Interpreting Financial Statements

Pierre Lucouw[1]

Abstract

Analysis of company financial statements is a topic that is well covered in the financial literature. Unfortunately, the interpretation of the analysis is often neglected as a scientific approach to interpretation seems to be elusive. This paper attempts to provide a methodology whereby insight into the financial performance of a company can be obtained by proposing the "proportion model". The model recalculates certain financial statement figures to what it could have been, had the company been managed in a balanced position. By comparing the actual financial statement to the recalculated figures, an opinion regarding the financial performance is obtained. As an example, the model is applied to the 1999 Enron financial figures.

1 Introduction

Much has been said and written about the analysis of financial statements. The biggest advantage of a ratio analysis is that numerical information is converted into a summarised and comparable format. With an analysis the figures are reduced to understandable indicators. Text books on financial analysis and financial management provide detailed information on analysis and more specifically ratio analysis of financial statements. Unfortunately very little attention is devoted to the interpretation of the analysis. When preparing financial statements the emphasis is placed on providing reliable information, most of which is historic information. When analysing the information, a better understanding may be obtained, but no new knowledge is added.

---

[1] North-West University,
e-mail: Pierre.Lucouw@nwu.ac.za

The purpose of an analysis is to provide the analyst with answers in support of decision making. An analysis will however not provide any information useful for decision making. An analysis is a mechanical, breaking down operation. Useful information can only be obtained from an interpretation. As will be emphasised below, it is further debatable whether an analysis of financial statements provide a sound basis for interpretation. Without a proper interpretation system, published financial information becomes meaningless and does not address the needs of stakeholders.

2 Limitations of a Ratio Analysis

Amongst many limitations of a ratio analysis, the biggest limitation is probably that it only reflects numerical data in financial statements. Many other important variables that should affect decision making are not considered. It is nevertheless believed that a ratio analysis is a necessary and valuable operation in the decision making process.

With an analysis we break down in order to understand. But what and how far should we break down? With an analysis we can obtain an understanding of how the object under scrutiny works, but if that object is a part of a bigger system, we cannot through our analysis, determine the effect it will have on the system. The effect can only be measured on a holistic level.

L von Bertalanffy [1], the founder of modern systems thinking, states that "living systems are open systems maintaining themselves in exchange of materials with the environment, and continuous building and breaking of their components." A business is an open system if it introduces materials and energy into a production process and then finally transfers material and energy to other systems.

A system is composed of parts, each having unique attributes that, as a group contribute to the performance of the whole system. More important than the size and number of parts, is the interrelationship between parts. It is this interrelationship that gives the whole system attributes that are substantially different than the sum of the individual parts. Parts operate in relation to each other. Unfortunately the relationship between different parts, are seldom apparent. Also, the performance of individual parts, are not indicative of the performance of the whole.

The operation of a system cannot be understood by gaining an understanding of the individual parts. It was stated by M. Polanyi [2] that: "The laws defining the constraints by the whole are not derivable from the laws of the parts." Physicist F. Capra [3] confirmed this when he noted that: "The great shock of twentieth-century science has been that, systems cannot be understood by analysis. The properties of the parts are not intrinsic properties, but can be understood only within the content of the larger whole."

An analyst is attempting to gain understanding by taking apart. With systems thinking, all the parts contribute to the whole. Understanding is gained by observing the performance of the whole.

If a business is regarded as a living system, it is proposed that an analysis of the financial information is not the correct tool to be used when attempting to understand the performance of a business. A ratio analysis could be useful as a management tool for comparison purposes, but not as a basis for decision making.

3 The Need for Interpretation

Interpretation is part of the decision making process. The objective of financial statements is to provide information to a wide range of users in making economic decisions. An economic decision is a decision on how benefits can be maximised within an acceptable level of risk. Decision-making is about choosing between alternatives. In order to make economic decisions, users (stakeholders) need to know the following:

- The current financial position of the business.
- The ability of the enterprise to be sustainable in the future to the benefit of stakeholders.

In order to be sustainable the business should be profitable within an acceptable level of risk. Risk is the chance of not being sustainable. This is well documented in financial literature as operating risks and financial risks. Risk can also be the possibility of not operating at optimum capacity. If not operating at optimum capacity, either investors are not getting an appropriate return on their funds, or the resources within the business are placed under stress.

