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THE ROLE OF ECONOMIC GROWTH ON CORPORATE DISTRIBUTION POLICY

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## **Abstract**

Publicly-traded corporations are faced with the responsibility to maximize shareholder wealth. Businesses often run into the situation where their own liquidity position grows beyond comfortable levels, and it becomes prudent to distribute excess retained earnings to shareholders in a profitable and tax-efficient manner. This thesis explores the ways in which cyclical companies distribute gains, both in dividends and share repurchase agreements, throughout various market environments. The underlying hypothesis is that corporations will favor cash dividends during periods of overall economic expansion, but the intrinsic commitment of consistent cash payments will make them less attractive during recessions and firms will favor repurchases as a result. After analyzing the results from a sample of large-cap cyclical firms, I find no such linkage; however, the data suggests that buybacks are considered more heavily following prolonged periods of economic prosperity, while dividends are much more consistently managed.

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## Introduction

Throughout the past few decades, there have been dramatic shifts in the way that corporate decision-makers approach methods of distributing wealth to shareholders. As major U.S. businesses have grown over time, the ability to consistently provide organic expansion from within eventually deteriorates; while mergers & acquisitions are often popular among investors, they rarely provide returns that meet or exceed expectation. In the case of nearly every market bellwether, the opportunity to reward shareholders with distributions from the excess wealth of a company is an easy choice to make.

The cornerstone of modern corporate finance theory can be found in Miller & Modigliani's (MM) distribution irrelevance theorems<sup>12</sup>. The theorems follow that, assuming markets are frictionless and contain fixed investment policy, every capital structure is equally optimal and thus the decision between dividend policies and share repurchases is irrelevant. When a firm decides upon various leverage and payout decisions, Miller & Modigliani's theorem rules that the company is merely slicing a fixed pie in different ways which makes no real impact to the value of the firm.

The theorem was originally proposed in a matter that assumed the absence of taxes. In MM's Proposition I<sup>1</sup>, it is argued that the value of a levered firm is equivalent to the value of an unlevered firm. The proposition rules that rather than purchase a levered firm, an investor could purchase an unlevered firm and borrow the amount of debt that the levered firm possesses for an equal overall return.

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<sup>1</sup> Modigliani, F., & Miller, M. (1958). The cost of capital, corporation finance, and the theory of investment. *American Economic Review*, 261-297.

<sup>2</sup> Modigliani, F., & Miller, M. (1963). Corporate income taxes and the cost of capital: A correction. *American Economic Review*, 433-443.

MM's Proposition II expands on Proposition I by addressing the required returns to equity based on varying debt-to-equity ratios of capital structure<sup>2</sup>. The second proposition suggests equal values for levered and unlevered firms assuming: no taxes, no transaction costs and equal borrowing rates. Because these three assumptions do not hold in the public markets, it can be inferred that capital structure does in fact matter because one or more of these factors is violated. This thesis contends that corporate distribution policies impact firm value based on the violation of the three MM assumptions, and attempts to link decision-making to economic cycles.

This thesis rejects the MM model of irrelevance in accordance with DeAngelo & DeAngelo's research, which disputes the model by disproving MM's flawed assumption that 100% of a firm's free cash flow need always be distributed<sup>3</sup>. Their findings follow that when MM's assumptions are relaxed to allow retention of free cash flow for investment purposes, payout policy is important in exactly the same sense as investment policy.

The need to distribute free cash flow to shareholders is foundational, assuming that firms attempt to make shareholders as well off as possible. This principal is the catalyst behind modern distribution policies, market frictions are disregarded<sup>4</sup>. Over the corporate lifecycle, payouts become increasingly likely as time progresses and the firm matures. While tradeoffs do exist between cash dividends and share repurchases, the

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<sup>3</sup> DeAngelo, H., & DeAngelo, L. (2005). The Irrelevance of the MM Dividend Irrelevance Theorem. University of Southern California - Marshall School of Business , 1-28.

<sup>4</sup> DeAngelo, H., DeAngelo, L., & Skinner, D. J. (2008). Corporate Payout Policy. Foundations and Trends in Finance, Vol. 3 , pp. 95-287.

logic is far from understood and most leading arguments (e.g. taxation, hierarchy, shareholder preference) have been successfully debated in multiple directions.

In order to better explore corporate decision-making on distribution policy, I first explore the rationale and potential drawbacks of both dividends and share repurchases and address the tax implications of both:

### **Cash Dividend Policies**

A cash dividend is the most traditional form of wealth-distribution to shareholders, and has been used for decades as a benchmark of financial stability for firms. A dividend distribution is effectively a transfer of wealth from a corporation to its equity shareholders, commonly seen as a reduction of retained earnings, in amounts decided upon by the board of directors. In this study, I measure dividends in dollar terms and have only included companies in the analysis that have issued dividends in the past. Furthermore, I consider only common-stock, cash-dividend distributions and ignore the effects of preferred investors.

There are several reasons why a company would initiate a dividend payment to shareholders. Modern thought on dividend policy strategy has been shaped by John Lintner's original surveyed results from upper management of 28 companies<sup>5</sup>. Lintner found that dividends are "sticky"<sup>6</sup>, tied to sustainable long-term earnings, more likely in mature companies, smoothed over time and tiered toward a desired payout ratio. Though

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<sup>5</sup> Lintner, J. (1956). Distribution of incomes of corporations among dividends, retained earnings, and taxes. *American Economic Review*, 46, 97-113.

<sup>6</sup>Cash dividend policies are thought to be "sticky" because management is usually reluctant to raise the dividend if the increased amount cannot be maintained in the future. Conversely, cutting dividend payouts lends a negative market signal and is therefore avoided as well. Excess free cash flow is thought to be temporary in modern corporate theory because management prefers a share repurchase to an increased dividend that cannot be maintained (Brigham & Ehrhardt, 2010).

these motives have generally held, 21<sup>st</sup> century dividend and repurchase strategy is much changed as repurchases have grown in popularity.

In a 2005 survey of 384 financial executives, Brav et al. conclude that the two primary reasons why a company without a dividend policy in place would establish a payment are: 1) sustained increases in earnings per share; and 2) demand from institutional investors<sup>7</sup>. Perhaps the most prominent change from past distribution theory is that maintaining the dividend level is now on par with investment decisions. Upper management has a strong desire to maintain dividend plans and avoid cuts (though the act of increasing dividend payments itself remains a secondary concern). Furthermore, unlike the Lintner model, modern companies do not heavily consider desired payout ratios when establishing and maintaining dividends.

The primary benefit of issuing a dividend, from management's standpoint, is to boost overall equity performance. When using the S&P 500 Index as a benchmark, dividend-paying firms have higher returns than non-dividend-paying firms, with results that appear even stronger during recessionary periods<sup>8</sup>. Further findings show that performance correlates strongly with dividend issuance, regardless of the relative size of the offering. Firms commonly see marginal benefits to overall capital gains in addition to the base dividend payments, and thus use dividends to maximize returns to shareholders.

A secondary effect of issuing a dividend plan is that corporate governance is generally improved as dividend policies become more structured and regular, known as

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<sup>7</sup> Brav, A., Graham, J. R., Harvey, C. R., & Michaely, R. (2005). Payout policy in the 21st century. Tuck Contemporary Corporate Finance Issues III Conference Paper .

<sup>8</sup> Fuller, K. P., & Goldstein, M. A. (2003). Dividend Policy and Market Movements. University of Mississippi - School of Business Administration and Babson College - Finance Division .

pre-commitment to dividends<sup>9</sup>. Notably, dividends are found to reduce agency costs of free cash flow while manager performance improves. Managers that move away from defined dividend policies incur costs from negative stock reactions, which further entrenches the idea of pre-commitment. The strongest relationship between dividends and governance exists for firms with high free cash flow.

The indexing effect of dividend issuance, commonly referred to as Fundamental Indexation (FI), lends another benefit to cash distribution policies. Several mutual funds and exchange traded funds track companies that offer a dividend, so offering a quarterly dividend payment will add to overall institutional investor ownership and quickly benefit a firm's market capitalization<sup>10</sup>. Dividend investors will invest in the firm on any dividend increases, understanding that yields are generally "sticky" and managers are averse to lowering them in the future.

Despite the many positives of dividends, companies often find it a difficult decision to issue or raise a dividend due to this "sticky" nature of the payment. Once payments are put into place, investors naturally assume that dividends will be maintained – any reversal is seen as a major disappointment by the markets, and major negative stock price changes will typically result. Due to this "sticky" nature, this thesis hypothesizes that companies will be less willing to initiate or raise a dividend, and more likely to utilize share repurchase agreements, in rough economic times.

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<sup>9</sup> John, K., & Knyazeva, A. (2006). Payout Policy, Agency Conflicts, and Corporate Governance. New York University (NYU) - Department of Finance and Simon Graduate School of Business, University of Rochester .

<sup>10</sup> Arnott, R. D., Hsu, J. C., & Moore, P. (2004). Fundamental Indexation. Research Affiliates, LLC , Research Affiliates, LLC and Pacific Investment Consultants .



## Share Repurchase Agreements

A share repurchase agreement occurs when a company buys back outstanding shares held in the public market in order to reduce the total number of shares outstanding. The most typical way to complete a buyback is by what is known as an “open market purchase,” where companies simply buy stock as it trades publically and gradually retire shares or move them to a treasury account. Other forms include tender offers or private offers, where companies will offer the option to tender a portion or all of their shares within a certain time frame and usually at a premium to the market price<sup>11</sup>. Once shares are bought back by a company, trading multiples compress and each share held by an individual or institutional investor becomes relatively more valuable. Thus, the share price of the equity in question should increase in response, if not for the positive signaling also lent by the corporate event.

Open market purchases tend to be lengthy, and can last up to several years. In addition, these announcements do not carry a legal obligation to purchase the full amount of shares so the market often meets the event with skepticism; the typical buyback has been estimated to target 6.6% of shares outstanding, but completion ranges only average 52% to 72% of the originally announced volume<sup>12</sup>. Despite these imperfections, an increasing number of firms have been utilizing the share repurchase method in lieu of cash dividends for advantages in flexibility.

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<sup>11</sup> Brigham, E. F., & Ehrhardt, M. C. (2010). *Financial Management: Theory & Practice*. South-Western.

<sup>12</sup> Jagannathan, M., Stephens, C. P., & Weisbach, M. S. (2000). Financial Flexibility and the Choice Between Dividends and Stock Repurchases. *Journal of Financial Economics* , 355, 357.

There are many advantages of share repurchases over dividends as wealth-distribution techniques. The clearest advantage is through market signaling. Repurchase announcements are considered as positive signals by investors because events typically are motivated by management's belief that their common stock is undervalued. Share repurchases are also advantageous because they offer a choice to shareholders; investors have the opportunity after a share announcement to hold or sell a stock, whereas a dividend is impossible to refuse once the payment issued.

Dividends are considered "sticky" in the short-run because management is reluctant to raise a dividend that cannot be maintained or cut a dividend because of the typically negative market response. Free cash flow is assumed to be temporary, and thus companies may prefer the non-binding nature of repurchases to cash dividends. Building off of this technique, firms have begun combining the use of repurchases with dividends to focus on "target distribution levels" rather than dividend yield – a strategy that has boosted the overall usage of repurchases.

Share buybacks may also be used to revive a stock that has been lagging in performance on the public markets<sup>13</sup>. When companies have excess cash and see their share performance drop, it is common practice to lower the number of shares outstanding to prop up share price, in addition to the signaling effect. Because of this, a majority of share repurchase announcements can be taken to mean that the company sees their own stock as undervalued, and can be an added reason that firms would engage in buybacks during lagging economies.

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<sup>13</sup> Young, S. (1997, August 13). Are Stock Buybacks Smart? Retrieved from CNNfn: [http://www.cnnfn.com/yourmoney/9708/13/yomo\\_buyback.html](http://www.cnnfn.com/yourmoney/9708/13/yomo_buyback.html)

There are a number of reasons that firms engage in share buybacks. Most fall into one of these general categories: signal of future confidence; change in capital structure; excess cash reserves; provisions for employee benefit plans; substitution for dividend; takeover defense; lack of investment opportunities<sup>14</sup>. Firms with excess cash flow are most eligible for repurchases, as a company will typically only increase their leverage for a buyback if it needs to rework its capital structure or provide for an employee benefit package such as a 401K plan.

