Defensive Repurchases: The Managerial Entrenchment versus Shareholder Interests

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<u>ABSTRACT</u>

This paper examines the relation between the *ex ante* takeover probability and firm's stock abnormal return and operating performance in explaining the managerial incentives for the defensive open-market share repurchase. We find a significantly negative relation between a firm's takeover probability and its stock abnormal return and operating performance response to announcements of open-market repurchase. This evidence supports the managerial entrenchment hypothesis that repurchasing firms generate a lower performance for firms with high takeover probability. The results are more pronounced for the CEOs of repurchasing firms with larger private control benefits or with more protected by antitakeover provisions. Furthermore, these findings hold even after controlling for other potentially influential variables. Our paper provides a better understanding of the managerial incentives for announcing open-market repurchase, as well as provides a new way to explain post-repurchase long-run stock abnormal return and operating performance.

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I. Introduction

Over the last two decades, within the field of corporate payout policy, a gradual but marked shift in the focus of share repurchases research has taken place. A lot of studies investigated motives for share repurchases, especially in open-market repurchases. Distributed free cash flows, signaling undervaluation, funding employee share option plans, adjusting capital structure, strategic reaction to competing firms' repurchase decisions, and defense against unwanted takeovers are the main explanations for motives of open-market repurchase.[1] The majority of research in open-market repurchase has focused on the motives of distributing free cash flow and signaling undervaluation. In the most recent years the study of open-market repurchase has apparently moved from the motive for signaling undervaluation attitudes to more motive for the nonsignaling stances (Billett and Xue (2007), and Massa, Rehman, and Vermaelen (2007)).

In studying defensive open-market repurchase, Billett and Xue (2007) has shown that firm's expected takeover probability is reliably associated with it's intend to repurchases. They provided a number of reasons for explaining why the open-market repurchases does a potential tool for defending against unwanted takeovers: 1) the open-market repurchase may increase the acquisition price and the cost of acquisition

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[1] See for example, the motives for distributing excessive cash flows (Jensen (1986), Stephens and Weisbach (1998), Dittmar (2000), and Grullon and Michaely (2004)); for signaling undervaluation (Dann (1981), Vermaelen (1981), Comment and Jarrell (1991), Ikenberry, Lakonishok, and Vermaelen (1995), Stephens and Weisbach (1998), Dittmar (2000), Ikenberry, Lakonishkok, and Vermaelen (2000), and Brav, Graham, Harvey, and Michaely (2005)); for adjusting capital structure (Bagwell and Shoven (1988), Dittmar (2000), and Hovakimain, Opler, and Titman (2001)); for funding executive/employee stock option plans (Dittmar (2000), Fenn and Liang (2001), and Kahle (2002)); for fending off unwanted takeover attempts (Bagwell (1991), Dittmar (2000), and Billett and Xue (2007)); and for a strategic reaction to competing firms' repurchase decisions (Massa, Rehman, and Vermaelen (2007)).

since there are heterogeneous shareholders and the upward supply curve (Bagwell (1991), Brown and Ryngaert (1992), and Hodrick (1999)); 2) the open-market repurchase may alleviate agency concerns and their associated costs, reducing potential gains from disciplinary takeovers (Hirshleifer and Thakor (1992)); 3) the open-market repurchase may diminish the potential gains to potential bidders by increasing insider ownership and reducing free cash flow; and 4) the open-market repurchase firm can quickly respond to unwanted takeovers since the open-market repurchase program has a flexibility to allow repurchase at any time. But, within the extensive studies on the defensive open-market repurchase, comparatively little research has focused on the relationship between the firm's defensive open-market repurchase and management incentives. It is, therefore, important to explore potential incentives for the defensive open-market repurchase, in addition to firm's long-run abnormal return and operating performance.

This paper tests whether managerial entrenchment or shareholder interests' motives could explain management's decided to repurchase shares in the open-market. Since the management acts in its own self-interest and for seeking maintain his positions through the use of defensive open-market repurchase. On the contrary, the management acts in the best interests of shareholders and for improving the bid price during negotiation through the use of defensive open-market repurchase.

We follow the approach of Billett and Xue (2007) and focus on the *ex ante* takeover probability to examine management incentives for the decision of open-market repurchase. As suggested in Billett and Xue (2007), takeover deterrence appears to be a significant motive for open-market share repurchases. We re-examine the takeover deterrence effect by using firm-level sample, the results indicated that the takeover probability is not only statistically significant but also economically related to share

repurchase decision.

We conduct several tests to investigate whether managerial entrenchment or shareholder interests' is a motive of defense for repurchasing shares. Using a sample of 3,270 US open-market repurchase announcements form 1990 to 2003. Our first test investigates whether repurchasing firms with higher takeover probability experience a higher/lower abnormal returns as well as operating performance. Consistent with our hypothesis of managerial entrenchment, we find that firms with higher takeover probability are provided lower abnormal returns, both in calculated by buy-and-hold and calendar-time approaches, than those firms with lower takeover probability. Moreover, the managerial entrenchment hypothesis is also found on investigating in operating performance, namely return-on-assets. These evidences are only found in the results for the post-repurchase drifts but not for the initial market reaction. Remarkably, these results are more obvious for firms that actually repurchase shares shortly after the repurchase announcement.[2]

For testing management incentives, we further examine the relation between takeover probability and firm's performance conditional on the CEO's private control benefits (PCB) and protected by firm's antitakeover provisions (ATPs). We find that the mean difference of stock/operating performance between low and high takeover probability portfolios is significantly positive for firms with high PCB, but not with low PCB. This evidence is consistent with the entrenchment hypothesis that the higher PCB held by CEO, the more incentive to entrenched his position. Moreover, we also adopt the Entrenchment index, which is constructed by Bebchuk, Cohen, and Ferrell (2009), to examine the management incentives. We find the strong evidence supporting the

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[2] Lie (2005) found that open market repurchase announcement convey favorable information about future performance only for firms with actual repurchases. Gong et al. (2008) found the evidence of downward earnings management before the open market repurchase announcement is observed only for firms with actual repurchases.

entrenchment hypothesis for firms with more ATPs, namely dictatorship firms. We also find the relative weaker evidences that the negative relations between takeover probabilities and stock/operating performances, for the democracy firms (i.e., firms with less ATPs). A comparison of the results from the dictatorship and democracy firms, the magnitude of the difference between the mean or median long-run abnormal return and operating performance of the high and low takeover probability portfolios is larger for the dictatorship firms.

In the cross-sectional analyses, we conduct a variable, product of takeover probability and actual share repurchase, as proxy for the tendency of managerial entrenchment. The coefficients on the managerial entrenchment variable have significantly negative, when using the announcement and long-run abnormal returns as the dependent variable. Moreover, we find that the managerial entrenchment effect is more severe at firms with more PCB or more ATPs. Furthermore, we consider and are robust to controlling for an array of other potential factors that would influence the likelihood of takeover, including abnormal accruals and market competition. The managerial entrenchment results remain unchanged even if we control abnormal accruals and market competition.

The remainder of the paper is organized as follows. Section II develops testing hypotheses. Section III describes the sample selection. Section IV introduces the empirical methodologies. Section V presents the empirical results. The final section concludes.

II. Hypotheses Development and Related Studies

A. *The management incentives to use open-market repurchase as defensive mechanism in response to takeover attempts*

The managerial role of potential target is rather complicated. The target firm's management may lose his employment, position or power in the firm. Kini, Krackaw, and Mian (1995) found an inverse relationship between post-takeover management turnover and pre-takeover firm's performance. Mikkelson and Parch (1997) also found that the turnover rate for companies with poor performance prior to takeover in more active takeover market is larger than in less active takeover market. Thus, management has incentive to use active and preventative corporate defenses to deter unwanted takeover attempts.[3] Comment and Schwert (1995) found that most takeover defensives resulted in a sharply decreasing in shareholder wealth around the announcement period of about 0.5%.[4] More recent empirical studies suggest that takeover defenses may harm shareholder value by using the 24 governance provisions clicked from the Investor Responsibility Research Center (IRRC) database (Masulis, Wang, and Xie (2007) and Bebchuk et al. (2009)).[5]

In opposition, management sometimes takes action to deter takeover attempts in order to save costs, which come in the form of management time efficiencies savings, reduced expenditures in proxy fights, and a smaller investor relations department (Gaughan (2007)). The adoption of open-market repurchase should be accompanied by

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[3] Gaughan (2007) defined the preventative anti-takeover defenses include poison pills, corporate charter amendments, and golden parachutes, whereas the active anti-takeover defenses include greenmail, standstill agreements, white knight, white squire, capital structure changes, litigation, and Pac-Man defense.

[4] Those defense activities are included staggered boards, supermajority provisions, fair price provisions, reincorporation, and dual capitalization.

[5] Bebchuk, Cohen, and Ferrell (2009) contracts a management entrenchment index, that has consists of staggered boards, limits to shareholder bylaw amendments, supermajority requirements for mergers, supermajority requirements for charter amendments, poison pills, and golden parachutes, is negatively correlated with firm value. Masulis, Wang, and Xie (2007) provided the evidences for the destructive effect of takeover defenses on shareholder value by adopting various measures of anti-takeover defenses.

stock price increase, because the repurchasing is adopted primarily to protect shareholders from receiving less than full value for their holdings in control transactions. Comment and Schwert (1995) and Heron and Lie (2006) provided evidence that state antitakeover laws and poison pills have a positive impact on shareholder returns suggests that use such a defense to improve the purchase price during negotiation. Timing also is important. Adopting takeover defenses before a takeover attempt give the initial public offerings (IPO) firm time to fully implement its business plan and to invest in upgrading the skills of employees (Stout (2002)). Coates (2001) found that investors may prefer the adoption of staggered boards in their charters during the IPO stages. Furthermore, a number of studies found that investors have react positively to the announcement of the adoption of takeover defenses if the firm's management incentives are viewed as aligned with those of the shareholders and negatively if management incentives is viewed as seeking to entrench itself (Bhaghat and Jefferis (1991), Mcwilliams (1990), and Boyle, Carer, and Stover (1998)). Thus, these considerations allow us to formulate main testable hypotheses:

H1a: (*The managerial entrenchment hypothesis*) Managers who conduct defensive open-market repurchase may be motivated by an attempt to entrench itself at expense of firm's constituent shareholders. It assumes that repurchasing firms with higher takeover probability are more likely experiencing a lower abnormal returns and operating performances than those firms with lower takeover probability.

H1b: (*The shareholder interests' hypothesis*) Managers of repurchasing firms with high takeover probability generate superior abnormal returns and operating performances since the motive of repurchasing is attempt to maximum shareholders' value.

B. *Private control benefits and managerial incentives*

Another way to distinguish the managerial entrenchment and shareholder interests' hypothesis is to systematically consider and test the different magnitude of CEO's private control benefits (PCB) from theses hypotheses. We expect that the effect of open-market repurchase on the firm's abnormal return and operating performance, in the long-run, should be a function of the level of takeover probability in the case of the managerial entrenchment hypothesis. In this paper, we use the measure of PCB, sum of four observable characteristics and constructed by Eckbo and Thorburn (2003), as a proxy for the strength of PCB. While the market discipline would increases the chance that the CEO loses his job. When the CEO derives private benefits from control, he has an incentive to defense outside unwanted takeover. Thus, we conjecture that the existence of PCB creates a manager-shareholder conflict of interest at the repurchasing firms with higher takeover probabilities. Conversely, by maximizing wealth of shareholder, this conflict should be mitigating since the manager owns a large equity stake in the firm. Therefore, our second testable restriction as follow:

H2a: (*The managerial entrenchment hypothesis*) Repurchasing firms with higher takeover probability are more likely to induce value-reducing managerial entrenchment when the CEO enjoys a large PCB. Thus, we predict that this value-reducing repurchase is more severe at CEO holds large PCB.

H2b: (*The shareholder interests' hypothesis*) Repurchasing firms with higher takeover probability experience a superior abnormal return and operating performance, and this superior performance should be more significant at CEO holds large PCB.

C. Antitakeover provisions and managerial incentives

Furthermore, we expect that the difference in abnormal returns and operating performances between the firms with high and low takeover probability should vary with the strength of antitakeover provisions (ATPs) of firm. Masulis et al. (2007) and Bebchuk et al. (2009) suggest that managers at firms protected by more ATPs are less subject to the disciplinary power of the outside corporate control and thus are more like to indulge in value-destroying activities for the self-interested motives. Therefore, we expect that managers protected by more ATPs are more likely to indulge in value-reducing repurchases since they are less likely to be punished for taking such actions by the market for corporate control. There is no analogous effect for predicted by the shareholder interests' hypothesis. However, a repurchase announcement sends a more favorable signal for the manager protected by more ATPs. Because it also signals, at the same time, a reduction in agency costs.

H3a: (*The managerial entrenchment hypothesis*) Repurchasing firms with higher takeover probability are more likely to induce value-reducing managerial entrenchment when the CEO protected by more ATPs. Thus, we predict that this value-reducing repurchase is more severe at CEO protected by more ATPs.

H3b: (*The shareholder interests' hypothesis*) The difference in abnormal returns and operating performances between the firms with high and low takeover probability should not depend on the strength of ATPs of the firm.

