

Investment Strategies Using Beta and Dividend Yield

Kamphol PANYAGOMETH

NIDA Business School

National Institute of Development Administration, Bangkok, Thailand

kamphol@nida.ac.th

Article's history:

Received 9th March, 2020. Received in revised form 29th March, 2020. Accepted 19th March, 2020;

Published 30th March, 2020. All rights reserved to the Publishing House.

Suggested citation:

Panyagometh, K. 2020. Investment strategies using beta and dividend yield. *Journal of Applied Economic Sciences*, Volume XV, Spring, 1(67): 193-198. DOI: [https://doi.org/10.14505/jaes.v15.1\(67\).17](https://doi.org/10.14505/jaes.v15.1(67).17)

Abstract:

This study aims at analyzing whether the dividend yield and beta can be applied on creating the investment strategies to beat the stock market. According to the data on the listed companies in Stock Exchange of Thailand during 1995 – 2018, it is found that the portfolios which consist of high-dividend yield and low beta stocks significantly yield a higher return than the stock market. The results show that the return of High Dividend and Low Beta Portfolio in the past 24 years from 1995 to 2018 was significantly higher than Stock Exchange of Thailand Total Return Index (SET TRI) for 19 years.

Keywords: trading strategy; high dividend yield; low systematic risk.

JEL Classifications: G11; G12.

Introduction

According to Gordon Growth Model (Gordon 1959, Gordon and Shapiro 1956) the expected return on a security consists of expected dividend yield and expected long-term growth rate. If the stock has higher expected dividend yield, it is likely to have higher expected return on a security. In addition, based on classic Capital Asset Pricing Model (CAPM) (Sharpe 1964, Lintner 1965, Mossin 1966), the micro view regarding the expected return and risk was expanded from the research of Markowitz (1952) and developed to macro view or overall economic view related to the expected return and risk. In other words, Markowitz's research mentioned the relationship between expected return and risk in the view of each investor on their appropriate portfolio allocation (individual optimization). However, the research conducted by Sharpe (1964), Lintner (1965) and Mossin (1966) suggested that, if all investors allocate the appropriate portfolio by analyzing mean and variance in accordance with Markowitz's notion with determination of additional conditions and assumptions, we will be able to identify the relationship between the expected return and risk in the form of general equilibrium.

Additional conditions and assumptions include:

- The investor is rational and risk averse investor;
- The investor has the equal period of investment;
- Existence of risk-free assets;
- All investors can take out loans or offer loans at the interest rate equivalent to the risk-free return rate;
- The capital market is perfectly competitive and frictionless.

Based on the above conditions and assumptions at equilibrium level, the asset price will be determined by demand and supply of the assets, meaning the investor behavior reflects the asset expected return. In other words, the expected return of each asset in the market must be determined risk-free rate, beta and market risk premium. According to the Capital Asset Pricing Model or CAPM, the beta value is used to measure systemic risk of stocks. According to the theory, the stock containing a higher beta value will have a higher systemic risk and supposed to have a higher expected return. The stock having the beta value higher than 1 shall bear a higher risk than the stock market which also should have a higher expected return than stock market while the stock having the beta value lower than 1 should have a lower risk than the stock market which should also have a lower expected return than the expected return on stock market.

This study aims at analyzing whether the dividend yield and beta value can be applied on creating the investment strategies to beat the stock market. It was found that the portfolios which consist of high-dividend yield and low beta stocks significantly yield a higher return than the stock market.

1. Literature review

Based on the related research and articles, it was found that the articles supporting investment in dividend stocks have been increasingly published, which reflects the potentials of dividend stocks to yield higher returns than other alternatives that yield lower dividend or growth shares as dividend is important for the overall returns. Examining equity returns for the 2000 years, Arnott (2003) concluded that dividends were the main important source of the real return investors would expect from stocks. Tweedy and Browne (2007) published the article “The high dividend yield return advantage: an examination of empirical data associating investment in high dividend yield securities with attractive returns over long measurement periods” with the aim of investigating the return which is higher than the market in the past period by using the stocks with top 20 dividend yield in S&P 500 Index as the basis to calculate the return rate. It was found that those stocks had higher return than the overall return of S&P 500 Index. This article also mentioned that the result of Dividend Reinvestment at the time of the stock market decline could reduce the loss of stocks.

