

Foundations of Economic **Value Added**

Second Edition

JAMES L. GRANT



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John Wiley & Sons, Inc.

To Barbara and Our Family

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Foreword

The pendulum swing of investors and corporate decision makers' focus over the past few years has probably not been this extreme for at least a generation. Growth for the sake of growth has been replaced with intense scrutiny of capital usage and payback. Risk has changed from loss of opportunity to loss of capital. Most importantly, valuation and all of its individual components has highlighted the need to reconcile what market expectations already reflect at today's stock price in terms of actual company fundamentals and outlook.

The concept of economic profit now more popularly known as economic value added has been constant during this dramatic change in market and economic environment. In a perverse way, though, it has taken a bear market, recession, corporate scandals and change in the systemic risk environment to bring increased attention to advanced financial statement analysis.

In 1997, I was working at Credit Suisse Asset Management, responsible for the firm's active large-capitalization portfolio management, Select Equity. The product was unique in that it was managed using economic profit-based analyses as its foundation. Although some product literature describing the process existed, there was market demand for a more comprehensive white paper to establish the validity of economic profit ingrained into this so-called new style of investing. Despite a successful history of implementing this concept on real world assets under management, a suspicion arose because the economic profit "style" emphasized cash flow returns on capital rather than earnings-per-share. It also emphasized substituting the company's cash flow volatility to measure risk rather than beta, a unique approach at the time.

Several books had been written principally for the corporate user dealing with economic profit and other value-based metrics but none were available dealing substantially with the linkage to stock price and investment performance. The broad acceptance into the commonplace of Wall Street was still in the future. This to me represented an irony in that corporations seemed to be more fluent in the knowledge and understanding of the principles behind economic profit than Wall Street analysts, the primary user of financial statements and influential in interpreting and valuing businesses. In searching for an academic to assist me in crafting a white

paper, I came across the first edition of *Foundations of Economic Value Added* authored by Dr. James Grant. The book was groundbreaking because it was the first to create a bridge between these constituents. Dr. Grant and I have collaborated on many projects over the years since then including coauthoring a book, *Focus on Value*, further explaining economic profit as a practical tool for corporate and investor decision making.

In between the time of the first and second editions of *Foundations of Economic Value Added*, much progress has been made in advancing many of the tenets that were part of the original edition. However, like most business endeavors and even portfolio management, gains tend to be uneven and compressed. It is perhaps unfortunate that the increased acceptance and rapid adoption of economic profit based analyses in research has occurred after investors have lost confidence in management, financial statements, and Wall Street research. Though the concepts are intact, it is refreshing to see continued refinement in the application and implementation of economic profit principles.

The second edition of *Foundations of Economic Value Added* is a book to be read, underlined, written in, and reread. It offers readers the opportunity to not only learn the basic elements of value-based financial statement analysis but also illustrates the linkage between corporate decision making regarding capital allocation and stock price in a powerful and common sense way.

James A. Abate, CPA, CFA
Investment Director
Global Asset Management (USA), Inc.

Preface

Foundations of Economic Value Added, Second Edition is a greatly expanded version of the first edition. In this context, the second edition provides a much broader and sharper focus on the role of economic profit in the theory of finance, the empirical relevance of EVA as a measure of corporate financial success, and how to apply EVA principles when evaluating companies, industries, and even market economies. In this expanded work, there are several new chapters on economic profit including how to estimate EVA with standard accounting adjustments, enterprise and stock price valuation using free cash flow and economic profit models, the EVA role of positive and negative economic depreciation, and the development of an EVA-based factor model approach to estimating the cost of capital.

Having said that, it is important to emphasize that *Foundations of Economic Value Added, Second Edition* holds to the founding tenets of the first edition. To repeat, graduates of corporate finance (some of whom are perhaps now CFOs) will recall that in a well functioning capital market, the firm's operating and investment decisions can be made independently of shareholder "tastes" (or utilities) for present and expected future consumption. In this rational setting, the favorable NPV—equivalently, the discounted positive average EVA—announcements by corporate managers are wealth enhancing for all of the firm's existing shareholders, while the investor-perceived negative NPV announcements unfortunately destroy shareholder value. Whether corporate managers realize it or not, this efficient market condition is why they can make investment decisions according to the classic net present value rule.

Likewise, the modern principles of corporate finance reveal that if the capital market is indeed efficient, then these discounted positive average-EVA growth decisions can largely be made without regard to the particular method (debt versus equity) of corporate financing. In effect, the EVA-enhancing decisions by managers in a levered firm (a company with long-term debt) have the same wealth impact as if the firm were totally unlevered (that is, debt free). However, with market imperfections, corporate managers need to consider the discounted EVA impact of the firm's effective debt-tax subsidy and/or potential agency benefits arising from debt financing due to the presumably lower weighted average cost of capital.

As with corporate finance, EVA has many investment applications. For instance, if the firm's market capitalization (debt plus equity value) falls short

of the EVA-based intrinsic value, then its outstanding bonds and stocks would be undervalued in the marketplace. By purchasing the mispriced securities of firms having, for example, relatively low NPV-to-EVA multiples, the active investor may reap windfall capital gains on the firm's outstanding debt and equity securities. Stock price rises in this active investing scenario because the discounted positive EVA announcements increase the true earnings pie for investors, while bond investors may reap windfall capital gains due to credit upgrades on the firm's risky debt. Hence, securities analysts and investment managers can also see that EVA has joint pricing implications for the valuation of the firm's outstanding debt and equity securities.