D. Actual share repurchases and managerial incentives

Finally, we consider the long-run stock abnormal return implications. According to Lie (2005) and Gong et al. (2008), open-market repurchase program is not necessary to

commit the firm to actually repurchase shares since insufficient disclosure in the U.S.

companies. This inherent flexibility delay the signal sent to investors, and investors

generally learn of the repurchase transactions via financial statements and other sources

much later than they actually occurred. If the firm refrains from buying shares within

the subsequence month of open-market repurchase announcement, it is less likely to

imply that manager defenses unwanted takeover bids for the purpose of entrenched his

position or maximized the shareholders wealth. We therefore hypothesize that

open-market repurchase announcements foreshadow management incentives only when

the announcements are followed by actual repurchases.

H4: The change of the post-repurchase announcement drifts are more significant than

the initial market reaction for management incentives to either entrenched his

position or maximized the shareholders wealth.

III. Samples Selection

A. *Estimated The ex ante Takeover Probability*

For estimating the *ex ante* takeover probability (*TOPROB*), we adopt the entire

common stock (with the Center for Research in Security Prices (CRSP) share code

equal to 10 or 11) that trade on the NYSE, Amex, and NASDAQ, and research data

available from COMPUSTAT and CRSP. The sample period extends from 1990 to 2003.

Following Billett and Xue (2007), we exclude firms operating in financial and utilities

industry, and firms with a share price below five dollars.[6] The final sample has 24,788

observations for estimating the variable *TOPROB*.

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[6] We exclude firms operating in financials (SIC codes 6000~6999) and utilities (SIC codes 4800~4829
and 4910~4949) industries.

B. Open-Market Share Repurchases

The open-market repurchases sample is collected from the Securities Data Company's (SDC) U.S. Mergers and Acquisitions database between 1990 and 2003. We eliminate the sample that the percentage of shares sought involved in the repurchase program is unavailable.[7] Since insufficient disclosure on open-market repurchase program in the U.S. companies and they do not necessarily pre- commitment to acquire a specified number of shares. Lie (2005) find that actual repurchases typically occur during the fiscal quarter of the announcement and/or the subsequent quarter. We compute the estimate of the dollar amount of common stock repurchased during the quarter of and the quarter after the open-market repurchase announcements as purchase of stock minus the decrease in preferred stock or redeemable preferred stock (Hribar, Jenkins, and Johnson (2006)). Our estimate of the actual share repurchases (*REP*) is measured as the estimate of the dollar amount of share repurchased divided by the market value of common equity. The resulting sample contains 3,270 firms.

IV. Empirical Methodologies

A. Takeover Probability Estimation

Following Billett and Xue (2007), we measure the *ex ante* takeover probability (*TOPROB*) by estimating a probit model with errors adjusted for heteroscedasticity. In the estimated procedure, the dependent variable is defined a dummy variable conditional on whether a firm receives a takeover bid as reported by SDC's Mergers and Acquisitions database in a given fiscal year *t*. And, the explanatory variables are identified from previous studies in takeover probability (Palepu (1986), Comment and

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[7] When only the dollar amount of the repurchase program is given, the share price four days prior to the announcement is used to calculate the actual number of shares intend to be repurchases (Comment and Jarrell, 1991; Kahle, 2002).

Schwert (1995), and Billett (1996)) and open-market repurchases (Stephens and Weisbach (1998), Dittmar (2000), Jagannathan, Stephens, and Weisbach (2000), and Fenn and Liang (2001)). The variables included industry-adjusted return on assets (*ROAIA*), size of equity (*SIZEEQ*), industry-adjusted book value of leverage (*LEVBIA*), equity's market-to-book ratio (*MKBK*), sales growth (*SALEGR*), fixed assets (*NPPE*), and industry takeover dummy (*ITODUM*), which measured as of the end of the prior year, *t*-1.[8] The year fixed effects are included in the model. These variables are winsorized, exception of the dummy variables and *SIZEEQ*, at the 1% and 99% percentiles since the extreme observations may bias the estimation result.

B. Stock Performance

The empirical methodology in the reaction of the open-market repurchase firm's stock returns include the short-run (initial market reaction) cumulative abnormal return (CARs) and long-run (i.e., one- and two-year) buy-and-hold abnormal returns (BHARs). The short-run CARs is measured by the open-market repurchase firm's 5-day (-2,+2) CARs relate to the announcement date minus it's corresponding portfolio returns.[9] In the estimation of long-run BHARs, we compound monthly returns for one-year (two-year) window defined as 12 (24) months (or up to the repurchasing firm's delisting month) after the open-market repurchase announcement date, and adjusted it's corresponding portfolio returns. Finally, the corresponding portfolio returns is defined as the average returns in the same Size decile and Market-to-Book quintile of the open-market repurchase firm.[10]

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[8] The variable definitions are found in the appendix.
[9] Fuller, Netter, and Stegemoller (2002) and Masulis et al. (2007) indicated that using a 5-day window over event days (-2, 2) captures most of the announcement effect, without introducing substantial noise from SDC.
[10] Daily and monthly average returns of Size decile and Market-to-Book quintile portfolio are obtained from Professor Kenneth French's Website (http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/).

As mentioned in previous studies, the evidence of long-run stock performance may be sensitive to the method used. We, thus, do both robustness checks on the method for calendar-time approach. First, we start by using the Fama-French (1993) three-factor model combined with Ibbotson's (1975) returns across time and securities (RATS) methodology. In this method, security abnormal monthly returns are regressed on the Fama-French's three factors for each event month and cumulative abnormal returns (CARs) are calculated by summing intercepts over the relevant event-time window. The standard error for a given event window is the square root of the sum of the squares of the monthly standard errors. The advantage of the month-by-month method is considered that changes in the riskiness of the equity from before to after the repurchase (Peyer and Vermaelen (2009)). But, Ibbotson (1975) point a drawback of the method, the estimators have a problem for the heteroskedastic disturbances caused by the fact that the sampled security changes from month to month, thus having differing parameters estimation. Therefore, we provide a second method, Fama-French (1993) calendar-time portfolio approach as advocated by Fama (1998) and Mitchell and Stafford (2000), to avoid heteroskedasticity problem by forming a portfolio of securities (Ikenberry, Lakonishok, and Vermaelen (2000) and Peyer and Vermaelen (2009)). Portfolios are formed by each calendar month which contains all the securities that had an event in the relevant event-time window. A time series regression if then run where the dependent variable is the equally weighted portfolio returns, and Fama-French's three factors are the explanatory variables. The intercept represents the mean monthly abnormal return in the relevant event period.[11]

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[11] Fama-French's three factors are also obtained from Professor Kenneth French's Website.

C. *Operating Performance*

Following Lie (2005), the operating performance is measured as the performance-adjusted return-on-assets (ROA) after the open-market repurchase announcement quarter. Due to avoid contamination from seasonal effects, we focus on changes from the end of the announcement fiscal quarter to quarters +4 and +8 relative to the open-market repurchase announcement fiscal quarter. However, we report the changes from the end of the announcement fiscal quarter to future quarters in Table VIII and X. The performance-adjusted ROA is the repurchasing firm's ROA minus the ROA of a matched firm with similar pre-event performance and/or the same industry and/or similar market-to-book ratio.

The matching firm is selected by the following procedure, which proposed by Lie (2005). First, we select all firms with the same two-digit SIC code, pre-event market-to-book ratio of assets within 20% or within 0.01, operating performance for the announcement fiscal quarter (quarter 0) within 20% or within 0.01, and operating performance for the four quarters ending with quarter 0 within 20% or within 0.01. If no firms meet the criteria, we relax the industry criterion to a one-digit SIC. If still no firm meets the above criteria, all the criterions are relaxed. Finally, all the potential matches, we choose the firm with the lowest sum of absolute performance difference, defined as

$$
|\text{Performance}_{\text{Quarter 0, Sample firm}} - \text{Performance}_{\text{Quarter 0, Firm } i}|
$$

$$
+ |\text{Performance}_{\text{Four quarters ending with quarter 0, Sample firm}}
$$

$$
- \text{Performance}_{\text{Four quarters ending with quarter 0, Firm } i}|. \tag{1}
$$

If the repurchasing firm lacks operating performance for any of the four quarters ending with quarter 0, we relax the second term in the equation above.

D. Private Control Benefits

The variable *private control benefits* (PCB) is constructed by Eckbo and Thorburn (2003) who use a simple factor representation to summarize the information in the observable characteristics. Thus the variable PCB is constructed as the sum of four characteristics:

$$PCB = Ownership + Tenure - Secured - Size* \qquad (2)$$

The characteristic *Ownership* is percent CEO stock holding; the greater the ownership fraction provides the CEO a greater opportunity to extract private benefits. Denis, Denis, and Sarin (1997) and Mikkelson and Partch (1997) found that CEO turnover rate is decreasing in managerial stock ownership. CEO's *Tenure* is generally to represent the CEO's internal power in organizational theorists (Finkelstein and Hambrick (1989)), a greater CEO's control power makes a less discipline by outsiders. Therefore, the longer the CEO's tenure is, the greater the opportunity to extract private benefits. The variable *Ownership* and *Tenure* are collected from S&P's ExecuComp database.[12] For the CEO's tenure, we calculate tenure as the departure date minus his inauguration date for a CEO who left his position during the repurchasing announcement years. For continually serving CEOs, we calculate tenure as the difference between the repurchasing announcement date and his inauguration date.

Moreover, the tangible asset (*Secured*) and the firm size (*Size**) are also considered in the measure of PCB. Dyck and Zingales (2001) indicated that it is more costly to expropriate tangible than intangible asset. The variable *Secured* is defined as the fraction of total debt that is secured. Finally, Eckbo and Thorburn (2003) conjectured

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[12] The S&P ExecuComp database is available from 1992. For this limitation, our sample has reduced to 1,523 observations.

that CEOs of small firms are provided a greater scope for extracting private control benefits. And substantial extant literatures found that managerial turnover is increasing in firm size. We use the book value of assets as the measure of firm size and normalize the variable by $Size^* = [ln(\text{firm size}) - \mu] / \sigma$, where μ, σ are the mean standard deviation of ln(firm size), respectively.

E. Entrenchment Index

We examine the management incentives for the firm to implement defensive repurchases by adopt the Bebchuk et al (2009) Entrenchment index. They constructed the entrenchment index based on six provisions: staggered boards, limits to shareholder bylaw amendments, poison pills, golden parachutes, and supermajority requirements for mergers and charter amendments. This index is available from Bebchuk's website.[13]

F. Earnings Management

We measure earnings management as abnormal accruals that calculate the residual from the modified version of the Jones (1991) model (Louis and White (2007), Gong et al. (2008), and Louis, Robinson, and Sbaraglia (2008)). First, we estimate the following model using all COMPUSTAT firms (i) with sufficient data by each calendar quarter and two-digit SIC industry:

$$TA_i = \sum_{j=1}^{4} \lambda_{j-1} Q_{j,i} + \lambda_4 \Delta SALE_i + \lambda_5 PPE_i + \lambda_6 LTA_i + \lambda_7 ASSET_i + \varepsilon_i \qquad (3)$$
$$where \quad TA_i = \Delta CA_i - \Delta CL_i - \Delta CASH_i + \Delta STD_i - DEP_i$$

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[13] Professor Lucian Bebchuk's website (http://www.law.harvard.edu/faculty/bebchuk/data.shtml).

TA is total accruals, which is composed of change in current assets ($\triangle CA$), change in current liabilities ($\triangle CL$), change in cash and cash equivalents ($\triangle CASH$), change in debt included in current liabilities ($\triangle STD$), and depreciation and amortization expense (*DEP*). In the estimation model, Q_j is a dummy variable taking the value of one for fiscal quarter *j* and zero otherwise; $\triangle SALE$ is the quarterly change in sales; *PPE* is property, plant, and equipment at the beginning of the quarter; *LTA* is the lag of total accruals; *ASSET* is total assets at the beginning of the quarter; and ε is the regression residual (i.e., abnormal accruals). All the variables of the model 2 are scaled by total assets at the beginning of the quarter. For each calendar quarter, we delete the 1% and 99% percentiles (with the exception of the dummy variables and *Asset*) to avoid the influence of extreme observations. We exclude the estimation that has less 20 observations.

Following Kothari, Leone, and Wasley (2005) and Gong et al. (2008), the industry-performance-adjusted abnormal accrual is defined as a firm's abnormal accruals minus the median abnormal accruals of its corresponding industry-performance-matched portfolio. The matching procedure creates five portfolios by sorting the ROA from the same quarter in the previous fiscal year for each quarter and each industry (two-digit SIC code). We also require at least four firms for each portfolio.

V. Empirical Results

A. *Variable Construction and Sample distribution*

Table I is presented summary statistics for the estimated and announcement samples, and sample distribution also included.

[Insert Table I here]

In Table I, Panel A reports descriptive statistics for the firm-year sample that use to estimate the *ex ante* takeover probability. The mean of *TODUM* suggests that on average 6% of firms receive a takeover bid in a given year. On average, 11% repurchase firms have its rival firms being takeover target in the previous year. Overall, the results of the panel are consistent with Billett and Xue (2007). Panel B provide the results for the sample that announced open-market repurchase program. The mean (median) of variable *Prior AR* is, on average, -5% (-10%), which is similar to the findings of previous studies. The open-market repurchase program generally announce after the slid market reaction. The fraction sought in the open-market repurchase program is comparable to Ikenberry, Lakonishok, and Vermaelen (1995), with 7.37% of the shares outstanding. The mean (median) of the performance -adjusted abnormal accruals is -0.20% (-0.12%), which is consistent with Goung et al. (2008) finding that manager of repurchase firm has incentives to temporarily deflate their reported earnings prior to open-market repurchase announcement. Finally, Panel C contrasts a sample distribution by the calendar years. The peak of distribution is 457 observations (13.98%) in 1998, and there is a rapid decline starting from 2000.

