

# Information Content of Share Repurchases

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*This paper examines whether share repurchases have information content beyond earnings and book value of the firm. Ohlson Model (1995) is used to test the association between share repurchases and the market value of the firm. Financial data pertaining to S&P500 from Compustat database are used in the analyses for the years 2003-2005. The results of this study report that share repurchases have significant positive relationship with the market value of the firm. This study contributes to the literature by providing evidence that is consistent with share repurchases positive association with firm's market value.*

Field of Research: Capital Market – Accounting.

## Introduction

This study examines whether share repurchases have information content in explaining firm's market value. The research question is examined by using Ohlson model (Ohlson, 1995) to see whether share repurchases have positive impact on firm's market value. Ohlson (1995) argues that firm's market value equals to book value of equity, earnings, plus other information. Share repurchases are employed as the additional information to test whether share repurchases have explaining power on market value beyond earnings and book value of the firm. Market participants look at share repurchase announcements as a venue of private information that is disseminated by management. Therefore, investors can execute sound decisions based on the new information released by the firm.

Releasing more information by management is desirable because it reduces information asymmetry. The market as a whole will benefit from less information asymmetry in the form of more trades, and less transaction costs (Lev, 1988). The main argument in this study is that share repurchases have positive information content.

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This implies that repurchases are positively associated with firm's market value because investors will be able to better evaluate the financial position of the firm. Prior research documents positive abnormal return post share repurchases (Dann, 1981; Vermaelen, 1981; Comment and Jarrel (1991); Ikenberry, Lakonishok and Vermaelen, 1995; and Grullon and Michaely 2002). One of the reasons that are cited for post repurchases abnormal return is stock undervaluation (signaling hypothesis) of repurchasing firms. Proponents of signaling hypothesis argue that management by repurchasing their own shares, they signal to the market that their shares are undervalued and they have inside information supporting the higher value of their outstanding shares. The results document a significant positive association between book value, earnings, and market value of the firm. Consistent with the prediction, a significant positive result is documented for share repurchases indicating that share repurchases have information content, which is recognized by the market in the form of higher stock price. The paper is organized as follows: section two presents the theoretical background. Section three presents the research design and model used in this study. Section four presents the procedure that is used for collecting data. Descriptive statistics are presented in section five. Section six presents Pearson correlation statistics. The results of the study are presented in section seven. Finally, section eight presents the conclusion.

## **Motivation and Hypothesis Development**

Investors utilize various methodologies in analyzing financial information to assist them in their decision making process. One of such methodologies is the use of Ohlson model (1995). In Ohlson model, investors and other stakeholders use book value and earnings to forecast future cash flows of the firms (Hanlon et al., 2001). Ohlson (1995) argues that market value of firms is a function of book value, earnings, and other information. Ross (1978) develops models that show executives would use finance to transmit and validate information about their firms. To disseminate information, executives announce their decision to the market in various ways, one of which is share repurchase announcements. One reason behind share repurchases is that executives believe that their firms' stock is undervalued (Dittmar, 2000).

Executives send signal that their stock is undervalued by announcing share repurchases. The market takes such announcements positively as private information disseminated by executives who know private information more than outsiders. Ofer (1987) argues that share repurchase decision reveals the manager's privately held information. Prior research examines and reports that firms that announced share repurchases experienced positive abnormal return on and post announcements date (Dann, 1981; Vermaelen, 1981; Comment and Jarrel 1991; Ikenberry, Lakonishok and Vermaelen, 1995; and Grullon and

Michaely 2002). The positive market reaction to the announcements will increase the stock price of the firm and, hence, increases firm's market value.

As a result of share repurchase announcements, the information is impounded instantaneously into the firm's stock price. Ofer (1987) argues that once a firm announces its repurchase plan, the stock price should respond to the informational signal and move upward to its first-best value. Therefore, it is expected that share repurchases positively affect firm's market value through price appreciation on share repurchases. More formally, the alternative hypothesis is stated below:

Ha: Share repurchases are positively associated with firm's market value.

## Research Design

Multiple regression models are used in the analyses to examine the incremental effect of share repurchases on firm's market value. The models are the extension of Ohlson (1995) model that includes share repurchases and the net value of share repurchases as follow:

$$MVBV_i = \alpha_0 + \alpha_1 BV_i + \alpha_2 NI_i + \alpha_3 REPURCH_i + \xi_i \quad (1)$$

$$MVBV_i = \alpha_0 + \alpha_1 BV_i + \alpha_2 NI_i + \alpha_3 VALUEREP_i + \xi_i \quad (2)$$

Where:

**MVBV:** Market value of sample firms deflated by total assets at the beginning of the year.

**BV:** Book value of sample firms deflated by total assets at the beginning of the year.

**NI:** Earnings of sample firms deflated by total assets at the beginning of the year.

**REPURCH:** change in share outstanding of sample firms deflated by share outstanding at the beginning of the year.

**VALUEREP:** The dollar value of share repurchases, net of security issuances, deflated by shares outstanding at the beginning of the year.

