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Puzzle of Growth and Futher: Growth and Valuation, Principle and Application

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Abstract

How to valuate a fast growing event? Will a company be in the further that it is fast growing now? According to valuation theoretical basis of modern finance, the paper direct towards the growth and value of the basic industries listed companies of A-stocks in SSE by empirical research with simplifies relevant parameters. The results include the stock price preferences, return on investment, profitability, and future condition.

Key words: Growth; Valuationg; Growth; Basic industies; Emprical research

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INTRODUCTION

Is rapid growth always valuable? Will rapid growth be worth? Does cash cow mean have valuation? How about relationship between company's valuation and company's growth rate? Is list-companies' stock price over their valuation? How about the relationship between growth and efficiency? Chinese high growth is a highlight in world economics; in which of Chinese basic industries always plays a leader of economic, empirical research on such growth of sustainability maybe provide some answers.

We can't catch the accurate data of corporation's valuation, such as we can't correctly get the equilibrium price even if in the complete market. However, we can estimate the corporation's true value based on researching relationships between growth and efficiency, which according to modern corporation financial theories by simplifying the real world questions.

1. VALUATION: IN MODERN CORPORATION FINANCE THEORIES

1.1 Factors: Theorial Analysis

Based on modern corporate financial theory, the valuation of company is its ability of cash flow creation. Based on cash flow, there are many valuation measurements, such as market price/accounting earnings, market price/free cash flow, market price/earnings before depreciation amortization interest and taxes; and there are many price measurements, such as EP ratio, price/free cash flow per share, price/EBDAIT per share. There are measurements based on assets, such as EB ratio.

Assume that cash flow is sustainable, and capital structure is stable, then

$$MV = \frac{CF}{WACC - g}$$

Here, "MV" means market price, "CF" means free cash flow, "g" is growth rate, and it refers to free cash flow growth rate.

We can assume earnings per share is sustainable, in the main time, the shareholders' cash flow available is EPS, then

$$P = \frac{E}{K_e - g}$$

Simply transform that format, we can get

$$\frac{P}{E} = \frac{1}{K_e - g}$$

In order to keep factors' content is consistent, we define that net equity "*E*", is whole worth the shareholders can be available. In theory, of the net income belongs to shareholders regardless of dividend distribution, so net

equity clearly refers to shareholders' available earnings per year with the others equities. Thus, we define that discount rate "*Ke*" is return on net equity, growth rate "*g*" is growth rate of net equity.

In complete market, we can assume that net income of company is random, and then net equity is random too. Thus expectation of net equity can be E in calculation, that is

$$E(E_t) = E$$

Similarly we can define "Ke" and "g".

Rational market hypothesis suggests that, when company's valuation is maximum, the worth of equity is maximum.

Because of price is the rational expectation to company's future gain, so expectation of return on equity must be greater then actual growth rate of equity. However the difference between expectation to return on equity and actual growth rate of equity is ratio of equity and market valuation.

Obviously, higher growth rate, higher company's valuation..

1.2 Puzzle of Gorwth, Valuation and Investment: Empirical Observation

Actually, rapid growth of basic industries always leads national economics growth with investment-driven model of development. We select all of the list company of iron and steel industry in Shanghai Stock Exchange, which have advantages in resources occupation and policy supports. They appropriately represent the basic industries' situation. As of 10th November, 2011, there are 24 iron and steel company in SSE. For got time matching data, the observation period is ended on 31th December, 2010, among that, the earliest data is from MaAnShan Iron & Steel Company Limited's annual report on 31th December, 1995, which of a state-owned holding company.

We get the data in Table 1.

Table 1
Growth Rates (%)

Growth rate of Total assets	Growth rate of Net Equity	Growth rate of net income	Growth rate of Gross Margin	Growth rate of Revenue	Growth rate of cash flow from operating
27.10%	-88.97%	-13.24%	28.98%	29.10%	42.95%

Firstly, we know the average growth rate of GDP is 10.71% during the same period as selected data's.

From Table 1, we can observe some growth rate percentage; the industrial growth rate of total assets is higher than GDP's. And growth rate of cash flow from operating is greater than growth rate of revenue and growth rate of gross margin.

These positive percentages seem to show a good growth: scale is expanding, cash flow is filling, and level of technology is steady growth. The average these growth rate is 27-29%, which looks like encouraging.

But at the same time, we can observe negative data, growth rate of net income and net equity. Net income is reduced, and equity reduction is shocked, -88.97%.

Reasonably, growth of administration & marketing expense, financial expenses and other incurred expenses are greater than gross margin's growth. We can conclude that the administration efficiency is negative.

Growth rate of industry' shareholder equity is -88.97%. Based on balance relationship between assets and capital, when capital expansion does not keep a consistent capital structure, as we see, net assets' size is shrink, the risk is exposed, which is covered under growing appearance.

Another question is where sufficient cash is from during 1990s' to now. The answer is liability.

