

## Do Accounting Principles Provide Relevant Returns Information?

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### ***Introduction***

Return rates, as measured by return on assets (ROA) and return on equity (ROE), are analysis tools which are used to evaluate the financial performance of a business by focusing on resource utilization. The more efficiently the resources are used, the greater the return on investment. Investors and business owners are concerned about receiving an adequate return on their investments given their degree of risk. Investments that generate a return rate greater than the cost of capital increase the economic value of the firm and reward the investors for the risk taken.

Determining the rate of return is dependent on the principles of accounting. These principles take a conservative approach to asset valuation which results in assets being recorded at the lower of their historical cost adjusted for depreciation or their fair value. Economic asset appreciation, is not recorded in the financial accounting records. This results in firms with economically similar assets reporting different book values and different return rates. This raises several questions. The first question is whether one firm's reported values are more relevant than another firm's values. A second issue is whether a firm with lower valued assets is really performing more efficiently than a firm with relatively higher valued assets. A third concern is whether it is appropriate to make investing decisions by comparing a firm with lower valued assets to alternative investment options with relatively higher valued assets. The final question is whether the conservative approach of generally accepted accounting principles results in accounting valuations that are relevant and provide useful information on investment return rates.

### ***Definition of ROA and ROE***

The return rates on assets and equity evaluate management's ability to create value in the business by employing its resources. More specifically, ROA measures the utilization of assets in producing income and ROE calculates the income generated by the business as a percentage of the owners' investment in the business.<sup>1</sup> ROA and ROE are calculated as follows:

$$\frac{\text{Net Income} + \text{After Tax Effect of Interest Expense}}{\text{Average Total Assets}} = \text{ROA}^2$$

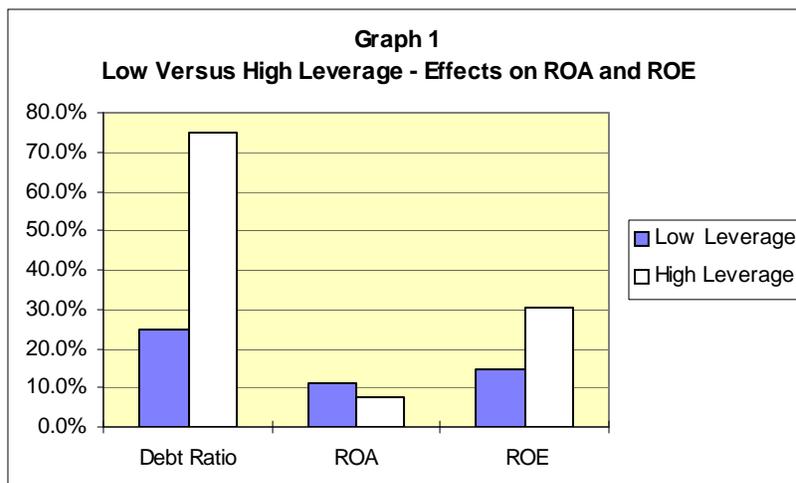
$$\frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Average Total Owners' Equity}} = \text{ROE}$$

## ***Behavioral Characteristics of Returns Information - ROE, ROA, Product Life Cycle, and Leverage***

Returns information is influenced by the behavioral characteristics of ROE and ROA. These returns measures are both affected, to differing degrees, by the product life cycle and the degree of financial leverage of the firm.

Generally, ROE and ROA results follow the life cycle pattern of the product.<sup>1</sup> This means that the return rates are low during the product introduction stage, they increase at a fast rate during the growth stage, and level off and decrease in the maturity and decline stages, respectively. Decisions regarding the method of financing assets, selecting either debt or equity financing alternatives, can impact the return values for both ROA and ROE. Highly leveraged organizations, those with a high debt ratio, as measured by the percentage of debt to total assets, can report significantly higher ROE values than those organizations that finance a larger percentage of their resources with equity. Changes in the financial structure, therefore, reduce the predictability of return rates along the life cycle pattern of the product.