Graham and Dodd (1934) mentioned that the prime purpose of a business corporation is to pay dividends regularly and, presumably, to increase the rate as time goes on. They emphasized that the stocks paying high dividend would have higher return than the past and lower frustration than the stocks without dividend payout. Furthermore, during the economic crisis or decline, the stocks with dividend payout would give higher return than the market.

Korn and Kuntz (2015) studied and presented the potentials of employing low beta investment strategies. It was found that the portfolio with small stocks having low beta have more weight than stocks with higher beta, resulting higher average return than the portfolio giving more weight to stocks with high beta. It was stated that the stocks with low beta could produce positive premium, leading to higher return. Therefore, employment of these strategies on investment could be promising. Safari (2009) suggested that long-term investors in Malaysia tend to use the dividend yield to measure the value of stocks prior to purchase regardless of economic situation. It was found that dividend yield and return rate are significantly related. It was also found that the stocks with higher dividend yield will have higher return. However, this correlation will be positive during Bear Market and negative during Bull Market.

Dimson *et al.* (2002) published the article concerning the result of dividend yield by classifying the stocks in accordance with the high and low level of dividend yield and allocate them to portfolio to calculate the superior return in comparison with the market. This is in line with the research by Visscher and Filbeck (2003) which mentioned Canada's stock market and compared the stocks with high dividend yield with Toronto Index during the period of 10 years. It was found that the stocks with dividend yield have higher return than the market, and this higher gap can be compensated by other costs such as transaction cost and tax cost, which is the reason to support investment in the stocks with high dividend yield. Baker and Wurgler (2004) proposed that the prevailing investor demand for dividend payers was a key driver for the company to pay dividends. Managers provided to investors by paying dividends when investors put a stock price premium on payers. Long and Hanh (2019) examined the short and long - run relationship among macroeconomic indicators and the Vietnamese stock prices. This study suggested that in the long run dynamics, there were one positive relationships between Vietnamese stock prices index measuring by VN-Index and real industrial production and five negative relationships between VN-Index and the others macro indicator.

Christoffersen and Simutin (2017) found that high-risk investment may not always result in high return but adversely affect the investment potential. Investment in the stocks with low beta instead of the stocks with high beta may result in better return as the stocks have lower frustration and risk. This aligns with the research by Baker, Bradley and Wurgler (2011) suggesting that the stocks with high beta have lower efficiency than the stock with low beta as when the demand of stocks with high beta increases to the extent that the stock price increases, the future return is like to get low. It can be concluded that beta value and the future return are negatively correlated. This is in line with Sialm and Starks (2012) arguing that investment in the stocks with high beta is not suitable for long-term investment.

2. Method

This study obtained the information of listed companies in the Stock Exchange of Thailand and SET Total Return (SET TRI) Index during 1995 – 2018, whereas SET Total Return (SET TRI) Index is the calculation of return of all kinds of the investment in stocks to reflect the result in the form of index, which include capital gain/loss, rights, and dividends. The company information used to establish high dividend and low beta portfolio consists of the stock price and dividend per share. The process of establishment of high dividend and low beta portfolio is as follows:

Step 1: Use the stock price and dividend per share (DPS) to calculate dividend yield based on the following formula:

$$\frac{DPS_n \times 100}{Stock Price_n} \quad (1)$$

Table 1 exemplifies the calculation of dividend yield of 10 companies in 2015.

Table 1. Calculation of dividend yield of 10 companies in 2015

Stock	Stock price	DPS	Dividend Yield (%)
ASK	19.40	1.30	6.70%
KWC	210.00	5.50	2.62%
NSI	93.00	6.00	6.45%
PATO	10.70	0.92	8.60%
SAMTEL	14.80	0.25	1.69%
SAUCE	23.70	1.10	4.64%
SCG	5.05	0.18	3.56%
TOPP	139.50	4.60	3.30%
TVO	23.50	1.00	4.26%
TMB	2.42	0.06	2.48%

For instance, in 2015, SAMTEL price was 14.8 Baht and the dividend per share was 0.25 Baht per share. Based on the above formula, the Dividend Yield was:

$$\frac{0.25 \times 100}{14.8} = 1.689\% \quad (2)$$

Step 2: Calculation of Beta

At this stage, the daily return of SET Index and daily return of the stocks in the past one year were obtained to run Ordinary Least Square (OLS) Regression. The slope of OLS Regression was used as beta of the stocks that year. Table 2 exemplifies the beta of the stocks of 10 companies in 2015.

