

Stock Repurchases: Do They Add to Shareholder Value Over Time?

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This paper investigates the impact of stock repurchases on the S&P 500 companies between 2004 and 2014. Structured in three parts, we reviewed the literature in order to capture the main theories; analyzed recent evolutions, specifically to align the stock repurchase decisions between 2011 and 2015 with the market movements; and performed a panel data analysis which aimed to assess the contribution of stock repurchase and financial performance on the economic value added, earnings per share and price to book value. To conclude, the outcome highlighted mixed relationships between stock repurchases, financial performance and the independent variables of the study.

INTRODUCTION

The number of companies engaged in stock repurchase programs has increased since the mid 1980s, and this activity has known new dimensions starting in 2000, mainly due to deregulation, changes associated to tax regimes, shareholder value maximization perceived as an important corporate objective, and the role of stock options in executive compensation packages. The 449 companies included in S&P 500 index, publicly listed from 2003 to 2012, used 54% of their earnings to buy back shares (Lazonick, 2014). The decisions aimed to maximize shareholder value rather than to promote innovation or job creation.

The recent financial crisis, which started in 2008, has reshaped the perception of investors' options. For businesses, an important reason for stock repurchases is the lack of attractive possibilities relative to the firm's existing cash status. However, opinions towards the benefits of this method are mixed. Warren Buffet (2012) considers that stock buybacks represent a destruction of value if the repurchase happens at a price above the share price intrinsic value. The premises for an efficient process include two conditions: 1) funds availability apart from the operational and liquidity needs of the business and 2) the stocks are sold at a material discount to the company's intrinsic value. Among the critics attached to stock buybacks we note

the following: the wealth extraction issue, the correlation with earnings per share (EPS) targets, and reduced sustainability.

This study seeks to examine the impact of stock repurchases to shareholder value in the long term. Section 1 discusses the findings of the previous studies, namely advantages and disadvantages of stock repurchases, explores recent trends and associated indicators, while section 2 presents the data, methodology, and the outcomes of the statistical analysis and finally, section 3 provides the concluding remarks and further comments.

LITERATURE REVIEW

The stock buyback process starts when a company disposes of extra cash out of the efficient functionality of the business. Since the 1980s, U.S. stock repurchases have become a cash distribution/reward method.

Wansley, Lane, and Sarkar (1989) found the reasons for stock repurchases could be divided into six major categories, as detailed below:

- The substitution of dividend payment as a better option for shareholders' cash distribution, mostly in light of tax implications;
- A process that generates leverage adjustments, having in mind the potential to increase both leverage and internal control;
- New issuance of the shares;
- Limited investment opportunities or excess cash;
- Information availability of the company's prospects, respectively signals related to the perception of the insiders regarding the status of the shares;
- Wealth transfer to counterparts.

The study of Ikenberry, Lakonishok & Vermaelen (2000) identified two main factors that influence the return on share buybacks, namely *market size* and *price-to-book ratio*. The first one is found to have a negative correlation with the realized return, mainly because smaller companies are less analyzed by the major investors and thus, a larger possibility of an undervalued share price. Price-to-book ratio differs greatly from industry to industry depending on the capital need size. However, a low value does not mean that a share is undervalued, but it could state that a firm uses fewer assets to produce the cash flow required.

According to Bens, Nagar, Skinner and Wong (2003), companies' managers assess the contribution of buybacks to earnings per share (EPS) evolution, and usually highlight an upward trend showing a certain rate of EPS growth.

Brav et al. (2005), from the results of a survey applied to 348 financial executives offered evidence that investment decisions are followed by repurchase actions. Whereas, Sanford (2005) argued that in many companies, compensation packages for senior management are connected with earnings per share targets and these managers use ill-timed buybacks in their favor.

Compared to dividends, stock repurchase offers income tax advantages. This means that any capital outcomes that will be distributed to shareholders are not subject to tax until the gains are tangible and the tax rate is inferior to that associated to ordinary incomes (Siegel, 2006).