ROE values are increased by two factors. First, increased levels of debt mean that the firm has a lower level of equity, all other things the same. Assuming stable earnings, the ROE values increase because the denominator, equity, decreases. Additionally, ROE will increase by the economic value gains of the firm. Economic value is measured as the sum of the weighted averages of the differential of ROA over interest rates on debt and the required rate of return on equity. The impact of leverage on ROA depends on 1)the amount of interest expense on the debt and 2)the level of earnings of the firm. Graph 1 demonstrates the effects of high versus low leverage for two firms that have the same level of assets and earnings before interest and taxes, but have different capital structures.



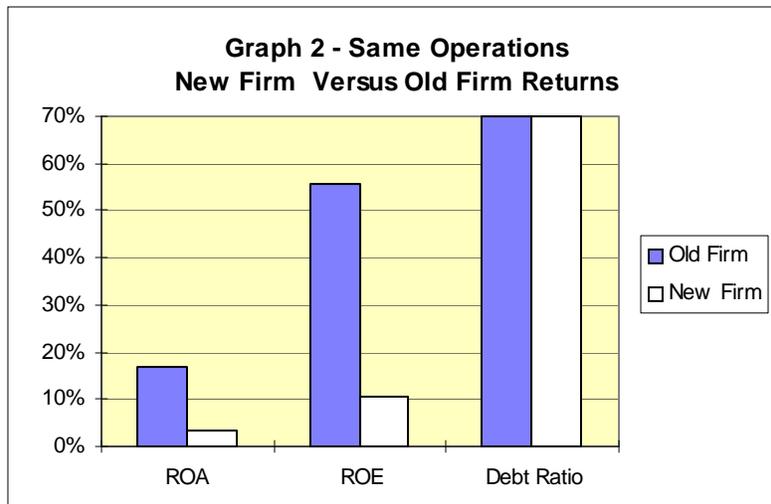
Graph 1 reflects a lower ROA and a higher ROE for the high leveraged firm than for the low leveraged firm. The lower ROA is due to the reduced net income that was caused by the increased interest expense incurred on the higher level of debt. Maintaining a lower level of equity results in a higher ROE, but also exposes the firm to a higher degree of risk of failure.<sup>3</sup> As the level of debt increases, the pressure to achieve financial results grows in order to meet the increasing principle and interest payments. Too much leverage occurs when interest rates of debt, on an after tax basis, are greater than the ROA.<sup>1</sup> Obtaining an optimal level of leverage, maximizes the earnings and growth of the firm. Thus, investors and managers must be aware of the trade-off between the risk of failure that results from debt financing versus the effect increasing debt has on the value of the firm and on the returns information.

### ***Book Versus Fair Value Accounting - A Relevance Versus Reliability Dilemma***

The objective of financial accounting is to provide information that is useful in making business decisions. Primary characteristics of useful information are relevance and reliability.<sup>4</sup> Asset valuations are considered reliable when assets are reported at their historical cost and depreciable assets are reported net of accumulated depreciation. If assets become permanently impaired, accounting principles require that the assets be written down to their fair values. Assets that appreciate in value, however, are not adjusted upward to reflect the increased value, even though these increased amounts reflect more relevant economic values. Thus, accounting principles place more emphasis on the reliability of determining asset valuations than on the economic relevance of the value. The relevance of returns information provided by applying accounting principles, therefore, depends on whether there is a differential between the reported book value and the fair value of assets.

### **Competing Firm Comparison**

The book versus fair value accounting dilemma is demonstrated by the following scenario. If two firms started operating the same year, made the same operating and financing decisions, and are selling the same quantity, of the same product, at the same selling price, and incurring the same operating expenses, it is expected that the return rates would be the same. If one firm, however, recently had a change in ownership that resulted in restating the asset values to their appreciated fair values, the return results for this firm would be lower than the firm with the older historical cost book values. Two factors that contribute to the lower stated return rates is the higher level of assets and equity and the additional expenses for interest and depreciation. Graph 2 illustrates the return results for this situation.



The significant difference in return rates between the two firms raises several questions. Which firm reflects the most “accurate” returns levels? Does the Old Firm utilize assets more efficiently than the New Firm? Economically, is there a significant difference in the operating results of the two firms? Do the high rates of return reported by the Old Firm indicate that it has higher risk and has been appropriately rewarded for that risk? Given the scenario of both the firms being identical in every way except the value assigned to their resources employed, it is difficult to conclude that the Old Firm utilizes assets more efficiently or has significantly better operating returns. Additionally, if the New Firm has assets that were purchased at a higher cost and financed using a proportional amount of debt, then it is experiencing a greater risk due to the increased amount of interest payments it has versus the Old Firm.