Interpretation of financial information is therefore needed in order to gain understanding in support of decisions having the objective of being in the best interest of stakeholders in the future.

4 Interpreting Financial Statements

With financial decision making, deductive reasoning should be followed where the process commences with the general and terminates with the specific. The process should develop as follows:

Raw data > Information > Analysis > Interpretation > Decision-making.

Although a scientific approach can be followed, when moving from analysis to interpretation, there does not appear to be a logical or scientific method. Drawing conclusions from an analysis is to some extent determined by the knowledge and experience and even the emotional state of the analyst.

In many textbooks on the topic, interpretation is often limited to a trend analysis and comparing ratios to the ratios of other similar businesses, or the comparable ratios for the same business in prior years. A trend analysis without a reference base adds little information. An increasing trend is not necessarily good. Many failed companies such as Enron had positive trends. By comparing ratios to prior year or other companies serves little purpose if the "quality" of the other "benchmark" ratios is not known. You can look good when comparing bad to worse. If one ratio compares favourably and another compares poorly, what does it mean on a holistic level? There are also certain "norms" such as the norm that the current ratio should be two-to-one, which have been promoted by the banking industry. Although there is no conclusive evidence that these "norms" should apply to all businesses all the time, it has become accepted as being correct and applied without questioning, as a basis for making decisions.

Peters and Waterman [4] identified a group of excellent companies. Within five years two thirds of those companies were no longer regarded as excellent. A survey done by Royal Dutch in 1983 found that one third of the companies in the Fortune 500 in 1970

have vanished. Large profitable corporations ceased to exist within a relatively short period (a shorter period than the life expectancy of humans). Peters and Waterman [4] state that the rapid shifts in the Fortune 500 attest that those who do not change will not survive (inflexibility). It becomes clear that the financial statements of those corporations were not interpreted correctly. It was believed that if you are big and profitable you are good, nothing will ever stop this company.

More recently, we experienced the 2008 economic crisis. Companies and financial institutions such as Lehman Brothers went bankrupt. The exceptional high risks taken on by these companies were of no major concern to analysts prior to the credit crunch. Sound interpretations were clouded by false beliefs.

In order to serve the needs of users of financial information a practical and theoretical sound method of interpreting financial information is needed.

When interpreting financial information, the following should be available:

- Relevant information. Financial information should clearly communicate the key issues such as resources, financial results, cash flows, the ability to continue as a going concern, the bases (accounting policies) applied in preparing the report and future expectations.
- Reliable information. As far as it is practical possible, the information should be trustworthy. If you put garbage into a system you will get garbage out. Good decision making cannot be based on unreliable information.
- Measuring performance. Criteria for performance should be established. In a business it would be sustainable profits and also certain measures of debt/equity and liquidity levels.
- Comparing the performance against a reference base. A single figure or index is normally useless. Information obtains meaning, when being compared to other relevant information. Interpretation should be holistic (not side tracked by unimportant deficiencies), the reference base should therefore enable holistic comparison.

5 Finding a Reference Base

To interpret, a reference base is of utmost importance. As mentioned, prior year figures and other companies do not provide an adequate reference. If a reference base that is suitable for each company can be obtained, the interpretation of financial statements will be enhanced.

A company that will serve its stakeholders, needs to be productive and flexible. A balance between productivity and flexibility should also be maintained. Political parties, governments and empires cease to exist if they are out of balance. Economies collapse if they are not in equilibrium. The universe as we know it would not have formed after the Big Bang if a perfect balance between the different forces were not present. Nature needs balance to survive and prosper. Humans who do not live a balanced life end up living a life they never envisaged. Our existence and survival is dependent on balance. It is stated that for a company to survive it also needs to be in balance.

Every business is unique. Comparing the financial performance of one business to that of another and drawing conclusions from the comparison doesn't make sense. To assist in the interpretation of financial statements and providing a suitable reference base, the proportion model is proposed. In line with systems thinking it is proposed that an interpretation of financial statements is not preceded by an analysis. Rather the business as a whole is measured by the degree to which it has the correct proportions of the different elements.

