Dividend-Yield Trading Strategies: Evidence from the Chinese Stock Market

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ABSTRACT: Utilizing the data from the Shanghai and Shenzhen exchanges between the periods of 2005 to 2011, this paper explores whether trading strategies based on dividend-yield are effective in the Chinese stock market. Under market risk-adjusted, we find an abnormal return for the samples of cash and dual dividend-yield. However, dual dividend-yield samples only significantly display abnormal returns in the three-factor model. Finally, incorporating the price momentum into the three-factor model the abnormal returns still appear in the dual-dividend-yield samples. When the sample is further divided into high- and low-moment periods, the evidence indicates that abnormal returns mainly stem from the low-moment subsample. Therefore, we conclude that the sources of dividend yields anomaly cannot be fully explained by market, size, value, and momentum factors. Moreover, the abnormal returns can become even stronger during the low-moment period.

Keywords: dividend yield; trading strategies.
JEL Classifications: G11; G12

1. Introduction

With regards to the dividend-yield trading strategies, Black and Scholes (1974) points out that unexpected dividend announcement can lead to short term price fluctuations, but such effect is not apparent in the longer timeframe. On the contrary, McQueen et al. (1997) finds that high dividend-yield is linked to a long term and positive abnormal return[1]. However, Fama (1998) believes that through the utilization of reasonable methodology to measure various abnormal return on the market, these anomalies are merely illusions caused by bias. In view of this concept, this paper follows the methodology brought forward by Fama (1998) to reexamine whether the dividend-yield strategy is suitable for the Chinese market.

For research subjects based on dividend-yield, such as McQueen et al. (1997) and others are only limited to cash dividend. The inherent problem with this methodology is that it cannot fully present the full picture of the dividend policy in the Chinese market. Firstly, from the perspective of the dividend payment structure, the U.S. system relies more on cash dividend and share repurchase, as well as stock split in the place of stock dividend (Zeff, 1982; Rankine and Stice, 1997a; Skinner, 2008). In

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[1] Research that support the dividend abnormal returns includes Litzenberger and Ramaswamy (1982), McQueen et al. (1997), Morgan and Thomas (1998), Visscher and Filbeck (2003), Brzeszczyński and Gajdka (2007), and Kyriazis and Diacogiannis (2007). Conversely, research by Black and Scholes (1974), Filbeck and Visscher (1997), and ap Gwilym et al. (2005) does not find evidence that support abnormal returns.

comparison, the Corporations Law of China forbid the splitting of shares, and share repurchase is rarely observed in the practical sense[2], hence, the more commonly accepted methods of dividend payment include: cash dividend, dual dividends[3] and stock dividend. Secondly, the research by Wei and Xiao (2009) shows the type of investor that prefer cash dividend are mainly due to the fact that institutional investors have higher preference for this type of dividend. Conversely, positive relationship exists between investors that prefer stock dividend and shareholding ratio of shares outstanding; the majority of shares outstanding are individual investors. Due to the fact that individual investors prefer stock dividends or dual dividend that contain stock dividend, which result in higher returns than those investors that choose cash dividend. However, the market provides an excess risk premium for stock dividend, which left the question of higher market weighted for cash dividend over stock dividend unanswered. The following section is to explain this phenomenon from the facet of investor demand and corporate financing.

According to the research by Wei and Xiao (2009), under the policy of Split-Share Structure Reform of 2005, the shares held by the State shareholder, and the institutional shareholder[4] cannot be traded in the open market. In the event where the need for cash through share transfer is required, approval from the supervisory authority is required, and the transfer of shares is limited to the realm of institutions, which lead to the situation where the transfer price to be significantly lower than that of the market price, hence, the abovementioned institutions prefer cash dividend when selecting for the dividend policy. Furthermore, executive order states that the cash dividend of State shareholder is required to be transferred to the Ministry of Finance, whereas cash dividend of institutions is paid directly to their respective shareholders. Under this scenario, the State shareholders do not especially prefer cash dividend, instead, it is the institutional shareholders that prefer this type of dividend payment, as such head directly to their pockets. Due to the inability to obtain capital gains from the Secondary Markets, the level of cash dividend has become the primary deciding factor of their income. Also due to the fact they have low costs for holding shares, the return from cash dividend is significantly higher than individual investors. These investors usually have large shareholdings, and have the need for cash, hence, have the power and incentive to obtain cash dividend to support their non-profit organizations.

Furthermore, from the perspective of corporate finance reveals that on March 28th of 2001 the China Securities Regulatory Commission enacted the "Measures for the Administration of the Listed Company Issuing New Shares" which require the underwriter to pay special attention to firms that do not issue dividend in the past three years nor has logical explanation being provided by the board. Public traded companies that offend the abovementioned regulation are prohibited from engaging in financing in the capital market. Under this policy, part of the reason for issuing cash dividend is for the purpose of rights offer. As due to the (above quota) issuance of cash dividend can reduce the undistributed earnings, in effect lowers the value of the denominator in the calculation of shareholder return, which adhere to the requirement of rights offer of 6% return for a continuing period of three years.

Even though firms that pay cash dividend dominate the market, but the payout ratios in China is significantly lower than other countries (see, Huang et al., 2011). From the perspective of Dividend Lifecycle Theory, Li and Peng (2009) points out that the dividend distribution of publicly traded firms in China exhibit the Lifecycle characteristic. The authors further explain that as for the individual firm, the dividend distribution follows the lifecycle of the firm, which also display a certain degree of evolution over time, the firm adjusts its dividend payment policy according to the lifecycle; the dividend payment tendency of the nation as a whole depends on the level of investment opportunity within the national borders and the severity of free cash flow. Conversely, as an emerging economy, China has more business opportunity in its market, firms therefore, face vast investment opportunities,

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[2] The result by Wei and Xiao (2009) states that according to the Corporations Law of China, stock split as a replacement for stock dividend is prohibited since 1994, such has not been changed even in the Split-Share Structure Reform of 2005, as a result no case of share split has been observed since. Furthermore, the cases for share repurchase is quite rare in China, there has only be 29 cases of such between 1994 and 2005 (see, Wang et al., 2011, table 1).

[3] Also known as mixed dividend or total dividend.

[4] Which include State institutions and non-profit organizations.

hence, it is likely that the firms are in the longer period of the growth phase. For that reason, from the perspective of the Lifecycle Theory it appears that logic exist in the situation where Chinese firms have a lower payout ratios.

The following section is devoted to the explanation of the reason for public firms' preference for stock dividend through stock premium and administration of taxation. During the rights offer process of a listed company the price of new share is based on the average price of the 20 days prior to the new listing. According to Wei (1998) and Yuan (1999) stock price of the firm display an upward trend on the day of dividend announcement and ex-right. Therefore, prior to the rights offer the listed firm it is more beneficial to announce and distribute dual dividend then simply announce the payment of cash dividend, as the former can bring in more capital.

