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Do Value Stocks Outperform Growth Stocks in the U.S. Stock Market?

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Abstract

The main objective of this paper is to compare the performance of value stocks and growth stocks in the U.S. market using the enterprise value (EV) of each firm. Four portfolios are formed, and the consistency of the performance of each portfolio is examined under different market conditions. Changes in performance are also be tested using returns on equity (ROE) as a proxy of future earnings. Finally, the impact of firm size on performance is investigated. Using the stocks of 4,952 firms for the period 15 years from January 2, 1999 to December 31, 2014, it has been shown that the value stocks outperform the growth stocks. These results are not changed with different holding periods. The requirement of ROE above 5 percent has the impact on the performance of growth stocks. In terms of firm size, it appears small firms are more profitable than large firms.

JEL classification numbers: G11, G14
Keywords: Value Investing Strategy, Value Stock, Growth Stock, Enterprise Value

1 Introduction

Various investment strategies have been developed and used by professional investors to earn high returns in the stock market. Among them, value investment strategy and growth investment strategy have probably been most popular in the investment community around the world. The difference between two strategies comes from different views on value ratios, such as Book/Market (B/M) ratio and Earning/Price (E/P) ratio. Value investors look for stocks with high value ratios because they believe that these stocks have strong current fundamentals for the book value and earnings power but incorrectly

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undervalued by the market now. Hence, share prices are expected to rise in the future when the valuation error is corrected by the market. Growth investors, however, buy stocks with future growth potential which can lead to a significant increase in stock prices in the long run. Growth stocks are expected to be currently trading at prices higher than their intrinsic value because of the growth potential and, accordingly, their value ratios are generally low. The idea behind the growth strategy is the efficient market hypothesis which states that the current stock price reflects all the information available about the firm and, therefore, the current price is most reasonable at that point of time.

Clearly, there are arguments on both sides and there is no “right” answer to the stock investment (Investopedia Staff, 2015). Since Fama and French (1988, 1992 and 1998) made an argument that there are permanent and temporary components of stock prices and abnormal profits could be realized by investing in value stocks, many empirical studies have been done to investigate this issue. As will be reviewed in the next section, however, most of these studies used B/M ratio and/or E/P ratio which are based on the equity market capitalization to identify value stocks and growth stocks. In our study, we use the enterprise value (EV) as a measure of a firm’s value instead of only using the market capitalization. EV is generally measured by market value of equity plus market value of debt minus cash. This has been highly advocated by investment professionals in measuring firm value. For example, Faulkenberry (2015) states that enterprise value is a key metric for value investors because it best represents the total value of a company and is capital structure neutral. EV can be used for calculating enterprise value ratios that provide important comparisons between companies. It is also argued (Forbes.com, 2012) that, by using enterprise value instead of market capitalization to look at the value of a company, investors get a more accurate sense of whether or not a company is truly undervalued. For an indicator of firm’s profitability, we use earnings before interest and taxes (EBIT) which represents financial performance of a firm better than net earnings, and as a measure of the firm value, the book value is also used.

The main objective of this paper is to compare the performance of value stocks and growth stocks in the U.S. market over the period of 1999-2014 using EV of each firm. Specifically, we examine the following four questions in this paper:

1. Do value stocks outperform growth stocks based on a new selection method?
2. How consistently does the performance of each portfolio behave under different market conditions?
3. Is there any change in the performance of portfolios with the consideration of return on equity (ROE) as a proxy of future earning?
4. Does the size of the firm matter in the performance of portfolios?

Previous studies have demonstrated superior performance of value stocks, but the existence of value premium has not been properly explained yet. This study will provide further evidence on the comparison of value stocks and growth stocks, and address important issues, such as market conditions, ROE, and firm size which can be useful to explain the premium (if it exists). This study will also be different from previous studies in using EV ratios instead of equity market capitalization ratios for the classification of value stocks and growth stocks.