In the development of the first and now second edition of *Foundations of Economic Value Added*, I have benefited from many insights from professional associates. John Stahr, Wayne Archambo, and Paul Price were duly acknowledged in the first edition, and I am still grateful for their early comments in shaping my understanding of the practical significance of economic profit principles when evaluating companies, industries, and market economies. In this second edition, I am most grateful for comments and insights received from my professional colleague, James Abate of Global Asset Management in New York, who contacted me shortly after the publication of the first edition of this book. It has been a great pleasure to develop and see EVA principles in action from the dual perspectives of stock selection and portfolio risk control. Jim and I also coauthored *Focus on Value: A Corporate and Investor Guide to Wealth Creation* (John Wiley & Sons, 2001) from which advanced EVA insights in that book—such as the EVA-based factor model approach to estimating the cost of capital—are also included herewith.

On the research side, I am most grateful to Al Ehrbar and Bennett Stewart of Stern Stewart & Co. for their “no questions” asked policy in supplying MVA and EVA data on the Performance 1000 Universe. For the record, my enthusiasm about EVA (and its discounted MVA equivalent) as an innovative tool in measuring true corporate profit has in *no* way been influenced by anyone at Stern-Stewart. I would also like to thank Meredith Grant Anderson (Ph.D. candidate in physics at Carnegie Mellon University), and Ganesh Jois (MBA candidate in the Honors Program at Baruch College) for their quantitative research assistance in constructing the numerous exhibits in this book. Last, but hardly least, an enduring word of thanks goes to Frank J. Fabozzi of the Yale School of Management. His encouragement and flexibility over the years has made it a real pleasure to write both editions of *Foundations of Economic Value Added*. As mentioned before, it was Frank, not I, who had the initial insight to expand upon my EVA study in the Fall 1996 issue of the *Journal of Portfolio Management*.

James L. Grant

About the Author

James L. Grant is President of JLG Research, a company specializing in economic profit research, and a member of the finance faculty at Baruch College of the City University of New York. Dr. Grant serves as a Special Adviser to Global Asset Management in New York. He holds a Ph.D. in Business from the University of Chicago's Graduate School of Business and has been a featured speaker at industry conferences on value-based metrics. Dr. Grant serves on the Editorial Advisory Board of the *Journal of Portfolio Management*. He has published several articles in investment journals, including *JPM* and the *Journal of Investing*. Dr. Grant is the coauthor of *Focus on Value: A Corporate and Investor Guide to Wealth Creation* (with James A. Abate) and coauthor and coeditor (with Frank J. Fabozzi) respectively of *Equity Portfolio Management* and *Value-Based Metrics: Foundations and Practice*.

The EVA Revolution

In a market-driven economy many companies will create wealth. Other firms however will undoubtedly destroy it. Discovering those economic factors that lead to wealth creation and destruction among companies is important to many constituencies, not the least of which is corporate officials and investment managers. For corporate managers, wealth creation is fundamental to the economic survival of the firm. Managers that fail (or refuse) to see the importance of this imperative in an open economy do so at the peril of the organization and their own careers.¹

Finding the “best” companies and industries in the marketplace is of primary importance to investment managers. With the proper financial tools, portfolio managers may be able to enhance their active performance over-and-above the returns available on similar risk indexed-passive strategies. A new analytical tool called EVA is now assisting this wealth-discovery and company-selection process. The innovative changes that this financial metric have spawned in the twin areas of corporate finance and investment management is the driving force behind what can be formerly called the “EVA revolution.”

EVA IN PRACTICE

The analytical tool called EVA, for Economic Value Added, was commercially developed in 1982² by the corporate advisory team of Joel Stern

¹ It goes without saying that, in principle, a nonmarket economic system will create *less* wealth than a market-oriented system.

² It should be noted that the commercial development of EVA did *not* just happen overnight. It was the outgrowth of early economic profit innovators like Joel Stern who recognized the practical limitation of accounting earnings. For example, see Joel M. Stern, “Earnings Per Share Don’t Count,” *Financial Analyst Journal* (July/August 1974).

and G. Bennett Stewart III.³ This financial metric gained early acceptance from the corporate community because of its innovative way of looking at the firm's real profitability. Unlike traditional measures of profit—such as EBIT, EBITDA, and net operating income—EVA looks at the firm's "residual profitability," net of both the direct cost of debt capital and the *indirect* cost of equity capital.⁴ In this way, EVA serves as a modern-day measure of corporate success because it is closely aligned with the shareholder wealth-maximization requirement.

Large firms like Coca Cola, Diageo, Lilly (Eli), Guidant, and SPX have used EVA as a guide to creating economic value for their shareholders. Bonuses and incentive pay schemes at these firms have been built around the manager's ability (or lack thereof) to generate positive EVA within the firm's operating divisions. Positive payments accrue to managers having divisional operating profits that on balance exceed the relevant "cost of capital," while negative incentive payments may occur if the longer-term divisional profits fall short of the overall capital costs. Thus, by accounting for both the cost of debt *and* equity capital, EVA gives managers the incentive to act like shareholders when making corporate investment decisions.

EVA is also gaining popularity in the investment community. The June 1996 Conference on "Economic Value Added" at CS First Boston and the "roll out" of Goldman Sachs' EVA research platform in May 1997 is testimony to this exciting development. Indeed, "buy side" investment firms like Global Asset Management and Oppenheimer Capital use EVA in their stock selection, portfolio construction, and risk control processes.⁵ Other large investment firms are taking a serious look, and EVA is

³ EVA® is a registered trademark of Stern Stewart & Co. For insightful discussions of the EVA® metric, along with many applications of how this economic profit measure can be used in a corporate finance setting, see (1) G. Bennett Stewart III, *The Quest for Value* (New York: HarperCollins, 1991), and (2) Al Ehrbar, *EVA: The Real Key to Creating Wealth* (New York: John Wiley & Sons, Inc., 1998).