Secondly, capital gains are not subjected to personal income tax in China. According to the "Personal Income Tax Law" and the respective administrative clauses, dividend, bonus is subjected to 20% flat tax. Also according to the "Notice of the Ministry of Finance and the State Administration of Taxation on the Policy Relating to the Individual Income Tax on Dividends and Bonuses", namely Finance and Tax Order Number 107 of 2005, stating that as of June 13th of 2005 the income gained from dividends and bonuses through investments in listed companies by individual investor is decreased to 50% when entered into the calculation of personal income tax. Relatively, corporations receive tax exemption on dividends and bonuses, but face full tax rate on capital gains[5].

In Sum, when discussing the dividend issue of the Chinese market, dual dividend analysis and stock dividend analysis are inevitable. However, dual dividend also inherit a puzzling issue, due to the fact that it contains noise, scholars still cannot clearly explain such fact through theories like cash dividend. If analysis is conducted through cash dividend without acknowledging the existence of the noise, one can only observe part of the market. Results from such analysis would deem useless in the analysis of the dividend issuance of the Chinese market. Based on this logic, we believe that instead of being limited by cash dividend, it would be ideal that the realm of the analysis is expanded to incorporate dual dividend and stock dividend.

Finally, it is worth noting that this paper takes the dividend yield of the Chinese market as the subject of study. Even though there is quite a number of scholars already devoted to the research of dividend policy and cash dividend, but the issue of dividend yield is quite rarely observed in the analysis of the Chinese market. Moreover, in terms of the environment of finance and investment, Taiwan has signed the Economic Cooperation Framework Agreement (ECFA) with China on June 29th of 2010, it is expected that escalation in economic activities and financial investment will be observed. Therefore, this study not only fills the insufficiency on the analysis of the Chinese market in this field but also provide adequate financial information to investors that aim to invest in this market.

This paper is organized as follows: section 2 provides the literature review, summarizing the discussion of relevant literature that devote to the analysis of abnormal returns; section 3 describes the data set, presenting the particularity when dealing with data from the Chinese market; section 4 describes the research methodology, apart from defining dividend yield detailed description on how to measure and discovering the abnormal return of dividend yield is also provided; section 5 provides analysis of the empirical result , examining the abnormal return of dividend yield and explaining its source; section 6 concludes the paper.

2. Literature Review

The major agenda of this study is in the discussion of whether the trading strategy of dividend yield is suited for the Chinese market. Analysis on the reason for dividend yield trading strategy is linked to an abnormal return. Therefore, we are to review the relevant literature on Dividend Signaling Hypothesis, Agency Issue, Retained Earnings Hypothesis, Balanced Dividend Hypothesis and Behavioral Finance Theory under the specific dividend policy of the Chinese market, and seek for the

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[5] According to the latest version of the "Corporate Income Tax Law" and the relevant regulations of implementation, the dividends, bonuses and other gains from investment by the direct investment of a resident firm into another resident firm is exempt from tax. However, continuous holding of shares of a resident firm for less than 12 months is not subjected to this tax exemption. Resident firm refers to firms incorporated within the borders of the People's Republic of China or under the jurisdiction of other foreign nations (or regions) but with actual management institutions based within the PRC.

adequate explanation to support the findings of this study.

Whether the dividend change is a signal for future earnings has long been an issue of heated debate in the realm of finance. In an average sense, cash dividend itself is a signal for higher cost as it immediately lowers the retained earnings at the time of dividend distribution. Even in the event of shortage of cash, external financing is employed to solve such problem[6]. Furthermore, mangers of the firm have more information on future earnings and cash flow relative to external investors. Hence, under the assumption of asymmetric information, if internal stakeholders have larger shareholding or relationship exist between the remuneration of the manager and the market value of the firm, then incentives exist for the managers to convey the message of future earnings, leading to the transaction of shares within the reasonable price. In terms of empirical results, the research of Song and Li (2008) supports the notion that Dividend Signaling Hypothesis exist in the Chinese market. On the other hand, the result of Wan and Li (2008) coincides with that of Black and Scholes (1974) even though the market display a short term positive response to the announcement in the increase of dividend, but the opposite result surfaces in the long term. Summing the above perspectives, the findings are the same as other literature, whether or not Dividend Signal conveys the information about future earnings still remain inconclusive for the Chinese market.

However, due to the preference of the institutional investors with non-tradable share in the Chinese market, conflict of interest between the major internal shareholder and external investor arises, which lead to the doubt of whether Dividend Signaling should stand. For example, the study by Chen et al. (2009) supports the Tunneling Hypothesis, whereby internal stakeholders seize the cash flow of the firm through high or excessive level of dividend. Furthermore, according to the report by La Porta et al. (1998) there are nations with mandatory dividend distribution such as Brazil, Chile, Colombia, Greece and Venezuela. Since these nations lack the framework that protect individual investors, which in turn, force the authorities to adopt the mandatory method of dividend payment. Matter of fact, this policy also takes in important consideration of the Agency issue, namely, the conflict of interest between firm managers and external shareholders. The implementation of such policy allows the rights of the external investors not being fully exploited, which encourage individual investors to participate in the stock market. From the above logic the dividend policy of China resembles the Substitution Hypothesis of La Porta et al. (2000), whereby, if the issuance of new shares is planned by the internal stakeholders would promote the reputation of sound treatment of minority shareholders.

Another important issue in the Agency problem lies with the conflict of interest between the managers and the shareholders. However, under the Free Cash Flow Hypothesis (Jensen, 1986) if the dividend policy of the firm aims for the payment of high level of dividend, then the majority of the free cash flow will be converted to dividend payment. Due to the fact that the firm can minimize the personal waste of the managers, but also being free from investment projects that generates negative returns, as a result, the payout ratios is linked to a positive earnings growth rate in the future (Arnott and Asness, 2003; Zhou and Ruland, 2006; ap Gwilym et al., 2006; Huang et al., 2009). Eun and Huang (2007) found that in the Chinese market, investors are more willing to pay for higher level of risk premium for firms with higher level of dividend payment.

Now, the focus will now rest with stock dividend and dual dividend. For the dividend signal of stock dividend, Elgers and Murray (1985) believes that during the issuance of stock dividend, either size of funds would all convey the optimistic message of future earnings, but the goal of small size share issuance lies at reserving retained earnings rather than lowering the stock price. In other words, the signal of dividend from retained earnings has better effect as a message to the investors. However, in a strict sense, stock dividend do not increase the actual value of the firm, but merely conduct the process of converting retained earnings into common stocks. Although, some scholars hold different opinion to this, they believe that if the growth of future earnings cannot offset the reduced level of retained earnings due to stock dividend distribution, not only that the cash dividend distribution in the next period will be limited, but also would raise doubts from external investors on future stock split or the appropriateness of rights offer (Grinblatt et al., 1984; Rankine and Stice, 1997a, 1997b). Based on

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[6] Deng et al. (2013) investigated the relation between dividends and investment for the Chinese listed firms under the case of cash flow uncertainty. They found that facing cash flow uncertainty; instead of cutting dividends or investment, Chinese firms intend to keep investments at extremely high level. External financing seems to be the only solution for cash flow uncertainty.

this assumption, these scholars assert that managers reveal personal information through stock dividend distribution, which is the communication of optimistic signal of future earnings, especially the utilization of retained earnings for the distribution of stock dividends.