2 Literature Review

Basu (1977) shows that value stocks with low P/E (Price/Earnings) ratios outperform growth stocks with high P/E ratios. Lakonishok, Shleifer and Vishny (1994) and Fama and French (1998) also show that there is strong evidence of a value premium in returns. Firms with high B/M or E/P ratios have higher average returns than firms with low B/M or E/P ratios. Cheh, Kim and Zheng (2008) examine the value investing hypothesis using the P/E ratio as a benchmark in finding cheap stocks relative to their earnings streams. They have found that investors can beat market averages by buying low P/E stocks and selling them after the prices of purchased stocks reach a certain level. For the Japanese market, Chan, Hamao and Lakonishok (1991) and Capaul, Rowley and Sharpe (1993) demonstrate that both B/M and E/P ratios have a strong role in explaining the cross-section of average returns. Athanassakos (2009), using P/E and P/BV (price to book value) in the Canadian market, found strong value premium over the period of 1985-2005 consistently in both bull and bear markets, as well as in recessions and recoveries. Basically, all these studies have shown that value stocks outperform growth stocks in the market as a whole.

However, the explanations about the existence of value premium are divided, as noted below by Fama and French (1998):

"Lakonishok, Shleifer and Vishny (1994) and Haugen (1995) argue that the value premium arises because the market undervalues distress stocks and overvalues growth stocks. When these pricing errors are corrected, distress stocks have high returns and growth stocks have low returns. Fama and French (1993, 1995 and 1996) argue that the value premium is a compensation for risk missed by the capital asset pricing model (CAPM) of Sharpe and Lintner (1965)."

In addition, there are limitations in using B/M and E/P ratios only to form an investment strategy, and the emphasis on low prices can mislead investors. Damodaran (2012) points out some of these limitations of an investment strategy using B/M or E/P ratio. He finds that while high ratio stocks may include a number of undervalued firms, it may also contain other less desirable firms. Those firms with prices well below book value or earnings are more likely to be in financial trouble and go out of business. Investors, therefore, should evaluate whether the additional returns can be made by such firms to justify the additional risk taken by investing into these firms. Greenblatt (2010) also discusses the risk of using B/M or E/M ratio. Each firm has different levels of debt and different tax rates. The high E/P or B/P ratios may yield riskier stocks than average stocks that have lower debt and lower tax. When a firm has borrowed a substantial amount, it is possible that its stock will be traded in such a way to generate a high E/P or B/M ratio. If investors pick stocks with high E/P or B/M ratio, they may end up with portfolios of the most highly levered firms with high tax burdens in each sector.

3 Methodology and Data Analyses

Due to the limitations of using E/P and B/M ratios in many prior studies as mentioned in the previous section, we use a more discerning method in defining value and growth stocks. In particular, the enterprise value (EV) is used instead of the price of equity which represented total market capitalization of a firm. EV is important for the purpose of our study because EV takes into account both the price paid for the equity in a firm as well as the debt financing used to help generate operating earnings. In addition, earnings before interest and taxes (EBIT) is used as a measure of the profit of the sample firms. EBIT is an indication of a firm's ability to generate profit from its operations, ignoring tax burden and capital structure which can differ across the sample firms. Hence, using EBIT, the results of this study will not be subject to different levels of debt and/or different tax rates of sample firms. Along with EBIT, the book value (BV) of the firm is also used in this study. BV represents net worth of a firm which is the difference between total assets and total liabilities. Hence, the following two ratios are used in this study to identify value stocks and growth stocks:

- EBIT/EV = earnings before interest and taxes / (market value of equity + net interest-bearing debt) and
- BV/EV = book value / (market value of equity + net interest-bearing debt),

where EV is more specifically defined and measured as market capitalization + total debt + value of preferred equity + minority interest (redeemable + non redeemable) - cash & equivalents.

