

A Comparison between Growth and Value Stocks of Listed Companies in Tehran Stock Exchange

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Abstract

Growth and value stocks are two important subjects in capital markets. First, these two stocks based on different variables such as Estimation of their amount of risks and returns, circumstances of obtaining returns at different periods in up and down market conditions were realized in Tehran Stock Exchange. Then Growth stock with Value Stock was compared through variables such as firm size, return and risk premium. The results show that firm size is not suitable to realize growth and value stock from each other. Also an investor by purchasing the growth stock obtains the risk premium more than value stock in up market and growth stocks returns are greater than value stock returns in Tehran stock exchange.

Keyword: Growth Stock, Value Stock, Firm Size, Stock Return and Risk premium.

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1- Introduction

Today's markets are so responsive to pricing actions. Price volatility is very high and unpredictable and also market rotation is reciprocal that is, more risky stocks produce lower returns and therefore the market does not act properly. According to above discussion, investors use the available financial information in order to analyze the previous performance of firms and categorize their stocks into growth stocks and value stocks. Growth stocks are stocks that their price is higher than the average in comparison with their current cash flows, earnings, dividends and book value. Consequently, in the long run, these expensive stocks will have lower returns for their holders. In contrast, value stocks have higher returns for their holders (Haugen, 2001). In an efficient market, differences between the performance of growth and value stocks are based on that, growth (expensive) stocks are more risky than value (cheap) stocks. Thus, portfolios with more growth stocks expect to have higher returns in comparison with portfolios with more value stocks. In other words, value stocks have lower price volatilities and therefore will have lower returns (Fama & French, 1992). Growth and value stocks will have different returns based on firm's size, time horizon (short-term, mid-term and long-term) and market's recession and brightness. For example, when time horizon of return calculation becomes longer, stocks' price trend will be inverted. In addition, when several positive and negative events occur, market will believe that this trend will continue in the long run. Thus, stocks' price will inflate due to this expectation. In other words, market will fall in to this trap that previous short success will continue in the future. When this trap is identified in the market, inflation of stocks will decrease and this leads to inverted stocks' trends in the long run. Also, if a stock has a better performance in one or two previous months, in comparison with its previous performances, it tends to have a lower performance in the next month. This reflected trend probably relates to price pressures (such as high volume of buying or selling firm's stocks that leads to higher or lower prices) that will be equalized in the future (Poterba & Summers, 1998). Small stocks will have higher returns than average in the long run. Perhaps, the reason is that investors hypothesize these stocks more risky and more expensive in comparison with expensive stocks. The information about these stocks is so limited because

the number of their active trading in the market is very low. Thus, traders expect that their price should be high. In other words, there is a great gap between buying and selling price of these stocks. Due to any reason, since 1926, these stocks have had higher rate of returns. Today, it is evident that value stocks are usually smaller than growth stocks. It means that, some of golden opportunities in the market are resulted from small stocks (Lakonishok et al, 1994).

The differences among value stocks and growth stocks and the effective variables on them lead investors to apply modern financial knowledge in order to buy or sell stocks. Basically, decision making about selecting of these stocks and also making a good portfolio from them are the important things that each investor should pay attention to it. In this research, growth and value stocks of Tehran Stock Exchange have been used in order to investigate that which of them a better performance in this market has based on three variables of size, risk premium and return. In order to investigate the research goal, three hypotheses will be used.

2- Literature Review

Mousavi investigated the effect of firm's size on investment returns during 1992-1996 and found that no linear relationship can be defined between return and firm's size with 95% of confidence. Then the researcher used R^2 coefficient to explain the size effect as an independent variable on return that is equal to 2.72%, 4.39% and 3.85% during 1993-1995, respectively. These stats show the degree in which total volatilities of return explain with size variable and also it shows other factors will affect the return. In other words, size has a weak effect on return. Also the researcher found that there is a linear relationship between P/E coefficient and return and P/E explains 10.5% of returns' volatilities (Mousavi, 1999). Nicholson surveyed 189 firms in banking, insurance, transportation and other industries during 1937-1963 and found that portfolios with the highest and the lowest P/Es had 32% and 90% price increasing, respectively. In other words, higher P/Es will produce higher returns (Nicholson, 1968). Jacobs & Levy concluded that stocks with low P/E had a good average return during 1978-1986. They also found that, even when low P/Es compare with other factors such as sales ratio the results were positive. In addition, they investigated the