⁴ In this book, the acronym/words, EVA, economic profit, and residual profitability (income) are used interchangeably. Strictly speaking, one can distinguish between EVA to the firm (as emphasized in this book), and economic profit/residual profitability to the stockholders. This combined (albeit less stringent) view of EVA-based metrics points to the potential benefits of economic profit improvement on both the firm's risky stocks and bonds (via credit upgrades). For a finer distinction of EVA-based concepts, see Pablo Fernández, *Valuation Methods and Shareholder Value Creation* (London, UK: Academic Press, 2002).

⁵ For EVA in action, see James A. Abate, *American Focus Equity Investment Strategy Profile*, Global Asset Management (USA) (January 2001). For an explanation of the EVA approach to stock selection, see (1) the chapters in this book on company and industry analysis, and (2) James L. Grant and James A. Abate, *Focus on Value: A Corporate and Investor Guide to Wealth Creation* (New York: John Wiley & Sons, Inc., 2001).

also making meaningful inroads in the world of global performance analytics. Moreover, recent empirical studies in the *Journal of Portfolio Management* (among other finance and investment journals) shows that EVA is being advanced in both the academic and financial communities.⁶

EVOLUTION OF EVA

The evolution of economic profit—economic value added (EVA)—is a fascinating study with historical roots that can be traced back to the classical economists' notion of "residual income." For instance, consider the definition of economic profit made in 1890 by famous British economist, Alfred Marshall, regarding the real meaning of a business owner's "profit:"⁷

What remains of his profits after deducting interest on his capital at the current rate may be called his earnings of undertaking or management.

Based on Marshall's statement, it is evident that the economists' definition of profit—namely, a residual view of income or economic profit—is radically different from the accounting measures of profit in use today, such as EBIT, EBITDA, or net operating income. That is, a key distinction between economic profit and accounting profit lies in the classical economists' notion that a company is not truly profitable unless its revenues have (1) covered the usual production and operating expenses of running a business, and (2) provided a normal return on the owners' invested capital. In a more fundamental sense, this residual view of income is really what today's economic profit movement is really all about.

While EVA is rooted in classical economic theory, three pioneering 20th century American economists—Irving Fisher during the 1930s,⁸ and Nobel Laureates Franco Modigliani and Merton Miller in the late 1950s to early 1960s⁹—expanded upon the fuller meaning of economic profit in

⁶ For examples, see (1) James L. Grant, "Foundations of EVA for Investment Managers," *Journal of Portfolio Management* (Fall 1996), and (2) Kenneth C. Yook and George M. McCabe, "An Examination of MVA in the Cross-Section of Expected Stock Returns," *Journal of Portfolio Management* (Spring 2001).

⁷ Alfred Marshall, *Principles of Economics*, Vol. 1 (New York: MacMillan & Co., 1890), p. 142.

⁸ Irving Fisher's pioneering work on the NPV theory of the firm is described in *The Theory of Investment* (New York: Augustus M. Kelley Publishers, 1965, reprinted from the original 1930 edition).

a corporate valuation context. Irving Fisher established a fundamental link between a company's net present value (NPV) and its discounted stream of expected cash flows. In turn, Modigliani and Miller showed that corporate investment decisions—as manifest in *positive* NPV decisions—are the primary driver of a firm's enterprise value and stock price—as opposed to the firm's capital structure mix of debt and equity securities.

Basically, the theory of economic value added rests on two principle assertions: (1) a company is not truly profitable unless it earns a return on invested capital that exceeds the opportunity cost of capital, and (2) that wealth is created when a firm's managers make positive NPV investment decisions for the shareholders. We'll expand on these EVA tenets of wealth creation as we move forward in this book. For now, let's look at some operational definitions of EVA that have shaped the current economic profit movement as well as introduce the link between a company's economic profit and its market value added.

OPERATIONAL DEFINITIONS OF EVA

There are two popular, or operational, ways of defining EVA—namely, an “accounting” way and a “finance” way.¹⁰ From an accounting perspective, EVA is defined as the difference between the firm's net operating profit after tax (NOPAT) and its weighted-average *dollar* cost of capital. As a result, EVA differs from traditional accounting measures of corporate profit including, EBIT (earnings before interest and taxes), EBITDA (EBIT plus depreciation and amortization), net income, and even NOPAT because it fully accounts for the firm's overall capital costs. This analytical difference is important to the firm's owners because the EVA metric is net of both the direct cost of debt capital and the *indirect cost* of equity capital—as reflected in the shareholders' required return on common stock. In this context, EVA can be expressed in more general terms as:

⁹ See Franco Modigliani and Merton H. Miller, “The Cost of Capital, Corporation Finance, and the Theory of Investment,” *American Economic Review* (June 1958), and “Dividend Policy, Growth and the Valuation of Shares,” *Journal of Business* (October 1961).

¹⁰ The author views an “accounting” approach to estimating EVA as one that rests on conventional accounting income and balance sheets, footnotes to financial statements, plus necessary external information such as “beta” used in CAPM. In turn, a “finance” approach to estimating EVA is viewed as one that rests primarily on a discounting or present value process with the goal of determining market value added, enterprise value, and stock price.

$$\text{EVA} = \text{NOPAT} - \$ \text{ Cost of Capital}$$

In this expression, the firm's *dollar* cost of capital is calculated by multiplying the *percentage* cost of capital by the amount of invested capital according to:

$$\$ \text{ Cost of capital} = [\% \text{ Cost of capital}/100] \times \text{Capital}$$

In turn, the percentage cost of capital is obtained by taking a “weighted average” of the firm's after-tax cost of debt and equity capital as shown by:

$$\begin{aligned} \% \text{ Cost of capital} = & [\text{Debt weight} \times \% \text{ After-tax debt cost} \\ & + \text{Equity weight} \times \% \text{ Cost of equity}] \end{aligned}$$

