

The Recent US Financial Crisis: Its Impact on Dividend Payout Strategy and a Test of the Silver-Lining Hypothesis*

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The authors investigate the impact of the recent financial crisis on dividend payout policies in the United States. The results are as follows. The authors find that: (1) Firms must have good financial profiles to support a policy of increasing dividend payouts during a financial crisis; (2) Overall firms increasing dividend payouts are also engaged in stock repurchases; (3) Firms choosing to increase cash dividend payouts seem to have low opportunity costs, that is, they do not have as many exercisable stock options that they may need in the face of possible future redemptions; and (4) During a financial crisis, the aforementioned trade-off between exercisable stock options and increased dividend payouts would peak, as the stock price slides to where it could be expected to V-bound and then became moderate when stock price recovered. The abovementioned findings are consistent with the “silver-lining” hypothesis which the authors proffer to suggest that the storm of economic bad times often creates circumstances that influence dividend payout strategies for firms traded on exchanges in the United States, and different dividend payout strategies may be strategically elected to reveal to the market participants a silver-lining in the cloud of bad times.

Keywords: dividend payout, stock repurchases, financial crisis

Introduction

In this study, the authors investigate the impact of the financial crisis, starting after the *Lehman Bros*, limited liability partnership (LLP) sub-prime debacle and continuing to date, on dividend payout policies for

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firms traded on major exchanges in the United States. It is interesting to examine this topic, because it is a classic illustration of the silver-lining metaphor: “Every cloud has a silver lining”. The cloud: The recent financial crisis has compromised liquidity, effectively through falling values in marketable securities and reduced trading accounts receivable and increasing allowances for doubtful accounts as well as falling stock prices, but the silver lining: These economic difficulties are also positive opportunities for firms to strategically engage and rationalize in stock buy-back activities and/or change their dividend payout policies to the end of hedging (Ryan, 2012).

Different strategies can be rationalized by management as evidence of their excellent management skills to show that even in the financial crisis, they are able to reward the stockholders for making the wise decisions to hold their stocks. For example, on the one hand, the strained cash liquidity of firms may limit some companies’ ability to maintain their current dividend policies. Therefore, companies can argue that they need to reduce their dividend payouts to guarantee that they will be able to weather the economic bad times. On the other hand, for some other companies, they may decide to increase their dividend payouts in order to comfort their investors and restore their confidence, while the stock prices were depressed due to the overall economic situation (Ryan, 2012). For these companies, to increase dividend payouts across over time provides a really good value to the shareholders, and the ability to keep up with the increasing dividend payout during the financial crisis demonstrates the strategies and capabilities of the firms to offer sustained and long-term value to the stockholders (Ryan, 2012). Similarly, on the one hand, the depressed stock price may raise some concerns from the investors regarding the future prospect of companies; on the other hand, the low stock price offers great opportunities for companies which are still optimistic about the future development to repurchase their own stocks from the market in order to benefit from the expected price recovery and also reduce their prospective costs of giving stocks to their employees, as the employees redeem their stock options after the financial crisis. The “spins” are indeed endless.

In summary, the authors expect that during the financial crisis, firms, when facing conflicting forces which create limits—the cloud and seeing incentives and opportunities—the silver lining, will react differently based on the characteristics of their firms and industries, resulting in changes in the patterns of stock repurchase activities and dividend payout policies during this troubled period.

The results reveal some interesting findings. First, the results indicate a positive association between return on assets (ROA) and increased dividend payout, implying that firms must have good financial profiles in order to increase their dividend payouts before as well as after the financial crisis event starts. Second, the authors found a consistent and positive association between firms’ election to affect stock repurchases and increased dividend payout, indicating that firms that increased dividend payouts also elected to repurchase stocks, so these firms did not increase dividend payout by abandoning their stock repurchase plans.

Third, the authors offer the economic logic that at any point in time, if a firm decided to increase dividend payouts while engaging in stock buybacks, it would sacrifice opportunities to repurchase stocks with the same cash to cope with the future redemption of employees’ stock options. The above logic indicates that there should be a significant trade-off between increased dividend payout and exercisable stock options after controlling for other related variables and suggests that firms choosing to increase their cash dividend payouts have low opportunity costs, that is, they do not have as many exercisable stock options that they need to face the redemption in the future. The finding of this paper supports this logic.

Fourth, before the financial crisis, stock prices were biased on the high side. The higher stock price before crisis may trigger more current stock option exercises, adding pressure to stock repurchases¹. Since the stock price was high and still increasing at this time, the pressure to repurchase stocks for current and incoming stock option exercises required more use of funding and left less funding available for increasing dividend payout². This implies that before the financial crisis, more exercisable stock options would lead to a less likelihood of increasing dividend payout. Accordingly, the authors found a demonstrable tendency to engage in trade-off between exercisable stock options and increased dividend payout prior to the financial crisis, which provides support for the authors' argument.

Fifth and lastly, when the financial crisis began and stock prices suddenly and dramatically dropped, it became easier and perhaps a wise strategy for a firm to repurchase its own stock. A firm with more exercisable stock options would be tempted to repurchase more stocks at a historically low price to pump up its reserve for future redemption of stock options. Given the tightened cash availability during the financial crisis period, to do so would further strain and possibly limit the resources available for increasing dividend payout. Therefore, the authors expect that during the financial crisis, the trade-off between exercisable stock options and increased dividend payout would reach the peak, as the stock price touched down for a "V-bound"—so named for the V-shaped trajectory sketched out by a fall followed by an equal slope rise in stock prices, and then became moderated when stock price recovered. The results confirmed this V-bounding argument.

This article is organized as follows. In the next section, the authors will discuss the previous literature related to stock repurchases and dividend payout policies. Then, they will develop the hypotheses for testing followed by a discussion for data collection and sample selection. Next, the empirical results will be presented and discussed. Lastly, the authors will present the concluding remarks and suggest future research directions in the interesting market context.