For Dual Dividend of Dividend Signal, Huang et al. (2009) studies the Taiwanese stock market and brings forward the Balanced Dividend Hypothesis. The two foundations that establish this hypothesis are high level of cash dividend payment can reduce agency cost, as well as conveying the signal of optimistic future earnings; the latter further assumes that stock dividend originates from retained earnings rather than cumulative capital surplus; this is because the research from literatures indicate that only the dividend from retained earnings has the effect of dividend signal. Finally, the author examines the data through the use of the ratio between cash dividend and stock dividend in the range between 1 to 1.33, and finds in the balanced dividend sample, that positive relationship exists between payout ratios and the growth rate of future earnings; whereas in the Chinese market the stock dividend of dual dividend comes primarily from cumulative capital surplus [7] and the payment of high level of cash dividend is likely due to the need for future rights offer or at the request of institutional investors; hence, if in the Chinese market that dual dividend is linked to an abnormal return, then it is necessary to seek other explanations in place of the Balanced Dividend Hypothesis.

For abnormal returns of financial event, long term supporters adopt the financial models of Barberis et al. (1998), and Daniel et al. (1997) to justify the under reaction of information. This phenomenon usually arise from earnings, momentum, dividend, or the hybrid of aforementioned factors, for example, the originator of under reaction to events believe that it seems like that there is reaction to the stock price one year after the announcement of earnings (Ball and Brown, 1968; Bernard and Thomas, 1990); with regards to stock price momentum, the study by Jegadeesh and Titman (1993) indicate that stocks with high return in the past year would still generate high level of returns in the next 3 to 6 months; as for the market reaction of dividend, the research by Michaely et al. (1995) points out that an announcement that follow the initiation or omission of dividend distribution actually made the stock price to drift for a period of one year; in order to clarify the intertwined relationship between dividend and earnings, the research of Koch and Sun (2004) proves that after the increase in dividend, and followed with positive earnings growth in the next quarter, only then would the investor believe such signal is of permanent nature; as for the dividend and momentum agenda, recent research of Asem (2009) finds that for the positive news of increase in dividend to the winners of the market and the negative news of decrease in dividend to the losers all display signs of under reaction.

In sum, not only current literature cannot provide certain conclusion on whether or not abnormal returns exist in the trading strategy, controversy still exists in research methodology, hence, this paper continues to provide further space for discussion. One thing worth noticing is that under the dividend policy specific to the Chinese market, the technique on addressing the sources of abnormal returns is an empirical question.

3. Data Descriptions

The data used in this paper include firm dividend, financial variables and stock prices all comes from the China database of the Taiwan Economic Journal (TEJ). Due to the Share Trading Reform by the Chinese authorities in 2005 and as of June 13th 2005 the dividend and bonus income of individual investors is subjected to 10% tax rate; in order to prevent the problem of structural change in the data, this study selects the A shares samples that are traded in the Shanghai and Shenzen exchanges between the period of 2005 to 2010[8]; however, during the calculation of investment returns of dividend yield portfolio the stock price data is extended to 2011. As with data frequency, other than stock price being monthly data, the rest are in annual form. Below is the filtering criterion for our research data:

1. For the stock price data, samples with "ST", "*ST" and "S" in front of the company name is excluded[9].

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[7] Using the dual dividend of China as an example, there are three sources which include cumulative capital surplus, retained earnings, or the combination of both, and the samples are 56.10%, 20.50% and 23.40% of the total sample respectively.

[8] Excluding Small and Medium Enterprises Board and Growth Enterprise Board.

[9] ST is the short for "Special Treatment". The Shanghai and Shenzen Exchanges declared on April 22nd of

2. Shares with omitted data are excluded from our sample.
3. After aggregating the stock price and financial data of the firm, the data of the finance industry is excluded as the financial structure is quite different to normal industries.
4. We exclude shares that are listed for less than one year. Reason being that omitted value would surface when counting for the monthly return data.
5. After passing through the above requirements, this study further utilize those shares with positive annual earnings, payout ratios of less than 1 as samples; this is due to the fact that if the earnings is negative the measure on payout ratios would render meaningless. Furthermore, the cash dividend issuance should not exceed annual earnings of that particular year.

Following the criteria listed above, we capture 1,871 company samples from the stock price database, excluding 120 samples with special treatment indications by the authorities, as well as removing 725 samples with one or more month of omitted stock price data, after the filtering process there are 1,026 firms remain in our sample. When combining the financial data, further 19 firms in the finance industry are excluded. Next, when represented by the cross section, there is a total of 5,581 samples. We further excluding 569 samples of firms that are listed for less than one year, as well as omitting 137 samples with abnormal payout ratios. Finally, as shown by Table 1, there are a total of 4,875 samples.

Table 1. Distribution of dividend sample type

Year	Number of Firms	Cash Dividend	Stock Dividend	Dual Dividend	Zero Dividend
2005	670	299	21	87	263
		(44.63%)	(3.13%)	(12.99%)	(39.25%)
2006	690	321	36	82	251
		(46.52%)	(5.22%)	(11.88%)	(36.38%)
2007	762	309	59	151	243
		(40.55%)	(7.74%)	(19.82%)	(31.89%)
2008	845	404	23	111	307
		(47.81%)	(2.72%)	(13.14%)	(36.33%)
2009	918	420	26	170	302
		(45.75%)	(2.83%)	(18.52%)	(32.90%)
2010	990	456	36	194	304
		(46.06%)	(3.64%)	(19.60%)	(30.70%)
Total	4,875	2209	201	795	1670
		(45.31%)	(4.12%)	(16.31%)	(34.26%)

As shown in Table 1, during the sample period, cash dividend, stock dividend, dual dividend and zero dividends have shares of total sample of 45.31%, 4.12%, 16.31% and 34.26% respectively. Even though individual investors prefer stock dividend and dual dividend, but during the sample period there is no significant increase or decrease in all forms of dividend payment. Moreover, since there are not many samples of stock dividend, hence, the empirical results for dividend-yield portfolio is limited to cash dividend and dual dividend.

1998 that the Exchange authorities will conduct special treatment on those listed firms that face financial distress or other abnormalities that lead to inability to judge the future prospects of the firm or inherit the likelihood of damaging the rights of the investors, hence the addition of the letters "ST"; application to revoke such ruling would only be granted after the firm has solved all abnormality; the shares with "*ST" in their names are those that run the risk of delisting; shares with "S" are those that have not completed Split-Share Reform; the Shanghai and Shenzen Exchanges impose a 10% restriction on daily price fluctuation for normal shares, whereas the shares mentioned above are restricted to 5% daily price fluctuation.

