# THE ROLE OF LEVERAGE IN THE ASYMMETRIC VALUATION OF DIVIDENDS

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**Abstract**

Fuller and Goldstein (2004) find that dividend payments are more valuable in down markets than in up markets. This research extends this study to determine whether the asymmetry in valuing dividend signals is influenced by debt financing. This is essential since firms with high debt financing are more likely to be affected by down markets than those with low debt financing. Consistent with this, the results show firms with greater indebtedness experience greater declines in returns during down markets. This decline, however, was observed to be mitigated by the payment of dividends, with the greatest improvement in returns concentrated with the most highly indebted firms. These results are robust to size, beta, and book-to-market values.

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# 1. Introduction and Literature Review

## *1.1 Background*

The payment of dividends has declined greatly over the last few decades. In 1978, roughly two thirds of firms paid dividends. By 1999, that number had dropped to about 21%. This phenomenon is attributed to two factors. Specifically, the decline in the proportion of dividend paying firms is due to the change in the nature of firms listed on the exchanges, with an increase in the number of small firms with low earnings and high growth opportunities that have never paid dividends. Second, this phenomenon is also based on a reduction in firms' propensities to pay (DeAngelo, DeAngelo, & Skinner, 2004; Fama & French, 2001).

In an environment where the proportion of dividend-paying firms has declined so greatly, it is important to properly assess the benefits of dividend payment in order to shed light on the implications of the trend in dividend payment. In particular, dividend payment could provide benefits other than the financial returns commonly understood. Evidence documented by Fuller and Goldstein (2004) suggests that dividends do in fact provide benefits beyond the financial returns they provide investors. Specifically, they find that dividends mitigate downward pressure on returns in down markets. This indicates that dividends can reduce volatility between up and down markets. This thesis focuses on whether the ability of dividends to cushion fluctuations in stock returns between up and down markets might be greater for firms with higher amounts of debt financing than for less leveraged firms.

Black (1976) posits that down markets are periods of increased uncertainty and tend to reduce the market value of equity for firms while leaving indebtedness unchanged. This would likely increase volatility in returns and increase the risk premium of stocks, thus driving effective returns down. Therefore, it is likely that the most highly indebted firms would experience the most negative stock returns in down markets. It is during these times that, as Fuller and Goldstein (2004) find, the signals that dividends provide are more valuable. Therefore it is likely that a dividend signal could be most valuable for highly indebted firms during down markets. This research examines this hypothesis by studying whether the differentials between dividend-payer and non-payer returns in down markets are sensitive to financial leverage.

### *1.2 Problem Statement*

Research on the relationship among firm value, capital structure, and dividend policy, especially in the context of market conditions, is scant. For instance Black (1976) suggested that high-debt firms could fare more poorly in down markets than less leveraged firms because in down markets equity drops more quickly than debt, increasing volatility and reducing returns. However, empirical evidence supporting this view has been scarce.

This is an important area of research as it could provide empirical insights into the ramifications of a firm's chosen capital structure during declining markets. Specifically, it would be valuable to determine how indebtedness and dividend payments affect returns and whether changes in dividend policy could potentially cushion returns of highly indebted firms in down markets.

This paper seeks to address some of the gaps that exist in the interplay between firm value, capital structure, dividend policy and market conditions and thereby contribute to the current literature. The following two hypotheses are posed as the basis for this project:

H1: The returns of firms with high debt-to-equity ratios are more negative in down markets than the returns of firms with low debt.

H2: The difference between the payers' and non-payers' returns during down markets should be greater for the high-debt firms than the low-debt firms.

### *1.3 Research Objective*

The objective of the current study is to attempt to answer the following research questions: Does a high level of indebtedness have a negative effect on a company's stock returns in a declining market; and, if so, could the payment of a dividend mitigate some of that effect?

### *1.4 Contribution*

This study provides some valuable insight into the influence that dividends have on stock returns. This is of particular interest to managers of firms that are both highly leveraged and are facing a declining market. It is possible that a manager could pay dividends, even with borrowed funds, in order to mitigate the rate of decline in the firm's stock price during down markets. Ang and Ciccone (2006) find that when managers borrow to pay dividends, the signal of the dividend is valuable to investors but the increase in indebtedness does not affect returns. The results of this study shed light on the ability of dividends to convey messages to the markets and they suggest that dividends

can be used to cushion deteriorations in returns during down markets, especially for highly leveraged firms. This return smoothing effect of dividend payment is a benefit that could potentially influence dividend policy.

### *1.5 Literature Review*

The following section discusses the literature related to various aspects of the specific material being studied. First, the nature of the relationship between capital structure and firm value in the context of market conditions is reviewed in the Leverage Effect section. Second, the nature of the ability of dividends to have an impact on firm value is reviewed in the sections relating to Free Cash Flow Theory, Prospect Theory and Signaling Theory. Finally, the relationship between dividends and firm value in the context of market conditions is discussed.

***1.5.1 The Leverage Effect.*** While debt financing can provide firms with the ability to pursue business opportunities (Modigliani & Miller, 1958), it also brings with it a degree of risk, which can put negative pressure on returns, particularly at high levels (Kim, 1978). Black (1976) points out that during periods of declining markets, firm values decrease while their absolute debt levels often do not. This causes an increase in debt-to-equity ratio (D/E) and puts the firm into a higher risk level, thus increasing its stock's volatility and riskiness (Black, 1976). The increase in riskiness and volatility in times of declining markets causes the risk premium of the stock to increase, which reduces the returns for the stock. Thus, Black's (1976) leverage effect suggests that financial leverage increases during periods of declining markets. This leverage effect should be more pronounced for firms with high debt than for firms with low debt. The likely result of this outcome would be that the stock prices of the more highly leveraged

firm would drop more rapidly in a declining market. In particular, firms with no debt have a zero debt-to-equity ratio regardless of the market conditions. Accordingly, down markets should reduce the returns of the high debt firms more than those of low debt firms.

***1.5.2 Free Cash Flow Theory.*** Jensen (1986) provides insight into the relationship between dividends and cash flows when he argues, in "Free Cash Flow Theory" that companies should pay dividends out of their excess cash flow after all positive Net Present Value (NPV) projects have been funded. Often, firms that do not have good investment opportunities and do not pay their excess cash as dividends, reduce debts and increase cash reserves. Managers can easily use their cash reserves for projects that benefit themselves at the expense of shareholders (DeAngelo et al., 2004) and often invest large amounts of money into projects that ultimately perform poorly (Jensen, 1986). Based on this Free Cash Flow argument, when indebtedness is high or dividends are being paid, investors have reason to believe that the managers have a reduced ability to embark on poor investment opportunities (Fuller & Goldstein, 2004; Jensen, 1986). This limitation being placed upon managers to pay dividends or service debts could have the effect of improving investors' expectations regarding future performance, and therefore stock returns may rise.

