same year. The correspondence between year of initial Moody's rating and first appearance in SDC is taken to signify a firm's entry into public debt markets. Summary statistics and the patterns therein for this subset of our original sample of firms in the pre and post issue period are virtually identical to those reported for the full sample, and hence are not reported here.

[11] Use of a value-weighted index did not change the results.

Following Teoh et al (1998) we view net income as a function of both cash flow from operations and total accruals.

$$\textit{Net Income} = \textit{Cash flow from operations} + \textit{Total Accruals} \qquad (1)$$

Net income is taken as the Compustat variable "income before extraordinary items" while cash flow from operations is defined as Compustat variable 308 after 1987, when the variable was first introduced to the database. For years prior to 1987 we define cash flow from operations as funds flow from operations (variable 110) minus current accruals (again following Teoh et al).

Total accruals can be thought of as being composed of both long term accruals and current accruals. Research suggests that management has the most discretion over the current portion of accruals. As a result, we focus only on current accruals which are defined as:

$$\textit{Current accruals} = (\Delta \textit{ current assets} - \Delta \textit{ cash}) - \qquad (2)$$
$$(\Delta \textit{ current liabilities} - \Delta \textit{ current maturity of long-term debt})$$

where Δ indicates year-over-year changes in a variable.

While management has some discretion over current accruals there are clearly aspects which are beyond their control. As a result, we distinguish between non-discretionary current accruals (NDCA) and discretionary current accruals (DCA). In order to establish NDCA for a firm in our sample, we identify all firms in Compustat

with the same two-digit SIC code as the issuing firm. We then use these firms to run a cross-sectional regression for all event-years (from minus 5 to plus 5) within the study. Note that we require at least 10 matching firms in Compustat in order to proceed with the regression. The cross-sectional regression generates estimates of the coefficients alpha and beta:

$$\frac{CA_{jt}}{TA_{jt-1}} = \alpha\left(\frac{1}{TA_{jt-1}}\right) + \beta\left(\frac{\Delta sales_{jt}}{TA_{jt-1}}\right) + \varepsilon_{jt} \qquad (3)$$

where for firm j at time t, CA_{jt} represents current accruals, TA_{jt-1} is equal to lagged assets and $\Delta sales_{jt}$ is equal to the year-over-year change in sales.

Using the resulting estimates of alpha and beta, non-discretionary current accruals (scaled by lagged assets) can be estimated for issuing firm i to be a function of sales growth, which is viewed to be largely beyond management's control. We also adjust for changes in accounts receivable to allow for the manipulation of credit sales by the issuer.

$$\frac{NDCA_{it}}{TA_{it-1}} = \hat{\alpha}\left(\frac{1}{TA_{it-1}}\right) + \hat{\beta}\left(\frac{\Delta sales_{it} - A/R_{it}}{TA_{it-1}}\right) \qquad (4)$$

With NDCA defined in this way, DCA, our primary measure of earnings manipulation, can be defined as:

$$\frac{DCA_{it}}{TA_{it-1}} = \frac{CA_{it}}{TA_{it-1}} - \frac{NDCA_{it}}{TA_{it-1}} \qquad (5)$$

The results reported in Table 8 indicate that the strong earnings numbers in the pre-rating period may be the result of earnings management through the aggressive use of discretionary current accruals. First we note that the average values of standardized EBIT and cash flow from operations measures fall significantly from the pre-issue to post-issue period. The fact that EBIT falls significantly implies that the reduction in net income cannot be solely attributed to additional interest payments arising from the public debt issue.

The column reporting average discretionary current accruals demonstrates that firms do tend to be more aggressive in their accruals in the years prior to the initial public debt issue. Average accrual values are positive one year prior to issue and in the year of the issue. In both years, the average level of discretionary current accruals is significantly different from zero (at the 10% level for year -1 and the 1% level for year 0).[12]

The evidence above corroborates the theory that firms engage in earnings management to present themselves in the most favorable light possible before accessing the public debt markets for the first time. This behavior makes sense when we consider that firms tend to raise funds in a "lumpy" manner, and recall the substantial increase in debt displayed by our sample of firms that occurred during the year of the first public debt issue. In short, these firms tend to issue a substantial amount of debt in year 0, and therefore they can save themselves a lot of money by obtaining the best rating possible in that year. This benefit may outweigh the costs of potential rating downgrades in subsequent periods that may occur as a result of reporting declining earnings.

