The Journal of Entrepreneurial Finance

Volume 7
Issue 1 *Spring 2002*

Article 4

December 2002

Value Creation and the Entrepreneurial Business

Michael F. Spivey
Wachovia Professor of Banking and Finance, Clemson University

Jeffrey J. McMillan
Clemson University

Value Creation and the Entrepreneurial Business

Michael F. Spivey
Wachovia Professor of Banking and Finance
Clemson University

Jeffrey J. McMillan
Clemson University

I. INTRODUCTION

The need to finance high growth and manage the interests and needs of investors makes value creation a critical concern for entrepreneurial businesses. Almost any financial endeavor, such as attracting new investors or making investment decisions, necessitates the consideration of the equity value created by the endeavor. The perceived value creation, for example, has a direct effect on the percentage of the firm outside investors will require if they are to invest in the business.

Measuring the value created by publicly traded businesses, depending on the assumptions made, is relatively straightforward. If public markets are at least semi-strong form efficient (i.e., equity prices reflect all publicly available information regarding a business's true underlying value), then the closing price on a large, publicly-traded company should accurately reflect that enterprise's value. In other words, public markets take individual investors' beliefs of the magnitude, timing and riskiness of the business's expected future cash flows and incorporate them into the actual equity value reported at closing.

Like the managers of large companies, the entrepreneur should think market value, rather than just accounting profits, when making economic decisions. Unfortunately, the major problem of measuring the value of an entrepreneurial business is that many are either privately-owned or are publicly-traded in very thin secondary markets, subsequently market assessment of the true value of the business's equity is not readily available. This unavailability of market information makes the value creation assessment process more difficult for entrepreneurial companies, but certainly not any less important. Thus, information about the correlation of readily available performance measures with a true market value creation measure is worthwhile.

This study statistically examines the relationship of non-market measures of value creation with a true market value creation measure for a sample of small publicly-traded companies (i.e., less than $100 million). We restricted the size of the companies we examined to make our sample more representative of entrepreneurial businesses, which are more likely to be either privately-held or traded very thinly in public markets. For the purposes of this study the market value creation measure utilized was shareholder return. Each company's shareholder return was estimated using stock price and dividend information. Three different dimensions of non-market value creation measures were utilized. These three dimensions were accounting profitability, cash flow performance, and growth. The specific measures within each area are shown in Figure 1.

Figure 1
Non-Market Valuation Measures

Accounting Profitability Measures
- Earnings per Share
- Return on Equity
- Return on Invested Capital
- Return on Assets
- Return on Sales (Net Profit Margin)
- Asset Utilization
- Economic Value Added (EVA)

Cash Flow Measures
- Cash flow per Share
- Cash Flow Return on Sales

Growth Measures
- Earning Growth
- Sales Growth
- Capital Expenditures Growth

Our investigation revealed that relationships between certain non-market measures of value and small entrepreneurial types of businesses existed. Statistically significant positive correlations were found between shareholder return and the earnings profitability measures of return on equity, return on assets and return on invested capital. These relationships were found to exist only for companies that reported positive earnings. Stronger relationships were found to exist between shareholder return and the cash flow performance measures of earnings growth and sales growth. Furthermore, the sales growth measure was found to be correlated for companies that had positive earnings and companies that reported negative earnings.

2. BACKGROUND

2.1 Problems in Valuing Small and Entrepreneurial Businesses

The objective of a business valuation is to estimate "the price at which a business would change hands between willing parties when the buyer is not under any compulsion to buy and the seller is not under any compulsion to sell and both parties have reasonable knowledge of the relevant facts (IRS Revenue Ruling, 59-60). Financial theory provides us the framework for thinking about such value creation for large publicly traded companies. However, financial theory falls short in providing value creation measures for the majority of young entrepreneurial businesses which are generally small, non-publicly traded companies. The challenge, therefore, is to translate financial theory into practical, available measures that can be used as proxies for value creation of small and entrepreneurial businesses, which are not publicly traded.

