

## The Research on the Applications and Limitations of EBITDA

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**Keywords:** ebit, ebitda, and total enterprise value, credit analysis, cash flow analysis

**Abstract.** Corporations have attempted in recent years to break free from the focus on after-tax earnings that has traditionally dominated their valuation. The impetus for trying to redirect investors' focus to operating income or other variants has been the minimal net profits recorded by many New Economy companies. Conventionally calculated price-earnings (P/E) multiples of such companies, most inconveniently, make their stocks look expensive. Old Economy companies generally have larger denominators (the E in P/E), so their multiples look extremely reasonable by comparison. Long before the dot-com companies began seeking alternatives to net income, users of financial statements had discovered certain limitations in net income as a valuation tool. They observed that two companies in the same industry could report similar income yet have substantially different total enterprise values. Similarly, credit analysts realized that in a given year, two companies could generate similar levels of income to cover similar levels of interest expense yet represent highly dissimilar risks of defaulting on their debt in the future. Net income was not, to the disappointment of analysts, a standard by which every company's value and risk could be compared. Had they thought deeply about the problem, they might have hypothesized that no single measure could capture financial performance comprehensively enough to fulfill such a role. Instead, they set off in quest of the correct single measure of corporate profitability, believing in its existence as resolutely as the conquistadors who went in search of El Dorado.

### EBIT, EBITDA, AND TOTAL ENTERPRISE VALUE

The fictitious case of Deep Hock and Breathing Room (Table 1) illustrates the problems of relating net income to total enterprise value. Both companies compete within the thingabob industry. Their net profits for the latest year are \$28.6 million and \$33.0 million, respectively. When Breathing Room announces an agreement to be acquired by a multinational thingabob producer for \$666 million, Deep Hock's founder and controlling shareholder, Philip Atlee, realizes that his company is a hot item in the mergers-and-acquisitions (M&A) market. Trusting his own skills as a negotiator, he dispenses with M&A advisers and directly contacts an investor group that has previously approached him about buying Deep Hock. With thingabob makers in strong demand, Atlee reasons, now is the time to sell. Breathing Room's selling price represented a multiple of 20 times its \$33.0 million net income, in line with levels paid in other recent thingabob acquisitions. On that basis, Atlee sets his sights on a price of 20 times Deep Hock's \$28.6 million of net income, or \$572 million. He starts the negotiations at a higher level and, after some haggling, accepts a \$572 million offer. After popping open the champagne, Atlee begins shopping for a yacht. One month later, Atlee's quiet retirement is rudely disturbed by news that the investors who bought Deep Hock have quickly resold it to a large industrial corporation for \$666 million. The ex-CEO realizes, to his dismay.

Table 1. Comparative Financial Data.

	Deep Hock Corporation	Breathing Room, Inc.
Total debt	\$67.0	\$0.0
Shareholder's equity	133.0	200.0
sales	\$500.0	\$500.0
Cost of sales	415.0	415.0
Depreciation and	25.0	25.0

amortization		
Selling, general, and administrative expense	10.0	10.0
Operating income	50.0	50.0
Interest expense	6.7	0.0
Income before income taxes	43.3	50.0
Provision for income taxes	14.7	17.0
Net income	28.6	\$33.0

That he apparently left \$94 million on the table. Dumbfounded by the turn of events, Atlee wonders why anyone would pay \$666 million for Deep Hock. That is equivalent to the price paid for Breathing Room, a company with net income 15 percent higher. Surely, the investment group that paid \$572 million for Deep Hock could not have boosted its profits materially in the space of a month. Neither have price-earnings ratios on thingmabob companies risen from 20 times in the interim. Determined to solve the mystery, Atlee seeks an explanation from his niece, Alana, an intern at an investment management firm. Drawing on her experience in analyzing financial statements, she obliges by pointing out that Deep Hock's income from operations, at \$50.0 million, is equivalent to Breathing Room's. The difference at the bottom line arises because Breathing Room, with a debt-free balance sheet, has no interest expense.

### THE ROLE OF EBITDA IN CREDIT ANALYSIS

Between Phil Atlee and his niece shows that similar companies with similar net income can have substantially different total enterprise values. Much in the same way, companies with similar interest coverage can have substantially different default risk. In credit analysis [1-3], as in valuing businesses, EBITDA can discriminate among companies that look similar when judged in terms of EBIT. Consider the fictitious examples of Rock Solid Corporation and Hollowman, Inc

Rock Solid can sustain a larger decline in gross margin than Hollowman can before it will cease to generate sufficient cash to pay its interest in full. The Applications and Limitations of EBITDA 169

The reason is that noncash depreciation charges represent a larger portion of Rock Solid's total operating expenses—4.2 percent of \$1.790 billion, versus 1.9 percent of \$1.560 billion for Hollowman. This difference, in turn, indicates that Rock Solid's business is more capital-intensive than Hollowman's. Further examination of the companies' financial statements would probably show Rock Solid to have a larger percentage of total assets concentrated in property, plant, and equipment. In summary, conventionally measured fixed charge coverage is nearly for the two companies, yet they differ significantly in their probability of defaulting on interest payments. Taking EBITDA into account enables analysts to discriminate between the two similar-looking credit risks. This is a second major reason for the ratio's popularity, along with its usefulness in ensuring comparability of companies with dissimilar depreciation policies, when estimating the total enterprise values [4-7].