To answer the question, “Which firm reflects the most ‘accurate’ returns levels?”, it is necessary to evaluate the two alternative conclusions that can be drawn in this example. These conclusions are either 1) the New Firm overpaid for its resources or 2) the Old Firm has understated assets. (Note: There is no significant concern about the relevance and reliability of the profits generated by the firms, because they generally reflect current economic values. The current economic profit values result from the fact that both selling prices and the cost of operating expenses, except depreciation, are set by the market place which has responded to changes in economic conditions overtime.)

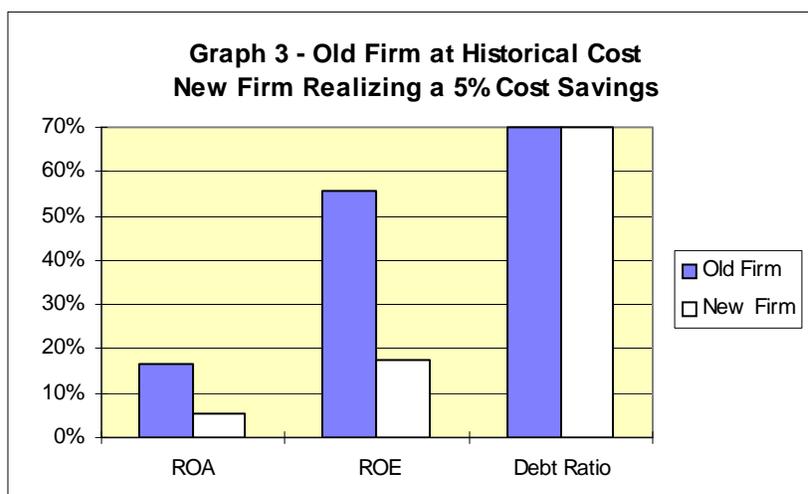
If the New Firm overpaid, the lower return rates appropriately reflect the economic position of the firm, because resources were not efficiently employed. To achieve more competitive returns given its overpaid position, the New Firm must reduce assets or increase profits by either increasing revenue and/or decreasing costs. The overpayment of the New Firm does not lead, however, to the conclusion that the Old Firm achieved high efficiency.

If the Old Firm has understated assets, it is due to following the historical cost principle of accounting which does not allow economic asset appreciation to be

recorded while the asset is held. The understated asset values of the Old Firm result in overstated returns information. Thus, it is concluded that when assets are understated, accounting principles do not provide relevant returns information.

If the Old Firm has understated assets, it is possible that the differences in the reported return rates will lead to making sub-optimal investment decisions, because its overstated return rates may mislead the firm to think that the performance of the firm is higher than its competitors. Thus, this firm may be less likely than its competitors to work toward further improvements in its return rates. On the other hand, based on these reported results, the New Firm, may have determined that it needs to achieve further efficiencies to improve its return rates to be more competitive. If both these outcomes result, the New Firm will improve its competitive position, yet the Old Firm's accounting return rates may still reflect higher values. Thus, the Old Firm may be unaware that it has experienced an economic opportunity cost.

Graph 3 illustrates the return results if the Old Firm continues to operate at the same level of efficiency and the New Firm is able to reduce its operating costs, other than interest and depreciation, by 5%. The graph clearly demonstrates that the accounting returns information shows there is a significant difference in the results of operations. If, however, the two firms are alike in every way except in the book value of their resources and their related amount of debt (note that the debt ratio of both firms is equal), then the returns information should be relatively equitable. These inequitable results should be a warning to the Old Firm that the historical cost statements are failing to accurately reflect its financial results. The lack of accuracy in the returns information can be misleading causing the Old Firm to incur opportunity costs by not seeking to sufficiently improve its operations or possibly seek alternative investment opportunities.



### Alternative Investment Opportunities Comparison

The example above compares the return rates for two businesses in the same industry. Periodically, businesses evaluate whether to continue to invest their resources in their existing industry or to seek greater returns by selecting another investment opportunity. As demonstrated above, businesses need financial statements that report both earnings and assets at their fair values in order to make informed investment decisions. If the Old Firm, from the example above, were to compare its returns to other alternative investment options, it might decide to continue its current business operations. This decision, however, would be based on return information that is overstated. Thus, the decision may not be appropriate, and may lead to an opportunity cost as a result of failing to select a superior alternative investment.

