Managing EPS Through Accelerated Share Repurchases: Compensation Versus Capital Market Incentives

Carol Marquardt
Associate Professor
Baruch College – CUNY

Christine Tan
Assistant Professor
Baruch College – CUNY

and

Susan M.Young
Associate Professor
Baruch College – CUNY

October 2007

Managing EPS Through Accelerated Share Repurchases:
Compensation Versus Capital Market Incentives

Abstract: This paper empirically examines the determinants of firms' decisions to undertake accelerated share repurchases (ASRs). In an ASR, the firm repurchases its own shares of stock through an investment bank rather than on the open market, allowing the company to acquire a targeted number of shares and record its effects on earnings per share (EPS) immediately. Consistent with our predictions, we find that ASR firms are more likely to compensate their managers explicitly on reported EPS figures and are less likely to be concerned with benchmark-beating than are OMR firms. These results are robust to controlling for signaling effects, as well as other known determinants of stock repurchase decisions. Additional analysis suggests that annual cash compensation is not adjusted for the reporting effects of the ASR. Our findings contribute to the literatures on stock repurchases, earnings management, and executive compensation.

I. INTRODUCTION

This paper empirically examines the recent phenomenon of accelerated share repurchases (ASRs). ASRs differ from open market repurchases (OMRs) of stock in two important respects. First, in an ASR, the firm does not repurchase shares on the open market but rather borrows its own shares of stock from an investment bank. This allows the company to both acquire a targeted number of shares immediately and to recognize the full effects of the transaction on reported earnings per share (EPS) in the current accounting period. Second, the firm enters into a forward contract with the investment bank and is thus *obligated* to repurchase a pre-specified number of shares at a purchase price determined by an average market price over the contract period; there is no similar obligation in OMRs.[1]

Our study is motivated by recent articles in the financial press that have criticized the increasing use of ASRs (see Maremont and Ng 2006). The main concern is whether firms are using ASR arrangements to obtain short-term EPS increases but potentially damage shareholder value in the long run due to the guaranteed nature of the repurchase agreement. We shed light on this question by examining whether earnings management incentives are a significant determinant of firms' decisions to undertake ASRs versus other methods of stock repurchase.

Prior research shows that firms use OMRs as an earnings management device. For example, Bens et al. (2003) find that firms increase the level of their firms' stock repurchases when earnings are below the level required to achieve the desired rate of EPS growth, and Hribar et al. (2006) find that firms use stock repurchases to meet or beat analysts' forecasts of EPS. Essentially, firms exploit the flexibility inherent in OMR

plans to time repurchases so that their financial reporting objectives – i.e., meeting or beating an earnings benchmark – are achieved.

In an ASR, however, there is no financial reporting flexibility that can be exploited. The full amount of shares targeted for repurchase are acquired immediately through an investment bank, common shares outstanding decreases, and this effect is immediately reflected in reported EPS for the current accounting period. It thus seems unlikely that an ASR would be an appropriate vehicle for managing EPS if the aim is to meet or beat earnings benchmarks. We consequently do not expect that capital market incentives to meet or beat earnings benchmarks will play an important role in the decision to undertake an ASR.

The immediate recognition of a decrease in shares outstanding that occurs with ASRs does suggest an alternative motivation, however – that the managers of ASR firms are more likely to be compensated on reported EPS figures than are the managers of OMR firms. Prior research shows that the use of earning-based bonuses affects firm's financial reporting choices. For example, Beatty and Weber (2006) find that the likelihood of managers receiving earnings-based bonuses affects goodwill impairment decisions, and Marquardt and Wiedman (2005) find that firms are more likely to structure convertible bond transactions to increase EPS when manager bonuses are based on reported EPS figures. Given the relatively large magnitude of ASRs on reported EPS and the lack of financial reporting flexibility associated with ASRs, we believe that compensation incentives are a likely determinant in the decision to engage in ASRs.

Using probit analysis, we empirically test these predictions using a sample of 675 repurchase announcements from 2004-06. Our dependent variable, *ASR*, equals one if

firms repurchase stock through an ASR and zero if firms repurchase stock on the open market. We proxy for compensation incentives by creating an indicator variable, *BONUS*, that equals one if EPS is explicitly mentioned as a determinant of annual bonuses in the firms' proxy statement, and zero otherwise. We proxy for capital market incentives using a number of variables identified in prior research as related to managers' incentives to meet or beat earnings benchmarks.

The first of these variables captures the number of consecutive quarterly increases in EPS in the five-year period prior to the repurchase announcement. If capital market incentives drive the decision to undertake OMRs rather than ASRs, we expect longer (shorter) strings of earnings increases for OMRs (ASRs). Because Matsumoto (2002) finds that firms with large implicit claims by stakeholders have greater incentives to meet or beat earnings benchmarks, we include membership in a durable goods industry, research and development expenditures, and labor intensity as proxies for the magnitude of implicit claims. We expect a positive (negative) association between these variables and the likelihood of undertaking an OMR (ASR). We also include sales growth as a proxy for capital market incentives; we expect higher (lower) sales growth for OMR (ASR) firms.

We control for the possibility that the signaling hypothesis (Brav et al. 2005; Peyer and Vermaelen 2005; Ikenberry et al. 1995) might explain firms' decisions to undertake ASRs versus OMRs by including prior stock price performance, leverage, and dividend yield in our model. We also control for other variables known to be associated with the decision to repurchase stock, including potential dilution from stock option plans, firm size, and free cash flows.

As predicted, we find that firms are significantly more likely to choose an ASR over an OMR when managers are explicitly compensated on EPS. We also find that ASR firms have shorter strings of quarterly earnings increases, lower labor intensity, and lower sales growth than OMR firms, consistent with capital market incentives playing a stronger role in the case of OMRs. ASR firms also tend to be significantly larger and have lower stock price volatility than OMR firms. In addition, there is little evidence that signaling is a significant determinant in the decision to undertake an ASR.

As a sensitivity test, we also compare the determinants of ASRs and tender offers, as it may be argued that tender offers could also be used as an earnings management device in a manner similar to ASRs. As with ASRs, we find little evidence that managers' decisions to undertake tender offers are driven by incentives to meet or beat earnings benchmarks. However, we find that ASR firms are significantly more likely to reward their executive on EPS performance, with 58.3 percent of ASR firms mentioning EPS as a determinant of cash bonuses in their proxy statements versus only 13.3 percent of tender offer firms. We also find that tender offer firms are significantly smaller, with poorer stock performance prior to the repurchase announcement. These results suggest that tender offers are undertaken in an attempt to correct market undervaluation, consistent with signaling hypotheses, rather than to achieve specific financial reporting objectives related to EPS.

We also provide descriptive evidence on the settlement costs of ASRs and find that, on average, the settlement cost of the forward contract exceeds the initial repurchase price by an average of 5.7 percent. We further find that in cases where the settlement price exceeds the initial repurchase price, the contract is always settled in cash, while in

instances where the settlement price is less than the initial repurchase price the contract is twice as likely to be settled in shares. This pattern suggests that firms choose the form of settlement in order to minimize the contract's dilutive effect on EPS, thereby providing additional evidence that financial reporting considerations play an important role in ASRs.

The above findings beg the question of whether compensation committees adjust reported EPS for the effects of the ASRs when determining cash compensation levels. Using a model similar to Healy et al. (1987), we find no evidence that compensation committees adjust reported EPS in setting executive pay. This finding might be interpreted as evidence that managers are enriching themselves at the cost of shareholders by choosing to repurchase shares through an ASR, but an alternative explanation could be that corporate boards and compensation committees are simply encouraging appropriate risk-taking by providing earnings-based incentive compensation. To gain some insight into this issue, we examine two-day abnormal returns around the repurchase announcement. While abnormal returns around ASRs are slightly positive, they are not significantly different from OMR announcement returns after controlling for other determinants of the market response. However, Banyi and Mathew (2007) find that ASR announcement returns are significantly smaller than those for tender offers, though the guaranteed nature of the ASR agreement would predict an equally strong market response. Based on these analyses, we cannot currently conclude that ASRs are detrimental to the firm, as alleged in the financial press.[2]

This paper contributes to the accounting literature in several ways. First, we extend the literature on earnings management by explicitly linking bonus compensation

to stock repurchases. While prior work by Bens et al. (2003) and Hribar et al. (2006) have shown that benchmark-beating is a significant determinant in the decision to undertake OMRs, we show that different incentives related to EPS reporting are at play in the decision to undertake ASRs. This finding is important in that it deepens our insight into managers' motivations behind basic financing decisions that affect the firm.

Our findings also underscore the centrality of EPS in managerial decision making. In their survey of CFOs, Graham et al. (2005) document that earnings, and EPS in particular, are viewed as the most important performance measure, yet relatively few papers examine questions of "EPS management." Our study adds to this nascent literature by providing new evidence that firms manage EPS when it is used as a performance metric in compensation contracts.

Our results also have implications for standard setting. Our evidence on ASR settlements shows that while firms structure the forward contract transaction such that it allows them to avoid mark-to-market accounting (i.e., they retain the option to settle the forward contract in cash or shares), they typically settle the contracts in cash to avoid re-issuing shares that would dilute reported EPS. The Financial Accounting Standards Board (FASB) in its re-deliberation of SFAS 128 recently issued a tentative decision in October 2006, stating that "contracts that may be settled in either cash or shares at the entity's option should presume that the contract will be settled in shares if the effect is dilutive. That presumption may not be overcome, regardless of past practice or stated policy to the contrary"[3] Currently, under SFAS 128, this presumption *may be* overcome if past experience or a stated policy provides a reasonable basis to believe that the contract will be paid partially or wholly in cash. Our results suggest that such a provision may be

necessary to prevent managers from structuring forward contract transactions in a manner that potentially enriches themselves at the expense of shareholders.

