

Investment styles in Tehran Stock Exchange

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ABSTRACT

This study examines four major investment styles and their properties and identifies and evaluates their performance in achieving efficiency due to risk. The application- descriptive method of survey is used in this study. The statistical population of this research includes all companies listed on Tehran Stock Exchange. Tadbir Pardaz and Rah Avard Novin software are used for data collection. Test of Equity and ordinary least squares regression method (OLS) by Eviews6 software are used in order to analyze data statistically. Test results show that value investment style has less weighted return compared to mean growth investment style but there is no significant difference between two styles systemic risk and growth style performance is higher than value style in terms of trainer index. The mean return of small stock investment style is not significantly different compared to mean great stock return but systemic risk is significantly different between two styles and big stocks bear higher systemic risk and the performance of these two styles is not different in terms of trainer index.

KEYWORDS: growth style, value style, small stocks, big stocks, Fama and French model

1. INTRODUCTION

Investors are interested in more profits and reduced risk of their investments. They attempt to form Portfolio in order to reduce risk through diversifying investments or obtain maximum efficiency for a certain level of risk. With the formation of portfolio, non-systematic risk can be eliminated. Selecting improved portfolio needs estimation of both systematic risk and securities return. Various models have been introduced for risk evaluation and portfolio return over the years [8].

Investment style term has emerged long in financial literature but it has been defined differently, for example, value style is investment in companies that have low rates of stock price to book value, but it is called as investment in financial assets whose price is equal to intrinsic value in some papers. Investment style concept only has become a comprehensive concept in recent years but style has become a necessary concept in development, analysis and evaluation of investment strategies performance. Style creates a view through which investor recognizes fundamental variables of price changes in stock market [1]. According to researches, a variety of investment styles are mentioned in various articles as follows: value style, growth style, income style, growth style with reasonable prices, immediate style, basic style, investment style based on capital size and intrinsic value investment style [6]. According to literature and previous studies, 4 styles of value, growth, small and big stock size styles are among the major styles of investment that each of them, their characteristics and the way of portfolio construction related to each style will be considered the next part of research. Fama and French model that reflects the basic philosophy of this style is examined. Finally, styles performance will be evaluated using information obtained from capital market. This performance can be influenced by many factors, including liquidity of stocks, financing of company and professional or institutional investor. In the case of selecting investment style, we can say that investment styles become sometimes fashion and go out of fashion, but their selection key is that investors selects a style that suits him.

LITERATURE

Investment style

Investment style is a method through which finance director or investor analyzes, selects, purchases and sales securities [6]. Four styles of value, growth, small and big stock styles are as major investment styles that will be discussed each of them.

Value investment style

"Value stock is a stock whose price is less than market mean in terms of cash flows, earnings, dividends and book values".

Investors of value style try to purchase stocks that have high $\frac{BV}{MV}$, $\frac{E}{P}$ and $\frac{D}{P}$; they examine analysts' reports and accounts of companies whose stock is lower than market value [9]. In other words, in this type of investment style investors identify cheap stocks that are less common [5]. A value investor captures stocks through the evaluation of criteria such as $\frac{P}{B}$ (price to book value). Value stocks have low $\frac{P}{E}$ and have potentially higher dividends than total market. Ratios that are used in value strategies include: Dividend earning, rate of price to earnings ($\frac{P}{E}$) or price rate to Par value of stock; such firms have some characteristics such as lower expected income growth [3][5].

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In recent years, value stocks have focused on relatively stable industries such as: Stock of service or food companies. Investor who uses value investment style, buys (sells) stocks that are priced lower (higher) than their fundamental value; value investment can be shown using mathematic model:

$$\text{Equation (2-5)} \quad N_{i,t} = \frac{1}{2n} [P_{i,t}^* - P_{i,t}] \quad i=1,2,3,\dots,n$$

Here $N_{i,t}$ is value investment demand for i^{th} stock at time t ; $P_{i,t}^*$ is fundamental value of i^{th} stock at time t ; and $P_{i,t}$ is price of i^{th} stock at time t [1].

