by Michelle Clayman

# In Search of Excellence: The Investor's Viewpoint

*The bestseller* In Search of Excellence *profiled companies that had been identified as "excellent" on the basis of outstanding financial performance as ranked by several measures of profitability and growth. This article examines 29 of the companies and finds that their financial health—as measured by the same ratios—began to decline virtually across the board starting right from the date on which they were selected as "excellent." Furthermore, 39 companies ranked at the bottom by the same ratios showed widespread improvement over the next five years.*

*Over the five years, a portfolio of the 29 excellent companies wound up with 18 underperformers and 11 outperformers. It beat the S&P 500 by 1 per cent per year. A portfolio of the "unexcellent" companies ended up with 25 outperformers and 14 underperformers. It beat the S&P 500 by over 12 per cent per year.*

*The two portfolios had almost identical betas and standard deviations. The beta of the excellent portfolio was 1.18 and its annual standard deviation was 17.7 per cent. The unexcellent portfolio had a beta of 1.17 and annual standard deviation of 18 per cent. The unexcellent portfolio, however, had a monthly alpha (non-market return) of 1.0 per cent, compared with the excellent portfolio's 0.2 per cent. Obviously, analysts must question the naive assumption that history can be simply extrapolated and must carefully integrate into the stock selection process a rigorous valuation decision.*

MANY INVESTORS SELECT stocks by looking for measures of financial excellence. But that strategy has had poor investment results. Investment managers generally hold stocks of "good" companies, yet the S&P 500 index outperformed 71 per cent of active managers in 1985 and outdistanced these managers by 66 per cent over the four years ending December 1985. Why is outstanding financial performance not a key to investment success?

This article examines the qualities that supposedly identify excellent company performance as exemplified by 29 companies featured in *In Search of Excellence*. We find that companies that have recently enjoyed excellent results tend to have more average outcomes in the future. Furthermore, the market valuation of such companies tends to be overly optimistic, so the investor pays a heavy penalty if their results deteriorate.

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## What is Excellence?

*In Search Of Excellence: Lessons from America's Best-Run Corporations* by Thomas J. Peters and Robert H. Waterman, Jr. was first published in 1982 and has been a bestseller ever since. The authors studied 62 companies to determine the characteristics of "excellent companies." From the final list of 43 companies that passed all their criteria (of which 36 were publicly traded at the time), they deduced the behavioral attributes that contributed to excellence and suggested these as a blueprint for corporate excellence in general.

The authors originally looked at a list of companies considered to be innovative and ex-

**Table I** The Excellent Companies

| *Company* | *Ticker* | *Company* | *Ticker* |
|---|---|---|---|
| Hewlett Packard | HWP | Dana Corporation | DCN |
| IBM | IBM | Minnesota Mining & Manufacturing | MMM |
| Schlumberger | SLB | Delta Airlines | DAL |
| Texas Instruments | TXN | McDonald's | MCD |
| Data General | DGN | Disney Productions | DIS |
| Intel | INTC | K-Mart | KM |
| National Semiconductor | NSM | Boeing | BA |
| Wang Labs | WANB | Fluor | FLR |
| Eastman Kodak | EK | Dow Chemical | DOW |
| Johnson & Johnson | JNJ | Du Pont | DD |
| Procter & Gamble | PG | Amoco | AN |
| Avon Products | AVP | Wal-Mart | WMT |
| Bristol Meyers | BMY | Raychem | RYC |
| Merck | MRK | Maytag | MYG |
| Caterpillar Tractor | CAT | | |

cellent by an informed group of observers of the business scene—businessmen, consultants, members of the business press and business academics. These companies were screened for six measures of long-term financial superiority:

- compound asset growth from 1961 through 1980,
- compound equity growth from 1961 through 1980,
- average ratio of market value to book value,
- average return on total capital (net income divided by total invested capital, where total invested capital consists of long-term debt, nonredeemable preferred stock, com-

**Table II** Financial Characteristics of Excellent Companies, 1976–1980

| *Ticker Symbol* | *Asset Growth* | *Equity Growth* | *Avg. Mkt-to-Book* | *Avg. Rtn on Tot. Cap.* | *Avg. Rtn on Eqty* | *Avg. Rtn on Sales* |
|---|---|---|---|---|---|---|
| HWP | 25.79 | 22.96 | 2.88 | 15.24 | 15.45 | 8.65 |
| IBM | 10.79 | 6.58 | 2.80 | 19.90 | 15.45 | 14.24 |
| SLB | 27.32 | 25.93 | 4.20 | 24.70 | 26.71 | 18.57 |
| TXN | 20.95 | 15.24 | 2.60 | 15.69 | 16.68 | 5.53 |
| DGN | 42.16 | 30.24 | 2.89 | 14.91 | 18.94 | 10.35 |
| INTC | 48.78 | 41.02 | 3.86 | 21.64 | 22.79 | 11.30 |
| NSM | 34.61 | 24.56 | 2.91 | 15.94 | 18.08 | 4.62 |
| WANB | 59.28 | 45.86 | 3.91 | 11.21 | 20.90 | 7.91 |
| EK | 12.20 | 10.61 | 2.33 | 17.18 | 17.46 | 11.99 |
| JNJ | 17.89 | 14.90 | 2.75 | 16.62 | 17.09 | 8.36 |
| PG | 12.42 | 11.19 | 2.38 | 14.48 | 17.58 | 6.19 |
| AVP | 14.13 | 11.81 | 3.63 | 28.65 | 28.83 | 10.92 |
| BMY | 13.56 | 14.48 | 2.21 | 17.64 | 19.36 | 8.22 |
| MRK | 12.46 | 14.10 | 3.50 | 19.53 | 22.49 | 15.79 |
| CAT | 11.87 | 14.07 | 1.79 | 13.20 | 18.19 | 7.22 |
| DCN | 18.94 | 17.45 | 1.14 | 12.26 | 16.27 | 5.58 |
| MMM | 11.00 | 12.65 | 2.53 | 17.38 | 19.86 | 11.06 |
| DAL | 8.62 | 14.20 | 1.17 | 11.16 | 14.35 | 13.63 |
| MCD | 19.78 | 21.39 | 2.68 | 10.33 | 20.36 | 9.85 |
| DIS | 11.43 | 11.62 | 1.63 | 11.45 | 11.45 | 13.63 |
| KM | 20.80 | 12.91 | 1.95 | 11.26 | 16.38 | 2.73 |
| BA | 32.60 | 20.86 | 1.23 | 18.80 | 19.87 | 5.12 |
| FLR | 23.99 | 16.45 | 2.21 | 19.67 | 21.39 | 3.13 |
| DOW | 13.93 | 11.57 | 1.86 | 10.73 | 18.88 | 8.83 |
| DD | 8.00 | 9.45 | 1.35 | 11.39 | 14.90 | 6.28 |
| AN | 15.81 | 11.16 | 1.35 | 11.39 | 16.60 | 7.63 |
| WMT | 45.23 | 39.18 | 2.75 | 15.20 | 23.52 | 3.33 |
| RYC | 25.23 | 20.37 | 2.18 | 12.10 | 12.67 | 6.33 |
| MYG | 12.15 | 11.67 | 2.62 | 24.42 | 24.42 | 11.45 |
| Mean | 21.78 | 18.43 | 2.46 | 16.04 | 19.05 | 8.62 |
| Standard Deviation | 12.95 | 9.65 | 0.83 | 4.62 | 3.86 | 3.82 |

