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Real Earnings Management through Share Repurchases

I. Introduction:

Earnings management is a frequently addressed issue in the accounting literature. Much of this literature focuses on net income or income before extraordinary items, the numerator in the Earnings per share (EPS) calculation. In contrast, this study looks at the denominator in the EPS calculation. The purpose of this study is to investigate whether firms manage EPS through share repurchases. In the share repurchase literature, there are several hypotheses behind share repurchase announcements (Dittmar, 2000 and Wansley et al. 1989), none but until recently looked at earnings management as a reason or a motive. Common reasons given for share repurchase include enhancing the price of undervalued stocks, using idle cash when there are few investment opportunities, and saving taxes for shareholders vis-à-vis paying dividends.

Using Compustat firms for the quarters from 1991-2002, we provide evidence consistent with, after controlling other financial variables, firms engaging in share repurchases to manage EPS. We use two dependent variables in our models. Model (1) focuses on the change in basic shares between current quarter and the same quarter in the previous year (*CHBSHARE*) deflated by outstanding shares at last year's quarter. Model (2) focuses on the difference in dollar value of preferred and common shares sold and shares repurchased for current quarter (*CRTSHARE*) deflated by market value of equity. We include market-to-book value (*MVBV*), debt-to-equity ratio (*DEBTEQU*), discretionary accruals (*QDAC*), natural log of total assets (*SIZE*), cash flows (*CF*), and changes in net income (*INCOME*) to control for the incentive firms may have and the constraints on their ability to repurchase their shares. The cost of debt capital (*CODC*),

opportunity cost (*OC*)¹, and earnings-price (*E/P*) ratios measure the firms' ability and likelihood to repurchase their shares. Firms with high (low) *E/P* are more (less) likely to repurchase their shares and firms with high (low) *CODC* and/or high (low) *OC* are less (more) likely to repurchase their shares.

In particular, we report that firms who have low (high) cost of debt capital are more (less) likely to repurchase their shares, which is consistent with using share repurchases to manage EPS. We document that large (small) firms and firms with high (low) cash flows are more (less) likely to repurchase their shares. We find that firms that use more (less) discretionary accruals are more (less) likely to repurchase their shares. Opportunity Cost (*OC*)², *E/P*, *MVBV* and *DEBTEQU* ratios are insignificant indicating that these variables do not effect firms' decision to repurchase their shares. Contrary to our expectation in model (1), we report that as *INCOME* increases, firms are more likely to repurchase their shares. However, *INCOME* in model (2) is significantly positive indicating that as *INCOME* decreases, firms are more likely to repurchase their shares.

Section Two reviews the literature and hypotheses development. Sample selection is discussed in Section Three. Research methods are explained in Section Four. Section Five discusses the results of the study and Section Six contains the conclusion.

II. Theoretical Background and Motivation:

Earnings management is an important issue in accounting. Healy and Wahlen (1998) state that capital market expectations and valuations, contracts that are written in terms

¹ The interest earned on cash and cash equivalents is used to proxy for the opportunity cost.

² *OC* in model (2) is significant with the opposite coefficient sign.

of accounting numbers, and anti-trust or other government regulation are motivations behind earnings management. Barton and Simko (2002) state that perhaps the most important cause of earnings management is the pressure management faces to meet analysts' earnings projections.

Other studies report that managers have incentives to manage earnings to avoid reporting earnings decreases and losses (e.g.; Burgstahler and Dichev, 1997). DeGeorge et al. (1999) state that when a firm falls short of analysts' earnings forecasts projections, the board may think that executives performed poorly and as a result, bonuses and options awards may suffer. Moreover, firms can be penalized by the market in form of an adverse share price reaction if they do not meet market expectations (Robb, 1998). DeFond and Park (1997) argue that reputation concerns and the threat of displacement are likely to be incentives for managers to smooth earnings. Barth et al. (1999a) and DeAngelo et al. (1996) report that firms with strings of consecutive earnings increases are priced at premiums and when these firms experience declines in earnings, the premiums strongly decline in the form of a negative abnormal return. Matsumoto (2002) states that stock market reaction to negative earnings surprises tends to be large, especially for growth stocks, which indicates a high cost for not meeting analysts' forecasts.