In the first model, market value of the sample firm (MVBV) is regressed on the book value of equity (BV), earnings (NI), and share repurchases (REPURCH). In the second model, the market value of the sample firm is regressed on the same variables as in the first model except that share repurchases (REPURCH) is replaced with the value of share repurchases (VALUEREP). Different proxies are

used for share repurchases to see whether these proxies behave differently as used in Khaledi and Balsam (2003). Christie (1987) argues that deflated regressions are better specified than undeflated regressions. Therefore, the variables are deflated in both models by total assets at the beginning of the year. Share repurchases (REPURCH) and the value of share repurchases (VALUEREP) are deflated by shares outstanding at the beginning of the year. To reduce noise in share repurchases, reverse stock splits were deleted in the sample firms. Reverse stock splits have negative effect on firms' valuation (through their adverse effect on stock prices). Financial market reacts unfavorably to reverse splits because firms try to increase the per share price to avoid, for example, delisting of their shares on stock exchange. Since this study is looking at share repurchases as a positive signal by management, it is desirable to delete reverse stock splits to eliminate any noise associated with reverse stock splits.

## Sample

Compustat database is utilized to retrieve S&P500 annual financial data for the years 2003-2005. The initial sample consists of 1,500 firm-year observations. missing observations of 126 are deleted. This reduces the sample to 1,374 observations. After eliminating reverse stock splits of 9 observations, the sample contains 1,365 observations. Deleting outliers of 27 observations, the final sample is reduced to 1,338 firm-year observations.

**TABLE 1**  
**Sample Selection**

The sample covers years 2003 to 2005

<i>Database</i>	<i>No. of Observations</i>	<i>Available Observations</i>
Initial Sample – Compustat	1,500	
Missing Observations – Compustat	(126)	
		1,374
Reverse Split deleted	(9)	
Outliers deleted	(27)	
Final Sample – Compustat		1,338

## Descriptive Statistics

Descriptive statistics are presented in Table 2. The mean (median) for market value (MVBV) of the firms is 95.22 (135.52). This indicates that median firms have higher market value than average firms. The mean (median) for book value of equity (BV) is 25.79 (26.64). This shows that on average, book value of equity of the sample firms is lower than that of the median firms' book value. The mean (median) for earnings (NI) is 2.50 (2.91), indicating that sample firms' earnings on average are lower than that of the median firms. Share repurchases' mean (median) is -7.09 (-2.02). This shows that on average, sample firms repurchase more shares than the median firms. The mean (median) of the value of share repurchases is -3.37 (-1.21), which implies that the average firm spends more than the median firm on share repurchases.

**TABLES 2**  
**Descriptive Statistics For The Regression Variables**  
**Years 2003-2005**  
**N = 1,338**

<i>Variables</i>	<i>Mean</i>	<i>Min</i>	<i>Q1</i>	<i>Median</i>	<i>Q3</i>	<i>Max</i>	<i>S.D.</i>
MVBV (%)	95.22	-166.56	-166.56	135.52	222.515	651.87	216.22
BV (%)	25.79	-12.88	-12.88	26.64	52.88	106.73	34.50
NI (%)	2.50	-6.90	-6.90	2.91	8.41	21.81	8.31
REPURCH (%)	-7.09	-22.29	-22.29	-2.02	0.92	25.69	12.07
VALUEREP (%)	-3.37	-11.86	-11.86	-1.21	1.57	17.27	8.06

## Correlation Statistics

Pearson correlation statistics are presented in table 3 that pertain to model 1. Book value of equity, earnings and share repurchases show significant correlation with market to book value of 0.86, 0.92, and 0.81 respectively. Earnings and share repurchases have significant correlation with book value of equity of 0.83 and 0.79, respectively. Earnings and share repurchases are significantly correlated at 0.71. High correlation may suggest multicollinearity presence. To test possible presence of multicollinearity, Variance Inflation Factor (VIF) is used to investigate such presence. The results show that the highest VIF is 4.65 that exist between market value and book value of equity of the firm.

Since VIF is below 10, then multicollinearity should not be an issue in this dataset.