B. *The ex ante Takeover Probability Estimation*

According to Billett and Xue (2007), we estimate takeover probability by the heteroskedasticity-corrected probit model, and the explanatory variables are the same as Billett and Xue (2007).[14] The estimation results are presented in Table II.

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[14] In order to test heteroskedasticity of a homoskedastic probit model, we use the Lagrangian multiplier (LM) test to identify that *ROAIA*, *SIZEEQ*, *LEVBIA*, *MKBK*, *SALEGR*, and *NPPE* are related to the form of heteroskedasticity.

[Insert Table II here]

In general, our results are consistent with the predictions of previous studies. Small firm and firm with lower market-to-book ratio have a greater probability for the firm become a takeover target. The industry takeover wave is significant associated with takeover probability. Also, the takeover probability has time varying property. Further, the model specification is quite significant for the wald test at 1% significant level. There are 1,440 observations of our estimated sample with conducted open-market repurchase programs. Finally, the mean (median) of the estimated takeover probability (*TOPROB*) is 5.81% (5.59%) and the range is from 0.31% to 27.52%. The 5th and 95th percentiles are 1.43% to 11.22%, respectively. Overall, our estimation results are quite similar to Billett and Xue (2007).

C. The Determinants of Actual Share Repurchases

We now proceed to test how the takeover probability affects the firm's decision to repurchase by estimating a Tobit model using maximum likelihood. We explain the ratio of repurchases to firm's market value of equity by the takeover probability (*TOPROB*) along with a set of other control variables. The actual share repurchases is measured as purchase of stock minus the decrease in preferred stock or redeemable preferred stock in the quarter of the announcement and the following quarter (Hribar et al. (2006)), all scaled by firm's market value of equity. The results are displayed in Table III.

[Insert Table III here]

We use a latent variable to capture the takeover probability (*TOPROB*). In column (1) the coefficient on *TOPROB* is 0.2271 with a *t*-statistic of 2.321. This effect is not only statistically significant but also economically relevant; a one standard deviation increase in *TOPROB* raises the likelihood of a repurchase by around 11.61%.[15] One way could be interpreted the economic significance of this 11.61% figure. The average value of *REP* for all announcers is 6.20%, making a deviation of 11.61% seem relatively large. The evidence is also supported by using dummy variable approach; the coefficient on *HighTOPROB* is 0.0113 and statistically significant at the 5% critical level. In addition, repurchase activity increases in *ROE*, *CASHDIV* and *PriorAR*, and decreases in *MKBK*. The above variables (with the exception of *PriorAR*) are consistent with previous studies. The variable *PriorAR* is counterintuitive, we would expect *PriorAR* to be negatively related to *REP*, and given prior firm stock return is a proxy for undervaluation. However, this inconsistent result is also found in Massa et al. (2007). Finally, repurchase activity has time varying property.

D. Takeover Probability and Stock Performance

We start by conducting univariate tests to confirm whether there exists a difference between stock performance of highest takeover probability (*HighTOPROB*) and lowest takeover probability (*LowTOPROB*) repurchasing firms. The stock abnormal returns are adjusted by repurchasing firms' corresponding size and book-to-market portfolio returns.[16]

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[15] The coefficient of *TOPROB* in Table III Column (I) is 0.2271, while its standard deviation for this specification is 0.0317. The mean value of the dependent variable *REP* is 0.0620. Thus, the impact of one standard deviation change in *TOPROB* changes the dependent *REP* to 0.0620 + 0.2271*0.0317 = 0.0692. In percentage terms, this would imply an increase in the dependent variable *REP* of (0.0692-0.0620) / 0.0620 = 11.61%.

[16] As a check, we repeat the analyses here using various benchmarks such as market value-weighted, market equal-weighted, and the same size decile portfolio returns; and the results are qualitatively similar.

[Insert Table IV here]

Results reported in Table IV show that firms ranked in the top quintile of takeover probability experience significantly negative stock performance destruction in the post-repurchase announcement drifts, but not in the initial market reactions. These results are consistent with our forth hypothesis. All the positive difference between the abnormal returns of high and low probability firms is quite significance except firms with no significant repurchases. Two ways could be the reasons to interpret why the firms with significant repurchases could clearly provide a difference between the firms with high and low takeover probability. First, open-market repurchase programs, in practice, are not always through on their announcements. Unless a firm is actually repurchased shares, it is less likely that a manager is entrenched his position since he is response to rumors that the company would soon become a target. Second, focusing on significant repurchases could avoid any negative impact from the firm without through the program (Chan, Ikenberry, and Lee (2007)).

Furthermore, we partition the sample by the level of CEO's private control benefits (PCB). The average two-year BHARs for the firms with significant repurchase and high PCB is -0.1563%, significantly different from zero at the 5% level. And the positive difference between the two extreme portfolios (i.e. highest and lowest takeover probability) is found in the high PCB firms, but not found in the low PCB firms. Moreover, we also examine the relation between takeover probabilities and stock abnormal returns by grouping the sample based on the level of CEO's PCB. For the portfolio of highest takeover probability, on average Dictatorship firms experience negative BHARs, while Democracy firms experience positive BHARs. Tests for differences in means indicate that repurchases made by firms with highest takeover

probability generate significantly lower BHARs than those made by firms with lowest takeover probability. And, the results are most pronounced for the firms with the high PCB.

Overall, the above results support the managerial entrenchment hypothesis, but it does not allow us to draw reliable inferences since neither the simple correlation nor the univariate analysis takes into account the correlations between the level of takeover probability and other determinants of repurchasing firms' returns. For example, the different abnormal returns of highest and lowest portfolios could be an artifact of the two portfolios having different repurchase characteristics, such as different level of free cash flow and magnitude of undervaluation. This follows from the fact that these repurchase characteristics are associated with substantially different stock abnormal returns. Thus, before we can draw any conclusions from these results, we need to control for all the important variables found in previous literatures to affect repurchasing firms' abnormal returns.

In Table V, we consider the long-run stock performance by using the Ibbotson's (1975) RATS method as well as the Fama-French (1993) calendar time portfolio regressions.[17]

[Insert Table V here]

The results show that repurchasing firms with low takeover probability outperform their counterparts with high takeover probability by highly significant amounts over 12 and 24 months. For significant repurchasing firms, 24 months after the announcement,

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[17] Following Peyer and Vermaelen, we repeat the analyses here adding an important factor such as Carhart's (1997) momentum factor, Pástor and Stambaugh's (2003) value-weighted liquidity factor; and we repeat the analyses by formed the value-weighted portfolios. All the results are qualitatively similar.

repurchasing stocks with low takeover probability give a highly significant average monthly CAR (AR) of about 26% (1.05%), whereas their peers with high takeover probability only to provide a CAR (AR) of about -3.26% (-0.83%). And the tests for differences in means between the firms with high and low takeover probability portfolios are highly significant. These results support our finding in Table IV that the long-run stock abnormal return is negatively correlated with firm's takeover probability. All of firms with low takeover probability provide a statistically significant positive CAR and AR. In addition, most of firms with high takeover probability show a negative CAR and AR, but insignificant for *t*-statistic. However, these results not contradict the intuition that the repurchase decisions of firms with high takeover probability are not driven by the signaling motive. Furthermore, we partition sample into two subsamples based on the level of PCB. The differences in means between the firms with high and low takeover probability are only significant positive for the firms with high PCB. These results are consistent with our prediction that the value-destroying defensive repurchases are more pronounced for the firms having a large PCB. Similarly, we turn to divided the sample by the strength of ATPs, and find a relative strong evidence for firms with more ATPs, namely Dictatorship firms. The value-destroying defensive repurchases are more pronounced for the Dictatorship firms. However, we also find a weaker evidence for the method of IRATS, but find no evidence for the Fama-French calendar-time approach. These results created by Democracy firms would be sensitive to method use.

Next, we check whether the link between long-run stock abnormal return and takeover probability still holds after controlling for other factors known to affect post-repurchase announcement drifts as find in the previous studies. Further, we capture the entrenchment aspect of the open-market repurchase activity through an interaction

term denoted by *TOPROB*REP*. This term is the product of takeover probability and actual share repurchase. The *TOPROB*REP* measures the effect on the stock abnormal return resulting from a decrease in actual share repurchase that is conditional on higher takeover probability. The multivariate analyses are presented in Table VI.

[Insert Table VI here]

Table VI reports the association between post-repurchase announcement stock abnormal return and takeover probability as well as other factors known to affect post-repurchase announcement drifts. We regress announcement, one-year, and two-year abnormal returns on various control variables such as actual repurchase activity, target percentage of outstanding shares to be repurchased, prior one-year abnormal return, size, market-to-book equity ratio, free cash flow and leverage as well as year dummy variables. Regarding the role of takeover probability (*TOPROB*), we find that firms with high *TOPROB* experience significantly lower stock abnormal return even we control other important explanatory variables. This evidence is consistent with the managerial entrenchment hypothesis. Further, when we consider aggressive repurchase firms where entrenchment is more likely to be a motivating factor, we find significant results associating *TOPROB* with a lower initial- and post-announcement drift (model (2), (4), and (6)). Also, the undervaluation motive seems an influential factor to explain stock abnormal return. For example, prior one-year abnormal returns (*PriorAR*) are significantly negatively related to stock abnormal return, and these results are in line with the finding in Peyer and Vermaelen (2009).

We then analyze the roles of the level of PCB and the strength of ATPs for examining the managerial incentives of repurchasing firms.

[Insert Table VII here]

In Table VII, we restrict the sample to the firms with significant actual repurchases. We find that the *PCB*TOPROB* and *Dictatorship*TOPROB* interaction terms are negatively and significantly correlation with the long-run stock abnormal returns even if we control several potential factors shown in prior research to affect repurchasing long-run abnormal returns. Again, these results are consistent with the early univariate results and thus support the managerial entrenchment hypothesis.

E. Takeover Probability and Operating Performance

Lie (2005) finds that announcements of open-market repurchase programs convey an improvement in post-repurchase announcement operating performance since the undervaluation is a purpose for repurchasing. According to his statement, we conjecture that there should be, at least, no improvement in post-repurchase announcement return-on-assets (ROA) since repurchasing stock is for nonsignaling motive such as managerial entrenchment. Thus, we test whether the tendency of managerial entrenchment affects post-repurchase announcement ROA, and the results are reported in TableVIII.

[Insert Table VIII here]

Following Lie (2005), we focus on changes from the end of the announcement quarter (Quarter 0) to future quarters, especially in Quarter +4 and Quarter +8 for avoiding contamination from seasonal effects. For statistic issue, Baber and Lyon (1996) suggest that nonparametric Wilcoxon signed-rank test statistics are uniformly more

powerful than parametric *t*-statistics. They attribute this result to the existence of extreme observations in the distribution of the ROA, and it does mitigate the power of *t*-statistics. We thus use the Wilcoxon signed-rank test statistic to test the median change in quarterly ROA. We find that, adjusted by its performance-match firm, the average and median of repurchasing firm reports a highly significant improvement in post-repurchase announcement ROA for each subsample.[18] For example, the average (median) quarterly reported relative improvements in ROA is 0.99% (0.32%) and 1.75% (0.44%) over the one- and two-year period after the quarter of the open-market repurchase announcement for firms with significant repurchase. Further, on average the findings indicate that the takeover probability (*TOPROB*) has a negative effect on ROA. Firms with lower *TOPROB* have higher improvement in ROA; on the contrary, firms with higher *TOPROB* have no or even negative impact on ROA. All the median of ROA difference in one- and two-year between the high and low *TOPROB* of firms is significant except the subsample for firms without significant repurchase. This difference between the ROA of high and low *TOPROB* firms is seemed due to the improvement of the lower *TOPROB* firms.

Next, we examine the operating performance for the level of CEO's PCB separately. Panel D reports results for firms with significant repurchase and *High PCB*, whereas Panel E reports results for firms with significant repurchase and *Low PCB*. The differences in medians over 4 (8) quarters between the firms with high and low *TOPROB* are 0.76% (1.55%) for firms with high PCB and 0.25% (0.26%) for firms with low PCB, and these results only significantly different from zero for firms with high PCB. These results are consistent with the finding in the stock abnormal returns. The

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[18] We also restrict the sample to firms with no share repurchases during the fiscal quarter of the announcement and the subsequent quarter. In unreported results, we find no evidence in improvement ROA, and these qualitative results are consistent with Lie (2005).

managerial entrenchment effect is also found by the change in operating performance. For considering the strength of ATPs, In the both subsamples, firms exhibit performance improvement from Quarter 0 to Quarter +4 and +8 and significant difference of ROA between high and low *TOPROB* firms. However, these findings may caused by defensive repurchases are being substituted for ATPs. It is possible that the Democracy firms are more likely adopting repurchase to defense unwanted takeover since they have less protected by ATPs.

F. Controlling for Earnings Management and Market Competition

So far our results suggest that managers who actually repurchase shares for entrenchment motive make a lower abnormal return and operating performance. However, we have not controlled for other factors that could affect the tendency of managerial entrenchment. In this section, we examine whether the managerial entrenchment effect on the post-repurchase abnormal return and operating performance can be explained by differences in earnings quality or product market competition.