Literature Review

Stock Repurchases

There are many reasons behind the decisions of firms to buy back their own stocks. According to previous literatures, firms may repurchase stocks to distribute cash in excess of current investment opportunities (e.g., Jensen, 1986; Stephens & Weisbach, 1998; Barth & Kasznik, 1999; Dittmar, 2000). Also, firms may use stock buyback as a signal to the market, if the management feels that their stocks are undervalued (e.g., Vermaelen, 1981; Bartov, 1991; Ofer & Thakor, 1987; Jagannathan & Stephens, 2003). Stock repurchases were also often used by companies as a substitute for dividend payouts (Jagannathan, Stephens, & Weisbach, 2000; Brav, John, Campbell, & Michaely, 2005; Grullon & Michaely, 2002; Skinner, 2008). Stock repurchases may be used as a tool in a payout policy, which allows management to take advantage of financial flexibility between dividend payouts and stock repurchases (Jagannathan et al., 2000). Stock repurchases were often used as a substitute for dividends because of the personal tax rate advantage of capital gains (Scholes & Wolfson, 1992). Firms can also use stock repurchases to opportunistically manipulate earnings per share (EPS) (Bens, Nagar, & Wong, 2002; Brav et al., 2005).

¹ At this time, a firm may consider to increase its stock reserve by repurchasing more stocks, given that the price is increasing and no one is aware of the looming financial crisis.

² Before the financial crisis due to higher earnings in the denominator of dividend payout calculation, it would require more cash commitments to significantly increase dividend payouts.

In the 1990s, it was documented that there was a significant relationship between the stock option compensation and stock repurchases (e.g., Liang & Sharpe, 1999; Fenn & Liang, 2001; Young & Yang, 2011; Babenko, 2009). According to Liang and Sharpe (1999), it was observed that a significant increase in stock repurchases in the 1990s has been accompanied by a corresponding rise in employees' stock option grants. Jolls (1998), Weisbenner (2000), and Fenn and Liang (2001) have looked into the relationship of stock repurchases and stock options through the lens of agency theory. They concluded that firms that rely on stock options to compensate their top management are more likely to repurchase stocks. Fenn and Liang (2001) have offered convincing evidence that top management's stock option awards are positively related to stock repurchases and negatively related to dividend payments.

Agency theory is not the only factor explaining the relationship between stock repurchases and stock options, the "undo-dilution" hypothesis explains this relationship by referencing a different theoretical context. This hypothesis indicates that firms repurchase stocks to undo the dilution of EPS from the total outstanding stock options (Weisbenner, 2000; Klassen & Sivakumar, 2001; Kahle, 2002; Brav et al., 2005; Bens, Nagar, Skinner, & Wong, 2003). Weisbenner (2000) found a positive relationship between the number of stocks repurchased and stock options grants given in a current year and prior years. This very relationship was noted after the positive association of stock repurchases, with the number of stocks outstanding being found in the studies of Klassen and Sivakumar (2001) and Kahle (2002). Brav et al. (2005) surveyed 384 chief financial officers (CFOs) and treasurers. Their results showed that three-fourths of the CFOs and treasurers have indicated that an increase in EPS is an essential factor in their repurchase decisions, and two-thirds of the CFOs and treasurers feel that offsetting the dilutive effects of stock options is an important factor affecting stocks repurchase decisions.

Dividend Payout Policy

Dividend payouts must be authorized by the board of directors based upon the recommendation of the audit committee now in play due to Sarbanes-Oxley 2002. Many previous literatures investigated the dividend signaling effects and provided supports to the role of dividend payouts as signals to the market participants (e.g., H. DeAngelo, L. DeAngelo, & Skinner, 1992; Richardson, Sefcik, & Thompson, 1986; Gurgul, Mestel, & Schleicher, 2003; Bozos, Nikolopoulos, & Ramgandhi, 2011). For example, Ryan (2012, p. 18) indicated that, "Before jumping into paying a regular dividend, though, management has to determine whether it fits the company's financial strategy". Bozos et al. (2011) investigated dividend signaling under economic adversity using the recent data from London Stock Exchange from late 2007 to early 2008. They found that the information content of dividends varies with the economic situations and the information content of dividends is less than earnings in the period of strong and stable economy but more than earnings in the period of a bad economy, supporting the role of dividends as a signal from management in bad financial time. Therefore, the authors need to look at the senior management group as constituting the strategic montage. This is where the strategic aspect comes into play and spawns interest in the authors' investigation of the silver-lining hypothesis.

Dividends can be paid in two ways: cash or stock dividends. By paying cash dividends, companies return a portion of the earnings to the shareholders in the form of cash. In contrast, stock dividends represent additional stocks given to existing shareholders to increase the number of shares held by the existing shareholders; however, there is usually a dilution of the market valuation at the day of declaration, but over time, the additional shares seem to have an incremental valuation over the market cap for the reduced number of shares. So, in discount valuation sense, stock dividends are real wealth adjustments (Healy & Palepu, 1993; Rankine &

Stice, 1997). This is critically important, as cash and stock dividends play a role in the strategy set of senior management. For example, some companies in high-tech industries (e.g., Google Inc. and Cisco Inc.) do not pay cash dividends. Many of them prefer to retain their cash and rationalize this policy option: need of cash for rapid expansion and growth in the future. Some other companies (e.g., McDonald's and Exxon-Mobile) in different industries maintain a consistent cash dividend payout policy, because these companies are in a relatively stable industry with steady cash inflows (Russolillo, 2012).