Parfet (2000) states that corporate managers operate from a sense of obligation to produce continuous improvement in operating performance, increase financial returns, and long term growth in shareholders value. This obligation puts pressure on the managers (Barton, 2001) and creates an incentive for them to manage earnings in periods that earnings are short of the target (threshold) and may miss market's

expectations. One of these important thresholds is EPS. Firms can increase this ratio by managing net income upward to increase the ratio. Many earnings management studies use discretionary accruals, an important component of earnings management, as a tool to show that firms manage earnings (Jones 1991, Dechow et al.1995, and Kanznik 1999).

Alternatively, some firms can manage EPS via share repurchases. Firms repurchase their shares for different reasons and motives. In the share repurchase literature, many studies have focused on the signaling hypothesis and the price reactions to share repurchase announcements (Comment and Jarrell 1991, Dann 1981, Vermaelen 1981, Masulis 1980, Lakonishok and Vermaelen 1990, Ikenberry et al. 1994). These studies report positive price reaction to share repurchase around and after share repurchase announcements.

Other research investigates wealth transfer hypothesis as a motive for share repurchase (Wansley and Fayeze, 1986), comparing market reaction to specially designated dividends and share repurchase (Chhachhi and Davidson 1997, and Choi and Chen 1997), share repurchase impact on bid-ask spread (Ahn et al., 2001), share repurchase effects on financial analysts' earnings revisions (Best et al., 1998), relationship between share repurchase and intangible assets (Barth and Kasznik, 1999b), share repurchase effects on rival firms (Hertzel, 1991), managers' trading around share repurchase (Lee et al. 1992), blocking a takeover by share repurchase (Bagwell, 1991), countering the dilution effects of stock options (Fenn and Liang, 1997), and the importance of information implied by share repurchase about cash flows and leverage for financially weak firms (Tsetsekos, 1993).

Myers and Skinner (2002) investigate whether firms smooth or manage EPS through share repurchases. They report that firms manage EPS through share repurchases in order to maintain a long string of non-decreasing EPS. Extending Myers and Skinner's study, Bens et al. (2003) investigate whether firms' share repurchases are due to incentives to manage diluted EPS. They report that firms manage EPS and increase their share repurchases when the effect of outstanding employees options on diluted EPS increases, and earnings are below the desired EPS growth level.

However, not all firms can increase their EPS via share repurchases. That is, a firm can only increase their EPS if they have a relatively low opportunity cost of the cash to be used in the repurchases. Yet neither Myers and Skinner (1998) nor Bens et al. (2003) studies calculated the opportunity cost of cash used in share repurchases. Bens et al. (2003) mention opportunity cost, but they did not calculate it because of the difficulty involved. Consequently this study attempts to improve on their work by incorporating the opportunity cost of cash and hence identifying firms that can increase their EPS through share repurchases.

Hypotheses Development:

Firms repurchase their shares for different reasons and motivations, one of which can be to manage EPS. As we discussed above, prior research has generally ignored share repurchases as a way to manage EPS. Share repurchases reduce the number of outstanding shares, the denominator in EPS calculation. As the number of outstanding shares in EPS calculation decreases, EPS increases holding net income constant. However, net income will be affected by the interest expense incurred in the case where

share repurchases are financed by issuing debt or by the interest and/or dividend income forgone if the share repurchase is financed by selling marketable securities. The relative change in the numerator and denominator will determine whether the share repurchase increases or decreases EPS.