Raman, Shivakumar, and Tamayo (2008) find that takeover decisions are influenced by the quality of information in target firms' earnings. The bidders are more likely to prefer negotiations in deals involving targets with poor earnings quality. Thus, we try to capture the quality of accounting information by adopting an estimated model that created by Gong et al. (2008). Moreover, the market competition acts as a disciplinary mechanism on managerial behavior (Leibenstein (1966), Hart (1983), Schmidt (1997), and Shleifer and Vishny (1997)). Managers of firms operating in more concentrated industries are more likely to put corporate sources into inefficient uses for the self-interest motive. Here, we adopt the Herfindahl index as our proxy for the product market competition, and we partition the sample into quartile groups based on

sorting the Herfindahl index of all repurchase firms. The top (bottom) quartile is represented unique (competitive) industry.

[Insert Table IX here]

Table IX reports regression results controlling for earnings management (*ABACC*) and product market competition (*Competitive* and *Unique*). The variable *ABACC* are significantly negatively related to long-run stock abnormal return for the sample including whole repurchasing firms. These results, as expected, are consistent with the findings of Gong et al. (2008), post-repurchase abnormal returns are driven by pre-repurchase downward earnings management. The undervalued motivation is also found in the all regression models. It is worth noting that the negative effects of three measures to represent the tendency of managerial entrenchment, including *TOPROB*REP*, *PCB*TOPROB*, and *Dictatorship*TOPROB* interaction terms, on long-run stock abnormal returns are even stronger than in Table VI and VII.

Next, we turn to examine whether the negative correlation between takeover probability and operating performance is driven by abnormal accruals or product market competition.

[Insert Table X here]

Like the overall sample, Table X reports that the median differences between high and low takeover probability firms are significant in one- and two-year change of return-on-assets, regardless of the magnitude of abnormal accruals. In addition, the positive differences in firms with low *ABACC* (0.96% for one-year change, 1.10% for

two-year change) are larger than those firms with high *ABACC* (0.76% for one-year change, 0.76% for two-year change). These findings are consistent with Gong et al. (2008).

G. Sensitivity Test

So far we have treated the proxy for managerial entrenchment as continuous variable. In this section, we take a dummy variable approach and classify firms as high versus low takeover probability firms based on the takeover probability. Specifically, we define the dummy variable *HighTOPROB* (*LowTOPROB*) to be equal to one for firms within the top (bottom) quintile of takeover probability and zero otherwise.

[Insert Table XI here]

We re-estimate the regressions in Table IX after replacing the *TOPROB* with these two dummy variables, and report the coefficient estimates in Table XI. As expected, we find the interaction terms *HighTOPROB*REP*, *PCB*HighTOPROB*, *and Dictatorship* HighTOPROB* have significantly negative coefficients in model (4) to (9). This result further supports the earlier evidence obtained when the two dummy variables are treated as a continuous variable.

VI. Conclusions

In this paper, we examine the managerial incentives for firms announcing open-market repurchase. Both univariate and multivariate results indicate a significant difference in the long-run abnormal returns and operating performance between high and low takeover probability firms, which is consistent with the notion that managers

have greater entrenchment incentives to repurchase shares when the firms with higher takeover probability. The results are more pronounced for the CEOs of repurchasing firms with larger private control benefits or with more protected by antitakeover provisions. Moreover, we find limited evidence of managerial entrenchment effect on the initial market reaction, it is more likely to support that the market completely undoes the effects of managerial entrenchment at the announcement of an open-market repurchase. Furthermore, even we control for the effect of earnings management and market competition, we still find evidence of the significantly negative association between post-repurchase performance and the tendency of managerial entrenchment.

Our results contribute to the literature on open-market repurchases by documenting open-market repurchase as a tool for management entrenching his position, and the literature on post-repurchase abnormal returns and operating performance by providing a new way to explain the post-repurchase drifts. However, although we find strong evidence suggesting that managerial entrenchment is associated with the post-repurchase worse performance, we do not rule out that other factors may also contribute to the superior performance. It is plausible caused by motives for undervaluation and by pre-repurchase downward earnings management.

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Appendix: Variable Definitions

Variable	Definitions
	Panel A: OMR Firm Characteristics
CASHDIV *(Cash dividends)*	Cash dividends (#127) divided by net income (#172).
FCF *(Free cash flow)*	Operating income before depreciation (#13) minus interest expenses (#15), the sum of preferred and common dividends (#19+#21), and income taxes (excluding deferred taxes) (#16-△#35), all scaled by total assets (#6).
High (Low) TOPROB	Dummy variable: 1 if the firms with top (bottom) quintile of TOPROB, 0 otherwise.
Intend Ratio	The percentage of shares intends to repurchase.
ITODUM *(Industry takeover dummy)*	Dummy variable: 1 if at least one firm in the same industry (same four-digit SIC code) is a takeover target, 0 otherwise.
LEV *(Leverage)*	The book value of debt (#34+#9) divided by total assets (#6).
LEVBIA *(Industry-adjusted book value of leverage)*	Debt (#34+#9) divided by assets (#6), minus the median ratio for all firms within the same two-digit SIC code.
MKBK *(Market-to-book ratio)*	Market value of common stock (CRSP Capitalization) to the book value of equity (#60).
NONOPI *(Nonoperating income)*	Nonoperating income (#61) scaled by total assets (#6).
NPPE *(Fixed assets)*	Net plant, property, and equipment (#8) scaled by total assets (#6).
REP *(Actual share repurchases)*	Purchase of Stock (#93) minus the decrease in preferred stock (#55) or redeemable preferred stock (#71) in the quarter of the announcement and the following quarter, all scaled by firm's market value (CRSP Capitalization).
ROAIA *(Industry-adjusted return on assets)*	Operating income before depreciation (#13) divided by total assets (#6), minus the median ratio for all firms within the same two-digit SIC code.
ROE *(Return on equity)*	Net income (#172) divided by the book value of equity (#60).
SALEGR *(Sales growth)*	Log of the ratio of sales (#12) over the sales of the previous year.
SIZE *(Size of asset)*	Log of total asset (#6), where total assets is inflated to 2003 dollars using the consumer price index (CPI).
SIZEEQ *(Size of equity)*	Log of common equity (CRSP Capitalization), which is the number of shares outstanding times the year-end price and price is inflated to 2003 dollars using the CPI
TODUM *(Takeover dummy)*	Dummy variable: 1 if the firm is a takeover target in a given year, 0 otherwise.
TOPROB	Firm's estimated takeover probability.

(*Continued*)

Appendix: Variable Definitions - *Continued*

Variable	Definitions
Panel B: Firm's Performance	
Abnormal Announcement Returns (CAR[-2,2])	Firm's cumulative return adjusted by the corresponding Size (decile) and Market-to-Book (quintile) equal-weighted portfolio return.
One (Two) year BHARs	Firm's buy-and-holder return over the 12-month (24-month) period after the month of the open-market repurchase announcement, it is adjusted by the corresponding Size (decile) and Market-to-Book (quintile) equal-weighted portfolio return.
Operating Performance	Operating income (#21) divided by the average of cash-adjusted assets (i.e., book value of assets (#44) minus cash and short-term investments (#36)) at the beginning and end of the fiscal quarter.
Prior AR	Firm's buy-and-holder return over the 12-month period before the month of the open-market repurchase announcement, it is adjusted by the corresponding Size (decile) and Market-to-Book (quintile) equal-weighted portfolio return.
Panel C: Private Control Benefit and Entrenchment index	
Entrenchment index	It is taken from Bebchuk, Cohen, and Ferrell (2009), based on six antitakeover provisions. Higher index levels correspond to more managerial entrenchment.
Private Control Benefit (PCB)	It is constructed as the sum of the percentage of CEO stock holding (ExecuComp), binary variable for the CEO's tenure with the firm exceeds two years (ExecuComp), proportion secured debt (#241) of total debt (#9+#34), and size where size = $[\ln(\#6)-\mu] / \sigma$, and μ and σ are the mean and standard deviation of $\ln(\#6)$, respectively.
Panel D: Earnings Management	
ABACC (Abnormal accruals)	The average of the industry-performance-adjusted abnormal total accruals in the quarter of the announcement and the preceding quarter.
Asset (Total assets)	Total assets at the beginning of the quarter (#44).
PPE (Property, plant, and equipment)	Property, plant, and equipment at the beginning of the quarter (#42).
SALE (Sales)	Sales at the end of the quarter (#2).
TA (Total accruals)	Change in current assets (#40) minus change in current liabilities (#49) minus change in cash and cash equivalents (#36) plus change in debt included in current liabilities (#45) minus depreciation and amortization expense (#5).
Panel E: Market Competition	
Competitive (Competitive industry)	Dummy variable: 1 if firm operating in bottom quartile of all OMR firms that sort by the Herfindahl index.
Herfindahl Index	The sum of the squares of market shares of all the firms in a particular industry for a particular year. The market share is measured as a firm's sales revenue (#12) divided by the total sales revenue available in that market.
Unique (Unique industry)	Dummy variable: 1 if firm operating in top quartile of all OMR firms that sort by the Herfindahl index.

Table I

Descriptive Statistics

This table reports descriptive statistics of the firm-year sample (Panel A) for estimating ex ante takeover probability, and descriptive statistics of open-market repurchase sample (Panel B). Panel C provides the sample distribution by year. Variables definitions are in the Appendix. *ROAIA*, *LEVBIA*, *MKBK*, *SALEGR*, *NPPE*, *FCF*, *ROE*, *LEV*, *NONOPI*, and *CASHDIV* are winsorized at 1% and 99% percentiles.

Panel A: All Variables for Estimated Model					
Variable	N	Min	Mean	Median	Max
TODUM	24,788	0.0000	0.0581	0.0000	1.0000
ROAIA	24,788	-0.6014	-0.0049	0.0010	0.2729
SIZEEQ	24,788	1.6534	5.9738	5.7983	13.4081
LEVBIA	24,788	-0.3144	0.0179	0.0000	0.6015
MKBK	24,788	0.1327	3.1440	2.1306	24.0198
SALEGR	24,788	-0.7802	0.1446	0.0982	1.7030
NPPE	24,788	0.0152	0.3029	0.2504	0.8946
ITODUM	24,788	0.0000	0.1120	0.0000	1.0000
Panel B: All Variables for Sample Firms					
Variable	N	Min	Mean	Median	Max
FCF	3,270	-0.4456	0.1044	0.1022	0.2764
ROE	3,270	-1.4072	0.1399	0.1417	0.5555
SIZE	3,270	2.4240	6.4687	6.2777	12.6769
LEV	3,270	0.0000	0.1908	0.1771	0.7941
NONOPI	3,270	-0.0207	0.0098	0.0060	0.0683
MKBK	3,270	0.4226	3.1482	2.2983	21.7427
CASHDIV	3,270	-1.1532	0.1775	0.0662	2.8066
Prior AR	3,270	-1.2244	-0.0494	-0.0961	4.1829
Institutional Blockholder	3,212	0.0000	0.1418	0.1187	0.9460
REP	3,270	0.0000	0.0620	0.0344	1.6255
Intend ratio	3,270	0.0011	0.0737	0.0554	0.9864
Private Control Benefits	1,523	-3.1821	-0.1957	-0.1440	2.6547
Entrenchment index	1,813	0.0000	2.2962	2.0000	6.0000
ABACC	3,161	-0.2305	-0.0020	-0.0012	0.2366
Herfindahl Index	3,270	0.0000	0.1336	0.0023	1.0000
Panel C: Sample distribution by Year					
Year		N		%	
1990		239		7.3089	
1991		96		2.9358	
1992		164		5.0153	
1993		160		4.8930	
1994		250		7.6453	
1995		274		8.3792	
1996		365		11.1621	
1997		342		10.4587	
1998		457		13.9755	
1999		341		10.4281	
2000		200		6.1162	
2001		146		4.4648	
2002		123		3.7615	
2003		113		3.4557	
1990-2003		3,270			

Table II
Takeover Probability Estimation

This table reports the estimation results of the ex ante probability that a firm will become a takeover target. We estimate a heteroscedastic probit model of takeover probability by maximum likelihood. We use the firm's characteristics as of the end of year $t-1$ and the observation of whether a firm becomes a target of a takeover attempt in year t to estimate the firm's takeover probability (**TOPROB**) at the beginning of year t. The sample consists of 24,788 all COMPUSTAT-CRSP firms between 1990 and 2003. The dependent variable, **TODUM**, equals one if the firm is a takeover target, and zero otherwise. Variable definitions are in the Appendix. Time trend dummy variables **D1**, **D2**, **D3**, **D4** and **D5** equal one if the observation comes from the 1990–1992, 1993–1995, 1996–1998, 1999-2001 and 2002–2003 periods, respectively, and zero otherwise. Standard errors are Huber-White quasi-maximum likelihood standard errors; and z-statistics are in parentheses.

Intercept	-1.2424
	(-10.215) ***
ROAIA	-0.1290
	(-0.122)
SIZEEQ	-0.0687
	(-1.733) *
LEVBIA	-0.1050
	(-0.168)
MKBK	-0.1671
	(-4.529) ***
SALEGR	-0.5305
	(-1.440)
NPPE	0.0106
	(0.024)
ITODUM	0.1980
	(3.431) ***
D2	0.1845
	(3.325) ***
D3	-0.0500
	(-0.940)
D4	-0.4578
	(-5.470) ***
D5	-0.7668
	(-6.219) ***
N	24,788
N (*TODUM*=1)	1,440
Wald χ^2 (d.f.=11)	132.39 ***
Log likelihood	-5264.68

Table III

Table III

The Determinants of Actual Share Repurchases

This table presents the Tobit regression results for the firm's decision to repurchase. The Tobit estimation of Actual Share Repurchases (**REP**) is performed with censoring at both zero and one. **REP** (dependent variable) is estimated by actual shares repurchases in the quarter of the announcement and the following quarter. Variable definitions are in the Appendix. Time trend dummy variables **D1**, **D2**, **D3**, **D4** and **D5** equal one if the observation comes from the 1990–1992, 1993–1995, 1996–1998, 1999-2001 and 2002–2003 periods, respectively, and zero otherwise. Numbers in parentheses are *t*-statistics. ***, **, and * stand for statistical significance based on two-sided tests at 1%, 5%, and 10% level, respectively.