The remainder of the paper is organized as follows. Section II presents the accounting treatment for ASRs in more detail. We develop our hypotheses in Section III and describe our research design in Section IV. We outline our sample selection criteria in Section V and present our results in Section VI. In Section VII, we present additional analyses and discuss our conclusions in Section VIII.

II. ACCELERATED SHARE REPURCHASES

The volume and magnitude of share repurchases has reached record levels in the past few years, with little evidence that this trend will soon subside. A report by Standard and Poor's issued in June 2006 showed that companies had spent a record $367 billion on stock buybacks in the year ended March 31. Companies in the S&P 500 alone were expected to repurchase more than $435 billion in shares during 2006, a considerable increase from the approximately $349 billion repurchased by the 500-index firms in 2005 One method of share repurchases that has shown a corresponding increase is an ASR.

An ASR is an arrangement in which a company borrows a block of firm shares from an investment bank and immediately recognizes a reduction in EPS (on a weighted average basis). At the time of the arrangement, the company simultaneously enters into a forward agreement with the investment bank. The investment bank immediately sells the shares to the company by borrowing the shares from other investors. The investment bank buys the company shares back in the open market over time, generally less than one year, and replaces the borrowed shares (see Figure 1).

Two accounting-related transactions occur when a firm enters into the ASR agreement. First, equity is immediately decreased by the number of shares to be repurchased times the current share price, and cash is decreased or a liability is increased by an equal amount. Second, the firm enters into a forward contract with the financial institution, which allows the investment bank to hedge its short sale of shares. For most ASR agreements, the firm can choose to settle the contract in either cash or shares for the volume-weighted-average-value of the difference in share price as of the beginning of the ASR agreement to the settlement date. Under an ASR agreement with a cash or share settlement option, companies are not required under current reporting standards to mark the forward contract to market on their books. The assumption behind the accounting treatment of the forward contract (not requiring it to be marked to market as the underlying value of the firm's stock changes) is that the company *intends* to settle the forward contract in shares and therefore need not consider the change in the fair value of the forward contract in the calculation of net income. In reality, the large majority of ASR forward contracts are settled in cash. At settlement, the accounting treatment is to decrease cash (or increase liabilities) and to decrease equity, assuming the price of the company's stock has increased. The repurchased shares may be kept in treasury or retired.

The key difference in accounting treatments between ASRs and OMRs is the timing of the recognition of the decrease in shares outstanding. Therefore, the main advantage to a firm in choosing an ASR is the immediate impact on outstanding shares and perhaps a stronger signal to the market about firm value. The disadvantage is that cash must be provided up front, and the firm must pay the average share value over the

life of the contract regardless of the increase in share price. Firms do not have an option to discontinue repurchasing shares once the ASR has been entered into as they would with an OMR program. In fact, prior research has shown that almost 25 percent of firms that announce an OMR do not repurchase shares in the announcement quarter (Lie 2005).

We believe that one reason for the increased frequency of ASR agreements is related to the issuance of Statement of Financial Accounting Standard (SFAS) No. 150, "Accounting for Certain Financial Instruments with Characteristics of both Liabilities and Equity." SFAS 150 became effective for interim periods after June 15, 2003. Prior to SFAS 150, firms commonly wrote put options on their own shares to hedge against price increases. SFAS 150 requires that firm use mark-to-market accounting on puts and forward options, reducing the benefit to the firm by requiring changes in value to be recorded as increases or decreases to net income. However, as noted above, the forward contracts associated with ASRs are not required to be marked-to-market when the firm has the option of settling the contract in cash or shares.[4]

We provide a numerical example of the accounting treatment for ASRs in the Appendix.

III. HYPOTHESES

We consider the above differences in the accounting treatment of ASRs versus OMRs in developing our hypotheses about managerial incentives behind each type of repurchase. Specifically, because the decrease in equity is recognized immediately for the full amount of shares announced as repurchase targets in an ASR, this repurchase type does not provide the financial reporting flexibility that OMRs offer. For example, Hribar

et al. (2006) empirically show that in response to capital market pressures to meet analysts' EPS forecasts, firms exploit the flexibility that OMRs offer in terms of choosing when or whether to buy back stock when they are likely to fall short of meeting analyst expectations; i.e., they do an OMR when they "need a penny" to make the forecast.

While it is possible that firms also use ASRs to meet or exceed analyst forecasts, because the number of shares repurchased is known in advance with certainty, it is a relatively straightforward exercise to adjust expected EPS for the effects of the repurchase. Indeed, anecdotal evidence shows that managers themselves explicitly disclose the reporting effects of the ASR on future EPS, and analyst adjust their forecasts accordingly. For example, Rockwell Collins issued a press release on September 29, 2006, announcing an ASR of 4.7 million shares at an initial cost of $257 million. The press release also included the following statement: "With the execution of this agreement, the company now expects fiscal year 2007 earnings per share in the range of $3.10 to $3.20, a 5 cent increase over the previously announced guidance range of $3.05 to $3.15." Similarly, in a report issued by Bear, Stearns & Co. on June 30, 2005 for Del Monte Foods, the analyst specifically states that the company bought back 12 million shares through an ASR, and Bear Stearns is therefore raising their EPS estimate by one cent to account for the transaction.

We therefore expect capital market incentives to achieve earnings benchmarks to be relatively less important in the decision to undertake an ASR versus an OMR. Our first hypothesis is therefore as follows:

> H1: Capital market incentives to meet or beat earnings benchmarks play a less important role in the decision to undertake an ASR versus an OMR.

The inflexible nature of the reporting effect of ASRs on EPS figures suggests to us to a quite different motivation – we predict that the managers of ASR firms are more likely to be compensated on reported EPS figures than are the managers of OMR firms. Prior research shows that the use of earning-based bonuses affects firms' financial reporting choices. For example, Beatty and Weber (2006) find that the likelihood of managers receiving earnings-based bonuses affects goodwill impairment decisions, and Marquardt and Wiedman (2005) show that firms are more likely to structure convertible bond transactions to increase EPS when manager bonuses are based on reported EPS figures. In addition, Healy et al. (1987) find that compensation committees do not appear to adjust earnings for accounting choices related to inventory and depreciation methods when setting managerial pay.

There is also practitioner evidence relating stock repurchases to executive compensation. In their recent report from The Center for Financial Research and Analysis and The Corporate Library, Lehman and Hodgson (2006) speculate that some amount of share repurchase programs may actually damage shareholder value. They examined firms in the S&P 500 with negative cash flows prior to or during share repurchase programs as possible perpetrators of non-beneficial programs and found that a greater percentage of the CEOs for these negative cash flow firms were rewarded on "per share" performance metric (43.11 percent) compared to S&P 500 firms as a whole (27.85 percent). They also found that bonuses were more likely paid out to the CEOs of these firms—88 percent of these CEOs received annual bonuses versus 78 percent of the S&P 500 firms and 37.5 percent received cash bonuses versus 22.2 percent of CEOs in the S&P 500. The authors

conclude that share repurchase programs may be used generate higher levels of EPS and EPS growth in order to increase payout of incentives.

Given the above findings, the relatively large magnitude of ASRs on reported EPS, their lack of financial reporting flexibility, and the possibility that compensation committees will not adjust EPS for the repurchase, we believe that compensation incentives are a likely determinant in the decision to undertake an ASR versus an OMR. Stated formally:

> H2: Compensation incentives play a more important role in the decision to undertake an ASR versus an OMR.

IV. RESEARCH DESIGN

We use a multiple probit regression model to test Hypotheses 1 and 2, where the dependent variable, *ASR*, equals one if the firm chooses to undertake an ASR and zero if the firm chooses an OMR. As such, our analysis is conditional on the decision to repurchase stock; that is, we assume that firms first decide to repurchase stock and subsequently determine the type of repurchase to undertake.

To proxy for capital market incentives (H1), we employ a number of variables drawn from prior research. Our first variable is based on the collective findings of Barth et al. (1999) and Myers et al. (2007), who both find that the market rewards patterns of increasing earnings, and Graham et al. (2005, 22), who report that chief financial officers regard the same quarter of last year's EPS as the most important benchmark. This variable, *STRING*, equals the number of consecutive quarters prior to the announcement date of the repurchase that the firm has met or exceeded the benchmark of the prior year's EPS for the same fiscal quarter, up to a maximum of 20 quarters. If capital market

incentives to maintain this string are stronger for OMR firms, we expect a negative coefficient on *STRING* in our probit analysis.

Matsumoto (2002) empirically examines managers' incentives to avoid negative earnings surprises and finds that firms with greater reliance on implicit claims with stakeholders are more likely to meet or exceed earnings expectations. Stakeholders such as customers, employees, or suppliers are likely to react more strongly to earnings surprises because they have limited ability or do not find it cost effective to fully process all information about the firm (Hirshleifer and Teoh 2003). We thus expect firms' reliance on implicit claims with stakeholders to be negatively associated with the likelihood of undertaking an ASR.

We follow Matsumoto (2002) and Bowen et al. (1995) and use three variables to proxy for implicit claims: membership in a durable goods industry (*DUR*), defined as SIC codes 150-179, 245, 250-259, 283, 301, and 324-399, research and development expenditures (*R&D*) divided by total assets, and labor intensity (*LABOR*), defined as one minus the ratio of gross property, plant, and equipment to total assets. We measure *DUR*, *R&D*, and *LABOR* at the end of the fiscal year preceding the repurchase announcement and predict that each variable will be negatively associated with the decision to undertake an ASR versus an OMR.

Our final proxy for capital market incentives is sales growth (*SGROWTH*). Skinner and Sloan (2002) find that asymmetry in the market response to positive versus negative earnings surprises is stronger for high growth than for low growth firms, i.e. the dramatic losses in firm value that often occur after missing an earnings benchmark are more severe for growth stocks. We consequently expect *SGROWTH*, defined as annual

sales growth over the fiscal year prior to the repurchase announcement, to be negatively associated with the likelihood of undertaking an ASR.