### Conclusion of the Relevance versus Reliability Dilemma

Although reliability and relevance are defined as two primary characteristics of accounting, the conservative approach to accounting places more importance on determining reliable values which are based on historical transactions. This practice is appropriate for assets that decline in value over time and experience equitable book adjustments for depreciation, but is less appropriate for assets that increase in economic value over time.

### ***Causes of Asset Understatement - Firms at Risk***

Assets may be understated on the financial statements if the assets have appreciated in value or aggressive depreciation rates have been adopted. Assets that are likely to appreciate in value include land and buildings. Aggressive depreciation may be taken on assets used in production, such as equipment, and occurs when accelerated depreciation methods are employed or when the economic productive life of an asset exceeds the life used for depreciation.

Land is the only long-term asset that is not depreciated on the financial statements and overtime, it is the asset that is most likely to retain its appreciation gains. Unlike other productive long-term assets, land used in operations does not decrease in value and its book value is not reduced over time by accumulated depreciation. Thus, appreciation in the value of land, has the consistent effect of understating assets and thereby overstating return rates.

Businesses with significant amounts of appreciated land values include farming operations, real estate investing companies, and railroads. These land values can significantly appreciate over time. For example, the land value for agricultural property in Portage County has experienced between a 1,000% and 4,000% increase in value over the period of 1965 to 1997, according to land sales recorded with the Portage County Register of Deeds office. These significant increases in land should be considered by agricultural firms when determining if the return rates received on their business operations is appropriate given the risk of the industry.

The effect depreciable assets have on the financial statements are more complex. These assets can be understated on the financial statements due to a possible combination of inflated depreciation amounts being charged against income and the asset values and asset appreciation. Additionally complicating the effect these assets have on the financial statements, is the cash savings on taxes that accelerated depreciation offers and the ability to have differences in the depreciation charge for determining the tax liability of the firm versus determining the book value of the assets. Finally, at some point, most depreciable assets lose all their market value, even though in previous periods the asset fair value exceeded its historical cost and/or book value. Although the complex behavior of depreciable assets make it more difficult to anticipate the affect changes in the fair value of these assets have on the return rates, it is still possible to take a simplistic approach to adjusting net assets and equity for the overall changes in net value of depreciable assets by concentrating on those assets that have the largest values on a fair market basis.

Businesses with significant amounts of equipment with fair values greater than their adjusted historical costs include paper manufacturers, printing companies, and airlines. These businesses, which all have single pieces of equipment that cost millions of dollars, have the potential for significant asset understatement. A specific example is the paper making industry, which generally depreciates paper machines over a 20 year life, but uses the machines in production for 40 to 50 years.<sup>5</sup> The artificially low depreciation life results in understating the assets on the financial statements. The magnitude of the understatement is determined by the differential of the book versus the fair value of the assets and the relative proportion of this difference to the total assets of the firm.

### ***Proposed Solution to the Evaluations Process***

The proposed solution to evaluating financial performance is to restate the book values for assets and equity to their fair values when the book to market differential is significant and to define profits as the economic profits, rather than the accounting profits, of the business.

### **Fair Value Restatement Process**

Businesses that have the following characteristics should evaluate the fair value of its major assets.

- A large proportion of the productive assets that are still being used are fully depreciated.
- A few significant pieces of equipment comprise a large proportion of the total asset value.
- The business has large land holdings that were acquired many years ago.

The fair value estimation process should be a simplified process that provides consistent information when making calculations from one year to the next. The idea is to restate asset values at amounts that reasonably approximate the

assets' fair values. There are two considerations for depreciable assets; adjusting for differences in the depreciable lives and assessing if the assets have appreciated in value.

Depreciation schedules can be reviewed to determine which assets are fully depreciated and/or which assets are being depreciated over useful lives that are shorter than their productive lives. A schedule for the restated depreciation values should be prepared. Then the net adjustments related to depreciation should be determined. Assets to be included in the depreciation adjustment schedule should only be ones with large original costs and significantly shorter depreciation lives than their productive lives. In other words, it is not necessary to include all assets in this schedule.