	(1)	(2)
Intercept	0.0430	0.0597
	(3.176)***	(6.297)***
TOPROB	0.2271	
	(2.321)**	
LowTOPROB		-0.0040
		(-0.635)
HighTOPROB		0.0113
		(2.143)**
FCF	0.0023	-0.0076
	(0.069)	(-0.234)
ROE	0.0493	0.0484
	(3.683)***	(3.629)***
SIZEASSET	-0.0004	-0.0007
	(-0.321)	(-0.582)
LEV	-0.0042	-0.0005
	(-0.326)	(-0.036)
NONOPI	0.1262	0.1244
	(0.879)	(0.864)
MKBK	-0.0048	-0.0049
	(-7.138)***	(-7.336)***
CASHDIV	0.0100	0.0095
	(2.054)**	(1.949)*
Prior AR	0.0312	0.0306
	(7.531)***	(7.436)***
D2	-0.0114	-0.0105
	(-1.872)*	(-1.744)*
D3	0.0112	0.0108
	(2.064)**	(2.006)**
D4	0.0225	0.0186
	(3.226)***	(2.752)***
D5	0.0290	0.0234
	(3.095)***	(2.376)**
N	3,270	3,270
Log-likelihood	-1,209.66	-1,209.52

Table IV

Repurchase Stock Returns and Takeover Probability

This table provides summary statistics of repurchasing stock performances as well as univariate tests for differences in means and medians between repurchasing firms located in lowest and highest **TOPROB** subgroup. All the repurchasing firms are divided into quintiles by sorted **TOPROB**. **SigREP** (**LessREP**) is defined as open-market repurchase announcements followed by repurchasing shares (i.e., greater (less) than 1% of market value at the beginning of the quarter) either in the announcement quarter or the subsequent quarter. All the repurchasing firms are ranked in terms of private benefits, and top and bottom half are chosen as the **High** and **Low PCB** firms. **Dictatorship** is defined as firms with an Entrenchment index of 3 or above, and is **Democracy** otherwise. In each case the table displays the mean and median in stock returns measures for a particular subsample along with a test statistic. This test statistic provides the *t*-test (in case of means) and *Wilcoxon* test (in the case of medians). *N* refers to the number of observations. ***, **, and * denote significance levels of 1%, 5%, and 10%, respectively.

TOPROB	Whole					SigREP					LessREP				
	Mean		Median		N	Mean		Median		N	Mean		Median		N
Panel A: Abnormal Announcement Returns															
Whole	0.0160 ***		0.0155 ***		3,270	0.0140 ***		0.0145 ***		2,459	0.0220 ***		0.0191 ***		811
Low	0.0132 ***		0.0111 ***		663	0.0120 ***		0.0110 ***		544	0.0189 *		0.0135 **		119
Quintile II	0.0198 ***		0.0157 ***		664	0.0184 ***		0.0147 ***		514	0.0245 ***		0.0254 ***		150
Quintile III	0.0173 ***		0.0172 ***		660	0.0147 ***		0.0149 ***		500	0.0254 ***		0.0256 ***		160
Quintile IV	0.0143 ***		0.0135 ***		642	0.0124 ***		0.0116 ***		461	0.0190 ***		0.0187 ***		181
High	0.0153 ***		0.0183 ***		641	0.0123 ***		0.0181 ***		440	0.0219 ***		0.0185 ***		201
DIFF	-0.0021		-0.0072 **			-0.0004		-0.0071 *			-0.0030		-0.0050		
Panel B: One-year BHARs															
Whole	0.0359 ***		-0.0542 ***		3,270	0.0433 ***		-0.0387 ***		2,459	0.0138		-0.0930 ***		811
Low	0.1467 ***		0.0330 ***		663	0.1569 ***		0.0487 ***		544	0.0997		-0.0585		119
Quintile II	0.0624 **		-0.0375 **		664	0.0477 **		-0.0146		514	0.1125		-0.1026 *		150
Quintile III	0.0619 ***		0.0022		660	0.0718 ***		0.0146		500	0.0309		-0.0187		160
Quintile IV	-0.0039		-0.0696 ***		642	-0.0040		-0.0667 **		461	-0.0037		-0.0888		181
High	-0.0927 ***		-0.1714 ***		641	-0.0854 ***		-0.1588 ***		440	-0.1086 ***		-0.2139 ***		201
DIFF	0.2393 ***		0.2043 ***			0.2423 ***		0.2075 ***			0.2083 ***		0.1553 ***		
Panel C: Two-year BHARs															
Whole	0.0778 ***		-0.1104 ***		3,270	0.0719 ***		-0.0892 ***		2,459	0.0955		-0.1690 ***		811
Low	0.2334 ***		0.0488 ***		663	0.2786 ***		0.0655 ***		544	0.0269		-0.0554		119
Quintile II	0.1754 *		-0.0784 ***		664	0.0641 *		-0.0601 **		514	0.5567		-0.1968 **		150
Quintile III	0.1220 ***		-0.1124		660	0.1344 ***		-0.0895		500	0.0831		-0.1657		160
Quintile IV	-0.0279		-0.1462 ***		642	-0.0113		-0.1403 ***		461	-0.0700 *		-0.1479 ***		181
High	-0.1240 ***		-0.3104 ***		641	-0.1582 ***		-0.3257 ***		440	-0.0491		-0.2618 ***		201
DIFF	0.3574 ***		0.3592 ***			0.4368 ***		0.3912 ***			0.0760		0.2065 **		

(*Continued*)

Table IV - *Continued*

TOPROB	SigREP and High PCB			SigREP and Low PCB			SigREP and Dictatorship			SigREP and Democracy		
	Mean	Median	N	Mean	Median	N	Mean	Median	N	Mean	Median	N
Panel A: Abnormal Announcement Returns												
Whole	0.0116 ***	0.0153 ***	586	0.0124 ***	0.0137 ***	643	0.0085 ***	0.0104 ***	689	0.0128 ***	0.0143 ***	754
Low	0.0054	0.0090 *	181	0.0138 ***	0.0053 ***	211	0.0118 **	0.0080 **	158	0.0101 **	0.0113 ***	216
Quintile II	0.0255 ***	0.0178 ***	142	0.0168 ***	0.0146 ***	162	0.0097 **	0.0072 **	165	0.0278 ***	0.0200 ***	187
Quintile III	0.0170 **	0.0204 ***	120	0.0071 *	0.0112 ***	126	0.0085 *	0.0165 ***	155	0.0138 ***	0.0124 ***	147
Quintile IV	-0.0044	0.0041	83	0.0056	0.0132 **	94	0.0052	0.0071 **	118	-0.0021	0.0031	128
High	0.0087	0.0188 *	60	0.0186 **	0.0276 ***	50	0.0052	0.0158 **	93	0.0069	0.0237 ***	76
DIFF	-0.0033	-0.0098		-0.0048	-0.0223 **		0.0067	-0.0078		0.0032	-0.0124	
Panel B: One-year BHARs												
Whole	0.0675 ***	-0.0146	586	0.0583 ***	-0.0028	643	0.0273 **	-0.0119	689	0.0791 ***	0.0035	754
Low	0.1240 ***	0.0753 ***	181	0.0957 **	0.0349	211	0.0864 ***	0.0437 **	158	0.1111 **	0.0266	216
Quintile II	0.0824 **	-0.0146	142	0.0525 *	-0.0033	162	-0.0012	-0.0541 *	165	0.1611 ***	0.0545 **	187
Quintile III	0.0686 *	0.0129	120	0.0734	0.0291	126	0.0530 *	0.0152	155	0.0895 **	0.0361	147
Quintile IV	-0.0378	-0.1013 *	83	-0.0020	-0.0456 *	94	0.0096	-0.0210	118	-0.0615 *	-0.1027 ***	128
High	0.0051	-0.1277 **	60	-0.0056	-0.0804	50	-0.0430	-0.0692 **	93	0.0032	-0.0982	76
DIFF	0.1189 **	0.2030 ***		0.1013 *	0.1152 *		0.1294 ***	0.1129 ***		0.1079 *	0.1248 *	
Panel C: Two-year BHARs												
Whole	0.0981 ***	-0.0369	586	0.1240 ***	-0.0339	643	0.0469 *	-0.0884 **	689	0.1591 ***	-0.0286 *	754
Low	0.2781 ***	0.1257 ***	181	0.1641 ***	0.0713 ***	211	0.2139 ***	0.1075 ***	158	0.2336 ***	0.0431 ***	216
Quintile II	0.0584	-0.0257	142	0.1063	-0.0678 *	162	-0.0402	-0.1425 ***	165	0.2326 ***	0.0123 *	187
Quintile III	0.1008	-0.1668	120	0.1580 **	-0.0466	126	0.0783	-0.1503 *	155	0.1669 **	0.0140	147
Quintile IV	-0.0467	-0.1589 *	83	-0.0235	-0.1799 **	94	-0.0419	-0.1338 **	118	-0.0264	-0.1189 ***	128
High	-0.1563 **	-0.3499 ***	60	0.2033 *	0.0050	50	-0.0218	-0.1914 ***	93	0.0641	-0.1145 *	76
DIFF	0.4345 ***	0.4756 ***		-0.0392	0.0663		0.2357 **	0.2989 ***		0.1696 *	0.1576 ***	

Table V

Post-repurchase Stock Market Performance by Calendar-time Approach

This table reports monthly cumulative average abnormal returns (CAR) and monthly average AR for full sample and subsamples by takeover probability (*TOPROB*) quintiles. CAR is calculated by using Ibbotson's (1975) returns across time and security (IRATS) method combined with the Fama-French (1993) three-factor model. For each event month during 1 and 24 months around the month of open-market repurchase announcement, the following regression is estimated,

$$R_{it} - R_{ft} = \alpha_j + \beta_j(R_{mt} - R_{ft}) + s_j SMB_t + h_j HML_t + \varepsilon_{it}$$

where R_{it} is the monthly return on security i in the calendar month t corresponds to the event month j, with $j = 0$ being the month of the open-market repurchase announcement. R_{mt} is the equally weighted market return and R_{ft} is the risk free rate. SMB_t stands for small firm return premium and HML_t stands for high minus low book-to-market equity ratio return premium each month. Monthly average AR is calculated by using Fama-French (1993) three-factor model. *SigREP* (*LessREP*) is defined as open-market repurchase announcements followed by repurchasing shares (i.e., greater (less) than 1% of market value at the beginning of the quarter) either in the announcement quarter or the subsequent quarter. All the repurchasing firms are ranked in terms of private benefits, and top and bottom half are chosen as the *High* and *Low PCB* firms. *Dictatorship* is defined as firms with an Entrenchment index of 3 or above, and is *Democracy* otherwise. *Diff* is the mean difference between the highest and lowest takeover probability portfolios. To test for differences in the returns of the portfolios, we provide the two independent sample *t*-test for IRATS approach, and we regress the differences in the returns of two portfolios on the Fama-French (1993) three-factor for calendar-time approach. The significance levels are indicated by *, **, and ***, and correspond to a significance level of 10%, 5%, and 1%, respectively.

	Panel A: Whole Firms												

A1. Fama-French IRATS

	Full sample		Low		Quintile II		Quintile III		Quintile IV		High		Diff	
	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic
(+1 , +12)	2.73	3.36 ***	14.01	7.46 ***	2.98	1.71 *	3.96	2.44 **	2.99	1.32	-3.55	-2.09 **	17.56	5.94 ***
(+1 , +24)	6.17	5.36 ***	24.68	9.41 ***	11.23	4.27 ***	6.79	2.78 ***	0.11	0.04	-2.73	-1.05	27.40	6.70 ***
N	586		181		142		120		83		60			

A2. Fama-French calendar-time approach

	AR %	*t*- statistic	AR %	*t*- statistic	AR %	*t*- statistic	AR %	*t*- statistic	AR %	*t*- statistic	AR %	*t*- statistic	AR %	*t*- statistic
(+1 , +12)	0.33	1.93 *	1.36	3.24 ***	0.66	2.56 **	0.48	1.33	-0.36	-0.77	-1.43	-1.87 *	3.02	3.36 ***
(+1 , +24)	0.34	2.46 **	0.89	3.71 ***	0.88	3.68 ***	0.68	1.73 *	-0.09	-0.16	-0.05	-0.06	1.03	1.10

	Panel B: SigREP Firms												

B1. Fama-French IRATS

	Full sample		Low		Quintile II		Quintile III		Quintile IV		High		Diff	
	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic
(+1 , +12)	3.35	3.99 ***	15.02	7.46 ***	3.37	1.81 *	2.88	1.60	2.11	1.14	-2.21	-1.11	17.23	7.05 ***
(+1 , +24)	7.20	5.84 ***	26.46	9.46 ***	10.13	3.76 ***	6.98	2.51 **	0.55	0.20	-3.26	-1.07	29.72	7.53 ***
N	643		211		162		126		94		50			

