A comparison of the motivations for and the information content of different types of equity offerings*

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Abstract

We examine the choice of equity offering type and the accompanying information content using a sample of 4,708 equity offerings announced between 1980 and 1998. We find evidence that announcements of regular equity offerings involving primary shares convey unfavorable information about future operating performance, while announcements of regular offerings of secondary shares and shelf registrations, if anything, convey favorable information. Further analysis suggests that firms sell equity in regular offerings to take advantage of temporarily high equity values, while firms sell equity in rights offerings or file shelf registrations when their market value is low and their financial situation tight.

In the absence of information asymmetries and taxes, Modigliani and Miller (1958) show that the manner in which firms finance their investments is irrelevant. However, they further note that when managers believe that the capital market undervalues the firm's equity, the optimal financing choice is to issue risk-free debt or use a pre-emptive stock issue. Expanding on the notion of information asymmetry, Myers and Majluf (1984) develop an adverse selection model that assumes that managers are more informed about the firm's prospects than potential investors. Investors, recognizing their informational disadvantage, interpret equity issues as a signal that the firm is overvalued. Thus, firms only issue stock when they have exhausted their internal funds and debt sources and/or when managers indeed believe that the stock is overvalued.

In support of Myers and Majluf's model, Asquith and Mullins (1986), Masulis and Korwar (1986), and Mikkelson and Partch (1986) document negative market reactions to the announcements of equity offerings. Moreover, Rangan (1998) and Teoh, Welch, and Wong (1998) find evidence of upward earnings management preceding equity offering announcements, suggesting that managers attempt to maximize the extent of the firm's overvaluation prior to equity issues. Subsequent to the equity offerings, Brous (1992) finds downward revisions of earnings forecasts, and Hansen and Crutchley (1990) and Loughran and Ritter (1997) show that earnings decline.

The model of Myers and Majluf (1984) focuses on what we refer to as regular offerings of primary shares, instead of rights offerings, shelf-registrations, or offerings of secondary shares. As a theoretical extension, Heinkel and Schwartz (1986) and Eckbo and Masulis (1992) model the choice between equity issues via rights offerings and regular offerings. Both models rely upon information asymmetry, and, consistent with

the argument of Modigliani and Miller (1958), predict that managers who believe their firm's equity is undervalued prefer rights offerings to prevent wealth transfers from the firm's existing shareholders.

Although we are unaware of any theoretical models that make direct predictions regarding the use of shelf registrations and offerings of secondary shares, there are compelling reasons to believe that they convey less unfavorable information than regular offerings of primary shares. For instance, if a firm's managers believe that the firm's equity is currently overvalued, but that the overvaluation might be temporary, they prefer to issue shares immediately in a primary offering instead of shelving the issue. If, on the contrary, the managers believe that the equity is undervalued, they are inclined to shun a regular primary issue because it would transfer wealth away from existing shareholders. Unlike primary issues, issues of purely secondary shares do not raise additional external equity capital. Thus, they do not fall under the adverse selection framework of Myers and Majluf (1984), where managers raise external equity when they believe the firm is overvalued. We therefore expect any information effect to be less pronounced for secondary shares issues.

Like announcements of regular equity offerings of primary shares, announcements of other types of equity offerings are associated with a negative stock price reaction (see Mikkelson and Partch (1985) and Asquith and Mullins (1986) for secondary shares; Hansen (1989), Bhagat, Marr, and Thompson (1985), Moore, Peterson, and Peterson (1986), and Denis (1991) for shelf registrations; and Eckbo and Masulis (1992), Hansen (1989), and Singh (1997) for rights offerings.) However, we are unaware of any empirical research that contrasts the patterns of earnings management and

operating performance surrounding regular equity offerings with those for rights offerings, shelf registrations, and offerings of secondary shares. The incentives for managers to manipulate earnings are presumably weaker, or perhaps non-existent, if the firm is not raising equity from new shareholders. Further, our discussion above suggests that rights offerings, shelf registrations, and offerings of secondary shares convey less unfavorable information than regular primary offerings. These effects should be apparent in the patterns of earnings accruals and operating performance.

This study improves our understanding of the information conveyed by the alternative types of equity offerings using an all-inclusive sample of 4,708 equity offerings announced between 1980 and 1998. We find that any upward earnings management before or around equity offering announcements is limited to offerings of primary shares and combinations of primary and secondary shares. There is no evidence of upward earnings management around rights offerings and shelf registrations. Consistent with Hansen and Crutchley (1990) and Loughran and Ritter (1997), we document operating performance declines following offering announcements of primary shares and combinations of primary and secondary shares. In contrast, we find no evidence that operating performance decreases following announcements of offerings of secondary shares. Further, operating performance increases after shelf registrations announcements, while there is no significant change in operating performance after rights offerings announcements. In a multivariate setting, the changes in operating performance around equity offerings are inversely related to the fraction of primary shares, and they tend to be more positive for shelf registrations.

The results of our tests of earnings management and operating performance show that the motivations differ across the types of equity offerings. Firms that announce regular offerings of primary shares appear to time their offerings to take advantage of temporarily high earnings that presumably have inflated the stock prices. This does not appear to be the case for other types of equity offerings. An examination of the time series of asset market-to-book values (M/B) supports this conjecture further. Firms that offer primary shares in a regular offering experience dramatic increases in M/B before their offering announcements and sharp drops in M/B afterwards. This pattern is more modest for other types of offerings, and in the case of rights offerings, the pattern is actually reversed.

We further show that firms that use rights offerings and shelf registrations face tight financial situations, as their leverage is high and their cash level is low relative to their industry peers. The evidence therefore suggests that these firms do not have enough financial slack to issue debt, and that the market's current valuation of the firm's shares is such that a regular equity offering would transfer too much wealth away from existing shareholders. Overall, our results are consistent with the notion that corporate managers act in the best interests of the firm's existing shareholders and that they are less likely to opportunistically time the announcements of shelf registrations and rights offerings than the announcements of regular equity offerings.

The paper proceeds as follows. The next section reviews related literature. Section 2 discusses the sample selection and provides selected sample statistics. Section 3 presents our empirical tests, and section 4 summarizes and concludes.

1. Related Literature

1.1 Regular equity offerings

Asquith and Mullins (1986), Masulis and Korwar (1986) and Mikkelson and Partch (1986) document that announcement returns for equity offerings average roughly -2% to -3%. One explanation for the negative returns is that the announcements convey unfavorable information about future earnings. Several studies examine this conjecture more closely. Healy and Palepu (1990) and Hansen and Crutchley (1990) examine changes in earnings following offering announcements. While Hansen and Crutchley find a systematic decrease in earnings, Healy and Palepu (1990) do not. Brous (1992) finds that earnings forecasts tend to increase before and then decrease after equity offering announcements, and Jain (1992) finds a positive relation between announcement returns and revisions in earnings forecasts after offering announcements.

Loughran and Ritter (1997) update the literature on earnings around equity offerings using a substantially larger sample, and in doing so, report that operating performance peaks at the time of the offer. Further, Teoh, Welch, and Wong (1998) and Rangan (1998) provide evidence that issuing firms manage earnings upward prior to the offerings, perhaps in an attempt to temporarily boost stock prices. Thus, the deterioration of earnings following offering announcements appears to be at least partially attributable to an inevitable reversal of efforts to manipulate earnings upward in the short run.

Additional theories to explain the negative announcement returns to equity offerings have also been advanced and tested in the financial literature. For example, drawing from the adverse selection model of Myers and Majluf (1984), Denis (1994) and Jung, Kim, and Stulz (1996) examine the relation between growth opportunities and

announcement returns. While Denis concludes that various measures of growth opportunities do not appear to explain the cross-sectional distribution of announcement returns, Jung, Kim, and Stulz find a positive relation between growth opportunities (as measured by the market-to-book ratio) and announcement returns.

Finally, a number of recent studies examine long-term stock returns subsequent to equity offerings. Loughran and Ritter (1995), Spiess and Affleck-Graves (1995), and Brav, Geczy, and Gompers (2000) find that the stocks of issuing firms underperform various benchmarks during the years following the issues. However, Eckbo, Masulis, and Norli (2000) argue that these results may reflect a failure to properly control for risk. Because of the uncertainty associated with properly identifying benchmarks for long-term stock returns (see, e.g., Fama (1998)), we do not pursue such an analysis here.