[12] Note that even the full sample of firms with initial Moody's ratings from 1955 to 1997 (including those we cannot match to an initial public debt issue date) demonstrate this pattern. For the full sample, mean DCA are 0.011 in year 0 with a T-stat of 2.740.

Alternatively, firms may be overly optimistic about their prospects for sustaining these more aggressive reported earnings figures. We do not investigate this issue here, leaving it as an item for future research.

5. Conclusions

This paper examines a company's decision to issue public debt for the first time by analyzing its behavior around the time of obtaining its first debt rating. We begin by examining the dividend behavior of newly rated firms. Contrary to our expectations, based on the results of Aivazian et al (2006), we find that firms are more likely to pay dividends in the years *prior* to the initial rating rather than at or after the announcement date, and that the amount of dividend payments actually appears to *decline* (rather than increase); although the decline is minor. We posit that this may be attributable to the fact that firms initiate and/or increase dividend payments in anticipation of accessing the public debt markets for the first time.

The fact that firms might altar their dividend policy in anticipation of accessing public debt markets leads us to consider other actions that firms might undertake in preparation for this event. We go on to find that firms' stock prices fall in the period following their initial debt rating. Further, there is strong evidence that earnings drop afterwards. We argue that these observations are consistent with the fact that firms "time" their decision to access public debt markets to follow periods of strong share price and earnings performance. This leads us to consider the possibility that companies may

actively "manage" their earnings to make them appear as attractive as possible in the pre-rating period, and we find evidence to support this assertion.

Overall our results suggest that firms consider the decision to enter the public debt markets as an extremely important one. The fact that they may altar their dividend policy, and that they do appear to manage their reported earnings prior to this event has important implications for debt rating agencies, analysts, creditors and investors. Our study opens the door to future research about the implications of these observations for these interested parties, as well as for corporate managers who are involved in the public debt issue decision process.

References

Aivazian V., Booth, L. and Cleary, S., 2006. Why some firms smooth their dividends and others don't. Rotman School of Management, University of Toronto working paper.

Altman, E., 1973. Predicting railroad bankruptcies in America. Bell Journal of Economics and

Management Science, Spring, 184-211.

Baker, M., Wurgler, J., 2004, A catering theory of dividends. Journal of Finance 59, 1125-1165.

Benartzi, S., Michaely, R., and Thaler, R., 1997. Do changes in dividends signal the future or the past? Journal of Finance 52, 1007-1034.

Bhojraj, S., Sengupta, P., 2003. Effect of corporate governance on bond ratings and yields: The role of institutional investors and outside directors. Journal of Business 76, 455-475.

Blume, M., Lim, F., and MacKinlay, A.C., 1998. The declining credit quality of US corporate debt: Myth or reality? Journal of Finance 54, 1389-1413.

Cantor, R., Packer, F., 1994. The credit rating industry. FRBNY Quarterly Review.

Chan, K., Jegadeesh, N., 2001. Market-based evaluation for models to predict bond ratings and corporate bond trading strategy. University of Illinois at Urbana-Champaign working paper.

Fama, E., French, K., 2001. Disappearing dividends: Changing firm characteristics or lower propensity to pay? Journal of Financial Economics 60, 3-43.

Hausman,R., Lo, J.A. and MacKinlay, A.C. (1992), . An ordered probit analysis of transaction stock prices. Journal of Financial Economics 31, 319-379.

Kliger, D., Sarig, O., 2000. The information value of bond ratings. Journal of Finance 55, 2879-2902.

Lyons, R., 1996. How many can play the rating game? Euromoney 325 (May).

Merrill Lynch Fixed Income Strategy, 2004. Size and structure of the world bond market: 2004.