The use of share repurchases is typically seen as a very positive nod from corporate management teams, a signal that the firm is in a comfortable position financially and is prepared to reward shareholders. However, the stock market's general reaction to stock buyback programs has changed dramatically over time. In Schott's 1998 study of the market's changing reaction to open market buyback announcements, he found that there was a statistically significant drop off in the next-day share price movement over time<sup>15</sup>. By contrasting results from 1986 to results from 1996, Schott concluded that there was reason to believe that investors no longer view share repurchases as positively and are less likely to move shares as high off of the news. His study demonstrated a post-announcement 2-day compounded annual growth rate in 1996 that was much lower than in 1986. In all, I believe that the window on this study was set much too narrowly and because of a small sample size the results are not conclusive

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<sup>14</sup> Evans, J. P., Evans, R. T., & Gentry, J. A. (2001). The Decision to Repurchase Shares: A Cash Flow Story. EFMA 2001 Lugano Meetings .

<sup>15</sup> Schott, B. J. (1998). An Analysis of the Market's Changing Reaction to Open Market Stock Repurchase Announcements.

enough to account for a reasoning behind the decision to issue a dividend rather than repurchase stock.

In addition to the falling effect of signaling, stock buyback programs have a few disadvantages. Though theorists contend that buybacks and dividends have the same real effect on firm value, many investors may prefer the relative safety of dividends and a stock might react more positively had there been a dividend increase. Additionally, companies often over-pay for repurchased shares, which is a disadvantage for existing shareholders. With a relatively-large repurchase agreement, buying pressure from the firm itself might create a scenario where trades are executed at prices far above where they had been originally proposed<sup>16</sup>.

### **Tax Effects on Dividends and Capital Gains**

Firms make taxable equity payments to reward investors and increase overall shareholder wealth. Over time, the United States has shifted both the capital gains rate (affecting share repurchases) and the dividend tax rate (affecting cash dividends), which has been said to alter decision making on a corporate-level. The oft-cited “dividend puzzle,” first presented by Fischer Black, argues that investors are always better off by way of share repurchase over the immediately-taxable payout of a cash dividend<sup>17</sup>. In the *Journal of Portfolio Management*, he postulated, “if a corporation insists on paying out cash, it is better off replacing some of its stock with bonds.” The primary difference between this argument and the current taxation environment in the United States is that the dividend rate and capital gains rate have since been set equal to be equal, where

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<sup>16</sup> Heyert, B. R. (2005). Analyzing Stock Buyback Programs of Financial Services Companies: A Successful Way to Enhance Shareholder Wealth?

<sup>17</sup> Black, F. (1976). The Dividend Puzzle. *Journal of Portfolio Management* , 2, 5-8.

Black’s argument rested on the notion that “dividends are taxed more heavily than capital gains.”

Dividends (at the individual investor level) have been taxed as ordinary income, at ordinary long-term tax rates, since income taxes were first prescribed in twentieth century United States. Prior to the Jobs and Growth Tax Relief Reconciliation Act of 2003, the capital gains rate has been significantly lower than the ordinary tax rate in the U.S. (excusing a brief period prior to the 1986 tax reform act where both rates settled at 28%). Following the Bush-era tax cuts, there is no longer a major tax advantage in choosing to repurchase shares over a cash dividend payment. The 2003 tax act dropped the maximum total taxation on corporate stock dividends from 35-percent to 15-percent, coinciding with a drop from 20-percent to 15-percent in the maximum capital gains tax rate for all gains after May 5, 2003.

The following table summarizes tax changes prior to the Jobs and Growth Tax Relief Reconciliation Acts of 2001 and 2003:

United States Distribution Taxation Prior to 2001 Bush-era Tax Cuts		
<b>Year</b>	<b><u>Effective Tax Rate on Capital Gains</u></b>	<b><u>Maximum Tax Rate on Long-Term Gains</u></b>
1980	16.8%	28.0%
1981	15.9%	28.0/20.0%
1982	14.3%	20.0%
1983	15.2%	20.0%
1984	15.3%	20.0%
1985	15.4%	20.0%
1986	13.1%	20.0%
1987	22.7%	28.0%
1988	23.9%	28.0%
1989	22.9%	28.0%
1990	22.5%	28.0%
1991	22.3%	28.9%
1992	22.9%	28.9%
1993	23.7%	29.2%

1994	23.7%	29.2%
1995	24.6%	29.2%
1996	25.5%	29.2%
1997	21.7%	29.2/21.2%
1998	19.6%	21.2%
1999	20.2%	21.2%
2000	19.8%	21.2%
2001	18.8%	21.2%

Noting that there is a constant upward pressure from shareholders for firms to issue dividends or repurchase shares when the firm acquires a comfortable level of financial liquidity, one of the oft-repeated logics for the choice between repurchases and dividends is taxation. However, studies that attempt to prove “switching” between dividends and repurchases due to taxation have offered inconclusive results. Bagwell and Shoven recorded an increase in repurchases in the 1980s, which they attribute to firms learning the tax advantages of repurchases over those associated with dividends<sup>18</sup>. Contrary to this model, Fama and French demonstrated that most repurchases are offered by firms that have already established a dividend, meaning that firms may be simply increasing repurchases to provide additional distributions rather than substituting for dividends<sup>19</sup>. The lack of consensus in measuring tax effects shows that it is nearly impossible to link changes in payouts with taxes.

The taxation of dividends and share buybacks has changed overtime, with much ongoing debate as to whether dividends or capital gains should be taxed at a higher rate. As of the 2003 Jobs Growth and Tax Relief Reconciliation Act (JGTRRA), both the

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<sup>18</sup> Bagwell, L. S., & Shoven, J. B. (1989). Cash Distributions to Shareholders. *The Journal of Economic Perspectives* , 129-140.

<sup>19</sup> Fama, E., & French, K. (2001). Disappearing dividends: Changing firm characteristics or lower propensity to pay? *Journal of Financial Economics* , 3-43.

dividend and capital gains rates are at 15%. While this might lend one to believe that the two forms of distribution would be placed on an equal footing, share buybacks continue to exude a natural tax shield because investors can offset their capital gains realized after a repurchase is announced with capital losses from other holdings. In general, the main goal of this thesis is not to prove substitution, but to look at the economic cycles and how they might guide the path of dividends and share buybacks going forward.

## Literature Review

The distribution of free cash flow (FCF) through the form of cash dividends and share repurchase agreements has been a staple of the investing world for decades, despite the many logical problems with distributions that many financial theorists have put forth. Black's "dividend puzzle" begs the question: why do firms distribute capital to shareholders as is evident throughout history? Specifically, the clear tax advantages of stock buybacks over dividends have not resulted in a displacement of dividend payments; furthermore, retention of FCF is the most tax-efficient strategy, but firms still choose to make large payouts despite the clear advantages.

DeAngelo & DeAngelo argue that the standard financial model requires the existence of large payouts regardless of taxes. Rational shareholders require distributions in the form of dividends or repurchases because they will not purchase shares where the present value of all future distributions is less than the initial per share valuation. For the equity markets to function properly, a reasonable expectation of future payments must exist. While Black's original assumption was accurate in that it is in a company's best interest to retain cash flows, this ignores normal investor rationale that is ultimately rooted in valuation.

Miller & Modigliani theorized that corporate distribution choices are largely irrelevant to the ultimate value of a firm. However, both of the propositions ignore the notion that free cash flow may not be completely utilized through investment & distribution and that natural market frictions exist. While later works have suggested the effects of tax planning, market-signaling, financial hierarchies and substitutions to



explain this phenomenon, the level of disagreement among industry professionals continues to be high.

In order to assess the decision-making process that upper-management faces when setting payout policies, I consider three major schools of thought: the signaling hypothesis, the financial hierarchy hypothesis and the substitution hypothesis.

### **The Signaling Hypothesis**

Despite the earlier MM theory of 1963, which put forth the idea that dividends and repurchases should have no real effect on firm value, statistically-significant stock price changes following the announcement of both policies would suggest otherwise. In a 2005 study, it was found that, on average, both dividend increases and initiations are met with immediate share price increases of approximately 1% and 3%, respectively.

Dividend cuts and omissions also result in immediately-negative responses with declines ranging from an average of 6-10%. These responses are rational, as daily stock market momentum is driven from real-time changes to the perception of risk on a firm-by-firm basis.

Discounted cash flow valuation rules that a firm's intrinsic value is equal to the present value of all future cash flows of a business, from today into either perpetuity or the day of an eventual buyout by a larger firm. For rational investors, the announcement of a share repurchase or dividend payment translates into greater certainty that cash flows will indeed be distributed to shareholders – an increase in earnings cannot be rewarded if stockholders will not receive them. The “signaling hypothesis” rules that an increase to a dividend or share repurchase plan is a communication device which suggests that management is both willing and able to deliver its capital to shareholders. Firm's issuing

dividends and buying back stock send the implicit message that they have a greater capacity for distribution in the future and will fully distribute a higher amount of free cash flow.

In accordance with this signaling hypothesis, Nissim & Ziv find that dividends do help forecast future profitability changes when normalized earnings are adjusted to account for the change in profits after dividend announcements<sup>20</sup>. The understanding that these events convey useful information on long-term earnings trajectory means that investors are right to bid up stocks after dividend hikes and sell stocks after dividend cuts because the present value of future cash flows has increased and implied risk levels have decreased.

In the 2005 CFO survey of Brav et al., few managers cite signaling motives as an important influence on dividend payment policy. According to the survey, signaling is a secondary concern for management teams who choose to deliver signaling through quarterly earnings announcements and direct communication with shareholders and industry research analysts. This conclusion, along with the positive correlations identified by Nissim & Ziv, leads us to believe that the signaling hypothesis may be an auxiliary concern.

The signaling effect of distributions may also have an impact in the area of behavioral finance, as investors may be more inclined to invest in stocks that provide a dividend payment or have management with a track record of repurchasing their stock. The “catering theory” as proposed by Baker & Wurgler applies the real-world concept of “fashion” to the stock market, suggesting that equities that carry dividends and/or a

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<sup>20</sup> Nissim, D., & Ziv, A. (2001). Dividend changes and future profitability. *Journal of Finance* .

history of buybacks trade at a considerable premium in certain market cycles, and a notable discount in others<sup>21</sup>. Catering theory suggests that investor sentiment toward equities is constantly changing, and firms will consciously adjust their payout levels depending on their current “fashion” premium/discount at any point in time. Portfolio decisions are undoubtedly guided by behavioral factors, and management has been shown to cater its policy accordingly, consistent with signaling.

According to the “maturity hypothesis” proposed by Grullon et al. in 2002, firms that have large distribution policies also are more likely to have cheaper access to capital<sup>22</sup>. With this in mind, offering distributions signals to the market that the firm is more mature, which should raise the implicit present value as maturity has been linked to lower weighted average costs of capital. This maturity hypothesis links directly to the overarching signaling hypothesis, where an increase in distribution entices buying pressure from shareholders.

### **The Financial Hierarchy Hypothesis**

Financial hierarchy theory rules that the capital structure of a firm is optimized only when management weights the relative advantage of debt (i.e. debt tax shields) against the increased risks associated with the liability<sup>23</sup>. The “pecking order theory” inherent in financing hierarchy, as proposed by Myers, suggests that management consciously tries to lower liability and will fund investment with internal retained

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<sup>21</sup> Baker, M. P., & Wurgler, J. A. (2004). A Catering Theory of Dividends. *Journal of Finance* , 1125–1165.

<sup>22</sup> Grullon, G., Michaely, R., & Swaminathan, B. (2002). Are Dividend Changes a Sign of Firm Maturity? *Journal of Business*, Vol. 75 , 387-424.

<sup>23</sup> Beattie, V., Goodacre, A., & Thomson, S. J. (2004). Diversity and determinants of corporate financing decisions: survey evidence. *University of Stirling* , 2-4.

earnings as preferable to accepting external debt<sup>24</sup>. Dividends are not of primary importance to managers, as plans are determined only after the required level of funding has been secured for all investment projects – only remaining retained earnings will be applied to dividend policies. Pecking order theory suggests a hierarchy in the corporate decision-tree that begins with investment projects and finds added distributions from free cash flow are of secondary concern.

Assuming that tax implications on distribution policy are, for the most part, scarce, one might assume that there is a certain hierarchy between share repurchases and dividend issues. In 1956, John Lintner developed his theory on dividend policy that remains one of the most-respected empirical dividend models in circulation today. In it, Lintner suggests that firms will attempt to smooth dividends over time based on his findings that management generally realize that improvements in earnings are not always sustainable and distribution plans should be made with long-term motives. However, many choose to disagree with Lintner's model and instead propose a financing hierarchy that might exist between dividends and share changes that better defines how management makes policy decisions.

One example of a rejection of the Lintner model comes from McDonald and Soderstrom's NBER working paper, where no evidence of smoothing is found when firms are not issuing shares<sup>25</sup>. Additionally, they find a significant negative relationship between share issuance and dividend growth rate. McDonald and Soderstrom's findings

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<sup>24</sup> Myers, S. C. (1984). The Capital Structure Puzzle. *Journal of Finance* Vol. 39, No. 3 , 575-92.