B2. Fama-French calendar-time approach

	AR %	*t*- statistic	AR %	*t*- statistic	AR %	*t*- statistic	AR %	*t*- statistic	AR %	*t*- statistic	AR %	*t*- statistic	AR %	*t*- statistic
(+1 , +12)	0.40	2.48 **	1.41	3.29 ***	0.66	2.61 ***	0.39	1.07	0.46	0.79	-0.54	-1.61	2.10	3.20 ***
(+1 , +24)	0.35	2.63 ***	1.05	3.82 ***	0.76	3.13 ***	0.81	2.02 **	0.35	0.90	-0.83	-1.56	2.13	3.35 ***

(*Continued*)

Table V - *Continued*

	Panel C: SigREP and High PCB Firms												

C1. Fama-French IRATS

	Full sample		Low		Quintile II		Quintile III		Quintile IV		High		Diff	
	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic
(+1 , +12)	5.97	3.53 ***	16.98	5.07 ***	6.70	1.75 *	0.45	0.12	-0.30	-0.07	2.70	0.56	14.28	2.90 ***
(+1 , +24)	8.97	3.74 ***	29.48	6.53 ***	11.58	2.15 **	2.52	0.47	-1.86	-0.29	-5.52	-0.80	35.00	3.91 ***
N	586		181		142		120		83		60			

C2. Fama-French calendar-time approach

	AR %	*t*- statistic	AR %	*t*- statistic	AR %	*t*- statistic	AR %	*t*- statistic	AR %	*t*- statistic	AR %	*t*- statistic	AR %	*t*- statistic
(+1 , +12)	0.70	3.08 ***	1.79	3.16 ***	1.81	3.39 ***	-0.04	-0.10	-0.33	-0.67	0.32	0.59	1.76	2.43 **
(+1 , +24)	0.37	2.03 **	1.27	2.97 ***	1.12	2.49 **	0.63	1.56	0.03	0.07	-0.35	-1.02	1.88	2.41 **

	Panel D: SigREP and Low PCB Firms												

D1. Fama-French IRATS

	Full sample		Low		Quintile II		Quintile III		Quintile IV		High		Diff	
	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic
(+1 , +12)	3.53	2.34 **	9.91	3.24 ***	3.96	1.29	1.12	0.33	1.13	0.34	0.62	0.13	9.28	1.34
(+1 , +24)	8.24	3.90 ***	16.22	4.04 ***	10.13	2.31 **	8.21	1.62	-12.25	-2.59 ***	9.91	1.47	6.32	0.73
N	643		211		162		126		94		50			

D2. Fama-French calendar-time approach

	AR %	*t*- statistic	AR %	*t*- statistic	AR %	*t*- statistic	AR %	*t*- statistic	AR %	*t*- statistic	AR %	*t*- statistic	AR %	*t*- statistic
(+1 , +12)	0.23	1.03	0.92	2.84 ***	0.01	0.04	0.92	1.52	0.14	0.38	-0.09	-0.11	0.70	0.53
(+1 , +24)	0.28	1.50	0.74	2.71 ***	0.06	0.18	0.83	1.93 *	-0.56	-1.58	1.03	1.70 *	-0.42	-0.48

(*Continued*)

Table V - *Continued*

	Full sample		Low		Quintile II		Quintile III		Quintile IV		High		Diff	

Panel E: SigREP and Dictatorship Firms

E1. Fama-French IRATS

	Full sample		Low		Quintile II		Quintile III		Quintile IV		High		Diff	
	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic
(+1 , +12)	2.81	2.05 **	12.16	3.75 ***	0.98	0.32	0.99	0.33	2.52	0.90	-3.20	-0.88	15.36	3.13 ***
(+1 , +24)	4.50	2.27 **	23.12	5.31 ***	1.00	0.23	0.87	0.19	-5.21	-1.26	-0.93	-0.17	24.04	3.27 ***
N	689		158		165		155		118		93			

E2. Fama-French calendar-time approach

	AR %	*t*-statistic	AR %	*t*-statistic	AR %	*t*-statistic	AR %	*t*-statistic	AR %	*t*-statistic	AR %	*t*-statistic	AR %	*t*-statistic
(+1 , +12)	0.27	1.40	1.26	2.80 ***	0.48	1.66 *	0.10	0.25	-0.08	-0.24	-1.53	-2.67 ***	3.60	2.71 ***
(+1 , +24)	0.18	1.11	1.13	3.23 ***	0.14	0.57	0.31	1.12	-0.17	-0.57	-0.20	-0.50	1.66	1.99 **

Panel F: SigREP and Democracy Firms

F1. Fama-French IRATS

	Full sample		Low		Quintile II		Quintile III		Quintile IV		High		Diff	
	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic	CAR %	*t*-statistic
(+1 , +12)	5.41	3.59 ***	12.26	3.75 ***	8.70	2.81 ***	6.53	2.06 **	-3.89	-1.22	-0.41	-0.09	12.67	1.78 *
(+1 , +24)	13.73	6.48 ***	22.56	5.19 ***	20.61	4.65 ***	15.98	3.47 ***	-3.28	-0.71	3.36	0.51	19.20	2.01 **
N	754		216		187		147		128		76			

F2. Fama-French calendar-time approach

	AR %	*t*-statistic	AR %	*t*-statistic	AR %	*t*-statistic	AR %	*t*-statistic	AR %	*t*-statistic	AR %	*t*-statistic	AR %	*t*-statistic
(+1 , +12)	0.42	2.11 **	0.73	2.08 **	1.03	2.92 ***	0.66	1.92 *	0.01	0.02	0.55	1.06	-0.42	-0.53
(+1 , +24)	0.55	3.36 ***	0.74	2.63 ***	0.87	3.10 ***	0.98	2.99 ***	0.41	0.83	0.47	1.35	0.001	0.002

Table VI

Multivariate Analysis of Stock Returns, Takeover Probabilities, and Actual Repurchases

$$StockPerformance_i = \alpha + \beta_1 REP_i + \beta_2 TOPROB_i * REP_i + \beta_3 TOPROB_i + \beta_4 Intend\ ratio_i + \beta_5 \Pr iorAR_i$$

$$+ \beta_6 Size_i + \beta_7 MKBK_i + \beta_8 FCF_i + \beta_9 LEV_i + \sum_{j=2}^{5} \gamma_j D_j + \varepsilon_i$$

This table reports the regression results in stock performances. The dependent variable, **StockPerformance**, is abnormal stock return. Variable definitions are in the Appendix. Numbers in parentheses are *t*-statistics with adjusted for heteroskedasticity (White (1980)). ***, **, and * stand for statistical significance based on two-sided tests at 1%, 5%, and 10% level, respectively. All regressions control for year fixed effects, whose estimates are suppressed.

	Announcement Returns		One-year BHARs		Two-year BHARs	
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	0.0765	0.0453	0.6705	-0.0050	1.2279	0.0487
	(6.378)***	(5.651)***	(5.961)***	(-0.085)	(4.024)***	(0.380)
REP	0.0187	0.0738	0.2580	0.9755	0.1424	1.1724
	(1.247)	(2.032)**	(1.987)**	(2.611)***	(2.568)***	(2.166)**
*TOPROB*REP*		-0.7606		-10.1206		-14.6977
		(-2.092)**		(-2.587)***		(-2.854)***
TOPROB	-0.3106		-6.6175		-11.5008	
	(-3.520)***		(-8.879)***		(-6.027)***	
Intend ratio	-0.0001	-0.0001	0.0032	0.0031	0.0024	0.0021
	(-0.416)	(-0.411)	(1.324)	(1.240)	(1.092)	(0.934)
Prior AR	-0.0137	-0.0116	-0.1096	-0.0614	-0.1751	-0.0892
	(-2.976)***	(-2.564)**	(-3.430)***	(-1.956)*	(-3.867)***	(-1.940)*
SIZEASSET	-0.0050	-0.0039	-0.0299	-0.0052	-0.0643	-0.0209
	(-4.282)***	(-3.441)***	(-3.583)***	(-0.744)	(-3.343)***	(-1.556)
MKBK	-0.0011	-0.0006	-0.0081	0.0015	-0.0184	-0.0017
	(-1.661)*	(-1.002)	(-1.753)*	(0.372)	(-2.696)***	(-0.302)
FCF	-0.0410	-0.0160	-0.4563	0.1274	-0.6593	0.3789
	(-1.424)	(-0.594)	(-2.070)**	(0.610)	(-1.942)*	(1.408)
LEV	0.0166	0.0039	0.1133	-0.1709	0.3856	-0.1151
	(1.427)	(0.343)	(1.340)	(-2.064)**	(2.596)***	(-0.576)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	3,270	3,270	3,270	3,270	3,270	3,270
Adj. R^2	0.010	0.008	0.036	0.009	0.014	0.002
F-value	3.86	3.07	11.27	3.61	4.73	1.09

Table VII
Multivariate Analysis of Stock Returns, Takeover Probabilities, and PCB, Entrenchment index

$$StockPerformance_i = \alpha_i + \beta_1 TOPROB_i + \beta_2 PCB_i * TOPROB_i + \beta_3 Dictatorship_i * TOPROB_i + \beta_4 REP + \beta_5 Intend\ ratio_i$$

$$+ \beta_6 \Pr iorAR_i + \beta_7 Size_i + \beta_8 MKBK_i + \beta_9 FCF_i + \beta_{10} LEV_i + \sum_{j=3}^{5} \gamma_j D_j + \varepsilon_i$$

This table reports the regression results in stock performances for firms with significant actual repurchases. The dependent variable **StockPerformance**, is abnormal stock return. **Dictatorship** is a binary variable indicating that firms with the Entrenchment index of 3 or above. Variable definitions are in the Appendix. Numbers in parentheses are t-statistics with adjusted for heteroskedasticity (White (1980)). ***, **, and * stand for statistical significance based on two-sided tests at 1%, 5%, and 10% level, respectively. All regressions control for year fixed effects, whose estimates are suppressed.

	Announcement Returns		One-year BHARs		Two-year BHARs	
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	0.0451	0.0469	0.7780	0.3920	1.3619	0.7211
	(2.050)**	(2.892)***	(3.231)***	(2.298)**	(4.427)***	(3.167)***
TOPROB	-0.3352	-0.3289	-3.7375	-2.4066	-7.3234	-3.8594
	(-2.214)**	(-2.535)**	(-2.397)**	(-1.945)*	(-3.985)***	(-2.284)**
*PCB * TOPROB*	0.0114		-1.1541		-2.4841	
	(0.199)		(-2.488)**		(-3.789)***	
*Dictatorship * TOPROB*		-0.0336		-0.4612		-1.5325
		(-0.558)		(-2.123)**		(-1.965)**
REP	0.0736	0.0558	0.3858	0.3150	0.8195	0.5997
	(2.354)**	(2.326)**	(1.796)*	(1.852)*	(2.641)***	(2.269)**
Intend ratio	0.0003	0.0004	0.0004	0.0004	-0.0003	-0.0039
	(0.838)	(1.007)	(0.163)	(0.166)	(-0.063)	(-1.054)
PriorAR	-0.0160	-0.0159	-0.1921	-0.1524	-0.3284	-0.2160
	(-2.447)**	(-2.624)***	(-4.200)***	(-3.447)***	(-5.110)***	(-3.036)***
SIZEASSET	0.0004	0.0005	-0.0496	-0.0167	-0.1048	-0.0478
	(0.218)	(0.336)	(-2.649)***	(-1.427)	(-4.276)***	(-2.821)***
MKBK	-0.0001	-0.0001	0.0006	0.0003	-0.0019	-0.0042
	(-0.188)	(-0.215)	(0.101)	(0.055)	(-0.273)	(-0.574)
FCF	-0.1116	-0.1313	-0.2651	-0.3686	0.2308	0.2386
	(-2.473)**	(-3.155)***	(-0.758)	(-1.116)	(0.353)	(0.393)
LEV	-0.0133	-0.0272	-0.1833	-0.1573	0.2073	0.2430
	(-0.760)	(-1.636)	(-1.244)	(-1.262)	(1.169)	(1.432)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	1,229	1,443	1,229	1,443	1,229	1,443
Adj R^2	0.011	0.017	0.035	0.022	0.045	0.021
F-value	2.15	3.10	4.75	3.75	5.81	3.54

Table VIII

Change in Quarterly Operating Performance

This table provides summary statistics of changes in firm operating performance (i.e., return on assets) as well as univariate tests for differences in means and medians between repurchasing firms located in lowest and highest **TOPROB** subgroup. All the repurchasing firms are divided into quintiles by sorted **TOPROB**. Change in operating performance is adjusted by Lie's (2005) performance matching procedure. Performance-adjusted operating performance is the paired difference between the operating performance of the sample firms and the operating performance of their respective industry- and performance- and M/B-matched control firms. Quarter 0 is the fiscal quarter of the repurchase announcement. **SigREP** (**LessREP**) is defined as open-market repurchase announcements followed by repurchasing shares (i.e., greater (less) than 1% of market value at the beginning of the quarter) either in the announcement quarter or the subsequent quarter. All the repurchasing firms are ranked in terms of private benefits, and top and bottom half are chosen as the **High** and **Low PCB** firms. **Dictatorship** is defined as firms with an Entrenchment index of 3 or above, and is **Democracy** otherwise. In each case the table displays the mean and median in stock returns measures for a particular time window (relative to the repurchase announcement quarter) along with a test statistic. This test statistic provides the *t*-test (in case of means) and *Wilcoxon* test (in the case of medians). *N* refers to the number of observations. ***, **, and * denote significance levels of 1%, 5%, and 10%, respectively.