The volatility of stock price in the recent years in the context of the recent financial crisis and Euro debt crisis has raised the concern for unpredictability of stock market and changed the tastes of the market participants in favor of cash dividend payout. For example, Russolillo (2012) indicated that:

Shares in these defensive categories are giving US equities an extra touch of resilience amid the tumult elsewhere. Stock markets in Europe and Latin America have seen significant selloffs this year amid the uncertainty surrounding Greece's future in the euro zone and worries about weakening global demand which will likely negatively impact China. Defensive companies tend to get much of their revenue from the US, where the economy has remained relatively robust. And while most are in mature industries with limited growth prospects, investors are lured with higher dividend payouts. (C. 4)

Dividend Payout Policy and Stock Repurchases

Firms often use stock repurchases as a substitute for paying dividend (e.g., Jolls, 1998; Dittmar, 2000; Fenn & Liang, 2001). It is interesting to observe the trade-off between stock buybacks and dividend payouts. On the one hand, based on agency theory, a firm may decide not to pay dividends but use cash to buy back stocks from the market. In this case, the stock buy-back decision of this firm indicates the undervaluation of the stocks and signals to the market the private information concerning the unanticipated higher growth in the future, resulting in an increased stock price. On the other hand, a firm may decide to increase dividend payout without a simultaneous increase in stock buybacks. In this case, the increased dividend payout may send a signal to the market indicating that management has no pressing current need for cash to finance projects or retire debts and therefore may feel pressure to return the idle cash as dividends to placate the shareholders. This would likely to be considered by the market as a sign of managerial ineptness, leading to a negative stock price reaction on the stock market (Barth & Kasznik, 1999; Dittmar, 2000).

Also, a firm with an increasing longitudinal pattern of operating cash flows may choose to increase either dividend payouts or repurchases, or both simultaneously. Stock repurchases allow management to take advantage of financial flexibility between dividend payouts and stock repurchases (Jagannathan et al., 2000; Brav et al., 2005). For example, firms with increasing operating cash flows due to strong growth may decide to increase dividend payout to reflect the permanent portion of income growth but choose stock buybacks for the temporary increase of income, because they do not want to disappoint investors by increasing dividend payout excessively and then being forced to cut it back due to economic retrenchment (Jagannathan et al., 2000; Brav et al., 2005). According to Vascellaro (2012):

Apple on Monday bowed to mounting pressure to return some of its roughly \$100 billion in cash reserves to shareholders by saying it would issue a dividend and buy back stock, marking the technology company's biggest break yet from Mr. Jobs' philosophy. (A. 1)

As one can see, the literature rationalizes many different underlying possible strategy sets that seem to be motivated by the internal and external economic climate facing the firm. In summary, dividends may be a sign of senior manager ineptitude, or a wise decision to reward loyal stockholders and garner support for future

stock issues, thus avoiding the long-term capital debt market as a financing option, or sometimes a strategic ploy to offer stock dividends in place of cash to placate the stockholders while minimally affecting the economic strength of future actions. All of these are “possible” reasons as viewed by the market for configuring expectations as to market cap, a fundamental concern and a major variable in the strategic arsenal of the firm. Furthermore, when there are economically difficulties, dividend payout strategy becomes even more important. This is the reason why the authors have chosen the over-arching hypothesis termed the silver-lining strategy. It is a label that the authors have given to the strategy that may guide senior managers in forming dividend policies to reveal the silver lining to the market in the cloud of economically troubled times. In the following section, the authors will develop a variety of sub-hypotheses concerning dividend payouts in an economic downturn that support the reasonability of the silver-lining strategy in varying degrees. Later, the authors will test those sub-hypotheses and discuss their individual contributions to the over-arching silver-lining strategy.

Hypotheses Development

Figure 1 illustrates the authors’ rationale for developing the first hypothesis. As shown in Figure 1, other things being equal, in economically challenged times, a firm with less exercisable stock options will have less pressure to buy back its own stocks to prepare for current or future redemption. The lower pressure for repurchasing stock will release more resources for a firm to increase its dividend payout if needed. This strategy can be rationalized, when a firm expects a tendency for upward movement of stock price from the relative low points after the unset of the economic event. This would also be the case when the economic difficulties were the results of an “event”, such as the *Lehman Bros* sub-prime debacle in September 2008 compared with slowly deteriorating economic conditions. This rationale suggests that a firm with less exercisable stock options to cope with in the future is more likely to increase dividend payout. This leads to the authors’ first support-hypothesis to the silver-lining strategic dividend scenario.

Support-hypothesis 1: In economically troubled times, a company with less exercisable stock options will be more likely to increase cash dividend payout controlling for other factors.

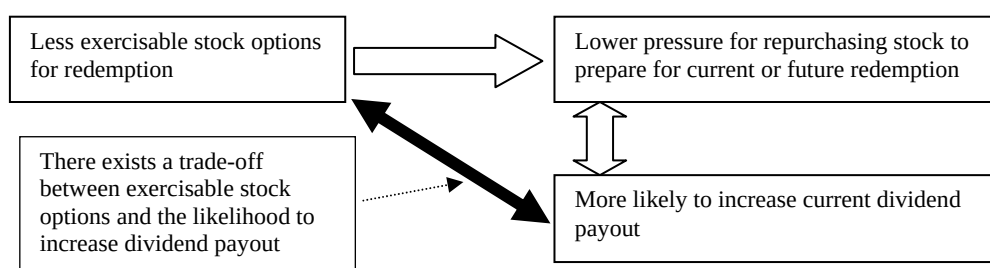


Figure 1. The trade-off between exercisable stock options and dividend payout increase.

When the financial crisis hit the companies, bank systems tightened the credit lines of companies and cash became an extremely important life vest for companies facing the unknown devils. While some firms in bad financial conditions struggled for survival, others may find opportunities to use their cash smartly for their future benefits in reasonable condition. Considering that stock price has been low due to the financial crisis, the firms with private information about their real financial conditions may take advantage of the enlarging information asymmetry to repurchase the stock from the panicking investors. To do so, the firms used their idle cash as an investment into their future. They can buy back their own undervalued stocks at a historical low

point and reserve these stocks for what they anticipate, as the economy recovers from the financial mess. As the economy recovers from the financial difficulties, the increasing stock price will directly benefit the firms, and the stock price, when exceeding the exercise price, will trigger exercise of employees' stock options and management may distribute as part of the incentives or bonus programs' stocks purchased at a low cost to the employees. Therefore, for these types of firms, they will generate huge benefits from the capital gains realized in the future.