<sup>25</sup> McDonald, R., & Soderstrom, N. (1986). Dividend and Share Changes: Is There a Financing Hierarchy?

suggest that there might indeed be cause to reject Lintner's findings and instead assume that a hierarchy does exist and financial sourcings are volatile over time.

Noting that there is evidence backing the concept of hierarchy, and more importantly that there is a reason to reject the concept of dividend smoothing which would remove hope of linking economic growth to corporate policy, many have created models attempting to forecast these decisions based on a variety of inputs. In 1998, Twilley sought to link numerous factors to dividend growth rates, these factors included: earnings per share, corporate growth rate, price to earnings ratio, the current ratio, and the debt to equity ratio<sup>26</sup>. After running multiple regressions, Twilley identified statistical significance with only earnings per share and corporate growth rates, both of which registered rather weak correlations. The conclusion of his research was that a firm's own financial composition has nearly no impact on its dividend policy. This conclusion does not conflict with the hypothesis of my study, which seeks to test decision making with respects to economic climate.

Because managers are risk-averse, firms operate using retained earnings if possible, tapping into debt and equity markets only if the move is prudent. Under retained earnings, firms choose debt as the choice form of financing and will only turn to equity-raising as a last resort<sup>27</sup>. The agency theory guides that firms often have a tendency to spend more free cash flow than is available, resulting in high leverage. Leverage issues can be averted by encouraging managers to pay out cash to shareholders. The agency

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<sup>26</sup> Twilley Jr., D. B. (1998). Dividend Policy: Financial Factors that Affect Corporate Dividend Decision An Empirical Model.

<sup>27</sup> Murray, F. Z., & Vidhan, G. K. (2003). Capital Structure Decisions. AFA 2004 San Diego Meetings .

hypothesis rules that dividends are most frequently paid out of permanent earnings, whereas share repurchased are financed with temporary earnings because the penalty of cutting a dividend is much more severe than a failed buyback program (Sinha, Sunder, & Swaminathan, 2006). Agency costs related to free cash flow are a major driver of corporate distributions, and the level of retained earnings relative to the total book value of equity directly relates to the scale of payouts.

In 2001, Fama and French noted a falling tendency of firms to issue dividends relative to share buybacks. Past liquidity is an important factor of dividend initiations and omissions. Following this, shareholders of stocks that trade less frequently on the open markets (less volatility) are more likely to receive a cash dividend as recompense because firms are aware that lowering the market's perceived risk will generally improve valuations<sup>28</sup>. Though overall market liquidity has improved, this relationship continues to exude meaningful results for equity investors.

### **The Substitution Hypothesis**

The substitution hypothesis guides that changing economic factors, such as taxation and investor demographics, may result in a substitution of dividends for share repurchases (or vice versa), rather than overall payment increases. The rise of share repurchases in the United States has been financed with potential increases in dividends that were instead sacrificed<sup>29</sup>. This phenomenon can be verified by observing a relatively-constant average total payout ratio of firms, where share buybacks became a larger

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<sup>28</sup> Banerjee, S., Gatchev, V. A., & Spindt, P. A. (2005). Stock Market Liquidity and Firm Dividend Policy. EFMA 2003 Helsinki Meetings .

<sup>29</sup> Michaely, R., & Grullon, G. (2000). Dividends, Share Repurchases, and the Substitution Hypothesis. AFA 2002 Atlanta Meetings .

portion of total payouts relative to cash dividends (dividend payout ratios have largely declined over the same 20-year period).

In 2003, the George W. Bush administration authorized a series of dividend tax cuts, so-called the “Jobs and Growth Tax Relief Act of 2003,” that were thought to make a dividend more favorable as a way to reward shareholders. In a 2005 National Bureau of Economic Research (NBER) working paper by Auerbach and Hassett, the effects of the dividend tax cuts on overall firm value were studied<sup>30</sup>. By testing market performance prior to and after the tax cuts, Auerbach and Hassett were able to show two surprising results. The first impact found was that firms with higher dividend yields were able to post stronger gains than other dividend-issuing stocks, which was generally in line with expectations; however, a separate result found that companies that lacked dividends altogether were able to generate more alpha as a result of the 2003 law.

The most important consideration taken from this study was the impact on corporate financing for dividends as a result of the tax change. Under the “new view” of dividend taxation, as defined by Bradford, retained earnings is most typically the marginal investment source that companies use to expand, and any advantage given by retained earnings is exactly offset with the taxation of dividends in the future<sup>31</sup>. Because of this, dividend taxation does not directly affect a corporation’s decision on future investments (assuming the use of retentions as the source for funds).

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<sup>30</sup> Auerbach, A. J., & Hassett, K. A. (2005). The 2003 Dividend Tax Cuts and the Value of the Firm: An Event Study.

<sup>31</sup> Bradford, D. (1981). The Incidence and Allocation Effects of a Tax on Corporate Distributions. *Journal of Public Economics* , 1-22.

One of the more popular arguments is that firms alter their dividend and share repurchase policies in response to taxation. Looking again at the 2003 tax cut as a case study, I find many conflicting studies on the matter. In their 2007 NBER Working Paper, Blouin, Raedy and Shackelford tested whether firms were changing their dividend and share repurchase policies as a response to the recent tax cuts<sup>32</sup>. Their prediction was that a substitution would occur because the changes in dividend policy were more favorable than the cuts made to the capital gains tax. Noting that representatives on firms' boards would consider tax preferences of their shareholders, they concluded that there was indeed substitution away from share repurchases toward dividends.

Blouin, Raedy and Shackelford do concede the fact that it is hard to clearly separate the effects of distribution policy changes from general economic factors, especially noting that the period around the 2003 tax cuts was an extended bull market, which my study attempts to better link to the reasoning behind distribution decision. While taxation is certainly something that is considered in the minds of decision-makers controlling shareholder distribution plans, there are many studies that prove results opposite to Blouin, Raedy and Shackelford's findings. Of note is a 2007 study, where 69 percent of surveyed CFOs responded that even a complete elimination of dividend taxation would "probably not" or "definitely not" impact their current distribution policies<sup>33</sup>. Knowing that, at this point, scholars primarily disagree on which windows of observation are most appropriate for studying the substitution effect, it is fair to conclude

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<sup>32</sup> Blouin, J. L., Raedy, J. S., & Shackelford, D. A. (2007). Did Firms Substitute Dividends for Share Repurchases after the 2003 Reductions in Shareholder Tax Rates?

<sup>33</sup> Brav, A., Graham, J., Campbell, H., & Michaely, R. (2007). Managerial Response to the May 2003 Dividend Tax Cut. Duke University working paper.



that even if companies are indeed substituting due to taxation, it would not be of material magnitude to dissuade this study's main purpose – to study the relationship between GDP growth and distribution.

Another potential element of substitution, other than taxation, is what is known as the clientele hypothesis. In it, firms tend to tailor the composition of distribution policies in accordance with the investor demographics that they face. Investor preferences differ from company to company or a variety of reasons, including: tax situations, transaction costs of consuming distributions, and government regulation. In the same sense that Baker & Wurgler (2004) suggested management's awareness of behavioral factors in guiding payout policy, the clientele hypothesis suggests that a firm's decision between cash dividends and share repurchases is often rooted in the known-desires of shareholders.

Corporate distribution policy has been the focus of many prior studies, with the classic argument focusing on the tradeoff that companies face between issuing dividends and repurchasing shares of equity. The link between the two is still much of an enigma to the financial community, as conflicting studies often show opposing conclusions. In order to better qualify results, it is important to consider the signaling, hierarchy and substitution hypothesis of wealth distribution.

After reviewing past studies, I find that evidence is largely inconclusive and data often contradicts when defining a linkage between dividend and share changes. The aim of this study is to suggest that changes in the relative usage of dividends and share repurchases can be linked with significance to current economic cycles, rather than factors appearing on the corporate level.

## **Methodology**

Collecting the required data was a three-step process that involved: 1) defining the sample set of companies to be observed; 2) obtaining information on cash dividends dating from January of 1990 to December of 2010; 3) obtaining information on share repurchase agreements dating from January of 1990 to December of 2010. In order to collect the required data, I utilized the Bloomberg Professional software platform. Bloomberg is a computer system maintained by Bloomberg L.P. that contains an extensive database of up-to-date public corporation numbers, news and events across a proprietary network.

### *Bloomberg's "EQT" Screening Function*

Because this study looks to study corporate changes to distribution policies throughout economic cycles, the most important task was to define a list of parameters that would produce an objective list of companies that were likely to engage in significant distribution activity over time. To do this, I enlisted the use of Bloomberg Professional's "EQT" Equity Screening function. Because Bloomberg has various ways to filter companies in objective manners based on a variety of inputs, using the "EQT" Equity Screening function appeared to be the most conservative method.

Using the "EQT" function for the reasons defined above, I developed a set of six criteria that would result in a finite set of companies that could be analyzed more effectively. These criteria are as follows:

1. Primary security of company only

a. This first parameter ensures that the results obtained would not be from any subsidiary, non-major listing or preferred stock of the company studied. For the sake of consistency, I determined that only a primary equity listing could be used to effectively analyze changes in capital structure in response to economic volatility as any non-major listing was more likely to include one-time distributions and the potential for rapid changes.

## 2. Sector: Non-Defense Industrials

a. Perhaps the most important input into this screener was defining a sector of the economy that would be best-suited to product companies that would change their strategy in the face of different economic climates. The industrial sector contains many bellwether conglomerates that have an extensive historical record; in addition, industrial firms are known for having the key characteristics of market cyclicalities and shareholder distributions of both dividends and share repurchase programs. In order to focus on firms that would be likely to modify strategy in the face of various economies, I eliminated companies operating in the national defense industry due to their non-cyclical nature and government spending-reliant business model.

## 3. Exchanges: United States

a. While there are certainly international companies that fit the parameters that were most sought after, I wanted to be sure that the results were not unfairly skewed by any currency translation problems,

differences in taxation or corporate governance issues; therefore, only firms based in the United States were considered (although overseas operations of were not of concern).

4. Current Dividend Yield > 0.00%

- a. This study relies on companies that have dividend policies to adjust. Therefore, despite the few firms that may have suspended their dividend over the course of the past recession and not yet resumed their existing distribution policy, I have narrowed the field to include only companies with cash dividends currently in place.

5. LT Total Debt > \$500 Million

- a. Companies with debt are essential to this study for a few reasons. First and foremost, companies without debt are much less likely to have distribution policies because they likely have not reached a mature state. Additionally, companies often fund portions of their distribution plans in both dividends and share repurchases by taking on debt. Because the earlier screens aimed to provide companies that were industry bellwethers, this debt parameter will better ensure that the firms selected have established histories and adequate coverage.

6. Current Market Capitalization > \$10 Billion

- a. This final parameter will result in firms that are in the large-cap space. Because companies with small and mid-sized market capitalizations are less likely to maintain distribution policies, and also more likely to

have quite volatile plans if they do exist, I wanted to focus primarily on large, reputable firms that would have data the most data available.

Before running the screen, my targeted number of firms was from 10 to 30 companies. The results from the Bloomberg “EQT” search, with criteria as defined above, were the following 25 firms:

- |                    |                      |                      |
|--------------------|----------------------|----------------------|
| 1. 3m Co           | 10. Emerson Elec Co  | 19. Parker Hannifin  |
| 2. Boeing Co/The   | 11. Fedex Corp       | 20. Republic Svcs    |
| 3. Caterpillar Inc | 12. General Electric | 21. Tyco Intl Ltd    |
| 4. Csx Corp        | 13. Goodrich Corp    | 22. Union Pac Corp   |
| 5. Cummins Inc     | 14. Honeywell Intl   | 23. United Parcel-B  |
| 6. Danaher Corp    | 15. Illinois Tool Wo | 24. United Tech Corp |
| 7. Deere & Co      | 16. Ingersoll-Rand   | 25. Waste Management |
| 8. Dover Corp      | 17. Norfolk Southern |                      |
| 9. Eaton Corp      | 18. Paccar Inc       |                      |

From this field of 25, however, 6 companies had to be eliminated because of either incomplete dividend information on the Bloomberg Terminal, an excessive number of one-time distributions such as stock dividends that made results unreliable or an insufficient amount of information on stock buybacks. The final list is comprised of 19 companies, with Fedex Corp (FDX), Paccar Inc (PCAR), Republic Svcs (RSG), United Parcel-B (UPS) and Waste Management (WM) excluded from the study.