Even though the EBIT/EV multiple is not commonly used in academic research to measure a firm's return on investment, it does have certain advantages in comparing companies. First, using EBIT as a measure of profitability eliminates the potential distorting effect of differences in tax rates. Secondly, using EBIT/EV normalizes for the effects of different capital structures (Investopedia.com). BV/EV ratio is a relative measure of book value and total market value of the business. A low BV/EV ratio indicates that the market assigns a higher value to the company due to the earnings power of the company's assets. Nearly all consistently profitable companies will have market values greater than book values (Investopedia.com 2015).

Next, ROE is used as a benchmark in finding good stocks relative to their future earnings streams. Certain requirements must be met to be included in sample firms whose business will be good in the future. The importance of ROE in stock investment has been well recognized by practitioners (The Motley Fool, 2016):

> "Disarmingly simple to calculate, return on equity is a critical weapon in the investor's arsenal, as long as it's properly understood for what it is. ROE encompasses the three pillars of corporate management -- profitability, asset management, and financial leverage. By seeing how well the executive team balances these components, investors can not only get an excellent sense of whether they will receive a decent return on equity but can also assess management's ability to get the job done."

Based on the results of some prior studies, other factors which can affect portfolio performance are also considered to control confounding effects: trading frequency, market conditions, and firm's size. In terms of trading frequency, Cheh et al. (2008) demonstrated that high E/P ratio vs. low E/P ratio in forming an investment strategy was far more complex than it appeared. They found that market conditions and trading frequency mattered in the interplay of high E/P vs. low E/P stocks. During the rising bull market, risk-adjusted returns of low E/P stocks were better than high E/P stocks when investors rebalanced their E/P portfolios annually. But more frequent rebalancing of the E/P portfolios tended to improve the performance of high E/P portfolios, while lowering the performance of low E/P portfolios. Senchack and Martin (1987) reported that the market conditions had the impact on the returns of portfolio. They examined how consistently the two strategies (value and grow stocks) behaved over several market

cycles. It has been found that value stocks offered better downside protection as well as comparable upside potential overall. Banz (1981) reported that the size of a firm could have an impact on the return of the portfolio. It has been shown that small firms generated the excess return and that, as the firms became bigger, the excess returns disappeared.
As the initial sample in our study, we used all stocks of 6,673 firms listed in Portfolio123[4] which were supplied by Compustat, Standard & Poors, CapitalQ, and Reuters during the study period from January 2, 1999 to December 31, 2014. Stocks that were not actively traded during the period were deleted, with the final sample of 4,952 firms each year. For each firm, we computed EBIT/EV and BV/EV at the beginning of each calendar year. The firms were then classified into value stocks and growth stocks based on the following criteria using the program available in Portfolio123:

Value portfolio: Frank(EBIT/EV) >=75 or Frank(BV/EV) >=75
Growth portfolio: Frank(EBIT/EV) <=25 or Frank(BV/EV) <=25

Stocks in the top 25th percentile with respect to EBIT/EV ratio or BV/EV ratio were included in value portfolios with the sample size of 1,364 firms and 1,256 firms, respectively, and those in bottom 25th percentile in growth portfolios with 840 firms measured by EBIT/EV ratio and with 733 firms as measured by BV/EV ratio. The high ratio of EBIT/EV or BV/EV indicated that the firm's stock was undervalued, and an excess return was expected when the market was recovered and the firm's assets were fairly valued by the investors. The performance results of each portfolio were computed and compared to the performance of S&P 500 as a proxy of the market index. The return performance of each portfolio was then computed using 3-months, 6-months and 1-year rebalancing frequency data which were available at the backtesting application form of Portfolio123, and their financial results were compared to the performance of the S&P 500. Next, ROE was introduced as a proxy for future earnings in order to eliminate the firms whose future growth was expected to be low or negative. Finally, the size effect was tested using the market capitalization of each firm.

4 Empirical Results

Table 1 shows the market capitalization of value stocks and growth stocks at the end of the study period, along with the sample size of each portfolio. The median market value of value stocks is $941.39 million based on EBIT/EV and $707.48 million based on BV/EV, and $89.28 million and $227 million respectively for growth stocks. Apparently, value firms are much larger than growth firms and the difference is even bigger when EBIT/EV is used for classification.