If the proportional decrease in the numerator is less than the proportional decrease in the denominator, then the share repurchase will increase EPS. Table 1 provides scenarios under which share repurchase increases and decreases EPS. In *the All equity* case with no debt involved, the EPS is equal to \$13 (5,000 shares outstanding). In the *Debt (1)* case, the assumption is that the firm borrows \$100,000 to repurchase 1,000 shares for \$100 each, at before-tax interest rate of 10%. After the repurchase (which was assumed to happen at the beginning of the year) net income is \$58,500 and the number of share outstanding is 4,000. Thus, EPS after the share repurchase is \$14.625, because the proportional decrease in net income is less than a proportional decrease in outstanding shares. This will occur whenever the E/P ratio (0.13 in this case) is larger than after tax cost of debt (0.065 in this case)³.

Debt (2) case, the assumptions are the same as in case 1 except that the repurchase price is \$250 per share which allows the firm to repurchase 400 shares for the same loan amount (\$100,000). After the repurchase net income is still \$58,500, but the number of share outstanding is 4,600 yielding EPS ex-post share repurchase of \$12.717. Because the proportional decrease in net income is greater than the proportional decrease in outstanding shares, EPS decreases. While these are very simple examples, they illustrate that share repurchases affect EPS, and consequently can be used to manage EPS.

³ More formally, Bens et al. (2003) show that if $P/E < (1/r)$, then share repurchases increase EPS. Where r = risk free rate, and P/E is a ratio of price to earnings per share.

To identify firms that can increase their EPS via share repurchases, like in the debt (1) case, we compare the cost of debt capital ($CODC$) with their earnings-price ratio (E/P). Extending the model in Bens et al. (2003), we assert that a firm can increase its EPS via share repurchases if $CODC < E/P$ ⁴. We formally measure $CODC$ as $(\text{Interest Expense} * (1 - \text{Corporate Tax Rate}^5)) / (\text{Short Term Debt} + \text{Long Term Debt})$. Alternatively, firms may use cash on hand to repurchase the shares. In that case, the cost of the repurchase will be the interest income forgone. We measure this opportunity cost (OC) as $(\text{Interest Income} * (1 - \text{Corporate Tax Rate})) / \text{Cash and Cash Equivalents}$. As above, a share repurchase, this time with idle cash, will increase EPS if $OC < E/P$.

Ex ante, we expect firms with low cost of funds to be more likely to repurchase their shares. Further, they are more likely to do so when EPS would otherwise be below target⁶. Our hypothesis is in the alternative form as follows:

H1: Firms with low costs of funds are more likely to repurchase shares to increase their EPS.

III. Sample and Data:

Sample selection is presented in table 2. We use the Compustat industrial quarterly file for all quarters from 1991 to 2002. The initial sample had 918,572

⁴ The difference between this equation and the one in Bens et al. (2003, p. 12) is that in their empirical model they use the risk free rate, whereas in our model we use the firm specific cost of debt.

⁵ Statutory Federal Tax rate= 35%.

⁶ Even if repurchasing shares can increase EPS, a firm may not always elect to do so. One reason is that the repurchase will alter the capital structure, e.g., debt-equity ratio, making the firm riskier than optimal. Another potential reason is the firm has already met its target for the year and measuring EPS further would hurt management as it could increase the target for next year.

observations. Deleting variables with missing values and variables with zero values⁷, the sample was reduced to 25,276 observations⁸. Further, following Jones (1991) to control the two digit industry code for discretionary accruals, we delete industry groups with less than five observations per group and that reduced the sample size to 18,059 observations. Missing discretionary accruals values reduced the sample to 11,002 observations, which are used in the analysis.

I. Descriptive Statistics:

Descriptive statistics are presented in table 3. The sample firms market-to-book value's (*MVBV*) mean is 2.9655, which is higher than the median, 1.8372. *DEBTEQU* has a mean (median) of 1.6586 (0.9212). Discretionary accruals (*QDAC*) mean (median) is -0.0165 (-0.0044). The mean (median) for total assets of the sample firms (*SIZE*) is 4.5703 (4.4470).