EVA: The Finance Interpretation

From a finance perspective, EVA is defined in terms of how it relates to the firm's “market value added.” In this context, MVA (or NPV) is equal to the present value of the firm's expected future EVA. Additionally, since MVA is equal to the market value of the firm less the “book capital” employed in the business, it can easily be shown that EVA is related to the *intrinsic value* of the firm and its outstanding debt and equity securities. Stating these concepts in more formal terms yields the familiar value-based relationship between the firm's “market value added (MVA)” and its “economic value added (EVA)” according to:

$$\text{MVA} = \text{Firm value} - \text{Total capital}$$

$$\text{MVA} = [\text{Debt} \textit{ plus Equity value}] - \text{Total capital}$$

$$\text{MVA} = \text{PV of expected future EVA}$$

These general financial definitions have important implications for the firm's owners. Companies having positive EVA momentum should on balance see their stock (and perhaps, bond) prices go up over time as the increasing profits net of the overall capital costs leads to a rise in the firm's “market value added.” In contrast, firms with returns on invested capital that fall short of the weighted-average cost of capital should see share price declines as the adverse EVA outlook lowers the intrinsic (present) value of the firm.

Hence, by incorporating EVA into the company evaluation process, securities analysts and/or portfolio managers may enhance the overall pricing accuracy of their research recommendations. Also, with EVA corporate managers have an innovative financial tool for assessing

whether their *planned* investment in real assets will lead to wealth creation (positive NPV) for the shareholders.

MVA AND EVA: A SIMPLE EXAMPLE

As a simple illustration of the present value relationship between the firm’s MVA and EVA, consider a two-period world where NSF’s (for, “New Start-up Firm”) investment and financing opportunities are like those listed in Exhibit 1.1. The exhibit indicates that if NSF invests \$100 million today in real assets, then it can expect to create \$15 million of positive EVA in the future period.¹¹

With a “discount rate” or cost of capital of 10%, the “net present value” of NSF’s investment opportunity is \$13.64 million:

$$\begin{aligned} \text{NPV} &= \text{MVA} \\ &= \$\text{EVA}(1)/(1 + \text{COC}) \\ &= \$15/(1.1) = \$13.64 \text{ million} \end{aligned}$$

The \$13.64 million in “market value added (MVA)” shows that NSF is a wealth creator. By adding this positive NPV figure to NSF’s initial capital investment of \$100 million, one obtains the market value of the firm, at \$113.64 million:

$$\begin{aligned} V &= \text{Capital} + \text{MVA} \\ &= \$100 + 13.64 = \$113.64 \text{ million} \end{aligned}$$

EXHIBIT 1.1 NSF Corporation

Time Period	Investment (\$ millions)	EVA (\$ millions)
0 (today)	100.0	0.0
1	0.0	15.0

Weighted Average Cost of Capital (COC) = 10%

¹¹ Note that if NSF’s future EVA is \$15 million, then its cash resources at period 2 (before capital costs) must be \$125 million. This is because in a two-period “world,” interest and return of loan principal—at \$10 million and \$100 million respectively—will be due in period 2. We’ll look at the specifics of an EVA-based wealth model in the next chapter.

Moreover, if one makes the convenient assumption that NSF's capital investment is financed with 100% debt, then the aggregate equity capitalization of the firm is the \$13.64 million in market value-added (MVA). With 1 million shares of common stock outstanding, each share is then worth \$13.64 (\$13.64 million/1 million shares) in market value terms. Thus, in this simplifying "two-period" example, the firm's aggregate MVA (or NPV) is equal to the present value of its expected future "economic value added (EVA)."

MVA and EVA: Growth Considerations

The basic EVA and MVA linkage outlined above can also be extended to a multiperiod framework. Without getting into complicated pricing details here, one can use a "constant growth" EVA model to show the pricing importance of both the firm's near-term EVA outlook and its long-term EVA growth rate in determining overall corporate (or enterprise) valuation. In this "Gordon-like" model,¹² the relationship between the firm's MVA and its EVA outlook for the future is expressed as:

$$\text{MVA} = \text{EVA}(1)/(\text{COC} - g_{\text{EVA}})$$

In this expression, $\text{EVA}(1)$ is the firm's current EVA outlook (one-year ahead forecast), g_{EVA} is the firm's assessed long-term EVA growth rate, and COC is the familiar weighted-average cost of debt *and* equity capital.

The constant-growth EVA model shows that the firm's market value added (MVA) is positively related to its near-term EVA outlook, as measured by $\text{EVA}(1)$, as well as the firm's assessed long-term EVA growth rate, g_{EVA} . As shown, the firm's MVA is also negatively related to any unanticipated changes in the weighted-average cost of (debt and equity) capital, COC. However, in view of modern day capital structure principles (*à la* Miller-Modigliani), this "cost of capital" interpretation does not imply that the firm's corporate debt policy has any meaningful

¹² The constant growth valuation model is generally attributed to Myron Gordon. See, Myron J. Gordon, *The Investment, Financing, and Valuation of the Corporation* (Homewood IL: Irwin, 1962).

Gordon popularized a dividend growth model in terms of a dividend stream that is growing at a constant rate over time—hence, the "constant-growth DDM." The text discussion suggests that the same discounting procedure can be applied to estimate MVA (or NPV) when it is reasonable to assume that EVA is growing at a constant rate.

impact on the valuation of the firm and its outstanding debt and equity shares.¹³

PREVIEW OF WEALTH CREATORS

Let's now take a preliminary look at the MVA and EVA relationship for major U.S. wealth creators and destroyers.¹⁴ The MVA and EVA characteristics for five large U.S. wealth creators—including General Electric, Cisco Systems, Microsoft Corporation, Wal-Mart Stores, and Merck—for the 11-year period covering 1990 to 2000 are shown in Exhibits 1.2 and 1.3. These large capitalization companies were listed by Stern Stewart & Co. as the top-five U.S. wealth creators (based on MVA ranking) in their 2001 Performance Universe.

