FIN3080 Assignment2 Report

Things to read:

Monthly return is in percentage form, that is, *monthly return* (%)

P/B ratio is in percentage form, that is, *P/B ratio* (%)

ROE is in percentage form, that is, *ROE* (%)

Volatility is also in percentage form, as by calculus, 1 % change ≈ 100 log in change, that is, in this report, *volatility* = 100 * *volatility* denoted in the dataset.

Problem 1.

The regression result is:

P/B ratio = 11.30996 + 1.723531 *ROE* + 8.696626 *volatility* + ε

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. reg PB_ratio ROE volatility
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Source	SS	df	MS	Number of obs	=	1,380
				F(2, 1377)	=	109.54
Model	7783108.49	2	3891554.25	Prob > F	=	0.0000
Residual	48918258.5	1,377	35525.2422	R-squared	=	0.1373
				Adj R-squared	=	0.1360
Total	56701367	1,379	41117.7426	Root MSE	=	188.48

PB_ratio	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
ROE	1.723531	.4083823	4.22	0.000	.9224124	2.52465
volatility	8.696626	.6133399	14.18	0.000	7.493444	9.899807
_cons	11.30996	28.22442	0.40	0.689	-44.05755	66.67747

Figure.1 Regression Result

Findings:

Intercept coefficient $\boldsymbol{\alpha}$ is 11. 30996, but it is not statistically significant (p-value is 0.689). This implies that when *ROE* and *volatility* are both zero, *P/B ratio* is not significantly different from zero.

ROE coefficient $\boldsymbol{\beta 1}$ is 1.723531, and it is statistically significant (p-value is 0.000). This implies that one percentage change in *ROE* will 1.72 percentage change in *P/B ratio*.

Volatility coefficient $\boldsymbol{\beta 2}$ is 8.70, and it is statistically significant (p-value is 0.000). This implies that one percentage change in *volatility* will lead to 8.70 percentage in *P/B ratio*.

Discussion:

The positive relationship between *ROE* and *P/B ratio* shows that more profitable companies are preferred by the investors and thus, the investors are willing to pay more to own the stocks.

The positive relationship between *volatility* and *P/B ratio* shows that companies with higher volatilities are quite welcome by the investors, and volatility has even stronger effect than ROE.

The huge difference between ***β1*** and ***β2*** may show that the investors in A-share market prefer to speculating stocks that were once at high position or booming up fast rather than buy the truly under-valued stocks at a low price.

Problem 2:

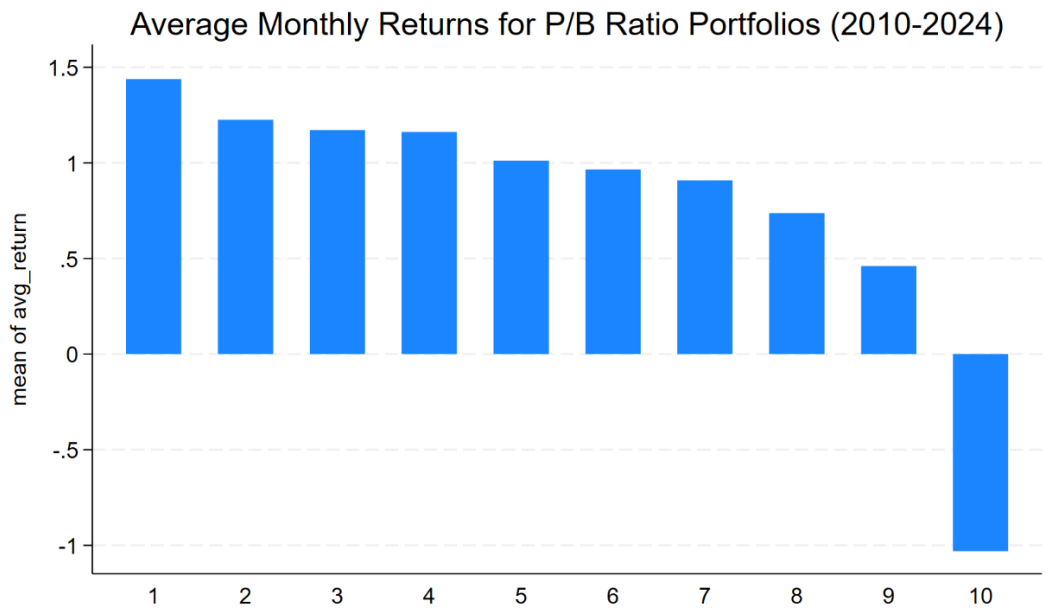

Figure.2 Average Returns for the Ten Portfolios from Jan. 2010 to Dec. 2024

Discussions:

By chart, we can see that the *average monthly returns* are negatively correlated with *P/B ratios*. The analysis is as follow.

1. High P/B ratios may mean the over-heated market mood, the stock prices are overvalued and move far beyond the intrinsic value. Therefore, when the correction comes, almost every stock with high P/B ratio will fall down sharply and seldom bounce up within a short time.

2. Low P/B ratios often appear in the firms of traditional industry like electricity, harbor, and bank. The investors may undervalue this kind of stocks because they think the growth rate of these firms are quite low. However, these firms' potential is unleased during the development of country leading to an increase in the stock price.