The cost of debt capital (*CODC*) mean is higher than the median, 0.0069 vs. 0.0056, respectively. *E/P* ratio mean is lower than the median, -0.0720 vs. 0.0079. Cash flows (*CF*) have a mean (median) of -0.0213 (0.0243). Opportunity cost (*OC*) mean (median) is 0.1089 (0.0000). *INCOME* has a mean (median) of 0.0493 (0.0005). The average (median) number of shares repurchased, *CHBSHARE*, is 0.2161 (0.0110). The average (median) cost of share repurchases, *CRTSHARE*, is 0.0220 (0.0001).

IV. Models:

We use two multivariate models to see whether the data is consistent with our hypothesis that firms manage EPS through share repurchases. In the first model, we use

⁷ Variables that have zero value and were deleted are those used as deflators for other variables.

⁸ The main reason for the significant drop in the number of available observations is the opportunity cost (*OC*) variable, relatively few firms report interest income.

as our dependent variable, the change in shares outstanding (e.g. shares used to compute basic EPS) deflated by outstanding shares at beginning of the period. In the second, we use as our dependent variable, the net sales of common and preferred shares deflated by market value of equity.⁹ The variables are alternative proxies for actions of management that affect the denominator of the EPS calculation. *Ceteris Paribus*, a firm trying to increase its EPS will have a smaller CHBSHARE and a smaller CRTSHARE.

I. Dependent variables:

More formally, our dependent variables are defined as follows:

$$CHBSHARE = (Common\ Basic\ Shares - Lag_{q-4}(Common\ Basic\ Shares)) / Lag_{q-4}(Common\ Basic\ Shares).$$

$$CRTSHARE = (Sales\ of\ Common\ and\ Preferred\ Shares - Purchases\ of\ Common\ and\ Preferred\ Shares) / Market\ Value\ of\ Equity.$$

II. Independent Variables:

Our expectation is that firms that have high (low) *E/P* ratio are more (less) likely to repurchase their shares. We expect a negative coefficient for *E/P* ratio in both regressions. However, we posit that firms with high (low) *CODC* are less (more) likely to repurchase their shares. We predict a positive coefficient for the *CODC*. Added to this, we include *OC*, which is the opportunity cost of cash used in share repurchases and it is measured by $((interest\ income * 0.65) / cash\ and\ cash\ equivalents)$. We expect as the *OC* declines (increases), firms are more (less) likely to repurchase their shares. A positive coefficient is predicted for *OC*.

⁹ Net Sales = Sales of shares – purchases of shares.

We include Market-to-Book value (*MVBV*), Debt-to-Equity (*DEBTEQU*), and Discretionary Accruals (*QDAC*) to control for the incentives firms may have to manage earnings and the incentives and constraints on their ability to repurchase shares. Prior research (Skinner and Sloan, 1999) finds that management of firms that have a high *MVBV* ratio face greater pressures to meet or beat analysts' forecasts. For firms with high *MVBV*, we expect to see more share repurchases¹⁰. Thus, we predict the coefficient *MVBV* to be negative in both regressions. We define the *MVBV* as:

MVBV = (Price-Close at the end of the previous quarter*Common Shares Outstanding)/Total Common Equity.

Firms that have high leverage try to manage earnings to avoid covenant violation, or get less costly access to capital. If covenants are written in terms of *EPS*, they would be more likely to repurchase shares to increase *EPS*. However, if covenants are more likely to be written in debt ratios, firms with high ratios would be less likely to repurchase their shares. We define the Debt-to-Equity as:

DEBTEQU = (Short Term Debt + Long Term Debt) / Total Common Equity.