A study published by Dixon et al. (2008) highlighted that the primary motivation of the UK companies to repurchase shares is the optimal capital structure achievement. The option to cancel the

repurchase decision is fundamental within the process. Moreover, stock repurchases are considered a practice used to manage the company’s balance sheet, the core of capital management policy for many corporations, mostly because of the state of the economies, low prices of financial stocks and the sovereign debt crisis experienced by the European countries (Reimers and Singleton, 2010).

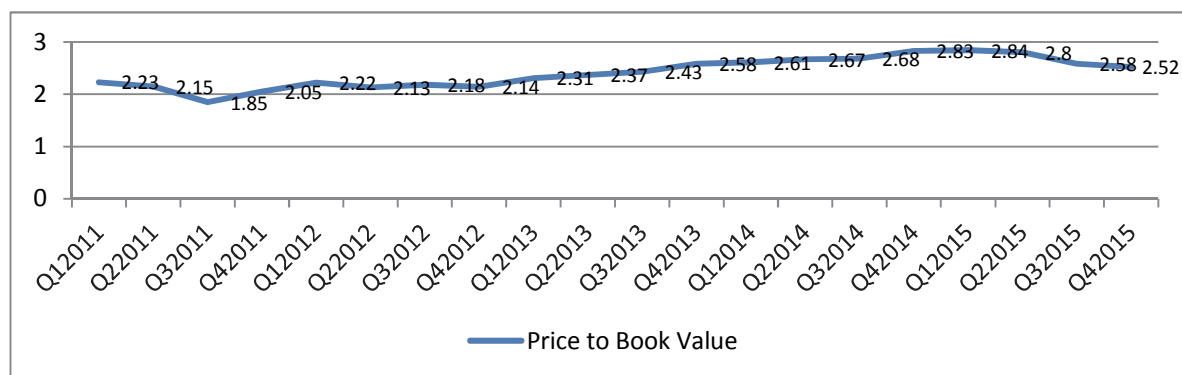
The EPS indicator is the main accounting item that determines the value of a company. A stock repurchase process involves a decrease in the number of outstanding shares; therefore, the EPS will increase, while the level of earnings does not change. Walker (2011) stated that this evolution would lead to higher stock prices. Furthermore, the value of EPS is directly connected with the market perception of the business. During the first half of 2011, S&P 500 companies reported \$200 billion of stock repurchases; in the next years, the number reached \$500 billion annually, exceeding twice the cash dividend rate (Friedman et al., 2011; Baldwin, 2012).

Another important aspect of stock buybacks refers to the potential to neutralize threats, especially when it comes to hostile takeovers or aggressive investors (Mohanty and Panda, 2011). Moreover, some companies work to align the public perception regarding their solidity with the positive internal environment, based on current information. In this context, buybacks signal that shares are undervalued.

According to Durden (2013), in recent years, stock buybacks had a significant contribution to operating EPS growth of the S&P 500 Index, as detailed below. Between Q3 2011 and Q1 2013, 60% of gains have been generated by stock repurchase, while 40% has been attributed to organic growth of the firms.

Currently, for S&P 500 companies, price to book value (Figure 1) reached its best in Q1 2015 (2.84), higher than all, but five of the 28 bull-market tops since the mid-1920s.

FIGURE 1
S&P 500 PRICE TO BOOK VALUE



Source: <http://www.multpl.com/s-p-500-price-to-book/table/by-quarter>

Russolillo (2013) argued that some companies engage repurchased shares in stock options initiated by executives. If the reason for stock repurchase is to offset dilution from share-based compensation, then it can represent an adequate method to manage the dilution of shareholder value. Stock buybacks decisions are treated as confidence votes by the firm’s management and the attached outcomes indicate that they represent efficient investments (Mishra, 2013).

In 2013, Information technology stocks performed best - \$121.5 (25.54%), followed by Consumer Discretionary \$70.2 (14.77%), Healthcare \$62.0 (13.03%), Financials at \$58.5 (12.31%) and Industrials at \$53.7 (11.3%). Apple maintained its top position with \$25.9 billion, while Exxon Mobil and IBM ranked

second and third with \$16.0 billion, respectively \$13.9 billion. Overall, the total volume of stock buybacks initiated by S&P 500 companies in 2013 totaled \$475.6 billion, a significant increase compared to data in 2009, and a slight growth relative to the results of 2011 (\$437 billion) (PR Newswire, 2014). In 2014, Apple continued to be the leader in stock buybacks – in the first three months of the year, transactions totaled \$18 billion. According to Rooney (2014), in the first quarter of 2014, the total stock repurchases reached \$159.3 billion.