**Table III** Financial Characteristics of Excellent Companies, 1981–1985

| Ticker Symbol | Asset Growth | Equity Growth | Avg. Mkt-to-Book | Avg. Rtn on Tot. Cap. | Avg. Rtn on Eqty | Avg. Rtn on Sales |
|---|---|---|---|---|---|---|
| HWP | 19.79 | 20.01 | 2.94 | 15.40 | 15.71 | 9.08 |
| IBM | 15.49 | 15.20 | 2.51 | 19.35 | 21.85 | 13.06 |
| SLB | 14.67 | 12.89 | 2.57 | 17.67 | 19.27 | 17.89 |
| TXN | 7.42 | 3.17 | 2.12 | 3.24 | 3.86 | 1.17 |
| DGN | 15.12 | 14.54 | 1.60 | 6.34 | 8.33 | 4.37 |
| INTC | 25.35 | 30.65 | 2.77 | 6.17 | 7.22 | 5.89 |
| NSM | 16.96 | 19.56 | 1.91 | 4.46 | 5.00 | 1.77 |
| WANB | 27.66 | 27.96 | 3.97 | 9.68 | 13.92 | 7.70 |
| EK | 6.48 | −0.78 | 1.68 | 11.31 | 11.84 | 8.02 |
| JNJ | 7.46 | 7.30 | 2.57 | 16.55 | 17.49 | 8.60 |
| PG | 8.60 | 8.09 | 1.86 | 14.02 | 16.48 | 6.04 |
| AVP | 9.92 | −0.18 | 1.84 | 10.94 | 12.52 | 4.76 |
| BMY | 10.58 | 11.89 | 2.76 | 19.90 | 21.00 | 10.42 |
| MRK | 10.32 | 7.11 | 2.85 | 17.49 | 19.43 | 14.02 |
| CAT | −4.67 | −5.56 | 1.26 | −0.62 | −1.81 | −1.28 |
| DCN | 5.36 | 4.46 | 1.14 | 8.59 | 11.23 | 4.02 |
| MMM | 5.01 | 3.83 | 2.27 | 16.63 | 18.22 | 9.47 |
| DAL | 12.01 | 5.46 | 1.43 | 6.68 | 8.67 | 2.40 |
| MCD | 14.84 | 12.38 | 2.16 | 11.58 | 19.67 | 11.29 |
| DIS | 15.82 | 0.38 | 1.76 | 6.93 | 9.60 | 8.69 |
| KM | 10.62 | 7.45 | 1.19 | 6.11 | 11.59 | 1.76 |
| BA | 7.38 | 13.23 | 1.24 | 13.71 | 14.83 | 4.60 |
| FLR | −10.85 | −11.27 | 1.22 | −7.32 | −8.29 | −1.99 |
| DOW | −1.36 | −0.51 | 1.17 | 4.70 | 7.77 | 3.44 |
| DD | 1.35 | 5.00 | 0.99 | 7.32 | 10.62 | 3.96 |
| AN | 2.40 | 2.10 | 1.31 | 12.77 | 16.66 | 7.01 |
| WMT | 34.89 | 40.92 | 5.29 | 16.15 | 26.15 | 3.87 |
| RYC | 10.57 | 8.76 | 2.19 | 10.87 | 11.69 | 5.81 |
| MYG | 12.29 | 7.81 | 2.60 | 22.34 | 24.26 | 9.62 |
| Mean | 10.74 | 9.37 | 2.11 | 10.65 | 12.92 | 6.40 |
| Standard Deviation | 9.16 | 10.72 | 0.92 | 6.51 | 7.42 | 4.43 |

mon equity and minority interests) from 1961 through 1980,

- average return on equity, 1961 through 1980, and
- average return on sales, 1961 through 1980.

From a study of the companies that passed these criteria, the authors identified eight attributes that characterized the excellent, innovative companies—a bias toward action; close relations with customers; autonomy and entrepreneurship; productivity through people; hands-on and value driven; stick to the knitting; simple form, lean staff; and simultaneous loose-tight properties.

The authors' descriptions of the excellent companies are heartwarming, filled with tales of managers who actually visited factories and offices to see what was happening, quality circles and creativity. The excellent companies have qualities we would all love to see in our own companies. The list of excellent companies compiled in 1981, however, makes curious reading in 1987. It includes Schlumberger, Fluor and Caterpillar—companies whose industries have shriveled to a fraction of their former size. It includes Texas Instruments, National Semiconductor, Intel and Wang—companies that have had to make extensive alterations in their strategies and leave some of their businesses and markets. It includes Avon and Eastman Kodak, which found their primary products and delivery systems outmoded in the 1980s.