As noted above, most of the literature assumes firms manage earnings through net income, the numerator in *EPS*. In practice, firms could manage both net income and shares outstanding to achieve targeted *EPS*. Prior research (e.g. Jones, 1991) employs

¹⁰ An alternative is the Undervaluation Hypothesis: Firms believe that their shares are undervalued and for that reason, they repurchase their shares. In that case, the predictions would be opposite to those outlined in the text.

discretionary accruals (*QDAC*) to investigate whether firms manage earnings or not. We control for discretionary accruals to find out whether it is associated with share repurchases. We do not expect a specific direction for *QDAC* because it depends on whether managing net income and shares outstanding are a complement or a substitute to each other.

As in Jones (1991), we define discretionary accruals as:

$$QDAC = QTACC - NQDAC$$

$$QTACC_q / Lagta = \alpha_1(Inta) + \alpha_2(\Delta Rev_q / Lagta) + \alpha_3(PP \& E_q / Lagta) + \varepsilon_{it}$$

Where *QTACC* is the quarterly total accruals, *NQDAC* is non-discretionary accruals, *LAGTA* is total assets at the end of the previous quarter ($q - 1$), *INTA* is the reciprocal of total assets at the end of previous quarter (*LAGTA*), ΔREV_q is revenues in quarter q less revenues in last year's quarter ($q - 4$), *PP & E_q* is Property Plant and Equipment at the end of the quarter (q), and (ε_{it}) is the residual. The residual is the discretionary part (*QDAC*) of quarterly total accruals (*QTACC*). Following Balsam et al. (2003), quarterly total accruals is defined as the difference between income before extraordinary items and net cash flow from operating activities. Following Jones (1991), we estimate our models for each two digit code industry within each quarter. We delete from our sample industry quarter groups with less than five observations per group.¹¹

¹¹ Klein (2002) deletes industry groups with less than eight observations. We use five observations because the sample was reduced significantly by deleting eight observations per industry group.

Also, as in Bens et al. (2003), we include *SIZE*, and *operating cash flows (CF)*. *SIZE* is the natural log of total assets. *CF* is cash flows from operations deflated by total assets. *INCOME* is the change in net income between the current quarter and last year's quarter, deflated by last year quarter's net income. We posit that firms with positive (negative) changes in net income are less (more) likely to repurchase their shares. We predict a positive coefficient for the *INCOME* variable.

Our two models are as follows:

$$CHBSHARE_{it} = \beta_0 + \beta_1 MVBV_{it} + \beta_2 DEBTEQU_{it} + \beta_3 QDAC_{it} + \beta_4 SIZE_{it} + \beta_5 CF_{it} + \beta_6 CODC_{it} + \beta_7 E/P_{it} + \beta_8 OC_{it} + \beta_9 INCOME_{it} + \varepsilon_{it} \quad (1)$$

$$CRTSHARE_{it} = \beta_0 + \beta_1 MVBV_{it} + \beta_2 DEBTEQU_{it} + \beta_3 QDAC_{it} + \beta_4 SIZE_{it} + \beta_5 CF_{it} + \beta_6 CODC_{it} + \beta_7 E/P_{it} + \beta_8 OC_{it} + \beta_9 INCOME_{it} + \varepsilon_{it} \quad (2)$$

V. Empirical Results:

I. Regression results:

Table 4 summarizes the results of the analysis for the two multivariate regression models, model (1) *CHBSHARE* and model (2) *CRTSHARE*. The F-statistic for model (1) is significant at the $p < 0.0001$ (F-value = 20.59) level and the adjusted R-Square is 0.0158. As expected, the *CODC* variable is positive and significant ($t = 4.79$, $p < 0.0001$), which supports our expectation that firms with low (high) cost of debt capital have a smaller net change in shares perhaps because doing so will increase (reduce) their EPS. In contrast, both the opportunity cost (*OC*) and *E/P* ratios are insignificant ($t = -$

0.71, $p < 0.4769$, and $t = 0.95$, $p < 0.3436$, respectively) indicating that *OC* and *E/P* are not factors in share repurchase decisions by the firms.