To proxy for compensation incentives (H2), we follow Marquardt and Wiedman (2005), and create an indicator variable, *BONUS*, that equals one if EPS is explicitly mentioned as a determinant of annual bonuses in the firms' proxy statement and zero otherwise. We believe that this is the most direct measure of whether a manager is compensated based on reported EPS. If managers of ASR firms are motivated by compensation concerns, we expect a positive coefficient on *BONUS*.

In addition to our test variables for H1 and H2, we also include independent variables to control for possible alternative motivations for undertaking an ASR instead of an OMR. Bens et al. (2003) and Kahle (2002) present evidence that firms undertake OMRs to offset the dilution associated with employee stock option plans. We further note that the flexibility inherent in OMR plans makes it a superior tool over ASRs in managing anticipated dilution, as managers can vary the amount of share repurchased as necessary. We therefore include *DILUTION* as a control variable in our analysis, where *DILUTION* is defined as the difference between the shares used to calculate diluted and basic EPS, divided by total shares outstanding, measured as of the end of the fiscal year preceding the repurchase announcement.[5] We expect *DILUTION* to be negatively associated with the decision to undertake an ASR.

We also consider the possible signaling effects associated with stock repurchases. Signaling theory would suggest that the willingness of managers to increase their holdings of a company's stock conveys new, positive information to the market regarding the future cash flow of the company, and empirical evidence documents that stock

repurchase announcements result in positive stock price changes (e.g., Brav et al. 2005; Peyer and Vermaelen 2005; Ikenberry et al. 1995). We argue that the guaranteed nature of the repurchase in an ASR sends a stronger signal to investors than does an OMR, since there is no obligation on the part of the issuer to actually repurchase any shares in an OMR.

We attempt to control for signaling effects by including firms' debt-to-equity ratios (*DE*) and dividend yields (*DIVYIELD*) as independent variables in our analysis, both measured for the fiscal year prior to the repurchase announcement. When managers possess inside information, financial structure signals information to the market, with the value of the firm rising with increasing leverage; similarly, when outside investors have imperfect information about firms' profitability, dividends function as a positive signal of expected cash flows (Barclay et al. 1995). If ASRs serve in a signaling role, it may be more likely that firms undertaking ASRs have already exhausted their signaling capacities by having high debt levels and high dividend yields. We therefore expect *DE* and *DIVYIELD* to be positively associated with the ASR decision.

Another possible motivation for undertaking an ASR versus an OMR is that firms are using the ASR to hedge against stock price fluctuations that might affect the cost of the stock repurchase. Because ASRs became more popular after firms were required to mark their written put options to market with the inception of SFAS 150, it is possible that firms are now using ASRs rather than written puts to hedge against large stock price increases. If a hedging argument applies, we expect stock return volatility (*STKVOL*), defined as the annualized standard deviation of daily stock returns in the calendar year

preceding the repurchase announcement, to be positively associated with the decision to undertake an ASR versus an OMR.[6]

We also include other known determinants of the repurchase decision as additional control variables. Jagannathan et al. (2000) find that stock repurchasers typically have lower stock returns and higher free cash flows relative to dividend-paying firms. If managers undertake an ASR instead of an OMR because they believe the firm is more undervalued, then we expect buy-and-hold abnormal returns (*BHAR*), measured over the 90-day period prior to the repurchase announcement date, will be negatively associated with the ASR decision. We further predict that free cash flows (*FCF*) are likely to be higher for ASR firms than for OMR firms because the targeted number of shares must be reacquired immediately through an underwriter in an ASR, which would require a large cash outlay. We define free cash flows (FCF) as operating cash flows minus capital expenditures, divided by total assets, at the end of the fiscal year preceding the repurchase announcement.[7]

Lastly, we include firm size, *SIZE*, defined as the log of total assets at the end of the fiscal year prior to the repurchase announcement, as a control variable since Jagannathan et al. (2000) find that repurchasers tend to be smaller firms. However, given our previous predictions that ASR firms will have higher dividend yields and lower growth than OMR firms, we expect *SIZE* to be positively associated with the ASR decision.

Our final model is as follows:

$$\Pr(ASR_i) = \beta_0 + \beta_1 STRING_i + \beta_2 DUR_i + \beta_3 R\&D_i + \beta_4 LABOR_i + \beta_5 SGROWTH_i + \beta_6 BONUS_i$$
$$+ \beta_7 DILUTION_i + \beta_8 DE_i + \beta_9 DIVYIELD_i + \beta_{10} STKVOL_i + \beta_{11} BHAR + \beta_{12} SIZE + \beta_{13} FCF + \varepsilon_i$$

where *i* denotes firm *i*. We predict positive coefficients on *BONUS, DE, DIVYIELD,*

STKVOL, *FCF*, and *SIZE* and negative coefficients on *STRING, DUR, R&D, LABOR, SGROWTH, DILUTION,* and *BHAR.*

V. SAMPLE SELECTION

We identify our sample of ASR firms by conducting key word searches on Factiva and the SEC's EDGAR database for the term "accelerated share repurchase." Our initial search over 2001-2006 yielded 109 firms that had engaged in one or more ASR during this time period. Consistent with reports in the financial press that state that the prevalence of ASRs has recently increased dramatically, we note that we could identify only six ASRs prior to 2004; we therefore limit our focus to the 2004-2006 period.

To obtain our control sample of first-time open market repurchasers, we conducted a search on the SDC Platinum database over 2004-2006 and identified 1,739 repurchase transactions. We eliminated the following observations: non-ASR or OMR transactions, duplicate repurchases by the same firm, firms with no proxy statements, and firms without the required Compustat and CRSP data.[8] The final sample consists of 84 ASR and 591 OMR firms. We provide more detail on sample selection in Table 1.

VI. RESULTS

Univariate Tests

Table 2 presents the results from univariate comparisons of firm characteristics across the ASR and OMR subsamples. In general, both mean and median differences are significantly different from zero in the predicted direction. As expected, OMR firms have a longer series of having met or exceeded last year's quarterly reported EPS. Mean

(median) *STRING* is 4.968 (4) quarters for OMR firms versus 2.917 (2) for ASRs, and both mean and median differences are highly significant (p=0.0001 and p=0.0003, respectively). Mean implicit claims by stakeholders, as proxied by *DUR*, *R&D*, and *LABOR*, are also significantly lower for ASR firms at the p=0.0599, p=0485, and p=0.0249 levels, respectively. Mean (median) sales growth (*SGROWTH*) is 9.8 percent (6.9 percent) for ASR firms versus 18.2 percent (13.9 percent) for OMR firms; both mean and median differences are significant at the p=0.0001 level. These results are consistent with H1, which predicts that capital market incentives play a more important role for OMR firms.

Our results also provide evidence consistent with H2, which predicts that compensation incentives play a more important role for ASRs than OMRs. Mean *BONUS* is 0.583 for ASRs versus 0.320 for OMRs; this difference is significant at the p=0.0001 level.

The univariate results also reveal that ASR firms have significantly lower mean and median *DILUTION* (0.026 and 0.013, respectively) than OMR firms (0.038 and 0.020, respectively). This finding is consistent with the results reported by Bens et al. (2003) and Kahle (2002), who find that OMRs are used to offset dilution from employee stock options plans. ASR firms have significantly higher debt-to-equity ratios and dividend yields than OMR firms. Mean (median) *DE* is 4.639 (1.930) for ASR firms versus 3.099 (1.181) for OMR firms, while mean (median) *DIVYIELD* is 0.015 (0.013) for ASR firms versus 0.010 (0.002); all differences are significant below the 0.01 level. These results provide some evidence for signaling arguments – ASR firms already have

higher debt ratios and dividend yields are therefore may have exhausted these choices as potential signals of good future performance.

Contrary to our expectations, however, we find that stock return volatility (*STKVOL*) is significantly *lower*, not higher, for ASR firms versus OMR firms. Mean (median) *STKVOL* is 0.234 (0.207) for ASR firms versus 0.330 (0.310) for OMR firms, which is not consistent with firms using ASRs to hedge stock price fluctuations. Prior stock price performance (*BHAR*) is significantly *higher*, not lower, for ASR firms. Mean (median) BHAR is -0.006 (-0.003) for ASR firms versus -0.052 (-0.049) for OMR firms. This finding is inconsistent with the idea that firms use ASRs to correct market undervaluation. In addition, we find no significant difference in free cash flows (*FCF*) between ASR and OMR sample firms.

Finally, we find that ASR firms are significantly larger than OMR firms; differences in both mean and median *SIZE* are significant at the p=0.0001 level. This may reflect the fact that larger firms are more likely to already have established relationships with investment banks, which would enable them to negotiate the ASR contracts more quickly and easily than smaller firms. Larger firms may also be more likely to have the available assets to repurchase a large block of stock in a single transaction.

Multivariate Tests

Table 3 presents Pearson and Spearman correlation coefficients for the independent variables. The strongest correlations are between *STKVOL* and *SIZE* (Pearson ρ = -0.583 and Spearman ρ = -0.582) and between *DE* and *DIVYIELD* (Pearson ρ = 0.419 and Spearman ρ = 0.546). In general, both *STKVOL* and *SIZE* tend to be

significantly associated with many of the other independent variables. We address potential multicollinearity problems associated with these variables in our probit analysis.

Table 4 presents the results of a multivariate probit analysis in which we examine the role of compensation and capital market incentives in determining the decision to undertake ASRs versus OMRs. We present five models. The first uses our full sample of 675 observations and omits the free cash flow (*FCF*) variable; the second is based on a slightly smaller sample of 578 observations but includes *FCF*. In the last three models, we alternatively drop *SIZE* and *STKVOL* from the analysis to alleviate multicollinearity concerns, as noted above.

Of our capital market incentive variables, *STRING* and *LABOR* are significantly negatively associated with the decision to undertake an ASR versus an OMR, and *SGROWTH* is at least marginally significant in three out of the five model specifications. Overall, these results are consistent with H1, where we predict that capital market incentives play a less important role in ASRs than in OMRs.