As described by Mintz (2014), the major advantages of buybacks include the potential for shareholder value creation, regularity in execution, and the flexibility to make changes within the process. In addition, after the stock buyback, the shareholders' relative position improves as the total number of outstanding shares declines.

Among the critics related to stock repurchases, some authors mention the *wealth extraction issue*, which means that management' efforts to maximize shareholder wealth generate less coverage of the ownership interest in the companies' shares (Lazonick, 2014).

The evolutions identified over the recent years show that large amounts spent on buybacks reduced the budget for research and development. In addition, according to Russolillo (2013), buybacks are options that limit potential assets investments and create short-term profits. The funds allocated for stock repurchases reduce the resources required by acquisitions and capital, with negative effects on the long-term growth. Available statistics indicate that some giants (i.e. IBM, ExxonMobil) spent double amounts on stock buybacks compared to investments dedicated to research and development. However, the case of International Business Machines Corp. is an example of successful stock buyback. Since 2007, the corporation has repurchased \$60.3 billion of shares, which today worth more than \$91 billion. At the end of 2010, the return to shareholders was of \$89 billion, a fact that reflected efficient strategic thinking (Murphy, 2011).

The major issue related to stock buyback refers to the strong connection between their volume and the structure of executive compensation, mostly based on EPS targets. The incentive does not lead to favorable outcomes in respect to the company position and its shareholders if the relationship between buyback, share price and earnings per share is not adequate. The market evolution between 2007 and 2009 evidenced that organization's avoided repurchasing their shares in the light of a downward trend of buybacks and low share prices (The Economist, 2014). Therefore, stock buybacks is a method to limit the number of outstanding shares, facilitate a higher value of earnings per share, and reduce the stockholders' equity, with growth effects on the return on equity indicator. As illustrated by Cameron and Yang (2013), in 2013 most of the components of the Dow Jones Industrial Average reported a value of the net income half the resources allocated to share repurchases. Moreover, while the volume of stock buybacks reached \$211 billion, research and development expenses totaled only one third of this amount (e.g. AT&T, Cisco, Pfizer) (Yang, 2013).

The repurchase decision has been a reaction to the monetary policy implemented by the Federal Reserve, especially to the movements of the interest rate, rather than a long-term strategic policy of the company. As stated by Yardeni (2014), when S&P 500 forward earnings yields surpass the Aaa corporate bond yield given by Moody's, businesses prefer to invest in stock buybacks due to higher returns on expenditure relative to the ones driven by fixed-income securities.

Another option is to issue bonds at low interest rates and use the funds for stock repurchase, as the earnings yields will be higher. Therefore, there is a negative relationship between the interest rate and the stock repurchases. If the interest rates increase, the volume of stock buybacks decreases (Mishra 2013).

However, the costs of the repurchase decision can be substantial compared to the interest-bearing securities investments and sometimes, corporations include large buybacks plans into defensive strategies.

Celarier (2014) explored an example of high debt created *via* stock repurchases, as follows: Herbalife, a global nutrition company, eliminated the divided policy in 2014, issued more than a \$1 billion in convertible debt, and spent \$686 million on stock buybacks. Consequently, a vicious circle to cover debt has been created. The major problem arises when the money used to finance buyback plans originate from new debts.

Stock repurchases represent a primary source for earning per share growth; however, this causality presents several limitations. A company can be exposed to a lack of shares to repurchase and the solution for continuity can be asset liquidation and the initiation of new debts, which can reach the maximum borrowing capacity. In short, the human error factor plays a decisive role in securing a solid financial position of the firm.

According to a recent report, in Q3 2015 companies in the S&P 500 spent \$156 billion on share buybacks, an increase of 19% compared with the results of the previous quarter (\$131 billion) as identified in Table 1 and a 6.4% growth relative to the same period of 2014 (Birstingl, 2015).