Exhibit 1.2 shows that wealth creators like General Electric (#1), Cisco Systems (#2), and Merck (#5) have substantially positive MVA that grows rapidly over time. At year-end 2000, General Electric's net present value was \$426,616 million, while Cisco Systems and Merck were reporting MVA values of \$272,131 and \$203,689 million, respectively. During the 11-year period spanning 1990 to 2000, General Electric's net present value was growing at a compound yearly rate of nearly 34%. Moreover, over the 11-year reporting period, Cisco's MVA was actually growing at an annualized rate of 86% (!), while Merck was reporting a respectable average MVA growth rate of about 21%.

Exhibit 1.2 also reveals that the MVA values for the top-five U.S. wealth creators declined mostly¹⁵ from year-end 1999 to 2000. For example, General Electric's MVA declined by about \$45,000 million (or \$45 billion) while Cisco Systems and Wal-Mart each experienced MVA declines of around \$76,000 million. Indeed, Microsoft's MVA declined by a *staggering* \$412,000 million—from \$629,470 to \$217,235 million—between 1999 and 2000. As with Cisco et al., the MVA decline for Microsoft was due in part to the general slowdown in economic

¹³ Peter Bernstein eloquently captures the essence of the original “M&M (Miller-Modigliani)” capital structure principles when he states that—“the cost of capital depends far more on the quality of corporate earning power than on the structure of paper [debt and equity] claims.” For Bernstein's insightful comment on corporate debt policy, see Peter L. Bernstein, “Pride and Modesty,” *Journal of Portfolio Management* (Winter 1991).

¹⁴ We'll look at the MVA-EVA relationship for some U.S. wealth destroyers in the next section. The financial characteristics of wealth creators and destroyers will be examined in much greater detail in upcoming chapters.

¹⁵ Merck's MVA actually rose from 1999 to 2000, from \$143,001 to \$203,689 million.

activity—especially in the technology and telecommunication industries—and thus the precipitous decline in the U.S. stock market commencing in the first half of 2000. Additionally, Microsoft's sharp decline in MVA was due to serious legal challenges from competitors arising from its alleged "bundling" of software with the Windows operating system.

Exhibit 1.3 shows the source of the positive net present value being generated by the five U.S. wealth creators shown in Exhibit 1.2. Specifically, this exhibit reveals that wealth creators like General Electric, Microsoft, and Merck have substantially positive MVA because their EVA is both positive and growing at a substantial rate over time. At \$5,943 million, General Electric's 2000 EVA is not only positive, but it also grew by 25% over the 1990–2000 period. With MVA and EVA growth rates in the 20–30% range during this decade, the two exhibits suggest that General Electric's net present value largely "tracked" the diversified conglomerate's ever-rising "economic value added." Likewise, Microsoft's ten-year EVA growth rate, at 39%, seems to have provided the necessary fuel for its abnormal MVA growth rate, at 40%.

EXHIBIT 1.2 Market Value Added: Top-Five Wealth Creators in Performance Universe: 1990–2000

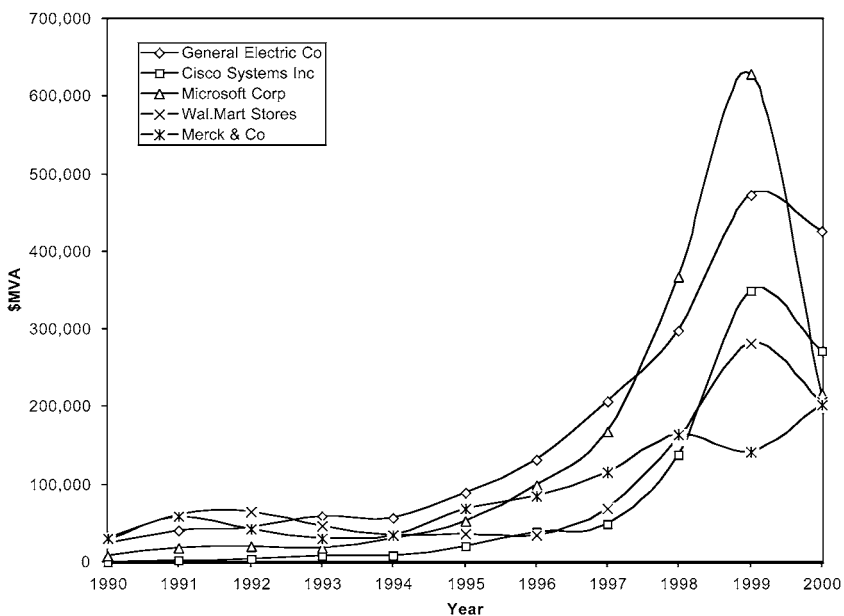


EXHIBIT 1.3 Economic Value Added: Top-Five Wealth Creators in Performance
Universe: 1990–2000