We examined 29 of the original 36 publicly traded "excellent" companies that were still in existence as separate publicly traded entities on December 31, 1985, and for which we had complete accounting information and stock prices and returns. Table I lists these companies. Table II gives the data on the six financial attributes used as selection criteria for each of these 29 companies for the 1976–80 period. (Note that the growth rates of assets and equity are compound annual rates). Table III presents the same financial data for the 1981–85 period, and Table IV shows the changes in these key variables between the two periods.[1]

1. Footnotes appear at end of article.

**Table IV** Changes in Key Variables of Excellent Companies

| *Ticker Symbol* | *Asset Growth* | *Equity Growth* | *Avg. Mkt-to-Book* | *Avg. Rtn on Tot. Cap.* | *Avg. Rtn on Eqty* | *Avg. Rtn on Sales* |
|---|---|---|---|---|---|---|
| HWP | −6.00 | −2.95 | 0.06 | 0.15 | 0.26 | 0.44 |
| IBM | 4.70 | 8.62 | −0.30 | −0.55 | 0.82 | −1.19 |
| SLB | −12.65 | −13.05 | −1.62 | −7.04 | −7.44 | −0.68 |
| TXN | −13.54 | −12.07 | −0.48 | −12.45 | −12.82 | −4.36 |
| DGN | −27.04 | −15.70 | −1.30 | −8.56 | −10.61 | −5.98 |
| INTC | −23.43 | −10.36 | −1.09 | −15.47 | −15.57 | −5.42 |
| NSM | −17.65 | −5.00 | −1.00 | −11.49 | −13.08 | −2.85 |
| WANB | −31.62 | −17.90 | 0.05 | −1.53 | −6.98 | −0.21 |
| EK | −5.72 | −11.39 | −0.66 | −5.87 | −5.62 | −3.96 |
| JNJ | −10.42 | −7.60 | −0.18 | −0.06 | 0.39 | 0.24 |
| PG | −3.82 | −3.10 | −0.52 | −0.46 | −1.10 | −0.16 |
| AVP | −4.20 | −11.99 | −1.79 | −17.71 | −16.31 | −6.16 |
| BMY | −2.98 | −2.58 | 0.55 | 2.26 | 1.64 | 2.19 |
| MRK | −2.14 | −7.00 | −0.65 | −2.04 | −3.07 | −1.77 |
| CAT | −16.54 | −19.63 | −0.54 | −13.81 | −20.00 | −8.49 |
| DCN | −13.58 | −12.99 | 0.00 | −3.67 | −5.05 | −1.56 |
| MMM | −5.99 | −8.83 | −0.25 | −0.75 | −1.64 | −1.59 |
| DAL | 3.39 | −8.74 | 0.26 | −4.48 | −5.69 | −2.63 |
| MCD | −4.94 | −9.01 | −0.53 | 1.25 | −0.69 | 1.44 |
| DIS | 4.39 | −11.24 | 0.12 | −4.51 | −1.84 | −4.94 |
| KM | −10.18 | −5.46 | −0.76 | −5.15 | −4.78 | −0.97 |
| BA | −25.22 | −7.64 | 0.00 | −5.10 | −5.04 | −0.52 |
| FLR | −34.84 | −27.72 | −0.98 | −26.99 | −29.69 | −5.12 |
| DOW | −15.29 | −12.08 | −0.68 | −6.02 | −11.12 | −5.39 |
| DD | −6.65 | −4.45 | −0.35 | −4.07 | −4.28 | −2.33 |
| AN | −13.40 | −9.06 | −0.05 | 0.16 | 0.06 | −0.62 |
| WMT | −10.34 | 1.75 | 2.54 | 0.94 | 2.62 | 0.55 |
| RYC | −14.66 | −11.61 | 0.01 | −1.22 | −0.98 | −0.82 |
| MYG | 0.14 | −3.85 | −0.02 | −2.08 | −0.15 | −1.84 |

The most striking feature of Table IV is the number of negative signs:

- 25 companies (i.e., 86 per cent) experienced declines in asset growth rates;
- 27 (93 per cent) had declines in equity growth rates;
- 20 companies (69 per cent) showed a drop in market-to-book ratios;
- 24 (83 per cent) had lower average returns on total capital;
- 23 (79 per cent) had lower average returns on equity; and
- 24 (83 per cent) had lower average returns on sales.

Only four companies—Hewlett Packard, IBM, Bristol Myers and Wal-Mart—showed increases in three or more attributes.

**Figure A** Comparison of Excellent Companies' Key Variables between Periods

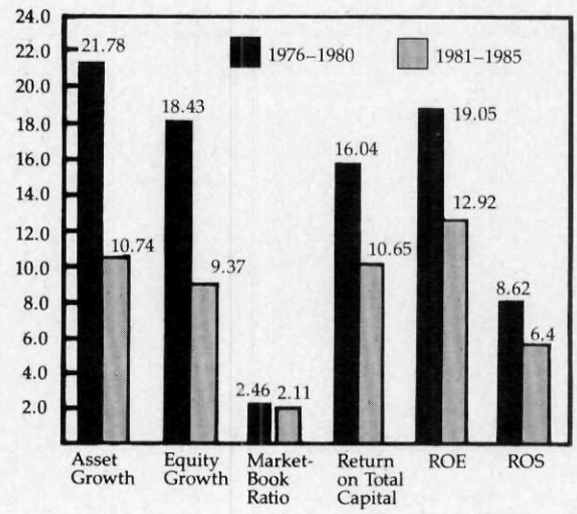



Figure A graphs the differences in the six measures for the whole group between the two periods. Average asset growth dropped from 21.8 to 10.7 per cent, equity growth from 18.3 to 9.4 per cent, average market-to-book ratio from 2.5 to 2.1, average return on total capital from 16.0 to 10.7 per cent, return on equity from 19.1 to 12.9 per cent, and return on sales from 8.6 to 6.4 per cent.

