

Data Analysis of Balance Sheet and Income Statement

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Abstract: The balance sheet and the income statement have different functions and cooperate with each other to form an organic whole, complete and without redundancy to describe an enterprise's economic activities. The financial analysis method is used to analyze how the data of the two reports reflect the capital structure, profit ability, operational capacity, and solvency of the enterprise.

Keywords: *balance sheet; income statement; analysis; financial*

Publication date: June 2019

Publication online: 30th June 2019

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0 Homotypic analysis

0.1 Homotypic analysis of the balance sheet

The homotypic analysis of the balance sheet is each item of the balance sheet divided by the total assets. Suppose that the project data of company A's balance sheet in 2018 is as follows (unit: Ten thousand yuan): Bank and Cash 1720, accounts receivable 1300, advance payment 150, inventory 500, total current assets 3670, fixed assets 5700, intangible assets 150, and total assets 9520; short-term loans 5100, accounts payable 800, total current liabilities 5900, total liabilities 5900, capital stock 3200, retained earnings 420, and total shareholders' equity 3620. Then, the percentage of each item in the total assets can be calculated as: Bank and cash 18%, accounts receivable 14%, advance payment 1.5%, inventory 5%, and all current assets together, accounted for 39% of total assets, fixed assets accounted for 60% of total assets, and intangible assets 1.5%. This is A company asset structure. The structure of assets is often related to the characteristics of the industry of the enterprise and its

competitive environment. This company has the highest proportion of fixed assets in all the asset projects, up to 60%. Obviously, it is like a manufacturing enterprise, and this manufacturing enterprise is a kind of heavy asset manufacturing enterprise. Secondly, company A's monetary capital accounts for 18% of the company's total assets, but accounts receivable account for 14% of the company's total assets followed by. It can be inferred that the company's products are not so easy to sell, there is a certain degree of competition. In terms of liabilities and shareholders' equity, all liabilities of company A account for 62% of total assets, while the remaining 38% are shareholders' equity, short-term borrowings account for 54% of total assets and accounts payable account for 8% of total assets. The share of Stockholders' equity, equity accounts for 34% of total assets, and the subsequent additional investment, that is, the undistributed profit accounts for 4% of the total assets. Therefore, through the same type analysis of the balance sheet, we can not only know the composition of the assets of the enterprise, its industry characteristics, competitive environment but also know the source of the capital of the enterprise at a glance^[1].

0.2 Homotypic analysis of the income statement

The homotypic analysis of the income statement is the division of each item in the income statement by operating income. Suppose that the project data of company A's income statement in 2018 are as follows (unit: Ten thousand yuan): Operating income 4300, operating cost 3100, operating expenses 250, management fees 200, finance charges 130, operating profit 620, profit total 620, income tax 100, and net profit 520. Then, the homotypic analysis of company A's 2018 income statement is as follows: The operating cost is 72% of the operating income, while the operating expense, management fees, and financial charges are 6%, 5%, and 3%, respectively.

The operating profit is 14% of the operating income, and the income tax is deducted by 2%. Finally, the net profit of company A is 12% of the income. Further analysis shows that the cost of the enterprise is 72% of the income, so the gross profit, i.e., the difference between the income and the cost is 28% of the income. The three-period expenses of the enterprise are 14% of the income, indicating that the three-period expenses have consumed 14%, the income tax has consumed 2%, and only 12% of the income can be converted into net profit. Through the same type of analysis of the income statement, it can be learned that the enterprise from income to profit is how to achieve step by step and can be more intuitive understanding of the structure of the income statement^[2].

1 Profitability analysis

Add, subtract, multiply, and divide the original report data, and the new data calculated are the ratio. Profitability is the enterprise one of the most commonly used ratio, because the enterprise concerned about most is the profit, the income statement is to describe the profit, from the income statement can directly see the gross profit and net profit of the enterprise, but just look at these still cannot figure the enterprise profit, profit need to convert the profit is another kind of narrative. In the process of using ratio for profitability analysis, the data must first be converted into a ratio, such as gross profit into gross profit margin and net profit into the net profit margin. Gross profit margin is the percentage of gross profit and operating income, and net profit margin is the percentage of net profit and operating income. These two ratios are important indicators of corporate profitability. The higher net profit margin of an enterprise indicates that there is less loss in the transformation process from operating revenue to profit, and more revenue can be converted into profit. Therefore, it must be a good enterprise. Therefore, the net profit margin is a concept related to benefits. The calculated gross profit margin of company A is 28% and the net profit margin is 12%, indicating that the company can make a profit of 12 yuan if it sells 100 yuan.