The Information Technology sector had the largest contribution to share buybacks, spending \$45.9 billion in Q3 2015, followed by the financial sector with a 27% growth rate. The main firms completing large transactions included American International Group and Citigroup, with \$3.7 billion, respectively \$2 billion. The industrial sector is strongly represented by Honeywell International and American Airline, two major players that reported large buybacks of \$1.2 billion, respectively \$1.6 billion, ten times the evolution registered in the previous year (Birstingl, 2015).

TABLE 1
S&P 500 SECTOR BUYBACKS

Sector \$ Millions	Q2 2015	Q1 2015	Q2 2014	12 MO 6/15	12 MO 6/14	5 Years
Consumer Discretionary	\$22,568	\$19,230	\$18,968	\$85,966	\$78,621	\$356,590
Consumer Staples	\$7,739	\$10,873	\$8,529	\$40,399	\$42,903	\$227,317
Energy	\$3,547	\$5,538	\$8,716	\$28,205	\$46,024	\$186,749
Financials	\$21,276	\$22,526	\$17,330	\$83,614	\$67,417	\$288,701
Healthcare	\$18,131	\$20,897	\$15,221	\$68,063	\$61,349	\$311,131
Industrials	\$17,172	\$20,124	\$12,662	\$69,328	\$65,088	\$243,131
Information Technology	\$36,674	\$34,976	\$30,569	\$146,602	\$146,394	\$552,475
Materials	\$2,395	\$4,397	\$3,772	\$22,666	\$18,114	\$61,494

Sector \$ Millions	Q2 2015	Q1 2015	Q2 2014	12 MO 6/15	12 MO 6/14	5 Years
Telecommunication Services	\$166	\$5,185	\$324	\$5,729	\$6,419	\$36,127
Utilities	\$1,894	\$386	\$79	\$2,949	\$689	\$10,750
S&P 500	\$131,562	\$144,133	\$116,171	\$553,522	\$533,017	\$2,274,465

Source: Prnewswire (2015). Retrieved from: <http://www.prnewswire.com/news-releases/sp-dji-sp-500-q2-buybacks-decline-87-over-q1-2015-up-132-year-over-year-300147231.html>

The stock-buyback plans developed by corporations in recent years (e.g. General Motors - \$9 billion, MasterCard, \$4 billion, Schlumberger - \$10 billion) have highlighted a preference for this process and represented a preface to the new trend expected to accelerate in the near future. The statistics show that between 2010 and 2016, 1,900 companies implemented stock repurchases plans and paid dividends totaling 113% of the capital expenditure, almost a double percentage compared to figures in 2000, respectively 1990 (60% and 38%) (Market Watch, 2016). The major problem is that these shares have inflated values. In addition, these shares are also diluted by employee stock awards and limit innovation and overall growth in the long run.

Stock buybacks are often inconvenient, particularly when it comes to the time-company status alignment. Usually, corporations engage in stock buybacks after experiencing massive growth, which means that the associated costs are high, as they buy shares at a peak. As stated by Warren Buffett in 2012, the core of the repurchase decision must be the price, otherwise the value is destroyed. Another negative example is the aggressive stock buybacks practices mostly because, in reality, the outstanding share amount is not reduced (e.g. in 2015, Cisco repurchased \$155 million shares of its common stock-compared to the 2014 data, the difference was not a real returning capital to shareholders, but an expense). Therefore, buybacks involve a significant opportunity cost (Market Watch, 2016).

DATA AND METHODOLOGY

The aim of this study is to highlight a statistically significant relationship (positive/negative) between stock repurchase and the value of the company proxied by three indicators, namely earnings per share (EPS), price to book value ratio and economic value added (EVA), in light of other balance sheet, income and management effectiveness influences as defined in Table 2.