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[4]Portfolio123 provides the data on financial statements for retail investors to do basic financial analyses and also supplies a sophisticated high-level computer language that allows professional investors to build custom formulas and experiment with various value investing strategies. In addition, each star model has been backtested with screening rules and ranking systems. Portfolio123 also uses extensive databases from several data vendors and different investment strategies expressed in formula. Investors can make analyses of their investment strategies applying different screening or ranking methods. See portfolio123.com (2016) for more details.

Table 1: Market capitalization of value and growth stocks ($million)

Portfolios	Median market value	
	Value stocks	Growth stocks
Based on EBIT/EV	$941.39 (1,364 firms)	$89.28 (840 firms)
Based on BV/EV	$707.48 (1,256 firms)	$227.00 (733 firms)

4.1 The Return Behavior of Value and Growth Portfolios

The annualized returns of value and growth portfolios and S&P 500 during the study period are presented in Table 2. Annualized returns are the returns that should have been realized every year to earn total returns during the whole period. Clearly, the value stocks outperform the growth stocks by a considerable margin. The value portfolio based on EBIT/EV has annualized returns of 15.12 percent while growth portfolio based on EBIT/EV has annualized returns of 12.23 percent. Value stocks outperformed growth stocks by 23.63 percent. Similar results can be observed based on BV/EV. In terms of the risk, the value stocks also beat the growth stocks with lower risk. The value portfolio based on EBIT/EV has a systematic risk of 0.91 as measured by beta and total risk of 17.34 percent as measured by standard deviation of returns while the growth portfolio has a systematic risk of 1.22 percent and total risk of 32.72 percent. Based on BV/EV, growth stocks also have a slightly riskier than value stocks. In sum, value portfolios based on either EBIT/EV or BV/EV generated much higher returns than growth portfolios with lower risk. All four portfolios performed significantly better than S&P 500 (3.35 percent) in terms of returns, but with much higher risk than the market.

Table 2: Risk-return characteristics of value and growth portfolios: annual results

Portfolios	Value stocks			Growth stocks		
	Annualized return	Beta	Standard deviation	Annualized return	Beta	Standard deviation
Based on EBIT/EV	15.12%	0.91%	17.34%	12.23%	1.22%	32.72%
Based on BV/EV	16.09%	1.02%	22.38 %	12.92%	1.15%	24.63%
S&P500	Annualized return: 3.35% Standard deviation: 15.59%					

4.2 The Performance of Portfolios with Different Holding Periods

To examine the effect of using different holding periods, each portfolio was rebalanced with the holding period of 6 months and 3 months, and the results are shown in Table 3. Note that returns and standard deviations reported in Table 2 were obtained from annual rebalancing.

As we rebalance the portfolios more frequent, it is interesting to note that the returns are not necessarily going up and that, in some cases, returns are actually decreasing. For example, returns of growth stocks based on EBIT/EV are consistently decreasing: 12.23 percent with one year rebalancing, 8.59 percent with 6-month rebalancing and 7.83 percent with 3-month rebalancing. Returns based on BV/EV are somewhat mixed:12.92 percent, 10.50 percent, and 12.47 percent, respectively. For value stocks, returns based on BV/EV are decreasing from 16.09 percent with one year rebalancing, to 14.41 percent with 6-month rebalancing, and to 14.25 percent with 3-month rebalancing. Returns based on EBIT/EV are mixed: 15.12 percent, 14.40 percent, and 15.34 percent, respectively. However, standard deviations are all increasing without exceptions as we increase the rebalancing frequency.

