

# Firm Performance Following Dividend Policy Changes: An Empirical Analysis

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**Abstract:** *An analysis of firm performance following dividend policy changes was conducted. It is found that operating performance improves following dividend decreases, there is a reduction in financial leverage and an improvement in liquidity. A sensitivity analysis shows that the improvement in operating performance is attributable to the decision to decrease dividends and is not caused by a mean reversion in earnings. Thus, the decision to decrease dividends reverses a declining trend of poor performance, and reduces financial leverage and liquidity problems. Finally, consistent with previous studies, the findings here are that the market reacts negatively to announcements of dividend decreases.*

**Keywords:** Dividend policy, firm performance, dividend decreases, market reaction

## 1. Introduction

Substantive literature on dividend policy changes has relied primarily on two lines of reasoning to generate predictions about dividend behavior: information asymmetry and agency conflicts. The information-asymmetry models argue that managers know more than investors about the firms' prospects and that dividends reveal some of that information to the market ([4], [13], and [17]). Information asymmetry also helps to explain the observed reluctance of managers to cut dividends. [15] argues that managers are extremely reluctant to cut dividends for fear of sending a negative signal, and reluctant to increase dividends for fear they will have to cut them in the future.

A second line of dividend models has explored the effect of agency conflicts on dividend behavior. Agency theories focus on the different incentives of managers and security holders and the role of dividends as a disciplinary mechanism. By reducing amount of free cash flow, dividends force managers to submit to the discipline of the financial markets ([7] and [11]). The agency theories suggest that dividend reductions increase management's access to internally generated capital. Nevertheless, there is no consensus that managers cut dividends in order to use funds for investment opportunities. [9] find that dividend-decreasing firms increase their capital expenditures following dividend decreases. By contrast, [14] reports normal and low capital expenditures prior and subsequent to announcements of both dividend decreases and omissions.

This study extends the existing knowledge on dividend policy changes by examining the performance of firms following the dividend decreases.<sup>1</sup> The study also examines the market perceptions on the announcements of dividend decreases.

## 2. Development of Hypotheses

Much of the previous research suggests that the information content of dividend changes cannot help identify a firm's future earnings ([9]). This evidence is consistent with the

view that the firm's future profitability depends on how effective managers use resources. On the other hand, if managers pursue the corporate objective of maximizing shareholder wealth, one should expect firms that decrease their dividends to efficiently use resources and be able to improve profitability in the future. Thus, the following null hypothesis is investigated:

*Operating performance does not improve following dividend decreases.*

Previous research finds that profitability has a negative influence on financial leverage, since a firm which can generate more earnings will borrow less, all things being equal ([1]). In a similar vein, the improvement in performance increases a firm's ability to service its debt obligation. Thus, if there is performance improvement following dividend decreases, then there should also be lower financial leverage in the same period. Furthermore, management will always want to reduce debt overhang mainly because of two reasons. First, to avoid bankruptcy costs which could lead to management losing its perquisites ([12]). Secondly, leverage constrains managerial discretion over financing and investment ([2]), and thus the firm risks bypassing valuable growth opportunities.

In addition, when managerial costs of financial distress are high, managers have incentives to reduce the likelihood of default by borrowing less, choosing less risky investment projects, and managing their firms more efficiently. The above discussion leads to the following null hypothesis:

*There is no a reduction in financial leverage following dividend decreases.*

Investors' perceptions to announcements of dividend decreases can be placed into two themes. First, dividend decreases signal to the market that the firm's earnings are unfavourable. This is consistent with the information content of dividend changes. Second, since dividend reductions increase management's access to internally generated capital, the market perceives announcements of dividend decreases as the way for managers to use the firm's resources in pursuit of their private benefits ([7]). Both of

<sup>1</sup> The focus is on those firms which cut their dividend payments.

these themes predict that equity values will decline in response to announcements of dividend decreases. This conjecture is proved here by testing the following null hypothesis:

*There is no significant stock price reaction to announcements of dividend decreases.*

### 3. Sample and Methodology

#### 3.1 Sample

The sample size of this study is 277 events by 386 firms during the period 1993 – 2000. Annual rather than quarterly data is used and this is consistent with the focus of prior dividend studies ([6]; and [9]). The sample satisfied the following criteria: first, the firm should be a UK non-financial company and listed on the London Stock Exchange. Second, only one announcement per firm per year is included in the sample. Third, the percentage change in dividend decrease is between 12.5% and 99%. The lower bound of 12.5% ensures that only economically significant dividend changes are included, and the upper bound eliminates outliers.