1.2 Secondary offerings

Among the few studies that investigate secondary offerings, Mikkelson and Partch (1985) document negative announcement returns for all types of sellers, although the returns are somewhat more negative if the seller is an officer or director. Lee (1997) examines long-term stock returns separately for primary issues (defined as issues with at least 50% primary shares) and secondary issues (issues with less than 50% primary shares), and also relates these returns to insider trading behavior. He finds that primary issuers underperform their benchmarks in the long-term, regardless of prior insider trading patterns. In contrast, secondary issuers do not underperform on average, although those with prior insider selling do. Lee interprets the differential results between primary and secondary issues to imply that "an increase in free cash flow problems plays an important role in explaining the underperformance of SEOs" (p. 1464). Thus, unless

insiders were liquidating their positions in open market transactions leading up to the offering, secondary offers do not appear to convey the same negative information content as regular offerings of primary shares, even though insiders frequently sell shares in secondary issues.

1.3 Rights offerings

Most studies of rights offerings attempt to resolve what is referred to as "the rights offer paradox." Specifically, why are rights offerings used so infrequently in the U.S. when they provide lower direct flotation costs than other equity offerings? Smith (1977) attributes the paradox to agency problems between managers and shareholders that arise because managers derive personal benefits from using underwriters. Hansen and Pinkerton (1982) contend that due to high merchandising costs, rights offerings are cheaper only for firms with concentrated ownership. Hansen (1989) argues that there are transaction costs of selling rights in the secondary markets that are not accounted for in direct flotation costs.

Heinkel and Schwartz (1986) and Eckbo and Masulis (1992) model the equity offer choice between regular offerings and rights offerings. Both models capture the notion that managers who know their firm is undervalued should choose rights offerings rather than regular offerings to outsiders to prevent wealth transfers from the firm's existing shareholders when the firm's true value is ultimately revealed. Eckbo and Masulis's model suggests that expected shareholder take-up is an important determinant of the rights offering choice. According to their model, the lower the proportion of expected shareholder take-up, the greater the adverse selection problem, reducing the likelihood that managers will choose a rights offering. Consistent with their model's

predictions, they report that take-up rates for rights offerings in the U.S. are close to 100 percent. They also report that the abnormal returns for insured rights offerings are not as unfavorable as those for firm commitment offerings. Singh (1997) and Bohren, Eckbo, and Michalsen (1997) also report evidence consistent with Eckbo and Masulis's prediction that high shareholder take-up is an important determinant of the rights offering decision.

1.4 Shelf registrations

Bhagat, Marr, and Thompson (1985) examine the issuing costs of shelf registrations and document that issuing costs of securities sold via shelf registrations are lower than those sold via regular offerings. However, a couple of studies point out potential disadvantages of shelf registrations. Blackwell, Marr, and Spivey (1990) suggest that shelf registrations reduce the ability of underwriters to perform due diligence, thereby making underwriters more vulnerable to litigation or loss of reputation. Their empirical results suggest that underwriters demand greater compensation for shelf issues because of this potential risk. Denis (1991) argues that shelf registrations lack underwriter certification. In support of his argument, firms that use shelf registrations are larger and are characterized by less uncertainty, suggesting less need for certification. Denis further examines announcement returns for a small set of firms that issued shares using both shelf and non-shelf registration and finds that they are slightly lower for shelf registrations. He suggests that these results may explain the declining incidence of shelf registrations during the 1980s (although they could not explain the rebound of shelf registrations in the 1990s documented in this study).

2. Sample and Descriptive Statistics

We examine seasoned equity offerings announced between 1980 and 1998. The source of our sample is the Securities Data Company's (SDC) equity issue database. We exclude all financial companies and utilities from our sample. Further, because our tests rely on financial data, we require the offering firms to be covered on both *CRSP* and *Compustat*. The final sample consists of 4,708 seasoned equity offerings made by 3,175 different firms.

Table 1 displays the yearly distribution of equity offering announcements. Of the 4,708 offerings in the sample, 43.3% are primary offerings, 34.4% are mixed offerings, 15.7% are secondary offerings, 1.2% are rights offerings, and 5.4% are shelf registrations. All types of offerings experienced a drop-off during the period 1984-1990 and then a subsequent increase. For example, although there are no rights offerings or shelf registrations in our sample during the period 1988-1990, both types of offerings recovered in the 1990s.

We also examine the sample distribution by industry classification, but do not tabulate this for parsimony. There is no strong industry clustering and the industry distribution is fairly similar across the equity offering types. The greatest differences across the offering types relate to *Business services* and *Chemical products*. In particular, 13.4% of the firms that announce mixed offerings are in *Business services*, and this fraction is more than twice as large than the corresponding fraction for any other offering type. Further, 13.2% of the firms that announce primary offerings are in *Chemical products*, which is almost twice as large as that for any other offering type. Overall, any

differences in subsequent results across the offering types are unlikely to be solely attributable to differences in industry groupings.

Table 2 presents selected descriptive statistics categorized according to offering type. Firms with shares that are sold in secondary offerings and firms that employ shelf registrations tend to be the largest in terms of the book value of assets and the market value of equity and also tend to have the lowest market-to-book ratios. Rights offerings typically involve proportionally more shares than do the other offering types. In particular, the mean (median) number of shares in a rights offering scaled by the total number of outstanding shares is 81.9% (35.2%), while for other types of offerings, neither the mean nor the median exceeds 30%.[1]

For each sample firm, we calculate the stock performance during the prior year (*Stock runup*), the performance of the value-weighted index during the prior year (*Market runup*), and the performance of an industry index during the prior year (*Industry runup*). The industry index is similar to the benchmark that Lee (1997) uses for long-term post-event returns. In particular, for each sample firm, we identify all firms with the same three-digit SIC code and with available stock return data. (We relax this to two digits if less than five firms are identified.) Of these firms, we compose the industry index of the five firms with the market capitalization closest to the sample firm. The industry index return is estimated as the average return of the five firms in the index. Thus, the industry index should capture both size and industry-wide effects, and the difference between the returns on the stock of a sample firm and the corresponding industry index should primarily capture firm-specific effects.

In Table 2 we provide means and medians for the market runup, the difference between the industry runup and the market runup (which captures industry-specific effects), and the difference between the stock runup and the industry runup (which captures firm-specific effects). The mean market runup is highest for firms that announce shelf registrations (30.4%) and lowest for firms that announce rights offerings (17.7%). Further, the mean industry-specific return is 7.5% for rights offering firms and 17-24% for the other firm classifications. Perhaps most importantly, the firm-specific effect is more positive for firms that issue primary shares than for firms that issue secondary shares (mean difference between the stock and industry runups is 47.0%, 71.8%, and 20.0% for firms that announce primary, mixed, and secondary offerings, respectively), and it is lower for firms that announce rights offerings (mean is –4.7%) and shelf registrations (mean is 28.4%) than for firms that announce regular offerings. Thus, firms that announce regular offerings appear more likely to take advantage of a recent runup in the stock price than firms that announce rights offerings and shelf registrations.

We employ a conventional event-study methodology to compute the abnormal stock returns presented in Table 2. The market model is estimated over the 250 trading days ending 10 days before the announcement and uses the CRSP daily equally-weighted index as the market index. The announcement period return is defined as the cumulative abnormal return over the three-day announcement period from the day before through the day after the announcement date. The mean and median announcement period returns are negative for all equity offering types, and, with the exception of those for rights offerings, all are statistically different from zero at the 0.01 level. The mean and median are both between -1% and -2% for rights offerings and shelf registrations and between -2% and -

3% for other offering types. In comparison, past studies document two-day mean announcement period returns of between -1.1% and -2.6% for rights offerings (Eckbo and Masulis (1992), Hansen (1989), and Singh (1997))[2], -0.8% and -1.9% for shelf registrations (Bhagat, Marr, and Thompson (1985) and Moore, Peterson and Peterson (1986)), -3.0 and -4.3% for primary offerings (Asquith and Mullins (1986), Hess and Bhagat (1986), and Masulis and Korwar (1986)), -2.2% and -3.2% for mixed offerings (Asquith and Mullins (1986), Hess and Bhagat (1986), and Masulis and Korwar (1986)), and -2.0% and -2.9% for secondary offerings (Mikkelson and Partch (1985) and Asquith and Mullins (1986)).