Table 3: Returns and risk for 6-month and 3-month rebalancing

Portfolios	Value stocks		Growth stocks	
	Annualized return	Standard deviation	Annualized return	Standard deviation.
6-month rebalancing				
Based on EBIT/EV	14.40%	17.61%	8.59%	34.05%
Based on B/EV	14.41%	23.16%	10.50%	25.33%
3-month rebalancing				
Based on EBIT/EV	15.34%	18.48%	7.83%	35.83%
Based on BV/EV	14.25%	24.43%	12.47%	26.57%
S&P500	Annualized return: 3.35% Standard deviation: 15.59%			

In all cases, value stocks outperform the growth stocks by a significant margin with lower risks. Considering transaction costs and slight increase in risk, the holding period seems to have no significant impact on the performance of portfolios. In the subsequent sections, all discussions are based on the annual rebalancing.

4.3 Return Distribution

To provide more insight into how the relative performance might be explained, Table 4 contains various descriptive statistics on the frequency distributions of annualized returns for value and growth portfolios. Note that the value portfolio's 50th percentile (Mid) return as well as the 25th percentile (Q1) return are significantly higher than those of the growth portfolio. While percentile the value and growth portfolios have similar returns at the 75th percentile (Q3), the growth portfolios have a greater positive skew for their returns. It means that the value portfolios tend to produce fewer big losers and less big winners than the growth portfolios. In the last column, the skewness of value stocks based on EBIT/EV is slightly negative while that of other three portfolios is positive. That means, returns of value portfolio based on EBIT/EV is skewed to the left, when returns of other portfolios are skewed to the right.

Table 4: Distributional properties of returns with value and growth portfolio based on EBIT/EV and B/EV

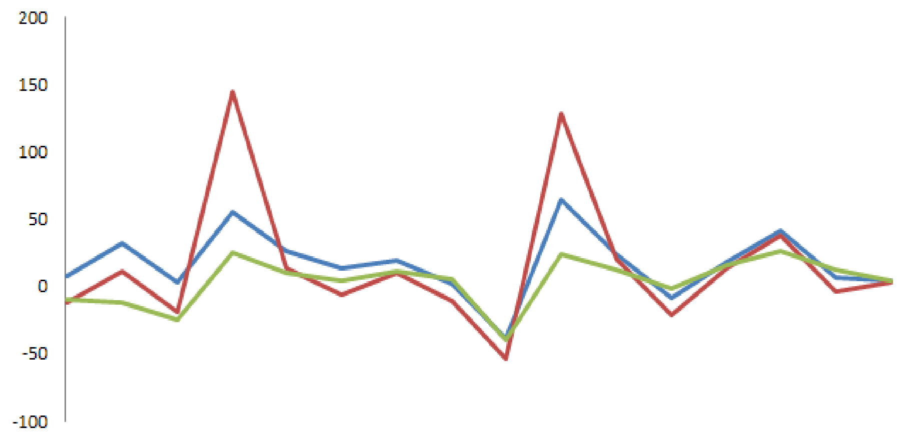
	Quantiles							
	Min	Q1 25%	Mid 50%	Q3 75%	Max	Range	Q1-Q3	Skew
Based on EBIT/EV								
Value Stocks	-38.73	3.92	15.67	27.60	62.44	101.17	23.68	-0.14
Growth Stocks	-50.16	-0.40	14.32	26.88	107.62	157.78	27.28	0.89
Based on BV/EV								
Value Stocks	-44.6	-0.18	12.04	27.68	95.9	140.5	27.86	0.88
Growth Stocks	-50.2	-4.66	4.27	23.11	115.7	165.9	27.77	1.24

Note: Q1 25% and Q3 75% stand for top 25% quantile and top 75% quantile in terms of returns, respectively, and Mid 50% stands for the median value.
Range = Max (maximum return) – Min (minimum return)

Let's compare the relative performance of the EBIT/EV and B/EV strategies. Consider the annual results in Table 4. The 25th percentile and median returns of the value EBIT/EV portfolio are 3.92 percent and 15.67 percent, respectively, which are higher than the corresponding returns of the value B/EV portfolio. These returns are -0.18 percent and 12.04 percent, respectively, indicating a less downside risk with the value EBIT/EV portfolio. While the EBIT/EV and BV/EV portfolios have similar returns at the 75th percentile, the BV/EV strategy has a greater positive skew for their returns. The differences in their relative performance seem to be explained by the fact that the EBIT/EV strategy provides more downside protection, but not much upside potential overall.