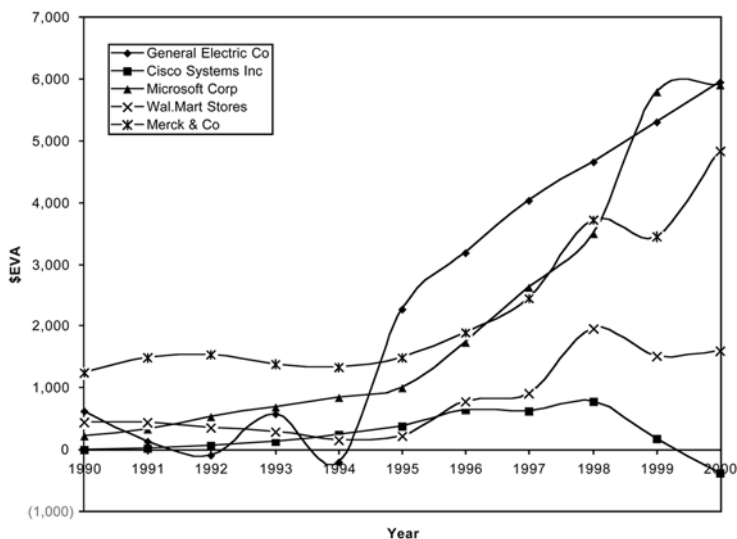


Exhibit 1.3 also shows that Cisco Systems had tremendous growth in its EVA up to 1998. During this period, the networking firm's EVA grew from just \$9 million in 1990 to \$775 million in 1998. This represents an astonishing EVA growth rate of 90% that, in turn, is joined with Cisco's MVA growth rate of 100%. On the other hand, Cisco's EVA peaked at \$775 million in 1998, then declined to \$182 million in 1999, and actually turned negative in 2000, at -\$365 million. Interestingly, Cisco was apparently overvalued in 1999 as its MVA peaked at \$348,442 during that year in the presence of its falling EVA. Cisco continued its MVA decline in 2000 with the major sell off in technology stocks to end the year at \$272,131 million. Thus, taken together, the MVA and EVA relationships shown in Exhibits 1.2 and 1.3 are not only beneficial in describing the financial characteristics of wealth creators, but exhibits like these can be used to assist in the discovery of mispriced securities.¹⁶

PREVIEW OF WEALTH DESTROYERS

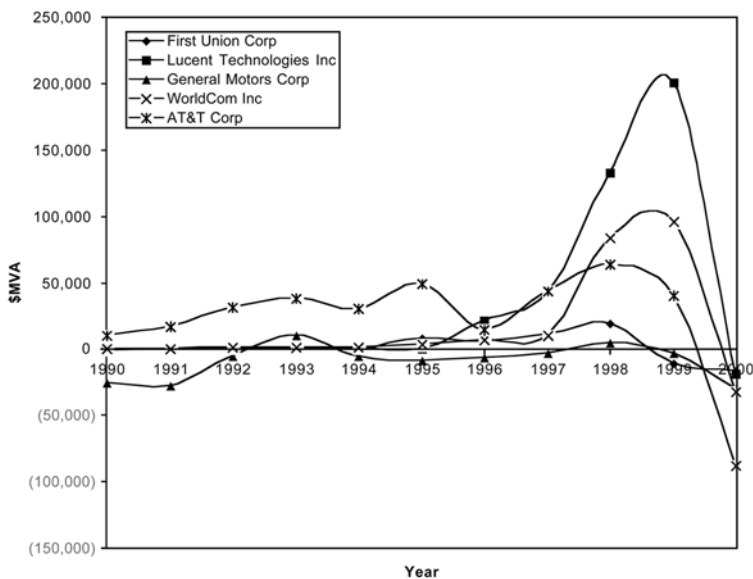
Exhibits 1.4 and 1.5 show the MVA and EVA relationships for five U.S. firms that—ironically enough—became large wealth destroyers in recent

¹⁶ Later chapters will focus on the EVA approach to equity securities analysis.

times. Specifically, the two exhibits report the MVA and EVA experiences of First Union Corporation (#996), Lucent Technologies (#997), General Motors (#998), WorldCom (#999), and AT&T (#1000) for the 11-year period covering 1990 to 2000. These companies were listed as the bottom five firms—based on MVA rankings—in the 2001 performance survey by Stern Stewart & Co.

Exhibit 1.4 shows that the net present value estimates for the five U.S. wealth destroyers are strikingly different from the reported MVA values for the “New (and Old) Guard” of modern capitalism—including, wealth creators like General Electric, Cisco Systems, Microsoft, Wal-Mart Stores, and Merck. Indeed, as of year 2000, this exhibit shows that AT&T alone wasted some \$87,000 million (or \$87 billion) in net present value. Also, Lucent Technologies’ MVA dropped from about \$200,000 million to nearly –19,000 million between 1999 and 2000. In turn, WorldCom’s MVA dropped from about \$96,000 million in 1999 down to about –\$32,000 million as of year 2000.¹⁷ Unfortunately, the MVA evidence reported in Exhibit 1.4 shows that during the 1990s these telecom giants were largely investing in projects that had a *negative* net present value.

EXHIBIT 1.4 Market Value-Added: Bottom-Five Companies in Performance Universe: 1990-2000



¹⁷ We'll take a closer look at WorldCom's MVA-EVA relationship during the past decade in an upcoming section.

EXHIBIT 1.5 Economic Value Added: Bottom-Five Companies in Performance Universe: 1990–2000