2 Operation capacity analysis

Operating capacity refers to the operating capacity of an enterprise, that is, the ability of an enterprise to make profits using various assets, which is usually reflected by the turnover rate^[3]. The economic implication of turnover rate is that the assets of a business are transferred

several times over the course of a year. Total assets are composed of many assets, in addition to the turnover rate of total assets, but also can calculate the turnover rate of each asset. Therefore, the operating income is divided into corresponding assets, and the turnover rate of corresponding assets is obtained. However, the inventory turnover ratio is not divided by the operating income but by the operating cost, because the inventory becomes the operating cost as long as the sales, so the relationship between the inventory and the operating cost is very close. In fact, the more accurate way to calculate the turnover ratio is to divide the income or cost by the average of the corresponding assets in a year, in this case, the average is the amount at the beginning plus the amount at the end divided by two. Specifically, it is: (1) Turnover rate of total assets, which refers to the ratio between business income and average total assets in a certain period (usually <1 year). The larger the amount, the faster the total asset turnover, reflecting the stronger sales capacity. (2) Accounts receivable turnover rate, shows in a certain period of accounts receivable into the average number of cash, is the ratio of operating income divided by the average accounts receivable, and reflects the flow speed of accounts receivable. (3) Turnover rate of current assets is the ratio between operating income and average balance of current assets, which reflects the utilization efficiency of all current assets. The quick turnover of current assets can save funds and improves the utilization efficiency of funds. (4) Fixed assets turnover ratio: The ratio of the net annual operating income of an enterprise to the average net value of fixed assets. The higher the ratio, the higher the utilization efficiency of fixed assets and the better the utilization effect of fixed assets. (5) Inventory turnover rate, reflecting the ratio between the main business cost and the average inventory balance in a certain period. It is used to reflect the turnover speed of inventory, that is, whether the liquidity of inventory and the amount of capital occupied by inventory are reasonable, so as to promote enterprises to improve the use efficiency of capital while ensuring the continuity of production and operation. In practice, the turnover ratio can be simplified by calculating the amount of assets at the end of the period.

Therefore, the turnover rate of accounts receivable of company A is calculated as $4300/1300=3.3$ times/year, indicating that the average times of accounts receivable turning into cash in a year is 3.3 times. The turnover rate of 365 divided by accounts receivable represents

the payback period of accounts receivable, that is, $365/3.3=109$ days, indicating that it takes 109 days for company A from selling products to collecting all payments. The turnover rate of the inventory is $3100/500=6.2$ times/year, which means that the inventory turnover is 6.2 times in a year, and the cycle of inventory turnover is about $365/6.2=58$ days, which means that it takes 58 days for company A to purchase raw materials and sell products. An enterprise usually sells the inventory first, and some of it may get cash back, but the other part becomes receivables, and accounts receivable can only be recycled into cash, so the average cycle from the purchase of raw materials by company A to the final recovery of the payment for goods is 58 plus 109, namely 167 days. The turnover rate of fixed assets of company A is $4300/5700=0.8$, which means that it cannot be turned over once a year. This is a relatively normal situation. The total asset turnover rate of company A is $4300/9520=0.5$. In the same time, the higher the total asset turnover rate is, the more cycles are completed and the more money is earned.

The turnover rate of total assets is a concept related to efficiency. To judge the profitability of an enterprise, it is not only based on efficiency but also based on efficiency. Therefore, it is obviously not enough to only look at the net profit margin but also consider the efficiency of total assets, so as to have a comprehensive consideration of the profit of the enterprise. At this time, the profitability of an enterprise can be measured in another way, that is, how much resources, the enterprise has invested and how much profit it has finally obtained. Therefore, the net profit is divided by total assets, and a new ratio is obtained. This is a concept of return on investment, and the return on the investment of the total assets is called the rate of return on the total assets. The formula is: Rate of return on total assets=net profit/total assets=(income/total assets)*(net profit/income). This shows that under the premise of certain total assets, the return rate of total assets is high and the profit is high, while the return rate of total assets is low and the profit is low. At the same time, it also shows that the efficiency*benefit=the rate of return on total assets, and the relationship between efficiency, benefit, and return on investment is clear at a glance. Changes in either efficiency or benefit will affect the return on investment of enterprises. Total assets are financed from two sources, one is the creditor and the other is the shareholder. Shareholders are more concerned about their own part of the return on investment is how much, shareholders' investment is shareholders'

equity, shareholders get the return is net profit, so the net profit divided by shareholders' equity is shareholders' return on investment, known as the rate of return on net assets. Return on total assets and return on net assets, two indicators that reflect the return on investment of an enterprise, measure the profitability, operating capacity, and the relationship between profitability and operating capacity of an enterprise.