Table 2. Beta of the stocks of 10 companies in 2015

Stock	Beta
ASK	0.552
KWC	-0.032
NSI	0.653
PATO	0.247
SAMTEL	1.768
SAUCE	0.177
SCG	0.369
TOPP	0.233
TVO	0.288
TMB	1.166

Step 3: In each year, the stocks were arranged according to the dividend yield calculated in Step 1.

The stocks with high dividend yield were ranked number 1, followed by those with lower dividend yields to the stocks with the lowest dividend yield. After that, the stocks were arranged according to beta calculated in Step 2 whereby the stocks with lowest beta were ranked the top. Then, the ranks of dividend yield and beta were combined as total rank. Table 3 exemplifies the ranking of stocks of 10 companies in 2015. For example, in 2015 SAMTEL was ranked 192 in the list of stocks with high dividend yield and 273 in the stocks with low beta. Then, the two ranks were combined to make the total rank. Therefore, in 2015, the total rank of SAMTEL was $192+273 = 465$.

When obtaining the total rank of all stocks in each year, they were arranged from low to high and classified into 5 Quintiles. The stocks belonging to Quintile 1 had the highest dividend yield with the lowest beta while those

in Quintile 5 had the lowest dividend yield with the highest beta. According to the classification, the stocks with the lowest total rank have the highest dividend yield and high beta. Based on Table 3, in 2015, PATO was classified in Quintile 1 while SAMTEL was in Quintile 5.

Table 3 Calculation of total rank of sample stocks in 2015

Stock	Rank Dividend Yield	Rank Beta	Total Rank	Rank Percentile
ASK	17	137	154	0.141
KWC	136	8	144	0.112
NSI	21	153	174	0.188
PATO	8	72	80	0.021
SAMTEL	192	273	465	0.938
SAUCE	54	57	111	0.068
SCG	93	100	193	0.253
TOPP	102	69	171	0.177
TVO	63	86	149	0.126
TMB	143	236	379	0.807

Step 4: Build portfolio consisting of stocks belonging to each Quintile in the form of equally weighted portfolio and calculate the return of each portfolio in comparison with the return from SET TRI Index. Table 4 shows the return of 5 Quintile Portfolio in comparison with the return from SET TRI Index in 2015.

Table 4. Return of 5 Quintile portfolio in comparison with the return from SET TRI Index in 2015

2015					
Quintile	1 st	2 nd	3 rd	4 th	5 th
Portfolio Return	7.75%	1.24%	0.47%	1.48%	-4.59%
SET TRI	-11.21%	-11.21%	-11.21%	-11.21%	-11.21%

As seen from Table 5, Portfolio Quintile 1 which consists of the stocks with high dividend yield and low beta yielded higher return in comparison with other Quintiles and SET TRI Index.

3. Results

Table 5 shows the return of Portfolio Quintile 1 which is high dividend yield and low beta portfolio in comparison with the return from SET TRI Index from 1995 to 2018, totaling 24 years.

Table 5. Return of portfolio Quintile 1 which is High Dividend Yield and Low Beta Portfolio in comparison with the return from SET TRI Index from 1995 to 2018

Year	High Dividend Yield and Low Beta Portfolio Return	SET TRI	T-value
1995	-5.50%	-4.68%	-1.01
1996	-10.08%	-33.34%	17.58***
1997	-30.98%	-52.61%	9.41***
1998	31.42%	-3.54%	13.56***
1999	67.96%	37.65%	15.40***
2000	1.11%	-42.93%	38.73***
2001	62.32%	22.77%	23.20***
2002	78.40%	20.98%	24.70***
2003	145.37%	121.64%	3.19***
2004	12.96%	-10.73%	5.62***
2005	14.78%	11.02%	1.50
2006	31.10%	-0.08%	26.42***
2007	33.51%	30.33%	-7.10***
2008	-25.91%	-43.62%	43.89***
2009	81.98%	68.86%	9.30***
2010	59.70%	45.60%	8.39***
2011	13.22%	3.47%	16.54***
2012	68.32%	39.71%	34.14***