Growth investment style

Growth investors invest in firms with high growth expectations. Stocks of such firms have relatively high income, dividend or par value and high P/E; in general, sign of value companies include: anticipating high return growth over next one to five years- high rate of return - high rate of growth per quarter- standardized unexpected earning(SUE) [11]. In general, growth investors increasingly invest in company stocks that have had faster growth than average during past periods and have high ability to grow. Here, growth is measured by factors such as increased earnings or sales of a company. Managers of companies that are among the companies with stock growth tend to accumulate earnings and avoid from interest payment because they want to re-invest any available cash in company. Therefore, growth investors gain investment return mainly from increased stock prices [4].

Some of general characteristics that are used in order to identify growth stocks include: [7]

Historical growth rate (past process) and predicted growth for book value is high.

The return on equity (ROE) is at least equal to industry or equal to average past 5 years.

Earning per stock (EPS), in particular, earning before tax is higher than average industry or average past 5 years.

Capital size capitalization style

This style focuses on company capital. Company size that is determined by market capital includes big, medium, small and very small; company stocks can be or not be pleasant for market conditions. Investors select companies with big capitals in order to achieve stable returns and predictable revenue. But small companies can provide immediate potential growth and often have good income in weak economic environments but have little risk coverage [6].

We will explain briefly types of capital stocks:

- Micro- cap: small company portfolios include market very small stocks. For example, The ABN Amroilbs micro-cap TM includes company stocks whose capital size is less than 1% compared to UK stock market.

Small- cap: it is stock of companies with small capital size, for example: Hoarte govett list is list of small firms in UK stock exchange. These companies have capital size of less than 10% total market.

- Big stocks: Investors of this style invest in big companies and their stocks are called Blue chips.

While small stock style and micro stock investors hope for good performance of small firms, investors of big stocks prefer investment security of market leaders [3].

The reason is big number of stocks and shareholders of big companies that increase the purchase and sale of stocks by shareholders. As a result, the liquidity risk of big company shareholders is reduced; as a result investors will expect lower return due to reduced risk.

The final reason is short investment horizons of many investors. Investors usually prefer that their investment benefits in the form of stock dividend because capital dividend is obtained in long-term. The willingness of investors to earn dividends and more confidence to gain dividends in big companies lead investors to expect lower returns in big companies [2][10].

The hypothesis

1. The value investment style in Tehran Stock Exchange provides higher returns compared to growth investment style.

2. The small stock styles provide more efficiency compared to big stock style of Tehran Stock Exchange.

3. The growth investment style of Tehran Stock Exchange has less systematic risk compared to value investment style.

4. Big stock style of Tehran Stock Exchange has less systematic risk compared to small investment style.

5. Growth investment style of Tehran Stock Exchange provides better performance compared to value investment style.

6. Big stock investment style of Tehran Stock Exchange provides better performance compared to small stock investment style.

METHODS

This study is applied in terms of aims and descriptive- correlation in terms of methodology. The method of this research is correlational survey using historical data. The dependent variable of this study is stock portfolio return and independent variables include: Market portfolio return, market value of company, the ratio of book value to market value. The relationship between dependent and independent variables is obtained from Fama and French model (1992) that is as below equation (1-1):

$$\text{Equation (1-1)} \quad R_i = a_i + b_i(R_m - R_f) + s_i(SMB) + h_i(HML)$$

R_i = portfolio return

R_m = market return

R_f = risk-free return

SMB = small portfolio standardized mean return- big portfolio standardized mean return

HML = (portfolio 3 standardized mean return+ portfolio 6 standardized mean return) – (portfolio 4 standardized mean return+ portfolio 1 standardized mean return)

Now, if we examine the stock portfolio performance of $\frac{BV}{MV}$, it is said that value investment strategy is studied and if we examine the stock portfolio performance of low $\frac{BV}{MV}$, it is said that growth investment strategy is studied [5]. The statistical population consists of all companies listed on Tehran Stock Exchange.

Sampling method is judgmental. Since statistical community must be matched to some variables, then, previous research methods have been used and companies with the following characteristics are excluded from study:

1. The companies whose symbols have been closed for more than 3 consecutive months during one financial year;
2. The lost companies
3. Companies operating in financial intermediaries industry (the reason for non- selection of financial companies is high leverage ratio of mentioned companies that necessarily means their financial weakness);
4. Companies that no trade is done for more than three months on their stocks and
5. Companies that their fiscal year is other than March month have been removed from selected sample. Number of companies that has been qualified is 115 companies in 2003 to 101 companies in 2008.