Further, if a firm has excess financial slack in the form of low indebtedness or because it does not return cash to shareholders in the form of dividends, the markets often view it as "resource misallocation" and will penalize the stock price to the extent that the market expects further misallocation (Smith & Kim, 1994, p. 281). This perception of misallocation by investors could have the effect of depressing the stock prices of firms

with excess financial slack, such as non-dividend-paying firms and those with large cash balances or little debt.

Fuller and Goldstein (2004) find that dividend payment is most valuable in down markets. They posit that it is in these conditions that a reduction in free cash flow would be most valuable as it would further reduce a manager's ability to embark on poor NPV projects in declining market conditions. They argue that a reduction in the degree of decline in stock returns during down markets because of dividend payment is consistent with Free Cash Flow theory as a payment during times of reduced financial slack reduces cash available to managers more than during up markets.

***1.5.3 Prospect Theory.*** Prospect Theory, developed by Kahneman and Tversky (1979), posits that investors are more concerned about losses than they are about gains and will often elect to take a bird in the hand dividend payment over a capital gain they may or may not ever receive. This flight to quality effect is often stronger during times of uncertainty when markets are declining (Connolly, Stivers, & Sun, 2004). Therefore, based on this theory, it follows that dividend yield would be important to investors as a way to move more cash out of the control of managers who may spend it on negative NPV investments, and back into the possession of investors. Fuller and Goldstein (2004) argue that although the value of dividends increases in down markets, which is consistent with Prospect Theory, evidence indicates that the dividend yield is not an important factor in investors' asymmetric valuation of dividends in up and down markets.

***1.5.4 Earnings Signaling Theory.*** Lintner's (1956) Signaling Theory states that managers pay dividends only if they expect that the firm will have enough cash for current and future projects. Therefore, the payment of a dividend could provide a signal

to investors that the managers believe in the long-term cash flow sustainability of the firm. Further, Bhattacharya (1979) argues that since cash flows in one time period are based on investments made in previous periods, the commitment of managers to a dividend is a statement that they feel that their investments will provide good cash flows in the future. Further, managers could signal their beliefs regarding future cash flows with dividends.

The Signaling Theory suggests that the signal, and not the dividend yield, is important to investors in the context of imperfect access to information (Bhattacharya, 1979). Because not all information that is available to managers is also available to the public, especially in the information environment of small firms, and because of the inability of the average investor to gain access to all information about a firm, the payment of a dividend by a firm provides an indication that management has a favourable outlook for cash flows (Bhattacharya, 1979). Furthermore, Ross (1977) and Bhattacharya (1979) suggest that this signal could potentially be used by management to segregate itself from competitors by intentionally sending signals to investors.

Fuller and Goldstein (2004) demonstrate that during up markets, the mean monthly returns of dividend-paying firms (3.72%) and non-dividend-paying firms (3.88%) do not differ significantly. On the other hand, they found that in declining markets, firms which pay dividends experience an average return of -2.13% compared to -3.03% for non-dividend-paying firms, and the difference is statistically significant at the 1.0% level. Thus their evidence indicates that firms that pay dividends do not experience significantly different returns in up markets compared to the non-payers, but that the payer's returns are significantly higher that those of non-payers in down markets. This is

consistent with the findings of Docking and Koch (2005) that the signaling ability of a dividend is greater when the prevailing market conditions are counter to the nature of the news regarding the dividend. For example, a positive dividend announcement in a downturn has a more positive result than does the same announcement during an up market.

## 2. Methodology

### *2.1 Data*

The sample consists of all firms listed on the Center for Research in Security Prices (CRSP) database from January 1970 through December 2005, (a 36 year period). For each firm, monthly returns were collected as well as dividend amount, and dividend distribution code. The distribution code for each payment was used to determine whether dividends paid are annual, semi-annual, quarterly, monthly, or special dividends. In addition, quarterly information was extracted about each firm's debt-to-market-value-of-equity ratio, book-to-market ratio, total-debt-to-total-assets ratio and market value of equity from Compustat database. In order to ensure accuracy and validity in the sample, only records which contained data in all of the necessary fields were included. Fields with missing data were deleted. Also, unlike the Fuller and Goldstein (2004) study, which used only data from CRSP, data for this study was extracted from both CRSP and Compustat. Records without data present in both databases were removed. This had the effect of a somewhat smaller sample size of 1,235,248 firm months than that of Fuller and Goldstein (2004), at 2,161,688. The average share price was $12.45, the average market capitalization was $158,462,636 and the average beta was 0.8721.

For each month a firm was classified as either dividend paying or non-dividend paying based on the distribution code of the most recent dividend payment. For example, if a quarterly dividend was paid in January 1990, then that stock would be considered to be in dividend paying status for the 3 month period February to April of the same year. This lag of one month allows for dissemination of the information on dividends most often paid at the very end of a payment month. Thus, any positive reaction to a dividend

initiation would not be included in the dividend paying stock performance. Conversely, any negative reaction associated with a discontinuation of dividend payment would be included in the performance of the payers, thus biasing the results away from finding outperformance for the dividend paying stocks (Fuller & Goldstein, 2004).

Similar to Goldstein and Nelling (1999), the monthly S&P500 returns were used to classify each month as being either up, if the return is positive, or down, if the return is not positive. This form of classification results in 250 up months and 182 down months over the sample period.

Next, for each quarter, the firms are ranked by debt-to-equity ratios into four groups; the highest quartile group consists of the most highly indebted firms and the lowest quartile consists of the least leveraged firms. The returns of these portfolios are then analyzed by their dividend payment status in up and down markets in order to discern the effects of leverage and dividends on returns in down markets.

***2.1.1 Dividend Payment and Market Conditions.*** Table 1.1 shows the characteristics of the firms contained in the dividend-paying and the non-dividend-paying groups are somewhat different. Dividend paying firms have roughly double the stock price ($20.88 vs. $9.80) and double the market capitalization ($251,068,799 vs. $126,467,817) of non-paying firms. On the other hand, their average beta, collected from the CRSP database, is nearly identical (0.8721) to that of non-paying firms (0.8720).