TOPROB	0 to +1			0 to +2			0 to +4			0 to +8		
	Mean	Median	N	Mean	Median	N	Mean	Median	N	Mean	Median	N
Panel A: Whole Firms												
Whole	0.0083 ***	0.0020 ***	2810	0.0084 ***	0.0025 ***	2772	0.0088 ***	0.0027 ***	2710	0.0159 ***	0.0040 ***	2566
Low	0.0145 ***	0.0041 ***	587	0.0161 ***	0.0040 ***	578	0.0157 ***	0.0048 ***	568	0.0380 ***	0.0081 ***	549
Quintile II	0.0090 ***	0.0014 ***	582	0.0092 ***	0.0029 ***	575	0.0118 ***	0.0031 ***	558	0.0175 ***	0.0047 ***	528
Quintile III	0.0067 ***	0.0021 ***	559	0.0063 ***	0.0018 ***	552	0.0108 ***	0.0045 ***	537	0.0137 ***	0.0064 ***	508
Quintile IV	0.0040 **	0.0009 *	529	0.0042 **	0.0012 **	522	0.0022	0.0004	506	0.0009	0.0011	488
High	0.0070 ***	0.0012 *	553	0.0053 ***	0.0013 **	545	0.0028	-0.0002	541	0.0066 **	0.0002	493
DIFF	0.0075	0.0029 ***	.	0.0108 ***	0.0028 ***	.	0.0129 ***	0.0050 ***	.	0.0313 **	0.0079 ***	
Panel B: SigREP Firms												
Whole	0.0080 ***	0.0019 ***	2124	0.0079 ***	0.0026 ***	2095	0.0099 ***	0.0032 ***	2052	0.0175 ***	0.0044 ***	1927
Low	0.0157 **	0.0047 ***	484	0.0168 ***	0.0051 ***	475	0.0159 ***	0.0055 ***	467	0.0435 ***	0.0080 ***	457
Quintile II	0.0068 ***	0.0011 **	453	0.0078 ***	0.0027 ***	447	0.0133 **	0.0037 ***	434	0.0131 ***	0.0048 ***	404
Quintile III	0.0060 ***	0.0023 ***	420	0.0054 ***	0.0019 ***	418	0.0104 ***	0.0051 ***	410	0.0145 ***	0.0069 ***	382
Quintile IV	0.0027	-0.0001	381	0.0024	0.0009	375	0.0035 *	0.0004	365	0.0017	0.0016	342
High	0.0070 ***	0.0011 *	386	0.0049 **	0.0009 *	380	0.0043 **	-0.0007	376	0.0071 **	-0.0007	342
DIFF	0.0086	0.0037 ***		0.0119 ***	0.0042 ***		0.0116 ***	0.0061 ***		0.0364 **	0.0087 ***	
Panel C: LessREP Firms												
Whole	0.0095 ***	0.0023 ***	686	0.0099 ***	0.0022 ***	677	0.0054 **	0.0020 **	658	0.0110 ***	0.0028 ***	639
Low	0.0089	0.0016	103	0.0128	-0.0028	103	0.0148 **	0.0027	101	0.0105	0.0098 **	92
Quintile II	0.0167 *	0.0025 *	129	0.0143 ***	0.0056 ***	128	0.0067	0.0017	124	0.0318 ***	0.0039 **	124
Quintile III	0.0087 **	0.0013 *	139	0.0091 **	0.0017 **	134	0.0123 ***	0.0021 **	127	0.0112 **	0.0052 **	126
Quintile IV	0.0075 ***	0.0035 **	148	0.0087 ***	0.0021 **	147	-0.0014	-0.0008	141	-0.0009	0.0002	146
High	0.0068 *	0.0015	167	0.0062 *	0.0025	165	-0.0007	0.0020	165	0.0056 *	0.0018	151
DIFF	0.0021	0.0001		0.0066	-0.0053		0.0155	0.0007		0.0049	0.0080	

(*Continued*)

Table VIII - *Continued*

TOPROB	0 to +1			0 to +2			0 to +4			0 to +8		
	Mean	Median	N	Mean	Median	N	Mean	Median	N	Mean	Median	N
Panel D: SigREP and High PCB												
Whole	0.0054 ***	0.0024 ***	506	0.0088 ***	0.0044 ***	497	0.0123 ***	0.0047 ***	493	0.0167 ***	0.0064 ***	457
Low	0.0050	0.0051 ***	160	0.0158 ***	0.0093 ***	155	0.0218 ***	0.0086 ***	157	0.0238 ***	0.0128 ***	149
Quintile II	0.0104 ***	0.0056 ***	123	0.0096 **	0.0040 **	122	0.0071 **	0.0030 **	119	0.0150 **	0.0050 **	109
Quintile III	0.0027	0.0018	104	0.0015	0.0013 *	105	0.0121 ***	0.0051 ***	102	0.0176 ***	0.0095 ***	96
Quintile IV	0.0042	0.0009	65	0.0051	0.0057 *	63	0.0034	-0.0007	61	-0.0019	0.0022	60
High	0.0019	0.0006	54	0.0054	0.0026	52	0.0060 *	0.0010	54	0.0200 *	-0.0027	43
DIFF	0.0032	0.0044 *		0.0104 *	0.0067 *		0.0158 **	0.0076 **		0.0037	0.0155 ***	
Panel E: SigREP and Low PCB												
Whole	0.0039 ***	0.0011 ***	549	0.0054 ***	0.0011 ***	544	0.0060 ***	0.0019 ***	530	0.0095 ***	0.0035 ***	512
Low	0.0053 ***	0.0022 ***	184	0.0098 ***	0.0014 **	183	0.0066 ***	0.0019 **	175	0.0108 ***	0.0048 ***	180
Quintile II	0.0014	-0.0007	141	0.0035	0.0027 *	139	0.0047	0.0032 ***	136	0.0099 ***	0.0048 **	127
Quintile III	0.0046 *	0.0013 *	102	0.0047 *	0.0007	101	0.0083 **	0.0034 *	101	0.0099 **	0.0028 **	94
Quintile IV	0.0038 *	0.0020	75	0.0010	0.0008	73	0.0033	0.0004	71	0.0037	0.0017	68
High	0.0051 *	-0.0002	47	0.0019	-0.0019	48	0.0062	-0.0006	47	0.0106 **	0.0022	43
DIFF	0.0001	0.0024		0.0079 **	0.0033		0.0004	0.0025		0.0002	0.0026	

(*Continued*)

Table VIII - *Continued*

TOPROB	0 to +1			0 to +2			0 to +4			0 to +8		
	Mean	Median	N	Mean	Median	N	Mean	Median	N	Mean	Median	N
Panel D: SigREP and Dictatorship												
Whole	0.0043 **	0.0006 *	602	0.0049 ***	0.0022 ***	593	0.0080 ***	0.0031 ***	582	0.0103 ***	0.0040 ***	548
Low	0.0049	0.0018 *	138	0.0117 ***	0.0026 **	135	0.0135 ***	0.0038 ***	131	0.0126 ***	0.0054 ***	130
Quintile II	0.0053	0.0010	147	0.0049 *	0.0044 ***	145	0.0052 *	0.0037 ***	142	0.0069 *	0.0060 ***	132
Quintile III	0.0024	-0.0012	126	0.0023	0.0016	125	0.0105 ***	0.0051 ***	121	0.0104 ***	0.0060 ***	113
Quintile IV	0.0012	-0.0007	105	0.0013	0.0009	102	0.0050 **	0.0015	102	0.0093 **	0.0015 *	95
High	0.0081 *	0.0005	86	0.0024	-0.0004	86	0.0043 *	-0.0016	86	0.0136 *	0.0006	78
DIFF	-0.0033	0.0012		0.0093 **	0.0030		0.0093 *	0.0054 **		-0.0010	0.0048 **	
Panel E: SigREP and Democracy												
Whole	0.0059 ***	0.0028 ***	651	0.0076 ***	0.0017 ***	646	0.0091 ***	0.0025 ***	633	0.0125 ***	0.0045 ***	597
Low	0.0080 ***	0.0054 ***	193	0.0182 ***	0.0064 ***	192	0.0142 ***	0.0047 ***	188	0.0149 ***	0.0097 ***	187
Quintile II	0.0061 **	0.0009 **	163	0.0076 **	0.0014 *	159	0.0092 **	0.0031 **	155	0.0223 ***	0.0062 ***	143
Quintile III	0.0062 ***	0.0037 **	125	0.0035	0.0002	125	0.0097 ***	0.0030 ***	126	0.0093 **	0.0069 ***	114
Quintile IV	0.0035	0.0007	102	-0.0041	-0.0025	102	0.0001	-0.0007	97	-0.0003	-0.0023	94
High	0.0024	-0.0006	68	0.0027	-0.0005	68	0.0064	-0.0006	67	0.0078 *	-0.0032	59
DIFF	0.0056	0.0060 **		0.0155 ***	0.0069 ***		0.0078	0.0053 *		0.0070	0.0129 **	

Table IX

**Repurchase Stock Returns Controlling for Earnings Management
and Market Competition**

$$StockPerformance_i = \alpha_i + \beta_1 TOPROB_i * REP_i + \beta_2 PCB_i * TOPROB_i + \beta_3 Dictatorship_i * TOPROB_i + \beta_4 TOPROB_i + \beta_5 REP + \beta_6 ABACC_i + \beta_7 Competitive_i$$

$$+ \beta_8 Unique_i + \beta_9 Intend\ ratio_i + \beta_{10} PriorAR_i + \beta_{11} Size_i + \beta_{12} MKBK_i + \beta_{13} FCF_i + \beta_{14} LEV_i + \sum_{j=2}^{5} \gamma_j D_j + \varepsilon_i$$

This table reports the regression results in stock performances. The dependent variable, **StockPerformance**, is abnormal stock return. **Dictatorship** is a binary variable indicating that the Entrenchment index with firm is of 3 or above. Variable definitions are in the Appendix. All Models, exception of model (1), (4), and (7), are restricted to the firms with significant actual repurchases. Variable definitions are in the Appendix. Numbers in parentheses are *t*-statistics with adjusted for heteroskedasticity (White (1980)). ***, **, and * stand for statistical significance based on two-sided tests at 1%, 5%, and 10% level, respectively. All regressions control for year fixed effects, whose estimates are suppressed.

	Announcement Returns			One-year BHARs			Two-year BHARs		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Intercept	0.0338	0.0403	0.0460	-0.0277	0.7328	0.3814	-0.0694	1.3671	0.6796
	(4.072)***	(1.753)*	(2.744)***	(-0.455)	(3.101)***	(2.222)**	(-0.787)	(4.431)***	(2.985)***
TOPROB * REP	-0.6965			-9.0919			-13.3312		
	(-1.965)**			(-2.387)**			(-2.668)***		
PCB * TOPROB		0.0204			-1.1334			-2.4931	
		(0.350)			(-2.396)**			(-3.777)***	
Dictatorship * TOPROB			-0.0456			-0.5406			-1.6550
			(-0.747)			(-2.290)**			(-2.115)**
TOPROB		-0.3439	-0.3464		-3.8885	-2.6055		-7.7538	-4.1113
		(-2.238)**	(-2.583)***		(-2.460)**	(-1.997)**		(-4.215)***	(-2.361)**
REP	0.0580	0.0675	0.0475	0.9053	0.3543	0.2736	1.0337	0.8444	0.5436
	(1.607)	(2.110)**	(1.931)*	(2.439)**	(1.598)	(1.519)	(1.882)*	(2.689)***	(1.982)**

(*Continued*)

Table IX - *Continued*

	Announcement Returns			One-year BHARs			Two-year BHARs		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
ABACC	-0.0598	-0.1046	-0.1703	-1.0468	-1.1718	-1.2438	-1.0303	-1.7066	-2.2071
	(-1.028)	(-1.749)*	(-2.557)**	(-2.344)**	(-2.416)**	(-2.313)**	(-1.709)*	(-2.075)**	(-2.387)**
Competitive	0.0122	0.0101	0.0064	0.0069	0.0277	-0.0042	0.1274	-0.0572	0.0222
	(2.825)***	(1.384)	(1.062)	(0.184)	(0.420)	(-0.074)	(1.150)	(-0.768)	(0.288)
Unique	0.0018	0.0002	-0.0039	-0.0539	-0.0900	-0.0734	-0.0379	-0.1368	-0.1042
	(0.499)	(0.035)	(-0.881)	(-2.269)**	(-2.873)***	(-2.443)**	(-0.980)	(-2.560)**	(-2.186)**
Intend ratio	-0.0001	0.0003	0.0003	0.0027	-0.0001	-0.0001	0.0011	-0.0007	-0.0052
	(-0.495)	(0.746)	(0.832)	(1.062)	(-0.003)	(-0.001)	(0.504)	(-0.155)	(-1.358)
PriorAR	-0.0129	-0.0166	-0.0156	-0.0571	-0.2044	-0.1533	-0.0870	-0.3340	-0.2091
	(-2.802)***	(-2.474)**	(-2.548)**	(-1.730)*	(-4.275)***	(-3.304)***	(-1.833)*	(-5.049)***	(-2.929)***
SIZE	-0.0027	0.0011	0.0011	0.0014	-0.0372	-0.0087	-0.0042	-0.0927	-0.0341
	(-2.222)**	(0.511)	(0.712)	(0.175)	(-1.995)**	(-0.705)	(-0.362)	(-3.709)***	(-1.923)*
MKBK	-0.0008	-0.0001	-0.0001	0.0018	0.0014	0.0008	-0.0028	-0.0014	-0.0036
	(-1.238)	(-0.182)	(-0.192)	(0.417)	(0.227)	(0.126)	(-0.449)	(-0.190)	(-0.476)
FCF	0.0003	-0.1145	-0.1379	0.1243	-0.2882	-0.4050	0.4792	0.2049	0.2708
	(0.013)	(-2.448)**	(-3.226)***	(0.596)	(-0.817)	(-1.216)	(1.714)*	(0.310)	(0.441)
LEV	0.0036	-0.0172	-0.0275	-0.1829	-0.2080	-0.1512	-0.1362	0.1868	0.2316
	(0.303)	(-0.950)	(-1.588)	(-2.141)**	(-1.380)	(-1.155)	(-0.679)	(1.053)	(1.352)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	3,161	1,209	1,409	3,161	1,209	1,409	3,161	1,209	1,409
Adj. R^2	0.010	0.013	0.020	0.012	0.045	0.028	0.001	0.055	0.028
F-value	3.05	2.08	2.94	3.49	4.81	3.71	1.08	5.66	3.70