For a company to be in proportion the liability/asset ratio should firstly be correct (a statement of financial position that is in proportion). Secondly the relationship between profit and equity should be in proportion (the comprehensive income statement must be in balance with the statement of financial position). If a company is out of balance, and management is unable to bring it back to balance within a relatively short period, it is either under-trading or over-trading. When under-trading, the company will be forced out of the market by competitors, when over-trading, the risk of encountering liquidity and eventually solvency problems increases.

The correct reference base would be the performance of the business measured against the expected performance of the same business if it was correctly balanced with the right proportions. By comparing the actual financial statements of the business to the balanced financial statements of the same business, the efficiency of the business can be measured.

6 Proportion (Balance) Model

Most ratios only obtain meaning when they are compared to a reference base. An exception is the financial leverage index, proposed by Bernstein [5], which contains meaningful information within itself.

Financial leverage index: $$LI = \frac{ROE}{ROA} = \frac{P}{A-L} * \frac{A}{P+I} \tag{1}$$

where, LI   = Financial leverage index
ROE = Return on equity
    ROA = Return on assets
    A   = Total assets less non-interest bearing liabilities
    L   = Interest bearing liabilities
    P   = Profit after interest and tax
    I   = Interest (after tax)

In order to benefit from debt the leverage index must not be less than one. The leverage index also has a limit which is determined by $A/(A - L)$. With assets and liabilities constant, irrespective of how high profits are and how low interest rates drop, the gearing ratio can not exceed the limit. The question is what is the correct leverage ratio that will place the business in balance? It should be somewhere between one and the limit.

Within the optimum relationship between assets and liabilities the maximum ROE should be obtained. If liabilities are too low, profits will suffer as a result of missing out on the gearing benefits provided by debt. If liabilities are too high, profits will suffer due to the high interest charge. The maximum benefit will therefore be obtained where the

difference between the leverage index and ROE reaches a maximum. That is the point where a balance between assets, liabilities and profit is obtained.

Optimum balance is where: $\text{LI} - \text{ROE} = \text{maximum} = \dfrac{P}{A-L} * \dfrac{A}{P+I} - \dfrac{P}{A-L} = \text{maximum}$ (2)

Plotting equation 2 for different asset and liability values, but assuming the profit to remain constant, will result in a curve moving upwards, reaching a maximum and then declines. An example is presented in Figure 1.
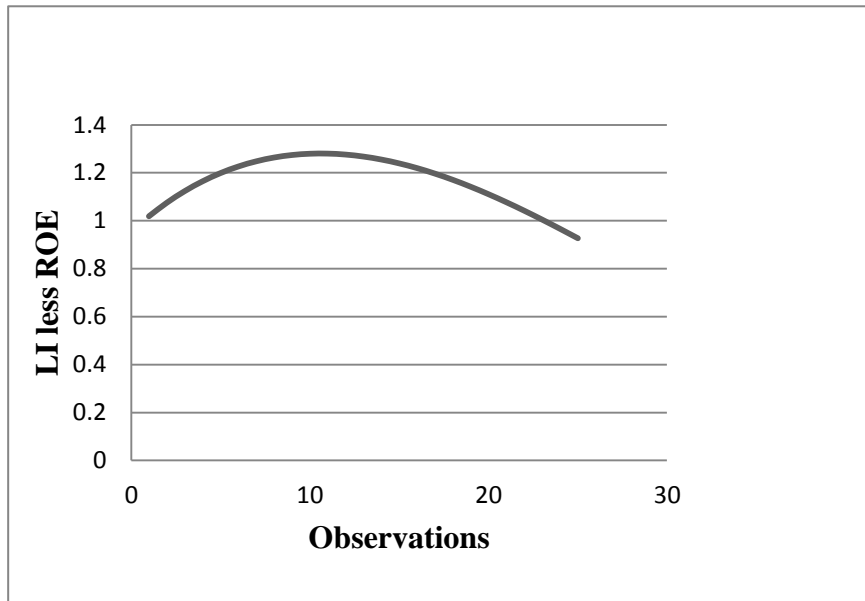