4. Research Design

Fama (1998, p.296) believes that the long term abnormal return of any post event would be greatly reduced or disappear if evaluated by the value-weighted method or other robust models. Due to this, this study adopts the value-weighted method to measure the return on dividend-yield portfolio, apart from using risk adjustment model like the CAPM, the Fama and French (1993) three-factor model is also incorporated. Assume that under the three-factor model the trading strategy of the dividend yield still display an abnormal return, then further tracking of future earnings growth or whether other factors are related to abnormal returns. The above model and formulae are described below:

4.1. Method of calculation for dividend yield

In a normal sense, the calculation of dividend yield is based on aggregating the dividend of the current period then dividing the end of year stock price of the dividend issuance year (Blume, 1980; Morgan and Thomas, 1998). Dividend yield of this study is defined as follows:

$$DY_t = \frac{1}{P_t} \sum_{T=1}^{12} DIV_{t+1,T}.$$ (1)

Where, DY_t is the dividend yield of the current period; P_t is the stock price at the end of the year of dividend issuance; DIV_{t+1},T is the aggregated dividend of the current period. According to equation (1), taking the stock price of listed companies in the year 2010 as an example, then use the aggregated dividend issued in 2011 divided by the stock price at the end of 2010.

4.2. The CAPM Model

In terms of Risk Factor Model, we first adopt the first period Sharpe-Lintner CAPM to measure the abnormal return of the dividend yield, and is defined as:

$$R_{pt} - R_{ft} = \alpha_p + \beta_p(R_{mt} - R_{ft}) + u_{pt},$$ (2)

Within the model, R_{pt} is the return of the dividend-yield portfolio on month t, R_{ft} is the return of the risk free asset on month t. This study adopts the one year term deposit rate of the People's Bank of China as the return of risk free asset; under the assumption of the efficient market, the coefficient α_p should equal to 0, if such is significantly larger than 0, it would imply the existence of abnormal returns; β_p is the systematic risk of the dividend-yield portfolio; R_{mt} is the return of market portfolio on month t; u_{pt} is the error term.

4.3. The three-factor model

Apart from the market risk, normally the source of abnormal returns originates from the factor of firm's size and value stocks risk. Therefore, this study adopts the three-factor model of Fama and French (1993) to check whether the abnormal return of the dividend yield arrives from these factors. The three-factor model is set up as follows:

$$R_{pt} - R_{ft} = \alpha_p + \beta_p(R_{mt} - R_{ft}) + s_p SMB + h_p HML + u_{pt},$$ (3)

In this expression, SMB refers to the difference in the returns between the portfolios of large shares and that of small shares; HML refers to the difference in the return between the portfolios of high BE/ME and that of low BE/ME, where BE is the net book value and ME is the market value (stock price of the firm multiplied by the number of shares in outstanding); as for s_p and h_p are the slopes of the time series; other variables retains the same definition as in equation (2).

4.4. The association between dividend yield and future earnings growth

To examine whether high dividend-yield is linked to a high future earnings, this study adopts the Two-Step Procedure of Fama-MacBeth (1973). The reason being that the time series of our study only span for a period of six years, according to Petersen (2009) and Thompson (2011) if the resulting error term display signs of clustering dependency, then the use of the OLS and the White methods would then underestimate the actual residual standard error, and overestimating the significance of the t-value of the coefficient. Especially when the timespan of the study is of short term in nature (less than 25 periods), then the Two-Step Procedure of Fama-MacBeth (1973) is most certainly efficient method for estimating the standard error. Our empirical model set up is as follows:

$$EPSGR_{t+1} = \alpha_0 + \beta_1 DivYield_t + \beta_2 Size_t + \beta_3 M/A_t + \beta_4 ROAQ1_{t+1} + \beta_5 AG_{t+1}$$
$$+ \beta_6 RE_t + \beta_7 EPSGR_t + \mu_{t+1}$$ (4)

In this expression, the dependent variable $EPSGR_{t+1}$ is future earnings growth, measured as the growth in annual post-tax earnings of common shares from year t to year $t+1$; The main explanatory variable $DiviYield_t$: cash dividend-yield (cash dividend per share divided by the end of period stock price) or dual dividend-yield [(Cash dividend per share + stock dividend per share) / end of period stock price] [10]. If the coefficient turns out to be positively significant, such would imply that high dividend yield is linked to a following high earnings growth. In terms of the control variable, $Size_t$ means firm size, taking the natural log of the firm's market value; M/A_t refers to the investment growth opportunity (book value of debt + market value of equity) / book value of total asset; $ROAQ1_{t+1}$ is the return of total asset for the first quarter of the next year, which is calculated by the earnings of the first quarter of next year divided by the total asset of that quarter; AG_{t+1} refers to the total future asset growth, which is the growth rate of total asset in the next year; RE_t means retained earnings; $EPSGR_t$ refers to the earnings growth of the current period, or the growth rate of earnings per share after tax. μ_{t+1} is the error term.

4.5. The association between stock price returns and dividend yield

Assume that the level of dividend yield has no relationship to future earnings growth. Next, we are to investigate whether the price momentum of the year of dividend issuance would affect the abnormal return of the dividend yield portfolio. Specifically, we are examining whether the high return of the portfolio at the end of the year is related to a following high dividend yield portfolio. The regression is as follows:

$$DivYield_t = \alpha_0 + \beta_1 SPGR_t + \beta_2 beta_t + \beta_3 Size_t + \beta_4 M/A_t + \beta_5 OutShare_t$$
$$+ \beta_6 SaleGR_t + \beta_7 DivyieldLag_t + \mu_t, \qquad (5)$$

In this expression, the explanatory variable $SPGR_t$ refers to the stock price return of the year of dividend issuance, if this coefficient is positive and significant, it implies the firm with high return is linked to a following high dividend-yield. The control variable $Beta_t$ refers to the yearly market risk indicator; $Outshare_t$ is the firm's share in in circulation; $SaleGR_t$ refers to sales growth rate; $DiviYieldLag_t$ is the dividend yield of the previous year; rest of the control variables shares the same definitions as in equation (4).

4.6. The four-factor model

If empirical result finds evidence for high price returns following high dividend yield, then we shall take one more step through the utilization of the four-factor model to make certain that whether the source of abnormal returns of dividend yield originates from the momentum factor. We follow the method of Carhart (1997), adopting the momentum factor to further enhance the three-factor model of Fama and French (1993), turning it into a four-factor model. The momentum factor further follows the method of Jegadeesh and Titman (1993), using the high (low) price returns of the previous year as the basis for categorization for winners (losers); which is the adoption of geometric average returns to calculate the return of the individual share in the previous year, followed by the ranking of the returns from the highest to the lowest, with ten group ranks in total. Portfolio with highest return is defined as the winner, whereas, the one with the lowest return is defined as the loser. The momentum factor is the difference in the returns between the winner and the loser portfolios. The setup of the four-factor model of our study is then defined as follow:

$$R_{pt} - R_{ft} = \alpha_p + \beta_p(R_{mt} - R_{ft}) + s_p SMB + h_p HML + w_p WML + u_{pt}, \qquad (6)$$

In this expression, WML represent the momentum factor (average monthly return of the winner portfolio – average monthly return of the loser portfolio). Under the assumption of efficient market, if the risk premium of the dividend-yield portfolio completely arrives from the four factors, then the coefficient α_p should be 0. However, if the coefficient is significantly larger than 0, such then imply the existence of abnormal returns. Definitions of rest of the variables are the same as in equations (2) and (3).