#### *Cash Dividend History*

A full history of cash dividends for each company that was identified in the Bloomberg “EQT” stock screener was available through Bloomberg’s Corporate Action

Calendar “CACS” function. In order to better track the history of dividend increases and decreases, I collected data from July of 1989 through December of 2010 to account for companies that may have increased their dividend payout in the first calendar quarter of 1990. In order to ensure that the information collected was current, I also obtained a history of stock-splits and non-cash dividends that might have made the data incorrectly-adjusted and calculated every cash dividend in terms of the number of shares outstanding as of December 31, 2010. All dividend data is measured as of the date of the dividend announcement, as the actual stock dividend may come significantly later due to implementation lag and it is an extreme rarity for firms to renege stated distribution plans.

#### *Share Repurchase Agreement History*

Bloomberg’s database of share repurchases extends from approximately 1997 until 2010. Unfortunately, an authority database on share repurchase announcements does not exist, so this information could not be supplemented with another database. Fortunately, Bloomberg’s “NEWS” Corporate News function has information that can be filtered specifically for certain keywords extending far beyond 1990. I created a corporate action filter that would provide news extending back to July of 1989 (to compensate for information potentially out of the date range that might influence results) containing news about stock buyback programs. From this, it was necessary to manually read through news articles, discern any relevant share buybacks put in place and record the results. Several companies report their share buybacks in “number of shares” rather than “value of buyback;” when this was the case, the share price, as of the last available market close

prior to the announcement, was used to form a reasonable estimate of the proposed stock repurchase.

## Hypothesis

The focus of this study is to take a look at how major corporations reward their shareholders during various periods of economic wealth. The global economy hangs in a constant cyclical of negative, flat and positive momentum. By taking a look through various economic cycles at large, multinational firms that are based in the United States, I believe that I can reasonably estimate the methods in which a company will deliver value to shareholders through dividends and share repurchases.

The underlying assumption and hypothesis behind this thesis is that firms adjust their corporate distribution policies based upon the economic environment that they face. This assumption relies on the premise that management has the ability to foresee market conditions in order to plan distribution policy. Since the U.S. legal system adopted safe harbor laws in order to allow corporations to issue forward-looking statements without risking legal drawbacks, namely the United States Private Securities Litigation Reform Act of 1995, management commonly offers guidance on earnings generation during quarterly investor conferences.

Evidence of a firm's strong ability to offer accurate predictions of their results comes in a 2009 publication from Deloitte<sup>34</sup>; in it, Deloitte offers that "some companies have such a strong track record of meeting or exceeding investor expectations that the market is willing to accept their story more or less on faith." Prior research also suggests that firms who have a strong history of issuing accurate guidance tend to build a

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<sup>34</sup> Deloitte, LLC. (2009). CFO insights: The earnings guidance debate. Retrieved from [www.deloitte.com/us/cfocenter](http://www.deloitte.com/us/cfocenter).



reputation among capital market participants that creates an ability to move their own stock price with forecasts in the future<sup>35</sup>. Because analysts condition their reaction of guidance based on past predictions, companies have developed additional internal controls that allow for an enhanced ability to predict business cycles effectively.

Extending from the assumption that managers can accurately forecast their unique operating environments, I assume that major corporations should draft conservative policies during recessionary times and favor the flexibility of share repurchases as per Evans, Evans & Gentry (2001). Conversely, firms should be more willing to adopt an increased dividend during a cyclical uptrend, because dividends carry the implicit risk of maintaining present levels at the risk of cutting the payment and experiencing a poor market reaction<sup>36</sup>. Finally, neutral markets should not have a material impact on distribution policies as there is no real advantage skewed toward either cash dividends or share buybacks during these periods.

### **H1: Managers Adjust Payout Policy for Signaling Purposes**

Jagannathan et al. (2000) argue that firms that raise dividend payments should be rewarded with greater increases in post-announcement share prices than firms repurchasing shares due to the implicit free cash flow commitment that is attached to a dividend (i.e. the “sticky” nature of cash dividend policies). Assuming that hierarchy theory holds, firms with more “permanent” cash flows would be more interested in

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<sup>35</sup> Koch, A. S., & Park, J. C. (2011). Consistent Earnings Growth and the Credibility of Management Forecasts. University of Virginia - McIntire School of Commerce and Old Dominion University - Accounting .

<sup>36</sup> Fuller, K. P., & Goldstein, M. A. (2003). Dividend Policy and Market Movements. University of Mississippi - School of Business Administration and Babson College - Finance Division .

increasing cash dividends relative to buyback programs because of the stronger market signaling effect.

Contrary to Jagannathan et al. (2000), Lucas & McDonald (1998) predict that companies that have favorable private information will be more likely to repurchase shares than to issue/raise a dividend payment. This trend would occur because of the future expected increase in firm wealth, which is maximized by a proportionally-higher stake in equity<sup>37</sup>. Lucas & McDonald's findings run contrary to signaling hypothesis (H1), which suggests companies make decisions based on expected market reactions following the announcement.

After adjusting for the relative weight of distributions, Gelb (2000) finds that markets react more favorable from (regular) cash dividends than from stock buybacks<sup>38</sup>. This indicates that markets support signaling theory, and that the favorable market reaction of dividends relative to repurchases should have an impact on corporate distribution policies. While the signaling effect remains logical for management teams to consider, the primary hypothesis rejects the notion that signaling can drive decision-making and I consider signaling a secondary effect that supports other factors rather than drives the decision making process.

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<sup>37</sup> Lucas, D. a. (1998). Shareholder Heterogeneity, Adverse Selection, and Payout Policy. *Journal of Financial and Quantitative Analysis* 33 , 233-253.

<sup>38</sup> Gelb, D. (2000). Payout Composition and Investors' Reaction to Dividend and Stock Repurchase Announcements. Seton Hall University - Accounting .

## **H2: Financing Hierarchy Guides Distribution Decisions**

The idea of hierarchy in capital structure is a theory surrounded by controversy in the realm of financial research. McDonald & Soderstrom (1986) found that there is a natural preference for management to avoid debt when possible, use equity as a last resort and make distribution payments from retained earnings. However, Vasiliou, Eriotis & Daskalakis (2010) counter that the fact that tests of the “pecking order theory (H2)” of financial hierarchy showed that a negative relationship between debt and profitability doesn’t necessarily mean that a financial hierarchy is observed<sup>39</sup>. The notion of “hierarchy” makes this theory difficult to test, as many variables cannot be separated and several logical fallacies continue to cloud the reasoning behind firm financing.

Under the financial hierarchy hypothesis, management has a natural tendency to avoid debt and use only internal funding to reward shareholders (Murray & Vidhan, 2003). Because of this, the temporary free cash flow of a company is what guides the decision to implement a payout policy or alter an existing policy. The first level of hierarchy for any company should be its internal investment decisions and maintaining a buffer of financial flexibility in order to avoid bankruptcy.

After maintaining the funding levels required for all operations, firms then explore the use of debt as an instrument to increase their level of potential financing, and settle on equity as a means of financing only if debt and internal funding are not available (Myers, 1984). This runs parallel to the idea that firms are risk averse, and use only temporary means of financing to structure distribution plans. While temporary funding is

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<sup>39</sup> Vasiliou, D., Eriotis, N., & Daskalakis, N. (2010). Testing the Pecking Order Theory: The Importance of Methodology. *Qualitative Research in Financial Markets*, Vol. 1, No. 2 .

the primary backer of a dividend or a buyback, management realizes the negative implications of trimming a dividend and will use debt to maintain a dividend assuming that market conditions worsen to a point where it becomes prudent<sup>40</sup>. However, management does not have the same issue with eliminating a share repurchase plan, and thusly should see them as more flexible and favorable during recessions relative to dividends. Financial hierarchy may factor into the decision making process when dividends and share repurchases are set, but I suggest that, regardless of financial strength, a firm must be comfortable with future economic growth forecasts before committing to new payment programs.

### **H3: Substitution Drives Distribution, Payments Shift with Growth Outlook**

Prior to the Jobs & Growth Tax Relief Reconciliation Act of 2003, research by Grullon & Michaely (2002) observed an apparent switch away from dividends to share repurchases, to which they attributed the substitution hypothesis. This theory entails that firms have a set pool of funding, which is later distributed between dividends and repurchases; in other words, when a firm authorizes a share buyback program it is substituting away from potential dividends, and vice versa.

Following the 2003 Bush-era tax cuts, Brown & O'Day (2006) find a positive relationship between dividend yield and repurchase yield among a sample of international firms, which they consider an effective rejection of the substitution hypothesis. This thesis is hypothesizing that substitution drives distribution, but changes based on market

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<sup>40</sup> Sinha, M., Sunder, J., & Swaminathan, B. (2006). Payout Policy and Cost of Capital. Cornerstone Research , University of Arizona - Eller College of Management and Johnson Graduate School of Management , 5-7.

outlook. Brown & O'Day's rejection of the substitution hypothesis does not take into account that their studied period occurred at the tail-end of a prolonged bull market. I would argue that substitution between dividends and repurchases holds over longer windows of observation and is fundamentally influenced by economic growth outlooks at the firm level.

Our primary hypothesis is built around the postulation that dividends are “sticky” relative to other forms of distributing cash to shareholders. To be “sticky” refers to the fact that companies with dividend policies in place are typically put under immense pressure to maintain the current level of dividend payout (at minimum), pressure that comes primarily from the stock market mentality that once a dividend is issued it will either be maintained or increased into the future (Brigham & Ehrhardt, 2010). Once a company issues a dividend, it is considered to be a more matured company whose growth rates should be more predictable and management more accountable; investors often explicitly purchase equity in companies that have established cash dividends in place due to the assumption they are purchasing a predictable and steady form of cash flows.

Because dividends are considered “sticky,” companies should naturally lean toward share repurchase plans when they are unable or unwilling to make such a commitment to shareholders. Share repurchase plans can be set to any amount, be executed at any time and are fully cancelable if markets become unfavorable to make the deal happen. Both forms of payment require approval from a Board of Directors, and so are powerful signaling mechanisms of the future which investors are constantly reacting to on open exchanges.

During bear markets, one would expect companies to tend to increase focus on share buybacks while substituting away from dividend plans (and potentially eliminate or reduce them if conditions worsen). On the other hand, positive market conditions should hold that firms will increase their dividend policy while shifting focus away from share buybacks; while buybacks may still be a logical and widely-used means of returning wealth to shareholders during bull markets, one would expect that there would be more of a focus on dividends because they are known to be sticky and will naturally result in a more positive reaction on the open markets.

The substitution hypothesis, in effect, is the expected result of this study throughout various economies. With a broad-based trend over the past thirty years toward share repurchases in lieu of cash dividends, as evidenced by roughly constant total payout ratios co-existing with a decrease in the average dividend yield of mid-to-large cap firms, market actions have suggested that firms consider buybacks and dividends somewhat interchangeable depending on the investing climate (Michaely & Grullon, 2000). Taxation has been an area of interest for many looks at the apparent substitution hypothesis, but attempted links between taxation and the composition of distribution plans have proved unsuccessful and I would suggest there is an underlying economic factor that seems to be overlooked.

One additional reason that I expect share buybacks will replace dividends during poor economic periods is because companies can use repurchases to support their share prices (Jagannathan et al., 2000). Due to the share-altering nature of buybacks, having fewer shares outstanding inherently results in a higher price of the underlying stock. Companies that are experiencing turbulence often devise constructed repurchase plans

that not only sends a positive message to investors, but also props up share prices.

Despite the fact that the effect on stock price support may be minimal, it should still be more likely that firms will authorize buybacks when prices are low than high.

This hypothesis does not necessarily exclude the possibility that firms will raise dividends during bear markets or increase share-buybacks during bull markets, as various end markets can experience significantly different business conditions and a firm's distribution policy is set on a firm-level rather than an overarching market-level.

However, I do expect to observe a shift in the overall balance of dividends/buybacks based on the stock market's momentum, with a higher percentage of dividends versus buybacks during optimistic periods and a higher percentage of buybacks during periods of pessimism.

The belief that firms can demonstrate value through share repurchases, and thus should do so during recessionary markets, is consistent with the market signaling hypothesis. Under the signaling hypothesis, an announcement of increased dividend or share buyback plan should add to a firm's intrinsic value because investors are assured that a firm is willing to distribute a greater portion of their cash flows to investors and has the financial flexibility to do so (Nissim & Ziv, 2001). The risk of firms increasing distribution plans is lower relative to companies that do not have a plan in place (or are simply maintaining an existing plan rather than accelerating), and thus I expect these firms to see stock price premiums.

The hierarchy hypothesis should be a strong proponent to the belief that firms will substitute toward repurchases during recessions and toward dividends during bull markets. During recessions, there is an added pressure on management from shareholders

to reduce debt and improve overall financial liquidity. If the substitution hypothesis holds, than firms will attempt to maintain net payout ratios by eliminating dividends and rewarding shareholders instead through share repurchases. This logic will reduce a firm's intrinsic commitment to finance a dividend, improve overall flexibility and prop up share prices with added buying support from the firm level.