Figure 1: Curve indicating optimum balance

The maximum point is where the slope of a line touching the curve is zero. By differentiating equation 2, the slope of the line can be determined. It can be shown mathematically that the maximum point is reached where:

$P = \sqrt{AI} - I$ (Does not work if there are no liabilities and zero interest)   (3)

In order to calculate the level of liabilities that will yield effective gearing, we solve $P = \sqrt{AI} - I$ (equation 3) for I, resulting in:

$$I = -P + \tfrac{1}{2}A - \tfrac{1}{2}\sqrt{A(-4P + A)}$$ (4)

Dividing I by the cost of borrowings, the desired level of liabilities is obtained.

With equations 3 and 4, the comprehensive income statement can be reconstructed. If it is assumed that gross revenue remains unchanged, the required profit margins to arrive at the profit figure suggested by equation 3 can be calculated. The statement of financial

position can be reconstructed with the aid of equation 4 (assuming total assets don't change), to reflect a balanced statement of financial position. It will be balanced within itself and also in balance with the comprehensive income statement.

The reconstructed financial statements will then be used as a reference base for comparing the actual financial statements. When comparing the actual financial statements with the reconstructed financial statements, the performance of the business as a whole can be measured against what the business is capable of when correctly structured.

7 Enron as an Example

The Enron scandal has been well documented and researched. Their practice of mark-to-market accounting, showing certain costs as assets and hiding liabilities eventually lead to its downfall. As an example, the proportion model is applied to the 1999 reported Enron figures. By applying the model to the 1999 figures, more than two years before filing for bankruptcy in November 2001, it would be interesting to note if there was at that time already indications of the company being out of balance.

With hindsight we know that the reported revenue and assets of Enron are incorrect, but at that time we would have accepted them to be correct. Starting with the reported revenue and asset figures and recalculating the profit, interest and liability figures, using equations 3 and 4, the situation, had the company been managed in a position of dynamic balance, is presented. in Table 1. The actual return on assets of 5.9%., although low, is assumed to be correct within the industry. The results would have been more profound had a higher required return on assets been used.

While not detecting fraud, it is evident from Table 1 that the company was managed recklessly, two years prior to its collapse. Even when assuming that figures such as Gross Revenue and an inadequate Return on Assets is correct, the reported figures indicate a financial situation that is totally out of balance. Liabilities and interest expense should have been much lower, resulting in an improved Debt/Equity ratio. Interpreting the results from Table 1, it can be concluded that Enron was a very high risk company.

Table 1: Enron reported and recalculated figures

Actual reported figures compared to calculated balanced figures		
Enron	**Reported 1999**	**Balanced 1999**
Gross Revenue	40112	40112
Expenses	37757	37759
Profit before interest and tax	2354	2353
Profit after interest and tax	1104	1439
Interest (after tax)	426	90
Net operating assets	25921	25921
Interest bearing liabilities	15752	3653
Equity	10169	22268
ROE	10.9%	6.4%
ROA	5.9%	5.9%
Debt/Equity	1.55	0.16

8 Conclusion

Using financial statement information for decision making is an important, but often a difficult task. Extracting the right information, analysing and interpreting it, can be subjective.   Interpreting the financial statements of a company is often done by performing a ratio analysis and then comparing the ratios to a "norm" without testing the suitability and appropriateness of the norm.   The proposed proportion model of interpretation allows for interpretation by comparing the company to what it should have been if well managed by maintaining balance. There is no guarantee that the model will communicate the correct answer consistently, and the model does not necessarily provide insight into future expectations. It does however indicate the quality of management functions with respect to risk and return management.

References

[1]   L. Von Bertalanffy,."The theory of open systems in physics and biology. Science. **111**, 1950, 23-29.

[2]   M. Polanyi, "Life's irreducible structure. Science **160**, 1968, 1308-1312.

[3]   F. Capra "The web of life," 1996, Anchor Books. New York.

[4]   T.J. Peters, & R.H. Waterman,. "In search of excellence," 1982 Harper & Row, New York.

[5]   L.A. Bernstein, "Financial statement analysis: Theory, application and interpretation," Third Edition, 1983,.Richard D. Irwin, Inc. Illinois.