**Table 1.1 Summary Statistics for Dividend Payment and Market Conditions**

Panel A - All Markets
432 months

| | Non-Dividend Paying Firms | Dividend Paying Firms |
|---|---|---|
| Price | $9.80 | $20.88 |
| Market Cap. | $126,467,817 | $251,068,799 |
| Beta | 0.8720 | 0.8721 |
| N | 947619 | 287629 |

Panel B - Up Markets
250 months

| | Non-Dividend Paying Firms | Dividend Paying Firms |
|---|---|---|
| Price | $9.98 | $21.19 |
| Market Cap. | $125,002,401 | $252,298,011 |
| Beta | 0.8600 | 0.8702 |
| N | 604846 | 184463 |

Panel C - Down Markets
182 months

| | Non-Dividend Paying Firms | Dividend Paying Firms |
|---|---|---|
| Price | $9.51 | $20.34 |
| Market Cap. | $128,957,065 | $248,963,354 |
| Beta | 0.8898 | 0.8746 |
| N | 342773 | 103166 |

When the non-payers are divided by market conditions, the results are relatively similar. Share price drops from $9.98 to $9.51 in down markets and the beta increases from 0.8600 to 0.8898. On the other hand, the market capitalization of the down market group is slightly larger at $128,957,065 compared to $125,002,401.

The same is true for the dividend-payers, as in up markets the share price is $21.19 as compared to $20.34 in down markets. The beta also drops in down markets from 0.8746 to 0.8702 in down markets. The market capitalizations in up and down markets are very similar at $252,298,011 and $248,963,354 respectively.

***2.1.2 Capital Structure and Market Conditions.*** Table 1.2 displays the characteristics for the firms grouped by debt-to-equity levels. The first group with the lowest level of indebtedness has a higher than average market capitalization at $162,878,507, a mean stock price of $12.75 a debt-to-equity ratio of 0.0073 and a beta score of 0.6348. The second quartile contains firms that have higher than average market capitalizations at $168,591,418, mean stock price of $13.08 a debt-to-equity ratio of 0.7110, and mean beta of 0.2166. Firms in the third quartile have the highest market capitalization $183,652,754, the highest mean stock price of $13.72 a debt-to-equity ratio of 0.5191 and a mean beta of 0.6801. Firms in the highest debt-to-equity quartile have the lowest market capitalizations at $107,061,508, the lowest mean stock price at $10.00 a debt-to-equity ratio of 3.2045 and a mean beta of 0.6739.

Between up and down markets, some differences appear. In up markets, share prices are $12.60 but are reduced to $12.02 in down markets. Also, both debt-to-equity ratio and beta increase in down markets, moving from 0.9187 to 1.1039 and from 0.6752 and 0.6788 respectively.

**Table 1.2 Summary Statistics for Capital Structure and Market Conditions**

Panel A

All Groups

| | All Markets | Up Markets | Down Markets |
|---|---|---|---|
| Price | $12.38 | $12.60 | $12.02 |
| Market Cap. | $155,503,761 | $154,386,087 | $157,419,840 |
| Beta | 0.6765 | 0.6752 | 0.6788 |
| D/E | 0.9869 | 0.9187 | 1.1039 |
| N | 1235248 | 789309 | 445939 |

Panel B

Lowest Debt Quartile

| | All Markets | Up Markets | Down Markets |
|---|---|---|---|
| Price | $12.75 | $12.93 | $12.44 |
| Market Cap. | $162,878,507 | $159,596,500 | $168,505,000 |
| Beta | 0.6384 | 0.6366 | 0.6422 |
| D/E | 0.0073 | 0.0075 | 0.0069 |
| N | 294216 | 185823 | 108393 |

Panel C

Second Debt Quartile

| | All Markets | Up Markets | Down Markets |
|---|---|---|---|
| Price | $13.08 | $13.28 | $12.73 |
| Market Cap. | $168,591,418 | $168,225,400 | $169,218,900 |
| Beta | 0.711 | 0.7123 | 0.7082 |
| D/E | 0.2166 | 0.2758 | 0.1150 |
| N | 310654 | 199564 | 111090 |

Panel D

Third Debt Quartile

| | All Markets | Up Markets | Down Markets |
|---|---|---|---|
| Price | $13.72 | $13.91 | $13.40 |
| Market Cap. | $183,652,754 | $182,007,200 | $186,473,800 |
| Beta | 0.6801 | 0.6781 | 0.6842 |
| D/E | 0.5191 | 0.5472 | 0.4710 |
| N | 317036 | 201887 | 115149 |

Panel C

Highest Debt Quartile

| | All Markets | Up Markets | Down Markets |
|---|---|---|---|
| Price | $10.00 | $10.17 | $9.71 |
| Market Cap. | $107,061,508 | $106,945,900 | $107,259,700 |
| Beta | 0.6739 | 0.6709 | 0.6795 |
| D/E | 3.2045 | 2.9439 | 3.6512 |
| N | 305954 | 190805 | 115149 |

***2.1.3 Dividend Payment, Capital Structure, and Market Conditions.*** As is shown in Table 1.3, the firms are classified by dividend payment, and the payers stock price ($20.88) is roughly double that of the non-payers ($9.80). Mean market capitalizations were also roughly twice as high in the dividend paying group than the non-payers as reported in previous sections.

These differences persist between dividend and non-dividend paying firms across the debt-to-equity quartiles. Non-payers have consistently lower stock prices and lower market capitalizations, and debt-to-equity ratios than do their dividend-paying counterparts.