Table X

Change in Quarterly Operating Performance Controlling for Earnings Management and Market Competition

This table provides summary statistics of changes in operating performance (i.e., return on assets) with significant repurchase firms as well as univariate tests for differences in means and medians between repurchasing firms located in lowest and highest *TOPROB* subgroup. All the repurchasing firms are divided into quintiles by sorted *TOPROB*. Change in operating performance is adjusted by Lie's (2005) performance matching procedure. Performance-adjusted operating performance is the paired difference between the operating performance of the sample firms and the operating performance of their respective industry- and performance- and M/B-matched control firms. Quarter 0 is the fiscal quarter of the repurchase announcement. *Lowest (Highest) quartile of ABACC* is in the bottom (top) quartile of all repurchase firms sorted by *ABACC*. *Competitive* and *Unique* definitions are in the Appendix. In each case the table displays the mean and median in stock returns measures for a particular time window (relative to the repurchase announcement quarter) along with a test statistic. This test statistic provides the *t*-test (in case of means) and *Wilcoxon* test (in the case of medians). *N* refers to the number of observations. ***, **, and * denote significance levels of 1%, 5%, and 10%, respectively.

TOPROB	0 to +1			0 to +2			0 to +4			0 to +8		
	Mean	Median	N	Mean	Median	N	Mean	Median	N	Mean	Median	N
Lowest quartile of ABACC												
Whole	0.0116 **	0.0021 ***	584	0.0077 ***	0.0029 ***	571	0.0107 ***	0.0046 ***	562	0.0373 ***	0.0066 ***	519
Low	0.0367	0.0073 ***	107	0.0197 ***	0.0068 ***	104	0.0243 ***	0.0096 ***	100	0.1447 **	0.0115 ***	99
Quintile II	0.0095 **	0.0026 **	138	0.0090 *	0.0051 **	136	0.0080 *	0.0067 **	135	0.0124 **	0.0066 **	119
Quintile III	0.0016	0.0008	117	0.0006	-0.0002	111	0.0125 ***	0.0054 ***	112	0.0195 ***	0.0095 ***	108
Quintile IV	0.0097 **	-0.0007	119	0.0082 *	0.0017	118	0.0070	0.0025	116	0.0096 *	0.0047 **	103
High	0.0018	0.0021	103	0.0009	0.0018	102	0.0030	0.0000	99	0.0054	0.0005	90
DIFF	0.0350	0.0051 **		0.0189 **	0.0050 **		0.0213 ***	0.0096 ***		0.1393 **	0.0110 ***	
Highest quartile of ABACC												
Whole	0.0098 ***	0.0033 ***	455	0.0084 ***	0.0042 ***	454	0.0116 **	0.0033 ***	441	0.0110 ***	0.0045 ***	414
Low	0.0132 ***	0.0064 ***	122	0.0183 ***	0.0064 ***	121	0.0096 *	0.0076 ***	120	0.0163 **	0.0083 ***	110
Quintile II	0.0127 ***	0.0071 ***	80	0.0055 *	0.0034 **	79	0.0343	0.0019	76	0.0096 *	0.0038	74
Quintile III	0.0056	0.0034 **	84	0.0083	0.0044 **	86	0.0179 **	0.0066 ***	81	0.0192 ***	0.0083 ***	80
Quintile IV	0.0022	0.0017	82	0.0024	0.0039	81	-0.0009	-0.0028	80	-0.0130 *	-0.0029	72
High	0.0135 **	0.0014	87	0.0031	0.0014	87	0.0000	0.0000	84	0.0187 *	0.0007	78
DIFF	-0.0002	0.0050 *		0.0153 **	0.0049 **		0.0096	0.0076 **		-0.0024	0.0076 **	

(Continued)

Table X - *Continued*

TOPROB	0 to +1			0 to +2			0 to +4			0 to +8		
	Mean	Median	N	Mean	Median	N	Mean	Median	N	Mean	Median	N
Firms within Competitive Industries												
Whole	0.0179 ***	0.0034 ***	496	0.0126 ***	0.0036 ***	488	0.0108 ***	0.0034 ***	473	0.0367 **	0.0029 ***	442
Low	0.0519 *	0.0093 ***	96	0.0234 ***	0.0064 ***	92	0.0208 **	0.0055 ***	94	0.1557 **	0.0149 ***	86
Quintile II	0.0150 **	0.0044 **	74	0.0248 ***	0.0066 ***	76	0.0274 ***	0.0089 ***	72	0.0216 ***	0.0007 **	70
Quintile III	0.0072 *	0.0031 *	96	0.0057	0.0049 ***	94	0.0135 **	0.0091 ***	87	0.0162 **	0.0104 **	84
Quintile IV	0.0019	0.0008	91	0.0005	-0.0003	92	-0.0083 **	-0.0061 **	88	-0.0053	-0.0041	85
High	0.0137 **	0.0011 *	139	0.0112 **	0.0016 *	134	0.0055	-0.0020	132	0.0036	0.0021	117
DIFF	0.0382	0.0082 ***		0.0122	0.0047 *		0.0152	0.0075 **		0.1521 **	0.0128 ***	
Firms within Unique Industries												
Whole	0.0058 ***	0.0019 ***	545	0.0077 ***	0.0025 ***	540	0.0145 ***	0.0037 ***	528	0.0125 ***	0.0057 ***	509
Low	0.0104 **	0.0031 ***	150	0.0206 ***	0.0037 ***	149	0.0166 ***	0.0055 ***	145	0.0176 ***	0.0108 ***	144
Quintile II	0.0084 *	0.0007	134	0.0047	0.0017 **	132	0.0308 **	0.0039 ***	128	0.0185 ***	0.0049 ***	124
Quintile III	0.0012	0.0000	120	0.0035 *	0.0018 *	120	0.0076 ***	0.0050 ***	120	0.0053 *	0.0069 ***	114
Quintile IV	0.0001	0.0024	81	-0.0003	0.0037	79	0.0064 **	0.0021 *	77	0.0003	0.0024	73
High	0.0052 **	0.0010	60	0.0014	-0.0010	60	-0.0021	-0.0030 *	58	0.0167 *	-0.0013	54
DIFF	0.0052	0.0021 *		0.0192 ***	0.0046 **		0.0187 ***	0.0085 ***		0.0009	0.0121 ***	

Table XI

Dummy Approach

$$StockPerformance_i = \alpha + \beta_1 LowTOPROB_i * REP_i + \beta_2 HighTOPROB_i * REP_i + \beta_3 PCB_i * LowTOPROB_i + \beta_4 PCB_i * HighTOPROB_i + \beta_5 Dictatorship_i * LowTOPROB$$

$$+ \beta_6 Dictatorship_i * HighTOPROB_i + \beta_7 LowTOPROB_i + \beta_8 HighTOPROB_i + \beta_9 REP_i + \beta_{10} ABACC_i + \beta_{11} Competitive_i + \beta_{12} Unique_i + \beta_{13} Inter$$

$$+ \beta_{14} \Pr iorAR_i + \beta_{15} Size_i + \beta_{16} MKBK_i + \beta_{17} FCF_i + \beta_{18} LEV_i + \sum_{j=2}^{5} \gamma_j D_j + \varepsilon_i$$

This table reports the regression results in stock performances. The dependent variable, **StockPerformance**, is abnormal stock return. **Dictatorship** is a binary variable indicatir Entrenchment index with firm is of 3 or above. Variable definitions are in the Appendix. All Models, exception of model (1), (4), and (7), are restricted to the firms with signific repurchases. Variable definitions are in the Appendix. Numbers in parentheses are t-statistics with adjusted for heteroskedasticity (White (1980)). ***, **, and * stand for significance based on two-sided tests at 1%, 5%, and 10% level, respectively. All regressions control for year fixed effects, whose estimates are suppressed.

	Announcemnt Returns			One-year BHARs			Two-year BHARs		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Intercept	0.0332	0.0249	0.0156	-0.0265	0.2584	0.1513	-0.0596	0.3741	0.2778
	(3.989)***	(1.610)	(1.300)	(-0.435)	(1.892)*	(1.490)	(-0.674)	(1.794)*	(1.702)*
LowTOPROB * REP	-0.0141			0.5642			1.0846		
	(-0.331)			(1.212)			(1.583)		
HighTOPROB * REP	-0.0326			-0.4434			-0.9636		
	(-1.422)			(-2.313)**			(-2.814)***		
PCB * LowTOPROB		-0.0072			-0.0085			-0.0025	
		(-1.480)			(-0.278)			(-0.060)	
PCB * HighTOPROB		-0.0091			-0.0657			-0.1848	
		(-1.313)			(-2.476)**			(-2.276)**	
Dictatorship * LowTOPROB			0.0038			-0.0396			-0.0404
			(0.474)			(-0.628)			(-0.584)
Dictatorship * HighTOPROB			-0.0031			-0.0510			-0.1491
			(-0.249)			(-1.755)*			(-2.106)**
LowTOPROB		-0.0044	-0.0033		0.1225	0.0962		0.2992	0.2871
		(-0.564)	(-0.399)		(1.752)*	(1.201)		(4.072)***	(3.748)***
HighTOPROB		-0.0064	-0.0098		-0.1260	-0.0705		-0.2436	-0.0841
		(-0.729)	(-0.880)		(-2.181)**	(-1.083)		(-2.561)**	(-0.746)

(*Continued*)

Table XI - *Continued*

	Announcemnt Returns			One-year BHARs			Two-year BHARs		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
REP	0.0206	0.0657	0.0456	0.2929	0.3413	0.2628	0.2047	0.8212	0.5437
	(1.036)	(2.032)**	(1.867)*	(1.555)	(1.515)	(1.429)	(0.484)	(2.581)***	(1.973)**
ABACC	-0.0613	-0.1115	-0.1777	-1.0566	-1.2693	-1.3086	-1.0276	-1.9007	-2.3162
	(-1.054)	(-1.872)*	(-2.657)***	(-2.355)**	(-2.653)***	(-2.489)**	(-1.714)*	(-2.342)**	(-2.552)**
Competitive	0.0120	0.0103	0.0058	0.0074	0.0295	-0.0080	0.1308	-0.0527	0.0207
	(2.765)***	(1.414)	(0.957)	(0.197)	(0.441)	(-0.141)	(1.175)	(-0.700)	(0.265)
Unique	0.0020	0.0012	-0.0024	-0.0545	-0.0927	-0.0708	-0.0401	-0.1465	-0.1061
	(0.541)	(0.255)	(-0.538)	(-2.290)**	(-2.960)***	(-2.347)**	(-1.041)	(-2.744)***	(-2.247)**
Intend ratio	-0.0001	0.0003	0.0003	0.0026	0.0001	0.0001	0.0011	-0.0006	-0.0049
	(-0.532)	(0.622)	(0.885)	(1.018)	(0.001)	(0.022)	(0.491)	(-0.121)	(-1.281)
PriorAR	-0.0126	-0.0141	-0.0135	-0.0566	-0.1898	-0.1455	-0.0902	-0.3095	-0.2011
	(-2.739)***	(-2.145)**	(-2.244)**	(-1.703)*	(-3.999)***	(-3.042)***	(-1.902)*	(-4.747)***	(-2.824)***
SIZE	-0.0027	-0.0005	0.0017	0.0017	-0.0089	-0.0043	-0.0046	-0.0301	-0.0255
	(-2.201)**	(-0.302)	(1.138)	(0.209)	(-0.585)	(-0.378)	(-0.397)	(-1.435)	(-1.482)
MKBK	-0.0008	0.0002	0.0002	0.0017	0.0013	0.0020	-0.0029	-0.0021	-0.0037
	(-1.225)	(0.293)	(0.388)	(0.387)	(0.211)	(0.343)	(-0.458)	(-0.266)	(-0.464)
FCF	0.0043	-0.0784	-0.1143	0.1273	-0.1282	-0.2700	0.4429	0.4648	0.4387
	(0.160)	(-1.748)*	(-2.798)***	(0.608)	(-0.393)	(-0.856)	(1.589)	(0.721)	(0.730)
LEV	0.0023	-0.0306	-0.0422	-0.1819	-0.2626	-0.2175	-0.1230	0.0952	0.1541
	(0.198)	(-1.804)*	(-2.536)**	(-2.123)**	(-1.963)**	(-1.844)*	(-0.619)	(0.586)	(0.971)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	3,161	1,209	1,409	3,161	1,209	1,409	3,161	1,209	1,409
Adj. R^2	0.009	0.010	0.014	0.012	0.037	0.023	0.001	0.046	0.026
F-value	2.75	1.74	2.20	3.33	3.75	2.97	1.20	4.41	3.20