#### 3.2 Methodology

The methodology of this paper is influenced by [18] and is hereby reproduced:

The methodological approach of this paper is an event study that employs accounting-based measures of operating performance. The operating performance is used as opposed to stock returns, as performance metric, because share prices incorporate markets expectations of the value of the firm. The methodology used in this study is strongly influenced by [3]. On the market reaction to announcements of asset sales, the paper uses standard event study methodology.

##### 3.2.1 Performance measurement: industry-adjusted

A firm’s industry-adjusted performance is computed by subtracting the median performance of the industry comparison group from each firm’s performance. More formally,  $P_{it}$  is denoted as the performance of firm  $i$  in year  $t$ . The industry comparison group for firm  $i$  in year  $t$  is  $PI_{it}$ . That is,

$$E(P_{it}) = PI_{it};$$

where  $E(.)$  is an expectation operator.

##### 3.2.2 Statistical tests for abnormal operating performance

The abnormal performance of firm  $i$  in year  $t$ ,  $AP_{it}$ , is defined as realized performance,  $P_{it}$ , less expected performance,  $E(P_{it})$ :

$$AP_{it} = P_{it} - E(P_{it})$$

where performance is measured using ROA, and expected performance is based on industry medians and/or control firms.

##### 3.2.3 Abnormal Returns

The abnormal return is calculated as:

$$AR_{it} = R_{it} - R_{mt}$$

where  $AR_{it}$  is the abnormal return of firm  $i$  on day  $t$ ;  $R_{it}$  is the actual share returns of firm  $i$  on day  $t$  and  $R_{mt}$  is the market return on day  $t$ . The average abnormal return for day  $t$  is defined as:

$$AAR_t = \frac{1}{N} \sum_{i=1}^N AR_{it}$$

where  $N$  is the number of firms. To measure abnormal returns over a specific interval for firm  $i$ , the abnormal returns are summed to give the cumulative abnormal returns (CAR), that is,

$$CAR_i = \sum_{t=T_{1j}}^{T_{2j}} AR_{it}$$

where  $T_{1j}$  and  $T_{2j}$  are firm-specific event dates (e.g., the press and outcomes dates).

## 4. Empirical Findings

### 4.1 Financial Performance

The previous studies show that firms undertake dividend decreases in response to declining operating performance, liquidity problems and increasing financial leverage ([6]; and [9]). This study extends the findings of these studies by examining whether firm performance improves following dividend decreases.

The results, which are reported in Table 1, show that the operating performance of sample firms substantially improves in each year of the 3 years following dividend decreases, the improvement being significant at the 1% level. This finding suggests that the decision to decrease dividends reverses a declining trend of poor performance over the period prior to dividend decreases. This finding is consistent with that of [9] and [14] who document significant increases in operating performance over the 3 years following dividend decreases for US firms.

**Table 1:** Changes in operating performance, financial leverage, capital expenditure, and cash following dividend decreases

Panel A: Industry-adjusted ROA, Debt ratio, Interest coverage				
Windows	ROA	Debt ratio	Interest coverage	
$\Delta 0 + 1$	0.0147 [0.0252***]	-0.0208*** [-0.0181***]	8.60 [1.445***]	
$\Delta 0 + 2$	0.0500*** [0.0532***]	-0.0268*** [-0.0296***]	10.17 [3.385***]	
$\Delta 0 + 3$	0.0584*** [0.0169***]	-0.0226** [-0.0392***]	59.8 [4.285***]	
Cumulative	0.0654*** [0.0516***]	-0.0259*** [-0.0275***]	12.63** [3.310***]	
Panel B: Median Changes in Capital expenditure and Cash and cash equivalent				
Windows	CAP	ICAP	CASH	ICASH
0 to 1	0.000	-0.000	0.01**	0.01
0 to 2	-0.01**	-0.01**	0.01***	0.01**
0 to 3	-0.000	-0.000	0.01	0.00