Based on earlier discussion of signaling, financial hierarchy and the substitution hypothesis, I believe that firms will certainly utilize all areas of popular thought in the decision-making process, but will ultimately make payment policy decisions from internal growth projections. Firms will not enter into the additional commitment of a dividend during recessions, but will actually preference dividends assuming that liquidity is present and growth projections are favorable. In this study, I analyze established cyclical firms with a track record of both dividends and share repurchases in order to make a conclusion on whether or not this hypothesis has held over the past twenty years.



## **Data Results**

The data that was collected for the purposes of this research proved that corporate distribution policy does indeed accelerate and decelerate based on the economic conditions that are being faced. However, many companies in the manufacturing sector exhibit patterns of wealth distribution that are somewhat erratic, showing the difficulty of predicting corporate action even with knowledge of economic circumstances.

I measured both dividends and share repurchases on a quarter-by-quarter basis. In the event that a company issued numerous dividends or repurchases during a particular quarter, the numbers have been summed and counted as if they were one instance. Moving from the first- quarter of 1990 through the fourth-quarter of 2010, there are a total of 84 periods under review. Through these measured periods, 14 (or 16.7%) are officially recognized by the National Bureau of Economic Research (NBER) as recessionary environments and 70 (or 83.3%) are considered to be periods of growth.

There were a total of 287 dividend changes by all of the 19 companies being studied over this time horizon. Of these, there were a total of 273 dividend increases (95.1% of the data) and 14 dividend decreases (4.9% of the data). While these results seemed skewed toward the upside, it is notable to point out that cutting a dividend delivers a powerful message to the broad market that is often met with a severely negative daily stock price movement. That being said, having 11 different firms (more than half) cut their dividends over a twenty-year period was a greater result than I had originally anticipated. When firms cut dividends, they are likely to cut them drastically during recessions in order to create free cash flow for other areas of their business, most

usually to pay down or refinance debt. This assumption is confirmed through the data, where the median dividend cut was 61.8%. The following table (Table 1) summarizes each company's dividend over time:

**Table 1**

<u>Company</u>	<u>Current Dividend</u>	<u>Median Dividend Change</u>	<u># Increases</u>	<u># Decreases</u>
BA	\$0.42	17.65%	9	0
CAT	\$0.4400	18.33%	17	1
CMI	\$0.26	38.89%	8	1
CSX	\$0.26	19.09%	12	1
DE	\$0.35	11.36%	12	0
DOV	\$0.275	8.76%	20	0
EMR	\$0.35	7.23%	21	0
ETN	\$0.58	11.96%	12	0
GE	\$0.12	12.10%	21	1
GR	\$0.29	7.70%	5	1
HON	\$0.30	10.29%	13	2
IR	\$0.070	10.81%	10	1
ITW	\$0.34	14.36%	20	0
MMM	\$0.53	4.21%	20	0
NSC	\$0.36	11.11%	20	1
PH	\$0.29	7.70%	16	0
TYC	\$0.23	5.41%	10	3
UNP	\$0.38	15.00%	12	1
UTX	\$0.43	12.61%	15	1

From the 19 companies analyzed in this study, there were a total of 107 announced share repurchase agreements from January of 1990 through December of 2010. The total value of all measured buybacks is \$217,335, 987, which includes totals estimated off of closing share prices on the date of announcements when totals were not available. Through the 1990-91 economic recession, no companies repurchased shares, which was 0% of the total buyback figure. In the 2001 recession, 5 firms repurchased

shares, for 5.7% of the total buyback number. In the most recent 2008-09 recession, 8 firms repurchased shares, for 9.7% of the buyback total.

It is well known that firms often seek to repurchase shares during periods of depressed stock prices, but economic recessions do not seem to be popular spots to authorize buybacks in general as 84.6% of all share repurchase agreements in the studied period were made during bull markets. The following table (Table 2) summarizes the studied firm's repurchases over time:

**Table 2**

<b>Year</b>	<b><u>Quantity of Buybacks</u></b>	<b><u>Total Value of Buybacks</u></b>	<b><u>Companies Issuing Buybacks</u></b>
1990	0	\$0	--
1991	0	\$0	--
1992	1	\$261	DOV
1993	1	\$685	MMM
1994	4	\$6,642	CMI, ETN, GE, MMM
1995	4	\$5,974	CAT, GE, MMM, UTX
1996	6	\$6,727	DE, EMR, MMM, NSC, UTX
1997	10	\$9,014	CMI, DE, ETN, GE, HON, IR, MMM, PH, UTX
1998	5	\$8,148	BA, GE, HON, PH, UTX
1999	3	\$6,803	GE, MMM, TYC
2000	8	\$11,756	BA, CMI, ETN, GE, HON, MMM, UTX
2001	5	\$12,363	EMR, GE, GR, MMM, UTX
2002	1	\$1,500	UTX
2003	3	\$2,213	CAT, HON, MMM
2004	4	\$18,375	DE, GE, IR, ITW
2005	10	\$26,520	BA, CMI, DE, ETN, GE, HON, NSC, TYC, UTX
2006	10	\$16,338	BA, CMI, GR, IR, ITW, MMM, PH, TYC, UTX
2007	21	\$55,081	BA, CAT, CMI, CSX, DE, DOV, ETN, GE, HON, IR, ITW, MMM, NSC, PH, TYC, UNP, UTX
2008	8	\$21,117	CMI, CSX, DE, EMR, GR, TYC, UNP, UTX
2009	0	\$0	--
2010	3	\$7,819	NSC, TYC, UTX

With this data, I observed a total of 394 data points between dividends and share buybacks over the studied twenty year period. At first glance, the numbers appear to differ during periods of market turbulence, where dividend cuts are most common and initiating a shareholder buyback program becomes a rarity.

## Summary of Results

With a significant number of data points for analysis, careful analysis of the numbers yielded a result contrary to the primary hypothesis behind this study (H3). While the results suggest that there is a strong positive correlation between the magnitude of corporate distributions and economic growth, the data suggests that companies do not abide by the substitution hypothesis and are more likely to make changes to dividends and buybacks in tandem rather than substituting dividends for share buybacks during periods of financial uncertainty.

### *H1: Managers Adjust Payout Policy for Signaling Purposes*

Our first hypothesis guided that companies actively manage their distribution policies in order to maximize the market effect of announcements. Lucas & McDonald (1998) suggested that firms with private information will opt for share repurchases over dividends due to the potential capitalization on future market returns driven from the results. One can see potential evidence of this occurring in Chart 2, as share repurchases are almost entirely pursued during established growth economies. Firms generally did not pursue share repurchase plans during recessionary economies, suggesting that poor results were somewhat anticipated by management, and equity investments were therefore avoided. Companies are much more likely to hold positive outlooks during sustained upward equity markets, and the strong correlation between areas of growth and stock buybacks offers evidence for this signaling theory.

Jagannathan et al. (2000) argue that cash dividends should be the most desirable form of wealth distribution (assuming a reserve of temporary retained earnings) due to the greater intrinsic commitment, and therefore will serve as a more significant signaling event. This hypothesis does not conflict with that proposed by Lucas & McDonald (1998). Firms that hold high temporary retained earnings will pursue dividends by default unless the market outlook is significant to the upside (where buybacks will be more constructive) or downside (where firms will abstain from additional distributions).

The results of this study suggests that firms do alter their distribution policies (to a degree) based on potential market signaling; however, the findings are simply too weak to fully support the first hypothesis of corporate decision-making.

#### *H2: Financing Hierarchy Guides Distribution Decisions*

Our second hypothesis is that a firm's primary focus when determining payout policy rests on the theory of financial hierarchy. In theory, management will always choose investment projects and overall financial stability above any type of shareholder distribution. Assuming that companies acquire a significant buffer of retained earnings, payment policies are considered. This financial hierarchy theory is exemplified through the results of this study when one considers the timing of both share repurchases and dividend payments.

Results from the selected sample of companies show that share repurchase agreements are largely executed at the end of prolonged growth markets. This finding fits the financial hierarchy hypothesis, as firms seek to protect the retained earnings that are put toward investment activities before considering any shareholder payouts. Once

markets turn positive, share repurchases are delayed as companies abide by financial hierarchy and seek to build up a suitable liquidity buffer before initiating buybacks.

Cash dividends follow a similar trajectory, though management clearly avoids discontinuing dividends (unlike buybacks) due to the negative signaling implications. The results of this study show that dividend increases are most commonly undertaken after consecutive periods of economic growth, and are rarely trimmed. These findings are consistent with the Fama & French model of substitution, in which firms do not necessarily substitute dividends for purchases, but rather will use repurchases as an addition to total payouts while dividends remain steady (Fama & French, 2001).

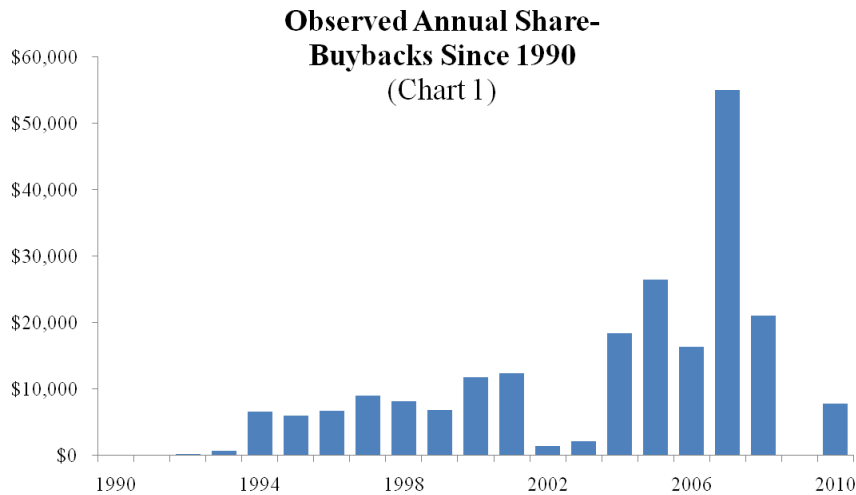
Our conclusion provides somewhat insubstantial evidence for the H2 hypothesis, though the numbers do generally align with what a financial hierarchy theorist might expect. While the correlation leans slightly positive, I believe that the evidence points to the idea that financial hierarchy is clearly a component of the decision-making process, but is ancillary to the larger process.

### *H3: Substitution Drives Distribution, Payments Shift with Growth Outlook*

Our primary hypothesis (H3) attempts to link firm-wide distribution policy with the global economy via the substitution theory. After studying a basket of pro-cyclical firms over the past twenty years, I find no evidence of substitution occurring; instead, the data would suggest that firms use repurchases as a method to reward supplemental payouts to shareholders while dividends are maintained. This concept of “tack-on” repurchases coincides with the Fama & French (2001) model of substitution rather than

the traditional substitution hypothesis that would suggest that firms use funding from dividends to instead repurchase shares (Murray & Vidhan, 2003).

The data for share repurchases suggests that there is a positive trend in the dollar amount of buybacks over time. Dividing the studied 20-year period into separate 10-year windows, one can observe a total of \$44.3MM in share repurchases throughout the 1990s and a total of \$173.1MM in the 2000s. This equates to an increase of roughly 291.1% from decade-to-decade. Share repurchase plans as an aggregate are becoming more popular ways to return cash to shareholders. A great deal of this increase may be credited to the sustained strength of the stock market during the period leading into the 2008-09 recession; however, the sheer magnitude of the increase leaves little doubt that buybacks have indeed become more popular over time. Chart 1 below displays this information as total buybacks from all 19 studied companies on an annual basis.