Before the financial crisis, the stock price was on the high side and still increasing. As indicated by Figure 2, the escalating stock price before a crisis triggered more stock option exercises, draining the stock reserve and adding pressure for stock repurchases. The positive relationship between exercisable stock options and the pressure for stock repurchases in (A) was strong. Also, in order to buy back more stocks at this time at a high price per share, it requires more funding allocated to repurchases, leaving less funding for increasing dividend payout. Therefore, the negative association between the pressure for repurchasing stock and the likelihood of increasing dividend payout was strong in (B). Taken together, the authors expect a strong magnitude of a trade-off between exercisable stock options and the likelihood of increasing dividend payout right before the financial crisis phased in.

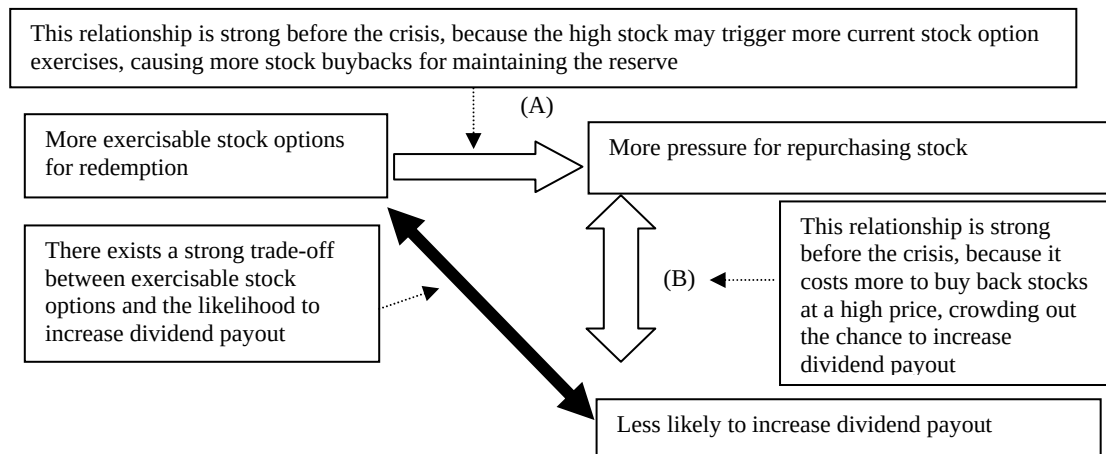


Figure 2. The trade-off between exercisable stock options and dividend payout before the financial crisis.

When the dark cloud of the financial crisis stormed in, stock prices started going down. As shown in Figure 3, a firm with more exercisable stock options for redemption is now observing a declining cost of buying back its own stock. When the stock price drops near to the trough, the firm is tempted to invest more money in stock buyback for future capital gains, resulting in a strong positive relationship in (A). However, to do so would "crowd out" the funding available for increasing dividend payout, resulting in a strong negative relationship in (B). Therefore, the authors expect to see a strong trade-off between exercisable stock options and the likelihood of increasing dividend payout, as the stock price touched down and the magnitude of this trade-off would be the largest during the financial crisis period when the stock price finally touched down. Thereafter, when the economy recovered, the trade-off between exercisable stock options and the likelihood of increasing dividend payout would be gradually mitigated as the stock price moved up. Taken together, the authors expect that the aforementioned trade-off in Support-hypothesis 1 between exercisable stock options and increased dividend payout would be the largest first during the V-bound period and then mitigated along the recovering path of the economy.

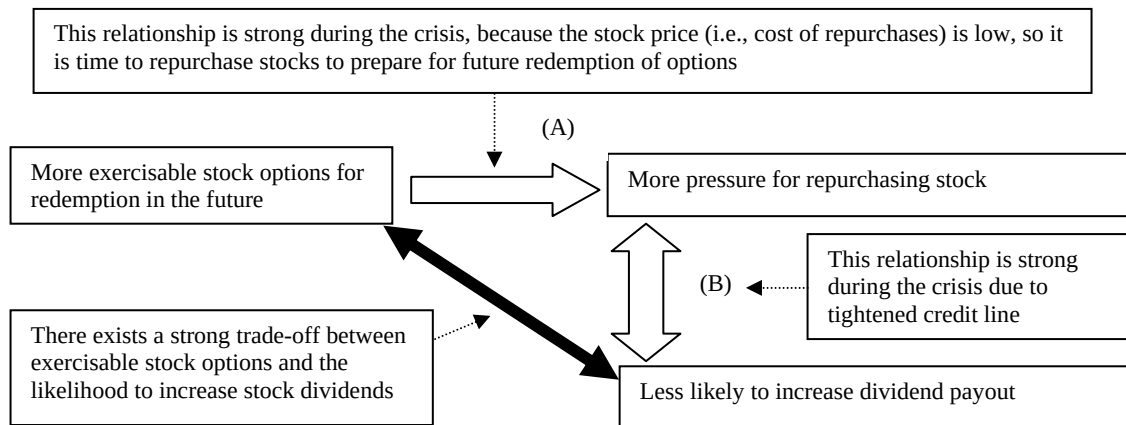


Figure 3. The trade-off between exercisable stock options and dividend payout during the financial crisis.