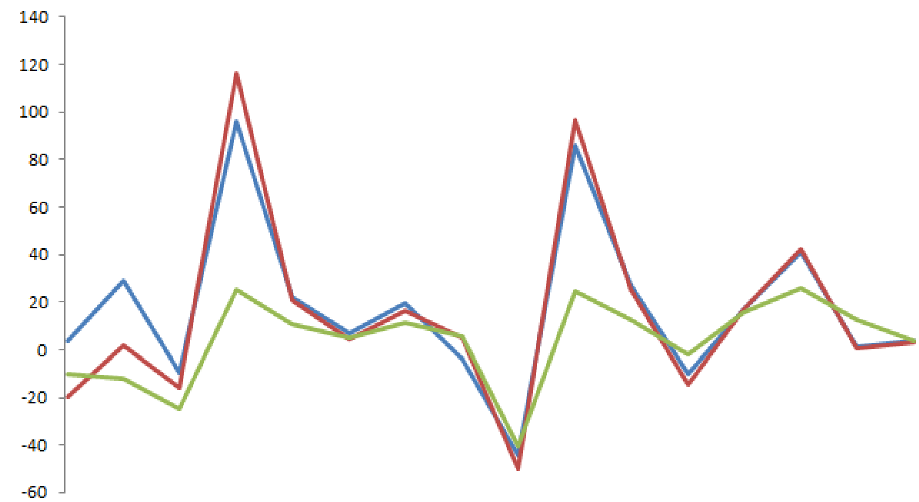
4.4 The Performance of Portfolios over Market Cycles

In this section, we examine how consistently value and growth portfolios behave over the up and the down markets. Note that our test period begins from the year of 1999 and ends in the latest bull market year of 2014. The annual returns of value and growth stocks based on EBIT/EV are graphically compared in Figure 1 using S&P 500 as the market index over the period, and the returns in Figure 2 are based on BV/EV. These figures mirror the results in Table 2 and Table 4 which indicate that the portfolios returns are more volatile than market returns, and value portfolio returns are less volatile than those of the growth portfolio.



	1999-12-25	2000-12-30	2001-12-29	2002-12-28	2003-12-27	2004-12-25	2005-12-24	2006-12-23	2007-12-22	2008-12-20	2009-12-19	2010-12-18	2011-12-17	2012-12-15	2013-12-14	2014-12-13
Value Ret%	7.179	31.67	3.252	54.84	25.99	13.58	19.33	2.116	-39.1	64.34	23.42	-8.35	18.13	41.89	6.185	4.151
GrowthRet%	-12.4	10.73	-18.7	144.4	13.74	-5.96	10.32	-10.6	-53.7	128.1	20.08	-21.3	13.29	38.26	-3.81	3.176
S&P500	-10.1	-12.1	-24.6	25.44	10.42	4.75	11	5.449	-40.2	24.43	12.71	-2.09	15.89	25.75	12.8	3.844

Figure 1: Market returns of value and growth portfolios based on EBIT/EV



	1999-12-25	2000-12-30	2001-12-29	2002-12-28	2003-12-27	2004-12-25	2005-12-24	2006-12-23	2007-12-22	2008-12-20	2009-12-19	2010-12-18	2011-12-17	2012-12-15	2013-12-14	2014-12-13
valueRet%	3.555	29.16	-9.83	96.03	21.96	7.051	19.81	-3.92	-44.6	86.07	27.11	-10.2	16.91	41.27	1.057	3.709
GrowthRet%	-19.6	1.921	-16.1	116	20.86	4.612	16.5	4.786	-50.2	96.42	25.44	-14.7	17.07	42.4	0.38	3.357
S&P500	-10.1	-12.1	-24.6	25.44	10.42	4.75	11	5.449	-40.2	24.43	12.71	-2.09	15.89	25.75	12.8	3.844