We also find empirical support for H2, where we predict that compensation incentives play a more important role in the decision to undertake an ASR versus an OMR. As expected, *BONUS* is significantly positive in all five models, indicating that firms that explicitly link managers' annual bonuses to reported EPS are more likely to accelerate their share repurchases to improve this figure than are firms that repurchase stock on the open market.

In addition, we find no evidence that differences in the need to offset dilution from stock options or other dilutive securities play a role in the ASR versus OMR decision − the estimated coefficient on *DILUTION* is not significantly different from

zero. We also control for signaling effects by including *DE* and *DIVYIELD* as independent variables. As stated earlier, we expect these variables to be positively associated with the ASR decision if ASRs are meant to serve as a signal of good future performance. Our results indicate that the estimated coefficients on *DE* is significant in two of five cases, and the estimated coefficients on *DIVYIELD* are insignificantly different from zero, indicating that signaling considerations do not play a prominent role in the share repurchase choice.

Contrary to our expectations however, both *BHAR*, the buy-and-hold abnormal returns prior to the share repurchase announcement, and *STKVOL* are significant determinants of the repurchase structuring decision, but in directions opposite to our priors. If firms undertake ASRs to correct market undervaluation, we would expect a negative coefficient on *BHAR*, but, as shown in Table 4, the estimated coefficient on BHAR is at least marginally significantly positive in all five models, which indicates that ASR firms have better prior stock price performance in the period leading up to the repurchase announcement than do OMR firms. That is, there is no evidence that ASRs are the preferred repurchase structure to correct undervaluation. We also find that *STKVOL* is strongly significantly negative in Models 1-3. If firms use ASRs to hedge against fluctuating prices that affect the cost of the stock repurchase, we would expect a positive coefficient on *STKVOL*. The negative coefficients instead suggest that *STKVOL* may be an additional proxy for capital market incentives, as noted in Section 4.

Lastly, we predicted that ASR firms are more likely to be larger in size and have higher free cash flows. As predicted, *SIZE* is significantly positive in all five models, but *FCF* does not appear to be a significant determinant of repurchase structure.

Overall, our results support both our hypotheses: H1, that capital market incentives play a strong role in open market repurchase decisions than they do for accelerated share repurchases; and H2, compensation incentives play a more important role for accelerated share repurchases than they do for open market repurchases. These findings are robust to controlling for signaling arguments, as well as for other known determinants of the decision to repurchase stock.[9]

VI. ADDITIONAL ANALYSES

Tender Offers

In section III, we argue that because the financial reporting effects of ASRs on diluted EPS occur immediately, the motivations for undertaking ASRs differ from those for OMRs. However, it can also be argued that tender offers are another way to structure share repurchases to achieve similar financial reporting effects as ASRs, as the reduction in shares outstanding also occurs over a relatively short period of time (a tender offer typically expires after one month, though the offer is sometimes extended if the desired number of shares were not tendered). We therefore provide an additional analysis in which we compare the determinants of ASR and tender offer repurchases.

We collected our tender offer sample from the SDC Platinum database for the period 2004-2006. After dropping multiple tender offers, we arrived at a sample of 131 firms. We then drop firms that also engaged in an OMR or ASR and firms that do not have the required Compustat, CRSP, and proxy statement data and are left with 45 tender offer firms. Our results based on our comparison of tender offers and ASRs are presented in Table 5.

In Panel A, we examine differences in means and medians for the same set of variables we examined in Table 2. We observe that while most of our tests were significant in Table 2, where we compared ASRs and OMRs, we report fewer significant differences in comparing ASRs and tender offers. These findings are not surprising given our overall focus on contrasting the motivations of ASRs versus OMRs. Nonetheless, we document a number of notable differences between ASRs and tender offers. For example, we find a dramatic difference in the percentage of firms that reward their executives on EPS performance. While 58.3 percent of ASR firms mention EPS measures in their bonus plans, only 13.3 percent of tender offer firms do. This difference is highly significant (p=0.0001) and suggests that it is unlikely that tender offer firms are structuring a stock repurchase to affect bonus compensation. We also find that tender offer firms tend to be much smaller in size (p=0.0001) and tend to have poorer stock price performance in the period prior to the repurchase announcement. Mean (median) *BHAR* is -0.042 (-0.028) for tender offer firms and -0.006 (-0.003) for ASR firms; both differences are marginally significantly different from zero, which suggests that undervaluation may be a motive behind the tender offers. We also find that ASR firms are more highly leveraged, with a mean (median) debt-to-equity ratio of 4.639 (1.930) versus 2.651 (1.103) for tender offers firms (p=0.0125 and p=0.0019 for means and medians, respectively). Stock price volatility is significantly lower for ASR firms, with mean (median) *STKVOL* of 0.234 (0.207) for ASRs versus 0.294 (0.262) for tender offer firms (p=0.0003 and p=0.0002 for means and medians, respectively).

Panel B presents the multivariate probit regression results. The dependent variable is an indicator variable that equals one if the repurchase is structured as an ASR and zero

if it is a tender offer. We present the full model in Model 1 and drop *SIZE* as an independent variable in Model 2 to alleviate multicollinearity concerns. *BONUS* is significantly positive in both models, which is consistent with ASRs being driven by compensation motives while there is no evidence of a compensation motive behind tender offers. While *R&D* is significantly positive in both models, we find little evidence of differences in capital market incentives between ASRs and tender offers – *STRING, DUR,* and *LABOR* are not significant determinants in either model, and *SGROWTH* has a negative sign in Model 1. Model 1 shows that ASR firms are significantly larger than tender offer firms, which is not surprising given that tender offers are often used in the decision to take a firm private. In Model 2, where *SIZE* is dropped as an independent variable, we find that ASR firms tend to have higher debt-to-equity ratios, dividend yields, and stock price performance prior to the repurchase announcement and lower stock price volatility relative to tender offer firms. These results suggest that ASR firms may be using the repurchase as a signaling device while tender offer firms may be attempting to correct undervaluation with the repurchase.

Overall, it appears that compensation incentives related to EPS-based cash bonuses do not play a significant role in the decision to undertake tender offers but are important for ASRs. We also find little evidence that capital market incentives vary systematically between ASRs and tender offers.

Settlement Costs

To further investigate the consequences of undertaking ASRs, we collected information on the settlement costs of the ASR forward contracts from firms' 10-K or 10-

Q filings. This information was disclosed by 45 of the ASR firms in our sample. Of these 45 ASR firms, eight firms chose to settle the forward contract using shares and 37 chose to settle in cash. It is interesting to note that of the 37 firms that chose to settle in cash, 33 firms had an increase in share price over the contract period and therefore had a further obligation to the investment bank while none of the eight firms that chose to settle in stocks had an increase in stock and therefore were not required to issue additional stock to the investment bank. The remaining four cash settlement firms and eight stock settlement firms received remuneration from the investment bank. Table 7 contains detailed information on settlement costs.

EITF Topic No. D-72 and SFAS 128 provide guidance on determining the impact of contract settlement on the calculation of diluted EPS. If the contract provides the company with a choice of net cash settlement or settlement in shares, settlement in shares is assumed. This presumption may be overcome if past experience or a stated policy provides a reasonable basis to believe that the contract will be paid partially or wholly in cash (SFAS 128, 29). The pattern of contract settlement observed in Panel A is consistent with companies choosing to settle in cash to avoid issuing additional shares that further dilute EPS. This finding has implications for standard setters as they currently deliberate on disallowing firms to presume cash settlement if the effect is more dilutive.

From Panel B, we note that firms that settled in cash engaged in larger valued share repurchases. The average dollar amount of the repurchase is $462.6 million for cash settlers compared to the $359.7 million for share settlers. Similarly, the average number of shares repurchased by cash settlers is 12.6 million shares compared to 7.6 million shares. The mean magnitude of the repurchase deals relative to the number of

shares outstanding reflect the same relationship, 4.9 percent versus 3.5 percent for cash and share settlers, respectively. These relationships do not appear to be significantly different when examining the medians; cash and share settlers are approximately equal in size and magnitude.

On average, firms pay an additional $12.9 million in cash to settle the forward contract while the median cash settlement amount is $7 million. Firms receive an average of an additional 1.7 million shares when they choose to settle the forward contract in shares. The mean (median) additional costs incurred is approximately 5.7 (3.9) percent of the original ASR deal for cash settlers and for share settlers, the mean (median) additional shares received is approximately 4.2 (4.2) percent of the original number of shares repurchased.

Panel C shows that the share repurchase deal size in terms of dollar amount and number of shares repurchased is greater for firms whose share price subsequently decreased. However, firms whose price increased repurchased a larger proportion of their shares outstanding (5.5 percent versus 3.5 percent). For firms whose share price increased over the forward contract period, the average additional cash outlay to settle the contract is $17.8 million, representing approximately 6.7 percent of the repurchase deal value. Conversely, for firms whose share price decreased, the additional average cash received is $2.3 million, representing 4.2 percent of the repurchase deal value.

Overall, the descriptive evidence presented in Table 7 suggests that settlement of the forward contract can be a costly exercise for ASR firms.

Effect on Executive Cash Compensation

Given the above findings that compensating executives on EPS raises the likelihood that firms will choose an ASR over an OMR and that settlement costs of ASRs can be high, we explore the issue of whether compensation committees make any adjustment to reported EPS in determining executive pay. We estimate a cross-sectional model in which CEO cash compensation for the fiscal year of the repurchase is regressed on the change in reported EPS and the market value of equity. Following Healy et al. (1987), we transform both cash compensation and firm size by taking natural logs of both variables so that their distributions more closely approach linearity. Our models are as follows:

$$log(Cash\ Compensation_t) = \beta_1 + \beta_2\ \Delta EPS_t + \beta_3\ SIZE_t + \varepsilon$$

$$log(Cash\ Compensation_t) = \beta_1 + \beta_2\ \Delta EPSASR_t + \beta_3\ SIZE_t + \varepsilon.$$

Cash compensation is defined as the sum of annual salary and bonus; ΔEPS is defined as the difference between current and prior year diluted EPS, divided by the absolute value of prior year diluted EPS; $\Delta EPSASR$ is defined as the difference between diluted EPS for the current year with the denominator adjusted for the time-weighted number of shares in the ASR and prior year diluted EPS, divided by prior year diluted EPS; and *SIZE* is the (logged) market value of equity as of the fiscal year-end. We compare adjusted R^2's across the two specifications using a Vuong Z-test. If compensation committees adjust reported EPS for the effects of the ASR, we should observe a higher adjusted R^2 in the second model.