## Table 1.3 Summary Statistics for Dividend Payment, Capital Structure, and Market Conditions

Panel A
Lowest Debt Quartile

| | Up Markets | | | Down Markets | |
|---|---|---|---|---|---|
| | Non-Paying Firms | Dividend-Paying Firms | | Non-Paying Firms | Dividend-Paying Firms |
| Price | $11.36 | $21.36 | Price | $11.09 | $21.24 |
| Market Cap. | $159,632,000 | $222,991,304 | Market Cap. | $158,273,824 | $229,610,233 |
| Beta | 0.6603 | 0.6603 | Beta | 0.6647 | 0.5896 |
| D/E | 0.0078 | 0.0061 | D/E | 0.0070 | 0.0070 |
| N | 159632 | 28432 | N | 91011 | 15141 |

Panel B
Second Debt Quartile

| | Up Markets | | | Down Markets | |
|---|---|---|---|---|---|
| | Non-Paying Firms | Dividend-Paying Firms | | Non-Paying Firms | Dividend-Paying Firms |
| Price | $10.64 | $23.01 | Price | $10.41 | $22.52 |
| Market Cap. | $136,073,115 | $288,933,131 | Market Cap. | $140,346,380 | $287,699,916 |
| Beta | 0.7171 | 0.7051 | Beta | 0.7093 | 0.7067 |
| D/E | 0.3126 | 0.1213 | D/E | 0.113 | 0.125 |
| N | 159272 | 41948 | N | 87590 | 21844 |

Panel C
Third Debt Quartile

| | Up Markets | | | Down Markets | |
|---|---|---|---|---|---|
| | Non-Paying Firms | Dividend-Paying Firms | | Non-Paying Firms | Dividend-Paying Firms |
| Price | $10.37 | $22.13 | Price | $10.04 | $21.51 |
| Market Cap. | $135,966,129 | $290,027,732 | Market Cap. | $140,364,677 | $296,092,089 |
| Beta | 0.699 | 0.6491 | Beta | 0.6968 | 0.6677 |
| D/E | 0.5785 | 0.4713 | D/E | 0.4677 | 0.479 |
| N | 143289 | 61158 | N | 79238 | 33351 |

Panel D
Highest Debt Quartile

| | Up Markets | | | Down Markets | |
|---|---|---|---|---|---|
| | Non-Paying Firms | Dividend-Paying Firms | | Non-Paying Firms | Dividend-Paying Firms |
| Price | $7.01 | $18.50 | Price | $6.85 | $17.35 |
| Market Cap. | $74,447,234 | $192,444,971 | Market Cap. | $77,096,164 | $188,721,685 |
| Beta | 0.6799 | 0.6473 | Beta | 0.6912 | 0.6459 |
| D/E | 3.3552 | 1.8428 | D/E | 4.3022 | 1.9669 |
| N | 142653 | 52925 | N | 84934 | 32830 |

## 3. Results

### *3.1 Dividend Payment and Market Conditions*

***3.1.1 Raw Results.*** To investigate investors' preferences for dividends across varying market conditions, the returns of dividend-paying and the non-paying firms in both up (positive S&P500 returns) and down (non-positive S&P500 returns) markets were examined. Table 2.1 shows the mean returns for the payers and non-payers in both market conditions and demonstrates that in up market conditions, the non-dividend-paying firms outperformed their dividend-paying counterparts by 0.9% per month. However, in down market conditions, the dividend-paying firms fared better with returns 1.2% per month higher than the non-paying firms. These results are similar to those of Fuller and Goldstein (2004) in down market conditions. Because a different sample and different time period were used, the up market results are slightly different from those of Fuller and Goldstein (2004). They found the payers outperform non-payers in up markets by 0.16% per month whereas the results of this study find a 0.9% outperformance by the non-payers. On the other hand, the important results of both studies, pertaining to the value of dividends in down market conditions, are similar.

**Table 2.1 Dividend Payment and Market Conditions – Raw Results**

| | Non-Dividend Paying Firms | Dividend Paying Firms | Difference | Significance |
|---|---|---|---|---|
| Up Markets | 0.0442 | 0.0346 | 0.009646 | *, w |
| Down Markets | -0.0299 | -0.017 | 0.012908 | *, ww, kk |

*Note.* "*" indicates t-value is significant at the 5% level
"**"indicates t-value is significant at the 1% level
"w" indicates Wilcoxon Sign-Rank significance at the 5% level
"ww" indicates Wilcoxon Sign-Rank significance at the 1% level
"k" indicates Kruskal-Wallis significance at the 5% level
"kk" indicates Kruskal-Wallis significance at the 1% level

***3.1.2 CAPM Results.*** Although market conditions can influence overall stock price movement, differences in common risk factors between the payers and the non-payers can also influence the results. Accordingly, this section controls for Beta using the Capital Asset Pricing Model (CAPM). In particular, the following equation is used to estimate the abnormal return for each stock.

$$Abnormal\,\mathrm{Re}turn_i = Actual\,\mathrm{Re}turn_i - (r_F - \beta_i (r_M - r_F)) \quad (1)$$

Where $Abnormal\,\mathrm{Re}turn_i$ is the return for firm *i* for each observed month

$r_F$ is return on a three month treasury bill for the same month

$r_M$ is the monthly return of the CRSP equally weighted portfolio

$\beta_i$ is the Beta for stock *i*.

As a result of applying CAPM adjustments to the stock returns of the four portfolios and controlling for the effect of any differences in Beta values between the groups, it is found that in advancing markets (see Table 2.2), the non-dividend-paying firms outperform the dividend-paying firms by approximately 0.4% per month, which is

significant at the 1% level. However, in declining markets, paying firms outperform non-paying firms by 0.8%, which is also significant at the 1% level.

**Table 2.2 Dividend Payment and Market Conditions – CAPM Adjustments**

| | Up Markets | Down Markets |
|---|---|---|
| Non-Dividend Paying Firms | 0.0486** | -0.0446** |
| Dividend Paying Firms | 0.0400** | -0.0325** |
| Differences | 0.0086 | -0.0120 |

*Note.* "*" indicates *t*-value is significant at the 5% level
"**"indicates *t*-value is significant at the 1% level

***3.1.3 Fama-French Three Factor Model Results.*** Similar to Ang, Chen and Xing (2004) and Fuller and Goldstein (2004), the Fama and French (1993) three factor model is used to control for non-independence of returns over time, size, and book-to-market values (Fama & French, 1993) as follows. Specifically, the following extended version of the Fama and French model is estimated:

$$r_{it} - r_{Ft} = \alpha_{iT} + b_{iT} RMRF_t + S_{iT} SMB_t + h_{iT} HML_t + d_{iT} DOWN_t + \varepsilon_{iT} \quad (2)$$

Where $r_{it} - r_{Ft}$ is the return on an equal-weighted portfolio of either dividend paying or non-dividend paying stocks in month t minus the three month Treasury Bill return in that month,

$RMRF_t$ is the excess return on a value weighted aggregate market proxy (S&P500) for month *t*,

$SMB_t$ is the difference in the returns of a value-weighted portfolio of small stocks and large stocks for month *t*,

$HML_t$ is the difference in returns of a value-weighted portfolio of high book-to-market stocks and low book-to-market stocks for month *t*

$DOWN_t$ is an indicator variable that equals zero if the market is down and one if the market is up in month *t*. Months are deemed to be up if the S&P 500 index return is greater than zero and down if the return is zero or less.

