

Research on the correlation between financial performance and enterprise value of GEM listed companies

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Abstract: This paper empirically studies the correlation between financial performance and enterprise value of listed start-ups from 2010 to 2015. Taking enterprise value and stock return as dependent variables, the return on total assets, return on net assets, asset liability ratio and earnings per share are independent variables. The results show that the return on total assets has a significant positive correlation with enterprise value; Return on equity has a significant positive relationship with stock returns; The asset liability ratio has a significant negative relationship with both enterprise value and stock return; Earnings per share are significantly negatively correlated with enterprise value and stock return. It is worth noting that earnings per share can not reflect the enterprise value and stock return, indicating that the risk of new ventures is high, and the stock price is vulnerable to multiple influences. It is a weak efficient market, and there may be speculation. The above research results can provide investors with reference.

Key words: enterprise value; Stock return rate; Financial performance indicators; Listed startups

1. Introduction

1.1 Research background and motivation

Since 1990, with the popularity of knowledge economy, a large number of high-tech enterprises have grown rapidly. For the development of high-tech industries, many countries follow the example of NASDAQ to set up the growth enterprise market. Many scholars at home and abroad have done research on the correlation between financial performance and enterprise value. Domestic scholars used Tobin Q as a tool to measure enterprise performance to study the correlation of enterprise performance. The research results showed that there was a significant positive correlation between Q value and the company's financial indicators such as return on total assets, return on net assets, earnings per share (Chen Ruixue, 2018; Li Ying, 2013; Dong Feng, 2010). This paper discusses the correlation between financial indicators and enterprise value of GEM listed companies.

1.2 Research purpose

This paper takes GEM listed companies as the research object, and takes 2010-2015 as the research interval to study the correlation between the financial performance indicators of GEM listed companies and the enterprise value. Understanding the enterprise value helps to reduce the investment risk of investors. The purpose of this paper is as follows:

1. The correlation between financial performance indicators and enterprise market value.
2. The correlation between financial performance indicators and stock returns.

1.3 Scope of study

This study takes the listed companies on the growth enterprise market in Shanghai and Shenzhen stock markets from 2010 to 2015 as an example. The industries cover 14 industries, including agriculture, forestry, animal husbandry and fishery, mining, manufacturing, hydropower and gas, and finance.

2. Literature discussion

2.1 Return on total assets and long-term and short-term business performance

Chenruixue (2018) used the fixed effect model to analyze 100 pharmaceutical stocks from 2011 to 2017, and the return on total assets index was significantly positively correlated with the return on stocks; He Xiaoyu (2017) studied 403 GEM listed companies with the grey correlation model, and the results showed that the return on total assets was significantly positively correlated with the enterprise value represented by Tobin's Q; Dong Feng (2015) used Tobin's Q as an index to measure the value of the company and analyzed the data of Listed Companies in Shanghai and Shenzhen stock exchanges in 2010. The results showed that Tobin's Q had a significant positive relationship with the return on total assets; Zou Lihan (2013) selected indicators such as stock return and return on total assets for analysis. The analysis results showed that there was a significant positive correlation between the return on total assets and Tobin's Q. When the return on total assets increased, Tobin's Q also increased, and the company's enterprise value increased, which means that the company has good growth.

2.2 Return on net assets and long-term and short-term business performance

The research results of lizhenliang and Wang Jiao (2019) show that the return on equity is positively correlated with tobin's Q; Daiyameng (2019) believes that the return on net assets representing the return of enterprises has a positive correlation with tobin's Q representing the value of enterprises; Wang Fei (2019) showed that the return on equity and stock return were significantly positively correlated; Qiuqihang, Zhang Li and zhengtianxiang (2018) showed that tobin's Q of enterprise value was significantly positively correlated with return on equity; Chenruixue (2018) empirically concluded that the return on equity and the return on equity showed a significant positive correlation; Zhuhongyi (2018) found that the return on equity has a significant positive relationship with the return on equity; Dong Feng (2015) found that tobin's Q has a significant positive relationship with return on equity; Liuxuanying (2010) believes that the return on equity has a positive impact on the return on equity; Zhangsining (2006) concluded that tobin's Q was positively related to return on equity by discussing the relationship between profitability and enterprise value of Listed Companies in China.