We document that *DEBTEQU* and *MVBV* ratios are insignificantly different from zero ($t = -1.42$, $p < 0.1547$ and $t = 0.54$, $p < 0.5914$, respectively). This result indicates that *DEBTEQU* and *MVBV* ratios do not influence firms' decision to repurchase their shares.

However, *QDAC* is significantly negative ($t = -2.35$, $p < 0.0186$). This result indicates that as firms use more (less) discretionary accruals they have a smaller change in net shares. *SIZE* and *CF* are significant ($t = -4.62$, $p < 0.0001$, $t = -8.27$, $p < 0.0001$, respectively) with the negative sign indicating that large firms and firms with high cash flows have smaller changes in net shares. Contrary to our expectation, *INCOME* in model (1) is significantly negative ($t = -2.50$, $p < 0.0123$). This result indicates that firms who experience increases in their net income also have smaller changes in net shares.

We report that model (2) has an F-Value of 85.33 and is significant at $p < 0.0001$ level with adjusted R-square of 0.0645. We report that *MVBV*, *DEBTEQU*, and *E/P* are insignificant ($t = 1.53$, $p < 0.1254$, $t = -1.41$, $p < 0.1595$, and $t = -0.84$, $p < 0.4016$, respectively) indicating that these variables have no effect on firms' decisions to repurchase their shares. We find that the *CODC* is positive and significant as expected ($t = 10.93$, $p < 0.0001$), which indicates that as the cost of debt capital increases (decreases), firms are more likely to issue (repurchase) shares. We document that the *OC* is marginally negative ($t = -1.86$, $p < 0.0623$), which indicates that firms with high (low) *OC* are more (less) likely to repurchase their shares. This result is opposite to our expectation.

QDAC is significant ($t = -1.88, p < 0.0596$) with a negative coefficient indicating that firms that use more (less) discretionary accruals are less (more) likely to issue (repurchase) shares. *SIZE* and *CF* are significant with negative coefficients ($t = -7.58, p < 0.0001$ and $t = -18.67, p < 0.0001$, respectively) indicating that large firms and firms with high cash flows are less likely to issue shares. Contrary to model (1), we report in model (2) that *INCOME* is significantly positive ($t=2.28, p < 0.0224$), which indicates that as net income increases (decreases), firms are more (less) likely to issue (repurchase) shares.

In summary, we report that the cost of debt capital (*CODC*) in both models, is significant and supports our hypothesis that firms with low (high) cost of funds are more (less) likely to undertake share repurchases, which is consistent with using share repurchases to manage EPS.

VI. Conclusion:

Earnings management is an important issue in the accounting literature as well as to capital market participants. Firms have many incentives to manage earnings in order to meet a desired threshold. Prior research (e.g. Jones, 1991 and Burgstahler and Dichev, 1997) investigated many tools and ways used by firms to manage earnings. The most commonly tested tool in the discipline is discretionary accruals. However, Myers and Skinner (2002) and Bens et al. (2003) investigate a different tool that firms may use to manage EPS to get the desired outcome - share repurchases, the denominator in EPS calculation. Their studies focused on the denominator instead of the numerator of EPS ratio. We extend these two studies by incorporating the opportunity cost (*OC*). We argue

that firms with low (high) cost of debt capital (*CODC*), low (high) opportunity cost (*OC*), or high (low) *E/P* ratio are more (less) likely to repurchase their shares.

The results support our hypothesis that firms with low (high) cost of debt capital (*CODC*) are more (less) likely to repurchase their shares, which is consistent with using share repurchases to manage EPS. In contrast, we do not find evidence that the opportunity cost of cash, or the earning/price ratio affect share repurchases in the manner hypothesized.

