



ARE MOMENTUM PROFITS DRIVEN BY DIVIDEND STRATEGY?

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Abstract

In this paper, we investigate the effects of dividend policy in determining price momentum. Our evidence shows that trading strategies based on buying dividend-paying (dividend increasers, dividend cutters or dividend maintainers) stocks combined with the winner and loser momentum strategy generate positive and significant profits that are substantially higher than those from the traditional winner and loser momentum strategy. The buying-winner and selling-loser portfolios in Taiwan do not exhibit momentum profits, but exhibit contrarian profits for holding longer periods. In addition, we show that dividend policy has trading effects in determining price momentum in mid-term holding period (more than 6 months). If combined with higher formation period returns (top 50 winners), the momentum profits of dividend increasers are higher than those of dividend maintainers. Finally, investors reward companies when they have a change in dividend policy rather than just maintain their dividend levels.

Keywords: Finance, Dividend Policy, Price Momentum, Price Contrarian, Behavioral Finance

Introduction

Our study focuses on the influence of dividend policy on stock market momentum. The main purpose is to explore whether the phenomenon of stock market momentum can be explained by the dividend strategy. Jegadeesh and Titman (1993) find that stock returns exhibit a short-term momentum behavior in the stock market and document the profitable strategy that buys a well-performing winner and sells a poor-performing loser simultaneously in the stock market will generate positive and returns over 3 to 12 month holding period. Some of the previous studies argue there is stock return momentum over the medium term. Meanwhile, there is substantial discussion over the source and interpretation of momentum profits.

Price momentum challenges market efficiency. As suggested by Allen and Michaely (2003), the market reacts positively to dividend increases and negatively to dividend decrease. Chordia and Shivakumar (2006) document that stock momentum can be captured by the systematic component of earnings momentum. Asem (2009) shows that the momentum profits of dividend-paying firms are lower than those of their non-paying counterparts, using raw returns and Fama-French (1993) alphas or risk-ad-

justed profits. They also show that the dividend-increasing announcements enhance the winners' momentum profits, and dividend-decreasing announcements decrease the losers' return. We are curious whether the stock market in Taiwan has similar situations. We therefore construct portfolios based on dividend policy and formation period returns to test the relation between dividends and momentum profits.

Literature Review and Hypothesis

Barberis and Shleifer (2003) develop a strategy model for describing style portfolios. Their model shows that purchasing good performing assets of style portfolio and selling bad performing assets of style portfolio can make higher returns. Bhattacharya (1979) finds that dividend policy conveys managerial information about firms' earnings prospects. Firms tend to increase dividends when expecting their good performance to persist (Miller and Modigliani, 1961). Thus, if firms do not increase dividends when having higher earnings, it may indicate that their good performance would not persist. Thus, dividend changes should have more obvious signal than dividend maintenance does. This study therefore proposes the following hypothesis.

Hypothesis 1: The returns of winners that increase their dividends are larger than those of winners that maintain their dividends.

Asem (2009) report that buying winners that increased their dividends and shorting losers that decreased their dividends enhances momentum profits. The underlying rationale may well be that under-reaction to dividend change announcements will enhance their return momentum for either winners or losers. The findings of De Cesari and Meier (2015) suggest that managers usually exploit the new private information conveyed by stock returns when deciding the dividend policies of their firms. Their study shows the important role of private information in stock prices when determining dividend policy. Their empirical evidence supports the idea that managers “listen to the market” because they adjust corporate policies according to market reactions. This study refers to the above viewpoints and verifies whether the momentum profits of buying winners with dividend increasers are higher than those of buying winner and selling losers based on their past stock returns. The second hypothesis is then proposed as follows:

Hypothesis 2: The momentum returns of buying winners that increase and

maintain dividends are larger than those of traditional winner and loser strategy.

The previous studies motivate us to examine, from the financial behavior view, whether there is any relationship between market momentum and dividend policy? Therefore, we develop our models in next section.