After applying the modified Fama-French (1993) style adjustments and controlling for the risk factors mentioned previously, one would expect to arrive at a zero alpha if all of the deviation from the returns of the market was caused by these factors in the raw returns. However, additional returns beyond the risk factors for which the FF adjustments control would suggest outperfomance consistent with the hypotheses.

After applying the Fama-French (1993) three-factor model adjustments to the returns of the dividend-paying and non-paying portfolios in up and down market conditions, the results (see Table 2.3) are consistent with those from the previous analysis (see Table 2.2), namely that in advancing markets the mean monthly return non-payers (0.5%) outperform payers (0.23%). However, in declining markets, the opposite is true with payers (-0.046%) outperforming non-payers (-0.67%), and that in those conditions the difference between the returns of the two groups is greater and significant at the 1% level (*t*-value = -2.63).

**Table 2.3 Dividend Payment and Market Conditions – Fama-French Three Factor Model Adjustments**

| | Intercept | RMRF | SMB | HML | DOWN | Adjusted R squared |
|---|---|---|---|---|---|---|
| Non-Dividend Paying Firms | -0.0067** | 0.0107** | 0.0096** | 0.0039** | 0.0117** | 0.7790 |
| Dividend Paying Firms | -0.0004 | 0.0081** | 0.0047** | 0.0045** | 0.0027 | 0.8635 |
| Differences | -0.0063** | 0.0026** | 0.0049** | -0.0006 | 0.0090 | |

*Note.* "*" indicates *t*-value is significant at the 5% level
"**"indicates *t*-value is significant at the 1% level

### *3.2 Capital Structure and Market Conditions*

***3.2.1 Raw Returns.*** In order to determine the effect that various market conditions have on stock returns of firms with varying degrees of indebtedness, the returns of firms are examined, divided into four groups by debt-to-equity ratio in both advancing and declining markets. Table 3.1 contains the results of that analysis and reveals that the highest stock returns in advancing markets (4.6%) and the lowest returns in declining markets (-3.1% and -3.2%) are experienced by the lowest two debt quartiles. This result is not consistent with the hypothesis relating to capital structure and market conditions, which states that the most negative returns will be experienced by the highest debt firms in down markets. The contradictory results may be due to differences in common risk factors among the firms in the different debt quartiles. Therefore both CAPM (Equation 1) and Fama-French (1993) adjusted three factor model (Equation 2) are used to control for the common risk factors in the next sections.

**Table 3.1 Capital Structure and Market Conditions – Raw Results**

| | Lowest D/E Quartile | Second D/E Quartile | Third D/E Quartile | Highest D/E Quartile |
|---|---|---|---|---|
| Up Markets | 0.0461 | 0.0447 | 0.0353 | 0.0357 |
| Down Markets | -0.0311 | -0.0324 | -0.0210 | -0.0241 |

T value of the difference between quartile 1 and 4 in UP markets = 1.03 * (w,k)
T value of the difference between upper and lower half in UP markets = 1.43 (w,k)
T value of the difference between 1 and 4 in DOWN markets = -0.62
T value of the difference between upper and lower half in DOWN markets = 1.18

*Note.* "*" indicates *t*-value is significant at the 5% level
"**"indicates *t*-value is significant at the 1% level
"w" indicates Wilcoxon Sign-Rank significance at the 5% level
"ww" indicates Wilcoxon Sign-Rank significance at the 1% level
"k" indicates Kruskal-Wallis significance at the 5% level
"kk" indicates Kruskal-Wallis significance at the 1% level

***3.2.2 CAPM Results.*** After controlling for Beta using the CAPM (Equation 1) and thereby reducing the effect that differences in Betas may have upon returns, the results (in Table 3.2) reveal that in advancing markets the returns of the lowest debt quartile (4.2%) still outperform those of the other quartiles, which are approximately 3.4%. However, in declining markets, mean returns of the lowest, second and third quartiles are roughly equal (-3.4%) and the quartile containing the most indebted companies shows the most negative returns (-4.4%). This pattern of more negative returns in declining markets is consistent with the leverage effect and the increase in Betas for the most highly indebted firms during down markets, but the lowest debt quartile experiencing the greatest returns in advancing markets is not. However, there are likely other common risk factors such as market, size, and book-to-market effects that still bias the results, and therefore further adjustments were made to compensate for these well-known risk factors.

**Table 3.2 Capital Structure and Market Conditions – CAPM Adjustments**

| | Lowest D/E Quartile | Second D/E Quartile | Third D/E Quartile | Highest D/E Quartile |
|---|---|---|---|---|
| Up Markets | 0.0420** | 0.0323** | 0.0362** | 0.0312** |
| Down Markets | -0.0344** | -0.0359** | -0.0333** | -0.0441** |
| Differences | 0.0764** | 0.0682** | 0.0695** | 0.0753** |

*Note*. "*" indicates *t*-value is significant at the 5% level
"**"indicates *t*-value is significant at the 1% level

***3.2.3 Fama-French Three Factor Model Results.*** After correcting for market, size, and book-to-market effects it is found that, in advancing markets (see Table 3.3) via the Fama-French (1993) modified three factor model (Equation 2), returns increase with debt-to-equity ratio until the highest quartile, in which the returns decline. The returns of

quartiles 1 through 4 in up markets are 0.62%, 1.27%, 1.51%, and 1.00% respectively. In declining markets, it is found that the least indebted firms in quartile 1 experience slightly positive returns of 0.34% per month, and that as debt-to-equity ratio increase the returns become more negative, with the most highly leveraged firms experiencing the most negative returns. The returns of quartiles 2, 3, and 4 are -0.69%, -1.04%, and -1.82% per month respectively.

Overall, the results of Table 3.3 indicate that, in down markets, firms with the lowest debt-to-equity ratio outperform those with the highest indebtedness by 2% per month, which is significant at the 5% level. These results are consistent with the H1 hypothesis and demonstrate that when markets are rising investors prefer moderate debt, but in declining markets they prefer minimal indebtedness. This is also consistent with Black's (1976) finding that declining markets reduce equity but not debt, resulting in an increase in the debt-to-equity ratio. This increase in leverage increases the volatility of the stock and its perceived riskiness, thus negatively affecting returns.