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[10] During the calculation of dual dividend, we firstly multiply stock dividend per share by the end of year share price of dividend announcement year, then adding the cash dividend, divided by the end of the year share price of the previous year.

5. Empirical Results and Analysis

In the discussion of abnormal return of high dividend-yield portfolio we firstly follow the methods of Morgan and Thomas (1998) and ap Gwilym et al. (2005), dividing dividend yield into 5 groups from the highest to the lowest ranking, further adding another zero dividend yield portfolio. Later on, we follow the research design from the previous section to examine the sources of the abnormal return.

5.1. Reconstruct the relationship between high dividend-yield and high returns

Panel A of Table 2 shows that in the year of cash dividend announcement, apart from the second dividend-yield portfolio, high dividend-yield mostly equates to high returns. The highest and the lowest average monthly returns are 2.63% and 1.45% respectively. Analyzing from the perspective of the t-value (1.88) both does not have equal average monthly returns[11]. For zero dividend yields, the average monthly return is 2.60%, which is higher than the majority of portfolios, and this U-shaped return anomaly has been documented by both Morgan and Thomas (1998) and ap Gwilym et al. (2005).

Table 2. The rate of abnormal returns of dividend-yield portfolio examined by the CAPM Model

Portfolio	Average			CAPM Model		Number of samples[4]
	Monthly returns (%)[1]	Dividend yield (%)	Market value[2]	α^3	β	
Panel A: Cash dividend						
1(Highest)	2.63	5.77	24,998	0.00	1.07***	439
2	1.35	2.68	15,469	-0.01*	0.98***	439
3	2.47	1.81	13,717	0.00	1.08***	439
4	1.73	1.20	10,345	-0.00	0.94***	439
5(Lowest)	1.45	0.61	7,636	-0.00***	1.09***	453
6(Zero)	2.60	0.00	3,740	0.00	1.08***	1,670
t-test[5]	1.88**					
Panel B: Cash dividend						
1(Highest)	3.49	7.64	24,920	0.01**	1.11***	218
2	3.48	3.95	25,120	-0.00	1.07***	218
3	3.12	2.97	23,174	-0.01**	0.97***	218
4	2.79	2.42	8,110	-0.00	1.01***	218
5	2.98	2.00	8,868	0.00	1.04***	218
6	2.54	1.64	18,680	0.00	1.08***	218
7	2.68	1.35	13,470	-0.01	0.95***	218
8	2.39	1.08	7,383	0.00	0.95***	218
9	2.25	0.82	7,733	-0.01*	1.08***	218
10(Lowest)	2.19	0.45	7,365	-0.01	1.10***	247
t-test	2.39***					
Panel C: Dual dividend						
1(Highest)	3.61	101.68	10,878	0.02***	0.91***	157
2	3.21	66.13	7,661	0.01*	0.95***	157
3	2.88	46.74	9,629	0.00	1.01***	157
4	2.03	32.24	8,928	0.00	0.93***	157
5(Lowest)	2.46	18.39	6,190	0.00	1.00***	167
t-test	1.45*					

***, **, * indicate 1%, 5%, 10% levels of significance, respectively.

For the average market value of the portfolio, the one with the highest dividend-yield is the largest, whereas zero dividend yields is the smallest, and the respective values are 24,998 and 3,740 (Renminbi) respectively. These values imply that the firm size factor could have no relationship with

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[11] Barber and Lyon (1997a) document that long-horizon buy-and-hold abnormal returns are positively skewed and this positive skewness leads to negatively biased *t*-statistics. This in turn leads to an inflated significance level for lower-tailed tests (i.e., reported *p* values will be smaller than they should be) and a loss of power for upper-tailed tests (i.e., reported *p* values will be too large) (Lyon et al., 1999, p 173). To address this issue, we follow the bootstrapped skewness-adjusted t-statistic of Lyon et al. (1999), however, we find such does not change our findings.

the risk premium of high dividend-yield, as the average market value is significantly larger than other portfolios. Next, from the CAPM perspective, any portfolio of α value does not show a positive abnormal return.

Even though the above result is different to the findings of Morgan and Thomas (1998), but such could possibly be due to the inappropriate grouping of samples. Looking back to Table 1, the least cash dividend sample appears in 2005, with 299 in total. If such is separated into 5 groups, then there would be nearly 60 constituents in the portfolio. Conversely, the one with the most sample is in 2010, with 91 constituents in total. Due to the focus of the market may be concentrated in the dividend yield forefront, hence, excessive constituents should affect the return of portfolio with high dividend. On the other hand, according to Fisher and Lorie (1970), when portfolio constituent exceeds 20, non-systematic risk is then significantly reduced. Similarly, Elton et al. (2007) use the example of share investment portfolio from the United States and the United Kingdom to show that when the number of individual shares exceeds 20, then the reduction in the trend of portfolio risk display the sign of slowing and stagnating. With this in mind, we further separate cash dividend into 10 categories to reexamine the results. The results are shown in Panel B of Table 2, finally displaying a positive abnormal return with α value in the highest dividend-yield of the CAPM model.

As with dual dividend, Panel C of Table 2 shows that in the year of dividend announcement high dividend-yield equals to high return, same as the cash dividend sample. The highest and the lowest average monthly returns are 3.61% and 2.46% respectively. Furthermore, looking from the perspective of average market value of the portfolio, highest dividend-yield is also the largest (10,878 thousand Renminbi). One thing worth noticing is that the α value of CAPM display a positive abnormal return for the highest and the second highest dividend-yield (the values are 0.02 and 0.01 respectively). This result is consistent with the finding of Morgan and Thomas (1998), as well as the findings in the Chinese literature, implying that investors prefer stock dividend.

5.2. The abnormal return under the three-factor model

In Table 3, this section not only presents the empirical result of the three-factor model analysis but also the observations for the existence of relationship between EPS, B/M value (the ratio of the book value of common equity to its market value) and share holdings by the State and dividend yield. This is because that if the firm is willing to maintain a stable payout ratios, then the contributing numerator of dividend yield – dividend, would increase with EPS, but the stock price (denominator) would not react immediately to the inflated level due to inadequate reaction to information (Michaely et al., 1995；Koch and Sun, 2004)[12]. Next, the B/M value is the risk factor for the value stock, hence, higher the value of the portfolio then the higher the risk premium. For State shareholdings, according to Wei and Xiao (2009) the State and institutional investors prefer cash dividend. Therefore, we forecast that the portfolio with higher dividend-yield would result in higher State shareholding ratio.