2.3 Earnings per share and long-term and short-term business performance

According to Zhang Yuanyuan (2016), earnings per share has the most significant impact on stock returns, which is positively correlated, indicating that investors can focus on earnings per share when investing on the gem; Li Ying (2014) studied the enterprise value evaluation system. The results showed that the greater the earnings per share, the higher tobin's Q; Yangxiaoyan (2008) selected A-share companies as the research object, and used regression analysis and factor analysis to empirically analyze the sample from January 2006 to April 2007. The analysis results showed that among all explanatory variables, earnings per share had the greatest impact on stock return, with a significant positive impact; Zhang sining (2006) found that tobin's Q and earnings per share showed a positive change in the relationship between earnings and enterprise value of Listed Companies in China.

2.4 Asset liability ratio and long-term and short-term business performance

Dong Feng (2015) concluded in the empirical study that tobin's Q has a significant negative relationship with the company's asset liability ratio. The higher the company's debt ratio, the smaller the cash guarantee ability, and the lower the company's market value and investment value; He ronghua (2008) studied the correlation between the earnings quality of the SME board and the stock return rate. The results showed that the higher the asset liability ratio of listed companies, the greater the risk, and the lower the stock return rate; However, yangxiaoyan (2008) used regression analysis and factor analysis to empirically analyze the sample. The results showed that asset liability ratio had a significant positive impact on stock return.

3. Research methods

3.1 Research architecture

According to the motivation and purpose of the study, after referring to relevant literature and theories, this paper discusses the relevance of financial performance indicators such as return on total assets (ROA), return on net assets (ROE), earnings per share (EPS), and asset liability ratio (DA) to enterprise value and stock return, as shown in Figure 1.

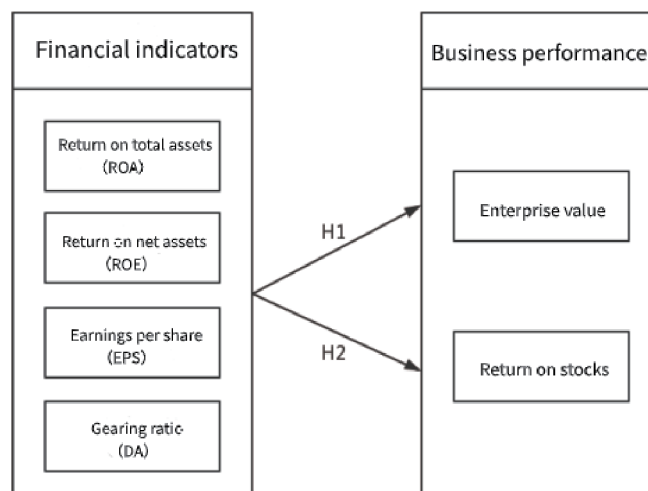


Figure 1 research architecture

3.2 Research hypothesis

According to the above literature discussion, it shows that there is a significant positive relationship between the company's financial indicators and enterprise value (Liyang, 2014; Dongfeng, 2015; he Xiaoyu, 2017; lizhenliang and Wang Jiao, 2019; Dai Yameng, 2019; Qiu Qihang, Zhang Li and zhengtianxiang, 2018), and the higher the return on total assets, return on net assets, earnings per share and other indicators, It means that the better the asset operation of the enterprise, the better the earnings per share, and investors will give high evaluation to the enterprise. The higher the asset liability ratio, the greater the financial risk of the enterprise. Therefore, the higher the asset liability ratio, the investors will give a negative evaluation to the enterprise (lizhenliang and Wang Jiao, 2019; Qiu Qihang, Zhang Li and zhengtianxiang, 2018). Therefore, this paper establishes the following hypothesis:

H1: financial performance indicators have a relevant impact on enterprise value.