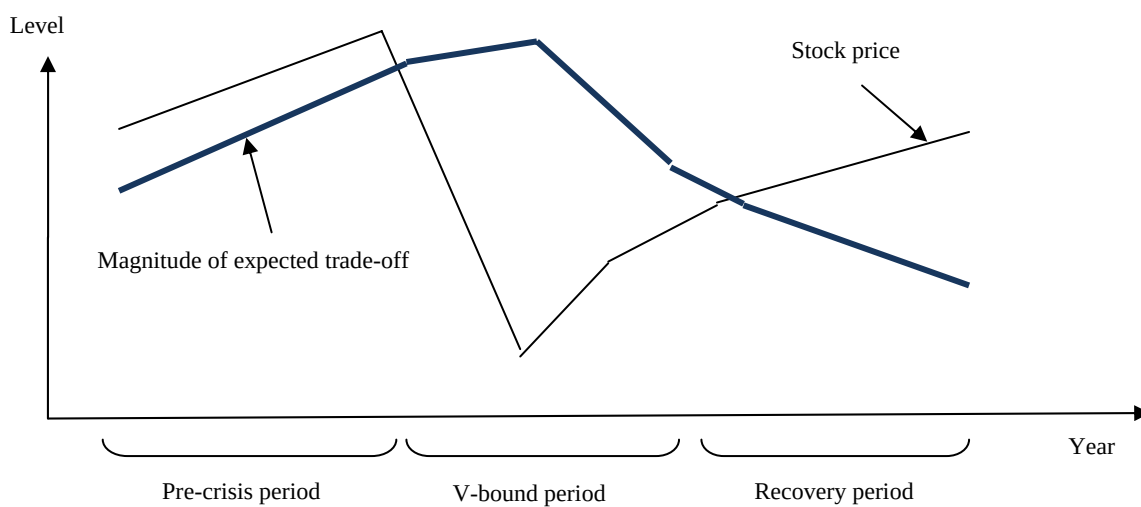


Figure 4. Stock price pattern versus the pattern of the trade-off between the increased cash dividend payout and exercisable stock options across time periods.

Figure 4 compares the pattern of the price changes with the pattern of the magnitude of the trade-off between exercisable stock options and increased dividend payout across the time periods including pre-crisis period, V-bound period, and recovery period. According to Figure 4, the magnitude of the trade-off was escalating to a high level gradually during the pre-crisis period. Then, it was maintained at or increased to the peak, as the economy touched down during the V-bound period, and gradually lowered down during the recovery period. This leads to the authors' second hypothesis.

Support-hypothesis 2: During the financial crisis period the magnitude of the trade-off between the increased cash dividend payout and exercisable stock options will be first intensified and then mitigated as the economy and markets recover.

Model and Research Design

Considering the reported information from prior research and the assumptions as detailed above and following the analytic inference model used by Barth and Kasznik (1999), Kahle (2002), and Lee and Alam (2004), the authors will use the following nominal logistic linear regression model to develop the inference

information to examine the effect of the nine variables on cash dividend payout and to test the a-priori support-hypotheses³:

$$\begin{aligned} DivpayUP_{i,t} = & \alpha_0 + \alpha_1 Idlecash_{i,t-1} + \alpha_2 ROA_{i,t} + \alpha_3 DE_{i,t} + \alpha_4 MB_{i,t-1} + \alpha_5 SalesG_{i,t} \\ & + \alpha_6 Underwater1yes_{i,t} + \alpha_7 OPxbleCSO_{i,t-1} + \alpha_8 TotalAssets_{i,t} + \alpha_9 BuybackDum_{i,t} \end{aligned} \quad (1)$$

Definition of variables and expected direction/sign [- , + , or $\pm$ if not able to be a-priori specified] are as follows:

DivpayUP_{i,t}: A dummy-discriminator variable which equals one if a firm increased its dividend payout and zero if otherwise;

Idlecash_{i,t-1}: The ratio of cash and cash equivalents to total assets of a firm at the end of prior year [+];

ROA_{i,t}: Return on total assets in the current year [+];

DE_{i,t}: Debt-to-equity ratio in the current year [-];

MB_{i,t-1}: Market-to-book ratio from the previous year [$\pm$];

SalesG_{i,t}: One-year non-annualized sales growth [-];

Underwater1yes: A variable measuring the deviation of stock price from the average exercise price of stock options which is positive if the average exercise price of stock options is above the market price (i.e., underwater) and negative if the average exercise price of stock options is below the market price (i.e., not underwater) [$\pm$];

OPxbleCSO_{i,t-1}: The number of exercisable employee stock options for a particular company for the previous year, deflated by the number of common shares outstanding [-];

TotalAssets_{i,t}: The total assets in the current year [+];

BuybackDum_{i,t}: A standard dummy variable which equals one if a firm repurchased its stock in the current year and zero if otherwise [$\pm$].

For the inference model in Equation (1), the *DivpayUP* is the nominal dependent variable coded as one for an increase in dividend payout and zero if otherwise. The independent variables on the right-hand side of Equation (1) include variables identified from previous literature related to the decision of dividend payout.

Dittmar (2000) indicated that a firm with low growth and more idle cash tends to increase dividend payout. Therefore, the authors expect a positive coefficient on idle cash (*Idlecash*) and a negative coefficient on sales growth (*SalesG*). Previous literature indicates that firms often use stock repurchases as a substitute for dividend payouts (Dittmar, 2000; Fenn & Liang, 2001) or as a tool for management to take advantage of financial flexibility between dividend payout and stock repurchase (Jagannathan et al., 2000; Brav et al., 2005).

³ As a point of information, the authors realize that these variables will likely to have Pearson/Spearman correlation individually and over the various sub-sets. In addition, factor results suggest that over the years, the factor constituencies are changing. However, the principal loadings seem to be stable overall. As the authors have an unbalanced and dynamic panel and are sensitive to the event-blocking which starts in September 2008 which means that the authors have less than three years in the longitudinal window and as there is no way to control with the structural equation model for the differential factor structure that does underlie the variable sets, the authors have elected to analyze the information set as un-balanced year-cross-sections and then to examine the variables on that basis using the Linear Nominative Logit model (Excel: Data Analysis Platform). This is a reasonable approach, as there are degrees of freedom problems with a longitudinal analysis; even the simple Holt/Autoregressive Integrated Moving Average (ARIMA) (0, 2, 2) two parameter linear exponential smoothing models, require N-4 longitudinal observations which are outside our accrual range. This of course means that the actual confidence intervals are a bit wider due to the co-variation in the independent variable and selective panel reduction by electing to focus on the cross-sections by year; and so, the *p*-values are biased to the null. As such, they are conservative. The Harmon factor results are available from the author for correspondence. Finally, the overall predictive model fits were tested using the classification/misclassified matrix.