Michaely, R., Thaler, R. and Womack, K., 1995. Price reactions to dividend initiations and omissions: Overreaction or drift? Journal of Finance 50, 573-608.

Odders-White, E., Ready, M., 2004. Credit ratings and stock liquidity. University of Wisconsin-Madison working paper.

Pogue, T., Soldofsky, R., 1969. What's in a bond rating? Journal of Financial and Quantitative Analysis 4, 201-228.

Rajan, R., 1992. Insiders and outsiders: The choice between informed and arm's length debt. Journal of Finance 47, 1367-1400.

Teoh, S.H., Welch, I. and Wong, T.J., 1998. Earnings management and the underperformance of seasoned equity offerings. Journal of Financial Economics 50, 63-99.

Table 1

Sample Firms Categorized by Year of Initial Rating and Industry

Rating Year	Total	Agricultur.	Mineral	Construct.	Manufac.	Transp.	Retail	Finance	Service
1955-59	74		5		46	13	9	1	
1960-64	72		3		37	19	11	1	1
1965-69	224	2	8	3	131	40	31	9	
1970-74	133		3	1	59	23	14	29	3
1975-79	134		5	2	41	14	8	55	9
1980-84	281	1	23	7	96	26	33	67	24
1985-90	686	3	16	12	265	84	90	128	84
1990-94	517	2	25	11	175	97	65	81	57
1995-97	641	2	52	3	200	115	63	116	87
Total	2762	10	140	39	1050	431	324	477	275

Table 2

Summary Statistics Across all Firm-Year Observations

	Total	Agr.	Mineral	Construct.	Manufac.	Transp.	Retail	Finance	Service
Div/EPS									
Mean	0.30	0.43	0.25	0.17	0.31	0.31	0.32	0.40	0.09
Median	0.11	0.20	0.00	0.00	0.17	0.00	0.05	0.30	0.00
Div/EBIT									
Mean	0.18	0.53	0.12	0.05	0.21	0.13	0.12	0.19	0.15
Median	0.06	0.09	0.00	0.00	0.08	0.00	0.03	0.13	0.00
Profitability (%)									
Mean	3.49	-0.36	1.06	1.23	4.21	-0.52	3.30	1.87	1.17
Median	2.51	4.03	3.42	3.29	5.13	2.97	4.35	1.08	3.29
Mkt. to Book									
Mean	6.39	4.24	1.42	1.55	2.12	2.91	2.59	1.71	37.48
Median	1.75	3.10	1.84	1.15	1.84	1.80	1.94	1.44	2.07
Assets($MM)									
Mean	3364	434	1486	557	1452	3423	858	11291	1096
Median	449	315	360	251	312	655	283	3006	245
LTD/Assets									
Mean	0.39	0.43	0.38	0.50	0.39	0.49	0.41	0.28	0.45
Median	0.35	0.42	0.35	0.52	0.33	0.42	0.36	0.18	0.44
Tangibility									
Mean	0.34	0.42	0.68	0.15	0.33	0.57	0.33	0.04	0.38
Median	0.30	0.40	0.72	0.11	0.30	0.62	0.30	0.01	0.32
Capex/Assets									
Mean	0.30	0.18	0.26	0.30	0.23	0.22	0.25	0.55	0.54
Median	0.20	0.16	0.20	0.25	0.19	0.16	0.21	0.25	0.23
Maturity Proxy									
Mean	0.27	1.23	0.03	0.52	0.37	0.10	0.15	0.38	0.18
Median	0.41	0.37	0.19	0.42	0.49	0.29	0.42	0.47	0.31

Table 3

Summary Statistics by Relative Year

Adjusted Mean – Includes Observations Within ± 3 Standard Deviations of the Sample Mean