**Table 3.3 Capital Structure and Market Conditions – Fama-French Three Factor Model Adjustments**

Panel A

| | Intercept | RMRF | SMB | HML | DOWN | Adjusted R squared |
|---|---|---|---|---|---|---|
| Lowest Debt Quartile (A) | 0.0034 | 0.0112** | 0.0098** | 0.0013 | 0.0028 | 0.3049 |
| Second Debt Quartile (B) | -0.0069 | 0.0104** | 0.0061** | -0.0012 | 0.0196 | 0.2606 |
| Third Debt Quartile (C) | -0.0104 | 0.0081** | 0.0059** | 0.0000 | 0.0255* | 0.2654 |
| Highest Debt Quartile (D) | -0.0182** | 0.0091** | 0.0079** | 0.0037** | 0.0282** | 0.2903 |

Panel B

Differences

| | Intercept | RMRF | SMB | HML | DOWN |
|---|---|---|---|---|---|
| A-D | 0.0216* | 0.0021 | 0.0019 | -0.0024 | -0.0254 |
| (A&B)-(C&D) | 0.01255 | 0.0022 | 0.00105 | -0.0018 | -0.0156 |

*Note.* "*" indicates *t*-value is significant at the 5% level
"**"indicates *t*-value is significant at the 1% level

### *3.3 Dividend Payment, Capital Structure, and Market Conditions*

***3.3.1 Raw Results.*** Next, the effect that dividend payments have on the stock returns of firms with various levels of indebtedness in both advancing and declining markets is examined. The sample is divided into four groups based on debt-to-equity ratio and further divided into dividend-paying and non-paying stocks. The returns of each of the eight groups was analyzed in both up and down market conditions and it was found that in rising markets, the dividend payers experienced less positive returns than did the non-payers (see Table 4.1). Specifically, payers mean returns are 3.77%, 2.80%, 2.35%, and 3.78% per month for the lowest to highest debt-to-equity quartiles. However, in declining markets the payers experienced more positive returns than the non payers (-1.72%, -1.28%, -0.23% and -0.28% per month for the lowest to highest debt-to-equity quartiles). A strong indication of an effect caused by the various debt levels was not

apparent. However, it is possible that this conclusion is influenced by differences in common risk factors. Consequently, the CAPM and Fama-French (1993) three factor models were used to control for the well known risk factors.

**Table 4.1 Dividend Payment, Capital Structure, and Market Conditions - Raw Results**

Up Markets

| | Lowest D/E Quartile | Second D/E Quartile | Third D/E Quartile | Highest D/E Quartile |
|---|---|---|---|---|
| Non-Dividend Paying Firms | 0.0471 | 0.0464 | 0.0402 | 0.0344 |
| Dividend Paying Firms | 0.0377 | 0.0280 | 0.0235 | 0.0378 |
| Difference | 0.0094 | 0.0184(w) | 0.0167(w) | -0.0034 |

Down Markets

| | Lowest D/E Quartile | Second D/E Quartile | Third D/E Quartile | Highest D/E Quartile |
|---|---|---|---|---|
| Non-Dividend Paying Firms | -0.0316 | -0.0387 | -0.0287 | -0.0298 |
| Dividend Paying Firms | -0.0172 | -0.0128 | -0.0023 | -0.0028 |
| Difference | -0.0144(ww, kk) | -0.0259(ww, kk) | -0.0264(ww, k) | -0.0270(ww, kk) |

*Note.* "*" indicates *t*-value is significant at the 5% level
"**"indicates *t*-value is significant at the 1% level
"w" indicates Wilcoxon Sign-Rank significance at the 5% level
"ww" indicates Wilcoxon Sign-Rank significance at the 1% level
"k" indicates Kruskal-Wallis significance at the 5% level
"kk" indicates Kruskal-Wallis significance at the 1% level

***3.3.2 CAPM Results.*** After controlling for Beta, the results found in Table 4.2 indicate that in rising markets the non-payers experience more positive results than the payers; however, the most positive results are achieved by the lowest debt groups. In down markets, however, the effect of indebtedness is clearly visible in that as the debt-to-equity ratio increases, the returns monotonically decrease across debt-to-equity quartiles. Further, the difference between the returns of non-paying firms in the highest debt quartile in up and down markets is greater than the difference between the up and down market returns of the most highly indebted firms that pay dividends.

**Table 4.2 Dividend Payment, Capital Structure, and Market Conditions – CAPM Adjustments**

Up Markets

| | Lowest D/E Quartile | Second D/E Quartile | Third D/E Quartile | Highest D/E Quartile |
|---|---|---|---|---|
| Non-Dividend Paying Firms | 0.0434 | 0.0348 | 0.0373 | 0.0325 |
| Dividend Paying Firms | 0.0356 | 0.0319 | 0.0294 | 0.0316 |
| Differences | 0.0078** | 0.0029** | 0.0079** | 0.0009** |

Down Markets

| | Lowest D/E Quartile | Second D/E Quartile | Third D/E Quartile | Highest D/E Quartile |
|---|---|---|---|---|
| Non-Dividend Paying Firms | -0.0357 | -0.0373 | -0.0313 | -0.0462 |
| Dividend Paying Firms | -0.0218 | -0.0236 | -0.0245 | -0.0339 |
| Differences | -0.0139** | -0.0137* | -0.0068** | -0.0123* |

*Note.* "*" indicates *t*-value is significant at the 5% level
"**"indicates *t*-value is significant at the 1% level

***3.3.3 Fama-French Three Factor Model Results.*** After correcting for market, size, and book-to-market risk factors it is found that in advancing markets both dividend-payers' returns and non-payers' returns increased as indebtedness increased (see Table 4.3). In particular, payers mean returns are 0.38%, 0.49%, 0.71% and 1.93% per month for quartiles 1-4 respectively and non-payers are 0.99%, 0.89%, 1.19% and 1.09% per month for quartiles 1-4 respectively. Since this effect was not seen in the returns after the CAPM adjustments, it is likely due to the adjustment for size and book-to-market effects.