Accordingly, the authors expect that the coefficient on the dummy variable for stock repurchases (*BuybackDum*) could be either positive or negative.

During the financial crisis, a firm with a high debt-to-equity ratio will be less likely to increase dividend payout due to shrinking liquidity. Therefore, the authors proffer a negative coefficient on *DE*. The authors expect a positive coefficient on *TotalAssets*, because Fenn and Liang (2001) and Weisbenner (2000) found that logarithm of assets was positively associated with dividend payout and repurchase payout. Also, the authors believe that during the financial crisis, only a firm with a better financial profile will be more likely to increase dividend payout in order to restore shareholders' confidence. Therefore, the authors expect a positive coefficient on *ROA*. The authors use the ratio of *MB* as a control variable for industry, and the direction of the coefficient on *MB* is unknown. The sign of the coefficient on the dummy variable coded as one for underwater stock options (*Underwater1yes*) is uncertain, because on the one hand, the underwater stock options resulting from the disappointing market performance could force management to increase dividend payout in order to please the frustrated investors; on the other hand, the underwater stock options could be linked to financially distressed firms with no cash available for increasing dividend payout.

Support-hypothesis 1 contends that a company with less exercisable stock options will be more likely to increase cash dividend payout after controlling for other factors. Therefore, the authors expect a significant negative coefficient on the *OPxbleCSO* in Equation (1). To test Support-hypothesis 2, the authors will observe the coefficient on *OPxbleCSO* in Equation (1) for the fiscal years from 2006 to 2010. The authors expect that the negative coefficient on *OPxbleCSO* representing the trade-off between the increased dividend payout and exercisable stock options will be intensified by the financial crisis and then moderated along the recovery of the economy.

Data and Sample Selection

All of the data used in this study are collected from the Standard & Poor (S&P) Compustat™ database as electronic data interchange (EDI) downloads from Wharton Research Data Services (WRDS™): The Wharton School. The period of investigation is from fiscal years from 2006 to 2010, which covers the event-period of financial crisis. All of the active US firms available on S&P Compustat as of February, 2011 are included in our sample except for the firms in the regulated or semi-regulated industries. No Industry: Standard Industrial Classification (SIC) or North American Industry Classification System (NAICS) dummies were used to control on SIC/NAICS groupings, because the abovementioned hypotheses and exploratory investigations are not conditioned upon industry coding, as the repurchase is motivated by general economic factors as opposed to industry specific considerations. This is confirmed in the literature, as there was no study that indicated that the economics or strategic repurchase had industry effects. The firms involved in stock repurchases are identified by examining the Compustat item concerning the market value of repurchases in common stocks and preferred stocks and then subtracting the market value of repurchases in preferred stocks. Therefore, the stock buybacks in this research include open-market stock repurchases and non-open market repurchases, such as tender offers and privately negotiated transactions.

The financial (SIC 6000-SIC 6999), regulated (utilities firms with SIC 4900-SIC 4999), and semi-regulated firms (SIC 8000-SIC 9999) are removed, because they are regulated, and thus their repurchase decisions are different from other firms. The firm-years are removed from the sample, if financial data are missing from Compustat. Finally, as a data preparation step, all of the data series that were used to develop the

inference information were screened for Mahalanobis outliers. These are correlation outlier-anomalies, over the non-dummy variable set, which interject non-model related possibly biasing noise (Sall, Lehman, & Creighton, 2005). The number of firms screened outside the 95% confidence level was in all cases less than 3% of the total number of firms in the full datasets (Sall et al., 2005).

Table 1

Testing Results of the Nominal Logistic Linear Regression

Variable	Expected sign	Fiscal year 2006		Fiscal year 2007	
		Value	Significance	Value	Significance
<i>Idlecash</i>	+	< 0.01	0.51	< 0.01	0.66
<i>ROA</i>	+	0.63	0.012	1.88	< 0.0001
<i>DE</i>	–	< -0.01	0.67	0.000	0.75
<i>MB</i>	±	< -0.01	0.02	0.000	0.31
<i>SalesG</i>	–	-1.1	< 0.0001	-0.87	< 0.0001
<i>Underwater1yes</i>	±	0.23	0.002	0.02	0.28
<i>OPxbleCSO</i>	–	-9.37	< 0.0001	-12.52	< 0.0001
<i>TotalAssets</i>	+	< 0.01	< 0.0003	< 0.01	< 0.0001
<i>BuybackDum</i> [0/1]	±	1.02	< 0.0001	0.96	< 0.0001
Constant	±	-1.52	< 0.0001	-1.51	< 0.0001
Miss class %		15		16	
<i>N</i>		3,201		3,352	

Variable	Expected sign	Fiscal year 2008		Fiscal year 2009		Fiscal year 2010	
		Value	Significance	Value	Significance	Value	Significance
<i>Idlecash</i>	+	< 0.01	0.67	< 0.01	0.15	< 0.01	0.76
<i>ROA</i>	+	2.14	< 0.0001	0.87	< 0.0001	3.84	0.010
<i>DE</i>	–	< 0.01	0.67	< -0.01	0.64	0.14	0.20
<i>MB</i>	±	< -0.01	0.93	-0.002	0.72	-0.03	0.56
<i>SalesG</i>	–	-0.63	0.0002	-0.61	0.0006	-0.88	0.14
<i>Underwater1yes</i>	±	0.0053	0.40	0.002	0.22	0.21	0.15
<i>OPxbleCSO</i>	–	-10.95	< 0.0001	-9.07	< 0.0001	-6.12	0.10
<i>TotalAssets</i>	+	< 0.01	< 0.0001	< 0.01	< 0.0001	< 0.01	0.009
<i>BuybackDum</i>	±	0.75	< 0.0001	0.67	< 0.0001	-0.073	0.795
Constant	±	-1.49	< 0.0001	-1.55	< 0.0001	-1.34	< 0.0001
Miss class%		17		17		18	
<i>N</i>		3,293		3,264		425 ^a	