The sample consists of all S&P 500 companies that simultaneously meet the following conditions: 1) they repurchased stocks every year between 2004 and 2014 and 2) they registered a positive price to book value ratio in the selected timeframe. The analysis covers three distinct sub-periods: *ex ante* crisis years (2004-2007), recession years (2008-2010) and *ex post* crisis years (2011-2014). In order to identify firms with at least one share repurchase-related news event between January 1, 2004 and December 31, 2014 we consult different sources, *inter alia* the Securities Data Corporation Mergers and Corporate Transactions database (via Thompson Financial), London Stock Exchange Regulatory News Service (via Sequencer) and The Financial Times.

This research uses secondary data obtained from the audited financial statements of listed companies (e.g. market reports and annual financial statements) during the eleven years covered for the extraction of

information related to the stock repurchases events. For all years where an open market repurchase exists, we record the aggregate number, percentage and cost of the stock repurchase. Our final sample consists of 433 firm-year repurchases operated by 433 companies.

The present empirical approach includes a panel regressions performed to test the impact of stock repurchase on the companies' value. We have selected three dependent variables, namely earnings per share, price to book value ratio and economic value added.

The decision to use these indicators simultaneously is based on the fact that in some cases, share repurchases do not improve EPS, ROE, ROA, economic profit, or the fundamental intrinsic value of the firm (Dobbs and Rehm, Mckinsey Report, 2005).

According to the academic literature, the first two variables are commonly treated as proxies for growth. EPS is defined as "the amount of earnings attributable to each share of common stock" (Financial Accounting Standard Board, 1997). Hence, it provides fundamental information for company analysis, performance and equity valuation. Price to book value is considered the most effective valuation measure of stocks performance.

The economic added value measures the efficiency of resource usage within a firm and is calculated as follows:

$$EVA = \text{Net operating profit after taxes} - (\text{Invested capital} \times \text{Cost of the invested capital}) \quad (1)$$

A higher level of this indicator shows a better usage of company resources. As noted by Stewart (1994), the economic value added is a *persuasive* measure of performance in terms of stock prices and shareholder wealth creation. Previous empirical studies show that the relationships between EVA and accounting outcomes are mixed. Chen and Dodd (1997) and Kleiman (1999) highlighted a positive linkage between EVA and value creation capabilities, while Machuga et al. (2002) evidenced that the economic value added is more powerful in profit forecasting compared to the earnings per share indicator.

The independent variables include the stock repurchase volume, dividend payout ratio, return on total assets, return on equity, dividend per share and debt to equity ratio as defined in Table 2.

As described by various scholars (e.g., Dyckman et al., 1995; Kieso and Weygandt, 1998), a company repurchases stocks in order to decrease the number of outstanding shares with effects on the earnings per share indicator. However, Willson et al. (1995) argue that the impact will be sustainable (EPS increase) only if the return on equity does not reduce.

TABLE 2
VARIABLES USED IN THE MODELS

Category	Variable	Definition	Measurement
Dependent variable	Earnings per share (<i>EPS</i>)	The amount of earnings attributable to each share of common stock	(Net income-Dividends on Preferred Stock)/ Average Outstanding Shares
Dependent variable	Price to book value ratio (<i>PBVALUE</i>)	Ratio of a share's market value to book value	Market capitalization/net Assets
Dependent variable	Economic Added value (<i>EVA</i>)	<i>Economic profit</i> (a measure of a company's financial performance)	Net operating profit after taxes-(Invested capital × Cost of the invested capital)

Independent Variable	Stock repurchase volume (<i>SREPURCH</i>)	The reacquisition by a company of its own stock	
Independent Variable	Dividend payout ratio (<i>DIVPAYOUT</i>)	Percentage of earnings paid to shareholders	Dividends/Earnings after tax
Independent Variable	Return on total assets (<i>ROA</i>)	Profitability of a company relative to its total assets	Earnings after tax/total assets
Independent Variable	Return on equity (<i>ROE</i>)	Profitability of a company relative to its equity	Earnings after tax/equity
Independent Variable	Dividend per share (<i>DIVPERSHARE</i>)	Portion of company profit paid for each share held	Dividends/outstanding common shares
Independent Variable	Debt to equity ratio (<i>DEQUITY</i>)	Financial, liquidity rate	Total liabilities/ total equity