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firm's size effect and found that the smaller firms had higher average returns in comparison with larger firms. Ultimately, they found that, the effect of size and other related and effective characteristics on return can be derived from macroeconomic events (Jacobs & Levy, 1989). Keim examined the effect of firm's size and E/P (Earning per share in comparison with current stocks' price) on stocks' returns during 1951-1986. The researcher used return, price and volume of issued stocks and found that return is inversely relates to market value and also average return is positively relates to E/P. In addition, portfolios of smaller firms with lower E/Ps have higher returns in comparison with larger firms with higher E/Ps (Keim, 1990). Fama and French found that, market value of stocks (MV) as a size index and book to market ratio (B/E) can explain most of stocks' average returns characteristics. They also indicated that, B/M ratio relates to profit and is a stronger and more important index in comparison with MV (Fama & French, 1992). Fuller, Huberts and Levinson categorized the studied firms based on E/P during 1983-1990 to find an answer for the question "are growth and value stocks have higher and lower growth than the average?" 20% of firms with the highest growth rate (cheap stocks) were categorized in the first group and this trend was continued until the last 20% of firms (firms with the lowest growth rate or growth stocks) that is categorized in the fifth group. Then, the relative rate of earnings for each group was observed during the period. The results shows that firms with the highest ratios (cheap value stocks), in the first year after categorization, approximately had grown 10% slower than the average group. On the other hand, firms with the lowest ratios (expensive growth stocks) approximately had grown 9% faster than the average group and the average group exactly maintains the expected trend (Fuller, Huberts & Levinson, 1993). Lakonishok, Schleifer & Vishny categorized the trading stocks of NYSE based on "book value" to "market value" during 1968-1989. They also made ten levels of portfolios based on B/E and sorted them from the highest B/E to the lowest. Then, they subtracted each stock's monthly return from each monthly portfolio's return with a comparable size in order to balance each level. Consequently, they found that in a high volatility market, "cheap value stocks" had a higher performance in comparison with "expensive growth stocks" in each level (Lakonishok, Schleifer & Vishny, 1994). Laporta studied expensive growth

stocks and cheap value stocks of 900 firms during 1982-1991 and found that expensive growth stocks had higher performance in comparison with cheap value stocks (Laporta, 1996). Berk indicated that, if the firm size measure in a correct way, smaller firms necessarily shouldn't have higher returns in comparison with larger firms. The results show that the effect of size on stocks return will remain as a secret even there were more empirical realities exist (Berk, 1997). Jensen, Johnson & Mercer investigated the effect of size (market size) and P/B on firms' stocks returns during 1965-1994 and found that both these factors will be important in the systematic risk and will affect the return. In addition, the importance of these factors relates to fiscal conditions (Jensen, Johnson & Mercer, 1997). Shiller and Campbell calculated price changes, income changes and P/E for each year during 1980-1989 and found that P/E doesn't follow the fast income growth. They also found that P/E and continuous growth of stocks inversely relate to each other (Shiller and Campbell, 1998). Shen stated that high P/E ratio will decrease investment income and short run performance of stock market. When P/E ratio is less than its long-term average, it tends to increase and vice versa. In addition, when P/E is high, price will increase slowly in the next decades. The results also indicated that there is a positive relationship exists between P/E and stocks return (price growth) (Shen, 2000). Trevino and Robertson investigated the relationship between P/E and stocks return during 1949-1997 and found an inverse relationship between these two variables. On the other hand, when periods become longer, average return will be decreased. Also they investigated the relationship among P/E, risk premium and interest rate and found an inverse relationship between risk premium and P/E (Trevino and Robertson, 2002). Gunnlaugsson examined the relationship between P/E and systematic risk and return in 75 firms of Iceland stock exchange during 1993-2003. The researcher formed four portfolios that range from number one with low P/E ratio to number four with high P/E ratio. The results indicated that number one portfolio had the highest return but; number four portfolio has the lowest return. In other words, the results show an inverse relationship between P/E and portfolios' systematic risk and return (Gunnlaugsson, 2005). Campbell et al(2005) indicated that the cash flows of growth stocks are sensitive to temporary movements in aggregate stock prices, while the cash flows of value stocks