Fundamental differences exist between small, entrepreneurial businesses and large public businesses in assessing value creation. Measuring value creation for large publicly traded companies is relatively easy, depending on the assumptions made. If we assume that public markets are at least semi-strong form efficient (i.e., all public information is fully reflected in the company's stock price), then the closing price on a large, publicly traded company should accurately reflect that company's value.[1] Assessing the value of a large public company may be calculated based on factors such as current stock prices, the degree of risk associated with investing in that company, and expected growth rates for the company. For a small business, these same factors may also be considerations if the company's stock is publicly held and traded. However, if the company is not publicly held and traded, which is often the case for small and entrepreneurial businesses, then the means of assessing value is much more problematic.

Indeed, Ang (1991-A, 1991-B) argues that the theory of modern corporate finance was not developed with small businesses in mind, even when the company's stock is publicly held. Valuation of small businesses requires identifying features that are not considered in the modeling paradigm of large public businesses. Unique characteristics of small businesses can potentially generate a different set of financial problems or cause small businesses to look at the same set of financial problems in different ways than large public companies would. A result of these different traits is that the owners and managers of small and entrepreneurial businesses (because the owners and managers of the small business are often one in the same) may be forced to develop different financial decision criteria and seek different types of financing arrangements.

The lack of publicly traded securities for most small and entrepreneurial companies results in less readily available valuation for their shares. Small businesses generally do not have the information reporting requirements of large public companies, which have to follow requirements of the Security and Exchange Commission and adhere to Generally Accepted Accounting Procedures. Thus, potential investors in small companies have to dig for relevant information from varied sources and also have to be careful to make sure they understand the accounting methods being employed. Small businesses also have fewer options for financing, as access to public markets is fairly expensive. Large companies can more easily cover these fixed costs than can small businesses.

In addition, small businesses have much greater difficulty in obtaining debt financing than large companies [Heaton (1998)]. While owners of entrepreneurial businesses may have some diversification in their company's portfolios such as insurance policies, bank accounts, and self-employment pension accounts, the company absorbs most of their investment capital. In addition, limited liability is not available for sole proprietorships and partnerships (other than the special exceptions of limited liability companies) and incorporating the business does not shield entrepreneurial owners from full liability because lenders often require personal guarantees.

Financial strategies are also often affected by the size of the business because entrepreneurs and first-generation owners of small companies are more likely to take risks to realize a higher return than are managers working for a large company. Small new businesses are often founded and managed by entrepreneurs who may lack depth in financial training and experience in dealing with financial matters. Thus, the management of entrepreneurial and small businesses often lacks the mix of individuals that can complement each other in planning and forming business strategies. This can translate into less flexibility

1 Obviously, markets are not as idealistically efficient as we would like to believe, and pockets of inefficiency are found everywhere in the trading environment. Public markets take the average of individual investors' value beliefs and report these as the actual company at closing. This system is not perfect, but it is the best system available for valuing publicly traded companies.

to adapt to environmental changes or changes iFn the company's stage of development when compared to larger companies which often have a more diverse mix of management talent. Entrepreneurial and small businesses also face higher costs in terms of compliance, transaction costs, litigation costs, and bankruptcy costs than larger companies. Lastly, an entrepreneurial owner's reputation plays a larger part for small businesses because its management is usually in more contact with outside stockholders than the management of large companies.

2.2 Value Creation Measurement

In today's business environment, companies face tremendous pressure to create value. This pressure comes not only from shareholders but also from a wide array of market observers such as the financial press, financial institutions, and shareholder activists**.** Entrepreneurial business owners must understand that maximizing value creation is possible only when their company maintains a well-planned and well-controlled operation that efficiently integrates the company's resources. Planning and controlling for value creation requires an ability to measure and relate the creation of value to current and prospective owners. Since entrepreneurial businesses are highly likely to seek outside financing at some stage of their development, they have a special need to measure and relate the value they have created in their companies.