	%of Firms Paying Div.	Div/EPS	Div/EBIT	Profits/Assets	Capex/Assets	EBIT/Assets	Debt/Assets
Yr -5	63.80%	0.27	0.12	4.84%	0.23	9.74%	0.287
Yr -4	61.11%	0.26	0.14	4.37%	0.25	9.41%	0.295
Yr -3	58.42%	0.24	0.13	4.69%	0.28	9.60%	0.277
Yr -2	55.81%	0.24	0.13	6.21%	0.29	9.45%	0.293
Yr -1	54.46%	0.21	0.10	4.33%	0.29	9.39%	0.311
Yr 0	55.13%	0.23	0.13	3.48%	0.28	8.68%	0.422
Yr +1	54.57%	0.23	0.11	2.37%	0.27	8.01%	0.447
Yr +2	53.93%	0.24	0.12	2.04%	0.23	7.51%	0.457
Yr +3	53.46%	0.25	0.12	1.86%	0.21	7.41%	0.456
Yr +4	52.81%	0.23	0.10	1.77%	0.22	7.37%	0.445
Yr +5	52.32%	0.22	0.11	1.92%	0.21	7.54%	0.430

Median Values

	Div/EPS	Div/EBIT	Profits/Assets	Capex/Assets	EBIT/Assets	Debt/Assets
Yr -5	0.20	0.09	4.72%	0.19	9.35%	0.249
Yr -4	0.18	0.09	4.38%	0.20	8.98%	0.262
Yr -3	0.15	0.08	4.36%	0.21	8.86%	0.241
Yr -2	0.13	0.06	5.51%	0.23	8.85%	0.247
Yr -1	0.09	0.05	4.29%	0.22	8.99%	0.277
Yr 0	0.09	0.04	3.76%	0.22	8.34%	0.398
Yr +1	0.09	0.04	2.94%	0.21	7.90%	0.413
Yr +2	0.09	0.04	2.51%	0.19	7.45%	0.416
Yr +3	0.07	0.05	2.45%	0.18	7.37%	0.410
Yr +4	0.08	0.05	2.48%	0.17	7.38%	0.394
Yr +5	0.09	0.05	2.43%	0.17	7.52%	0.375

Table 4
The Decision to Pay a Dividend

	Coefficient	Z-Stat	Coefficient	Z-Stat	Coefficient	Z-Stat
Constant	0.21	4.71**	-3.58	-10.34**	-3.82	-5.37**
Year -5	0.36	6.92**	0.43	3.08**	0.42	2.90**
Year -4	0.25	5.25**	0.44	3.53**	0.43	3.46**
Year -3	0.13	3.30**	0.27	2.62**	0.26	2.53*
Year -2	0.03	0.82	0.19	2.27*	0.19	2.24*
Year -1	-0.03	-1.13	0.04	0.62	0.04	0.65
Year +1	-0.02	-1.16	-0.08	-1.62	-0.10	-1.98*
Year +2	-0.05	-1.76	-0.20	-3.05**	-0.23	-3.39**
Year +3	-0.07	-2.07*	-0.27	-3.47**	-0.30	-3.71**
Year +4	-0.09	-2.51*	-0.34	-3.94**	-0.36	-4.08**
Year +5	-0.11	-2.79**	-0.40	-4.28**	-0.42	-4.39**
Profitability			4.49	6.31**	4.35	6.33**
Market to Book			-0.00	-0.85	-0.00	-0.75
Ln Assets			0.70	14.44**	0.68	13.91**
LT Debt to Assets			-1.81	-6.89**	-1.68	-6.28**
Tangibility			0.42	1.69	1.23	3.91**
Capex to Assets			-2.42	-7.69**	-2.34	-6.96**
Maturity Proxy			0.01	1.11	0.01	1.27
Agriculture					0.44	0.46
Minerals					-0.41	-0.64
Construction					0.35	0.45
Manufacturing					0.20	0.33
Transportation					-0.49	-0.79
Retail					0.20	0.32
Finance					0.91	1.39
Service					-0.85	-1.34
Observations	20627		8726		8726	
Pseudo R^2	0.003		0.24		0.27	
Wald Stat ($\chi 2$)	81.94		374.88		382.19	
Prob > $\chi 2$	0.00		0.00		0.00	