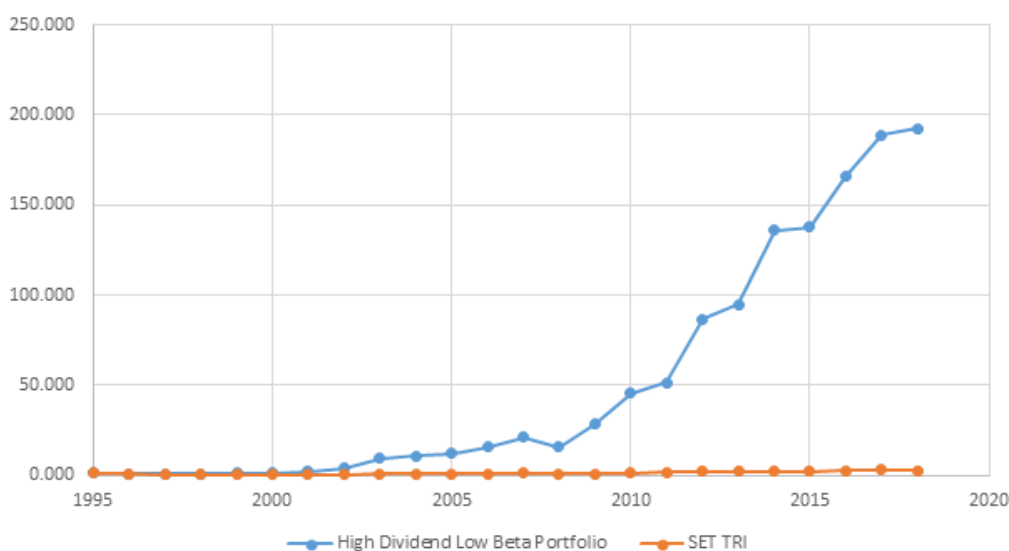
Year	High Dividend Yield and Low Beta Portfolio Return	SET TRI	T-value
2013	9.24%	-3.43%	24.77***
2014	43.66%	18.88%	23.14***
2015	7.75%	-11.21%	27.13***
2016	20.63%	23.85%	-4.35***
2017	13.78%	17.30%	-8.94***
2018	1.91%	-8.08%	18.55***

Note: *, **, *** statistically significance at 0.1, 0.05 and 0.01 accordingly

The results of this study suggest that the return of high dividend and low beta Portfolio in the past 24 years from 1995 to 2018 was significantly higher than SET TRI Index for 19 years and significantly lower than SET TRI Index for 3 years. It can be concluded that the dividend yield of the stocks with high dividend yield tend to be higher than the market despite the period of low total return.

Figure 1 shows that if 1 Baht is invested at the beginning of 1995 in high dividend and low beta portfolio and SET TRI Index and the investment continues to 2018, in 2018, the value of high dividend and low beta portfolio would increase to 192.5 Baht while the value of SET TRI Index would grow to 2.645 Baht only, which can be concluded that high dividend and low beta portfolio obviously yielded better return than SET TRI Index.

Figure 1 Comparison of 1-Baht Investment in High Dividend and Low Beta Portfolio with SET TRI Index



Conclusion

Based on Gordon Growth Model and Capital Asset Price Model (CAPM), the expected stock return should depend on expected dividend yield and systematic risk measured by stock's beta. Theoretically, stocks with higher expected dividend yield and higher systematic risk should yield higher expected return. This study analyzed whether the dividend yield and beta value could be used to create investment strategies that win over the market.

According to the information about the listed companies in the Stock Exchange of Thailand during 1995 – 2018, The results showed that out of 24 years, there were 19 years where the return of high dividend and low beta portfolio was significantly higher than SET TRI Index.

Thus, it was found that high dividend and low beta portfolio yielded higher return that wins over the market. The stocks with high dividend having high expected return were in line with the theory. However, the stocks with low beta should be theoretically yielded low expected return resulted in high expected return than the market if dividend yield is used for establishment of high dividend and low beta portfolio.