Data needed to test hypothesis are collected from databases such as Tadbir Pardaz and Rah Avad Novin and financial statements of companies.

Test of Equity is used in order to analyze hypotheses. Each coefficient of regression model is studied by t test and F-test and Durbin- Watson test are used in order to examine model significance. Also, Eviews6 and Excel software is used.

Data analysis

The first hypothesis

$H_0: PR_v \leq PR_g$: value portfolio return is less than or equal to growth portfolio return

$H_1: PR_v > PR_g$: value portfolio return is higher than the growth portfolio return

According to Table of hypothesis 1 test results, t-statistic test is calculated as 1.8125. Referring to table, the critical value of t is 1.8125 at significance level of 0.05 and degrees of freedom 10. Since the calculated t statistic is greater than table t, H0 hypothesis is rejected, but according to these two styles, growth style has higher return compared to value style. Therefore, first hypothesis is rejected based on the fact that "value investment style of Tehran Stock Exchange provides higher returns compared to growth investment style".

Table 1. The results of first hypothesis mean test

	t'	Degrees of freedom (df)	Test statistics	S	M
L (low book tomarket value)	1.8125	10	2.38	42.36	46.66
H (High (book tomarket value)				15.24	2.81

Second hypothesis

$H_0: PR_s \leq PR_B$: small portfolio return is less than or equal to big portfolio return

$H_1: PR_s > PR_B$: small portfolio return is higher than big portfolio return

Table 2. The results of second hypothesis mean test

	t'	Degrees of freedom (df)	Test statistics	SD	Mean
S (small portfolio)	1.65	142	1.13	17.51	2.65
B (bigportfolio)				8.27	0.064

Test statistic is placed in region, H0 hypothesis is not rejected and H1 hypothesis is rejected. Therefore, this hypothesis is rejected based on the fact that "small companies have higher returns compared to big companies".

Third hypothesis

$H_0: \beta_v \leq \beta_g$: systematic risk of growth portfolio is higher than or equal to systematic risk of value portfolio

$H_1: \beta_v > \beta_g$: systematic risk of growth portfolio is less than systematic risk of value portfolio

According to Table (3), hypothesis test results show that calculated t-statistic is 0.557. Since this value is less than table t (1.8125), therefore, H0 hypothesis is not rejected.

Table 3. The results of third hypothesis mean test

	t'	Degrees of freedom (df)	Test statistics	SD	Mean
β (value portfolio)	1.8125	10	0.557	0.473	1.14
β (growth portfolio)				0.538	0.97

Therefore, third hypothesis is not confirmed based on the fact that "systematic risk of growth style (β) is less than value style".

Fourth hypothesis

$H_0: \beta_S \leq \beta_B$: systematic risk of big portfolio is higher than or equal to systematic risk of small portfolio

$H_1: \beta_S > \beta_B$: systematic risk of big portfolio is less than systematic risk of small portfolio

Table 4. The results of fourth hypothesis mean test

	t'	Degrees of freedom (df)	Test statistics	SD	Mean
β (small portfolio)	1.65	142	10.408	0.257	0.689
β (bigportfolio)			19.135	0.450	1.330

Since test statistic is placed in region H0, mean risk of both portfolios is significantly different; but given the mean systematic risk of both portfolios, the big portfolio systematic risk (mean 1.330) is higher than small portfolios systematic risk. Therefore, fourth hypothesis is rejected based on the fact that “big portfolio systematic risk is less than small portfolio systematic risk”.

Fifth hypothesis

$H_0: T_v \geq T_g$: growth portfolio performance is less than or equal to value portfolio

$H_1: T_v < T_g$: growth portfolio performance is higher than value portfolio

Table 5. The results of fifth hypothesis mean test

	t'	Degrees of freedom (df)	Test statistics	SD	Mean
T (value portfolio)	1.8125	10	2.203	20.497	7.841
T(growth portfolio)				24.025	36.256

Since test statistic is placed in region H1 and mean performance of growth portfolio is higher than value portfolio, then H0 hypothesis is rejected. Therefore, fifth hypothesis is not rejected based on the fact that “performance of growth portfolio is higher than value portfolio”.