* Indicates significance at the 5 percent level
** Indicates significance at the 1 percent level

Table 5
The Decision to Pay a Dividend - Individual Year Analysis

Years Prior to the Rating and Year of Rating Initiation

	Year -5 Coefficient	Year -4 Coeff.	Year -3 Coeff.	Year -2 Coeff.	Year -1 Coeff.	Year 0 Coeff.
Constant	-4.93**	-5.23**	-5.99**	-4.20**	-4.19**	-3.68**
Profitability	4.27*	5.13*	3.67	3.04**	2.44	8.94**
Market to Book	-0.01	-0.04	-0.02	-0.07*	-0.00	-0.01
Ln Assets	0.97**	0.98**	0.90**	0.88**	0.74**	0.70**
LT Debt to Assets	-0.52	-0.14	-0.03	-1.48**	-1.30**	-1.31**
Tangibility	0.02	-0.15	0.82	0.29	0.23	0.19
Capex to Assets	-2.46*	-1.44	-1.18	-2.19**	-2.27**	-3.46**
Maturity Proxy	0.38**	0.43*	1.84**	0.00	1.05**	0.23**
Observations	305	404	544	702	894	1025
Pseudo R^2	0.36	0.36	0.40	0.29	0.29	0.28
Likelihood Ratio ($\chi 2$)	152.74	200.76	298.84	281.92	356.58	392.50
Prob > $\chi 2$	0.00	0.00	0.00	0.00	0.00	0.00

Years Subsequent to the Rating

	Year +1 Coeff.	Year +2 Coeff.	Year +3 Coeff.	Year +4 Coeff.	Year +5 Coeff.
Constant	-3.12**	-3.58**	-2.98**	-2.68**	-3.02**
Profitability	9.08**	6.69**	1.63*	4.81**	3.08**
Market to Book	-0.01	-0.01	-0.00	-0.00	0.00
Ln Assets	0.66**	0.65**	0.58**	0.52**	0.52**
LT Debt to Assets	-2.15**	-1.78**	-2.25**	-2.46**	-2.66**
Tangibility	0.18	0.51	0.50	0.70*	1.08**
Capex to Assets	-3.47**	-2.22**	-1.78**	-2.14**	-0.47
Maturity Proxy	0.10**	0.02	0.06*	0.06	0.00
Observations	1031	995	973	942	911
Pseudo R^2	0.29	0.23	0.19	0.21	0.20
Likelihood Ratio ($\chi 2$)	416.53	320.29	256.24	273.24	249.20
Prob > $\chi 2$	0.00	0.00	0.00	0.00	0.00

* Indicates significance at the 5 percent level

** Indicates significance at the 1 percent level

Table 6
Robustness Checks for Industry and Timing

	Excluding Transp. & Financials		Rated 1980 or Later	
	Coefficient	Z-Stat	Coefficient	Z-Stat
Constant	-3.58	-10.34**	-3.60	-10.29**
Year -5	0.43	3.08**	0.43	3.07**
Year -4	0.44	3.53**	0.44	3.52**
Year -3	0.27	2.62**	0.27	2.61**
Year -2	0.19	2.27*	0.19	2.27*
Year -1	0.04	0.62	0.04	0.61
Year +1	-0.08	-1.69	-0.08	-1.70
Year +2	-0.20	-3.05**	-0.20	-3.07**
Year +3	-0.27	-3.47**	-0.28	-3.48**
Year +4	-0.34	-3.94**	-0.36	-4.18**
Year +5	-0.40	-4.28**	-0.46	-4.94**
Profitability	4.49	6.31**	4.47	6.26**
Market to Book	-0.00	-0.85	-0.00	-0.86
Ln Assets	0.70	14.44**	0.70	14.38**
LT Debt to Assets	-1.81	-6.89**	-1.83	-6.90**
Tangibility	0.42	1.69	0.41	1.66
Capex to Assets	-2.42	-7.69**	-2.42	-7.66**
Maturity Proxy	0.01	1.11	0.01	1.14
Observations	8726		8681	
Pseudo R^2	0.24		0.25	
Wald Stat ($\chi 2$)	374.88		372.20	
Prob > $\chi 2$	0.00		0.00	