The second highlight of Table 1 is the negative correlation between revenue and net income. In order to recognize every company's condition, we explore every the listed company's the linear correlation relationship between sales and net income, one by one. As follow is schedule Table 1.

Observably, the average of correlation coefficient between sales and net income is -0.07, the fixed profit that unrelated operating activity is -0.11 hundred million RMB, that is

$$\mathbf{y = -0.07x - 0.11}$$

What is deep-sight reason of net assets and net income shrink? The indicators of industries are listed in Table 2.

Table2
Performance Analysis (Hundred Million RMB)

Net Operating Profit Less Adjusted Taxes	Earnings before Interest and Taxes	Gross Margin (%)	Net income Margin (%)	Return on Total Assets (%)	Return on Equity(%)
6.51	8.59	13.43%	3.88%	2.93%	5.75%

Table 2 confirms the puzzle of growing and returns again. Return on net assets is greater than return on total assets, means that liability is good condition, the capital of liability can create the cash flow. Even if there is financial risk is exposed, the growth margin is keep higher in the long period, so debt growth is growing equity.

We know that the average rate of return on equity of listed company in NYSE is 10%, during 1926 to 2001. Chinese listed companies' is 5.75%, which is lower than 10%.

So lower ROE and so long time, where rich cash flow come from? Related issues are explored in follow. Analysis cash flow is showed in Table 3. Cash out flow from purchasing fixed assets is more than the total of cash in flow from loan and N.C.F from operating activity. The loan holds on the size growing. Where the cash come from? Not from operating, that is from loan. As growing of fixed assets, the total assets is growing, the cash flow is growing, too. Indeed, fast growing causes risk growing.

Table 3
Analysis Cash Flow (Hundred Million RMB)

Net cash flow from operating activity	Net Cash Flow from investing activity	Cash out flow from purchasing fixed assets	Net cash flow from financing activity	Cash in flow from loan
3722.88	-4053.29	-8076.61	504.44	2748.66

1.3 Valuation

We show the key data as follow Table 4.

Table 4
Growing Rate and Rate of Return

Average of net Assets(hundred million RMB)	Expected ROE(%)	Growing rate of net assets(%)	Average P/BV
70.1	5.75	-88.97	2.46

Market price is higher, if the market doesn't know or doesn't hope the investing efficiency is negative with problems of information controlled?

Look at the other condition as the follows:

$$\frac{1}{K_e - g} = \frac{1}{5.75\% - (-88.97\%)} = 1.05$$

$$P = \frac{D}{K_e - g}, if \quad D = EPS$$

$$P = 1.05D \approx EPS$$

$$and \frac{P}{BV} = 2.46$$

$$then, EPS \approx 2.46BV$$

It is impossible, that is, market overvalued is not a mirror of fast growth. The overvalued is another issues.

CONCLUSIONS

All over above analysis can be answer the concerns at the beginning Is rapid growth always valuable? Will rapid growth be worth? How about relationship between company's valuation and company's growth rate? How about the growth rate and investment efficient?

As we know, EPS can be not more than equal BV, so one of the conclusions is the stock price is overvalue double at least. That is the stock market bubble is double.

As more and more investment activity, growth rate of total assets is 26%, but net income is not growing followed by it, contrarily it is reducing. Apart from technique, processing, the reason is only inefficiency, we can see that the growth rate of EBIT and net income is negative. Growth rate of ROE is -88%. How can the price be not overvalue? With net assets' reducing, the liability is growing, the risk is more and more explore.

High growth of investment covers the reality of low or no growth of net assets. Cash flow is no problem, because of liability. But efficiency is lower, do we have a future as this continues? Under the investing driving power, the growing is kept, but is fragile, hardly sustained.

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APPENDIX

Table 1
Linear Correlation Relationship

No.	Listed code	Correlation coefficient b	Independent of coefficient(hundred million RMB) Fixed profit a	Deviate R^2
1	600005	1.83	-0.27	0.9452
2	600010	2.41	-0.65	0.4274
3	600019	0.48	0.14	0.1365
4	600022	0.95	-0.23	0.5017
5	600102	0.95	-0.16	0.3197
6	600114	1.36	-1.00	0.1182
7	600117	2.18	0.02	0.2120
8	600126	-1.31	0.61	0.1043
9	600165	5.15	-3.42	0.0292
10	600231	1.24	-0.07	0.2594
11	600282	1.17	0.44	0.0182
12	600307	0.95	-0.23	0.5017
13	600390	5.01	-3.15	0.3267
14	600399	-0.55	0.06	0.1173
15	600558	-0.81	0.30	0.1685
16	600569	0.25	-0.05	0.0160
17	600581	0.42	-0.23	0.1396
18	600782	0.71	-0.06	0.9193
19	600784	0.09	-3.51	0.0001
20	600808	3.94	0.32	0.0660
21	600894	2.72	-2.75	0.0258
22	600992	-0.02	-0.03	0.0009
23	601003	-31.32	11.58	0.8411
24	601005	0.42	-0.23	0.0490
Average		**-0.07**	**-0.11**	**0.2602**