Model 2 Pearson correlation statistics are presented in table 4. Book value of equity, earnings, and the value of share repurchases are significantly correlated with market to book value of the sample firms at 0.86, 0.92, and 0.71, respectively. Earnings and the value of share repurchases are significantly correlated with book value of equity at 0.83 and 0.72, respectively. Earnings and the value of share repurchases are significantly correlated at 0.72. To test for multicollinearity existence, VIF test is performed and the results show that the highest VIF is 4.58 that exist between market value of the firm and earnings. This indicates that multicollinearity is not a problem in this dataset.

**Table 3**  
**Pearson Correlation For Regression Variables In Model (1) With Share Repurchases As The Testing Variable**

**Years 2003-2005**

<i>Variables</i>	<i>MVBV</i>	<i>BV</i>	<i>NI</i>	<i>REPURCH</i>
MVBV	1.00	0.86	0.92	0.81
		0.00	0.00	0.00
BV	0.86	1.00	0.83	0.79
	0.00		0.00	0.00
NI	0.92	0.83	1.00	0.71
	0.00	0.00		0.00
<i>REPURCH</i>	0.81	0.79	0.71	1.00
	0.00	0.00	0.00	

**Table 4**  
**Pearson Correlation For Regression Variables In Model (2) With Value Of**  
**Share Repurchases As The Testing Variable**

**Years 2003-2005**

<i>Variables</i>	<i>MVBV</i>	<i>BV</i>	<i>NI</i>	<i>VALUEREPA</i>
MVBV	1.00	0.86	0.92	0.71
		0.00	0.00	0.00
BV	0.86	1.00	0.83	0.62
	0.00		0.00	0.00
NI	0.92	0.83	1.00	0.72
	0.00	0.00		0.00
VALUEREPA	0.71	0.62	0.72	1.00
	0.00	0.00	0.00	

## Results

The results of the multiple regressions in model 1 are presented in table 5. The model is significant with an F-value of 5,672.04 and an adjusted R-square of 0.92. It is documented that the book value (BV) is significantly positive with a t-value of 9.77 (p-value = 0.00). This suggests that the book value of the firm is a factor in explaining the market value of the sample firms, which is consistent with the prediction. It is reported that earnings (NI) is significantly associated with the market value of the firm with a t-value of 44.00 (p-value = 0.00). This implies that earnings explain the market value of the firm. A significant positive association between share repurchases and the market value of the firm is documented with a t-value of 20.73 (p-value = 0.00). This suggests that share repurchases contain positive signal and the market reacts favorably to repurchase announcements through an increase in stock price. An increase in prices will ultimately appreciate the market value of the firm.

Table 6 presents the findings of model 2. Book value of equity is significantly associated with the market value of the firm with a t-value of 19.70 (p=0.00). The result is as expected. Earnings and the market to book value of the firm are significantly positively associated with a t-value of 35.00 (p=0.00). The results support the argument in Ohlson Model and as expected in this study. As predicted, a significant positive relationship between the market value of the firm and the value of share repurchases is reported with a t-value of 7.87 (p=0.00).

The results support the hypothesis that share repurchases contain positive information content and that signal is captured by the market.

**Tables 5**  
**Multiple Regression Model (1)**

$$MVBV_i = \alpha_0 + \alpha_1 BV_i + \alpha_2 NI_i + \alpha_3 REPURCH_i + \xi_i$$

The dependent variable is market to book value. The independent variables are: book value of equity (BV), earnings (NI), and share repurchases (REPURCH).

Variable	Model
	MVBV
BV	9.77*** (0.95)
NI	44.00*** (15.90)
REPURCH	20.73*** (4.42)
F-Value	5,672.04***
Adj. R-Square	0.92

**Tables 6**  
**Multiple Regression Model (2)**

$$MVBV_i = \alpha_0 + \alpha_1 BV_i + \alpha_2 NI_i + \alpha_3 VALUEREP_i + \xi_i$$

The dependent variable is market to book value. The independent variables are: book value of equity (BV), earnings (NI), and value of share repurchases (VALUEREP).

Variable	Model
	MVBV
BV	19.70*** (1.86)
NI	35.00*** (15.79)
VALUEREP	7.87*** (2.53)
F-Value	4,567.31***
Adj. R-Square	0.91

## Conclusion

This study examines the incremental effect of share repurchases on market value of the firm. Ohlson model (1995) is used to test this association by utilizing financial data for S&P500 from Compustat database for the years 2003-2005. Significant positive results for all three variables in the models were documented, suggesting that book value, earnings, and share repurchases explain the market value of the firm. The findings in this study support prior research that the market reacts positively to share repurchase announcements. The contribution of this study is that investors and other users of financial information can incorporate repurchase announcements in their analyses to make sound investment decisions.

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