Sixth hypothesis

$H_0: T_B \leq T_S$: big portfolio performance is less than or equal to small portfolio performance

$H_1: T_B > T_S$: big portfolio performance is less than small portfolio performance

Table 6. The results of sixth hypothesis mean test

	t'	Degrees of freedom (df)	Test statistics	SD	Mean
T (small portfolio)	1.6	142	0.286	29.432	-1.116
T (big portfolio)	5			6.379	-0.1000

As Table (6) shows, calculated t-statistic of (0.286) is higher than critical t value, therefore H0 is not rejected. Therefore, sixth hypothesis is rejected based on the fact that "investment performance of big stocks is better than small stocks".

Fama and French model results using regression method

Following three regressions are used in order to examine the relationship between portfolio returns of market return Premium, size premium and book value to market value Premium.

Regression 1

This regression shows the relationship between portfolio returns and market returns that is the single factor model of CAPM and is calculated as follows.

$$R_i = -1.444 + 0.0065(R_m - R_f)$$

Table 7. regression test results number 1

Variable name and symbol	Durbin-Watson Statistics	Model significance level (F)	Determination coefficient (R ²)	Significance level of variable (p)	t statistics	Coefficient (β_1)
market returns premium $R_i - R_f$	1.9668	0.003	0.113	0.0038	2.9942	0.0065

The regression determination coefficient is 0.113, that is, 11.3% of return changes is justified by market return and this indicates that factors other than market factors affect portfolio return.

"Significance F" test determines whether independent variables are good estimators of dependent variables or not. The test hypotheses are as follows:

H0: None of independent variables are good estimators of dependent variable.

H1: At least one of independent variable is good estimators of dependent variable.

If a regression is Significance F < 0.05, then H0 hypothesis is rejected and H1 hypothesis is confirmed.

In regression 1, since Significance F < 0.05, then H1 hypothesis is confirmed based on the fact that market return premium variable is good estimator for stock return.

Durbin- Watson statistics (DW) of model shows that H0 hypothesis is not rejected based on the lack of correlation between models residual, as a result, the model will not have autocorrelation problem.

Regression 2

The regression shows the relationship between monthly returns of portfolio and excess return of market risk and size premium that is calculated as follows:

$$R_i = -1.444 + 0.0030(R_m - R_f) + 0.2029SMD$$

Table 8.regression test results number 2

Variable name and symbol	Durbin-Watson Statistics	Model significance level (F)	Determination coefficient (R ²)	Significance level of variable (p)	t statistics	Coefficient (β ₁)
market returns premium R _i - R _f	1.81	0.0098	0.125	0.0061	2.829	0.0030
Size premium (SMB)				0.3377	0.965	0.2029

The regression determination coefficient is 0.125, that is, 12.5% of return changes is justified by market return and size and this indicates that factors other than market and size factors affect portfolio return.

Since "Significance F" of regression 2 is less than 0.05 and is equal to 0, at least one of independent variable is good estimator of dependent variable.

"P Value" is zero for independent variable of market return premium but it is greater than 0.05 for size premium and variable, so, the variable is good estimator of stock return (dependent variable). Considering Durbin- Watson statistics that is about 2, there is no autocorrelation problem of model.

Regression 3

The regression shows the relationship between annual returns of excess portfolio, annual returns of market premium, annual size premium and annual book value to market value premium and is calculated as follows:

$$R_i = -1.444 + 0.0030(R_m - R_f) + 0.19SMD + 0.76HML$$

Table 9.regression test results number 3

Variable name and symbol	Durbin-Watson Statistics	Model significance level (F)	Determination coefficient (R ²)	Significance level of variable (p)	t statistics	Coefficient (β ₁)
market returns premium R _i - R _f	2.11	0.0798	0.125	0.0061	2.829	0.0141
Size premium (SMB)				0.3377	0.965	0.19
book to market value premium (HML)				0.0347	1.98	0.76

Since "Significance F" of regression 3 is more than 0.05 (about 0.08), it can be said that at least one independent variable is good estimator of dependent variable.

"P Value" is less than 0.05 for both independent variables of market return premium and size premium, so, these variables are good estimators of stock return (dependent variable).