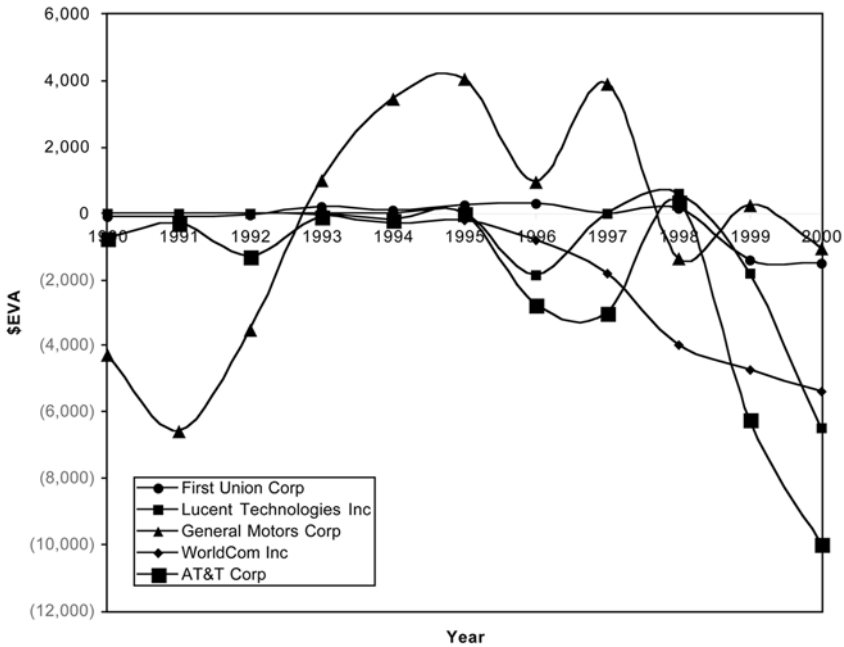


Exhibit 1.4 shows that General Motors' MVA experience during the 1990s was rather dismal, too. This large wealth destroyer had nine out of 11 years of negative net present value (including 1990). Indeed, General Motors' MVA for year 2000, at $-\$29,171$ million, was actually *lower* than its MVA for 1990, at $-\$24,708$ million. In effect, the market value of the automaker was consistently below the "book capital" (or invested capital) employed in the business. This means that General Motors' "price-to-book value" ratio was generally below unity during the 1990s. Amazingly, General Motors' shareholders seem plagued by an entrenched management that largely invests in capital-intensive projects having a negative net present value. Indeed, the intransigent automaker was third from the bottom in the MVA rankings for year 2000, and it was "dead last" in the Stern Stewart Performance Universe for 1995.

Exhibit 1.5 shows the EVA experiences for the five U.S. wealth wasters. As expected, the source of the negative net present value (Exhibit 1.4) for these companies is due to their (mostly) negative and volatile

EVA experiences over the 11-year reporting period.¹⁸ For instance, AT&T was posting a negative EVA of −\$745 million at year-end 1990. By 2000, this U.S. wealth destroyer's EVA had declined to −\$9,972 million. Meanwhile, AT&T's net present value (MVA, in Exhibit 1.4) was quite volatile during the 1990s, with positive net present value that ultimately turned grossly negative in 2000. During 2000, investors *finally* woke up to the fact that persistently negative EVA destroys shareholder value. Moreover, it appears that the “bubble” in telecom stocks that occurred during the late 1990s (see Exhibit 1.4 for 1998 and 1999) burst in 2000 when investors realized that companies like AT&T, Lucent Technologies, and WorldCom were plagued by a systematic pattern of negative EVA. Negative EVA is clearly evident in Exhibit 1.5 for the three-telecom companies over the 11-year period spanning 1990 to 2000.

Exhibit 1.5 also shows that General Motors had considerable volatility in its EVA during the 1990s. At 1990, the automaker's profitability *net* of the overall capital costs was −\$4,271 million. Coinciding with this adverse EVA figure is General Motors' negative MVA of −\$24,708 million. Although General Motors' EVA improved considerably up to 1995, the automaker experienced a volatile decline in its EVA through year 2000. Associated with this, the mostly negative MVA values (Exhibit 1.4) during this decade suggests that investors—whether correctly, or incorrectly so—still lacked confidence in General Motors' fundamental ability to generate economic value added. Thus, we again see that the joining of MVA and EVA (Exhibits 1.4 and 1.5) can be used to distinguish between wealth creators and wealth destroyers. The joining of MVA and EVA can also be used to identify overvalued and undervalued securities in the capital market.

¹⁸ It is interesting to note that the *contemporaneous* relationship between MVA and EVA is generally more robust for wealth creators than wealth destroyers. For example, the average correlation of MVA with EVA during the 1990–2000 period for the five wealth creators shown in Exhibits 1.2 and 1.3 is 0.68. The MVA-EVA correlation for these wealth creators ranges from −0.21 for Cisco Systems up to 0.8 to 0.9 for the *other* four wealth creators.

In contrast, the average correlation for the wealth destroyers shown in Exhibits 1.4 and 1.5 is 0.43. The MVA-EVA correlation ranges from −0.46 for WorldCom, up to about 0.5 for Lucent and General Motors, and 0.7 to 0.8 for AT&T and First Union Corporation, respectively. The financial implications of these correlation differences among wealth creators and wealth destroyers will be explained in a later chapter.

ACCOUNTING IRREGULARITIES AND INFORMATION INTEGRITY

At the time of this writing, the “buzz” on Wall Street was about dubious (at best) accounting practices employed by prominent U.S. companies to prop up earnings and stock price. For example, the U.S. Securities and Exchange Commission accused WorldCom—among other U.S. companies such as Enron and Global Crossings¹⁹—of defrauding investors by transferring some \$4 billion in line operating expenses from the income statement to its capital accounts. These unannounced accounting transfers were presumably made by WorldCom’s management (or its auditors) to show higher operating margins and operating earnings during 2001 and the first quarter of 2002.