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Table 1
Income Statement

	All Equity	Debt (1)*	Debt (2)*
Revenues	\$150,000.00	\$150,000.00	\$150,000.00
Expenses	\$50,000.00	\$50,000.00	\$50,000.00
EBIT	\$100,000.00	\$100,000.00	\$100,000.00
Interest	\$ -	\$10,000.00	\$10,000.00
EBT	\$100,000.00	\$90,000.00	\$90,000.00
Taxes (35%)	\$35,000.00	\$31,500.00	\$31,500.00
Net Income	\$65,000.00	\$58,500.00	\$58,500.00
Outstanding Shares	5,000	4,000	4,600
EPS	\$13.00	\$14.625	\$12.717
Price per share	\$100	\$100	\$250

Table (1) Continued

*(1) Can repurchase shares at \$100 each, borrow at 10%, assume repurchase 1,000 shares

*(2) Can repurchase shares at \$250 each, borrow at 10%, assume repurchase 400 shares

E/P (Pre Repurchase)**	\$0.13	\$0.13	\$0.05
After tax Cost of Debt		0.065	0.065

Assumptions to demonstrate under which conditions share repurchases will increase/decrease EPS.

** Pre repurchase E/P (all equity) divided by price of all equity, debt(1) and debt(2), [(\$13/\$100), (\$13/\$100), and (\$13/\$250)].

Table 2
Sample Selection Criteria

	Missing Observations	No. of Observations
Initial Sample*		918,572
LESS: Variables with zero values and missing values ^a	(893,296)	
Available observations ¹		25,276
LESS: Deleting industry groups with less than five observations	(7,217)	
Available observations		18,059
LESS: Missing discretionary accruals observations	(7,057)	
Total missing observations	907,570	
Final sample used in the analysis		11,002

* Compustat Industrial file for all quarters from year 1991 to 2002.

^a Variables that have zero value and used as deflators are eliminated such as Total Assets, Total Common Equity and Basic Shares. Inspection of some financial statements revealed that some firms have not reported total assets because these firms have a deficit in the liabilities side that offsets the assets side.

¹ Opportunity Cost variable (*OC*) eliminates other variables observations because *OC* has the lowest number of observations, relatively few firms report Interest Income.

Table 3

Descriptive Statistics for the Dependent and the Independent Variables in CHBSHARE and CRTSHARE Models

	N	Mean	Median	Min	Max	STD Dev.
<i>Dependent Variables:</i>						
CHBSHARE	11002	0.2161	0.0110	-0.8986	21.6919	1.1809
CRTSHARE	11002	0.0220	0.0001	-0.4581	0.5198	0.0914
<i>Independent Variables:</i>						
MVBV	11,002	2.9655	1.8372	-112.3935	117.5665	10.9299
DEBTEQU	11,002	1.6586	0.9212	-69.0124	72.8983	7.3783
QDAC	11,002	-0.0165	-0.0044	-0.8148	0.7709	0.1706
SIZE	11,002	4.5703	4.4470	0.0426	9.1193	2.1667
CF	11,002	-0.0213	0.0243	-3.3150	3.2462	0.2967
CODC	11,002	0.0069	0.0056	-0.0000	0.1119	0.0091
E/P	11,002	-0.0720	0.0079	-13.0989	12.7671	0.6804
OC	11,002	0.1089	0.0000	-130.3160	130.8890	12.6945
INCOME	11,002	0.0493	0.0005	-87.7538	88.6192	2.4213

The Variables are defined as follows:**CHBSHARE** = (Common Basic Shares – Lag4 (Common Basic Shares))/ Lag4 (Common Basic Shares).

Table (3) Continued

CRTSHARE = (Sales of Common and Preferred Shares - Purchase of Common and Preferred Shares)/MV.

After Tax Cost of Debt Capital (CODC) = The tax rate is 35% and the *CODC* is calculated as [(interest expense*(1 - 0.35)) / Short and Long Term Debt].

E/P = Basic Earning per Share divided by the Closing Price at end of the quarter.