Of course, value is a relative term that can be viewed differently by the various stakeholders that have an interest in the company. Entrepreneurs create value in various dimensions. Job creation, personal fulfillment and community pride adds to the general level of energy and optimism in society. Olson and Knight (1997) argue that creating value for shareholders is consistent with creating value for the other constituents of the company. Value creation translates into structural advantages for the entrepreneurial business because companies with higher rates of value creation can grow faster, have improved access to capital markets, offer more opportunities to employees, and have a greater ability to self fund. Customers also benefit because the company is able to attract capital at lower cost. This lower cost capital can then be invested in activities that better meet customers' product, service, or cost needs.

Measuring value is critical for entrepreneurial businesses that wish to set performance goals. Owners of entrepreneurial businesses must emphasize value creation and help managers and employees understand how they can contribute to the value enhancement efforts of the company. Good valuation measures promote operational efficiency and better allow managers to plan and develop strategies to help insure that value creation is occurring. Accordingly, it is critical that a company's management utilizes performance measures that correlate with the ultimate goal of the company - wealth creation for its owners. Companies that emphasize performance measures that do not correlate with true shareholder wealth cannot expect to operate at their highest level [Bacidore et al. (1997)].

Good valuation measures also must relate the performance of the company relative to the resources they utilize. Efficiency means being effective without wasting capital resources. Relative measures such as return on invested capital, return on assets and economic value added (EVA) account for the amount of capital used and therefore reward income generation relative to the capital employed. These measures may solve the excessive capital investment problem, but they may cause managers to overextend their existing assets and delay needed investment. While returns on assets and invested capital (book value of debt and equity) are commonly used performance measures, EVA and its market counterpart, market value added (MVA) are less familiar.

2.2.1 MVA and EVA

In recent years, much attention has been given to two financial performance measures, market value added (MVA) and economic value added (EVA). Market Value Added (MVA) measures the value

added to shareholders' investments in a company. It is the difference between the current market value of all capital elements and the historic dollar amount of capital invested in a company: *MVA = Market Value of Invested Capital – Book Value of Invested Capital.* In deriving MVA, invested capital includes debt plus equity. MVA provides the stock market's assessment of how efficient a company is in using capital. A positive MVA indicates a company is building value for its shareholders; a negative MVA indicates that shareholder value is being destroyed.

MVA suffers the same weaknesses as other market based performance measures when applied to non-publicly traded companies. However, unlike MVA, economic value added (EVA) does not focus directly on market values and can be utilized with privately held or non-public companies. EVA is a measure of a company's profit after subtracting the cost of all capital employed. It is the performance measure most closely linked to MVA – more so than earnings per share, return on equity or any other accounting-based measure. EVA is defined as the current-period, after-tax economic earnings net of a charge for the use of capital:

EVA = [(% Return on Invested Capital (ROIC) – % Cost of Capital) x Capital Invested].

EVA is an operational measure that differs from conventional earnings measures in two ways. First, it explicitly charges for the use of capital (residual income measure). Second, it adjusts reported earnings to minimize accounting distortions and to better match the timing of revenue and expense recognition. An advantage of EVA is that it is dollar-based. As such, wealth maximization correlates with EVA maximization. The principal ways to increase EVA are, (1) increase profits without investing more capital, (2) invest new capital in projects that earn more than the cost of capital, and (3) withdraw capital from activities and assets where it is earning an unattractive return. None of these decisions is influenced by whether you value your asset base at book or market values. A positive EVA indicates that a company is generating economic profits; a negative EVA indicates that it is not.[2]

2.2.2 Dimensions of Shareholder Performance

Companies must decide which measures are the most relevant estimations of performance and value creation for their enterprise. Large companies often employ multiple measures using complex versions for overall corporate performance; however, they may employ simpler versions for business units. Likewise, smaller companies may find that employing measures that place emphasis on simplicity is best suited for their purposes [Bacidore et al. (1997)].