Figure 2: Market returns of growth portfolios based on BV/EV

With respect to returns, the value portfolio based on EBIT/EV outperforms the market in 13 out of 16 years as shown in Figure 1, and the growth portfolio outperforms the market in seven out of 16 years. Value portfolio returns are higher than growth portfolio returns in 14 out of 16 years, and the growth portfolio outperformed the value portfolio only in two years, but with a huge margin: 54.84 percent and 144.40 percent in 2002 and 64.34 percent and 128.10 percent in 2008 for the value portfolio and growth portfolio, respectively. For five years when the market suffered a loss, the value portfolio did always better than the growth portfolio. Figure 2 which is based on BV/EV, shows similar results with a few minor differences. The value portfolio outperformed the market in 11 years and the growth portfolio in nine years. Value portfolio returns are higher than growth portfolio returns only in 11 (versus 14 years based on EBIT/EV) out of 16 years, and the growth portfolio outperformed the value portfolio in five years but without a big difference in margin. For example, returns were 96.03 percent and 116.00 percent in 2002 and 86.07 percent and 96.42 percent in 2008 for the value portfolio and growth portfolio, respectively.

4.5 The Performance of Portfolios with a Requirement for High Return on Equity

As an attempt to improve the portfolio performance, we used the return on equity (ROE) as a benchmark in selecting our sample firms. ROE is a profitability ratio that has been widely used in portfolio management to measure a firm's ability to generate profits using the investments of shareholders. We computed ROE of each firm and selected the firms with ROE greater than or equal to 5 percent. From the original sample, the firms with ROE less than 5 percent were excluded. Final sample consisted of 1,099 firms in the value portfolio and 42 firms in the growth portfolio based on EBIT/EV, and 420 firms and 229 firms, respectively, based on BV/EV. The results are shown in Table 5.

Table 5: Annualized returns of stocks with ROE above 5%

Portfolios	Value stocks		Growth stocks	
	Annualized return	Standard Deviation	Annualized return	Standard Deviation
Based on EBIT/EV	14.19%	16.77%	15.28%	22.68%
Based on B/EV	15.12%	16.98%	12.56%	19.04%
S&P500	Annualized return: 3.35% Standard deviation: 15.59%			

Overall, it is surprising to see that the returns have not been much improved, comparing to the results without the ROE benchmark as presented in Table 2. In fact, the only portfolio with improvement was the growth portfolio based on EBIT/EV: 15.2 percent (Table 5) and 12.23 percent (Table 2) with and without the ROE benchmark, respectively. This is also the only growth portfolio that outperformed the value portfolio in our study. It should be also noted that standard deviations of all portfolios with the ROE benchmark are lower than those without. Apparently, the stability of performance has improved particularly for growth stocks. These results are intriguing in terms of growth stocks. It would be a good investment strategy to buy growth stocks with high ROE based on

EBIT/EV to expect a high return without high volatility.

4.6 The Size Effect of the Performance of Portfolio

It can be argued that large firms have certain inherent advantages over small or medium-sized firms in terms of return and risk. Among other things, lager firms have access to greater amounts of funds, higher quality employees, and well established customers. Hence, we dropped small firms from the sample and examined the returns and risk of large firms. As the measure of firm size, the market capitalization was used which is the total dollar market value of all outstanding shares. It is a measure commonly used in the investment community as a surrogate of firm size instead of total sales or total assets. The initial threshold of market capitalization was $250 million, and the large firms above the amount were 965 value firms and 181 growth firms based on EBIT/EV, and 560 value firms and 410 growth firms based on BV/EV. The portfolio performance of these large firms are presented in Table 6. As another threshold, the amount of $500 million was used due to the subjective nature of the definition of large firms, reducing the sample significantly to 789 value firms and 106 growth firms based on EBIT/EV and 397 firms and 349 firms, respectively, based on BV/EV. Table 7 shows the performance of these large firms.