In estimating the fair value of assets, an estimation worksheet should be prepared. Only assets with values that are significantly large in proportion to total assets should be evaluated. Several methods of estimating the current market prices of assets include, gathering appraisal values of assets, using general inflationary adjustments less the lost value due to use, and gathering data on recent sales of similar used assets.

Once the amount of the asset adjustment is known it should be treated as an increase to the asset values and an increase to equity. This approach will result in the most conservative restatement of the returns values.

#### Economic Profits Determination

Economic profits treat the return to investors as a "cost" to the business. This requires investors and business owners to determine their desired rate of return on their invested resources, the equity balance of the business. Then, investors calculate the return payment by multiplying the equity balance, after it has been adjusted to its fair value, by the desired rate of return. The return payment is deducted from accounting net income to determine the economic income.

Economic income should be used to calculate the return on equity. Positive values for the economic return on equity reflect an economic increase in the value of equity. In other words, owners returns exceeded their desired rate of return. Negative values for the economic return on equity reflect that the owners failed to earn their desired rate of return. This indicates investors have experienced an opportunity cost, because the returns did not reward the investors for the level of risk in their investment. In this case, owners may wish to consider alternative investment opportunities.

#### **Conclusion**

Investors and business owners wishing to earn an adequate return on their investment and using ROA and ROE to evaluate the investment returns should evaluate the financial performance of a company using asset and equity values

that reflect the current fair values of the firm. Failure to use fair value returns information can lead to making sub-optimal business decisions.

Financial accounting principles reflect the fair value of the business if the business experiences declines in asset values. Assets that appreciate in value, however, are not reflected at their fair value in the financial statements. Using the financial statements that understate asset values, results in returns information that is overstated. To correct the amount of the overstatement it is necessary to determine the current fair values of assets and adjust both assets and equity for the amount of the fair value adjustment. Finally, to enable owners to easily evaluate the economic increase (decrease) in the value of the business, ROE should be calculated using economic income rather than accounting income. This calculation's positive return rate indicates the amount of increase the owners have received on their investment above their required rate of return.

## NOTES

<sup>1</sup> Stickney, Clyde P. Financial Statement Analysis: A Strategic Perspective. 2nd ed. Fort Worth: The Dryden Press, 1993.

<sup>2</sup> The calculation of ROA using net income adjusted for the after-tax effect of interest allows managers to evaluate the resource utilization separate from the after-tax cost of financing the business resources.

<sup>3</sup> Peterson, Donald M. Financial Ratios and Investment Results. Lexington: Lexington Books, 1974.

<sup>4</sup> "Qualitative Characteristics of Accounting Information," *Statement of Financial Accounting Concepts No. 2* (Stamford, Conn.: FASB, May 1980).

<sup>5</sup> Ecklin, Tom; Accountant at Consolidated Papers. Personal Interview. January 1998.

Accounting principles are the foundational guidelines for recording and preparing financial statements. Full disclosure: This convention as part of accounting principles implies that the accounts should be prepared in a manner that all material information is clearly disclosed. Conservatism: This convention takes into consideration all prospective losses and leaves all prospective profit until they are earned. Introduction to Accounting Principles. Did you know? To make the topic of Accounting Principles even easier to understand, we created a collection of premium materials called AccountingCoach PRO. Our PRO users get lifetime access to our accounting principles cheat sheet, flashcards, quick test, and more. This accounting principle assumes that it is possible to report the complex and ongoing activities of a business in relatively short, distinct time intervals such as the five months ended May 31, 2020, or the 5 weeks ended May 1, 2020. The shorter the time interval, the more likely the need for the accountant to estimate amounts relevant to that period. For example, the property tax bill is received on December 15 of each year. Accountants use generally accepted accounting principles (GAAP) to guide them in recording and reporting financial information. GAAP comprises a broad set of principles that have been developed by the accounting profession and the Securities and Exchange Commission (SEC). Full disclosure principle. Financial statements normally provide information about a company's past performance. However, pending lawsuits, incomplete transactions, or other conditions may have imminent and significant effects on the company's financial status. Relevant information helps a decision maker understand a company's past performance, present condition, and future outlook so that informed decisions can be made in a timely manner.