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are sensitive to permanent movements in aggregate stock prices. Thus the high betas of growth stocks with the market's discount-rate shock, and of value stocks with the market's cash-flow shocks, are determined by the cash-flow fundamentals of growth and value companies. Gonenc et al(2003) studied the comparison of returns between value and growth, and between small and large capitalization portfolios for Istanbul stock Exchange (ISE). They believed that growth portfolios have superior performance over value portfolios. Thus, their results do not confirm the evidence from most developed and emerging markets. Moreover, inconsistent with the evidence from developed markets, monthly and annually small-large portfolio spreads favour large stock. These results reflect that the structure of the market and the fundamental of stock traded in the ISE differ from markets around the world. They showed that the average returns on value and growth portfolios are not sensitive to market movements. Size and B/M risk factors along with market risk premium produce better descriptions of the returns on value and growth portfolios. Fama and French(2007), classified average returns on value and growth portfolios into dividends and three sources of capital gain: (1) growth in book equity, primarily from earnings retention, (2) convergence in price-to-book ratios (P/Bs) from mean reversion in profitability and expected returns, and (3) upward drift in P/B during 1927-2006. The capital gains of value stocks trace mostly to convergence: P/B rises as some value companies become more profitable and their stocks move to lower-expected-return groups. Growth in book equity is trivial to negative for value portfolios but is a large positive factor in the capital gains of growth stocks. For growth stocks, convergence is negative: P/B falls because growth companies do not always remain highly profitable with low expected stock returns. Relative to convergence, drift is a minor factor in average returns. Gulen et al(2008) showed that the expected value-minus-growth returns display strong countercyclical variations by using the Markov switching framework of Perez-Quiros and Timmermann (2000). Under a variety of flexibility proxies such as the ratio of fixed assets to total assets, the frequency of disinvestment, financial leverage, and operating leverage, they believed that value firms are less flexible in adjusting to worsening economic conditions than growth firms, and that inflexibility increases the costs of equity in the cross section.

The differences between growth and value stocks and the effective factors on them lead investors to use the modern financial knowledge in order to invest in stocks based on market conditions and time periods. Growth and value stocks are those stocks that have differences based on risk, return, recession and brightness, time horizon, firm size and so on. Decision making about their selection and forming profitable portfolio is very important to investors. Also their selection is difficult and ambiguous for investors. This article tries to find that, in an ideal condition, what kind of stocks do investors buy?

In other words, which kind of stocks will have a better performance, growth stocks or value stocks? In order to solve this problem, firm size, risk premium and return of firms in Tehran Stock Exchange have been used. The objective of this research is to compare growth and value stocks based on the above variables. Therefore, three hypotheses have been made in order to investigate the above objective. Ultimately, results, conclusions and further research recommendations will be discussed in the next sections.

3- Data and Methodology

The statistical universe of this research is the entire listed firms of Tehran Stock Exchange during 2001-2008 which their financial year is ended on the last day of the year. This statistical universe includes 123 active firms and all data and results are based on these firms. There is no data sampling had done here and all 123 firms were used in order to achieve the objective.

Data of this research were extracted from annual financial statements and from weekly, monthly and annual formal information about these active firms that were issued by Tehran Stock Exchange. Then, the proper statistical analysis was used in order to achieve the required results. In order to examine the variables, SPSSwin software has been used.

Hypotheses:

- Average size of firms with growth stocks has a significant difference with average size of firms with value stocks.
- Average risk premium of firms with growth stocks has a significant difference with average risk premium of firms with value stocks.

- Average return of firms with growth stocks has a significant difference with average returns of firms with value stocks.