H1a: return on total assets has a positive impact on enterprise value.

H1B: return on equity has a positive impact on enterprise value.

H1C: earnings per share has a positive impact on enterprise value.

H1d: asset liability ratio has a negative impact on enterprise value.

Many scholars have studied the correlation between financial performance indicators and stock return. The empirical results show that there is a significant positive correlation between total asset return, net asset return, earnings per share and stock return, and earnings per share has the most significant impact on stock return (Chen Ruixue, 2018; Zou Lihan, 2013; Wang Fei, 2019, Zhang Yuanyuan, 2016). He ronghua (2008) showed that the asset liability ratio of listed companies was negatively correlated with the stock return rate, indicating that the higher the asset liability ratio, the greater the risk, and the lower the stock return rate. Therefore, this paper establishes the following hypothesis:

H2: financial performance indicators have a relevant impact on stock returns.

H2A: return on total assets has a positive impact on stock return.

H2B: return on equity has a positive impact on stock return.

H2C: earnings per share has a positive impact on stock return.

H2D: asset liability ratio has a negative impact on stock return.

3.3 Research samples and data sources

This study takes the GEM listed companies from 2010 to 2015 as the research object, and the data are obtained from the mainland financial data and corporate governance data of Taiwan economic news database. Among them, 1040 were from the manufacturing industry, 296 from the information technology industry, and 290 from other industries, a total of 1626 enterprise samples.

3.4 Definition and measurement of variables

According to the above hypothesis, this paper will verify the correlation between financial indicators and enterprise value. The variables of enterprise value should include tobin's Q representing long-term performance and stock return representing short-term performance. The financial indicators are independent variables including return on total assets (ROA), return on net assets (ROE), earnings per share (EPS) and asset liability ratio (DA).

1. Return on total assets (ROA): a measure of an enterprise's ability to use all its assets to make profits.

Return on total assets = EBIT / average total assets × 100%

= (total profit + interest expense) / average total assets × 100%

2. Return on equity (ROE): a measure of the return on investment received by corporate shareholders.

Return on net assets = net profit / average total net assets × 100%

3. Earnings per share (EPS): a measure of the profit generated by each share invested.

Earnings per share = (net profit after tax preferred stock dividends) / average number of ordinary shares issued

4. Asset liability ratio (DA): a measure of the degree of protection of claims.

Debt ratio = Total Liabilities / total assets × 100%

5. Tobin's Q: measure the long-term performance of enterprises.

Tobin's q = (market value of equity + total liabilities) / book value of total assets

6. Stock return rate: measure the short-term performance of enterprises.

Stock return rate $r = (\text{share price in year } n - \text{share price in year } n-1) / \text{share price in year } n-1$

3.5 Regression analysis model

In order to get the correlation between financial performance indicators and enterprise value, regression analysis of variables is carried out to verify the above hypothesis. The empirical model is as follows:

Tobin's $Q_{i,t} = \alpha_0 + \alpha_1 ROA_{i,t} + \alpha_2 ROE_{i,t} + \alpha_3 EPS_{i,t} + \alpha_4 DA_{i,t} + \varepsilon_{i,t}$ (3-1)

$$R_{i,t} = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 ROE_{i,t} + \beta_3 EPS_{i,t} + \beta_4 DA_{i,t} + \varepsilon_{i,t} \quad (3-2)$$

Where, I is the company, t is the year, $tobin's\ q$ is the long-term operating performance of the enterprise, and R is the stock return rate, representing the short-term operating performance of the enterprise.