Model

Inspired by Jegadeesh and Titman (1993), we adopted their trading strategy of buying winner and selling loser simultaneously by using cross-sectional data in Taiwan stock market to test the relation between dividend policy and momentum profits. The formulas to calculate the portfolio returns are in the following equation (1) to equation (3):

$$R_{i,j} = \prod_{j=t-J}^{t-1} (1 + r_{i,j}) - 1 \quad (1)$$

$$R_{i,k} = \prod_{j=t}^{t+k-1} (1 + r_{i,j}) - 1 \quad (2)$$

$$R_P = \frac{\sum_{i=1}^n R_{i,k}}{n} \quad (3)$$

Accordingly, we calculated the formation period return ($R_{i,j}$) and holding period returns ($R_{i,k}$) of each time

point respectively. Following the generally adopted buying winners and selling loser strategies, we built alternative portfolios based on price momentum strategy and examined the relationship between dividend policy and price momentum strategy. We then had two trading strategies based on price momentum strategies as follows.

The Winner and Loser Strategy

The first trading strategy was stimulated by the overlapping period approach proposed by Jegadeesh and Titman (1993). Following Bhootra (2011), we computed the momentum returns of portfolios with various formation and holding periods ($j=3, 6, 9, 12$ months, and $k=3, 6, 9, 12$ months, respectively). In each month, firms were sorted into decile portfolios based on their cumulative returns over months $t=1$ to $t=j$. The “winner” is defined as the top decile of the firms with the highest cumulative returns and the “loser” is defined as the bottom decile of cumulative returns during formation periods. Then, the holding period returns represent the equally-weighted averages of stock returns from strategies of holding the portfolios for k months, implemented based on the past returns of previous j months.

Dividend Momentum Strategy (with Higher Formation Period Returns)

For the second trading strategy, we used three types of dividend policy, including dividend increase, dividend decrease, and dividend maintenance. They were defined as companies, in a given year, increase, decrease their dividends or pay the same level of dividends as in the previous year. We developed the trading strategy combining dividend policy with the various formation periods to structure our portfolios. Under this strategy, we also sorted dividend policy firms firstly and then sorted these firms based on their formation period returns. We chose the dividend policy firms with the past j -months rolling returns higher than the median of overall stock returns at time t . We also calculated these portfolio returns with the alternative formation and holding periods ($j=3, 6, 9, 12$ months, and $k=3, 6, 9, 12$ months, respectively). The 16 (4×4) equally-weighted portfolios are then formed in the above manner.

Our data is from Taiwan Economic Journal (TEJ). The sample period is from 2005 to 2014. We included the listed firms in non-financial industries in Taiwan as our sample. Preferred shares or Taiwan Depositary Receipts (TDRs) were excluded from the sample.

Main Results

We started our analysis by examining the stock returns under the overlapping approach with buying top decile winner and selling bottom decile loser. Table 1 reports the results from the various $j \times k$ winner and loser momentum strategies. For the short-run (under and equal to six formation months) forma-

tion portfolios, we do not find significant momentum profits; on the contrary, the 6x12 portfolio has significant contrarian profit. As for mid-term strategies (above six formation months), except for the 9x3, 9x6 strategies, the contrarian returns are significant at the 1%-5% level, which provides evidence for price reversal of winner and loser portfolios.

Table 1. The Portfolio Returns of Winner & Loser Strategy*

Buy Top10%+Sell Bottom10%		K= 3 M	K= 6 M	K= 9 M	K= 12 M
J=3M	P1-P10(3 M)	0.514%	0.916%	0.104%	-1.596%
	p value	26.447%	27.376%	47.922%	25.819%
J=6M	P1-P10(6 M)	0.354%	-0.257%	-2.421%	-4.980%**
	p value	35.850%	44.245%	13.652%	3.127%
J=9M	P1-P10(9 M)	-0.734%	-2.442%	-5.223%**	-7.694%***
	p value	26.449%	11.161%	1.956%	0.547%
J=12M	P1-P10(12M)	-1.781%	-3.612%**	-6.470%***	-9.399%***
	p value	8.482%	2.444%	0.311%	0.061%

*Note: Table 1 reports the momentum portfolio returns of buying top 10% winners and selling bottom 10% losers for 4x4 matrix (j formation and k holding periods), where j and k are 3, 6, 9, 12 months respectively. In each month, firms are sorted into decile portfolios based on their formation period returns over months $t=1$ to $t=j$. The firms remain in the portfolio from months $t=1$ to $t=k$. The sample period is from January 2005 to December 2014.