Notes. ^a For the data in the fiscal year 2010, the authors included the firms with data available on the Compustat as of February, 2011 (before the recent debt crisis in Europe). The fiscal year ends of these firms are prior to December 1, 2010. Therefore, the sample size was smaller. The longitudinal stability of the parameters of interest and the misclassification results are suggestive of panel with only slight random variations over the factor sets. Also as a point of model-fit information, the right-side values of the three 95% confidence intervals for the misclassifications are all less than 22%, indicating an effective model reclassification that is consistent with the fact that there are a number of significant variable classifiers.

Test Results

Our results indicate that during the financial crisis period in fiscal year 2008, around 16% of firms increased dividend payout and the remaining either did not increase or even decreased the dividend payout during the financial crisis. In contrast, prior to the financial crisis, only around 13% of firms increased dividend payout, a result for which the directional *p*-value is less than 0.01. This finding shows that during the financial

crisis, more firms took action to increase their dividend payouts to comfort and restore the confidence of the investors.

The results in Table 1 indicate that the lower the *SalesG*, the higher the *DivpayUP*, which is consistent with the previous literature (e.g., Dittmar, 2000). Also, the authors found a consistent positive relationship between the *ROA* and the *DivpayUP*. This finding was consistent across five years and supports the authors' belief that only a firm with better financial profile will be more likely to increase dividend payout. It is interesting to note that the authors found a consistent and positive association between the incurrence of *BuybackDum* and increased *DivpayUP* from fiscal years 2006 to 2009, implying that the firms that engaged in increasing dividend payout are also involved in stock repurchases. These firms did not increase dividend payout by abandoning their stock repurchase plans. The result in Table 1 indicates that *IdleCash* is not a significant determining factor for the decision of increasing dividend payout. The authors also found that the variable *underwater1yes* (i.e., the exercise prices of stock options are on average above the market prices) is a significant factor in increasing dividend payout only in the pre-crisis fiscal year 2006. This finding is interesting and can be explained as follows. Before the financial crisis, a firm with underwater stock options was likely to be a firm with disappointing stock performance due to its own sluggish growth so that this firm with underwater stock options must allocate more funding to increase dividend payout in order to attract investors for holding the stocks. In contrast, during the financial crisis, many firms have underwater stock options due to the overall market crash so that underwater stock options are not the driving forces for the individual dividend payout decision.

Testing Support-Hypothesis 1

Support-hypothesis 1 contends that in a distressed market, a company with fewer exercisable stock options will be more likely to increase cash dividend payout, controlling for other factors. The results in Table 1 demonstrate that *DivpayUP* is inversely related to *OPxbleCSO* in all five years, supporting the first Support-hypothesis. Since a higher dividend payout would sacrifice the opportunities of using the same money to buy back more stocks at a historically low point, a firm that decides to offer higher dividend payout would face a higher opportunity cost, if this firm has a high volume of exercisable stock options to cope with in the future for redemption. This is consistent with the silver-lining scenario in that during the financial crisis, the extent of the trade-off between exercisable options and increased dividend payout for an individual firm reflected the perspectives of senior managers concerning the firm's prospect, and this trade-off revealed different silver-lining strategies to the market during the storm. For example, given the same level of exercisable stock options during the financial storm, a firm that is more optimistic about its future may strategically buy back more stocks and decide not to increase the dividend payout, and other firms that are more pessimistic about their future may buy back less stocks and instead use the money as dividends to comfort the panicking stockholders. Either way, this could be argued by senior managers and would likely be viewed favorably as a wise decision in the distressed economic climate, thus supporting the relative retrenchment as warranted fiscal conservatism.

Testing Support-Hypothesis 2

The authors predict in Support-hypothesis 2 that during the financial crisis period, the magnitude of the trade-off between the increased cash dividend payout and exercisable stock options was first strong and then mitigated as the economy recovered. Comparison of the regression results from 2006 to 2010 provides further

information supporting the second hypothesis. In fiscal year 2006, the coefficient on *OPxbleCSO* was -9.37 before financial crisis initiated, and stock price started going downward around October of calendar year 2007. In fiscal years 2007 and 2008, the same negative coefficient grew from -9.37 to -12.52 and -10.95 respectively, indicating that the trade-off between increased dividend payout and exercisable stock options was strong as the financial crisis started. At this time, the opportunity cost of increasing dividends (rather than buying back stock at a historically low price) was the highest. In fiscal years 2009 and 2010, the above trade-off between *DivpayUP* and *OPxbleCSO* was mitigated (-9.07 and -6.12 for fiscal years 2009 and 2010 respectively) while the economy recovered, consistent with the notion that the opportunity cost of increasing dividend payout (i.e., not buy back more cheap stocks for coping with exercisable stock options) had been shrinking as the stock price recovered. If one proffers an exploratory directional test for this trending of coefficients in a Bernoulli test-context against chance, the *p*-value would be less than 0.02. Figure 5 presents a graph of the Dow Jones Industrial Average since 2000⁴. The results from Table 1 are consistent with the stock price changes in Figure 5 from fiscal year 2006 to fiscal year 2010⁵. Therefore, the results in Table 1 reveal evidence that supports the over-arching silver-lining hypothesis/scenario. If the authors benchmark their results from the beginning of the final crisis and trace them through to the end of the accrual period, they see convincing evidence that managerial actions were consistently following the dividend strategy, demonstrating that the distressed economic climate would not compromise the ability of the organization to sustain its performance profile and preserve its market cap.