While a detailed investigation of accounting irregularities at companies like WorldCom is beyond the scope of this book, it is worth making a few comments on the EVA consequences of the accounting improprieties. First, if it is publicly known—as it eventually would be with an “on balance” sheet transfer—that a company were going to capitalize an expense rather than write it off, then operating earnings in the current year would obviously go up. From an accounting perspective, such a transfer would make a company look more profitable, and thus presumably worth more money to investors. However, from an EVA perspective, the mere shifting of an expense to a capital account would lead to an annual capital charge that, in principle, should be “fully reflected” in economic profit. Specifically, while the current year’s operating earnings might look higher, other things the same, all future profitability would be lower by an equivalent present value amount.²⁰

From an EVA perspective, the firm’s enterprise value and stock price could in principle remain invariant to the “on balance” sheet capitalization of the expense. Even if the transfer from the income statement to the balance sheet were not formally announced by management, EVA accounting would normally pick this transfer up, as the revised capital account (on the EVA balance sheet) would generate a capital charge equal to the amount of transferred expense *times* the opportunity cost of invested capital. In a nutshell, EVA accounting—as opposed to GAAP

¹⁹ Enron and Global Crossings were among a growing list of large capitalization companies that defrauded investors with either “off balance” sheet or “on balance” accounting irregularities. We’ll focus on WorldCom, as the long distance carrier was among the largest wealth destroyers in 2000 that we previewed in Exhibits 1.4 and 1.5.

²⁰ Consider the simple case of a capital item that forever remains on the balance sheet. According to EVA accounting, the present value of the annual interest charge would equal the amount of capital placed on the balance sheet: where “interest” each year is calculated by multiplying the capital amount by the opportunity cost of invested capital.

accounting—automatically picks up the capitalization of expensed items through the dollar capital charge. Obviously, *serious* EVA troubles arise for investors when “on balance” sheet items like revenue are artificially inflated, or when “off balance” sheet accounting gimmickry is used by management (or its auditors) as with the notorious case of Enron that was discovered in late 2001.²¹

Although sophisticated investors might recognize the EVA consequences of dubious accounting changes, the lack of accounting transparency for the average investor leads to a *precipitous* decline in investor confidence. Worse yet, the lack of information integrity in accounting numbers leads to outright investor capitulation—as apparently happened during the summer of 2002. Also, other things the same, the increased risk of investing in the stock market leads to a rise in the cost of capital. While a rise in the cost of equity capital in particular leaves GAAP accounting earnings unchanged, a rise in the weighted average cost of capital causes a decline in EVA and a concomitant decline in enterprise value and stock price.

Returning to WorldCom, it is interesting to note that a close inspection of Exhibits 1.4 and 1.5 shows that the telecom giant’s accounting gimmickry in 2001 was just the “nail on the coffin” for this large U.S. wealth destroyer. In particular, Exhibit 1.5 shows that WorldCom’s EVA was close to zero from 1990 to 1992. After that, the telecom giant’s EVA was consistently negative in the eight years spanning 1993 to 2000. Moreover, by year-end 2000, WorldCom’s EVA was grossly negative, at $-\$5,387$ million. Coincidentally, Exhibit 1.4 reveals that during 2000 the telecom firm’s heretofore positive MVA was completely wiped out! Indeed, WorldCom’s MVA was a staggering $-\$31,808$ million at year 2000.

As with AT&T and Lucent, it is clear from Exhibit 1.4 that the sharp rise in MVA that occurred during 1998 and 1999 was clearly not sustainable. That is, the MVA bubble in the telecommunication industry stocks finally burst in 2000 in the presence of persistently negative EVA for these wealth-destroying companies. By joining MVA with EVA, a casual market observer (or possibly, and informed SEC official or federal regulator) is left wondering why and how the stocks of telecom giants—such as AT&T, Lucent Technologies, and WorldCom—were so “hyped” during the late 1990s. Unfortunately, shareholders in companies like WorldCom were harmed by a lack of accounting transparency—or dearth of information integrity in the accounting numbers—while shareholders of companies in the telecom industry more generally were harmed by a fundamental *inability* of the underlying companies to generate sustainable economic value added.

²¹ Moreover, accounting improprieties are downright illegal!

EVA HORIZONS

Before delving too deeply into the conceptual and empirical side of EVA, it is important to spell out to the reader what this book *is* and is *not* designed to do. First, this book *is* designed to explain the conceptual, empirical, and practical role of EVA in determining the enterprise value of the firm and its outstanding stock. In this context, the book focuses on the theory of economic value added as well as the application of EVA principles in practice. Additionally, the book sheds light on the empirical role of EVA in the cross section of U.S. companies and industries, along with the economy-wide influence of this economic profit metric.

Foundations of Economic Value Added shows how to apply economic profit principles in valuing companies and industries. In this context, the book shows how to (1) estimate EVA with basic and advanced accounting adjustments, (2) how to capitalize economic profit to determine a company's net present value (NPV), and (3) how to use published financial reports—such as company reports from Value Line—to estimate a company's future EVA, and in turn, its current market value added. Corporate managers and investors to assess whether the firm's outstanding securities are valued correctly in the marketplace can use these EVA valuation procedures.

Foundations of Economic Value Added also develops quantitative techniques that can be used by investors to find the most attractive companies and industries in the capital market. Linear and nonlinear regression techniques—including the Nobel prize-winning Markowitz portfolio model—are applied in an EVA context to find attractive investment opportunities. Also, the book develops a macro EVA model—based on the positioning of the economy-wide return on invested capital (ROC) and the cost of capital (COC)—to explore some exciting financial happenings at the macro-economic level. The EVA applications at the industry and economy level are updated versions of the original ones, and as such they still warrant exploration by the reader.

On the other hand, this book does *not* argue that EVA is the only measure of corporate profitability and success that should be used by managers or investors in determining the warranted value of the firm and its outstanding shares. Given the continued empirical “infancy” in EVA research, the author does not find it instructive to engage in the popular “Metric Wars” (ROE versus EVA, for example) that seem to detract from recognizing the strategic importance of this financial measure.²² Suffice it to say at this point that EVA is a “top-down” approach

²² For a practical discussion of competing profit measures and players, see Randy Myers, CEO, “Metric Wars” (October 1996).