3. Empirical Results

3.1 Earnings management

Managers of firms that offer outside equity could benefit from boosting earnings prior to equity offerings if doing so entices new investors who buy the shares to pay a higher price than they would otherwise. Indeed, Rangan (1998), and Teoh, Welch, and Wong (1998) find evidence that firms manage earnings upward prior to announcements of equity offerings. Although neither study distinguishes between different types of offerings, as we discuss earlier, the incentive to manage earnings may differ greatly according to the offering type. For example, we conjecture that the incentives to manage earnings should be smaller for rights offerings and for shelf registrations than for other offering types. In rights offerings, a temporary boost in the stock price should not affect the wealth of existing shareholders if they exercise the rights allocated to them to buy more equity. Because the actual equity sale does not take place immediately for shelf

registrations, a temporary stock price increase attributable to managed earnings might not affect the eventual terms of the offer.

We begin our tests of earnings management by estimating the earnings accruals (i.e., earnings less cash flow) for each firm and then partitioning them into current versus long-term accruals. Current accruals are adjustments to either current assets or current liabilities, whereas long-term accruals are adjustments to long-term assets or liabilities. Because Guenther (1994) and Sloan (1996) suggest that managers have more discretion over current accruals, we expect that any earnings management would be most evident in current accruals. A large portion of the accruals is naturally dictated by overall business conditions and is not subject to manipulation by managers. We employ the methodology described in Teoh, Welch, and Wong (1998, appendix A), which is a modification of the Jones (1991) model, to weed out such non-discretionary accruals from total accruals, and then label the remaining accruals as discretionary.[3]

Table 3 presents median discretionary accruals for the different types of equity offerings. We focus on discretionary current accruals because it is the component of earnings most likely to be affected by earnings management. Consistent with Rangan (1998), and Teoh, Welch, and Wong (1998), we find strong evidence of upward earnings management around regular equity offerings. This earnings management is most pronounced during the year of the announcement and in offerings that include primary shares (i.e., either primary shares alone or combinations of primary and secondary shares). There is scant evidence of earnings management around offerings involving only secondary shares and no evidence of earnings management around rights offerings and shelf registrations. Because earnings management tends to revert over time, these

results suggest that, all else equal, any earnings deterioration subsequent to equity offering announcements should be more pronounced for regular equity offerings involving primary shares. We examine this issue next.

3.2 Analysis of operating performance

Earlier studies of operating performance following announcements of equity offerings offer somewhat mixed evidence. While Healy and Palepu (1990) find no systematic changes in operating performance following announcements of primary offerings, Hansen and Crutchley (1990) document a subsequent decrease. More recently, using a substantially larger sample of 1,338 observations, Loughran and Ritter (1997) document post-announcement decreases in operating performance of roughly the same magnitude for primary offerings and combinations of primary and secondary offerings. However, we are unaware of any study that examines operating performance following announcements of regular offerings of secondary shares, rights offerings, or shelf registrations.

In Table 4 we report median levels of operating performance (operating income scaled by the book value of sales) around equity offering announcements across the different categories of equity offerings. The reported figures are for firms with available data from one year before through two years after the announcement. We only report medians because Barber and Lyon (1996) find that non-parametric tests are uniformly more powerful than parametric tests in studies of operating performance. We adjust the operating performance using three different benchmarks in order to control for additional factors that may affect operating performance. First, to control for changing industry and economy-wide conditions, we subtract the median operating performance for all firms

with the same three-digit SIC code from each sample firm's operating performance. Second, to also control for possible mean reversion resulting from abnormal pre-event performance, we subtract the operating performance for control firms in similar industries and with similar pre-event performance as the sample firms. In particular, for each sample firm, we first identify all firms with the same two-digit SIC code, with operating performance within +/-10% or within +/-0.01 of the performance of the sample firm in the pre-announcement year, and with available data from one year before through two years after the announcement.[4] If no firms meet these criteria, we first relax the industry criterion to a one-digit SIC, then we disregard SIC code, and finally, if still no firms meet the criteria, we disregard the performance criterion. Among these firms, we choose as the control firm the single firm whose performance is closest to that of our sample firm.[5] Third, to also control for the capital market's pre-announcement expectations of the sample firms' future operating performance, we subtract the operating performance for control firms in similar industries, with similar pre-event performance, and with similar market-to-book ratios as the sample firms. These control firms are generated in essentially the same manner as those above. The only differences are that the performance criterion is relaxed from +/-10% to +/-20% and that we introduce an additional criterion that the pre-announcement market-to-book value of assets must be within +/-20% or within +/-0.1 of that of the sample firm.

The pre-announcement performance varies greatly across the equity offering types. Firms that announce regular equity offerings exhibit superior performance relative to their industry peers in the pre-announcement year, especially if secondary shares are involved, while firms that announce shelf registrations exhibit normal performance and

firms that announce rights offerings exhibit inferior performance. The abnormal pre-announcement performance suggests that the performance-adjusted figures are most reliable for the purpose of examining subsequent changes in performance (Barber and Lyon (1996)). Also, because the sample firms tend to have high market-to-book ratios in the pre-announcement year, we focus on the performance- and M/B-adjusted figures in the following.

For firms that announce regular offerings of primary shares or combinations of primary and secondary shares, performance- and M/B-adjusted operating performance tends to increase during the announcement year, but then falls significantly during the next couple of years. In contrast, firms that announce regular offerings of secondary shares exhibit an increase in performance- and M/B-adjusted operating performance during the event year, but no decrease afterwards. Further, firms that announce shelf registrations exhibit an increase both during the event year and during the subsequent couple of years, while the changes for firms that announce rights offerings are not statistically different from zero. In sum, these results indicate that the different equity offering types convey vastly different information about future operating performance. Post-offering operating performance deteriorates for firms that undertake regular offerings that involve primary shares, remains the same for firms that undertake offerings of only secondary offerings, and increases for firms that file shelf registrations. These results are broadly consistent with our previous finding that firms that undertake regular offerings involving primary shares manage earnings upward the most around equity offering announcements. Our results corroborate the patterns of long-run stock returns documented by Lee (1997), who finds that, on average, issuers of primary shares

underperform their stock return benchmarks, whereas firms do not underperform following secondary share issues.

We also examine two alternative measures of performance. First, we examine operating income scaled by assets, which, unlike operating income by sales, captures changes in asset productivity. A potential drawback, however, is that while the asset base increases immediately upon issues of primary shares, the incremental asset base might not fully and immediately generate operating income, thus giving the impression that performance (as measured by operating income scaled by assets) suffers, at least in the short run. Second, we examine cash flow (defined as in Barber and Lyon (1996)) scaled by sales in an effort to remove the effect of earnings management on the performance figures. We graph the results based on our three performance measures in Figure 1. Firms that sell primary shares or a mix of primary and secondary shares exhibit an improvement in operating income scaled by sales during year 0, but not in operating income scaled by assets, suggesting that the use of assets as a scaling factor might bias downward the results during the event year (or, alternatively, that the use of sales biases the results upward). Further, these firms experience a decline in cash flow scaled by sales during year 0, suggesting that the improvement in operating income scaled by sales is at least partially due to earnings management. Regardless of the measure, however, performance falls after issues involving primary shares. Lastly, firms that issue only secondary shares or use shelf registrations experience an increase in performance irrespective of the performance measure, while there are no clear trends for rights offerings, perhaps due to a smaller sample size.

3.3 Multivariate analysis of changes in operating performance

We next utilize a multivariate framework to determine whether the changes in operating performance (as measured by either operating income scaled by sales, operating income scaled by assets, or cash flow scaled by sales) relate to the offering type. In particular, we regress the change in operating performance from year –1 (the pre-announcement year) to year +2 against variables indicating the offering type. We control for the effects of pre-announcement performance, market-to-book values, firm size, and the median change in operating performance for industry peers with the same three-digit SIC code by including them as independent variables. In some models we also control for the effect of past earnings management by including discretionary current and long-term accruals as independent variables.