Opportunity Cost (OC) = [(Interest Income*(1 - 0.35))/Cash and Cash Equivalents].

DEBTEQU = Total Liabilities/Total Common Equity.

MVBV = MV/Total Common Equity.

QDAC = Discretionary Accruals, which is the difference between total accruals and non-discretionary accruals according to Jones Model (1991).

SIZE = Natural Log of Total Assets.

CF = Operating Cash Flows deflated by Total Assets.

INCOME = Change in net income between current quarter and last year's quarter deflated by last year quarter's net income.

Table 4
 Multivariate Regression (OLS) results for CHBSHARE and CRTSHARE Models
 Estimated Coefficient (t-value), N = 11002

$$CHBSHARE_{it} = \beta_0 + \beta_1 MVBV_{it} + \beta_2 DEBTEQU_{it} + \beta_3 QDAC_{it} + \beta_4 SIZE_{it} + \beta_5 CF_{it} + \beta_6 CODC_{it} + \beta_7 E/P_{it} + \beta_8 OC_{it} + \beta_9 INCOME_{it} + \varepsilon_{it} \quad (1)$$

$$CRTSHARE_{it} = \beta_0 + \beta_1 MVBV_{it} + \beta_2 DEBTEQU_{it} + \beta_3 QDAC_{it} + \beta_4 SIZE_{it} + \beta_5 CF_{it} + \beta_6 CODC_{it} + \beta_7 E/P_{it} + \beta_8 OC_{it} + \beta_9 INCOME_{it} + \varepsilon_{it} \quad (2)$$

Variables	Expected Sign	Model (1) CHBSHARE	Model (2) CRTSHARE
Intercept	?	0.2862 (9.65)***	0.0279 (12.46)***
MVBV	-	0.0006 (0.54)	0.0001 (1.53)
DEBTEQU	+	-0.0026 (-1.42)	-0.0001 (-1.41)
QDAC	?	-0.1553 (-2.35)**	-0.0093 (-1.88)*
SIZE	?	-0.0255 (-4.62)***	-0.0031 (-7.58)***
CF	?	-0.3306 (-8.27)***	-0.0563 (-18.67)***

Table (4) Continued

CODC	+	5.9117 (4.79)***	1.0189 (10.93)***
E/P	-	0.0157 (0.95)	-0.0010 (-0.84)
OC	+	-0.0006 (-0.71)	-0.0001 (-1.86)*
INCOME	+	-0.0116 (-2.50)**	0.0008 (2.28)**
F-Value		20.59***	85.33***
R ²		0.0166	0.0653
Adjusted R ²		0.0158	0.0645
N		11002	11002

T-statistics are in parentheses.

*, **, *** represent significant at the 0.10, 0.05, and 0.01 levels, respectively.

The Variables are defined as follows:

CHBSHARE = (Common Basic Shares – Lag4 (Common Basic Shares))/ Lag4 (Common Basic Shares).

CRTSHARE = (Sales of Common and Preferred Shares - Purchase of Common and Preferred Shares)/MV.

After Tax Cost of Debt Capital (CODC) = The tax rate is 35% and the *CODC* is calculated as [(interest expense*(1 - 0.35)) / Short and Long Term Debt].

Table (4) Continued

E/P = Basic Earning per Share divided by the Closing Price at end of the quarter.

Opportunity Cost (OC) = $[(\text{Interest Income} * (1 - 0.35)) / \text{Cash and Cash Equivalents}]$.

DEBTEQU = Total Liabilities/Total Common Equity.

MVBV = MV/Total Common Equity.

QDAC = Discretionary Accruals, which is the difference between total accruals and non-discretionary accruals according to Jones model (1991).

SIZE = Natural Log of Total Assets.

CF = Operating Cash Flows deflated by Total Assets.

INCOME = Change in net income between current quarter and last year's quarter deflated by last year quarter's net income.