RESULTS

The first hypothesis

Table 1 results show that first hypothesis is rejected. In fact, hypothesis 1 test results show that growth style has high return compared to value style. The research findings are inconsistent with Lakenshik et al. (1994), Fama and French (1996 and 2007), Basu (1997) studies. The question is why mean growth stock return is higher than mean value stock return of Tehran Stock Exchange for period under study?

One reason may be that Big Fool theory is rules in Iran capital market; this means that investors consider mostly stock history and capital gain growth in determining purchase style and consider that stocks with previous price growth will have the same trend in future. Therefore, in such a stock, a major portion of returns is due to capital gain not cash earning. This leads to increased returns of growth styles compared to returns from cash earning of value stock and finally leads to increased growth stock returns versus value stock returns.

The second hypothesis

Table 2 results show that the hypothesis is rejected. This means that in companies listed on Tehran Stock Exchange, size does not affect significantly on standardized portfolio stock return of large and small companies. The results of second hypothesis are consistent with Fama and French (1996 and 2007), Taromi (2006) and Bagherzadeh (2005) studies. Moreover, the results of testing this hypothesis are not consistent with Brailford & Brein (2008) and O'Berin et al (2010) studies.

The third hypothesis

The third hypothesis results suggest that there is no significant difference between systematic risk of growth style and value style. Systematic risk represents part of overall risk that affects all securities (total market) uniformly and cannot be removed or controlled through the creation and diversifies of portfolio. Since beta is able to predict stock return changes largely and given that there is significant difference between returns of both value and growth styles there is no significant difference in their systematic risk; it can be said that factors or other variables related to stock returns of value and growth styles of Tehran Stock Exchange and at the time horizon of study so that beta as an indicator of systemic risk is not able to attract their role.

The fourth hypothesis

The results of fourth hypothesis indicate that mean standardized systematic risk of big portfolios is higher than small portfolios. Company size that is determined by market capital includes big, medium, small and very small companies; companies stocks can be pleasant or not for investors depending on market conditions. Investors select companies with large investments in order to achieve stable returns and predictable revenue of companies with great capital. Small companies can provide immediate potential growth and have appropriate income in weak economic environment, but have little risk coverage. The results show that there is no significant difference between two styles. These findings may be due to the fact that big companies of Tehran Stock Exchange have high capital and have high distribution. Given that there is no significant difference between mean returns of small and big portfolios and are tested in second hypothesis, it is expected that small stock performance is higher than large stocks.

The fifth hypothesis

Fifth hypothesis test results show that growth investment style performance is higher than value investment. The research findings can be explained with results of first and third hypotheses and growth style return is higher than value style but their systematic risk is not significantly different. Since performance index is trainer index that is, return ratio to systematic risk $T = \frac{R}{\beta}$ is, it can be concluded that growth investment style of Tehran Stock Exchange has better performance in study period.

The sixth hypothesis

Sixth hypothesis test results show that there is no significant difference between investment style performance of large stocks and small stocks. As a result, it can be stated that size factor does not affect on returns, risk and stock performance.

In general, it can be said that there is no high style but as mentioned previously, some styles have better performance than other styles with regard to economic situation; for example, growth style before 1990 had better performance than value style. Given the descriptions on style, investors can select appropriate style in selecting stocks and bonds that have better performance; in other words, if investors select their investment style due to the overall market situation, they can select the best style and have the best performance. However, according to research and studies on this issue, it is possible to say that instantaneous and growth styles have better performance than other styles in terms of short-term returns. However, they have higher returns in terms of risk taking and variation, then it can be said that investors with a bold strategy can use these styles.

Suggestions

1. Since adoption of investment style and its performance is important for investors, investment managers are recommended to consider investment time horizon, financial stability, liquidity constraint and investors risk taking degree in selecting investment style.
2. It is recommended that stock exchange creates the most important indices which reflect the stock performance of big, small, value and growth companies.
3. Since need for self-employment and support from small or in bankruptcy firms is important now, it is recommended that investors use growth and small stock style in their investment.
4. Investors are recommended to buy stocks with full consciousness and don't rely only on stock history.
5. Investors are recommended that according to their aim of buying stocks, selecting growth investment style with the aim of having less systematic risk compared to value investment style will be wrong.
6. Tehran Stock Exchange is recommended to held specialized training courses for shareholders and those interested in entering the stock market in order to prevent their affecting mistakes and attract more people to stock market

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