4. Empirical results and analysis

4.1 Narrative statistical analysis

This paper makes a descriptive statistical analysis on the above research samples. According to the narrative statistical results, the maximum value of $tobin's\ q$ is 19.395, the minimum value is 0.218, the average is 2.33, and the standard deviation is 2.29; The maximum stock return rate is 5.568%, the minimum is -0.745%, and the average is 0.51%; There is a big difference between the maximum and minimum return on total assets and return on net assets; The maximum value of earnings per share is 2.25, the minimum value is -2.12, the average is about 0.3, and the standard deviation is 0.36; The maximum value of asset liability ratio is 84.64%, the minimum value is 1.11%, and the average is 24.55%. The standard deviation of asset liability ratio is the largest, which is 15.71, indicating that the indicator form is relatively discrete.

4.2 regression analysis

In this paper, $Tobin's\ Q$ and stock return are used as indicators to measure the long-term and short-term business performance of enterprises, and the return on total assets, return on net assets, earnings per share, and asset liability ratio are used as financial performance indicators to explore the correlation between financial indicators and business performance of China's GEM listed companies.

1. Correlation between financial performance indicators and enterprise value

The results of full sample regression analysis show that the return on total assets is positively correlated with enterprise value, which is statistically significant ($t=3.859, p<0.01$). H1a is supported. The higher the return on total assets, the higher the enterprise value; The correlation between return on equity and enterprise value is negative, and it is not statistically significant ($t=1.578, p>0.1$), H1B is not supported; Although earnings per share and enterprise value reached a statistically significant level ($t=-14.42, p<0.01$), they were negatively correlated, which was inconsistent with the H1C proposed above, and the hypothesis was not supported; The correlation between asset liability ratio and enterprise value is negative and statistically significant ($t=2.768, p>0.1$), which is consistent with the H1D proposed above, and this hypothesis is supported. The return on total assets is positively correlated with enterprise value. Return on equity and enterprise value are both positive but not significant. Earnings per share and enterprise value are significantly negative. Only the information technology industry has a significant negative correlation between the asset liability ratio and enterprise value.

2. Correlation between financial performance indicators and stock return

According to the empirical results, there is no significant relationship between the financial indicators and the stock return rate in 2014. The regression analysis results of the whole sample from 2011 to 2015 showed that there was a positive relationship between the return on total assets and the return on stocks, but it was not significant ($t=1.584, p>0.1$); There is a positive correlation between return on equity and return on equity, which is statistically significant ($t=3.281, p<0.01$), and H2B is supported; Although earnings per share and stock return reached a statistically significant level ($t=-5.745, p<0.01$), they were negatively correlated, which was inconsistent with the H2C proposed above, and the hypothesis was not supported; The correlation between asset liability ratio and stock return rate is negative and statistically significant ($t=-6.932, p<0.01$), which is consistent with the H2D proposed above, and this hypothesis is supported.

5. Conclusions and suggestions

5.1 Conclusion

This paper uses the relevant data of GEM listed companies from 2010 to 2015 as the research sample, and uses SPSS software for regression analysis to explore the correlation between the financial indicators of GEM listed companies and enterprise performance, so that investors can judge whether the enterprise's performance can be inferred from the financial indicators. After referring to the relevant literature on the correlation between enterprise financial indicators and business performance, this paper puts forward the corresponding research hypothesis. The empirical results of this paper show that the return on total assets has a positive impact on enterprise value; The positive impact of return on equity on enterprise value is partially significant; Earnings per share has no positive impact on enterprise value; Asset liability ratio has a negative impact on enterprise value; The positive effect of return on total assets on stock return is partially significant; Return on equity has a positive impact on stock return; Earnings per share has no positive effect on stock return; Asset liability ratio has a negative impact on stock return.

5.2 Recommendations

Only by increasing the content of publicly disclosed growth information and risk information, strengthening investor education, strengthening rational investment, and paying attention to fundamental data, that is, financial indicators, can we make correct decisions in

long-term investment.

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