We obtain cash compensation data from Execucomp when available; otherwise, we hand-collect the information from firms' proxy statements filed with the SEC. We

examine both the CEO's cash compensation, as well as the sum of cash compensation for the top five executives of the firm.

Results are presented in Table 7. In Panel A, we present descriptive statistics on cash compensation and EPS. Mean (median) CEO cash compensation in the fiscal year of the ASR is $1.965 ($1.343) million, which is slightly higher than the mean (median) CEO cash compensation of $1.707 ($1.120) million for Execucomp firms during our sample period. The average CEO bonus comprises one-third of total cash compensation, which is comparable to the average for Execucomp firms. Average cash compensation for the top five executives is slightly higher than the Execucomp average of $4.823 million. The average bonus for the top five executives in ASR firms comprises 32 percent of total cash compensation compared to 36 percent for all Execucomp firms. The average cash compensation of the mean (median) diluted EPS is $2.647 ($2.425), which indicates that ASR firms are fairly profitable. When diluted EPS is adjusted for the effects of the ASR, the mean (median) figure is $2.551 ($2.394). The mean (median) percentage effect of the ASR on diluted EPS is 3.1% (1.7%), which is relatively large. In addition, mean (median) annual growth in diluted EPS is 19.7 percent (11.5 percent), but would be 15.9 percent (8.6 percent) if the ASR had not taken place.

Panel B presents the results from the OLS regressions. The adjusted R^2's are slightly higher in Models 1 and 3, where the earnings change is based on reported diluted EPS figures, than in Models 2 and 4, where the change is based on a diluted EPS figure adjusted for the ASR. Vuong Z-tests comparing adjusted R^2's from Models 1 and 2 and from Models 3 and 4 are not significant at conventional levels. Based on these findings, it

does not appear that compensation committees adjust reported EPS for the effects of the stock repurchase.

Market Reaction to Repurchase Announcements

As an additional test, we also examine the market reaction to ASR and OMR announcements. Prior research documents that repurchase announcements are typically accompanied by positive stock market reactions. However, Banyi and Mathew (2007) argue that because many OMR plans are never completed (Lie 2005; Stephens and Weisbach 1998), we should expect a more positive reaction for ASR than for OMR announcements.

We find mean two-day market-adjusted announcement returns of 0.9 percent for ASRs and 1.3 percent for OMRs, which is roughly consistent with Banyi and Mathew's (2007) reported means of 0.7 percent and 1.1 percent for ASRs and OMRs, respectively. However, we find no significant differences between ASR and OMR returns after controlling for other variables that have been shown to affect announcement reactions in prior research. As shown in Table 6, we regress announcement returns on the type of repurchase (ASR versus OMR), size of repurchase as measured by the percentage of shares outstanding repurchased, firm size, stock price performance prior to the repurchase announcement, sales growth, leverage, and stock price volatility. We find that smaller, undervalued firms experience more positive announcement returns, as do firms undertaking larger repurchases; we find no other significant determinants of announcement returns. In summary, our findings suggest that there is no differential market response to the ASR versus OMR announcement.

VII. CONCLUSIONS

In this paper, we empirically examine the determinants of firms' decisions to structure a share repurchase as an ASR versus an OMR. We argue that the financial reporting effects associated with ASRs suggest that the incentives behind these transactions are fundamentally different from those associated with OMRs. Consistent with our predictions, we find that ASR firms are more likely to compensate their managers explicitly on reported EPS figures and have fewer incentives to meet or beat earnings benchmarks than are OMR firms. These results are robust to controlling for signaling effects, as well as other known determinants of stock repurchase decisions including meeting or beating analyst forecasts. We also examine settlement costs associated with the ASRs and find that firms tend to settle the forward contract (in either cash or shares) so that they minimize the impact on reported EPS. In addition, compensation committees do not appear to adjust reported EPS when determining executive pay.

Our results should be interpreted with the following caveats in mind. First, our sample of ASR firms is relatively small, although our data collection efforts attempt to capture the full population of ASR firms. Sample size considerations are especially important in our analyses of executive cash compensation and of announcement returns. We find no significant differences between the use of reported EPS and adjusted EPS in setting executive pay, nor do we find differences in the market response to repurchase announcements of ASRs versus OMRs; however, either or both of these findings may

result from low statistical power. In addition, the relatively small market response to ASR announcements may be due to information leaking to the market before the repurchase is announced, thus reducing the "surprise" associated with the announcement.

Nonetheless, our results offer compelling new evidence that firms structure financing transactions to achieve financial reporting and compensation benefits. Future research might address the long-run consequences associated with ASRs or explore additional means of managing EPS through financing decisions.

APPENDIX

The following is an example of the accounting treatment for an ASR. Suppose Company X wants to buy back 1 million shares of stock. Currently, the company has 10 million shares outstanding and the stock price is $10 per share. After the decision, the company has net earnings of $2 million for the quarter ended March 31.

Scenario 1: The stock price stays the same over the quarter.
Company X enters into an ASR agreement on January 1 and agrees to repurchase 1 million shares of stock. The ASR has an end contract date of March 31. The current stock price is $10 per share.

Jan. 1:	Treasury Stock	$10,000,000	
	Cash or Liability		$10,000,000

Forward agreement: no entry made as the forward contract has no significant value at the contract's initiation date.

April 30: No entries required

Effect on EPS at 4/30:

With ASR:	Without ASR:
$2,000,000/9,000,000 = $.22	$2,000,000/10,000,000 = $.20

Scenario 2: The stock price increases to $15/share on January 31 and remains there for the rest of the quarter.

Jan. 1:	Treasury Stock	$10,000,000	
	Cash or Liability		$10,000,000

April 30:
If settled in cash:

|	Treasury Stock	$5,000,000	
	Cash or Liability		$5,000,000

If settled in stock:
An adjustment would be made to the shares outstanding. The company would now show that approximately 666,667 shares have been repurchased, versus 1,000,000. There is no impact on the balance sheet.

REFERENCES

Banyi, M. and P. Mathew. 2007. Market reaction to and motivations of accelerated share repurchase programs. Working paper, Oregon State University.

Barclay, M., C. Smith, and R. Watts. 1995. The determinants of corporate leverage and dividend policies. *Journal of Applied Corporate Finance* 7: 4-19.

Barth, M., J. Elliott, and M. Finn. 1999. Market rewards associated with patterns of increasing earnings. *Journal of Accounting Research* 37: 387-414.

Beatty, A. and J. Weber. 2006. Accounting discretion in fair value estimates: An examination of SFAS 142 goodwill impairments. *Journal of Accounting Research* 44: 257-288.

Bens, D., V. Nagar, D. Skinner, and M.H.F. Wong. 2003. Employee stock options, EPS dilution, and stock repurchases. *Journal of Accounting and Economics* 36: 51-90.

Bowen, R., L. DuCharme, and D. Shores. 1995. Stakeholders' implicit claims and accounting method choice. *Journal of Accounting and Economics* 20: 255-295.

Bushee, B. and C. Noe. 2000. Corporate disclosure practices, institutional investors, and stock return volatility. *Journal of Accounting Research* 38: 171-202.

Brav A., J.R. Graham, C.R. Harvey and R. Michaely. 2005. Payout policy in the 21st century. *Journal of Financial Economics* 77: 483-527

Graham, J., C. Harvey, and S. Rajgopal. 2005. The economic implications of corporate financial reporting. *Journal of Accounting and Economics* 40: 3-73.

Healy, P., Kang, and K. Palepu. 1987. The effect of accounting procedure changes on CEOs' cash salary and bonus compensation. *Journal of Accounting and Economics* 9: 7-34.

Hirshleifer, D. and S. H. Teoh. 2003. Limited attention, information disclosure, and financial reporting. *Journal of Accounting and Economics*.

Hribar, P., N. Jenkins, and W.B. Johnson. 2006. Stock repurchases as an earnings management device. *Journal of Accounting and Economics* 41: 3-27.

Ikenberry, D., J. Lakonishok and T. Vermaelen. 1995. Market underreaction to open market share repurchases. *Journal of Financial Economics* 39: 181-208

Jagannathan, M., C. Stephens, and M. Weisbach. 2000. Financial flexibility and the choice between dividends and stock repurchases. *Journal of Financial Economics* 57: 355-384.

Kahle, K. 2002. When a buyback isn't a buyback: Open market repurchases and employee options. *Journal of Financial Economics* 63: 236-261.

Lehman, J. and P. Hodgson. 2006. Fueling EPS through share repurchases—Who benefits? *Report of The Center for Financial Research & Analysis and The Corporate Library.*

Lie, E. 2005. Operating performance following open market share repurchase announcements. *Journal of Accounting and Economics* 39 (3): 411-436.

Maremont, M. and S. Ng. 2006. Moving the market – Tracking the numbers outside audit: Buybacks via loophole can have hidden cost. The Wall Street Journal, January 31: C1.

Marquardt, C. and C. Wiedman. 2005. Earnings management through transaction structuring: Contingent convertible debt and diluted EPS. *Journal of Accounting Research.*

Matsumoto, D. 2002. Management's incentives to avoid negative earnings surprises. *The Accounting Review* 77: 483-514.

McConnell, P., J. Pegg, C. Senyek, D. Mott, and A. Calingasan. 2006. Accounting Issues: Accelerated Share Repurchase – Share Repurchase Using Derivatives. Bear Stearns Equity Research.