* Indicates significance at the 5 percent level
** Indicates significance at the 1 percent level

Table 7
Dividend Payment and Rating Assignment

		Positive Dividend		Dividend/EPS		Dividend/EBIT	
		Coeff.	Z-Stat	Coeff.	Z-Stat	Coeff.	Z-Stat
Positive Dividend		1.97	13.38**	—	—	—	—
Dividend/EPS		—	—	0.02	2.35*	—	—
Dividend/EBIT		—	—	—	—	0.15	1.47
Profitability		7.36	7.99**	8.33	8.79**	8.17	8.69**
Market to Book		-0.00	-0.57	-0.00	-0.71	-0.00	-0.72
Ln Assets		0.83	16.15**	0.94	19.09**	0.95	19.33**
LT Debt to Assets		-3.15	-9.80**	-3.48	-10.53**	-3.45	-10.65**
Tangibility		-0.06	-0.24	0.10	0.44	0.10	0.42
Capex to Assets		-0.82	-2.89**	-1.64	-5.79**	-1.56	-5.54**
Maturity Proxy		0.04	2.77**	0.05	3.46**	0.05	3.46**
Cutoff Points:	μ_1	-3.17		-3.30		-3.21	
	μ_2	-2.87		-3.01		-2.91	
	μ_3	-1.39		-1.58		-1.42	
	μ_4	-0.93		-1.10		-0.97	
	μ_5	0.56		0.45		0.55	
	μ_6	1.15		1.04		1.12	
	μ_7	2.92		2.76		2.84	
	μ_8	4.39		4.09		4.16	
	μ_9	5.30		4.85		4.92	
	μ_{10}	6.22		5.60		5.68	
	μ_{11}	6.79		6.08		6.15	
	μ_{12}	7.49		6.68		6.75	
	μ_{13}	7.92		7.07		7.13	
	μ_{14}	8.66		7.74		7.82	
	μ_{15}	9.57		8.64		8.70	
	μ_{16}	10.39		9.45		9.51	
	μ_{17}	11.27		10.34		10.40	
	μ_{18}	12.48		11.55		11.62	
	μ_{19}	12.71		11.79		11.85	
Observations		1025		1018		1025	
Pseudo R^2		0.20		0.16		0.16	
Likelihood Ratio ($\chi 2$)		1006.30		812.97		815.68	
Prob > $\chi 2$		0.00		0.00		0.00	

* Indicates significance at the 5 percent level
** Indicates significance at the 1 percent level