3 Solvency analysis

3.1 Short-term solvency analysis

Short-term solvency measures the ability to repay current liabilities. The enterprise repays current liabilities such as accounts payable. What if it has no money on hand? The most normal source of funds is to realize the current assets of the enterprise. It is assumed that all current assets can be turned into cash immediately to repay the current liabilities of the enterprise. Therefore, the ratio of current assets to current liabilities is called the current ratio. But all of a sudden, the current assets become cash, which may not actually be possible. Therefore, in a conservative way, it is assumed that all the inventories which are the slowest to be realized in current assets cannot be turned into cash, that is, all inventories are deducted from current assets, take this number and divide it by current liabilities, and this ratio is the quick ratio. It is calculated that the current ratio of company A is $3670/5900=0.6$, and the quick ratio is $(3670-500)/5900=0.5$, which reflects the short-term solvency of company A. What is the appropriate ratio? If flow rate is equal to one, the flow of the enterprise, all assets are sold to repay the current liabilities, it is impossible, because, one is when the enterprise products cannot sell all soon or not timely recovery of accounts receivable, current assets cannot be converted into cash, and another problem is that all the current assets really even turned into cash, and also the current liabilities, it still does not work, because enterprises have no cash in hand at this moment, no inventory, no raw materials, there is no way to normal production and operation activities, so the liquid assets of the enterprise, it plays the two roles, one role is to repay the current liabilities, while the other role is to provide the working capital for the daily operation of the enterprise. When the current ratio of the enterprise is equal to a certain period, it is obvious that not only the debt repayment is risky but also the working capital of the enterprise is insufficient, which is not acceptable. The book usually says, our country

enterprise current ratio is equal to 2, it seems more reasonable, safety, but the United States is in probably 3 between 4, compare the United States apparently low a lot of. Inside this reason is complex, in our country the most important reason is that, in China, banks are not inclined to give long-term loans to enterprises. In fact, many short-term loans to enterprises are a manifestation of long-term loans. That is to say, when an enterprise repays short-term loans, in reality, the source of funds is new short-term loans, which are used to repay old debts with new debts. Under this model, if the enterprise does not have serious problems, or some fatal shock happens suddenly, and the whole industry has some sharp decline, it can usually continue to obtain short-term loans in the next year. That is to say, short-term borrowing itself is actually a self-circulation, which needs to repay other current liabilities except short-term borrowing through the realization of current assets. Such short-term borrowing is, in effect, an alternative to long-term borrowing. So take short-term borrowing out of current liabilities and the current ratio may not be too low. If the current ratio of company A is calculated as $3670/(5900-5100)=4.6$, this shows that the current ratio of the company is not as low as it appears when considering the special mode of the corporate loan in China.

3.2 Long-term solvency analysis

There are two problems with long-term liabilities. One is the repayment of interest and the other is the repayment of principal. Generally speaking, the enterprise should use the money earned to pay the interest, that is, on the basis of net profit, the income tax paid is added back, the interest paid is also added back, so this is earnings before interest and tax. Earnings before interest and tax divided by interest expense is interest income multiple, indicating that the money earned is enough to repay several times of interest, the higher the multiple, the stronger the ability to repay interest. If the interest expense cannot be accurately known, it can be replaced by financial expense. Therefore, the multiple of company A's interest income is $(520+100+130)/130=5.8$ times, indicating that company A has earned enough money to repay 5.8 times of interest. Obviously, its ability to repay interest is more than sufficient. How to measure the ability to repay the principal? The repayment of the principal of long-term liabilities is a long-term accumulation, and it is unlikely to have special funds for the repayment of long-term liabilities, which makes

the measurement of the solvency of long-term liabilities usually not particularly accurate. The most common, and the crudest, the method is to divide total liabilities by total assets, which is the asset-liability ratio. The asset-liability ratio is very commonly used in reality, also known as financial leverage. Leverage consultant thought is a device to play a magnifying role; financial leverage magnifies the capital of the enterprise, the enterprise is ultimately shareholders, so the leverage in the hands of shareholders, shareholders with what things to magnify their capital? With debt. From the perspective of shareholders, he hoped that the leverage, the higher the better, had better be yourself does not make a penny, all creditors, it is clear that the creditors will not agree to such a, so financial leverage eventually must have been a result of the game, the result should be neither too high, also not too low, should be in the middle of a certain position. If the data of China's listed companies are used, the simple average value of all listed companies is calculated without considering the industry factors, and the average level of financial leverage is about 40-45%, but some special industries may be too high or too low. For example, the heavy asset industry usually has high financial leverage. On the one hand, these enterprises need a large amount of capital; while on the other hand, these enterprises have a large number of assets to be used as collateral, so they are more capable of borrowing. The airline industry is a case in point, with companies that are more than 80% indebted. However, those enterprises that are particularly well-funded and do not need much loans usually have a low asset-liability ratio. For example, some enterprises that are liquid have abundant cash and some emerging industries that are light on assets do not have too much debt. It can be seen that both the multiple of interest income and the asset-liability ratio are not only used to measure the long-term solvency of enterprises but also the overall solvency of enterprises^[4].

References

- [1] Xing X. A Book to Understand Financial Reports. Zhejiang: Zhejiang University Press; 2014. p. 86-92.
- [2] Jiayu Z. Analysis and Research on Financial Statements of Listed Companies in the Era of Big Data a Case Study of Company A. *China Collect Econ* 2018;4:148.
- [3] Hui G. Analysis and Research on Financial Statements of Enterprises. *Mod Econ Inf* 2017;22:109-10.
- [4] Huimin H. Analysis of Financial Statements of Listed Companies a Case Study of Xx Company. *Knowl Econ*; 2017;1:146..