4- Results

4-1- Hypothesis testing of significant difference between average sizes of firms with growth stocks with average size of firms with value stocks.

H_0 : average size of firms with growth stocks doesn't have a significant difference with average size of firms with value stocks. H_0 :

$$\mu_{size(v)} = \mu_{size(g)}$$

H_1 : average size of firms with growth stocks has a significant difference with average size of firms with value stocks. H_1 :

$$\mu_{size(v)} \neq \mu_{size(g)}$$

Based on table(1), there was no significant relationship had been found between size of the firms with growth and value stocks in mentioned periods, that it means firms' size factor is not suitable for diagnosing growth and value stocks from each other and doesn't have explanatory power for P/E. Thus, it can be concluded that firms' size is not a factor that an investor can use it for identifying and buying growth and value stocks in Tehran Stock Exchange.

4-2- Hypothesis testing of significant difference between average risk premium of growth stocks and average risk premium of value stocks

H_0 : average risk premium of growth stocks doesn't have a significant difference with average risk premium of value stocks. H_0 : $\mu_{risk(v)} = \mu_{risk(g)}$

H_1 : average risk premium of growth stocks has a significant difference with average risk premium of value stocks. H_1 : $\mu_{risk(v)} \neq \mu_{risk(g)}$

Based on table(2), average risk premium of growth stocks are higher than average risk premium of value stocks in 2001 to 2004, but the result of 2005 to 2008 is into reverse. Thus, there was no significant difference between growth and value stocks in the total period of 2001-2008. Regarding the result of this test in the up market, we can conclude that an investor gets a higher risk premium by buying growth stocks rather than value stocks in up market.

4-3- Hypothesis testing of significant difference between growth stocks returns and value stocks returns.

H₀: average return of growth stocks doesn't have a significant difference with average return of value stocks. $H_0: \mu_{Ri(v)} = \mu_{Ri(g)}$

H₁: average return of growth stocks has a significant difference with average return of value stocks. $H_1: \mu_{Ri(v)} \neq \mu_{Ri(g)}$

In this hypothesis, due to P/E ratio of the year 2000 should be used for the test and some firms that were active in Tehran stock exchange in 2001 and weren't listed in Tehran stock exchange in year 2000, there were no tests had been done for year 2001.

With respect to table (3), average returns of value stocks were higher than average returns of growth stocks in 2003 and 2004. Furthermore, the average return of these types of stocks didn't have any significant difference in 2002, 2005, 2006, 2007, 2008 and the total period of 2001-2008. Therefore, it can be concluded that investors can have higher returns if they buy value stocks rather than growth stocks in the up market (namely years 2003 and 2004).

4-4- Correlation test results among return, risk premium and size

1- Positive complete correlation between return and stocks' risk premium in total periods.

2- Positive correlation between return and firm size in total periods (0.26).

4-5- Correlation test results among return, risk premium and size with concentration on growth or value stocks.

By concentrating the effect of growth and value stocks variables on firm size, risk premium and stocks' return, correlation between return and risk premium were almost is equal over eight years. In addition, the correlation between firm size and stocks' return only in year 2002 was positive. Consequently, it can be concluded that growth and value stocks variable doesn't have an important effect on the correlation between risk premium and return and correlation between firm size and stocks' return.

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4-6- Growth of firm size, stock return and risk premium

The stat shows the growth of firm size, return and risk premium during 2001-2008. It indicates that size variable was declined and two other variables were increased during above periods.

4-7- ANOVA test results with iterative amounts for return, risk premium and size variables

During the 8 year period, Time variable had 57%, 40% and 67% effect on return, risk premium and firm size, respectively. Consequently, explanatory effect of time was higher on return in comparison with risk premium and firm size.