Table 5 provides the results of the multivariate analysis of operating performance.[6] The coefficients on both the pre-announcement performance and the market-to-book ratio are negative with p-values less than 0.01. If the market-to-book ratio primarily captures the firms' future prospects, we would expect a positive sign on the market-to-book ratio. The negative sign instead suggests that firms with the highest market-to-book ratios will experience the largest drop in performance, perhaps because the ratios partially capture the extent to which the sample firms have temporarily boosted their operating performance to inflate their stock prices. As expected, the coefficient on the performance change for industry peers is positive, suggesting that industry-wide and/or economy-wide factors significantly influence firm performance. Moreover, the coefficients on discretionary accruals are negative when measuring performance by either operating income scaled by sales or operating income scaled by assets, suggesting that

firms that inflate earnings experience subsequent drops in reported performance. In contrast, the coefficient on discretionary current accruals is positive when performance is measured by the change in the cash flow to sales measure. One possibility for this reversal in sign is that earnings management prior to equity offerings (specifically, aggressive revenue recognition) might inflate sales (the denominator in the cash flow to sales measure) and earnings, but not cash flows. It follows that cash flow to sales ratios should improve in the periods following earnings management via aggressive revenue recognition.

More importantly for the purposes of this study, the coefficient on the fraction of primary shares in the offering is consistently negative with a p-value less than 0.001, while the coefficient on the shelf registration dummy variable is consistently positive with a p-value less than 0.001. Thus, firms experience the largest drop in performance if the offering involves a large portion of primary shares, and firms that file for shelf registrations improve their performance relative to other sample firms. These results are consistent with the non-parametric statistics in Table 4.

3.4 The choice of offering type

The different patterns of earnings management and operating performance across the equity offering types suggest that the motivations for using them differ. In this section, we examine further the characteristics of the sample firms and how these characteristics relate to the choice of offering type. This, in turn, may shed further light on the underlying motivations for the different offering types.

If firms time equity issues to take advantage of inflated market values, we would expect market-to-book ratios to peak around the time of issue. Figure 2 shows the

median industry-adjusted market-to-book ratios from three years before through three years after the offering announcements. Consistent with Loughran and Ritter (1997), the ratios peak in the pre-announcement year for regular offerings. This trend is most evident for mixed offerings, but is also apparent for primary and secondary offerings. In contrast, the ratios are at their lowest in the pre-announcement year for firms that use rights offerings, while no pattern is evident for firms that file shelf registrations. This suggests that managers of firms that file shelf registrations may desire to issue shares immediately, but believe their current market values are too low. Instead, they file shelf registrations so that they can issue equity quickly when their firms' market values rebound. Similarly, managers of firms that undertake rights offerings might believe their firms' equity market values are presently too low to warrant a regular equity offering, and therefore choose a rights offering, because it transfers less wealth from existing to new shareholders than does a regular offering.[7]

Figures 3 and 4 show industry-adjusted cash and debt ratios, respectively. These figures provide insights into the need for external equity financing. Apparently, firms that sell equity in regular offerings do not have a dire need for equity financing in the pre-announcement year. Relative to industry-peers, their cash levels are not particularly low and their debt ratios are not particularly high. In contrast, firms that file shelf registrations and especially firms that sell equity via rights offerings have fairly low cash ratios and high debt ratios in the pre-announcement year. For example, the typical firm that files a shelf registration has a debt ratio that is 0.06 higher than that of industry peers, while the corresponding figure for the typical rights offering firm is 0.08. Thus, both sets of firms appear to have a more immediate need for equity financing than do the

remainder of the sample firms. Combined with the results on market-to-book ratios, these results suggest that managers of firms that sell equity in regular offerings act opportunistically to take advantage of high market values, while managers of firms that file shelf registrations or sell equity in rights offerings primarily seek to meet their need for outside funds. This evidence is consistent with the predictions of Myers and Majluf (1984).

Next, we examine the choice of offering type in a multivariate context given that the firm wants to sell primary shares. In particular, we run a multinomial logistic regression where the dependent variable indicates whether the offering is a regular offering, a rights offering, or a shelf registration. The independent variables include the natural logarithm of the market value of equity, the market-to-book value of assets, the return on the market index during the year prior to the announcement, the difference in return on the industry index and the market index during the prior year, the difference in return on the stock and the industry index during the prior year, the cash ratio, and the debt ratio. Similar variables have been used in other studies to examine characteristics of firms that issue equity (e.g., Jung, Kim, and Stulz (1996)).

Table 6 presents the results of the multinomial logistic regression. The probability of a rights offering increases with the debt ratio and decreases with the market value of equity, market runup, industry-specific runup, and stock-specific runup. The probability of a shelf registration increases with the debt ratio, the market value of equity, and the market runup, and decreases with the runup and the market-to-book value of assets. These results generally support our earlier findings and interpretations. That is, firms that use rights offerings as a means to sell equity have high debt ratios, suggesting a

need for an equity infusion, but neither the overall market, the industry, nor the firms' stock has performed well during the last year, such that a regular equity offering seems less appealing. Firms that file shelf registrations also have high debt ratios, but the poor recent performance of the firms' stocks and industries and their low market-to-book ratios make a regular offering less desirable at the present time. Consequently, these firms may try to wait for more favorable conditions and file a shelf registration in the meantime. Perhaps the good recent return on the market index makes the managers optimistic that the firms' stock will rebound in value shortly. Indeed, the managers have a reason to be optimistic, because our results suggest that the operating performance tends to improve in the following years.

3.5 The timing effect of actual issues after shelf registrations

It is conceivable that managers of firms that file shelf-registrations time the actual issue to take advantage of a temporary improvement in performance or manipulate earnings before they anticipate the actual issue. The average number of days between the filing date and the issue date for shelf registrations is 102 (compared to 35 for other offerings), and in 26% of the cases the fiscal year of the filing date differs from the fiscal year of the issue date (compared to 6% for other offerings).[8] Thus, we examine the accruals and earnings around the actual issue date for shelf registrations also. The results are very similar to those reported earlier and are therefore not tabulated. We also estimated the abnormal returns from three days after the announcement to three days before the issue date. Both the mean and median abnormal returns are –1%, and neither is statistically different from zero. Thus, there is little evidence that managers time the actual issue following shelf-registration announcements to take advantage of temporary

operating performance improvements or stock price improvements or that they manipulate earnings beforehand.

3.6 Insured versus uninsured rights offers

We are able to classify 15 of the rights offers in our sample as insured and 38 as uninsured. Consistent with the figures reported in Eckbo and Masulis (1992), we find that the uninsured rights offers in our sample produce a larger proportionate increase in equity capitalization than do insured offers. Specifically, the mean (median) offering size as a percentage of pre-announcement equity values is 103% (50%) for uninsured rights offers and 46% (36%) for insured rights offers. These figures are higher than the mean (median) reported by Eckbo and Masulis (1992) for industrial firms of 35% (25%) for uninsured rights offers and 20% (14%) for insured rights offers, perhaps because of different sample periods or because, unlike our study, Eckbo and Masulis restrict their analysis to firms listed on either the NYSE or AMEX.

Ownership is more concentrated and pre-commitment is higher for firms that use uninsured rights offers. In particular, the mean (median) blockholdings is 50% (50%) for firms that use uninsured rights and 27% (19%) for firms that use insured rights, while the mean (median) pre-commitment is 53% (50%) for uninsured rights and 5% (0%) for insured rights.[9] To the extent that ownership concentration and pre-commitment proxy for expected shareholder take-up, our results are consistent with Eckbo and Masulis' (1992) prediction. The large blockholdings (presumably held by well-informed investors) and pre-commitment in rights offers further suggest that managers do not employ rights offers to sell investors overvalued shares, thus corroborating our other findings.[10]

3.7 The role of the identity of the seller in secondary offerings

As argued by Mikkelson and Partch (1985), the information content in announcements of secondary offerings might depend on the identity of the seller. In particular, if insiders possess superior information about the fundamental value of the firm, the information is likely to be more negative for secondary offerings in which the seller is an insider. Thus, we partition our sample of secondary offerings into those in which an insider (i.e., executive or director) sells shares versus others.

We find that insiders sell shares in 121, or 16%, of the 738 secondary offerings, which is similar to the fraction in the sample of Mikkelson and Partch of 13%. The mean (median) announcement return is –2.9% (-2.4%) when insiders are involved and –1.8% (-1.7%) otherwise. The difference in means is statistically significant with a p-value of 0.02. However, the difference in a multivariate setting (see section 3.8) is 0.7% and not statistically different from zero (p-value is 0.11).