More relevant to this study, when buybacks were analyzed over time the observed cyclical trends were surprising. Because firms often use share repurchases to boost share



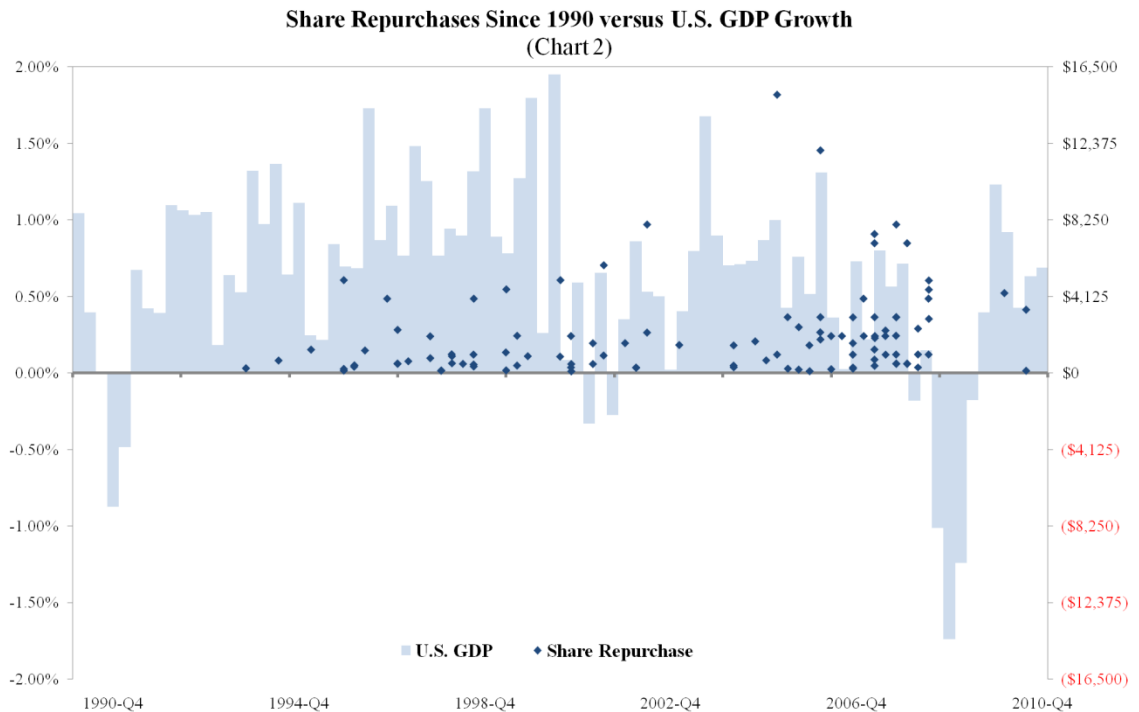
prices (Jagannathan et al., 2000), I expected weak windows of national GDP growth to be densely-populated regions for buyback announcements. To the contrary, (excluding scarce datapoints during the short-lived 2001 recession) I saw virtually no announced buybacks when the United States dipped into negative GDP growth. This finding is supported through the hierarchy hypothesis, where companies use only temporary earnings to issue payouts (Murray & Vidhan, 2003); during recessions in the U.S., companies appear to be solely focused on capital preservation, momentarily freezing other spending plans.

From the 19 pro-cyclical manufacturing firms that were analyzed in this study, I found significant support for the idea that management tends to announce most large buyback programs after a few years of consistent economic growth. Accordingly, most repurchases over the studied period actually occurred immediately prior to economic recessions. The fact that the strongest repurchase announcements occurred just before the economy dips into recession is an interesting finding that might lead businesses to adjust their expectations in the future. Despite the widely-held belief that stock buybacks generally suggest that a firm is financially comfortable with making an added commitment, buybacks are most frequent when market conditions are about to change for the worse. This finding presents evidence contrary to the belief that management has a superior ability to project future earnings potential. Furthermore, this could potentially lead to a reconsideration of safe harbor laws that currently allow companies to publically issue guidance, which is thought to manipulate share prices<sup>41</sup>.

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<sup>41</sup> Anilowski, C. M. (2007). Does earnings guidance affect market returns? The nature and information content of aggregate earnings guidance. *Journal of Accounting and Economics* , 44:36-63.

Chart 2 outlines GDP growth along the left-hand axis against share buybacks on the right-hand axis over time. Looking at the datapoints, with each point representing a buyback announcement and the vertical height representing value, one can clearly see a lack of buybacks when growth slows and a strong cluster of announcements when economic growth is most consistent.

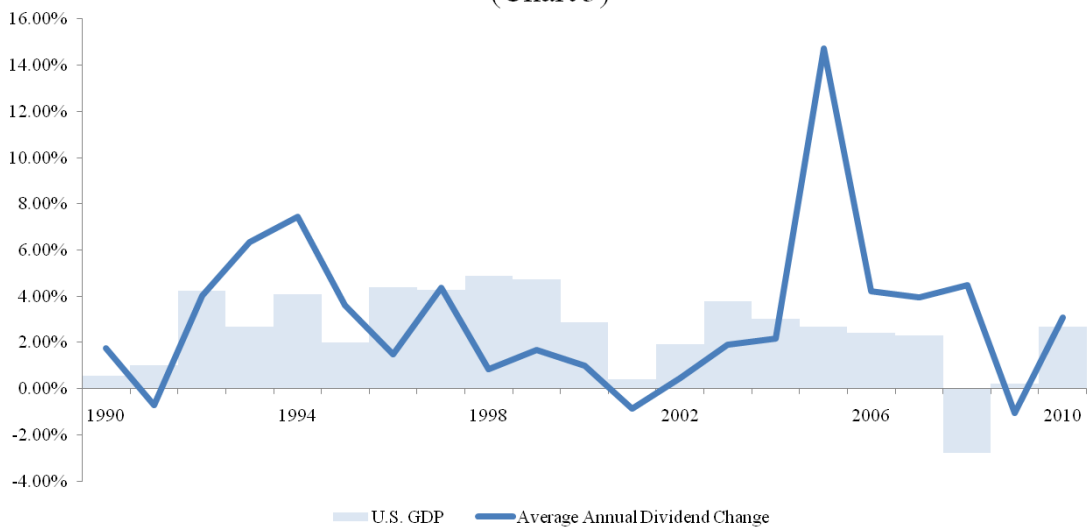


Dividends appear to be positively levered to economic growth, as originally predicted in the hypothesis driving this study (H3). After analyzing the numbers, however, what remained unforeseen was the number of dividend reductions, with a majority of the companies analyzed having cut cash dividend payments at least once over the past 20 years. 57.1% of the dividend cuts over the studied period were made within a year of a recession. The median observed dividend cut was an astonishing 61.8%, showing that companies lower dividends much more aggressively than the raise them,

which leads us to believe that dividend changes are indeed a powerful signaling mechanism that make cuts very undesirable as is consistent with the H1 signaling hypothesis. This argument was first discussed in the *Financial Management Journal* article entitled “Managements’ View on Share Repurchase and Tender Offer Premiums,” where the information signaling hypothesis was formed<sup>42</sup>.

The average percent change in annual dividends from the entire collection of firms is plotted against annual U.S. GDP growth in Chart 3 below. From this information, it is clear that a strong correlation exists between the performance of the broad economy and the changes that companies make to their dividends. While firms generally attempt to be consistent in raising their dividend, the degree to which they are able to raise them can be hindered by economic headwinds.

**Average Annual Dividend Changes versus U.S. GDP Growth**  
(Chart 3)



<sup>42</sup> Wansley, J. W., Lane, W. R., & Sarkar, S. (1989). Managements' View on Share Repurchase and Tender Offer Premiums. *Financial Management* , 97-110.

In every single recession that was studied, the average annual change in dividend policies dipped briefly into negative territory. This result serves as another confirmation that, while smoothing as Lintner theorized in his empirical model for dividend payments is certainly desirable, recessionary markets are generally difficult for firms to handle -- shareholders see dividend payments as one of the first areas that can be sacrificed in order to create liquidity and ensure the long-term survival of the underlying company (Lintner, 1956).

According to the numbers gathered for this study, dividend cuts are in fact more likely after recessions have officially been declared as over by the National Bureau of Economic Research than during recessions. There are likely two reasons for this phenomenon: 1) the implementation lag; 2) late-cycle cyclicalness of firms studied. Dividend decisions are typically contemplated extensively by a firm's board of directors and upper-management teams, and announcements are most commonly released during quarterly earnings calls. Because of this, there is a significant implementation time lag between when it may be optimal to reduce a dividend payment and when one can actually be processed. Secondly, the companies involved in this study are quite cyclical, but it was well-documented that the stock market and economic indicators like GDP are not perfectly correlated. It can take months to years for businesses to realize economic realities based on what particular manufacturing industry they operate within. Because of this, an additional time lag, based on the notion that business environments naturally lag national output, should be factored into the results of this study.

Our primary hypothesis (H3) theorized that firms would begin to weigh their distribution policy more toward share buybacks in weak market environments, and

toward dividend policies during strong market environments. After looking at the data, one can see that there is almost no correlation with annual U.S. GDP growth and the substitution of dividends for buybacks. Instead, I find evidence for the theory that when companies have existing dividend plans, they use share buybacks as a type of “add-on” to existing distribution policies. In other words, share repurchase announcements would be most likely to come after periods of consistent economic success where a company might not be willing to increase their dividend payment (due to the “sticky” nature of the procedure), but are still interested in dispersing capital back to shareholders. The collected data confirms this assumption, where I observe the general trend of marking dividend payments to the broad market and see nearly every share repurchase announcement come after consecutive quarters of economic growth.

## **Conclusion**

The results found in this thesis show that there is no substitution between share repurchase agreements and dividend payments due to macroeconomic growth. In fact, companies seem to avoid dividend increases and share buybacks altogether when U.S. Gross Domestic Product (GDP) numbers shift into negative territory. While the second derivative of dividend payments (i.e. the percent change in dividend growth rates) are notably levered to economic expansion and contraction, I note that there is a consistent multiple-quarter lag between the time when recessions are officially declared over by the National Bureau of Economic Research (NBER) and when firms officially announce dividend cuts. On the other hand, share buybacks are consistently avoided during economic recessions, and are used (at least by the sample of manufacturing companies) as supplementary distributions only after consistent quarters of U.S. GDP growth are recorded.

Due to the high level of variance in dividend growth rates, this study can justifiably reject the Lintner model of dividend smoothing and confirm the findings of McDonald and Soderstrom, observing a definitive hierarchy of financing in corporate distribution structure (McDonald & Soderstrom, 1986). I believe that this study could yield stronger results if the sample size of firms were to be expanded and if the industry screening restriction was lifted to assure that this is not a manufacturing-specific trend. In conclusion, while this study was unable to discern any notable substitution for share buybacks in the place of dividend payments based on U.S. growth trends, I did identify specific windows of economic growth/decay in which management exhibited a clear preference for either buybacks or dividend increases.

## References

- Anilowski, C. M. (2007). Does earnings guidance affect market returns? The nature and information content of aggregate earnings guidance. *Journal of Accounting and Economics* , 44:36-63.
- Arnott, R. D., Hsu, J. C., & Moore, P. (2004). Fundamental Indexation. *Research Affiliates, LLC , Research Affiliates, LLC and Pacific Investment Consultants .*
- Auerbach, A. J., & Hassett, K. A. (2005). *The 2003 Dividend Tax Cuts and the Value of the Firm: An Event Study.*
- Bagwell, L. S., & Shoven, J. B. (1989). Cash Distributions to Shareholders. *The Journal of Economic Perspectives* , 129-140.
- Baker, M. P., & Wurgler, J. A. (2004). A Catering Theory of Dividends. *Journal of Finance* , 1125–1165.
- Banerjee, S., Gatchev, V. A., & Spindt, P. A. (2005). Stock Market Liquidity and Firm Dividend Policy. *EFMA 2003 Helsinki Meetings .*
- Beattie, V., Goodacre, A., & Thomson, S. J. (2004). Diversity and determinants of corporate financing decisions: survey evidence. *University of Stirling* , 2-4.
- Black, F. (1976). The Dividend Puzzle. *Journal of Portfolio Management* , 2, 5-8.
- Blouin, J. L., Raedy, J. S., & Shackelford, D. A. (2007). *Did Firms Substitute Dividends for Share Repurchases after the 2003 Reductions in Shareholder Tax Rates?*
- Bradford, D. (1981). The Incidence and Allocation Effects of a Tax on Corporate Distributions. *Journal of Public Economics* , 1-22.
- Brav, A., Graham, J. R., Harvey, C. R., & Michaely, R. (2005). Payout policy in the 21st century. *Tuck Contemporary Corporate Finance Issues III Conference Paper .*

- Brav, A., Graham, J., Campbell, H., & Michaely, R. (2007). *Managerial Response to the May 2003 Dividend Tax Cut*. Duke University working paper.
- Brigham, E. F., & Ehrhardt, M. C. (2010). *Financial Management: Theory & Practice*. South-Western.
- Correia Da Silva, L., Goergen, M., & Renneboog, L. (2004). *Dividend Policy and Corporate Governance*.
- DeAngelo, H., & DeAngelo, L. (2005). The Irrelevance of the MM Dividend Irrelevance Theorem. *University of Southern California - Marshall School of Business* , 1-28.
- DeAngelo, H., DeAngelo, L., & Skinner, D. J. (2008). Corporate Payout Policy. *Foundations and Trends in Finance, Vol. 3* , pp. 95-287.
- Deloitte, LLC. (2009). *CFO insights: The earnings guidance debate*. Retrieved from [www.deloitte.com/us/cfocenter](http://www.deloitte.com/us/cfocenter).
- Evans, J. P., Evans, R. T., & Gentry, J. A. (2001). The Decision to Repurchase Shares: A Cash Flow Story. *EFMA 2001 Lugano Meetings* .
- Fama, E., & French, K. (2001). Disappearing dividends: Changing firm characteristics or lower propensity to pay? *Journal of Financial Economics* , 3-43.
- Frankfurter, G. M., & Wood, B. G. (2003). *Dividend Policy: Theory & Practice*.
- Fuller, K. P., & Goldstein, M. A. (2003). Dividend Policy and Market Movements. *University of Mississippi - School of Business Administration and Babson College - Finance Division* .
- Gelb, D. (2000). Payout Composition and Investors' Reaction to Dividend and Stock Repurchase Announcements. *Seton Hall University - Accounting* .