Empirical results are shown in Panel A of Table 3, where, one year prior to the announcement of the cash dividend, high dividend-yield generally equates to high EPS and the highest B/M value appears at high dividend-yield. However, the portfolio with highest concentration of State shareholding does not display high dividend-yield[13]. This result implies that the portfolio with highest dividend-yield could generate a positive return as well as value stock is one of the sources of risk premium. Followed by the observation of the testing results for the three-factor model, from the perspective of α, the entire dividend-yield portfolio does not have a positive abnormal return. The coefficients with the highest level of dividend yields are α, β, s, h with values of 0.00, 1.13, 0.01 and 0.41 respectively, within this, the market and value stock risk factors are positive and significant at the

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[12] In order to make certain the association between earnings and dividend yield, we use EPS_t in place of $SPGR_t$ to conduct the examination of equation (5). The result indicates that the coefficient of earnings is significant at 0.10 levels. We further rank all samples into three sub-samples and finds that the source of abovementioned relationship originates from the effect of high dividend-yield sample.

[13] After regrouping cash dividend per share from highest to lowest, we find that it displays a monotonic diminishing anomaly with the ratio of State shareholdings, which is consistent with the findings of Wei and Xiao (2009). Only that the subject of study here is dividend yield, even though in the Chinese market that the ratio of State shareholdings would affect the dividend policy of the firm, however, when looking at this matter from the dividend yield perspective, both are not significantly related, hence, we exclude further empirical analysis of such variable.

0.01 level. These results indicate that the abnormal return that appears under cash dividend of the CAPM Model has already disappeared in the three-factor model. Further analysis shows that the source of return is not related to firm size, but from the risk factors of market and value stock.

Next, Panel B of Table 3 report, the dual dividend sample in the same year also has high dividend-yield equal to high earnings. The highest and the lowest dividend-yield portfolios EPS values are 0.76 and 0.42 respectively. In terms of the B/M value, the dual dividend portfolio is below that of cash dividend, and the smallest value of highest dividend yield (0.35). This value implies that in the market such portfolio does not have value stock risk premium. According to the findings of Li and Peng (2009), the dividend distribution of listed companies exhibit lifecycle characteristics. In other words, during our sample period, due to the fact of being an emerging country, the Chinese market has higher investment opportunity growth than other nations, hence; the foreseeable B/M value will be lower. Also, when comparing to cash dividend, at the highest level of dividend the value of State shareholding (0.17) still appear to be low. Therefore, we speculate that institutional investors do not prefer shares that distribute dual dividend.

From the above explanation as well as the empirical results of the three-factor model of Table 3 indicate that at any portfolio the adjusted R^2 is above 0.77. Within this, abnormal return appears in the highest and the second highest dividend-yield (both have the coefficient of 0.02, with α value of 0.01 and 0.05 significance levels). This result, continuing from the findings in Panel C of Table 2 is actually different to the findings of Fama (1998), which is when abnormal returns is being valued by the robust model should be greatly reduced or simply disappear. Finally, when decomposing the source of returns, it is certain that such does not originate from SMB or HML risk factors, as their respective coefficients are either not significant or negatively significant.

Table 3. Examination of abnormal returns of dividend portfolio through the three-factor model

Portfolio	Average (%)			three-factor model[1]				
	EPS[2]	B/M	State Shareholding	α[3]	β	s	h	Adj. R^2
Panel A: Cash dividend								
1(Highest)	66.60	55.28	29.57	0.00	1.13***	0.01	0.41***	0.90
2	60.28	52.41	27.95	-0.00	1.09***	-0.08	0.14	0.91
3	46.75	51.04	30.19	-0.01***	0.99***	0.06	0.44***	0.92
4	39.60	51.48	23.28	-0.01*	0.99***	0.32***	0.22***	0.94
5	40.58	47.21	26.10	-0.00	1.01***	0.37***	0.25***	0.90
6	36.32	52.33	25.97	0.00	1.10***	-0.06	0.16	0.87
7	41.22	48.52	27.93	0.00	0.96***	-0.32***	-0.34***	0.85
8	31.03	48.12	27.97	0.00	0.92***	0.16**	-0.15*	0.89
9	31.58	43.48	26.88	-0.01*	1.06***	0.19**	-0.02	0.90
10(Lowest)	22.67	40.72	25.77	-0.01	1.07***	0.26***	-0.10	0.91
11(Zero)	8.51	47.24	20.69	-0.00	1.01***	0.63***	0.18***	0.97
Panel B: Dual dividend								
1(Highest)	76.13	35.26	16.60	0.02***	0.87***	0.14	-0.36***	0.80
2	63.58	39.24	18.63	0.02**	0.94***	-0.12	-0.44***	0.77
3	58.31	36.21	16.63	0.01	1.00***	0.04	-0.14	0.86
4	56.47	35.79	16.17	0.00	0.90***	0.09	-0.27***	0.89
5(Lowest)	42.22	40.07	17.34	0.01	0.95***	0.28***	-0.27**	0.85

***, **, * represent 1%, 5%, and 10% level of significance.

The explanations for the reason of abnormal return only appear in dual dividend and are as follows: Firstly, comparing Panel A and B of Table 3 and looking at the ratio of State shareholdings, dual dividend is significantly lower than that of cash dividend. In a highly developed market, the lower the rate of State shareholding the higher the firm is then more capable of distributing resources of retained earnings into investment opportunities that can generate growth, and the Chinese market in our sample period is in such economic conditions. Secondly, when looking from the perspective of the three-factor model, the similar economic condition is also reflected. The HML risk factor is negatively significant in dual dividend, this implies that the low B/M factor of the Chinese market actually has

positive risk premium. This result is consistent with the findings of Drew et al. (2003), they suggest that that mean-variance efficient investors in China can select some combination of small and low book-to-market equity firms in addition to the market portfolio to generate superior risk-adjusted returns. Finally, from the perspective of the investor, due to the rising trend of the stock price on the stock dividend announcement and ex-right date (Wei, 1998; Yuan, 1999) as well as exemption of capital gains tax, hence, these factors provide incentive for individual investors to select stock dividend which lead to higher returns for dual dividend relative to cash dividend. Next, we will use the future earnings growth to track the source of abnormal returns.

5.3. Dual dividend and future earnings growth

Before conducting the examination, we shall firstly observe the descriptive statistic of primary variables and the correlation coefficient between the variables. Table 4 indicates that the average values (median) of future earnings growth, dividend yield and firm size are -0.18(-0.20), 0.51(0.50), 8.47(8.42) respectively. The above values indicate that the skewness of any one variable is mostly close to zero. Next, Table 5 shows that the correlation index of the variables are all below 0.4 and according to the initial regression results, the VIF coefficient of all the variables are all below 1.39. In sum, we can logically assume that collinearity does not exist during the regression analysis.