Table 6: Annualized returns of the firms with market capitalization above $250 million

Portfolios	Value stocks		Growth stocks	
	Annualized return	Standard Deviation	Annualized return	Standard Deviation
Based on EBIT/EV	13.42%	18.32%	5.42%	27.07%
Based on B/EV	11.79%	21.23%	7.99%	22.16%
S&P500	Annualized return: 3.35% Standard deviation: 15.59%			

Table 7: Annualized returns of the firms with market capitalization above $500 million

Portfolios	Value stocks		Growth stocks	
	Annualized return	Standard Deviation	Annualized return	Standard Deviation
Based on EBIT/EV	13.47%	18.30%	5.04%	24.82%
Based on B/EV	11.76%	20.66%	8.41%	21.65%
S&P500	Annualized return: 3.35% Standard deviation: 15.59%			

Table 6 shows that value stocks outperform growth stocks by a considerable margin. The difference is especially significant with the EBIT/EV classification: 13.42 percent for value stocks and 5.42 percent for growth stocks, generating the value premium as much as 8 percent. In fact, the returns of four portfolios using large firms are lower than those using all sample firms in Table 2. An implication is that small firms are generally more profitable than large firms. It should be noted that the decrease in returns for growth stocks is particularly significant: from 12.23 percent to 5.42 percent based on EBIT/EV and from 12.92 percent to 7.99 percent based on BV/EV. An implication is small firms have much more growth potential than large firms. As expected, standard deviations of large firms are generally smaller than those of small firms. Increasing the threshold to $500 million to become large firms, as shown in Table 7 does not make much difference in terms of return and risk.

6 Conclusion and Implications

The main objective of this paper was to compare the performance of value and growth stocks with respect to their returns and risk. We used two bases using the enterprise value (EV) to classify value stocks and growth stocks: EBIT/EV and BV/EV. Consistency of the performance of each portfolio was examined under different market conditions. Changes in performance were also tested using returns on equity (ROE) as a proxy of future earnings, and finally, the impact of firm size on performance was investigated.

The overall results of this study show that the value stocks outperform the growth stocks as was found in many previous studies. Owning a portfolio of value stocks would have achieved an annualized return of 15 percent or higher during the study period of 16 years when the market's annualized return for S&P 500 was 3.35 percent. Growth stocks generated returns above 12 percent per year during the same period. Generally, there is strong evidence of a value-growth premium in the portfolio returns in the U.S. stock market.

With the different holding periods, the returns and risk of the value portfolio have not changed much. Risks are increased with growth stocks as the holding period is shortened. The requirement of ROE above 5 percent has the impact on the performance of growth stocks. The growth portfolios based on EBIT/EV registered higher returns than the value portfolios. However, when we narrowed the sample to the large firms, the value stocks tend to outperform the growth stocks.

Our study has several practical implications that are useful in the investing strategy. First, high EBIT/EV and BV/EV ratios may be a good indicator of the underpriced security. EBIT/EV and BV/EV ratios are a more discerning approach, compared to E/P and B/M ratios which have been used widely. It looks that using E/P and B/M to screen stocks is a rather simplistic approach in buying and selling decisions. With EBIT/EV and BV/EV ratios, we can utilize other fundamental data about the firm's debt position, tax, enterprise value and future earnings. Second, ROE can be useful in finding good stocks relative to firm’s future earnings streams. As a firm's earning is expected to grow, the performance of the growth stock also improves. It may be a good investment strategy to buy growth stocks with high future earnings. Finally, it should be noted that using the EBIT/EV and BV/EV ratios is one of the investment valuation methods available and should be used carefully with the understanding of the method in the context of the pros and cons of such various valuation methods. Future studies may use a more elaborate attribute-based system containing sets of screens that might produce even better results.

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