We also find that both discretionary accruals and pre-announcement operating performance levels are higher for secondary offerings involving insiders. For example, the median discretionary accruals for this subset is 0.014 in year –1 and 0.010 in year 0, and both are significantly higher than those for the subset of secondary offerings not involving insiders at the 0.05 level of statistical significance. In terms of operating performance, in year –1, the median unadjusted (industry-adjusted) operating income scaled by sales for secondary offerings involving insiders is 0.155 (0.075). As expected in light of the discretionary accruals, the median performance- and M/B-adjusted operating income scaled by sales is higher in year 0 for the subset involving insiders (0.017) than for the subset not involving insiders (0.007). Interestingly, neither set

exhibits subsequent performance deterioration. Surprisingly, among the secondary offerings, the performance-adjusted and performance- and M/B- adjusted figures are actually slightly higher after secondary offers with insider sales. Although announcement returns are lower for secondary offers involving insiders, there is no strong link between insider participation in secondary issues and future operating performance, suggesting that insiders may participate in secondary issues primarily for liquidity reasons.

3.8 Multivariate analysis of announcement returns

We examine the abnormal stock returns around the offering announcements more closely to assess whether the cross-sectional determinants of the returns differ across the offering types and whether returns are systematically related to the type of offering in a multivariate context. (None of these results are tabulated for brevity.) In particular, we first regress announcement returns against variables that have been used in past studies (e.g., Asquith and Mullins (1986), Denis (1994), and Jung, Kim, and Stulz (1996)) for each offering type. For primary offerings, mixed offerings, and shelf-registrations, the returns are negatively related to the firm-specific stock runup. Further, the returns are positively related to the market's runup for mixed offerings and negatively related to industry-specific runup for rights offerings, the market value of equity for primary offerings, and the offering size for secondary offerings. Finally, the relation between announcement returns and market-to-book ratios is modestly negative for secondary offerings (p-value = 0.078), modestly positive for mixed offerings (p-value = 0.076), and imperceptible for primary offerings. Thus, there is scant evidence that market-to-book ratios (and, hence, investment opportunities) affect the capital market's reaction to equity offerings.[11]

Next, we estimate a regression using the whole sample that includes variables to distinguish between the offering types. The coefficient on the fraction of primary shares involved in the offering is 0.000 (p-value = 0.938), while the coefficients on the dummy variables for the rights offerings and shelf registrations are 0.012 (p-value = 0.117) and 0.010 (p-value = 0.014), respectively. Thus, *ceteris paribus*, the announcement returns are not related to the fraction of primary shares involved in the offering, but are roughly 1% higher for rights offerings and shelf registrations than for regular offerings. These results are consistent with the univariate statistics from Table 2.[12]

The announcement returns results seem partially inconsistent with the results on the changes in operating performance. In particular, given that the change in operating performance around the offering announcements is negatively related to the fraction of primary shares, we had expected that the announcement returns would be negatively related to the fraction of primary shares. Perhaps the coefficients are biased as a result of a misspecified regression model. Or perhaps the stock returns do not capture all the information immediately. Such an explanation would be consistent with the results in Lee (1997), who, as we note earlier, finds that the long-run stock returns following primary shares issues are lower on average than their benchmarks, while the returns following secondary shares are not.

4. Summary and Conclusion

In this study, we examine the choice of equity offering type and the accompanying information content using a sample of 4,708 equity offerings announced between 1980 and 1998. We find evidence of upward earnings management around the

announcements of regular equity offerings involving primary shares and a subsequent deterioration in operating performance. Conversely, there is little evidence of earnings management around announcements of regular offerings of secondary shares, right offerings, or shelf registrations, and the post-offering operating performance actually improves for regular offerings of secondary shares and for shelf registrations. We document patterns in market-to-book ratios, debt ratios, and cash ratios that suggest that firms sell equity in regular offerings in an effort to take advantage of temporarily high equity values despite what appears to be a modest need for outside equity funds. In contrast, firms sell equity in rights offerings or file shelf registrations when their market values are relatively low and the need for outside funds is relatively large.

Overall, the evidence is consistent with the notion that managers make decisions related to equity offerings that maximize the value for existing shareholders. When the firm is overvalued, perhaps partially as a result of intentional upward earnings management, managers choose to sell equity in regular offerings, as this will tend to transfer wealth from new to existing shareholders. When a firm needs outside equity but is temporarily undervalued, its managers may choose to postpone an equity offering until market conditions improve or perhaps file a shelf registration in the meantime. Alternatively, they may choose a rights offering because doing so minimizes any transfer of wealth from existing shareholders. Incidentally, if the major reason for issuing shares is to take advantage of overvalued equity, this would explain the rather limited use of rights offerings.

[1] A few outliers influence heavily the mean offering size for rights offerings. In particular, three observations exceed 200% (300%, 623%, and 1,000%). Of 56 rights offerings, 27 (48%) have offering size of 50% or more.

[2] Unlike the mean announcement returns for our sample of rights offerings, the mean announcement returns for the rights offerings analyzed by Eckbo and Masulis (1992), Hansen (1989), and Singh (1997) differ significantly from zero. The magnitudes of the returns are roughly comparable, however. The slight discrepancy might arise because we use a later sample period.

[3] In particular, for each sample firm and for each year, we apply the following procedure. First, we regress current accruals against sales growth for all firms in the same two-digit SIC, and define the predicted level of current accruals from the regression model to be the non-discretionary component and the remainder to be the managed, or discretionary, component. Similarly, we regress total accruals against the sales growth and property, plant, and equipment, and define the predicted level of total accruals from the regression model to be the non-discretionary component and the remainder to be the discretionary component. Finally, we define discretionary long-term accruals as the difference between discretionary total accruals and discretionary current accruals and non-discretionary long-term accruals to be the difference between non-discretionary total accruals and non-discretionary current accruals.

[4] The results are similar if we do not constrain the sample firms and the control firms to have data through two years after the announcements.

[5] We allow the control firms to also be in the sample, because we would otherwise dramatically reduce the population of firms from which we could draw control firms, thus making it harder to ensure similarity of pre-event characteristics. However, we ensure that the control firms did not

announce an equity issue within two years of the sample firm's announcement (i.e., during years –2 through +2).

[6] As noted in the text underneath table 5, the results are based on winsorized data to mitigate the influence of extreme values that arise when we scale by sales because many firms have very low sales figures during the pre-announcement year. If we do not winsorize the data, the results for the equity offering variables are qualitatively the same in the regressions using operating income scaled by assets, but statistically insignificant when using operating income scaled by sales or cash flow scaled by sales.

[7] The distinction between undervalued firms that choose rights offerings versus those that file shelf registrations might be related to the shareholder take-up issue pointed out by Eckbo and Masulis (1992). Denis (1991) reports that firms that file shelf registrations tend to be larger firms. This is also evident in our sample (see Table 2). Larger firms with dispersed ownership are less likely to experience levels of shareholder take-up high enough to make a rights offering viable as an option.

[8] Note that our sample only includes completed offerings. For an analysis of canceled offerings, see Clarke, Dunbar, and Kahle (2001).

[9] Blockholders frequently commit to purchase both their portion of the rights offer shares as well as shares not purchased by other stockholders, in which case we deem the pre-commitment to be 100%.

[10] Incidentally, we also compared earnings management and reported earnings patterns across uninsured and insured rights offers, but we found no discernable differences.

[11] We also included a dummy variable indicating that an insider is selling in the regression for secondary offers. The coefficient on this dummy variable is -0.007 with a p-value of 0.11.

[12] A caveat is in order here. The separate regressions for the various equity offering types suggest that the cross-sectional determinants of the returns differ. However, the regression model based

on the whole sample implicitly assumes that the determinants are similar across the types, such that this model is likely to be misspecified. Introducing interaction variables between the equity offering type variables and the other variables may alleviate any misspecification. The problem with such an approach is that it becomes difficult to interpret the effect of the equity offering types, as the equity offering type variables appear multiple times in the regression model. While our approach to assess the effect of the equity offering type on returns is imperfect, we should note that Chaplinsky and Ramchand (2000) employ the same approach to examine whether the announcement returns are higher for global equity offerings than for domestic equity offerings.