Table 4. Descriptive statistics of major variables

Variable	Min.	25%	Median	Mean	75%	Max.	Std. Dev.
$EPSGR_{t+1}$	-22.50	-0.44	-0.20	-0.18	0.13	5.82	1.28
$DivYield_t$	0.07	0.26	0.50	0.51	0.63	1.52	0.31
$Size_t$	6.01	7.70	8.42	8.47	9.23	12.07	1.13

Table 5. Correlation matrix of variables

Variables	$EPSGR_{t+1}$	$DivYield_t$	$Size_t$	M/A_t	$ROAQ1_{t+1}$	AG_{t+1}	RE_t	$EPSGR_t$
$EPSGR_{t+1}$	1.00	-0.09*	-0.04	-0.05	0.12***	0.19***	-0.05	-0.03
$DivYield_t$		1.00	0.15***	0.06	0.09*	0.11**	0.08*	-0.01
$Size_t$			1.00	0.36***	0.29**	0.10**	0.39***	0.06
M/A_t				1.00	0.47**	0.05	0.27***	0.07
$ROAQ1_{t+1}$					1.00	0.14***	0.29***	0.01
AG_{t+1}						1.00	0.23***	-0.06
RE_t							1.00	-0.07
$EPSGR_t$								1.00

***, **, * are 1%, 5%, and 10% levels of significance respectively.

In Table 6, due to the addition of the future earnings growth and other financial variables, the total number of samples decreased from 795 to 470. We firstly categorize all of the samples into three sub-samples, the method of categorization is by the order of dividend yield of the annual sample, where the samples are partitioned into the first 1/3, second 1/3 and the rest 1/3, defined as highest, medium and lowest dividend-yield respectively. In terms of the total sample, Table 6 shows that dividend yield and other control variables are all significant, except for the firm size coefficient is not significant. Under 0.01 levels, the dividend yield is negatively significant. Next, looking at the sub-samples we find that in terms of high dividend-yield the coefficient is also negatively significant. Conversely, low dividend yield is not significant. This result indicates that there is no relationship between abnormal return of dividend yield and future earnings growth. On the other hand, it is with the higher the dividend yield the lower is the future earnings growth, and the source of this effect originates from the high dividend yield sample.

The above finding is through the utilization of the Two-Step Procedure by Fama-MacBeth (1973). This study also adopts OLS, White, and Cluster Estimator methods to confirm the results. The result not only shows that inconsistency only appears in the significance of control variable coefficients, but

also indicates that under the 0.01 level, the coefficient of dividend yield is also negatively significant[14]. Also, this study use the four other methods below to reconfirm the results: firstly, for dependent variables, EPS is replaced by ROA and ROE, but the results do not show a change in relationship between dividend yield and future earnings; secondly, for sub-samples, the original sub-samples are replaced by samples that are more inclined to cash dividend and stock dividend. Cash dividend inclined is defined as that the issuance of dividend is more cash than stock based, whereas stock dividend inclined takes the opposite meaning. The result indicates that the source of the relationship between dividend yield and future earnings originates from the stock dividend inclined sample; thirdly, confirm whether the findings in this section is related to stock dividend, the result indicates that it does not matter whether the source of stock dividend originate from either retained earnings, cumulative capital surplus or the mixture of both, such would exert no effect on the relationship between dividend yield and future earnings; fourthly, in terms of control variables, through the change in control variables such as total asset replaces market value for firm size, B/M replaces M/A for investment opportunities does not change the major findings in this section. In summary, the relationship between dividend yield and future earnings is negative[15], and this effect mainly arrives from high dividend-yield and stock dividend inclined samples.

Table 6. Correlation between dual dividend yield and future earnings growth

| Variable | $EPSGR_{t+1}$ | | | | | |
| | Entire Sample | | High dividend yield | | Low dividend yield | |
	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
Intercept	-0.17**	0.67	0.39	0.38	1.03	0.14
DivYield$_t$	-0.51***	0.00	-0.69***	0.01	0.08	0.96
Size$_t$	0.02	0.55	-0.03	0.48	-0.12	0.22
M/A$_t$	-0.08*	0.06	-0.02	0.52	-0.05	0.44
ROAQ1$_{t+1}$	14.06***	0.00	7.07*	0.06	14.53	0.17
AG$_{t+1}$	1.07***	0.00	0.24**	0.03	2.27	0.16
RE$_t$	-1.37**	0.05	-0.06	0.91	-2.76	0.11
EPSGR$_t$	-0.06	0.23	-0.14	0.34	0.05	0.70
Obs.	470		155		160	
Avg. R^2	0.22		0.38		0.33	

***, **, * are 1%, 5%, and 10% levels of significance respectively.

5.4. Stock price returns and dual dividend yield

Until now, we are still unable to resolve the abnormal returns of dividend yield through the use of dependent variables such as future earnings or future returns of stock prices. Next, equation (5) is used to examine the relationship between the stock price returns one year prior to the dividend announcement date and the following dividend yield[16]. In Table 7, we categorize the entire sample of this section into two sub-samples, one being high dividend inclined and the other being stock dividend inclined. Empirical results are indicated by Table 7, for the entire sample, the coefficient of stock price returns is positive and significant at 0.10 levels, and only a handful of control variables display significance[17]. In terms of the sub-sample, under the cash dividend inclined sample, stock price returns is not related to the following dividend yield; on the contrary, looking from the perspective of the stock dividend inclination, not only that the stock price returns is positively significant at the 0.05

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[14] For the sake of length, the supporting explanatory tables are not supplied. If these are of interest, please contact the authors for detailed empirical results.

[15] This paper further conduct regression on future return to replace future earnings, where by using variables $SPGR_{t+1}$ and $SPGR_t$ to replace $EPSGR_{t+1}$ and $EPSGR_t$ of equation (4). The result indicates that dividend yield does not relate to future returns.

[16] Matter of fact, prior to the examination of Table 7, we have tested the relationship between the current earnings and the following dividend yield though substituting the growth rates of *EPS*, *ROA* and *ROE* in place of the share price return of equation (5). The result indicates that there is negative relationship between the growth rates of *EPS*, *ROA* and the following dividend yield.

[17] The correlation index of variables in equation (5) is all below 0.42, and with VIF index below 1.52. Therefore, we expect that collinearity does not exist when conducting regression analysis.

level, the coefficient of control variables are also significant. This result indicates that stock price return and the following dividend yield display a positive relationship, and such effect originates from the stock dividend inclined sample[18]. Since the composition of high dividend-yield portfolio belong to stock dividend inclined samples, hence, by summing the above findings that we can further infer that the composition shares of high dividend-yield portfolio could be the market winner in the previous year.

Table 7. Correlation between stock price returns and dual dividend yield

| Variables | $DivYield_t$ | | | | | |
| | Entire sample | | Cash dividend inclined | | Stock dividend inclined | |
	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
Intercept	0.46*	0.10	-0.56	0.76	0.46	0.11
$SPGR_t$	0.11*	0.06	-0.07	0.36	0.11**	0.05
$beta_t$	-0.21	0.12	-0.57*	0.10	-0.19*	0.10
$Size_t$	0.05	0.12	0.16	0.38	0.05	0.11
M/A_t	-0.03*	0.06	-0.08	0.29	-0.02*	0.10
$OutShare_t$	-0.20**	0.02	0.12	0.92	-0.24**	0.04
$SaleGR_t$	-0.01	0.87	-0.53	0.35	-0.01	0.87
$DivyieldLag_t$	-0.01	0.94	0.62**	0.03	0.01	0.90
Obs.	470		49		421	
Avg. R^2	0.12		0.30		0.14	