our sample in each month. If we observe the matrix strategies, except for the 3-months holding period, the momentum profits are all significantly positive from 6months to 12months. For the portfolios based on 3-months formation period,

dividend increasers exhibit the highest returns for each holding period among the companies of three kinds of dividend policies. For instance, the 3x12 portfolios can let investors make a significant 17.81% cumulative return. Compared

Table 2. The Returns of Dividend Policy Portfolios*

Dividend Increase +Top 50% (Panel A)	K=3	K=6	K=9	K=12
J=3 M Return	1.202%	6.223%	13.866%	17.813%
p value	29.685%	2.542%**	0.017%***	0.004%***
J=6 M Return	1.330%	3.843%	10.907%	14.834%
p value	28.411%	10.423%*	0.177%***	0.054%***
J=9 M Return	2.409%	5.221%	11.600%	15.039%
p value	14.424%	4.092%**	0.076%***	0.048%***
J=12 M Return	1.890%	4.744%	11.672%	15.825%
p value	20.142%	5.634%*	0.104%***	0.0365%***
Dividend Decrease +Top 50% (Panel B)	K=3	K=6	K=9	K=12
J=3 M Return	-0.830%	3.813%	10.909%	13.470%
p value	34.907%	14.549%	1.721%**	1.356%**
J=6 M Return	1.601%	7.531%	13.206%	16.410%
p value	25.695%	5.949%**	0.330%***	0.335%***
J=9 M Return	0.226%	5.613%	11.368%	13.425%
p value	46.228%	12.076%	1.084%**	1.518%**
J=12 M Return	0.956%	5.086%	9.825%	12.041%
p value	33.794%	13.244%	1.846%**	1.885%**
Dividend Maintain +Top 50% (Panel C)	K=3	K=6	K=9	K=12
J=3 M Return	2.295%	4.326%	10.557%	13.280%
p value	23.102%	14.957%	1.017%**	0.767%***
J=6 M Return	1.895%	4.895%	10.197%	12.239%
p value	27.854%	14.701%	1.377%**	1.102%**
J=9 M Return	-0.600%	1.203%	9.345%	12.754%
p value	40.416%	37.009%	1.274%**	0.595%***
J=12 M Return	-0.827%	2.786%	12.717%	15.435%
p value	38.450%	26.710%	0.817%***	0.456%***

*Note: Table 2 reports the returns of dividend policy portfolios with higher formation period returns (above the median of the j formation period returns in each month) for various formation (j) and holding periods (k), where j and k are 3, 6, 9, 12 months respectively. In each month, firms are sorted by three dividend policies, including dividend increase, dividend decrease and dividend maintain firms (i.e. $dividend_t > dividend_{t-1}$; $dividend_t < dividend_{t-1}$; $dividend_t = dividend_{t-1}$). The sample period is from January 2005 to December 2014.

with Panel C in Table 2, we can see that combined with higher formation period returns, dividend increasers have higher holding returns than dividend maintainers in all significant portfolios except for one (12x9), in support of Hypothesis 1. Panel B and Panel C in Table 2 show the portfolio returns of dividend cutter and dividend maintainers with higher (above median) formation returns. The interesting point is that all the dividend cutter portfolios with significant returns except for 12x9 portfolios and 12x12 portfolios show higher returns than dividend maintainers. The reason may well be that the investors reward the companies when they have a change in dividend policy (according to their revenues or earnings) rather than just maintain their dividend levels. Overall, compared with Table 1, dividend maintainers and increasers with higher formation returns have higher holding returns than the traditional winner and loser approach, in support of Hypothesis 2.

Conclusion

In this paper, we investigate the effects of dividend policy upon price momentum. First, from the winner and loser strategy, Taiwan experience subsequent reversal of stock prices, i.e., contrarian profits. However, most of the significant contrarian returns ap-

pear in the mid-term formation periods, showing that the stocks in Taiwan tend to have reversal effects after 6 to 12 months. Secondly, we show that trading strategies based on buying dividend increase stocks combined with higher formation period returns (formation period returns > median), the dividend increase momentum strategy produces more profits than dividend maintenance momentum strategy in long-term holding periods. Consistent with the argument of Asem (2009), dividend changes should be a more obvious signal than dividend maintenance in enhancing momentum profits. Basically, dividend policy can help determine the decision of stock selection when implementing price momentum strategy.

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