Myers, J., L. Myers, and D. Skinner. 2007. Earnings momentum and earnings management. *Journal of Accounting Auditing and Finance* 22: 249-284.

Palepu, K. 1986. Predicting takeover targets: A methodological and empirical analysis. Journal of Accounting and Economics 8: 3-35.

Peyer, U. and T. Vermaelen. 2005. The many facets of privately negotiated stock repurchases. *Journal of Financial Economics* 75.

Skinner, D. and R. Sloan. 2002. Earnings surprises, growth expectations and stock returns, or, don't let an earnings torpedo sink your portfolio. *Review of Accounting Studies* 7: 289-311.

Stephens, C. and M. Weisbach. 1998. Actual share reacquisitions in open-market repurchase programs. *Journal of Finance* 53: 313-333.

FIGURE 1
Overview of ASR transaction*
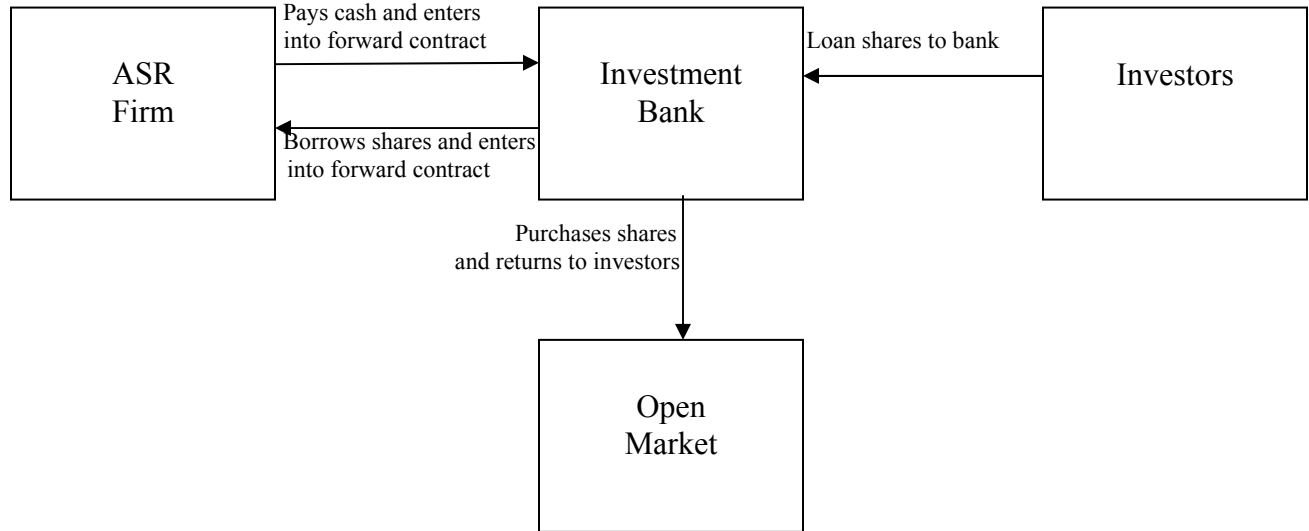
*See McConnell et al. 2006

TABLE 1
Sample Selection

	Total	ASRs	OMRs
All stock repurchase announcements during 2004-06	1,739		
Less: Non-ASRs and OMRs	341		
	1,398		
Less: Multiple announcements	559		
	839	103	736
		(12%)	(88%)
Less: Firms without proxy statements	68		
	771		
Less: Firms without required CRSP data	29		
	742		
Less: Firms without required Compustat data	67		
Final Sample	675	84	591
		(12%)	(88%)

TABLE 2
Univariate Tests: ASRs vs. OMRs

| Variable | ASRs (n=84) | | OMRs (n=591) | | p-value | |
	Mean	Median	Mean	Median	t-test	Wilcoxon
STRING	2.917	2	4.968	4	0.0001	0.0003
DUR	0.131	0	0.208	0	0.0599	0.0974
R&D	0.014	0	0.024	0	0.0485	0.0300
LABOR	0.582	0.662	0.677	0.808	0.0249	0.1152
SGROWTH	0.098	0.069	0.182	0.139	0.0001	0.0001
BONUS	0.583	1	0.320	0	0.0001	0.0001
DILUTION	0.026	0.013	0.038	0.020	0.0118	0.0191
DE	4.639	1.930	3.099	1.181	0.0092	0.0001
DIVYIELD	0.015	0.013	0.010	0.002	0.0014	0.0001
STKVOL	0.234	0.207	0.330	0.310	0.0001	0.0001
BHAR	-0.006	-0.003	-0.052	-0.049	0.0020	0.0047
SIZE	9.268	9.261	7.122	6.986	0.0001	0.0001
FCF[a]	0.059	0.056	0.067	0.061	0.3371	0.3114

STRING is the number of consecutive quarters prior to the announcement date of the share repurchase that the firm has met or exceeded the benchmark of the prior year's EPS for the same fiscal quarter, up to a maximum of 20 quarters. *DUR* equals 1 if the firm has membership in a durable goods industry (SIC codes 150-179, 245, 250-259, 283, 301, and 324-399) and 0 otherwise. *R&D* is research and development expenditures divided by total assets. *LABOR* equals 1 minus the ratio of gross property, plant, and equipment to firm size. *SGROWTH* is annual sales growth. *BONUS* equals 1 if EPS if explicitly mentioned in the firm's proxy statement as one of the determinants of annual cash bonuses and 0 otherwise. *DILUTION* is the difference between the denominators used to calculate diluted and basic EPS divided by total common shares outstanding. *DE* is total liabilities divided by total common equity. *DIVYIELD* is cash dividends per common shares divided by the stock price. *STKVOL* is the annualized standard deviation of daily stock returns. *BHAR* is the buy-and-hold abnormal return of the firm in the 90-day period prior to the share repurchase announcement. *SIZE* is the log of total assets of the firm. *FCF* is (cash flows from operations minus capital expenditures, divided by total assets. All variables are measured in the fiscal year prior to the repurchase announcement, except where indicated, and are winsorized at 1% and 99%. P-values are based on two-tailed significance levels.
[a] indicates that this variable was available for 562 firms (69 ASRs vs. 493 OMRs).

TABLE 3
Pearson/Spearman Correlation Coefficients

	BONUS	STRING	STKVOL	DUR	R&D	LABOR	SGROWTH	DILUTION	DE	DIVYIELD	BHAR	SIZE	FCF[a]
BONUS	1.000	-0.004	-0.177	-0.048	-0.093	0.019	-0.050	-0.027	0.153	0.139	-0.012	0.210	0.014
	-	(0.909)	(0.001)	(0.209)	(0.016)	(0.623)	(0.189)	(0.475)	(0.001)	(0.001)	(0.761)	(0.001)	(0.736)
STRING	-0.009	1.000	0.133	0.029	-0.020	0.047	0.272	0.217	-0.066	-0.121	0.012	-0.049	0.203
	(0.805)	-	(0.001)	(0.455)	(0.607)	(0.221)	(0.001)	(0.001)	(0.087)	(0.001)	(0.757)	(0.203)	(0.001)
STKVOL	-0.179	0.106	1.000	0.252	0.357	-0.222	0.234	0.191	-0.493	-0.580	0.081	-0.582	0.020
	(0.001)	(0.005)	-	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.034)	(0.001)	(0.636)
DUR	-0.048	0.009	0.238	1.000	0.559	-0.187	0.043	0.028	-0.302	-0.190	-0.091	-0.118	0.033
	(0.209)	(0.820)	(0.001)	-	(0.001)	(0.001)	(0.259)	(0.459)	(0.001)	(0.001)	(0.018)	(0.002)	(0.428)
R&D	-0.105	-0.066	0.303	0.350	1.000	-0.183	0.084	0.100	-0.444	-0.376	-0.121	-0.231	0.165
	(0.006)	(0.087)	(0.001)	(0.001)	-	(0.001)	(0.028)	(0.009)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
LABOR	0.019	0.060	-0.064	-0.083	0.054	1.000	0.081	0.003	0.386	0.214	-0.082	0.042	0.062
	(0.629)	(0.115)	(0.096)	(0.031)	(0.159)	-	(0.035)	(0.940)	(0.001)	(0.001)	(0.029)	(0.277)	(0.140)
SGROWTH	-0.048	0.231	0.226	0.023	0.073	0.083	1.000	0.246	-0.100	-0.141	-0.084	-0.108	0.141
	(0.224)	(0.001)	(0.001)	(0.563)	(0.057)	(0.029)	-	(0.001)	(0.009)	(0.001)	(0.029)	(0.005)	(0.001)
DILUTION	-0.052	0.094	0.200	0.062	0.089	0.058	0.246	1.000	-0.158	-0.214	-0.064	-0.121	0.295
	(0.174)	(0.014)	(0.001)	(0.105)	(0.021)	(0.130)	(0.001)	-	(0.001)	(0.001)	(0.094)	(0.001)	(0.001)
DE	0.097	-0.018	-0.341	-0.239	-0.195	0.378	-0.055	-0.134	1.000	0.546	0.126	0.452	-0.233
	(0.010)	(0.642)	(0.001)	(0.001)	(0.001)	(0.001)	(0.154)	(0.001)	-	(0.001)	(0.001)	(0.001)	(0.001)
DIVYIELD	0.105	-0.157	-0.471	-0.198	-0.290	0.083	-0.117	-0.183	0.419	1.000	0.083	0.404	-0.032
	(0.006)	(0.001)	(0.001)	(0.001)	(0.001)	(0.030)	(0.002)	(0.001)	(0.001)	-	(0.030)	(0.001)	(0.001)
BHAR	-0.012	-0.013	-0.117	-0.129	-0.121	-0.114	-0.066	-0.076	0.056	0.080	1.000	0.099	-0.070
	(0.743)	(0.735)	(0.002)	(0.001)	(0.002)	(0.001)	(0.084)	(0.048)	(0.146)	(0.038)	-	(0.010)	(0.091)
SIZE	0.209	-0.060	-0.583	-0.123	-0.251	-0.014	-0.101	-0.159	0.328	0.355	0.114	1.000	-0.122
	(0.001)	(0.121)	(0.001)	(0.001)	(0.001)	(0.724)	(0.008)	(0.001)	(0.001)	(0.001)	(0.003)	-	(0.003)
FCF[a]	-0.013	0.225	0.059	0.024	0.032	0.103	0.120	0.141	-0.226	-0.050	-0.039	-0.084	1.000
	(0.766)	(0.001)	(0.158)	(0.566)	(0.446)	(0.014)	(0.004)	(0.001)	(0.001)	(0.232)	(0.357)	(0.046)	-