**Table 4.3 Dividend Payment, Capital Structure, and Market Conditions – Fama-French Three Factor Model Adjustments**

Panel A

Dividend Paying Firms

| | Intercept | RMRF | SMB | HML | DOWN | Adjusted R squared |
|---|---|---|---|---|---|---|
| Lowest Debt Quartile (A) | 0.0119 | 0.0075** | 0.0064** | 0.0043* | -0.0081 | 0.1280 |
| Second Debt Quartile (B) | -0.0029 | 0.0082** | 0.0079** | 0.0059** | 0.0078 | 0.2593 |
| Third Debt Quartile (C) | -0.0028 | 0.0059** | 0.0041** | 0.0038** | 0.0099 | 0.1513 |
| Highest Debt Quartile (D) | -0.005 | 0.0104** | 0.0080** | 0.0053** | 0.0243 | 0.1712 |

Panel B

Non-Dividend Paying Firms

| | Intercept | RMRF | SMB | HML | DOWN | Adjusted R squared |
|---|---|---|---|---|---|---|
| Lowest Debt Quartile (E) | -0.003 | 0.0108** | 0.0088** | 0.0004 | 0.0129 | 0.3069 |
| Second Debt Quartile (F) | -0.0080 | 0.0113** | 0.0060** | -0.0008 | 0.0169 | 0.2809 |
| Third Debt Quartile (G) | -0.0160* | 0.0101** | 0.0067** | 0.0015 | 0.0279** | 0.2797 |
| Highest Debt Quartile (H) | -0.0213** | 0.0091** | 0.0072** | 0.0018 | 0.0322** | 0.2277 |

Panel C

Differences

| | Intercept | RMRF | SMB | HML | DOWN |
|---|---|---|---|---|---|
| A-E | 0.0149 | -0.0033 | -0.0024 | 0.0039 | -0.021 |
| D-H | 0.0163* | 0.0013 | 0.0008 | 0.0035 | -0.0079 |
| (A&B)-(E&F) | 0.0100 | -0.0032* | -0.0003 | 0.0053** | -0.015 |
| (C&D)-(G&H) | 0.0147** | -0.0014 | -0.0009 | 0.0029 | -0.0129 |

*Note.* "*" indicates *t*-value is significant at the 5% level
"**"indicates *t*-value is significant at the 1% level

During declining markets, the returns of the firms that are more highly indebted are lower than those of their less indebted counterparts. Further, among the non-payers, the rate of decline in returns increases until the highest debt-to-equity quartile is reached (-0.30%, -.080%, -1.60% and -2.13%, respectively, for quartiles 1-4). The most indebted non-paying firms experience returns seven times more negative (-2.1% per month) than the returns of the firms in the lowest debt quartile (-0.3%). Similarly, among the dividend payers, the returns of the most highly indebted firms are less negative than the non-payers with returns of 1.19%, -0.29%, -0.28%, -0.50% per month for quartiles 1-4, respectively.

In up markets, the differences between paying and non-paying firms in the highest debt-to-equity quartile is highly significant (0.084% per month, *t*-value = 2.79) whereas that of firms in the lowest quartiles is not. (0.61% per month, *t*-value = 1.26). When the lowest two debt-to-equity quartiles of non-payers are combined and compared to the lowest two quartiles of payers, the differences are significant (0.18% per month, *t*-value = 2.15); however, the differences between the highest two quartiles of payers and non-payers is highly significant (0.51% per month, *t*-value = 4.12).

The down market differences between the Fama-French (1993) adjusted returns of the dividend-paying and non-paying firms in the highest debt-to-equity quartile are significant (1.63% per month, *t*-value = -2.43) whereas those in the lowest quartile are not (1.49% per month, *t*-value = -0.39). Further, the differences in adjusted returns between the highest two quartiles are highly significant (1.48% per month, *t*-value = -3.34) and those of the lowest two quartiles are not (1.0% per month, *t*-value = -1.04). This suggests that the asymmetric valuation of dividends is stronger for more highly indebted firms.

After conducting the modified Fama-French (1993) three factor model adjustments and comparing the results to the raw returns, it has become clear that there are factors affecting returns other than dividend policy and capital structure. Correcting for the Fama-French (1993) factors has made it possible to see the effect of dividend payment by firms with various debt-to-equity ratios in up and down market conditions. This has resulted in increased clarity in the asymmetric valuation of dividends across market conditions in that, after correcting for common risk factors, the effect of indebtedness upon returns has become more apparent. Specifically, after adjusting for risk, the results clearly show that the value of the asymmetric valuation of the dividend signal is stronger among firms with high debt-to-equity ratios. This suggests that the asymmetric valuation of dividends is partially driven by financial leverage.

## 4. Practical Application

### *4.1 Dividend Payment and Market Conditions*

As the asymmetric valuation of dividends demonstrates, investors are not indifferent to the dividend policy of firms. The results presented herein confirm Fuller and Goldstein's (2004) finding that, during down markets, investors prefer dividends more than in up markets.

As Bhattacharya (1979) found, the amount of the dividend being paid is not important. Rather, the signal that the payment sends to investors is of more importance. Therefore, the findings of this study could prove useful to managers. If managers decide to pay a dividend, even a small one, they will send signals to investors which, during declining markets, reduce volatility and cushion declines in stock returns (Fuller & Goldstein, 2004). In cases where firms are more highly indebted, this signal is even more valuable during down markets, and consequently, the reduction in the rate of negative returns is greater. Therefore, managers of highly indebted firms could likely improve their stock price performance in declining markets if they paid regular dividends.

### *4.2 Capital Structure and Market Conditions*

As a result of the findings of this study, it has become apparent that firms that are more highly indebted experience more negative returns in declining markets than do firms that are less leveraged (Black, 1976). Managers could use this information when they make decisions regarding firm capital structures. It could prove to influence them to change their intended source of financing if they realize that debt financing could have negative effects upon stock returns when markets decline (Black, 1976).

Likewise, investors could use the findings of this study when they decide which equities their portfolios should contain. Indebtedness can affect returns, and the CAPM and Fama and French (1993) three factor model adjustments did not fully explain the returns. Therefore, it could be useful for investors to consider debt-to-equity levels of firms when making investment decisions.

### *4.3 Dividend Payment, Capital Structure, and Market Conditions*

As a result of studying the effect that dividends have upon the stock returns of firms with various levels of indebtedness in up and down markets, the payment of dividends has the ability to reduce the negative effect that higher levels of debt have on returns in declining markets.

After adjusting for size and book-to-market effects, the returns of the non-dividend-paying firms do not vary greatly in advancing markets across debt-to-equity quartiles. The same is also true for the dividend-paying firms although the Fama and French (1993) three-factor model adjusted returns indicate some increase in returns as indebtedness increases. In declining markets, however, adjusted returns indicate a downward trend among both dividend-paying and non-paying firms as their debt-to-equity ratios increase.