What could explain these disappointing results from supposedly excellent companies? One possible reason is that the possession of certain financial and behavioral attributes in the past in no way ensures future stellar perform-

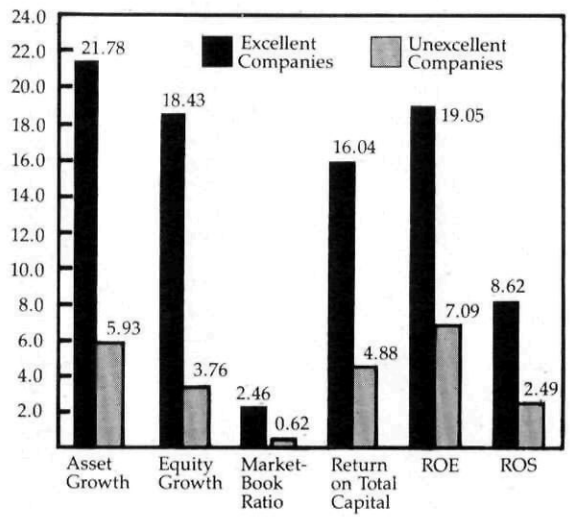
**Table V** Absolute and Relative Returns of Excellent Companies, 1981–1985

| Ticker Symbol | Absolute Return Index | Return Relative to S & P 500 | Earnings Relative to S & P 500 |
|---|---|---|---|
| HWP | 168.27 | 0.86 | 1.65 |
| IBM | 275.50 | 1.42 | 1.66 |
| SLB | 52.46 | 0.27 | 1.11 |
| TXN | 95.51 | 0.49 | −0.05 |
| DGN | 137.74 | 0.71 | 0.34 |
| INTC | 144.43 | 0.74 | −0.13 |
| NSM | 93.17 | 0.48 | −1.07 |
| WANB | 97.91 | 0.50 | −0.36 |
| EK | 137.03 | 0.70 | 0.65 |
| JNJ | 179.14 | 0.92 | 1.49 |
| PG | 248.17 | 1.28 | 0.97 |
| AVP | 123.03 | 0.63 | 0.48 |
| BMY | 307.08 | 1.58 | 1.84 |
| MRK | 187.86 | 0.97 | 1.26 |
| CAT | 86.96 | 0.45 | −0.27 |
| DCN | 239.63 | 1.23 | 2.35 |
| MMM | 188.64 | 0.97 | 1.00 |
| DAL | 147.27 | 0.76 | 2.05 |
| MCD | 398.89 | 2.05 | 1.97 |
| DIS | 241.39 | 1.24 | 1.19 |
| KM | 242.96 | 1.25 | 1.41 |
| BA | 211.89 | 1.09 | 0.81 |
| FLR | 30.64 | 0.16 | −2.75 |
| DOW | 171.00 | 0.88 | 0.61 |
| DD | 214.50 | 1.10 | 0.75 |
| AN | 104.31 | 0.54 | 1.15 |
| WMT | 862.75 | 4.43 | 5.19 |
| RYC | 135.87 | 0.70 | 0.70 |
| MYG | 431.00 | 2.21 | 1.67 |
| S&P | 194.62 | 1.00 | 1.00 |

**Regression of Monthly Portfolio Returns vs. S & P 500**

| | |
|---|---|
| $R^2$ | 0.84 |
| Beta | 1.18 |
| Alpha | 0.16% (per month) |
| Std. Dev. | 17.7% (annual) |

**Figure B** Excellent versus Unexcellent Company Ratios, 1976–1980




ance. There is a phenomenon in nature called "reversion to the mean," which asserts that, over time, properties of members of groups tend to converge to the average value for the group as a whole. This concept is widely applicable in situations where economic forces tend to move things toward equilibrium. In the world of finance, researchers have shown that returns on equity tend to revert to the mean.[2]

**Table VI** The Unexcellent Companies

| Company | Ticker | Company | Ticker |
|---|---|---|---|
| First Penna Corp. | FPA | J. P. Stevens & Co. | STN |
| American Motors | AMC | F. W. Woolworth Co. | Z |
| Macmillan Inc. | MLL | Hasbro Inc. | HAS |
| Great Atlantic & Pacific Tea | GAP | Goodyear Tire & Rubber | GT |
| Massey Ferguson | MSE | Associated Dry Goods Corp. | DG |
| Firestone Tire & Rubber | FIR | National Intergroup | NII |
| Bethlehem Steel | BS | Spring Industries | SMI |
| Sherwin-Williams | SHW | American Can Co. | AC |
| Mohasco Corp. | MOH | Brunswick Corp. | BC |
| Singer Co. | SMF | Allis-Chalmers Corp. | AH |
| Interlake Inc. | IK | ITT Corp. | ITT |
| Bemis Co. | BMS | Federal Paper Board | FBO |
| Hartmarx Corp. | HMX | Celanese Corp. | CZ |
| Outboard Marine Corp. | OM | Kaufman & Broad | KB |
| Westinghouse Electric | WX | Owens-Illinois Corp. | OI |
| West Point–Pepperell | WPM | Armco Inc. | AS |
| Burlington Industries Inc. | BUR | FMC Corp. | FMC |
| Chicago Pneumatic Tool | CGG | Williams Cos. | WMB |
| U.S. Steel Corp. | X | Pacific Lighting Corp. | PLT |
| B. F. Goodrich | GR | | |