5- Summary and Conclusion

About the first hypothesis, Jacobs & Levy concluded that stocks with low P/E had a good average return during 1978-1986. They also found that, even when low P/Es compare with other factors such as sales ratio the results were positive. In addition, they investigated the firm's size effect and found that the smaller firms had higher average returns in comparison with larger firms. Ultimately, they found that, the effect of size and other related and effective characteristics on return can be derived from macroeconomic events. Keim examined the effect of firm's size and E/P (Earning per share in comparison with current stocks' price) on stocks' returns during 1951-1986. The researcher used return, price and volume of issued stocks and found that return is inversely relates to market value and also average return is positively relates to E/P. in addition, portfolios of smaller firms with lower E/Ps have higher returns in comparison with larger firms with higher E/Ps. Jensen, Johnson & Mercer investigated the effect of size (market size) and P/B on firms' stocks returns during 1965-1994. They found that both these factors will be important in the systematic risk and will affect the return. In addition, the importance of these factors relates to fiscal conditions. These results of these three researches are in contrast with the results of the first hypothesis results. Berk indicated that, if the firm size measure in a correct way, smaller firms necessarily shouldn't have higher returns in comparison with larger firms. The results show that, the effect of size on return will remain as a secret even there were more empirical realities exist. Mousavi

investigated the effect of firm's size on investment returns during 1992-1996 and found that no linear relationship can be defined between return and firm's size with 95% of confidence. Then the researcher used R^2 coefficient to explain the size effect as an independent variable on return that is equal to 2.72%, 4.39% and 3.85% during 1993-1995, respectively. These stats show the degree in which total volatilities of return explain with size variable and also it shows that other factors will affect the return. In other words, size has a weak effect on return. Also the researcher found that there is a linear relationship between P/E coefficient and return and P/E explains 10.5% of returns' volatilities. The results of these two researches are compatible with the results of the first hypothesis.

About the second hypothesis, Trevino and Robertson investigated the relationship between P/E and stocks return during 1949-1997 and found an inverse relationship between these two variables. On the other hand, when periods become longer, average return will be decreased. Also they investigated the relationship among P/E, risk premium and interest rate and found an inverse relationship between risk premium and P/E. These results are in contrast with the results of the second hypothesis.

About the third hypothesis, Nicholson surveyed 189 firms in banking, insurance, transportation and other industries during 1937-1963. They found that portfolios with the highest and the lowest P/Es had 32% and 90% price increasing, respectively. In other words, higher P/Es will produce higher returns. These results are compatible with Jacobs & Levy (1989). Lakonishok, Schleifer & Vishny categorized the trading stocks of NYSE based on "book value" to "market value" during 1968-1989. They also made ten levels of portfolios based on B/E and sorted them from the highest B/E to the lowest. Then, they subtracted each stock's monthly return from each monthly portfolio's return with a comparable size in order to balance each level. Consequently, they found that in a high volatility market, "cheap value stocks" had a higher performance in comparison with "expensive growth stocks" in each level. These results are compatible with Trevino and Robertson (2002). Gunnlaugsson investigated the relationship between P/E and systematic risk and return in 75 firms of Iceland stock exchange during 1993-2003. The researcher formed four portfolios that range from number one with low P/E ratio to number four with high P/E ratio. The results

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indicated that number one portfolio had the highest return but; number four portfolio has the lowest return. In other words, the results show an inverse relationship between P/E and portfolios' systematic risk and return. These results are compatible with the results of the third hypothesis. Shen stated that high P/E ratio will decrease investment income and short run performance of stock market. When P/E ratio is less than its long-term average, it tends to increase and vice versa. In addition, when P/E is high, price will increase slowly in the next decades. The results also indicated that there is a positive relationship exists between P/E and stocks return (price growth). These results are compatible with Keim (1990). The results of these two researches are in contrast with the results of the third hypothesis.

6- Suggestions:

- Based on the value criteria such as P/E, fundamental analysis seems to be necessary. Managers can analyze their target stocks (stocks with higher returns) by investigating them in the desired time period.
- It is recommended to investors to buy stocks with lower P/Es in order to reach higher returns.
- It is recommended to investors not to pay attention to firm size criteria in identifying growth and value stocks.
- Due to time sensitivity of stocks return, it is recommended that investors pay more attention to stocks return than size and risk premium, in order to control the portfolio's profitability.
- In order to apply risk premium in selection of growth or value stocks, it is recommended to use balanced risk premium. In other words, if firm's stocks make a high risk premium for stock holder, how much risk is suffered?