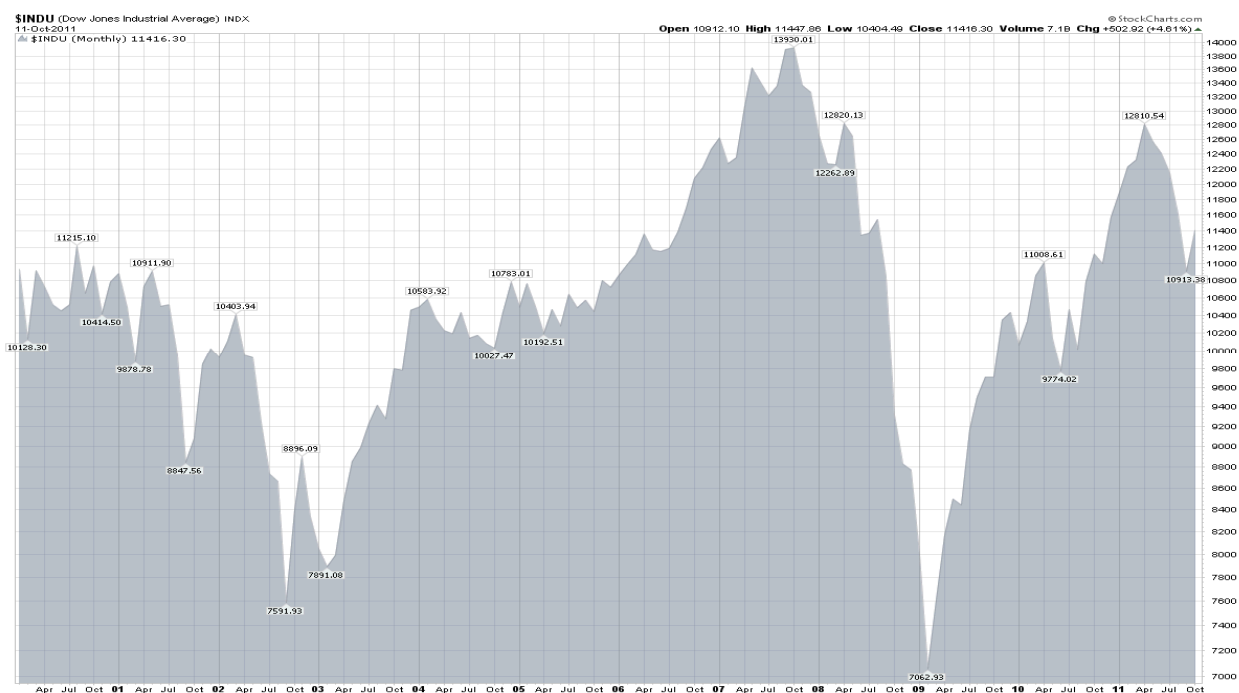


Figure 5. Dow Jones Industrial Average since year 2000. Source: Retrieved from <http://www.stockcharts.com/freecharts/historical/djia2000.html>.

⁴ This graph is presented based on calendar years. In comparison our results are presented based on fiscal years due to the data availability.

⁵ The authors wondered whether or not our results were affected by the negative dividend payout ratios. After deleting the data with negative payout ratios, the authors found no significant changes to our reported results. Also, as a point of information, only a low percentage of firms has negative payout ratios in our sample.

Conclusions and Future Research

In this study, the authors investigated the impact of the recent financial crisis on dividend payout policies in the United States with an eye to better understand the silver-lining scenario guiding payout strategies of firms during the economic downturn. To this end, the authors created two Support-hypotheses that would provide “related” concurrent evidence. The first hypothesis is a static look at the dividend policy variable and the second is a more dynamic and benchmarked view of the same variable set. The authors test these two Support-hypotheses, and in both cases, they see consistent support for the silver-lining scenario. Specifically:

(1) The authors found that firms must have good financial profiles in order to increase their dividend payouts and the firms that engaged in increasing dividend payout are also involved in stock repurchases. Also, their evidence showed a higher percentage of firms that increased their dividend payouts possibly due to the effects of the financial crisis;

(2) The authors’ result suggests that a firm choosing to increase cash dividend payout did not have as many exercisable stock options that it needs for redemption in the future. Most importantly, the authors expect and confirm with their evidence that the aforementioned trade-off between increased cash dividend payout and exercisable stock options was intensified when stock price started falling due to the financial crisis and then moderated when stock price recovered. In conclusion, this study provides some insights into the dividend payout policies and stock buyback activities of US firms during the financial crisis;

(3) The context of the financial crisis in the USA offers an excellent opportunity to examine how companies reacted to the dramatic change in economic environment by adjusting their dividend payout policies and repurchase decisions;

(4) Future research may investigate, in a more direct way, the functioning of the silver-lining scenario as a “survival guide” in economic challenging times. This direct evidence will soon be available from firms that are involved in the Euro-zone. One may conjecture that the extent of dependence that a firm has in the global world is impacted by Euro-zone economic involvement compared with firms that are insulated from the Euro-zone current and coming difficulties. For example, the authors suggest a study using most of the same variables that they have offered in a blocked longitudinal panel and/or cross-sectional design on G-20 firms with heavy Euro-zone dependence compared with a matched set of firms with established China-connections, such as two-way partnering, venturing, and exclusive contracting. Here the authors anticipate differential effects for firms that are more committed to economic links in the Euro-zone compared with firms that are linked with the powerful Chinese economy. These differential effects should shed more light on the functioning of the silver-lining hypothesis as a way to strategize dividend payments in the face of differential economic difficulties. Another possible study is to identify firms that seem to have employed a silver-lining strategy and to select a match that does not exhibit a silver-lining profile and compare their market performance profiles over a short or intermediate run. This would identify possible market effects that reward management “strategic behavior”.

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