The table reports mean [median] changes in the industry-adjusted return on assets (ROA), debt ratio, interest coverage ratio, capital expenditure ratio and cash ratio following

dividend decreases for a sample of UK non-financial firms that announced dividend decreases during the period 1993-2000. ROA is defined as earnings before interest, tax, depreciation and amortization (EBITDA), divided by total assets. Debt ratio is the ratio of total debt to total assets. Interest coverage ratio is defined as the ratio of pre-tax profit, plus total interest charges divided by total interest charges. Capital expenditure ratio is defined as the ratio of capital expenditure to total assets. Cash ratio is defined as the ratio of cash and cash equivalent to total assets. The numbers are the mean and the median. CAP – capital expenditure, ICAP – industry-adjusted capital expenditure, and ICASH – industry-adjusted CASH. \*\*\* and \*\* denote statistical significance at the 1% and 5% level respectively.

The financial leverage results show that there is a significant decrease in changes of industry-adjusted debt ratio in each of the 3 years following dividend decreases. The significant level of changes is at the 5% or better. In addition, there is an improvement in interest coverage ratio over the 3 years following dividend decreases. One plausible explanation for this improvement in financial leverage is the improvement in operating performance. The improvement in operating performance means more earnings for a firm, and hence the firm's ability to service its debt obligation, which in turn reduces the likelihood of financial distress. This suggests that profitability has a negative influence on financial leverage, since a firm that can generate more earnings would borrow less ([1] and [9]) also find an incidence of reduction in industry-adjusted debt ratio following dividend-decreasing firms.

The industry-adjusted changes in cash ratio results show that there is a significant improvement in cash ratio over the 3 years post-dividend decreases. These results are consistent with [9]. However, the results show that industry-adjusted changes in capital expenditures following dividend decreases are negative and statistically different from zero. This is apparent that no investment improvement following dividend decreases.

In summary, the post-dividend decreases analysis provides evidence that following dividend decreases there is an improvement in firm performance, an increase in financial health and an increase in liquidity. Therefore, the decision to decrease dividends reverses a declining trend of profitability, financial leverage and liquidity problems. Finally, no evidence is found that there is an increase in capital expenditures following dividend decreases.

#### 4.2 Sensitivity Analysis

To establish that the observed performance improvements are attributable to the dividend decreases and not to mean reversion, a sensitivity check is conducted using a control sample of firms that do not decrease dividends. [3] believe that matching sample firms to firms with similar pre-event performance helps control for the mean-reversion tendency of a performance measure. The results are presented in Table 2. The firm performance of sample firms is significantly and positively relative to that of control firms in each of the 3 years following dividend decreases. Following these results, therefore, the observed operating performance

improvements are attributable to dividend decreases alone, and not caused by mean reversion in earnings.

**Table 2:** Control firm matched changes in operating performance for sample firms

Operating earnings / total assets (ROA)	
From year -1 to 0	-0.0650***
From year 0 to 1	0.0100**
From year 0 to 2	0.0300***
From year 0 to 3	0.0250***

The table reports changes in operating performance for/of sample and control firms for a sample of 277 UK non-financial firms that announced dividend decreases during the period 1993-2000. \*\*\* and \*\* denote statistical significance at the 1% and 5% level respectively.

#### 4.3 Stock Returns

##### 4.3.1 Market reaction to announcements of dividend decreases

Mean and median cumulative abnormal returns for various periods surrounding announcements of dividend decreases are reported in Table 3. The cumulative abnormal returns, CAR (-1,1), of dividend decreases are -0.91% (p-value = 0.027). These results reflect a deteriorating performance of sample firms. Thus, the market interprets dividend decreases as unfavourable news.

For comparison purposes, an examination of the market reaction on the announcements of dividend omissions was also done. The results show that the CAR (-1,1) was -1.89% (p-value = 0.007). These results show that the magnitude of the market reaction to announcements of dividend omissions is greater than that of dividend decreases. This is because omissions represent a discontinuity in the dividend continuum ([5]) and therefore the market views an announcement of it as a signal of impending firm failure. By contrast, the market views an announcement of dividend decreases as a temporary measure in response to a transitory earnings problem.<sup>2</sup>

**Table 3:** Abnormal returns surrounding dividend decreases announcements

Statistic	AAR (-1)	AAR (0)	CAR (-1,1)
Mean (%)	0.108	-0.867**	-0.912**
Median (%)	0.050	-0.0400**	-0.350**
% Negative	46.6	51.3	55.6

The table reports abnormal stock returns for a sample of 277 UK non-financial firms that announced dividend decreases during the period 1993-2000. \*\*\* and \*\* denote statistical significance at the 1% and 5% level respectively.