Table 1: Results of the first hypothesis

Year/ Period	Levene test= equality of variances			T-student test= equality of averages							Test results
	Variances	F	Level of significance	t	df	Level of significance	Average differences	SD	Level of confidence (95%)		
									Low limit	High limit	
2001	Unequal	3.6	0.013	1.47	121	0.146	526	358	-186	1239	Acceptance of H ₀
2002	Unequal	3.9	0.049	0.98	121	0.331	432	442	-445	1309	Acceptance of H ₀
2003	Equal	0.04	0.83	-0.86	113	0.39	1020	1182	-3360	1321	Acceptance of H ₀
2004	Unequal	16.8	0.000	1.43	39	0.159	2586	1803	-1060	6231	Acceptance of H ₀
2005	Unequal	14	0.000	1.45	49	0.153	2253	1551	-865	5370	Acceptance of H ₀
2006	Unequal	8.15	0.005	-1.90	80	0.06	-2178	1145	-4458	101	Acceptance of H ₀
2007	Equal	2.39	.125	-1.02	121	.309	-1759	1722	-5168	1651	Acceptance of H ₀
2008	Equal	3.17	.078	-1.25	121	.216	-2060	1655	-5337	1217	Acceptance of H ₀
2001-2008	Unequal	6.63	.011	-1.77	92	.081	1137	643	-2414	141	Acceptance of H ₀

Table 2: Results of the second hypothesis

Year/ Period	Levene test= equality of variances			T-student test= equality of averages							Test results
	Variances	F	Level of significance	t	df	Level of significance	Average differences	SD	Level of confidence (95%)		
									Low limit	High limit	
2001	Equal	2.16	0.145	3.63	114	0.000	-52	14	--80	24	Rejection of H ₀
2002	Unequal	3.96	0.049	-4.1	66	0.000	-80	19.6	-119	41	Rejection of H ₀
2003	Unequal	5.22	0.024	-2.7	59	0.009	-56	22	-102	15	Rejection of H ₀
2004	Unequal	5.92	0.017	-2.18	112	0.031	-21	9.6	-40	-1.94	Rejection of H ₀
2005	Equal	1.99	0.161	-0.88	114	0.38	-5	5.79	-17	6	Acceptance of H ₀
2006	Equal	1.48	0.226	0.017	121	0.986	.191	11	-22	22	Acceptance of H ₀
2007	Equal	.007	.933	-.48	121	.63	-6	12.5	-31	19	Acceptance of H ₀
2008	Equal	.468	.495	-1.81	121	.073	-13	7	-26	1.2	Acceptance of H ₀
2001-2008	Equal	.077	.783	.388	121	.699	1.69	4.35	-7	10	Acceptance of H ₀

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Table 3: Results of the third hypothesis

Year/ Period	Levene test= equality of variances			T-student test= equality of averages							Test results
	Variances	F	Level of significance	t	df	Level of significance	Average differences	SD	Level of confidence (95%)		
									Low limit	High limit	
2001	Equal	-	-	-	-	-	-	-	-	-	-
2002	Unequal	0.44	0.509	1.91	121	0.058	-35	18	-71	1	Acceptance of H ₀
2003	Unequal	6.85	0.010	2.58	117	0.011	44	17	10	77	Rejection of H ₀
2004	Equal	3.03	0.084	3.17	121	0.002	36	11	13	58	Rejection of H ₀
2005	Equal	2.21	0.139	1.11	121	0.269	6.42	5.79	-5	18	Acceptance of H ₀
2006	Equal	1.396	0.24	.066	121	0.948	.724	11	-21	23	Acceptance of H ₀
2007	Equal	.007	.93	-.48	121	.63	-6	12.5	-31	19	Acceptance of H ₀
2008	Equal	.468	.495	-1.8	121	.073	-12.6	6.96	-26	1.2	Acceptance of H ₀
2001- 2008	Equal	.06	.81	.41	121	.684	1.78	4.34	-7	10	Acceptance of H ₀

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