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An Analysis of Accounting Quality Using Reformulated Financial Statements

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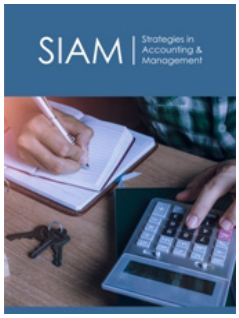

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Abstract

This discussion shows the mechanics of a valuation model using financial statement components. The DuPont decomposition of profitability, applied simply to profitability from operating activities, offers the user the ability to highlight the contributions of asset utilization in generating sales and efficiency in realizing profits from operating (not total) assets.

Abbreviations: ROA: Return On (total) Assets; RNOA: Return on Net Operating Assets; DCF: Discounted Cash Flow; RI: Residual Income; GAAP: Generally Accepted Accounting Principles; NOA: Net Operating Assets; NFO: Net Financial Obligations; NFA: Net Financial Assets

Introduction

One overriding goal of corporate management is to create value for its shareholders and creditors. Penman [1,2] outlines a method to financial statement analysis used for valuation that is based on accounting disclosures in financial statements. The analysis distinguishes operating and financing activities reported in the financial statements inspired by the Modigliani and Miller notion that operating activities that generate value. Balance sheet models are employed, not ignored as in some financial statement analysis methods. That is, Total Assets = Operating + Financial assets, and Total Liabilities = Operating + Financial liabilities. Operating liabilities are those generated by operations (like accounts payable, wages payable, pension liabilities and deferred tax liabilities), while financial liabilities are those from raising funds to finance operations. Financial assets (e.g., bonds held) are available to finance operations and effectively reduce debt to finance operations (bonds issued).

At the core of the financial statement reformulation method is a series of accounting relations that show how value cycles from corporations to its shareholders and creditors. By following the financial statement reformulation method and thus comparing income statement components to corresponding balance sheet components yields an important measure of operating profitability - Return on Net Operating Assets (RNOA). RNOA is similar to the more traditional Return on (total) Assets (ROA) but has two primary benefits:

1. The numerator is operating income less income effects from financing activities, and;

2. Operating liabilities are removed from the denominator.

In contrast, ROA combines operating and financing activities in both its numerator and denominator, thus yielding a combined measure of profitability from operating and financing activities. Nissim and Penman [3] find RNOA is higher at the mean and median than the traditional ROA (which often seems too low to be plausible) and has considerably higher variation. Comparing ROA to RNOA demonstrates that the distinction between operating and financing items, and more specifically the adjustment for operating liabilities, can significantly impact the informativeness of profitability analysis.

Valuation models (particularly of equity values) focus on expected cash flows, discounted for the riskiness of the expected cash flows. One of the more standard approaches to valuation is a discounted cash flow (DCF). An alternative model, the aptly named residual income (RI) model, focuses on the income statement and balance sheet, thereby utilizing accrual accounting instead of removing its effects as often done in a DCF approach (see, for example, Ohlson [4] for a more complete discussion of the residual income valuation model).

The RI valuation model compares earnings to net assets employed by reformulating income and net assets measures after removing the impact of financing activities. Using reformulated financial statements, one can analyze the drivers of profitability ratios and growth, as both profitability and growth drive residual income in the RI model. The relative advantage of the RI model is that, although generally accepted accounting procedures (GAAP) rules or conventions can lead to biases (e.g., conservative accounting practices or immediate expensing requirements for advertising and research and development activities, to name but a few examples), any resulting biases from accounting methods influence residual income but have an offsetting effect on the balance sheet (i.e., book values). Thus, the valuation model is invariant to the dynamics of company-specific or industry-specific accounting methods.

To summarize, this approach to profitability analysis distinguishes operating performance from the costs of financing - which is combined in GAAP-based financial statements. Nevertheless, profitability analysis requires one to obtain a measure of persistent operating income. When assessing the persistence of operating income, one needs to break out RNOA into three parts: (1) operating income relative to sales (i.e., the operating profit margin), (2) sales relative to net operating assets (i.e., the asset turnover), and (3) adjust for changes in income arising from changes in investment. Growth in operating income emerges as follows. In any year, t+1, from the prior year, t, growth in operating income is determined by additions to net operating assets and the change in the profitability of net operating assets from year t to t+1. That is, the DuPont decomposition, applied only to the component of RNOA attributable to OPINC, shows the contributions of OPINC to RNOA due to asset utilization in generating sales and efficiency in realizing profits from those assets.

Profitability analysis is an important goal of the analysis following financial statement reformulation, but this is complemented with an analysis of growth. Recall that there is a clear distinction between operating and financing items. This is done by applying "clean-surplus" accounting, not just between the income statement and balance sheet totals, but also between operating and financing totals on the income statement and balance sheet. Net operating assets (NOA), in contrast to total assets used in ROA analysis, are calculated from balance sheet components. Additionally, net financial obligations (NFO) or net financial assets (NFA), for example in companies such as Apple that are net lenders not net borrowers, are separated to match to net financial expense, to yield "clean" measures of operating profitability and borrowing costs. If a firm has net financial assets rather than net financial obligations (financial assets are greater than financial obligations), the analysis yields net financial income rather than net financial expense.

Conclusion

This discussion paper outlines a financial statement analysis approach that focuses on accrual-accounting financial statements. The approach uses a separation that naturally arises from an appreciation that financial assets and liabilities are typically close to market value in the balance sheet and thus are already valued appropriately, but not so the operating assets and liabilities. The standard DuPont decomposition of ROA, applied only to the component of RNOA attributable to operating income, offers the user the ability to highlight the contributions of asset utilization in generating sales and efficiency in realizing profits from those operating (not total) assets.

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