##### 4.3.2 The relation between dividend information and firm performance

The study also conducted a test to establish whether the post-dividend change in operating performance documented above is related to the market reaction to the announcement of dividend decreases. The motivation for carrying out this

<sup>2</sup> [10], [16], [8] and [14] document similar results for US firms.



test is to examine whether dividend changes are based on managers' expectations of future earnings<sup>3</sup>.

If dividend policy changes are based on managers' expectations of future earnings, there will be a positive relation between announcement returns and subsequent earnings changes. In examining the relation between operating performance changes and the market reaction to the dividend announcement, a control was set for information on past earnings, future changes in debt ratio, future changes in capital expenditures, and future changes in cash and cash equivalent. The following cross-sectional regression is estimated:

$$ROA_{post,i} = \alpha_i + \beta_1 Debt_{post,i} + \beta_2 Cash_{post,i} + \beta_3 Capx_{post,i} + \beta_4 ROA_{pre,i} + \beta_5 CAR_{(-1,1),i} + \varepsilon_i$$

where  $ROA_{post,i}$  is industry-adjusted changes in ROA for a firm  $i$  in the post-dividend decrease period;<sup>4</sup>  $Debt_{post}$ ;  $Cash_{post}$ ; and  $Capx_{post}$  are industry-adjusted changes in debt ratio, cash and capital expenditures for the firm  $i$  in the post-dividend decrease period, respectively.  $ROA_{pre}$  is industry-adjusted changes in ROA for firm  $i$  over the pre-dividend decrease period;  $CAR_{(-1,1)}$  is the cumulative excess returns for the firm  $i$  on three days centred on the day of the announcements of dividend decreases.

Results are presented in Table 4. The constant term,  $\alpha$ , is positive and significant. This finding, which reinforces the earlier results, suggests that there is an improvement in operating performance following dividend decreases. In addition, the coefficient  $\beta_5$  is significantly positive which suggests that dividend decreases convey information about a transitory earnings decline that would reverse in the future.

**Table 4:** Relation between dividend information and firm performance

The table reports regression of subsequent changes in the operating performance for a sample of 277 non-financial firms that announced dividend decreases during the period 1993-2000. Pre (post) means the years preceding (following) dividend decreases announcements. Dependent variable is changes in industry-adjusted ROA following dividend decreases [i.e.,  $(ROA_{+1} + ROA_{+2} + ROA_{+3})/3 - ROA_{(0)}$ ]. All independent variables except  $ROA_{pre}$  and AAR are measured over the years following the dividend decrease; and  $ROA_{pre}$  is measured over the years prior to dividend decreases. \*\*\* and \*\* denote statistical significance at the 1% and 5% level respectively.

$$\text{Model: } ROA_{post,i} = \alpha_i + \beta_1 Debt_{post,i} + \beta_2 Cash_{post,i} + \beta_3 Capx_{post,i} + \beta_4 ROA_{pre,i} + \beta_5 CAR_{(-1,1),i} + \varepsilon_i$$

<sup>3</sup> See [10] for more details.

<sup>4</sup>  $ROA_{post}$  is computed as the difference between the average of ROAs in the years +1, +2, and +3; and ROA in year 0. I compute  $Debt_{post}$ ;  $Cash_{post}$ ; and  $Capx_{post}$  in the same way as  $ROA_{post}$ . I calculate  $ROA_{pre}$  in the way the  $ROA_{post}$ . However, instead of using ROAs over the post-dividend decrease period, I use ROAs over the 3 years prior to the dividend decrease period.

Statistic	Results
Constant	0.077***
Debt ratio	-0.214***
Cash ratio	0.004
Capital expenditure ratio	0.042***
$ROA_{pre}$	-0.875***
$CAR_{(-1,1)}$	0.211**
Adj. R <sup>2</sup>	0.493
F-value	47.78***

It is also found that debt ratio is significantly negatively related to firm performance following dividend decreases. This finding suggests that the performance improvement is greatest for those firms that reduced their financial leverage following the dividend decrease. Furthermore, the cash ratio results are insignificantly positive. In general, these results suggest that the performance improvement is greatest for those firms that increased their liquidity following dividend decreases. Finally, unlike the previous findings, it is found that there is a significant and positive relation between post-dividend decreases operating performance and future capital expenditures. This finding suggests that operating performance is greatest for those firms that increase their investment following dividend decreases.