N=675. Pearson (Spearman) correlation coefficients are presented below (above) the diagonal. *STRING* is the number of consecutive quarters prior to the announcement date of the share repurchase that the firm has met or exceeded the benchmark of the prior year's EPS for the same fiscal quarter, up to a maximum of 20 quarters. *DUR* equals 1 if the firm has membership in a durable goods industry (SIC codes 150-179, 245, 250-259, 283, 301, and 324-399) and 0 otherwise. *R&D* is research and development expenditures divided by total assets. *LABOR* equals 1 minus the ratio of gross property, plant, and equipment to firm size. *SGROWTH* is annual sales growth. *BONUS* equals 1 if EPS if explicitly mentioned in the firm's proxy statement as one of the determinants of annual

cash bonuses and 0 otherwise. *DILUTION* is the difference between the denominators used to calculate diluted and basic EPS divided by total common shares outstanding. *DE* is total liabilities divided by total common equity. *DIVYIELD* is cash dividends per common shares divided by the stock price. *STKVOL* is the annualized standard deviation of daily stock returns. *BHAR* is the buy-and-hold abnormal return of the firm in the 90-day period prior to the share repurchase announcement. *SIZE* is the log of total assets of the firm. *FCF* is (cash flows from operations minus capital expenditures, divided by total assets. All variables are measured in the fiscal year prior to the repurchase announcement, except where indicated, and are winsorized at 1% and 99%. P-values are based on two-tailed significance levels.

[a] indicates that this variable was available for 562 firms (69 ASRs vs. 493 OMRs).

TABLE 4
Probit Regression Results

$$\Pr(ASR_i) = \beta_0 + \beta_1 BONUS_i + \beta_2 STRING + \beta_3 STKVOL_i + \beta_4 DUR_i + \beta_5 R \& D_i + \beta_6 LABOR_i$$
$$+ \beta_7 SGROWTH_i + \beta_8 DILUTION_i + \beta_9 DE_i + \beta_{10} DIVYIELD_i + \beta_{11} BHAR_i + \beta_{12} SIZE_i + \beta_{13} FCF_i + \varepsilon_i$$

Variable	Predicted Sign	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	?	-2.5006	-2.0432	0.5763	-3.5731	-0.8971
		(0.0001)	(0.0029)	(0.0870)	(0.0001)	(0.0001)
STRING	-	-0.0338	-0.0328	-0.0317	-0.0345	-0.0340
		(0.0555)	(0.0847)	(0.0538)	(0.0519)	(0.0350)
DUR	-	-0.0943	-0.1071	-0.0283	-0.1485	-0.1018
		(0.6656)	(0.6188)	(0.8917)	(0.4900)	(0.6080)
R&D	-	0.0970	-2.5060	2.2656	-2.5229	0.7427
		(0.0983)	(0.1839)	(0.1952)	(0.1740)	(0.6571)
LABOR	-	-0.6268	-0.7488	-0.7441	-0.5650	-0.6528
		(0.0092)	(0.0038)	(0.0011)	(0.0161)	(0.0023)
SGROWTH	-	-0.7340	-0.7783	-0.6322	-0.8952	-0.9403
		(0.0971)	(0.1039)	(0.1359)	(0.0373)	(0.0173)
BONUS	+	0.4219	0.4144	0.5076	0.4269	0.5532
		(0.0048)	(0.0103)	(0.0003)	(0.0041)	(0.0001)
DILUTION	-	-0.2044	-0.2037	-0.3261	-0.2688	-0.5408
		(0.9055)	(0.9048)	(0.8385)	(0.8768)	(0.7260)
DE	+	0.0100	0.0229	0.0386	0.0066	0.0473
		(0.6344)	(0.3437)	(0.0380)	(0.7523)	(0.0079)
DIVYIELD	+	-8.1139	-13.7378	-7.4049	-4.5538	4.8030
		(0.1373)	(0.0771)	(0.2270)	(0.4627)	(0.3762)
STKVOL	+	-2.3712	-2.5060	-4.7104		
		(0.0211)	(0.0252)	(0.0001)		
BHAR	-	0.9529	1.0822	1.0893	0.8857	0.9586
		(0.0844)	(0.0576)	(0.0385)	(0.0956)	(0.0405)
SIZE	+	0.3106	0.2533		0.3560	
		(0.0001)	(0.0001)		(0.0001)	
FCF[a]	+		1.7830			
			(0.1540)			
N		675	578	675	675	675
Log likelihood		-184.96	-157.26	-205.79	-187.81	-221.13

The dependent variable, ASR, is an indicator variable that equals 1 if the stock repurchase is accelerated and 0 if open market. *BONUS* equals 1 if EPS if explicitly mentioned in the firm's proxy statement as one of the determinants of annual cash bonuses and 0 otherwise. *STRING* is the number of consecutive quarters prior to the announcement date of the share repurchase that the firm has met or exceeded the benchmark of the prior year's EPS for the same fiscal quarter, up to a maximum of 20 quarters. *STKVOL* is the annualized standard deviation of daily stock returns. *DUR* equals 1 if the firm has membership in a durable goods industry (SIC codes 150-179, 245, 250-259, 283, 301, and 324-399) and 0 otherwise. *R&D* is research and development expenditures divided by total assets. *LABOR* equals 1 minus the ratio of gross property, plant, and equipment to firm size. *SGROWTH* is annual sales growth. *DILUTION* is the difference between the denominators used to calculate diluted and basic EPS divided by total common shares outstanding. *DE* is total liabilities divided by total common equity. *DIVYIELD* is cash dividends per common shares divided by the stock price. *BHAR* is the buy-and-hold abnormal return of the firm in the 90-day period prior to the share repurchase announcement. *SIZE* is the log of total assets of the firm. *FCF* is (cash flows from operations minus capital expenditures, divided by total assets. All variables are measured in the fiscal year prior to the repurchase announcement, except where indicated, and are winsorized at 1% and 99%. P-values are based on two-tailed significance levels. [a] indicates that this variable was available for 562 firms (69 ASRs vs. 493 OMRs).

TABLE 5
ASRs vs. Tender Offers

Panel A: Tests of Differences in Means and Medians

	ASRs (n=84)		Tender Offers (n=45)		p-value	
Variable	Mean	Median	Mean	Median	t-test	Wilcoxon
STRING	2.917	2	3.000	1	0.8895	0.4181
DUR	0.131	0	0.111	0	0.6217	0.6329
R&D	0.014	0	0.013	0	0.7472	0.5210
LABOR	0.582	0.662	0.601	0.667	0.8948	0.9155
SGROWTH	0.098	0.069	0.081	0.031	0.5429	0.1053
BONUS	0.583	1	0.133	0	0.0001	0.0001
DILUTION	0.026	0.013	0.029	0.017	0.6252	0.4208
DE	4.639	1.930	2.651	1.103	0.0125	0.0019
DIVYIELD	0.015	0.013	0.012	0.007	0.3388	0.1829
STKVOL	0.234	0.207	0.294	0.262	0.0003	0.0002
BHAR	-0.006	-0.003	-0.042	-0.028	0.0809	0.0701
SIZE	9.268	9.261	6.713	6.623	0.0001	0.0001

Panel B: Probit Regression
Pr(ASR) = f(*STRING, DUR, R&D, LABOR, SGROWTH, BONUS DILUTION, DE DIVYIELD, STKVOL, BHAR, SIZE)*

	Model 1		Model 2	
	Estimated		Estimated	
Variable	Coefficient	p-value	Coefficient	p-value
Intercept	-6.8995	0.0002	1.5916	0.0071
STRING	-0.0113	0.7438	-0.0166	0.5846
DUR	0.5724	0.2870	0.2706	0.5140
R&D	16.6714	0.0096	8.3515	0.0586
LABOR	-0.4691	0.4598	-0.5282	0.2325
SGROWTH	-2.2960	0.0160	0.2802	0.7152
BONUS	1.5004	0.0004	1.3337	0.0001
DILUTION	4.5227	0.3722	1.7011	0.6276
DE	-0.1136	0.1560	0.0933	0.0458
DIVYIELD	2.6033	0.8837	24.9272	0.0566
STKVOL	-0.7807	0.7273	-5.4789	0.0016
BHAR	0.1564	0.9115	1.8878	0.0074
SIZE	0.9395	0.0001		

STRING is the number of consecutive quarters prior to the announcement date of the share repurchase that the firm has met or exceeded the benchmark of the prior year's EPS for the same fiscal quarter, up to a maximum of 20 quarters. *DUR* equals 1 if the firm has membership in a durable goods industry (SIC codes 150-179, 245, 250-259, 283, 301, and 324-399) and 0 otherwise. *R&D* is research and development expenditures divided by total assets. *LABOR* equals 1 minus the ratio of gross property, plant, and equipment to firm size. *SGROWTH* is annual sales growth. *BONUS* equals 1 if EPS if explicitly mentioned in the firm's proxy statement as one of the determinants of annual cash bonuses and 0 otherwise. *DILUTION* is the difference between the denominators used to calculate diluted and basic EPS divided by total common shares outstanding. *DE* is total liabilities divided by total common equity. *DIVYIELD* is cash dividends per common shares divided by the stock price. *STKVOL* is the annualized standard deviation of daily stock returns. *BHAR* is the buy-and-hold abnormal return of the firm in the 90-day period prior to the share repurchase announcement. *SIZE* is the log of total assets of the firm. *FCF* is (cash flows from operations minus capital expenditures, divided by total assets. All variables are measured in the fiscal year prior to the repurchase announcement, except where indicated, and are winsorized at 1% and 99%. P-values are based on two-tailed significance levels.