The results of this study could assist managers in making decisions regarding the capital structure of their firms. Increases in debt could exert downward pressure upon returns in down markets, especially among those that do not pay dividends. Also, as the evidence indicates, the payment of dividends mitigates the effect of debt upon returns in down markets and reduces volatility. This effect is stronger for firms in higher debt quartiles. Since it is the signal that dividends provide that reduces the downward pressure

on returns, it could prove useful for managers of high-debt firms to borrow a small amount in order to begin paying dividends. It is unlikely that the firm would move to a higher debt-to-equity quartile as a result of a small increase in debt. However, even if this were to happen, the benefits of the improvements in the firms' stock returns during down markets arising from the dividend payment would likely outweigh the negative results of the shift into a higher debt-to-equity quartile. For example, if a firm in debt-to-equity quartile 3 were to borrow $1,000,000 for the payment of dividends, it would likely see an improvement in returns of 1.32% per month. Even if this action resulted in a movement of the firm into debt-to-equity quartile 4, the improvement in returns would still equal roughly 1.1% per month in down markets. This is consistent with the research of Ang and Ciccone (*2006*), which found that debt issued to pay dividends has no effect on returns.

## 5. Limitations

The primary limitation of this study is that, due to a lack of research in this area, the effects seen in this work may be caused by factors other than those examined here.

An additional limitation in this study relates to the fact that while some of the CRSP and Compustat data such as stock returns and S&P 500 index return is captured and made available in monthly increments, other data such as debt-to-equity ratio is collected quarterly. This could affect the results to some degree.

Additionally, based upon Black (1976), who suggested that negative returns in down markets could be more severe as a result of greater financial leverage, it is possible that the more negative results found in the highest debt quartile of non-payers could be partially or entirely caused by the higher debt-to-equity ratio as compared to the payers. However, this is not likely as the effect of more negative returns being experienced by non-payers in down markets is also seen in the third quartile and the debt-to-equity values in that quartile are similar.

## 6. Conclusion

Fuller and Goldstein (2004) find that dividend payments are more valuable in down markets than in up markets. This research extends this study to determine whether the asymmetry in valuing dividend signals is influenced by debt financing.

The results of this study, after adjustments are made for well known risk factors, consistent with both hypotheses, indicate higher performance by firms that pay dividends in declining market conditions (difference of 0.63%** per month) and lower performance by firms that are most highly indebted (difference of 2.2%* per month between the lowest and highest quartiles). However, when highly indebted firms pay dividends, even when those dividends are funded by more debt, they enjoy a reduction in the rate of decline of stock returns (difference of 1.6%* per month between highly leveraged payers and non-payers). Managers could likely benefit from these results in that the payment of dividends and reductions in debt financing could reduce stock return volatility between up and down markets.

This study was conducted to answer some important questions relating to the effect of high debt loads and the value of dividends, particularly in times of market decline. In studying issues relating to the value of dividends, the downside risk of debt and their relation with market conditions, some significant gaps in the current research have been addressed.

The finding that high debt-to-equity ratios exert downward pressure on returns in down markets expands the information available to managers who are making decisions regarding capital structure. It is possible that they may choose to borrow less in order to reduce volatility in returns during down markets. This study also determined that

dividends are most valuable for highly leveraged firms in times of declining markets. This information also could give insight to managers, particularly those who are facing a down market and have a high debt-to-equity ratio. They might initiate dividends in order to cushion returns during down markets and thereby reduce the negative effects of high leverage in these markets.

As research into the subject of market conditions is limited, further study should be conducted to expand upon the results of this work. However, managers who are either facing a declining market or are highly indebted could likely benefit from implementing the findings herein.

## 7. References


Ang, A., Chen, J., & Xing, Y. (2004). *Downside risk.* Paper presented at American Finance Association, Philadelphia.

Ang, J., & Ciccone, S. (2006). *Issuing debt to pay dividends.* Paper presented at Financial Management Association, Salt Lake City.

Bhattacharya, S. (1979). Imperfect information, dividend policy, and the "bird in the hand" fallacy. *Bell Journal of Economics, 10*(1), 259-270.

Black, F. (1976). Studies of stock market volatility changes. *Proceedings of 1976 Meetings of the American Statistical Association, Business and Economics Statistics Section*, 177-181.

Connolly, R., Stivers C., & Sun, L. (2004). Stock market uncertainty and the stock-bond return relation. *The Journal of Financial and Quantitative Analysis, 40*, 161-194.

DeAngelo, H., DeAngelo, L., & Skinner, D. (2004). Are dividends disappearing? Dividend concentration and the consolidation of earnings. *Journal of Financial Economics, 40*, 425-456.

Docking, D., & Koch, P. (2005). Sensitivity of investor reaction to market direction and volatility: Dividend change announcements. *The Journal of Financial Research, 28*(1), 21-40.

Fama, E,. & French, K. (1993). Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics, 33*(1), 3-56.

Fama, E,. & French, K. (2001). Disappearing dividends: Changing firm characteristics or lower propensity to pay? *Journal of Financial Economics, 60*, 3-43.

Fuller, K., & Goldstein, M., (2004). Do dividends matter more in declining markets? Working Paper.

Goldstein, M., & Nelling, E. (1999). REIT return behavior in advancing and declining stock markets. *Real Estate Finance, 15*(4), 68-77.

Jensen, M. (1986). Agency costs and free cash flow, corporate finance, and takeovers. *American Economic Review, 76*(2), 323-329.

Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica, 47*(2), 263-292.

Kim, E. (1978). A mean-variance theory of optimal capital structure and corporate debt capacity. *The Journal of Finance, 33*(1), 45-63.

Lintner, J. (1956). Distribution of incomes of corporations among dividends, retained earnings, and taxes. *American Economic Review*, *46*(2), 97-113.

Modigliani, F., & Miller, M. (1958).The cost of capital, corporation finance and the theory of investment. *The American Economic Review*,*48*(3), 261-297

Ross, S. (1977).The determination of financial structure: The incentive signaling approach. *Bell Journal of Economics*, *8*(1), 23-40.

Smith, R., & Kim, J. (1994). The combined effects of free cash flow and financial slack on bidder and target stock returns. *The Journal of Business*, *67*(2), 281-310.