## 5. Summary and Conclusion

An analysis of firm performance following dividend policy changes was examined. This analysis provides evidence relating to three null hypotheses: Operating performance does not improve following dividend decreases. There is no a reduction in financial leverage following dividend decreases. There is no significant stock price reaction to announcements of dividend decreases.

It is found that operating performance improves following dividend decreases, there is a reduction in financial leverage and an improvement in liquidity. A sensitivity analysis shows that the improvement in operating performance is attributable to the decision to decrease dividends and is not caused by a mean reversion in earnings. Thus, the decision to decrease dividends reverses a declining trend of poor performance, and reduces financial leverage and liquidity problems. Finally, consistent with previous studies, the findings here are that the market reacts negatively to announcements of dividend decreases.

## References

- [1] Adedeji, A., (1998): Does the pecking order hypothesis explain the dividend payout ratios of firms in the UK? *Journal of Business Finance & Accounting* 25 (9) & (10), 1127 – 1155.
- [2] Ahn, S., D. J. Denis, and D. K. Denis (2006): Leverage and investment in diversified firms, *Journal of Financial Economics* 79, 317-337.
- [3] Barber, B. M., and J. D. Lyon (1996): Detecting abnormal operating performance: The empirical power and specification of test statistics, *Journal of Financial Economics* 41, 359 – 399.
- [4] Bhattacharya, S., (1979): Imperfect Information, dividend policy, and “the bird in the hand” fallacy, *Bell Journal of Economics* 10, 259-270.

- [5] Christie, W. G. (1994): "Are Dividend Omissions Truly the Cruellest Cut of All"? *Journal of Financial and Quantitative Analysis*, Vol. 29, 459 – 480.
- [6] DeAngelo, H., L. DeAngelo; and D. J. Skinner (1992): "Dividend and Losses", *Journal of Finance*, Vol. 47, No. 5. Dec. 1992, 1837 – 1863.
- [7] Easterbrook, F., (1984): Two Agency-Cost explanations of dividends, *American Economic Review* 74, 650 – 659.
- [8] Eaton, R. D. V. (1999): "Stock Price Adjustment to the Information in Dividend Changes", *Review of Quantitative Finance and Accounting*, 12, 113 – 133.
- [9] Grullon, G., R. Michealey; and B. Swaminathan (2002): "Are dividend changes a sign of firm maturity?" *Journal of Business* 75, 387 – 424.
- [10] Healy, P. M., and K. G. Palepu (1995): The Challenges of investor communication: The case of CUC International, Inc. *Journal of Financial Economics* 38, 111-140.
- [11] Jensen, M. C., (1986): Agency costs of free cash flow, corporate finance and takeover, *American Economics Review* 76, 323 – 329.
- [12] Jensen, M. C., (1989): Active investors, LBOs and privatization of bankruptcy, *Journal of Applied Corporate Finance* 2, 35 - 44.
- [13] John, K and J. Williams (1985): Dividends, dilution and taxes: A signaling equilibrium, *Journal of Finance*, 1053 - 1070.
- [14] Lie, E., (2005): Operating performance following dividend decreases and omissions, *Journal of Corporate Finance* 12, 27 – 53.
- [15] Lintner, J. (1956): "Distribution of incomes of corporations among dividends, retained earnings and taxes", *American Economic Review*, Vol. 46, 97 – 113.
- [16] Michaely, R.; R. H. Thaler; and K. L. Womack (1995): "Price reactions to dividend initiations and omissions: Overreaction or Drift?" *Journal of Finance*, Vol. L. 573 – 608.
- [17] Miller, M. H. and K. Rock (1985): Dividend policy under asymmetric information, *Journal of Finance* 40, 1031 – 1051.
- [18] Werema, S. M (2006): An Analysis of Corporate Restructuring in the UK. A Thesis Submitted for the Degree of Doctor of Philosophy at the University of Strathclyde, UK.