The general linear regression models have the following specifications:

$$\text{EPS} = \alpha_0 + \alpha_1 \text{SREPURCH} + \alpha_2 \text{DIVPAYOUT} + \alpha_3 \text{ROA} + \alpha_4 \text{ROE} + \alpha_5 \text{DIVPERSHARE} + \alpha_6 \text{DEQUITY} \quad (2)$$

$$\text{PBVALUE} = \beta_0 + \beta_1 \text{SREPURCH} + \beta_2 \text{DIVPAYOUT} + \beta_3 \text{ROA} + \beta_4 \text{ROE} + \beta_5 \text{DIVPERSHARE} + \beta_6 \text{DEQUITY} \quad (3)$$

$$\text{EVA} = \gamma_0 + \gamma_1 \text{SREPURCH} + \gamma_2 \text{DIVPAYOUT} + \gamma_3 \text{ROA} + \gamma_4 \text{ROE} + \gamma_5 \text{DIVPERSHARE} + \gamma_6 \text{DEQUITY} \quad (4)$$

Where PBV is price to book value ratio; $\alpha_0, \beta_0, \gamma_0$ are the constant coefficients; α_1 to α_6, β_1 to β_6, γ_1 to γ_6 are the coefficients of the independent variables; SR denotes the stock repurchase volume; DPR reflects the dividend payout ratio; ROTA represents the return on total assets; ROE is the return on equity; DPS means the dividend per share; and D/E denotes debt to equity ratio.

We used annual frequency data and performed the empirical analysis in E-Views 7.00 statistical package. The advantages of panel data approach include the identification of low multicollinearity, clear econometric estimates and accurate outcomes. The sample has a time dimension (T) and a cross-sectional dimension (N), which define the type of the panel, specifically micro panel if $T < N$ and macro panel if $T > N$. The double dynamics allows for the control of other influences that are not included in the model (Hsiao, 2006; Gujarati & Porter, 2009). The next step is to select the model via testing for fixed and random effects. We turn to the Hausman test to validate consistency, as follows: in case null hypothesis is not accepted, the test has a Chi-square distribution, with the degrees of freedom equal to the controlled variable in the model. We apply Levin, Lin & Chu and Breitung t- stationary tests and the Jarque-Bera test to check the normality assumption and the Wald test for heteroskedasticity only in the case of fixed-effects model.

THE ANALYSIS

From the total of 494 S&P 500 companies identified, we excluded 61, which did not meet the selected criteria. Therefore, our database includes 433 firms, 9 variables and a period of 11 years, totaling 42,867 observations. Per each model we used 33,341 observations.

Stationarity Tests

Panel data analysis requires the validation of stationarity tests. Specifically, we used 2 tests - Levin, Lin & Chu t and Breitung t-stat to check if the average and the variance do not change their values over time. From an economic point of view, stationarity reflects a temporary characteristic of shocks. According to the null hypothesis (H0) the series has a unit root (is non-stationary). Otherwise, the series is stationary. If probability is lower than 0.05 we reject the null hypothesis and accept H1. The results of the stationarity are presented in Table 3.

TABLE 3
STATIONARITY TESTS

Variables/ Test	Levin, Lin & Chu t	Breitung t-stat
EPS	-12.04 (0.0000)*	-1.88477 (0.0297)*
EVA	-7.55750 (0.0000)*	-0.08596 (0.4657)
PBVALUE	-18.6244 (0.0000)*	1.21921 (0.8886)
DEQUITY	-9.97064 (0.0000)*	-1.66610 (0.0478)*
DIVPAYOUT	-5.21640 (0.0000)*	0.41620 (0.6614)
DIVPERSHARE	1.02493 (0.0473)*	4.20655 (0.0000)*
SREPURCH	-58.4441 (0.0000)*	-1.55743 (0.0597)
ROA	-11.2436 (0.0000)*	-4.45739 (0.0000)*
ROE	-12.3004 (0.0000)*	-2.29530 (0.0109)*

*Note: the value of probabilities associated to calculated T-statistic are between parenthesis,
significant at 5 percent level

Source: own processing E-Views 7.00

Based on the results of Levin, Lin & Chu test, which is the most consistent one due to the level of accuracy and strength, all variables are stationary.