**Table VII** Financial Characteristics of Unexcellent Companies, 1976–1980

| *Ticker Symbol* | *Asset Growth* | *Equity Growth* | *Avg. Mkt.-to-Book* | *Avg. Rtn on Tot. Cap.* | *Avg. Rtn on Eqty* | *Avg. Rtn on Sales* |
|---|---|---|---|---|---|---|
| FPA | −6.57 | −7.63 | 0.62 | −0.57 | −9.27 | −1.93 |
| AMC | 0.93 | 8.67 | 0.55 | −4.09 | −5.70 | −1.05 |
| MLL | −3.73 | −6.50 | 0.65 | −1.06 | −1.88 | −0.18 |
| GAP | 5.61 | −3.13 | 0.56 | −0.37 | −1.41 | −0.06 |
| MSE | 8.49 | −5.40 | 0.50 | 0.27 | −2.59 | 0.33 |
| FIR | −1.11 | −3.80 | 0.58 | 0.35 | 0.44 | 0.37 |
| BS | 1.33 | −0.66 | 0.49 | 1.76 | 2.11 | 0.83 |
| SHW | 6.96 | −1.29 | 0.58 | 2.40 | 4.16 | 1.02 |
| MOH | 4.08 | 1.19 | 0.50 | 2.69 | 4.60 | 1.24 |
| SMF | −0.95 | 3.72 | 0.66 | 4.09 | 8.19 | 1.59 |
| X | 6.39 | 0.77 | 0.52 | 2.67 | 3.76 | 2.03 |
| GR | 9.04 | 7.28 | 0.43 | 4.34 | 6.82 | 2.19 |
| STN | 6.73 | 4.39 | 0.44 | 4.89 | 7.49 | 2.21 |
| Z | 10.96 | 7.02 | 0.57 | 7.19 | 10.98 | 2.34 |
| HAS | 0.83 | 1.24 | 0.55 | 7.93 | 10.78 | 2.37 |
| GT | 5.48 | 5.45 | 0.63 | 5.59 | 8.90 | 2.55 |
| DG | 7.90 | 4.43 | 0.68 | 6.72 | 8.54 | 2.56 |
| NII | 5.35 | 3.40 | 0.50 | 4.51 | 6.92 | 2.64 |
| SMI | 4.48 | 4.28 | 0.42 | 5.09 | 6.23 | 2.70 |
| AC | 9.60 | 6.06 | 0.75 | 7.52 | 11.36 | 2.76 |
| IK | 7.54 | 2.77 | 0.55 | 5.70 | 7.61 | 2.77 |
| BMS | 4.14 | 3.43 | 0.58 | 7.40 | 11.54 | 2.85 |
| HMX | 6.04 | 6.03 | 0.53 | 7.02 | 8.95 | 2.99 |
| OM | 5.81 | 2.93 | 0.64 | 5.38 | 7.50 | 3.00 |
| WX | 6.39 | 4.49 | 0.75 | 7.52 | 8.84 | 3.02 |
| WPM | 7.18 | 6.47 | 0.60 | 7.88 | 10.90 | 3.37 |
| BUR | 5.12 | 3.37 | 0.60 | 5.76 | 8.20 | 3.38 |
| CGG | 11.04 | −0.78 | 0.81 | 6.25 | 7.88 | 3.63 |
| BC | 6.61 | 5.98 | 0.70 | 6.22 | 9.91 | 3.70 |
| AH | 8.58 | 9.89 | 0.60 | 8.33 | 11.75 | 3.80 |
| ITT | 8.63 | 8.78 | 0.69 | 7.34 | 12.65 | 3.95 |
| FBO | 10.22 | 5.91 | 0.78 | 5.39 | 9.24 | 3.97 |
| CZ | 8.37 | 9.42 | 0.79 | 7.35 | 12.86 | 4.07 |
| KB | 10.52 | 4.99 | 0.83 | 6.94 | 12.03 | 4.08 |
| OI | 8.71 | 7.40 | 0.61 | 7.25 | 11.48 | 4.12 |
| AS | 7.65 | 10.07 | 0.65 | 8.11 | 11.18 | 4.18 |
| FMC | 8.06 | 9.56 | 0.77 | 8.39 | 12.12 | 4.50 |
| WMB | 8.64 | 9.30 | 0.87 | 4.63 | 8.73 | 4.54 |
| PLT | 10.24 | 7.25 | 0.74 | 5.49 | 12.69 | 4.54 |
| Mean | 5.93 | 3.76 | 0.62 | 4.88 | 7.09 | 2.49 |
| Standard Deviation | 3.99 | 4.58 | 0.11 | 3.02 | 5.28 | 1.58 |

Economic theory suggests that markets that offer high returns will attract new entrants, who will gradually drive returns down to general market levels.

## Investment Results

Many analysts believe that financial ratios help to identify superior investments. We tracked the performance of our 29 companies, in both absolute terms and relative to the Standard & Poor's 500 index (S&P 500), over the 1981–85 period. Table V gives the results.

Eleven of the 29 companies outperformed the S&P 500, but 18 (almost two-thirds) underperformed the index. The companies that outperformed, however, did quite well: An equally weighted portfolio of all 29 excellent companies outperformed the S&P 500 by 1.1 per cent per annum over the five-year period. We believe the majority of excellent companies underperformed because the market overestimated their future growth and future return on equity and, as a result, their market-to-book ratios were overvalued.

Fourteen of the companies' earnings grew faster than those of the S&P 500, and 15 companies' earnings growth lagged that of the index. In other words, about 50 per cent did better and 50 per cent did worse—a result one would expect from a random sampling of companies, but hardly the result one might expect from a