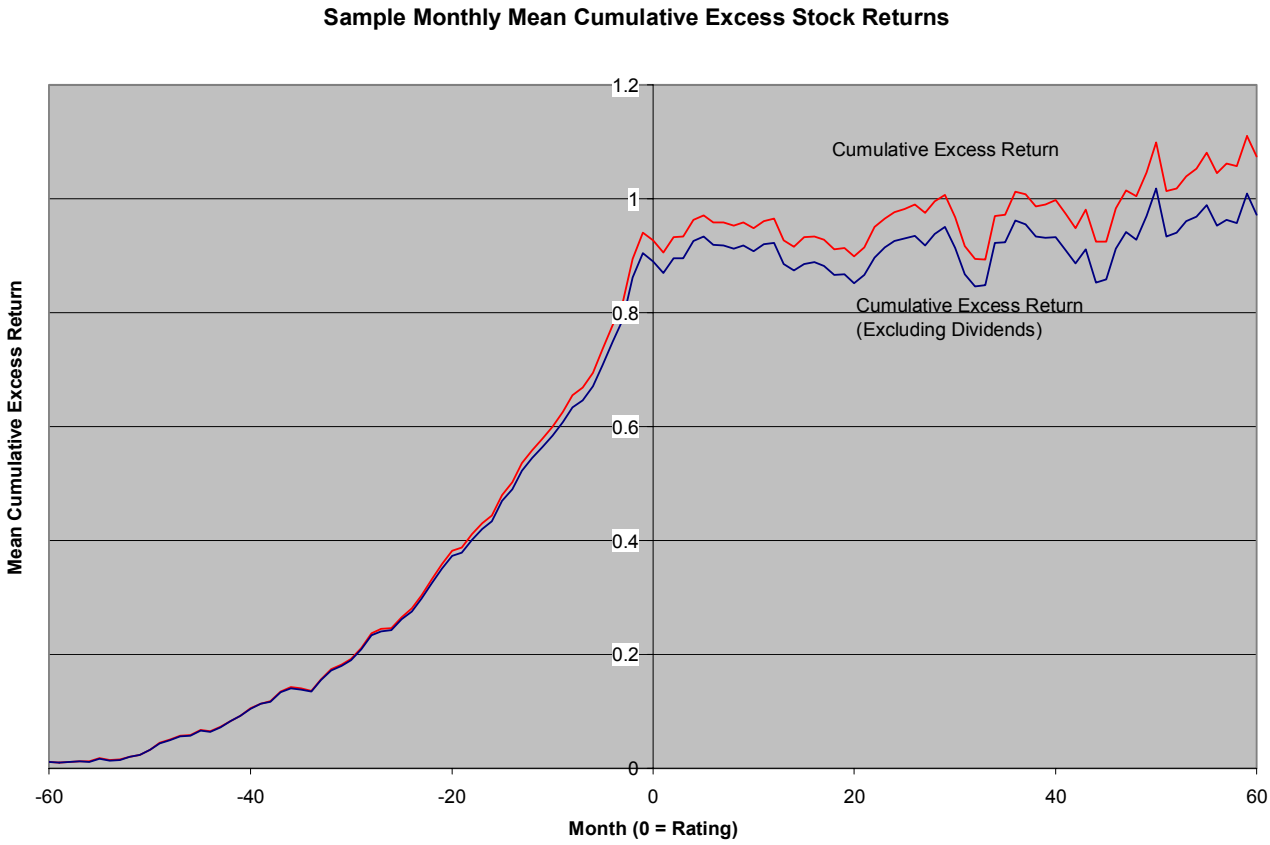
Table 8

Profitability and Accruals Surrounding Year of First Issue

All values are standardized by lagged total assets. The number of observations with full data available for calculating total accruals, NDCA, and DCA is significantly less than the number of observations with available net income and EBIT data (approximately 30%-50% of firms have full data for finding accruals). Total accruals are often not available due to missing cash flow from operations data. Variables are winsorized at the 1% level as in the previous table.

	Mean Net Income	Mean EBIT	Mean CF from Ops	Mean Total Accruals	Mean NDCA	Mean DCA	T-Test DCA=0
Year -5	0.065	0.133	0.114	-0.057	0.011	-0.004	-0.278
Year -4	0.063	0.127	0.094	-0.074	0.009	0.001	0.148
Year -3	0.063	0.124	0.110	-0.063	0.018	0.000	0.045
Year -2	0.076	0.129	0.103	-0.036	0.012	-0.008	-0.926
Year -1	0.067	0.132	0.106	-0.066	0.021	0.013	1.832*
Issue Yr	0.060	0.127	0.085	-0.047	0.023	0.019	3.120***
Year +1	0.038	0.105	0.078	-0.051	0.019	0.003	0.695
Year +2	0.031	0.096	0.075	-0.054	0.013	-0.004	-0.899
Year +3	0.025	0.092	0.072	-0.058	0.008	0.000	0.064
Year +4	0.024	0.088	0.076	-0.066	0.004	-0.002	-0.593
Year +5	0.024	0.087	0.082	-0.071	0.008	-0.006	-1.54

FIGURE 1



The mean cumulative excess return is plotted in this figure for five years prior to the rating and the five subsequent years. Excess returns are defined as the difference between the stock's return and the return on the equally-weighted portfolio of stocks on the NYSE, Nasdaq, and American exchanges.