Grullon, G., Michaely, R., & Swaminathan, B. (2002). Are Dividend Changes a Sign of Firm Maturity? *Journal of Business*, Vol. 75 , 387-424.

Heyert, B. R. (2005). *Analyzing Stock Buyback Programs of Financial Services Companies: A Successful Way to Enhance Shareholder Wealth?*

Jagannathan, M., Stephens, C. P., & Weisbach, M. S. (2000). Financial Flexibility and the Choice Between Dividends and Stock Repurchases. *Journal of Financial Economics* , 355, 357.

John, K., & Knyazeva, A. (2006). Payout Policy, Agency Conflicts, and Corporate Governance. *New York University (NYU) - Department of Finance and Simon Graduate School of Business, University of Rochester* .

Koch, A. S., & Park, J. C. (2011). Consistent Earnings Growth and the Credibility of Management Forecasts. *University of Virginia - McIntire School of Commerce and Old Dominion University - Accounting* .

Lease, R. C., Kose, J., Kalay, A., Loewenstein, U., & Sarig, O. H. (1999). *Dividend Policy: Its Impact on Firm Value*.

Lintner, J. (1956). Distribution of incomes of corporations among dividends, retained earnings, and taxes. *American Economic Review* , 46, 97-113.

Lucas, D. a. (1998). Shareholder Heterogeneity, Adverse Selection, and Payout Policy. *Journal of Financial and Quantitative Analysis* 33 , 233-253.

Marseguera, G. (1998). *Corporate Financial Decisions and Market Value*.

McDonald, R., & Soderstrom, N. (1986). *Dividend and Share Changes: Is There a Financing Hierarchy?*

- Michaely, R., & Grullon, G. (2000). Dividends, Share Repurchases, and the Substitution Hypothesis. *AFA 2002 Atlanta Meetings* .
- Modigliani, F., & Miller, M. (1963). Corporate income taxes and the cost of capital: A correction. *American Economic Review* , 433-443.
- Modigliani, F., & Miller, M. (1958). The cost of capital, corporation finance, and the theory of investment. *American Economic Review* , 261-297.
- Murray, F. Z., & Vidhan, G. K. (2003). Capital Structure Decisions. *AFA 2004 San Diego Meetings* .
- Myers, S. C. (1984). The Capital Structure Puzzle. *Journal of Finance Vol. 39, No. 3* , 575-92.
- Nissim, D., & Ziv, A. (2001). Dividend changes and future profitability. *Journal of Finance* .
- Schott, B. J. (1998). *An Analysis of the Market's Changing Reaction to Open Market Stock Repurchase Announcements*.
- Sinha, M., Sunder, J., & Swaminathan, B. (2006). Payout Policy and Cost of Capital. *Cornerstone Research , University of Arizona - Eller College of Management and Johnson Graduate School of Management* , 5-7.
- Twilley Jr., D. B. (1998). *Dividend Policy: Financial Factors that Affect Corporate Dividend Decision An Empirical Model*.
- Vasiliou, D., Eriotis, N., & Daskalakis, N. (2010). Testing the Pecking Order Theory: The Importance of Methodology. *Qualitative Research in Financial Markets, Vol. 1, No. 2* .
- Vatz, J. L. (2005). *The Effect of a Special Dividend on a Company and its Stock*.

Walter, J. E. (1967). *Dividend Policy and Enterprise Valuation*.

Wansley, J. W., Lane, W. R., & Sarkar, S. (1989). Managements' View on Share Repurchase and Tender Offer Premiums. *Financial Management* , 97-110.

West, K. D. (1986). *Dividend Innovations and Stock Price Volatility*.

Young, S. (1997, August 13). *Are Stock Buybacks Smart?* Retrieved from CNNfn:  
[http://www.cnnfn.com/yourmoney/9708/13/yomo\\_buyback.html](http://www.cnnfn.com/yourmoney/9708/13/yomo_buyback.html)

## Appendix

Table 3

MMM		BA	
<b><u>Dividend Policy (over past 20 years)</u></b>		<b><u>Dividend Policy (over past 20 years)</u></b>	
Current Quarterly Dividend:	\$0.53	Current Quarterly Dividend:	\$0.42
# of Increases:	20	# of Increases:	9
# of Decreases:	0	# of Decreases:	0
20-Year Median Change:	4.21%	20-Year Median Change:	17.65%
Avg. Change During Recession:	3.96%	Avg. Change During Recession:	13.57%
<b><u>Share Repurchase Policy (over past 20 years)</u></b>		<b><u>Share Repurchase Policy (over past 20 years)</u></b>	
Total Value of Shares Bought (in thousands):	\$18,238	Total Value of Shares Bought (in thousands):	\$22,792
% Acquired During Recessions:	1.58%	% Acquired During Recessions:	0.00%
CAT		CSX	
<b><u>Dividend Policy (over past 20 years)</u></b>		<b><u>Dividend Policy (over past 20 years)</u></b>	
Current Quarterly Dividend:	\$0.44	Current Quarterly Dividend:	\$0.26
# of Increases:	17	# of Increases:	12
# of Decreases:	1	# of Decreases:	1
20-Year Median Change:	18.33%	20-Year Median Change:	19.09%
Avg. Change During Recession:	9.80%	Avg. Change During Recession:	-8.15%
<b><u>Share Repurchase Policy (over past 20 years)</u></b>		<b><u>Share Repurchase Policy (over past 20 years)</u></b>	
Total Value of Shares Bought (in thousands):	\$9,126	Total Value of Shares Bought (in thousands):	\$5,400
% Acquired During Recessions:	0.00%	% Acquired During Recessions:	44.44%
CMI		DE	
<b><u>Dividend Policy (over past 20 years)</u></b>		<b><u>Dividend Policy (over past 20 years)</u></b>	
Current Quarterly Dividend:	\$0.26	Current Quarterly Dividend:	\$0.35
# of Increases:	8	# of Increases:	12
# of Decreases:	1	# of Decreases:	0
20-Year Median Change:	38.89%	20-Year Median Change:	11.36%
Avg. Change During Recession:	-25.45%	Avg. Change During Recession:	N/A
<b><u>Share Repurchase Policy (over past 20 years)</u></b>		<b><u>Share Repurchase Policy (over past 20 years)</u></b>	
Total Value of Shares Bought (in thousands):	\$2,202	Total Value of Shares Bought (in thousands):	\$11,615
% Acquired During Recessions:	45.41%	% Acquired During Recessions:	43.05%
DOV		ETN	
<b><u>Dividend Policy (over past 20 years)</u></b>		<b><u>Dividend Policy (over past 20 years)</u></b>	
Current Quarterly Dividend:	\$0.28	Current Quarterly Dividend:	\$0.58
# of Increases:	20	# of Increases:	12
# of Decreases:	0	# of Decreases:	0
20-Year Median Change:	8.76%	20-Year Median Change:	11.96%
Avg. Change During Recession:	12.28%	Avg. Change During Recession:	13.14%
<b><u>Share Repurchase Policy (over past 20 years)</u></b>		<b><u>Share Repurchase Policy (over past 20 years)</u></b>	
Total Value of Shares Bought (in thousands):	\$1,261	Total Value of Shares Bought (in thousands):	\$2,935
% Acquired During Recessions:	0.00%	% Acquired During Recessions:	0.00%

EMR	
<b><u>Dividend Policy (over past 20 years)</u></b>	
Current Quarterly Dividend:	\$0.35
# of Increases:	21
# of Decreases:	0
20-Year Median Change:	7.23%
Avg. Change During Recession:	7.38%
<b><u>Share Repurchase Policy (over past 20 years)</u></b>	
Total Value of Shares Bought (in thousands):	\$8,631
% Acquired During Recessions:	77.15%

GR	
<b><u>Dividend Policy (over past 20 years)</u></b>	
Current Quarterly Dividend:	\$0.29
# of Increases:	5
# of Decreases:	1
20-Year Median Change:	7.70%
Avg. Change During Recession:	7.44%
<b><u>Share Repurchase Policy (over past 20 years)</u></b>	
Total Value of Shares Bought (in thousands):	\$1,200
% Acquired During Recessions:	50.00%

ITW	
<b><u>Dividend Policy (over past 20 years)</u></b>	
Current Quarterly Dividend:	\$0.34
# of Increases:	20
# of Decreases:	0
20-Year Median Change:	14.36%
Avg. Change During Recession:	14.31%
<b><u>Share Repurchase Policy (over past 20 years)</u></b>	
Total Value of Shares Bought (in thousands):	\$6,300
% Acquired During Recessions:	0.00%

NSC	
<b><u>Dividend Policy (over past 20 years)</u></b>	
Current Quarterly Dividend:	\$0.36
# of Increases:	20
# of Decreases:	1
20-Year Median Change:	11.11%
Avg. Change During Recession:	-10.57%
<b><u>Share Repurchase Policy (over past 20 years)</u></b>	
Total Value of Shares Bought (in thousands):	\$9,162
% Acquired During Recessions:	0.00%

GE	
<b><u>Dividend Policy (over past 20 years)</u></b>	
Current Quarterly Dividend:	\$0.12
# of Increases:	21
# of Decreases:	1
20-Year Median Change:	12.10%
Avg. Change During Recession:	-3.79%
<b><u>Share Repurchase Policy (over past 20 years)</u></b>	
Total Value of Shares Bought (in thousands):	\$63,000
% Acquired During Recessions:	12.70%

HON	
<b><u>Dividend Policy (over past 20 years)</u></b>	
Current Quarterly Dividend:	\$0.30
# of Increases:	13
# of Decreases:	2
20-Year Median Change:	10.29%
Avg. Change During Recession:	-8.15%
<b><u>Share Repurchase Policy (over past 20 years)</u></b>	
Total Value of Shares Bought (in thousands):	\$11,655
% Acquired During Recessions:	0.00%

IR	
<b><u>Dividend Policy (over past 20 years)</u></b>	
Current Quarterly Dividend:	\$0.07
# of Increases:	10
# of Decreases:	1
20-Year Median Change:	10.81%
Avg. Change During Recession:	-25.56%
<b><u>Share Repurchase Policy (over past 20 years)</u></b>	
Total Value of Shares Bought (in thousands):	\$5,188
% Acquired During Recessions:	0.00%

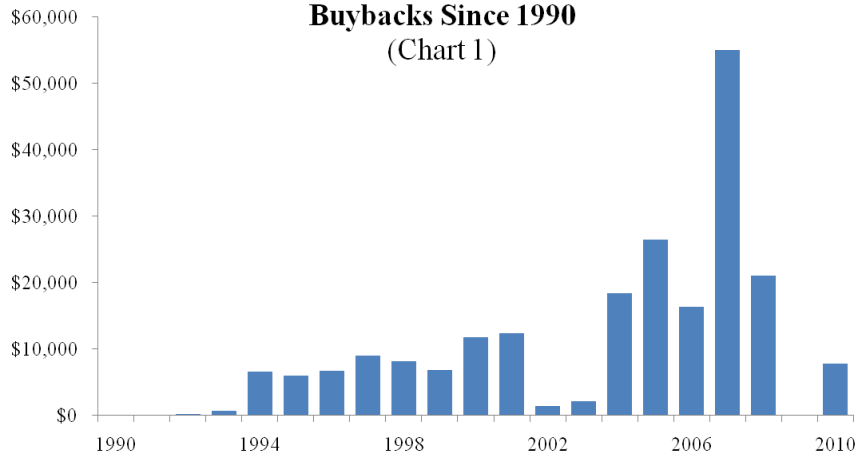
PH	
<b><u>Dividend Policy (over past 20 years)</u></b>	
Current Quarterly Dividend:	\$0.29
# of Increases:	16
# of Decreases:	0
20-Year Median Change:	7.70%
Avg. Change During Recession:	12.46%
<b><u>Share Repurchase Policy (over past 20 years)</u></b>	
Total Value of Shares Bought (in thousands):	\$1,341
% Acquired During Recessions:	0.00%

<b>TYC</b>	
<b><u>Dividend Policy (over past 20 years)</u></b>	
Current Quarterly Dividend:	\$0.23
# of Increases:	10
# of Decreases:	3
20-Year Median Change:	5.41%
Avg. Change During Recession:	16.31%
<b><u>Share Repurchase Policy (over past 20 years)</u></b>	
Total Value of Shares Bought (in thousands):	\$8,504
% Acquired During Recessions:	11.76%