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Table 1
Sample Distribution

Year	Primary offerings	Mixed offerings	Secondary offerings	Rights offerings	Shelf registrations
1980	115	48	14	2	0
1981	102	48	30	0	0
1982	86	52	91	4	15
1983	203	159	96	1	76
1984	58	17	44	1	0
1985	81	74	32	0	0
1986	96	82	39	2	0
1987	99	47	18	2	1
1988	37	24	12	0	0
1989	62	52	13	0	0
1990	61	33	13	0	0
1991	170	102	27	6	7
1992	135	77	31	2	4
1993	166	131	56	8	15
1994	79	85	38	12	13
1995	149	157	45	1	18
1996	174	176	50	10	15
1997	109	165	47	2	45
1998	56	91	42	3	47
Total	2,038	1,620	738	56	256

Distribution of the final sample of 4,708 equity offerings announced between 1980 and 1998 by year of announcement.

Table 2
Descriptive statistics

	Primary offerings		*Mixed offerings*		*Secondary offerings*		*Rights offerings*		*Shelf registrations*	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Book value of assets	792	71	171	55	2,141	435	747	60	1,912	841
Market value of equity	489	137	301	133	1,628	575	269	49	2,221	701
Market-to-book value of assets	2.858	1.738	2.775	2.105	2.103	1.554	2.349	1.170	1.838	1.413
Market runup	0.229	0.221	0.243	0.237	0.194	0.195	0.177	0.137	0.304	0.278
Industry runup – Market runup	0.227	0.128	0.237	0.111	0.171	0.075	0.075	-0.108	0.167	0.089
Stock runup – Industry runup	0.470	0.248	0.718	0.493	0.200	0.102	-0.047	-0.198	0.284	0.146
Offering size	0.262	0.192	0.300	0.261	0.125	0.088	0.819	0.352	0.153	0.097
Announcement period return	-0.023 [a]	-0.025 [a]	-0.027 [a]	-0.028 [a]	-0.020 [a]	-0.018 [a]	-0.011	-0.014	-0.013 [a]	-0.016 [a]

Descriptive statistics for the sample of 4,708 equity offerings announced between 1980 and 1998. *Market runup* is the return on the value-weighted index over the 250 trading days ending five days prior to the announcement. *Industry runup* is the mean return for a portfolio of five stocks with similar industry and size characteristics as the sample firm over the 250 trading days ending five days prior to the announcement. *Stock runup* is the stock return for the sample firm over the 250 trading days ending five days prior to the announcement. *Offering size* is the number of shares offered scaled by the number of shares outstanding. *Announcement period return* is the abnormal stock return from one day before through one day after the offering announcement. a and b denote that the announcement period returns are significantly different from zero at the 0.01 and 0.05 levels, respectively, based on t-tests for means and Wilcoxon signed-ranks tests for medians.

Table 3
Median discretionary accruals

	Fiscal year relative to announcement							Changes		
	-3	-2	-1	0	+1	+2	+3	-3 to -1	-1 to +1	+1 to +3
Panel A: Primary offerings										
Current accruals	0.008 [a]	0.003 [a]	0.004 [a]	0.018 [a]	0.007 [a]	0.000	0.000	-0.006 [b]	0.005	-0.010 [a]
Long-term accruals	-0.007 [a]	-0.008 [a]	-0.008 [a]	-0.009 [a]	-0.006 [a]	-0.007 [a]	-0.007 [a]	0.003	0.001	-0.002
Number of observations	1360	1578	1799	1870	1779	1684	1541	1333	1667	1512
Panel B: Mixed offerings										
Current accruals	0.010 [a]	0.020 [a]	0.028 [a]	0.046 [a]	0.018 [a]	0.007 [a]	0.004 [b]	0.002	-0.006 [b]	-0.014 [a]
Long-term accruals	-0.004 [a]	-0.008 [a]	-0.004 [a]	-0.008 [a]	-0.004 [a]	-0.009 [a]	-0.010 [a]	0.002	0.000	0.001
Number of observations	839	1105	1480	1521	1457	1348	1159	832	1386	1145
Panel C: Secondary offerings										
Current accruals	0.003	0.001	0.002	0.000	0.004 [b]	0.002	0.006 [a]	-0.008 [b]	-0.001	-0.004
Long-term accruals	-0.006 [a]	-0.004 [a]	-0.005 [a]	-0.005 [a]	-0.008 [a]	-0.006 [a]	-0.007 [a]	0.003	0.004	0.002
Number of observations	513	579	687	701	666	620	545	507	641	539
Panel D: Rights offerings										
Current accruals	-0.003	0.003	-0.004	-0.007	0.002	0.008	-0.005	-0.012	0.015	0.033
Long-term accruals	-0.003	-0.001	-0.004	0.013	0.002	-0.025	0.014	-0.030	0.022	-0.009
Number of observations	44	49	52	50	49	43	35	42	48	34
Panel E: Shelf registrations										
Current accruals	0.000	-0.001	0.000	-0.004	0.005	0.001	-0.004	0.003	0.007	0.003
Long-term accruals	-0.007 [a]	-0.004	0.009	0.002	-0.005	-0.014	-0.008	0.016 [a]	-0.010	0.004
Number of observations	218	217	228	228	221	209	164	207	217	156

Median discretionary accruals around announcements of equity offerings. The calculation of discretionary accruals is described in section 3.1. a and b denote significantly different from zero at the 0.01 and 0.05 levels, respectively, based on Wilcoxon signed-ranks tests for medians and medians tests for changes in medians.

Table 4
Median operating income scaled by sales

	Fiscal year relative to announcement							Changes		
	-3	-2	-1	0	+1	+2	+3	-1 to +1	-1 to +2	0 to +2
Panel A: Primary offerings										
Unadjusted	0.096	0.096	0.103	0.111	0.101	0.092	0.094	0.004	-0.001	-0.005 [a]
Industry-adjusted	0.007	0.007	0.013	0.022 [a]	0.012	0.008	0.007	0.004	0.000	-0.005 [a]
Performance-adjusted	-0.009 [a]	-0.004 [a]	0.000	0.010 [a]	0.002	0.001	0.000	0.002	0.000	-0.007 [a]
Performance- and M/B-adjusted	-0.007 [a]	-0.007 [a]	0.000	0.010 [a]	0.003	0.002	0.002	0.003	0.001	-0.010 [a]
Number of observations	1527	1710	1784	1784	1784	1784	1622	1784	1784	1784
Panel B: Mixed offerings										
Unadjusted	0.101	0.110	0.126	0.132	0.116	0.102	0.098	0.000	-0.009 [a]	-0.015 [a]
Industry-adjusted	0.018 [a]	0.023 [a]	0.037 [a]	0.043 [a]	0.028 [a]	0.024 [a]	0.022 [a]	0.000	-0.009 [a]	-0.012 [a]
Performance-adjusted	-0.012 [a]	-0.008 [a]	0.000	0.010 [a]	0.007 [b]	0.001	-0.004	0.007 [b]	0.002	-0.010 [a]
Performance- and M/B-adjusted	-0.011 [a]	-0.007 [a]	0.000	0.010 [a]	0.006 [b]	-0.001	-0.004	0.006 [b]	-0.001	-0.010 [a]
Number of observations	1026	1353	1410	1410	1410	1410	1219	1410	1410	1410
Panel C: Secondary offerings										
Unadjusted	0.126	0.125	0.130	0.139	0.136	0.137	0.130	0.005 [a]	0.004	-0.001
Industry-adjusted	0.028 [a]	0.034 [a]	0.035 [a]	0.041 [a]	0.038 [a]	0.038 [a]	0.035 [a]	0.004 [a]	0.004	-0.002
Performance-adjusted	0.000	0.000	0.000	0.007 [a]	0.008 [a]	0.013 [a]	0.009 [a]	0.009 [a]	0.013 [a]	0.001
Performance- and M/B-adjusted	0.000	-0.001	0.000	0.009 [a]	0.011 [a]	0.017 [a]	0.015 [a]	0.009 [a]	0.014 [a]	0.001
Number of observations	540	643	661	661	661	661	581	661	661	661