Normality Test

Jarque-Bera test evidences if a distribution is normal by measuring the difference between skewness and kurtosis of the analyzed distribution and the normal distribution. According to the null hypothesis (H0), the series is normal distributed. If probability is lower than 0.05, we reject H0. For our sample, probability is 0.020; therefore the series is normal distributed.

TABLE 4
HAUSMAN TEST

Hausman Test Testing Random Effects			
Test	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Values	12.65	8	0.0243*

Source: own processing E-Views 7.00

For panel data, the estimation of the model requires to apply a Hausman test in order to determine the type of effects used. Based on Clark and Linzer (2012), if the probability is smaller than 0.05 we reject the null hypothesis and we select the fixed effects model.

The results of the Hausman test (Table 4) indicate a fixed effects model. We consider that from an econometric perspective, the correct application of tests and the validation of hypotheses lead to the acceptance of the models and ensure a high level of accuracy of the outcomes, based on which we can perform the economic interpretations.

TABLE 5
RESULTS OF THE PANEL DATA ANALYSIS

Independent variables	EPS (dependent variable)	EVA (dependent variable)	PBVALUE (dependent variable)
DEQUITY	969.2091 (60.69446) [0.0000]*	-48.36901 (43.30664) [0.0454]*	632.7638 (11.43200) [0.0000]*
DIVPAYOUT	-3.382251 (1.744705) [0.0539]	1.488922 (0.833595) [0.0456]*	-1.668489 (0.877108) [0.0585]
DIVPERSHARE	0.918638 (0.548157) [0.0953]	0.338408 (0.262270) [0.0484]*	-1.418075 (0.258991) [0.0000]*
SREPURCH	-3.324230 (1.406775) [0.0191]*	-0.489064 (0.679480) [0.0725]	-2.246125 (0.699126) [0.0015]*
ROA	202.0238 (93.62221) [0.0321]*	132.7889 (44.21013) [0.0030]*	114.4426 (46.90498) [0.0155]*
ROE	67.72238 (14.58426) [0.0000]*	1.141110 (7.316706) [0.0762]	35.45026 (7.296449) [0.0000]*
R-Square	0.8648	0.6509	0.8679
Durbin-Watson	1.8672	1.4133	1.7464

*Note: *Significant at 5%, in round parenthesis Std. errors, in square parenthesis the values of probabilities*

Source: own processing E-Views 7.00

According to the results of the R-Square (Table 5), all models are robust and solid; the variations of the independent variables explain 86.48%, 65.09% and respectively 86.79% the fluctuations of earnings per share, economic value added and price to book value. The statistical analysis for each variable are contained in Appendix A through C.

Stock repurchase had a negative impact on all three dependent variables, which means that in the selected period, the decision to buy stocks has generated an up-ward trend for the earnings per share, EVA and price to book value. The situation can be explained by large fluctuations in the market associated with the financial crisis between 2008 and 2010, while the restructuring activities and the

strategic plans implemented in this timeframe facilitated the indirect relationship between stock repurchase and the selected variables.

Overall, the analysis highlights a significant positive relationship between financial performance and economic value added. The contribution of the S&P 500 companies to the economic value between 2004 and 2014 has been consistent, even if within the timeframe financial turbulences manifested.

CONCLUSIONS

Stock repurchases and financial performance affects the value of shareholders both partially and simultaneously. In the existing literature, there are many studies that highlighted the dominant impact of return on asset for the stock prices evolution.

However, some researchers consider the Economic Value Added has better ability than other performance such as ROE, ROA and EPS to be included in an analysis that measure the benefits of stock repurchases for the shareholders.

The availability of both cash and treasury shares, aligned with increasing pressure from investors to utilize them, leaves many companies at the threshold of major decisions that affect their long-term prospects. The premises for an efficient stock repurchase action include two conditions: *funds availability apart from the operational and liquidity needs of the business* and *the stocks to be sold at a material discount to the company's intrinsic value* (Buffett, 2012).

The EPS indicator is the main accounting item that determines the value of a company. A stock repurchase process involves a decrease in the number of outstanding shares; therefore, the EPS will increase, while the level of earnings does not change.