<b>UTX</b>	
<b><u>Dividend Policy (over past 20 years)</u></b>	
Current Quarterly Dividend:	\$0.43
# of Increases:	15
# of Decreases:	1
20-Year Median Change:	12.61%
Avg. Change During Recession:	14.60%
<b><u>Share Repurchase Policy (over past 20 years)</u></b>	
Total Value of Shares Bought (in thousands):	\$23,954
% Acquired During Recessions:	23.38%

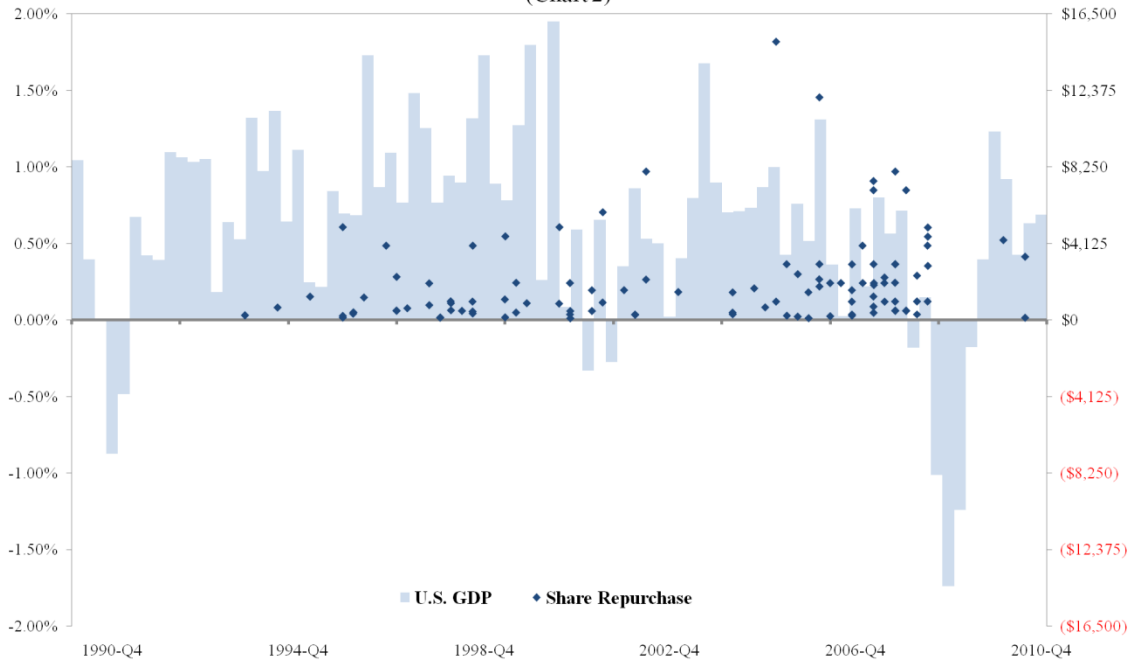
<b>UNP</b>	
<b><u>Dividend Policy (over past 20 years)</u></b>	
Current Quarterly Dividend:	\$0.38
# of Increases:	12
# of Decreases:	1
20-Year Median Change:	15.00%
Avg. Change During Recession:	8.80%
<b><u>Share Repurchase Policy (over past 20 years)</u></b>	
Total Value of Shares Bought (in thousands):	\$4,833
% Acquired During Recessions:	60.68%

**Observed Annual Share-  
Buybacks Since 1990**  
(Chart 1)



<u>Year</u>	<u>Total Buybacks</u>	<u>Year</u>	<u>Total Buybacks</u>
1990	\$0	2003	\$2,213
1991	\$0	2004	\$18,375
1992	\$261	2005	\$26,520
1993	\$685	2006	\$16,338
1994	\$6,642	2007	\$55,081
1995	\$5,974	2008	\$21,117
1996	\$6,727	2009	\$0
1997	\$9,014	2010	\$7,819
1998	\$8,148	<b>Total Volume:</b>	<b>\$217,336</b>
1999	\$6,803		
2000	\$11,756		
2001	\$12,363		
2002	\$1,500		

**Share Repurchases Since 1990 versus U.S. GDP Growth  
(Chart 2)**



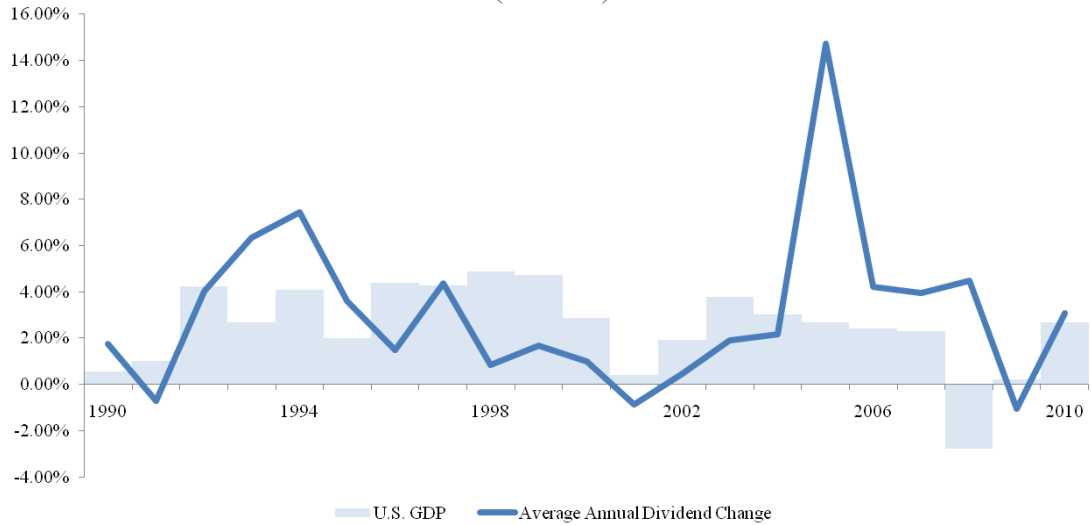
<u>Year</u>	<u>Market Environment</u>	<u>U.S. GDP Growth</u>	<u>Total Quarterly Buybacks</u>
1990-Q1	Growth	1.04%	\$0
1990-Q2	Growth	0.40%	\$0
1990-Q3	Recession	0.00%	\$0
1990-Q4	Recession	-0.88%	\$0
1991-Q1	Recession	-0.48%	\$0
1991-Q2	Recession	0.67%	\$0
1991-Q3	Growth	0.42%	\$0
1991-Q4	Growth	0.39%	\$0
1992-Q1	Growth	1.10%	\$0
1992-Q2	Growth	1.06%	\$0
1992-Q3	Growth	1.03%	\$261
1992-Q4	Growth	1.05%	\$0
1993-Q1	Growth	0.18%	\$0
1993-Q2	Growth	0.64%	\$685
1993-Q3	Growth	0.53%	\$0
1993-Q4	Growth	1.32%	\$0
1994-Q1	Growth	0.97%	\$1,271
1994-Q2	Growth	1.37%	\$0
1994-Q3	Growth	0.64%	\$0



1994-Q4	Growth	1.11%	\$5,371
1995-Q1	Growth	0.25%	\$754
1995-Q2	Growth	0.21%	\$1,220
1995-Q3	Growth	0.84%	\$0
1995-Q4	Growth	0.70%	\$4,000
1996-Q1	Growth	0.68%	\$3,318
1996-Q2	Growth	1.73%	\$625
1996-Q3	Growth	0.87%	\$0
1996-Q4	Growth	1.09%	\$2,785
1997-Q1	Growth	0.77%	\$257
1997-Q2	Growth	1.48%	\$2,428
1997-Q3	Growth	1.25%	\$509
1997-Q4	Growth	0.77%	\$5,820
1998-Q1	Growth	0.94%	\$0
1998-Q2	Growth	0.90%	\$0
1998-Q3	Growth	1.32%	\$5,748
1998-Q4	Growth	1.73%	\$2,400
1999-Q1	Growth	0.89%	\$918
1999-Q2	Growth	0.78%	\$0
1999-Q3	Growth	1.27%	\$0
1999-Q4	Growth	1.80%	\$5,885
2000-Q1	Growth	0.26%	\$2,893
2000-Q2	Growth	1.95%	\$0
2000-Q3	Growth	0.08%	\$2,098
2000-Q4	Growth	0.59%	\$6,766
2001-Q1	Recession	-0.33%	\$0
2001-Q2	Recession	0.66%	\$1,600
2001-Q3	Recession	-0.27%	\$589
2001-Q4	Recession	0.35%	\$10,174
2002-Q1	Growth	0.86%	\$0
2002-Q2	Growth	0.53%	\$0
2002-Q3	Growth	0.50%	\$1,500
2002-Q4	Growth	0.02%	\$0
2003-Q1	Growth	0.41%	\$0
2003-Q2	Growth	0.80%	\$0
2003-Q3	Growth	1.68%	\$0
2003-Q4	Growth	0.90%	\$2,213
2004-Q1	Growth	0.70%	\$0
2004-Q2	Growth	0.71%	\$1,700
2004-Q3	Growth	0.73%	\$675

2004-Q4	Growth	0.87%	\$16,000
2005-Q1	Growth	1.00%	\$3,250
2005-Q2	Growth	0.43%	\$2,670
2005-Q3	Growth	0.76%	\$1,600
2005-Q4	Growth	0.52%	\$19,000
2006-Q1	Growth	1.31%	\$2,200
2006-Q2	Growth	0.36%	\$2,000
2006-Q3	Growth	0.03%	\$6,138
2006-Q4	Growth	0.73%	\$6,000
2007-Q1	Growth	0.22%	\$23,781
2007-Q2	Growth	0.80%	\$5,300
2007-Q3	Growth	0.56%	\$18,000
2007-Q4	Growth	0.72%	\$8,000
2008-Q1	Recession	-0.18%	\$3,700
2008-Q2	Recession	0.15%	\$17,417
2008-Q3	Recession	-1.01%	\$0
2008-Q4	Recession	-1.74%	\$0
2009-Q1	Recession	-1.24%	\$0
2009-Q2	Recession	-0.18%	\$0
2009-Q3	Growth	0.40%	\$0
2009-Q4	Growth	1.23%	\$0
2010-Q1	Growth	0.92%	\$4,300
2010-Q2	Growth	0.43%	\$0
2010-Q3	Growth	0.63%	\$3,519
2010-Q4	Growth	0.69%	\$0

**Average Annual Dividend Changes versus U.S. GDP Growth**  
(Chart 3)



<u>Year</u>	<u>Avg. Annual Dividend Change</u>	<u>% Change U.S. GDP</u>
1990	1.75%	0.56%
1991	-0.72%	1.00%
1992	4.02%	4.24%
1993	6.35%	2.67%
1994	7.46%	4.10%
1995	3.60%	2.00%
1996	1.47%	4.38%
1997	4.38%	4.27%
1998	0.83%	4.89%
1999	1.67%	4.74%
2000	0.99%	2.89%
2001	-0.88%	0.41%
2002	0.46%	1.91%
2003	1.92%	3.78%
2004	2.19%	3.02%
2005	14.74%	2.70%
2006	4.21%	2.43%
2007	3.97%	2.30%
2008	4.48%	-2.79%
2009	-1.05%	0.21%
2010	3.08%	2.67%

## Academic Vita

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Minor in Economics  
Honors in Finance  
Thesis Title: The Role of Economic Growth On Corporate Distribution Policy  
Thesis Supervisor: J. Randall Woolridge

### Related Experience:

Investment Banking Analyst at Goldman, Sachs & Co., Natural Resources Division, Summer 2010  
President of Nittany Lion Fund, LLC. & Penn State Investment Association (long-equity mutual fund), January 2010-January 2011  
Lead Manager of Industrial Sector Portfolio, Nittany Lion Fund LLC., January 2010-January 2011  
Head Financial Correspondent of the Centre County Report (local television program), August 2010-May-2011  
Interest Rate Derivatives Intern at PNC Financial Services Group Inc., Summer 2009  
Co-Founder of Bullish Bankers LLC. (internet financial research community), July 2008-December 2009

### Awards:

Schreyer Honor College Academic Excellence Scholarship  
Dean's List  
National Honors Society  
Beta Gamma Sigma

### Presentations/Activities:

Semi-Finalist, "The Smeal Case Competition", 2011  
Third Place Finalist, Smeal's "The Next CEO" competition, 2010  
Finalist, Rotman International Trading Competition, 2010  
Finalist, Michigan Intercollegiate Stock Pitch Competition, 2009  
Featured Speaker, PSEA's "The Great Debate", 2009  
Finalist, Shell Oil Case Competition, 2008