Table 4 continued

	Fiscal year relative to announcement							Changes		
	-3	-2	-1	0	+1	+2	+3	-1 to +1	-1 to +2	0 to +2
Panel D: Rights offerings										
Unadjusted	0.067	0.057	0.052	0.060	0.082	0.089	0.093	0.012	0.016	0.018
Industry-adjusted	-0.037 [b]	-0.027 [b]	-0.043 [a]	-0.037 [a]	-0.025 [b]	0.009	-0.011	0.012	0.040	0.019
Performance-adjusted	0.006	-0.004	0.000	0.002	0.003	0.002	0.003	0.002	0.007	0.010
Performance- and M/B-adjusted	0.005	-0.013	0.000	-0.004	-0.006	-0.002	-0.003	-0.003	0.005	0.007
Number of observations	42	43	44	44	44	44	37	44	44	44
Panel E: Shelf registrations										
Unadjusted	0.141	0.136	0.116	0.120	0.137	0.147	0.130	0.012 [a]	0.015 [a]	0.010 [a]
Industry-adjusted	0.025 [a]	0.016 [a]	0.021 [a]	0.022 [a]	0.027 [a]	0.038 [a]	0.029 [a]	0.014 [a]	0.016 [a]	0.007 [a]
Performance-adjusted	0.000	0.000	0.000	0.015 [a]	0.022 [a]	0.025 [a]	0.014 [b]	0.022 [a]	0.025 [a]	0.013 [a]
Performance- and M/B-adjusted	0.002	0.001	0.000	0.011 [b]	0.021 [a]	0.029 [a]	0.034 [a]	0.018 [a]	0.023 [a]	0.013 [a]
Number of observations	219	225	226	226	226	226	176	226	226	226

Median levels and median changes in operating income scaled by sales around announcements of equity offerings. Industry-adjusted operating income is the paired difference between the scaled operating income of the sample firms and median figures of firms with the same three-digit SIC code. Performance-adjusted operating income is the paired differences between the operating income of the sample firms and the operating income of firms matched on the basis of pre-offer operating income. Performance- and M/B-adjusted operating income is the paired differences between the operating income of the sample firms and the operating income of firms matched on the basis of pre-offer operating income and market-to-book value of assets. a and b denote that changes or adjusted levels differ significantly from zero at the 0.01 and 0.05 levels, respectively, based on Wilcoxon signed-ranks tests for medians and medians tests for changes in medians. (All unadjusted median levels except for those for rights offerings are significantly different from zero at the 0.01 level.)

Table 5
Regression of change in operating income or cash flow

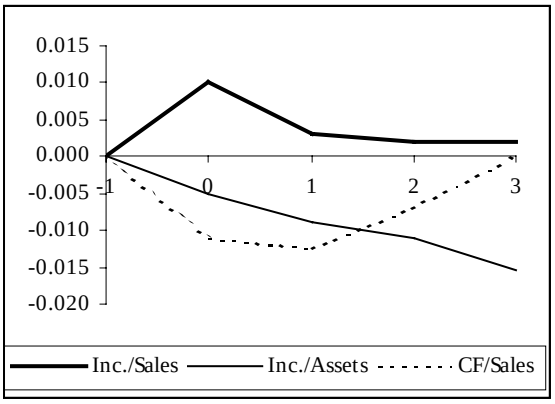
	Dependent variable is the change in					
	Operating income/Sales		Operating income/Assets		Cash flow/ Sales	
Intercept	0.044	0.037	0.057	0.058	0.058	0.048
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Pre-announcement operating income or cash flow	-0.226	-0.206	-0.297	-0.305	-0.299	-0.277
	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)	(0.000)
Market-to-book value of assets	-0.008	-0.006	-0.011	-0.011	-0.005	-0.005
	(0.000)	(0.000)	(0.000)	(0.000)	(0.005)	(0.003)
Book value of assets (billions)	0.001	0.001	0.001	0.001	0.001	0.001
	(0.049)	(0.046)	(0.004)	(0.005)	(0.149)	(0.082)
Median change in operating income or cash flow of industry peers	0.419	0.439	0.372	0.380	0.456	0.434
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Fraction primary	-0.025	-0.024	-0.035	-0.034	-0.026	-0.025
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Rights offering	0.009	0.005	0.006	-0.003	-0.003	0.010
	(0.667)	(0.808)	(0.662)	(0.829)	(0.903)	(0.684)
Shelf registration	0.046	0.043	0.035	0.035	0.040	0.043
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Discretionary current accruals		-0.066		-0.061		0.268
		(0.001)		(0.000)		(0.000)
Discretionary long-term accruals		-0.071		-0.042		-0.025
		(0.008)		(0.022)		(0.402)
Adjusted R-squared	0.169	0.146	0.188	0.206	0.228	0.245
Number of observations	4,110	3,748	4,151	3,755	3,857	3,681

Regressions of the change in operating income scaled by sales, operating income scaled by assets, or cash flow scaled by sales from year –1 to year +2 against offering type and control variables. *Fraction primary* is the fraction of total shares offered that is primary shares. *Rights offering* is a dummy variable that takes on a value of one if the offering takes the form of a rights offering and zero otherwise. *Shelf registration* is a dummy variable that takes on a value of one if the offer was shelf-registered and zero otherwise. Discretionary accruals are measured during the pre-announcement year. The performance measures (both levels and changes), market-to-book ratios, and accruals have been winsorized at the fifth and 95th percentiles to mitigate the effect of outliers. p-values are given in parentheses.

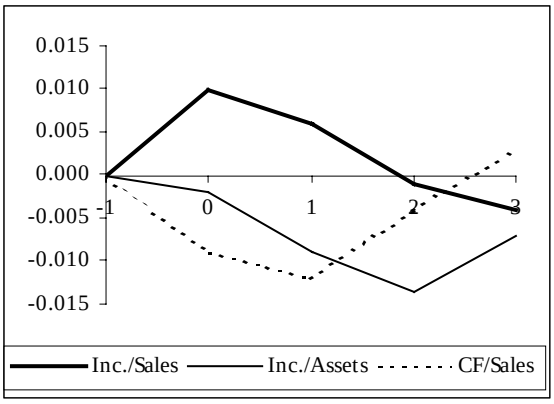
Table 6
Determinants of offering type

	Equity offering choice (dependent variable)	
	Rights offerings	Shelf registrations
Intercept	-2.199	-8.150
	(0.000)	(0.000)
ln Market value of equity	-0.338	0.792
	(0.000)	(0.000)
Market-to-book value of assets	-0.013	-0.189
	(0.824)	(0.009)
Market runup	-1.995	3.788
	(0.037)	(0.000)
Industry runup – Market runup	-1.068	-0.688
	(0.003)	(0.001)
Stock runup – Industry runup	-1.077	-0.179
	(0.000)	(0.082)
Cash ratio	-0.180	-0.152
	(0.835)	(0.812)
Debt ratio	1.406	1.211
	(0.015)	(0.002)
Number of observations	3,635	

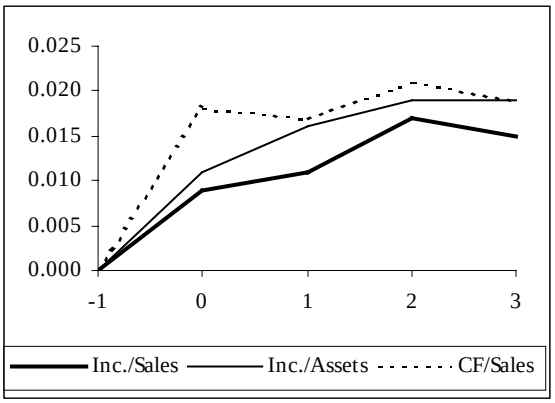
Multinomial logistic regression of the equity offering choice. Only observations with primary offerings are included. *Market runup* is the return on the value-weighted index over the 250 trading days ending five days prior to the announcement. *Industry runup* is the mean return for a portfolio of five stocks with similar industry and size characteristics as the sample firm over the 250 trading days ending five days prior to the announcement. *Stock runup* is the stock return for the sample firm over the 250 trading days ending five days prior to the announcement. *Cash ratio* is cash and cash equivalents scaled by book value of assets preceding the offer. *Debt ratio* is total debt (long-term debt plus debt in current liabilities) scaled by the by book value of assets preceding the offer. p-values are given in parentheses.