We proposed to apply a panel data analysis on a sample of 433 S&P companies, between 2004 and 2014 in order to assess the impact of stock repurchase and financial performance on the EPS, EVA and price to book value. The results evidenced a negative relationship between stock repurchase and all independent variables, while the contribution of the financial performance has been positive within the selected timeframe. In this case, stock repurchases decrease value over time, but the market outlook has to be considered before any general statement.

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APPENDIX A

Dependent Variable: EPS
Method: Panel Least Squares
Sample: 2004 2014
Periods included: 11
Cross-sections included: 433
Total panel (balanced) observations: 33341

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SREPURCH	-3.324230	1.406775	-2.363015	0.0191
ROE	67.72238	14.58426	4.643525	0.0000
ROA	202.0238	93.62221	2.157862	0.0321
DIVPERSHARE	0.918638	0.548157	1.675866	0.0953
DIVIDPAYOUT	-3.382251	1.744705	-1.938580	0.0539
DEQUITY	969.2091	60.69446	15.96866	0.0000
C	5078.048	993.4488	5.111534	0.0000

Effects Specification

Cross-section fixed (dummy variables)
Period fixed (dummy variables)

R-squared	0.864831	Mean dependent var	3910.964
Adjusted R-squared	0.833689	S.D. dependent var	11632.79
S.E. of regression	4743.997	Akaike info criterion	19.93679
Sum squared resid	4.59E+09	Schwarz criterion	20.60906
Log likelihood	-2464.036	Hannan-Quinn criter.	20.20730
F-statistic	27.77065	Durbin-Watson stat	1.867273
Prob(F-statistic)	0.000000		

APPENDIX B

Dependent Variable: EVA
Method: Panel Least Squares
Sample: 2004 2014
Periods included: 11
Cross-sections included: 433
Total panel (balanced) observations: 33341

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SREPURCH	-0.489064	0.679480	-0.719763	0.0725
ROE	1.141110	7.316706	0.155960	0.0762
ROA	132.7889	44.21013	3.003585	0.0030
DIVPERSHARE	0.338408	0.262270	1.290305	0.0484
DIVIDPAYOUT	1.488922	0.833595	1.786145	0.0456
DEQUITY	-48.36901	43.30664	-1.116896	0.0454
C	-1870.383	486.1175	-3.847595	0.0002

Effects Specification

Cross-section fixed (dummy variables)

Period fixed (dummy variables)

R-squared	0.650980	Mean dependent var	166.1468
Adjusted R-squared	0.624490	S.D. dependent var	2754.021
S.E. of regression	2263.514	Akaike info criterion	18.45687
Sum squared resid	1.05E+09	Schwarz criterion	19.12914
Log likelihood	-2277.565	Hannan-Quinn criter.	18.72738
F-statistic	3.565339	Durbin-Watson stat	1.413354
Prob(F-statistic)	0.000000		

APPENDIX C

Dependent Variable: PBVALUE

Method: Panel Least Squares

Sample: 2004 2014

Periods included: 11

Cross-sections included: 433

Total panel (balanced) observations: 33341

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SREPURCH	-2.246125	0.699126	-3.212760	0.0015
ROE	35.45026	7.296449	4.858563	0.0000
ROA	114.4426	46.90498	2.439883	0.0155
DIVPERSHARE	-1.418075	0.258991	-5.475375	0.0000
DIVIDPAYOUT	-1.668489	0.877108	-1.902260	0.0585
DEQUITY	632.7638	11.43200	55.35024	0.0000
C	4028.293	449.0497	8.970707	0.0000

Effects Specification

Cross-section fixed (dummy variables)

Period fixed (dummy variables)

R-squared	0.867917	Mean dependent var	5450.754
Adjusted R-squared	0.860525	S.D. dependent var	11999.72
S.E. of regression	2384.129	Akaike info criterion	18.56070
Sum squared resid	1.16E+09	Schwarz criterion	19.23297
Log likelihood	-2290.648	Hannan-Quinn criter.	18.83121
F-statistic	130.9474	Durbin-Watson stat	1.746409
Prob(F-statistic)	0.000000		