**Table VIII** Financial Characteristics of Unexcellent Companies, 1981–1985

| Ticker Symbol | Asset Growth | Equity Growth | Avg. Mkt-to-Book | Avg. Rtn on Tot. Cap. | Avg. Rtn on Eqty | Avg. Rtn on Sales |
|---|---|---|---|---|---|---|
| FPA | 1.83 | −7.73 | 0.63 | 1.03 | 2.68 | 0.59 |
| AMC | 16.12 | −15.58 | 2.47 | −14.21 | −66.68 | −3.57 |
| MLL | 14.93 | 7.94 | 1.76 | 10.33 | 15.04 | 5.34 |
| GAP | 1.02 | 9.38 | 0.81 | 3.14 | 2.99 | 0.60 |
| MSE | −15.39 | 71.43 | −1.00 | −15.20 | 7.11 | −7.71 |
| FIR | −4.33 | −5.25 | 0.64 | 4.28 | 5.38 | 1.75 |
| BS | −2.66 | −26.96 | 0.86 | −14.33 | −32.64 | −6.86 |
| SHW | 5.13 | 11.83 | 1.33 | 9.49 | 14.02 | 2.74 |
| MOH | 3.17 | 1.75 | 0.59 | 4.03 | 5.22 | 1.55 |
| SMF | −3.01 | 6.56 | 0.91 | 5.28 | 9.08 | 1.70 |
| X | 8.49 | −3.60 | 0.53 | 1.68 | 0.69 | 0.78 |
| GR | −4.37 | −9.47 | 0.65 | −4.03 | −7.38 | −1.28 |
| STN | 1.24 | 0.82 | 0.63 | 0.53 | 0.84 | 0.24 |
| Z | −5.23 | −2.80 | 0.89 | 1.95 | 1.99 | 0.38 |
| HAS | 97.29 | 97.13 | 1.36 | 16.03 | 19.95 | 6.35 |
| GT | 6.75 | 10.23 | 0.85 | 8.63 | 11.32 | 3.47 |
| DG | 10.10 | 14.07 | 0.94 | 7.75 | 13.26 | 2.75 |
| NII | −12.50 | −11.59 | 0.55 | −6.66 | −11.58 | −3.66 |
| SMI | 16.69 | 4.94 | 0.70 | 7.29 | 8.37 | 3.71 |
| AC | 2.12 | 5.01 | 0.93 | 3.15 | 5.31 | 2.16 |
| IK | 0.67 | −0.49 | 0.67 | 6.12 | 8.21 | 3.14 |
| BMS | 2.92 | 1.07 | 0.82 | 6.30 | 9.19 | 2.18 |
| HMX | 9.54 | 7.88 | 1.08 | 9.65 | 12.96 | 3.74 |
| OM | 4.51 | 6.96 | 0.88 | 8.26 | 10.66 | 4.36 |
| WX | 3.87 | 3.48 | 1.15 | 13.01 | 15.18 | 4.97 |
| WPM | 5.86 | 6.28 | 0.88 | 8.40 | 10.63 | 3.64 |
| BUR | −0.83 | −0.58 | 0.67 | 4.05 | 5.61 | 2.15 |
| CGG | −6.32 | −10.04 | 0.72 | −1.54 | −2.84 | −0.87 |
| BC | −0.81 | 1.39 | 1.10 | 18.49 | 24.70 | 8.51 |
| AH | −19.33 | −38.58 | 4.85 | −72.94 | −751.96 | −12.64 |
| ITT | −1.32 | 2.28 | 0.78 | 6.20 | 9.75 | 3.82 |
| FBO | 12.33 | 14.40 | 1.15 | 4.81 | 11.73 | 3.71 |
| CZ | −1.56 | −5.07 | 0.99 | 6.49 | 10.96 | 3.37 |
| KB | 20.33 | 7.08 | 1.03 | 3.85 | 10.18 | 2.54 |
| OI | 1.85 | 2.56 | 0.70 | 5.98 | 8.47 | 3.32 |
| AS | −9.07 | −19.40 | 0.86 | −9.73 | −17.20 | −4.65 |
| FMC | −0.44 | −3.42 | 1.04 | 8.65 | 11.09 | 4.10 |
| WMB | 15.40 | 4.24 | 0.78 | 3.22 | 6.57 | 3.10 |
| PLT | 11.17 | 14.21 | 0.96 | 6.00 | 13.06 | 3.29 |
| Mean | 4.77 | 3.91 | 0.98 | 1.68 | −15.08 | 1.35 |
| Standard Deviation | 17.31 | 21.83 | 0.78 | 14.19 | 120.50 | 4.01 |

sample taken from a universe of "superior" companies.

## In Search of Disaster

The results from studying the 29 excellent companies suggest that identification of superior historical financial attributes does not ensure either superior future earnings or investment returns. Out of curiosity, we went "in search of disaster." We identified 39 companies in the current S&P 500 that had (at the end of 1980) the worst combination of the six financial characteristics. Starting with the 480 companies currently in the S&P 500 for which we had 10 years of complete data, we computed each key variable for each company over the 1976–80 period and ranked the companies on each variable. We then selected those companies that ranked in the bottom third on every variable, coming up with the 39 listed in Table VI.[3]

This list, too, makes interesting reading. It contains several steel companies, several tire companies and several textile companies. It also contains some companies that have become well-known disasters. Table VII gives data on the six financial attributes of these companies over the 1976–80 period. It provides a stunning contrast to the results for our excellent companies in Table II—a contrast given graphic form in Figure B. The excellent companies' average asset growth from 1976 to 1980 was 21.8 per cent, the "unexcellent" group's was 5.9 per cent; equity growth for the first group was 18.4 per cent, that of the second 3.8 per cent. Similar

**Table IX** Changes in Key Variables of Unexcellent Companies

| *Ticker Symbol* | *Asset Growth* | *Equity Growth* | *Avg. Mkt-to-Book* | *Avg. Rtn on Tot. Cap.* | *Avg. Rtn on Eqty* | *Avg. Rtn on Sales* |
|---|---|---|---|---|---|---|
| FPA | 8.40 | −0.10 | 0.01 | 1.60 | 11.95 | 2.52 |
| AMC | 15.19 | −24.25 | 1.92 | −10.12 | −60.98 | −2.52 |
| MLL | 18.66 | 14.44 | 1.11 | 11.39 | 16.92 | 5.52 |
| GAP | −4.59 | 12.51 | 0.25 | 3.51 | 4.40 | 0.66 |
| MSE | −23.88 | 76.83 | −1.50 | −15.47 | 9.70 | −8.04 |
| FIR | −3.22 | −1.45 | 0.06 | 3.93 | 4.94 | 1.38 |
| BS | −3.99 | −26.30 | 0.37 | −16.09 | −34.75 | −7.69 |
| SHW | −1.83 | 13.12 | 0.75 | 7.09 | 9.86 | 1.72 |
| MOH | −0.91 | 0.56 | 0.09 | 1.34 | 0.62 | 0.31 |
| SMF | −2.06 | 2.84 | 0.25 | 1.19 | 0.89 | 0.11 |
| X | 2.10 | −4.37 | 0.01 | −0.99 | −3.07 | −1.25 |
| GR | −13.41 | −16.75 | 0.22 | −8.37 | −14.20 | −3.47 |
| STN | −5.49 | −3.57 | 0.19 | −4.36 | −6.65 | −1.97 |
| Z | −16.19 | −9.82 | 0.32 | −5.24 | −8.99 | −1.96 |
| HAS | 96.46 | 95.89 | 0.81 | 8.10 | 9.17 | 3.98 |
| GT | 1.27 | 4.78 | 0.22 | 3.04 | 2.42 | 0.92 |
| DG | 2.20 | 9.64 | 0.26 | 1.03 | 4.72 | 0.19 |
| NII | −17.85 | −14.99 | 0.05 | −11.17 | −18.50 | −6.30 |
| SMI | 12.21 | 0.66 | 0.28 | 2.20 | 2.14 | 1.01 |
| AC | −7.48 | −1.05 | 0.18 | −4.37 | −6.05 | −0.60 |
| IK | −6.87 | −3.26 | 0.12 | 0.42 | 0.60 | 0.37 |
| BMS | −1.22 | −2.36 | 0.24 | −1.10 | −2.35 | −0.67 |
| HMX | 3.50 | 1.85 | 0.55 | 2.63 | 4.01 | 0.75 |
| OM | −1.30 | 4.03 | 0.24 | 2.88 | 3.16 | 1.36 |
| WX | −2.52 | −1.01 | 0.40 | 5.49 | 6.34 | 1.95 |
| WPM | −1.32 | −0.19 | 0.28 | 0.52 | −0.27 | 0.27 |
| BUR | −5.95 | −3.95 | 0.07 | −1.71 | −2.59 | −1.23 |
| CGG | −17.36 | −9.26 | −0.09 | −7.79 | −10.72 | −4.50 |
| BC | −7.42 | −4.59 | 0.40 | 12.27 | 14.79 | 4.81 |
| AH | −27.91 | −48.47 | 4.25 | −81.27 | −763.71 | −16.44 |
| ITT | −9.95 | −6.50 | 0.09 | −1.14 | −2.90 | −0.13 |
| FBO | 2.11 | 8.49 | 0.37 | −0.58 | 2.49 | −0.26 |
| CZ | −9.93 | −14.49 | 0.20 | −0.86 | −1.90 | −0.70 |
| KB | 9.81 | 2.09 | 0.20 | −3.09 | −1.85 | −1.54 |
| OI | −6.86 | −4.84 | 0.09 | −1.27 | −3.01 | −0.80 |
| AS | −16.72 | −29.47 | 0.21 | −17.84 | −28.38 | −8.83 |
| FMC | −8.50 | −12.98 | 0.27 | 0.26 | −1.03 | −0.40 |
| WMB | 6.76 | −5.06 | −0.09 | −1.41 | −2.16 | −1.44 |
| PLT | 0.93 | 6.96 | 0.22 | 0.51 | 0.37 | −1.25 |