### ABUSING EBITDA

Over a full operating cycle, the capital expenditures reported in a company's statement of cash flows are ordinarily at least as great as the depreciation charges shown on its income statement. The company must repair the physical wear and tear on its equipment. Additional outlays are required for the replacement of obsolete equipment. If anything, capital spending is likely to exceed depreciation over time, as the company expands its productive capacity to accommodate rising demand. Another reason that capital spending may run higher than depreciation is that newly acquired equipment may be costlier than the old equipment being written off, as a function of inflation. In view of the ongoing

need to replace and add to productive capacity, the cash flow represented by depreciation is not truly available for paying interest, at least not on any permanent basis. Rather, the D in EBITDA is a safety valve that the corporate treasurer can use if EBIT falls below I for a short time. Under such conditions, the company can temporarily reduce its capital spending, freeing up some of its depreciation cash flow for interest payments. Delaying equipment purchases and repairs that are essential, but not urgent, should inflict no lasting damage on the company's operations, provided the profit slump lasts for only a few quarters. Most companies, however, would lose their competitive edge if they spent only the bare minimum on property, plant, and equipment, year after year. It was disingenuous for sponsors of the most highly leveraged buyouts of the 1980s to suggest that their companies could remain healthy while paying interest substantially greater than EBIT over extended periods. Naturally, the sponsors were prepared with glib answers to this objection. Prior to the buyout, they claimed, management had been over spending on plant and equipment. The now-deposed chief executives allegedly had wasted billions on projects that were monuments to their egos, rather than economically sound corporate investments. In fact, the story went, investments in low-return projects were the cause of the stock becoming cheap enough to make the company vulnerable to takeover. Investors ought to be pleased, rather than alarmed, to see capital expenditures fall precipitously after the buyout. Naturally, this line of reasoning was less persuasive in cases where the sponsors teamed up with the incumbent CEO in a management led buyout.

### **WORKING CAPITAL ADDS PUNCH TO CASH FLOW ANALYSIS**

Adding working capital to cash flow analysis frequently reveals problems that may not be apparent from observing the trend of EBITDA or net income plus depreciation. In fact, reported earnings often exceed true economic profits specifically as a function of gambits involving inventories or accounts receivable. Fortunately, such ploys leave telltale signs of earnings manipulation. Aside from seasonal variations, the amount of working capital needed to run a business represents a fairly constant percentage of a company's sales. Therefore, if inventories or receivables increase materially as a percentage of sales, analysts should strongly suspect that the earnings are overstated, even though management will invariably offer a more benign explanation. Consider, for example, an apparel manufacturer that must produce its garments before knowing which new styles will catch the fancy of shoppers in the season ahead. Suppose that management guesses wrong about the fashion trend. The company now holds inventory that can be sold, if at all, only at knockdown prices. Instead of selling the unfashionable garments, which would force the manufacturer to recognize the loss in value, management may decide to retain them in its finished goods inventory. Accounting theory states that the company should nevertheless recognize the loss by writing down the merchandise. In practice, though, management may persuade its auditors that no loss of value has occurred. After all, judging what is fashionable is a subjective process. Moreover, management can always argue that the goods remain in its warehouse only because of a temporary slowdown in orders. If the auditors buy the story, it will not alter the fact that the company has suffered an economic loss. Analysts focusing exclusively on EBITDA will have no inkling that earnings are down or that the company's cash resources may be starting to strain [8-12].

### **SUMMARY**

Despite repeated demonstrations of the truism that no single measure encapsulates all of a company's pertinent financial traits, investors continue to search for the silver bullet. If a company's value is not a direct function of its net income, they tell themselves, the problem must be that net income is too greatly affected by incidental factors such as tax rates and financial leverage. The answer must be to move up the income statement to a measure that puts companies on a more even plane with one another. As former Merrill Lynch investment strategist Richard Bernstein points out, 5 operating earnings tend to be stabler than reported earnings, EBIT tends to be stabler than operating earnings,

and EBITDA tends to be stabler than EBIT. Companies welcome analytical migration toward less variable measures of performance, because investors reward stability with high price-earnings multiples. The trend of moving up the income statement reached its logical conclusion during the technology stock boom of the late 1990s. Investors latched onto the highest, most stable figure of all by valuing stocks on price-sales ratios. (To obscure what was going on, some companies actually resorted to discussing their earnings before expenses, or EBE.)

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