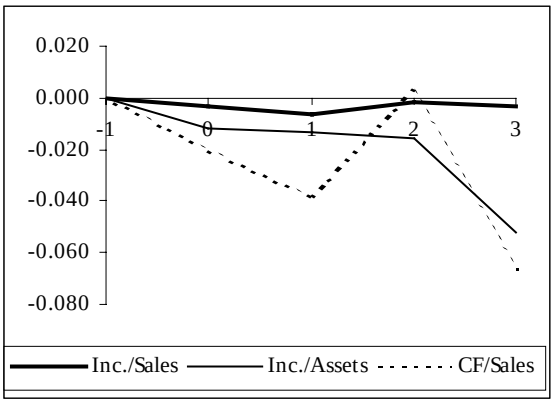
a. Primary offerings



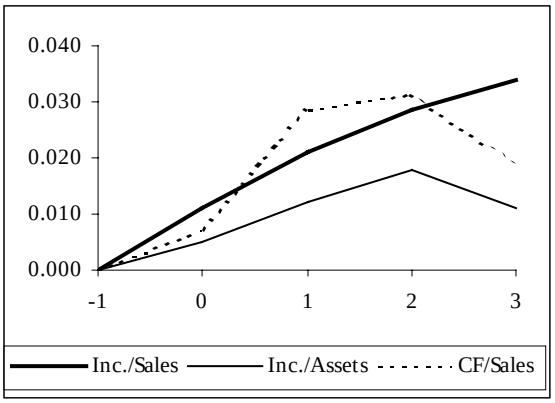
b. Mixed offerings



c. Secondary offerings



d. Rights offerings



e. Shelf registrations

Figure 1

Median levels of performance- and M/B-adjusted performance after equity offerings. Year 0 is the announcement year. Performance is measured either as operating income scaled by sales, operating income scaled by assets, or cash flow scaled by sales.

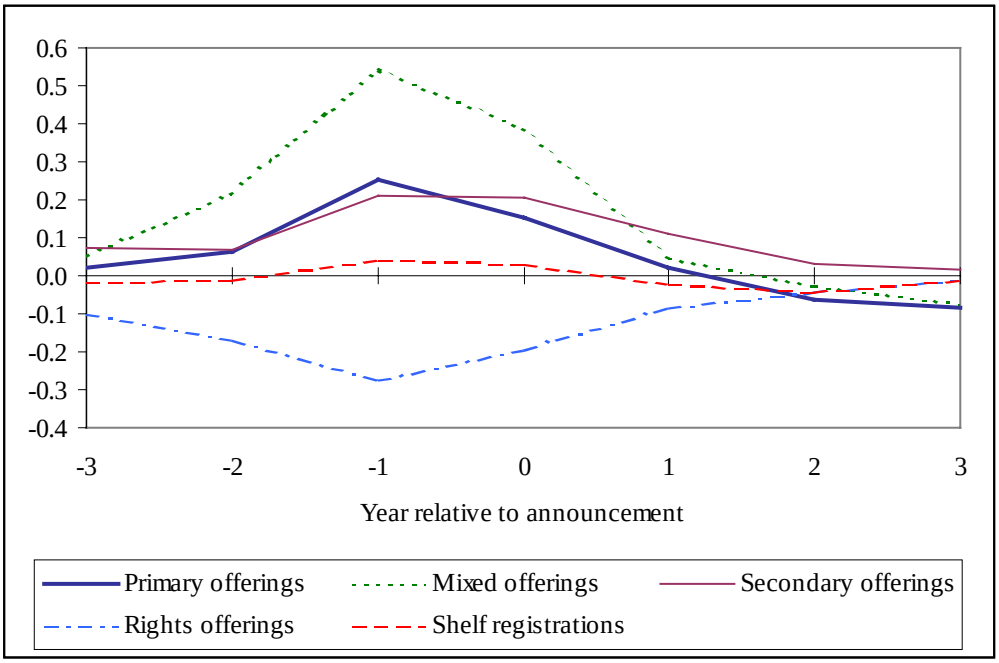


Figure 2

Median levels of industry-adjusted market-to-book values of assets. Each sample firm's industry-adjusted market-to-book value is calculated as the difference between the sample firm's market-to-book value and the median for firms with the same three-digit SIC code.

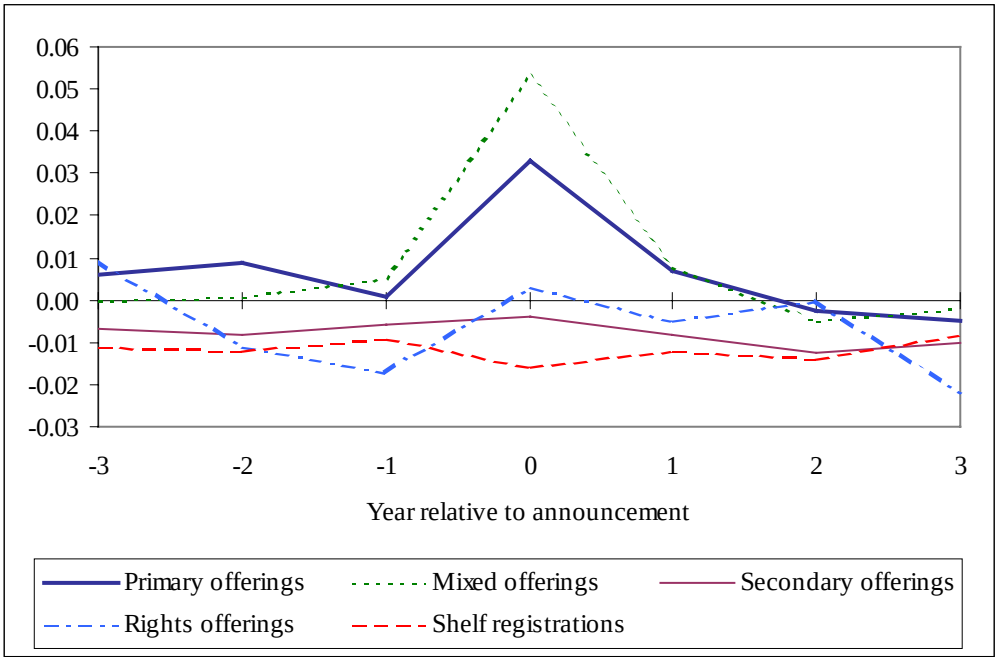


Figure 3

Median levels of industry-adjusted cash and cash equivalents scaled by assets. Each sample firm's industry-adjusted cash ratio is calculated as the difference between the sample firm's cash ratio and the median for firms with the same three-digit SIC code.

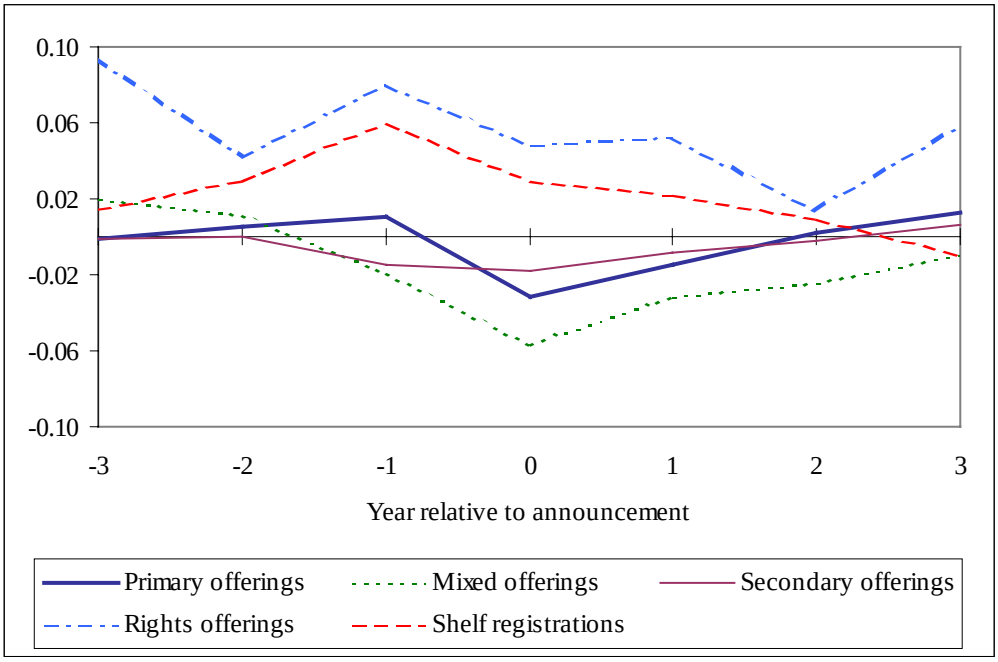


Figure 4

Median levels of industry-adjusted total debt (long-term debt plus debt in current liabilities) scaled by assets. Each sample firm's industry-adjusted debt ratio is calculated as the difference between the sample firm's debt ratio and the median for firms with the same three-digit SIC code.