results continue down the line—for market-to-book (2.5 versus 0.6), average return on total capital (16.0 versus 4.9 per cent), return on equity (19.1 versus 7.1 per cent), and return on sales (8.6 versus 2.5 per cent).

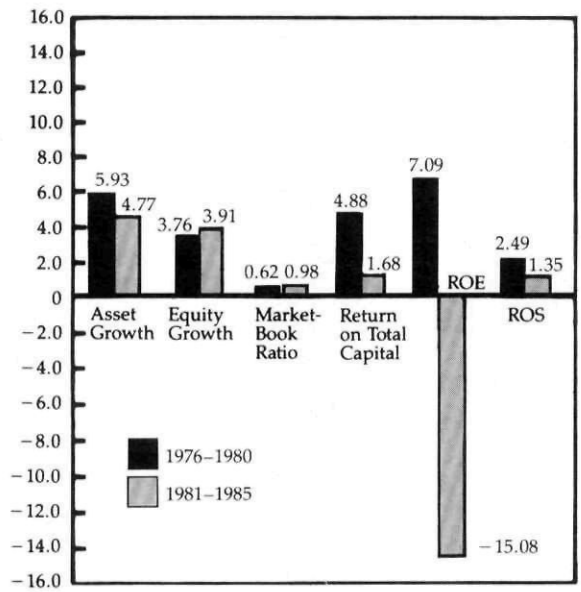
Table VIII presents data for the 1981–85 period, and Table IX displays the changes in those key variables between the two periods. Once again, there are many minus signs:

- 26 companies (67 per cent) experienced declines in asset growth rates;
- 24 (62 per cent) had declines in equity growth rates;
- three (7.7 per cent) experienced declines in market-to-book ratios;
- 20 (51 per cent) had lower average returns on total capital;
- 20 (51 per cent) had lower average returns on equity; and
- 22 (56 per cent) had lower average returns on sales.

In aggregate, the averages for five of the variables did not improve dramatically (see Figure C). While asset and equity growth rates picked up, average profitability plunged because of the inclusion of several real disasters.

The most important result for investors is that 36 out of 39 companies experienced an upward shift in their market-to-book ratios—a clear example, we believe, of reversion to the mean. The average price-to-book ratio rose from 0.62 to 0.98, a 58 per cent increase. As we will see, all three of the companies whose market-to-book ratios dropped (Massey Ferguson, Chicago Pneumatic Tool and Williams Cos.) substantially underperformed the index. However, many other companies in the list had poor relative earnings growth, underperformed the S&P 500,

**Figure C** Comparison of Unexcellent Companies' Key Variables between Periods




yet still enjoyed increases in price-to-book ratios. This implies that the market saw in those companies something other than poor financial characteristics and poor historical earnings growth. Indeed, when we compare the unexcellent companies with the excellent companies from 1981–85, the excellent group still represents a far better selection of firms.

## Investment Results

Table X presents the absolute and relative return indexes for our portfolio of 39 unexcellent companies; 25 of the 39 outperformed the S&P 500, and 14 companies underperformed. In other words, two-thirds did better than the index while one-third did worse—the exact reverse of the results from our excellent companies! Note also that 19 of the 39 companies had negative changes in four or more of our six measures; of these companies, 11 underperformed the index and eight outperformed—almost a 50-50 split.

The most remarkable result is that an equally weighted portfolio of the 39 unexcellent companies outperformed the S&P 500 by 12.4 per cent per annum! Despite the fact that the two portfolios had virtually identical betas and standard deviations (1.18 versus 1.17 and 17.7 versus 18.0 per cent), the unexcellent portfolio had a monthly alpha of 1.0 per cent (i.e., 12 per cent per year), compared with a monthly alpha of 0.16 per cent for the excellent group. This might almost lead one to think it advisable to select companies with the worst possible financial attributes! Here, however, we should stress a couple of caveats.