References

- [1] Arnott, R.D. 2003. Dividends and the three dwarfs. *Financial Analysts Journal*, 59(2): 4-6. DOI: <https://doi.org/10.2469/faj.v59.n2.2510>
- [2] Baker, M., and Wurgler, J. 2004. A Catering Theory of Dividends. *Journal of Finance*, 59(3): 1125-1165. DOI: <https://doi.org/10.3386/w9542>

- [3] Baker, M., Bradley, B., and Wurgler, J. 2011. Benchmarks as limits to arbitrage: Understanding the low-volatility anomaly. *Financial Analysts Journal*, 67(1): 1-15. DOI: <https://doi.org/10.2469/faj.v67.n1.4>
- [4] Christoffersen, S.E.K., and Simutin, M. 2017. On the demand for high-beta stocks: Evidence from mutual funds. *The Review of Financial Studies*, 30(8): 2596–2620. DOI: <https://doi.org/10.1093/rfs/hhx022>
- [5] Dimson, E., March, P., and Staunton, M. 2002. *Triumph of the optimists: 101 years of global investment returns*. Princeton University Press, Princeton NJ and Oxford. ISBN: 978-0691091945, 352 p.
- [6] Gordon, M.J., and Shapiro, E. 1956. Capital equipment analysis: The required rate of profit. *Management Science*, 3(1): 102-110.
- [7] Gordon, M.J. 1959. Dividends, earnings and stock prices. *Review of Economics and Statistics*, 41(2): 99–105.
- [8] Graham, B., and Dodd, D. 1934. *Security analysis: Principles and technique*. New York and London: McGraw-Hill Book Company, Inc. ISBN: 978-0070244962, 725 pp.
- [9] Korn, O., and Kuntz, L.C. 2015. *Low-Beta investment strategies*. University of Cologne, Centre for Financial Research (CFR), Working Papers 15-1, SSRN Electronic Journal. DOI: <https://doi.org/110.2139/ssrn.2647474>
- [10] Lintner, J. 1965. The valuation of risk assets and the selection of risky investments in stock portfolio and capital budgets. *Review of Economics and Statistics*, 47(1): 13-37.
- [11] Long, P.D., and Hanh, N.T.T. 2019. Macroeconomic indicators and stock market prices: Evidence from Vietnam. *Journal of Applied Economic Sciences*, Volume IV, Spring, 1(63): 84-91. DOI: [https://doi.org/10.14505/jaes.v14.1\(63\).08](https://doi.org/10.14505/jaes.v14.1(63).08)
- [12] Markowitz, H. 1952. Portfolio selection. *Journal of Finance*, 7: 77-91.
- [13] Mcmillan, D.G., and Wohar, M.E. 2012. A panel analysis of the stock return-dividend yield relation: Predicting returns and dividend growth. *The Manchester School*, 81(3): 386–400. DOI: <https://doi.org/10.1111/j.1467-9957.2011.02281.x>
- [14] Mossin, J. 1966. Equilibrium in a capital asset market. *Econometrica*, 34(4): 768-783.
- [15] Safari, M. 2009. *Dividend yield and stock return in different economic environment: Evidence from Malaysia*. MPRA Paper 23841, 9 p. SSRN Electronic Journal. DOI: <https://doi.org/10.2139/ssrn.1503799>
- [16] Sharpe, W.F. 1964. Capital asset prices. *Journal of Finance*, 19(3): 425-442.
- [17] Sialm, C., and Starks, L. 2012. Mutual fund tax clienteles. *Journal of Finance*, 67(4): 1379-1422. DOI: <https://doi.org/10.1111/j.1540-6261.2012.01751.x>
- [18] Visscher, S., and Filbeck, G. 2003. Dividend-yield strategies in the Canadian stock market. *Financial Analysts Journal*, 59(1): 99–106. DOI: 10.2469/faj.v59.n1.2506
- *** TWEEDY, BROWNE FUND INC. 2007. *The high dividend yield return advantage: An examination of empirical data associating investment in high dividend yield securities with attractive returns over long measurement periods*. 1-19 pp. Available at: <http://csinvesting.org/wp-content/uploads/2012/06/high-dividends-research-by-tweedy-browne.pdf>