TABLE 6
Settlement Costs for ASR Firms

Panel A: Settlement Type and Price Changes	Price Increase	Price Decrease	Total
Cash	33	4	37
Stock	0	8	8
	33	12	45

Panel B: Settlement Type	Settlement Type					
	Cash (n = 35)[a]			Stock (n= 10)[a]		
	Mean	Median	StdDev	Mean	Median	StdDev
Original repurchase amount (in $ millions)	462.6	175.0	634.5	359.7	300.0	303.7
Number of shares repurchased at ASR announcement (in millions)	12.6	5.7	18.3	7.6	5.5	6.3
Number of shares repurchased/Shares outstanding at ASR announcement (%)	4.9	3.8	3.7	3.5	3.0	1.9
Additional cash settlement cost at end of ASR contract (in $ millions)	12.9	7.0	25.5			
Additional share settlement at end of ASR contract (in millions)[b]				-1.7	-0.4	3.5
Additional cash settlement/Original repurchase dollar amount	5.7	3.9	9.2			
Additional share settlement/Original repurchased number of shares				-4.2	-4.2	3.1

Panel C: Price Changes	Price Increase (n = 33)			Price Decrease (n = 12)		
	Mean	Median	StdDev	Mean	Median	StdDev
Original repurchase amount (in $ millions)	371.1	175.0	408.7	651.3	350.0	901.6
Number of shares repurchased at ASR announcement (in millions)	10.3	5.4	14.1	18.5	8.2	23.7
Number of shares repurchased/Shares outstanding at ASR announcement (%)	5.5	5.1	3.8	3.5	3.1	1.8
Additional cash settlement cost at end of ASR contract (in $ millions)	17.8	9.4	21.0	-27.0	-21.5	26.9
Additional share settlement at end of ASR contract (in millions)[b]	0	0	0	-1.7	-0.3	3.6
Additional cash settlement/Original repurchase dollar amount	6.7	4.4	9.4	-2.3	-2.5	0.8
Additional share settlement/Original repurchased number of shares	0	0	0	-4.2	-4.2	3.1

[a] Information on settlement costs was collected from the firm's 10-K or 10-Q. Of the 84 ASR firms we were able to collect settlement costs for 45 firms.

[b] Net share settlement resulting in the firm issuing shares to the investment bank is a positive number. Net share settlement in the firm receiving additional shares from the investment bank is a negative number.

TABLE 7
Executive Cash Compensation and EPS

Panel A: Descriptive Statistics

Variable	Mean	Median	Std. Dev.
Total CEO Cash Compensation ($ 000's)	$1,965.0	$1,343.1	2,097.5
CEO Bonus / Total CEO Cash Compensation	0.330	0.426	0.308
Total Top5 Cash Compensation ($ 000's)	$5,519.4	$4,071.1	3,757.3
Top5 Bonus / Total Top5 Cash Compensation	0.325	0.378	0.264
EPS (as reported)	$2.647	$2.425	1.630
EPSASR (as if ASR had not occurred)	$2.551	$2.394	1.599
% Difference (EPS-EPSASR)/EPS	0.031	0.017	0.061
ΔEPS	0.197	0.115	0.741
ΔEPSASR	0.159	0.086	0.723

Panel B: OLS Regressions of Cash Compensation on EPS
  Model 1: $log(CEO\ Cash\ Compensation_t) = \beta_1 + \beta_2\ \Delta EPS + \beta_3\ SIZE + \varepsilon$
  Model 2: $log(CEO\ Cash\ Compensation_t) = \beta_1 + \beta_2\ \Delta EPSASR + \beta_3\ SIZE + \varepsilon$
  Model 3: $log(Top5\ Cash\ Compensation_t) = \beta_1 + \beta_2\ \Delta EPS + \beta_3\ SIZE + \varepsilon$
  Model 4: $log(Top5\ Cash\ Compensation_t) = \beta_1 + \beta_2\ \Delta EPSASR + \beta_3\ SIZE + \varepsilon$

Model	β_1	β_2	β_3	Adj. R^2
1	4.553	0.012	0.308	26.18%
	(0.0001)	(0.0135)	(0.0001)	
2	4.533	0.012	0.310	25.97%
	(0.0001)	(0.0151)	(0.0001)	
3	6.118	0.093	0.261	27.92%
	(0.0001)	(0.0193)	(0.0001)	
4	6.105	0.094	0.262	27.87%
	(0.0001)	(0.018)	(0.0001)	

N=82. Cash compensation figures for the CEO and Top 5 executives are obtained from Execucomp where possible or hand-collected from proxy statements filed with the SEC otherwise. All variables are measured as of the end of the fiscal year of the repurchase. EPS is diluted EPS (Compustat data item #57). EPSASR is diluted EPS with the denominator adjusted by the time-weighted number of shares repurchased. ΔEPS is current year's diluted EPS minus lagged diluted EPS, divided by lagged diluted EPS. ΔEPSASR is EPSASR minus lagged diluted EPS, divided by lagged diluted EPS. SIZE is the log of the market value of equity. P-values are presented in parentheses.

TABLE 8
Regression Results of Announcement Returns

$$CAR = \beta_0 + \beta_1 ASR_i + \beta_2 PERCENT + \beta_3 SIZE_i + \beta_4 BHAR_i + \beta_5 SGROWTH_i + \beta_6 DE_i + \beta_7 DILUTION_i + \beta_8 STKVOL_i + \varepsilon_i$$

Variable	Predicted Sign	Coefficient (p-value)
Intercept	?	2.91
		(0.0038)
ASR	+	0.82
		(0.4148)
PERCENT	+	3.34
		(0.0009)
SIZE	-	-3.26
		(0.0012)
BHAR	-	-2.95
		(0.0032)
SGROWTH	-	-1.48
		(0.1392)
DE	+	-0.67
		(0.5052)
DILUTION	-	-0.11
		(0.9146)
STKVOL	-	-0.06
		(0.9551)
N		648
Adjusted R^2		5.47%

The dependent variable, CAR, is a two-day market-adjusted return measured from the day before and the day of the announcement. The announcement dates are determined from the SDC database and verified against hand-collected announcement dates from press releases in the Factiva and Lexis/Nexis databases. *ASR* is an indicator variable that equals 1 if the stock repurchase is accelerated and 0 if open market. *PERCENT* is the number of shares approved for repurchased scaled by shares outstanding at the announcement date. *SIZE* is the log of total assets of the firm. *BHAR* is the buy-and-hold abnormal return of the firm in the 90-day period prior to the share repurchase announcement. *SGROWTH* is annual sales growth. *DE* is total liabilities divided by total common equity. *DILUTION* is the difference between the denominators used to calculate diluted and basic EPS divided by total common shares outstanding. *STKVOL* is the annualized standard deviation of daily stock returns. All variables are measured in the fiscal year prior to the repurchase announcement, except where indicated, and are winsorized at 1% and 99%. P-values are based on two-tailed significance levels.

[1] In fact, in many OMR plans, the full amount of the announced share repurchase is never reached. In a sample of 450 repurchase programs over 1981-1990, Stephens and Weisbach (1998) find that firms on average acquired only 74-82 percent of the targeted number of shares within three years of the repurchase announcement.

[2] Examining long-run returns would provide additional insight into this question, but the recency of our sample period (2004-06) currently limits our ability to obtain returns much beyond the repurchase announcement date.

[3] See http://www.fasb.org/project/short-term_intl_convergence.shtml#eps_plans.

[4] An additional discussion of accounting for ASRs can be found in EITF 99-7, "Accounting for an Accelerated Share Repurchase Program."

[5] The advantage of using this variable to measure dilution is that it includes the effects of *all* potentially dilutive securities on stock price, not only stock options.

[6] It is also possible that *STKVOL* could proxy for capital market incentives for firms to meet or beat analyst forecasts. For example, Matsumoto (2002) also finds that firms with high transient institutional ownership are more likely to meet or exceed earnings expectations, and Bushee and Noe (2000) document that transient institutional ownership is positively correlated with stock return volatility. In addition, one might expect a greater negative reaction to missing an earnings benchmark when stock return volatility is higher. However, these arguments suggest that *STKVOL* would be negatively associated with ASRs, not positively associated, as predicted above.

[7] Another possible motive behind share repurchases is to avoid a takeover. Given that the average size of repurchases as a percentage of shares outstanding is relatively small for our sample (means of 3.63 percent for ASRs and 2.95 percent for OMRs), we do not believe that avoiding takeover is a key motive for our sample firms. However, we do include in our model several of the variables identified by Palepu (1986) as associated with takeover activity, including *SIZE, SGROWTH* and *DE*. Each of these variables was found to be significantly, negatively related to the probability of takeover in Palepu (1986).

[8] Of these firms, we identify and examine a set of 45 tender offer repurchase firms with the requisite financial data as an additional control sample. We discuss this analysis in our results section.

[9] As a sensitivity test, we also include firms' credit ratings in our probit model. Because a large stock repurchase could adversely affect credit ratings, we expect ASR firms to have higher credit ratings than OMR firms, as they could better withstand any deterioration in their rating. Average S&P credit ratings are available on Compustat for less than 300 of our sample firms. Consistent with our expectations, mean ratings are significantly higher (at the $p=0.0001$ level) for ASR firms; however, when we re-estimate the probit model based on this smaller sample, ratings are not a significant determinant of repurchase structure. In addition, including industry controls based on one-digit SIC codes does not qualitatively affect the inferences drawn from Table 4.