First, our study may contain "survivor bias," since all 39 companies are still in business. We do not believe this to be a serious problem, because the last five years have seen many

**Table X** Absolute and Relative Returns of Unexcellent Companies, 1981–1985

| *Ticker Symbol* | *Absolute Return Index* | *Return Relative to S & P 500* | *Earnings Relative to S & P 500* |
|---|---|---|---|
| FPA | 191.66 | 0.98 | 0.02 |
| AMC | 70.97 | 0.36 | 0.23 |
| MLL | 650.73 | 3.34 | 5.08 |
| GAP | 416.65 | 2.14 | −0.97 |
| MSE | 56.67 | 0.29 | 0.02 |
| FIR | 273.88 | 1.41 | −0.06 |
| BS | 72.76 | 0.37 | −1.89 |
| SHW | 566.78 | 2.91 | 2.32 |
| MOH | 302.78 | 1.56 | 5.07 |
| SMF | 361.56 | 1.86 | 2.34 |
| X | 138.85 | 0.71 | −0.21 |
| GR | 172.74 | 0.89 | −4.90 |
| STN | 287.77 | 1.48 | −0.55 |
| Z | 324.64 | 1.67 | 1.22 |
| HAS | 3363.51 | 17.28 | 13.27 |
| GT | 252.41 | 1.30 | 1.58 |
| DG | 387.13 | 1.99 | 1.62 |
| NII | 128.75 | 0.66 | −0.58 |
| SMI | 311.74 | 1.60 | 0.47 |
| AC | 275.79 | 1.42 | 1.09 |
| IK | 253.19 | 1.30 | 1.23 |
| BMS | 403.49 | 2.07 | 1.76 |
| HMX | 332.95 | 1.71 | 1.26 |
| OM | 542.17 | 2.79 | 11.97 |
| WX | 369.90 | 1.90 | 1.36 |
| WPM | 266.14 | 1.37 | 0.67 |
| BUR | 231.62 | 1.19 | 0.15 |
| CGG | 125.27 | 0.64 | 0.82 |
| BC | 652.40 | 3.35 | 6.99 |
| AH | 12.23 | 0.06 | −6.52 |
| ITT | 173.59 | 0.89 | 0.58 |
| FBO | 154.82 | 0.80 | 0.54 |
| CZ | 363.80 | 1.87 | 1.57 |
| KB | 157.17 | 0.81 | 1.11 |
| OI | 259.43 | 1.33 | 0.99 |
| AS | 29.87 | 0.15 | −0.28 |
| FMC | 266.23 | 1.37 | 0.46 |
| WMB | 80.11 | 0.41 | 0.26 |
| PLT | 331.37 | 1.70 | 1.05 |
| S&P | 194.62 | 1.00 | 1.00 |

**Regression of Monthly Portfolio Returns vs. S & P 500**

| | |
|---|---|
| $R^2$ | 0.81 |
| Beta | 1.17 |
| Alpha | 1.00% (per month) |
| Std. Dev. | 18.01% (annual) |

**Figure D** Excellent versus Unexcellent Company Ratios, 1981–1985

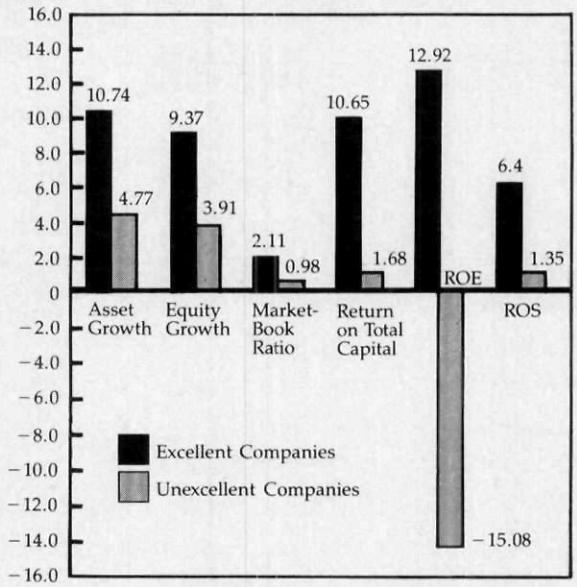
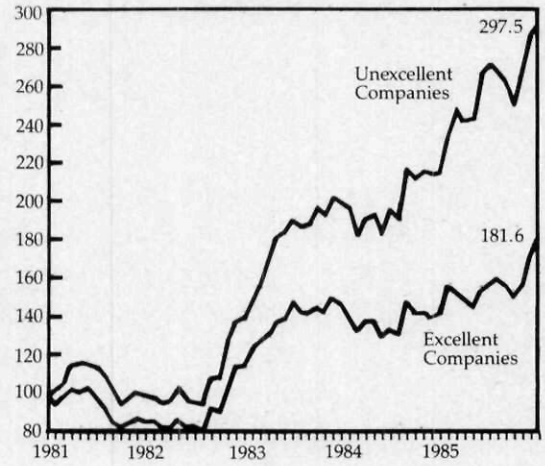



**Figure E** Excellent versus Unexcellent Company Portfolio Returns, 1981–1985




mergers and takeovers within the S&P, and actual selections in 1980 might have chosen buyout candidates as well as subsequent bankruptcies. Second, the poor financial attributes of some of the companies undoubtedly contributed to their ensuing poor performance, reflecting as they did underlying economic forces (although, as noted above, the vast majority still enjoyed upward revisions in their market-value-to-book ratios).

We would by no means suggest picking stocks on the basis of poor financial characteristics, although our evidence suggests that companies with low market-to-book ratios are likely to see those ratios drift upward over time. The financial analyst must, instead, look beyond current and historical financial and behavioral attributes to estimate investment returns.

## Conclusion

Over time, company results have a tendency to regress to the mean as underlying economic forces attract new entrants to attractive markets and encourage participants to leave low-return businesses. Because of this tendency, companies that have been "good" performers in the past may prove to be inferior investments, while "poor" companies frequently provide superior investment returns in the future. The "good" companies underperform because the market overestimates their future growth and future return on equity and, as a result, accords the stocks overvalued price-to-book ratios; the converse is true of the "poor" companies.

Traditional security analysis looks for good companies in the belief that they will tend to be good investments. Our evidence suggests, however, that neither financial attributes nor behavioral attributes generate returns *per se*. The analyst should integrate a rigorous valuation model into his stock selection procedure so that estimates of future growth and profitability can be used to make an explicit estimate of expected return. ■

## Footnotes

1. These attributes are examined because they were the ones identified by the authors of *In Search of Excellence* as denoting financial excellence. While these measures are typically used by financial analysts, there are of course a number of other financial ratios that also measure financial performance. The discussion in this article is limited to these six, however.
2. See Estep and Hanson, "Common Stock Valuation Part I" (Salomon Brothers Inc, New York, 1981).
3. The sample size of 39 companies resulted from the screening decision rule used. It turned out that, by choosing the subset that ranked in the bottom third on every variable, we ended up with 39 companies; a different cutoff would have resulted in a different sample size.