***, **, * are 1%, 5%, and 10% levels of significance respectively.

5.5. The four-factor model with the addition of the momentum factor

The evidence so far for firm size, value type risk factor, and future profit growth does not help in the explanation of the source of abnormal returns. Finally, we examine the anomaly via the momentum effect. The evidence of Panel A, Table 7 indicates that abnormal returns of high-dividend portfolios still appear under the four-factor model along with significant positive α. For further examining the details of the momentum effects, we divide the whole sample into high- and low- momentum periods according to the medium of monthly momentum premium (WML.) We can then investigate the momentum factor under the four-factor model in each momentum subsample. Specifically, high-momentum regime may be more likely associated with bullish markets in which investors are pursuing capital gains. On the contrary, low-momentum regimes usually accompany with bearish markets in which investors favor high-dividend portfolios. Agreeing with the above postulation, the empirical results of Panel B, Table 7 show that no significant abnormal returns associated with high-dividend portfolios under the four-factor model during high momentum period. Moreover, as indicated in Panel C of Table 7, the strongest abnormal returns (0.24) significantly exist for the highest dividend group during low momentum period. Therefore, our empirical results confirm that abnormal returns in high-dividend portfolios mainly stem from low momentum regime.

The following is the explanation for the reason of abnormal returns of dividend-yield portfolio originates from the momentum factor of the Chinese market: Firstly, from the perspective of the source of the momentum formulation, according to Barberis and Shleifer (2003), Teo and Woo (2004), Derwall et al. (2005) investors often categorize securities into "small-cap stocks", "value stocks", "technology stocks" and "public enterprise shares". To various investors, this categorization not only captures the need for vital information but also allow for the individual investment behaviors. The reason behind this is that the investors believe that the performance of these shares would be better than the market indicator. Similarly, to investors that prefer stock dividend, on the whole, believe that high dividend-yield portfolio could possibly inherit information of future earnings. Individual

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[18] In terms of sub-samples, we adopt the same methodology as Table 6, with the entire sample being categorized into high, medium and low dividend-yield samples. However, it does not matter which sub-sample the coefficient of stock price return belongs to, they all exhibit no correlation with dividend yield. Therefore, we replace the sub-sample with cash dividend inclination and stock dividend inclination. Finally, we further divide stock dividend inclination into two equal halves, with one being high stock dividend inclination and the other being low stock dividend inclination. Finally, the findings in this section mainly originates high stock dividend inclined sample.

investors of the Chinese market especially, exhibit such preference for stock dividends (Wei, 1998；Yuan, 1999；Wei and Xiao, 2009). In terms of results, when shares in outstanding are mostly held by individual investors, the investment demand of dividend-yield portfolio naturally becomes an important source of the formation of momentum.

Next, from the perspective of investor psychology and behavioral bias, Li and Yeh (2011) points out that the higher the investor psychological bias, the greater the return by momentum strategy will become. In addition to the Chinese stock market, similar results are also found in the US stock market, suggesting that high investor sentiment is closely related to momentum. The dividend portfolio of our study has the high sentiment quality. Therefore, when the winner portfolios in momentum strategies include more high-dividend-yield stocks that are highly sensitive to sentiment, it may produce significant momentum profits due to more psychological biases.

Finally, with the under reaction of dividend yield information, according to the findings of Asem (2009) investors tend to exhibit under reaction for positive news of announcement of dividend increase with share market winners, and negative news of announcement of dividend decrease with share market losers. Similarly, our results indicate that high portfolio with high dividend-yield equates to high return on the year of dividend announcement and such portfolio is also the market winner of stock price returns on the previous year. The implication is that investors display an under reaction phenomenon towards dividend information, which concur with the views of Asem (2009). In summary, in the Chinese market, the price momentum of dividend- yield portfolio could have originated from the investment need of the dividend-yield portfolio of the investor, psychological and behavioral bias or under reaction of dividend information.

Table 8. Abnormal return of dual dividend yield portfolio examined by the four-factor model

Portfolio	four-factor model					
	α	β	s	h	w	Adj. R^2
Panel A: Full period						
1(Highest)	0.07**	0.88***	0.14	-0.34***	-0.51	0.80
2	-0.03	0.92***	-0.12	-0.46***	0.45	0.77
3	0.05	1.01***	0.05	-0.13	-0.38	0.86
4	0.04	0.91***	0.09	-0.26***	-0.33	0.90
5(Lowest)	-0.01	0.95***	0.28***	-0.28**	0.17	0.85
6(Zero)	-0.01	1.01***	0.63***	0.18***	0.03	0.97
Panel B: high Momentum period						
1(Highest)	0.00	0.75***	0.28**	-0.37**	0.13	0.83
2	-0.14	0.92***	-0.26	-0.34	1.35	0.75
3	0.04	0.93***	0.08	-0.09	-0.36	0.87
4	-0.04	0.88***	0.01	-0.22**	0.30	0.92
5(Lowest)	0.05	1.01***	0.28**	-0.11	-0.38	0.86
6(Zero)	-0.01	0.98***	0.61***	0.18***	0.07	0.98
Panel C: low Momentum period						
1(Highest)	0.24**	1.21***	-0.21	-0.90***	-2.41*	0.88
2	0.00	1.00***	0.17	-0.56***	0.10	0.86
3	0.00	1.23***	-0.10	-0.51**	0.11	0.90
4	0.10**	1.01***	0.32**	-0.33*	-1.13*	0.88
5(Lowest)	0.01	0.98***	0.12	-0.78***	-0.15	0.89
6(Zero)	0.00	1.13***	0.68***	0.07	-0.07	0.96

***, **, * are 1%, 5%, and 10% levels of significance respectively.

6. Conclusions

In recent years, even though high dividend-yield portfolio is widely accepted in the realm of finance, and the investment sector, however, in our knowledge, the research focus of many literature lies with the existence of abnormal returns of dividend-yield portfolio, but exhibit limitation in the systematic discussion of the hypothesis "Why high dividend- yield equates to high return", with the only exception being Morgan and Thomas (1998). In light of this, we adopt the methodology of Fama (1998) for the investigation of the existence of abnormal returns of dividend-yield portfolio in the Chinese market.

Empirical results show that, looking by the CAPM Model, between the period of 2005 and 2011 the highest dividend-yield portfolio display a sample of abnormal return in cash dividend and dual dividend; however, only dual dividend-yield portfolio passes the three-factor model test. Further decomposing the source of abnormal returns we find that the source is not related to firm size, nor is value stock and has no relationship with future earnings growth; after the examination through the four-factor model we find that the abnormal return still appears. These results imply that the return behavior in China is not consistent with the rational risk-based pricing model of the dividend-yield portfolio.

Since the end of the 20th century, various literature points out that the return of stock dividend and dual dividend is higher than that of cash dividend in the Chinese market. On the contrary, the results of this paper indicates that abnormal return of dual dividend-yield portfolio originate from price momentum, and this factor could be affected by the investment need of dividend-yield portfolio of the investors, psychological and behavioral bias or under reaction to dividend information. Therefore, this paper provides further new insights into the puzzle for the existence of abnormal returns in dividend-yield portfolio, and aiding the investors in the application of portfolio trading strategy in the Chinese market.

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