As shown in Figure 1, accounting profitability, cash flow and growth are the three non-market dimensions of shareholder performance that we examine in this study. The correlation of these performance measures with true market value creation is the concern of this study. The profitability measures included earnings per share, return on equity, return on invested capital, return on assets, return on sales (net profit margin), asset utilization and economic value added (EVA). Profitability measures are typically based on accounting data. Because of this, these measures can bias internal planning, decision-making, and/or reward systems. They are incomplete measures of total value creation because they do not reflect the same factors the stock markets focus on. The general view is that the "market" focuses heavily on cash flow measures to gauge performance. Thus, we included the cash flows measures of cash flow per share and cash flow return on sales in our investigation. Growth measures are also evaluated as indicators of future cash flow generating ability. Growth measures can be especially critical for businesses that have yet to generate positive cash flows. Thus, we included earnings growth, sales growth, and capital expenditures growth as additional non-market measures of performance.

2 For a thorough discussion of EVA, see Ehrbar (1998).

3. METHODOLOGY

3.1 Variable Definition

Our investigation focused on the relationship between total shareholder return and various non-market accounting and economic performance measures. Shareholder return and all our non-market variables were computed over the year 1999. For our statistical analysis these variables were defined as follows:

STOCK RETURN = shareholder return measured as the total percentage return over the last year (1999) including price appreciation (depreciation) and any payment of dividends.

Profitability Measures

- EPS = earnings per share measured as adjusted income available to common shareholders divided by diluted weighted average shares outstanding
- ROE = return on equity measured as income available to common shareholders divided by average common equity, expressed as a percentage
- ROIC = return on invested capital measured as income after taxes divided by the average total long term debt, other long term liabilities and shareholders' equity, expressed as a percentage
- ROA = return on assets defined as income after taxes divided by the average total assets, expressed as a percentage
- AU = asset utilization computed as revenue divided by total assets
- NPM = net profit margin (or return on sales) computed as the income after taxes divided by total revenue, expressed as a percentage
- EVA = economic value added for shareholders computed as the [adjusted net income available to common shareholders – (cost of equity capital (CE) x book value of equity capital)] divided by the number of common shares outstanding. We calculated CE utilizing the CAPM with the estimated expected average (market) return of 17.6% taken from the research carried out by Heaton (1998). We used the 30-year US Treasury Bond of 5.55% as the risk free return. BETA was defined as the slope of the 60 month regression line of the percentage return adjusted for regression tendencies as reported by Stockquest[3]

Cash Flow Measures

- CFPS = cash flow per share defined as after-tax income available to common shareholder + depreciation, depletion and amortization
- CFROS = cash flow return on sales defined as cash flow per share divided by sales per share

3 The EVA measure used is a modification of the EVA measure discussed earlier in the paper. The EVA used is the economic value added for equity holders as opposed to the common EVA measure that relates value added for all invested capital (debt plus equity).

Growth Measures

- CE GROWTH RATE = capital expenditure growth rate expressed as a percentage
- EPS GROWTH RATE = earnings per share growth rate expressed as a percentage
- SALES GROWTH RATE = sales growth rate expressed as a percentage.

3.1 Data

The data for this analysis was taken from the StockQuest data set provided by Market Guide Incorporated as of 12/31/1999. Only companies with assets less than $100,000,000 as of 12/31/1999 were selected for analysis. As previously discussed, the size restriction was utilized to make the sample more representative of entrepreneurial businesses which are more likely to be either privately held or traded very thinly in public markets.[4] In addition, companies for which the data was not reported to derive a stock return were omitted. Industry sectors with less than 100 companies were also omitted to insure broad representation in each industry area. The total number of companies included in the sample was 3279 and they were grouped in nine different sectors. The technology sector had the largest number of companies with 982 and the sector with the fewest companies was the energy sector with 121. The number of companies broken out by sector is presented in Table 1.

Table 2 presents descriptive statistics for the sample of companies. In addition to the variables described earlier, the stocks' beta (BETA) and total assets (ASSETS) are provided. The BETA variable was computed and reported by Stockquest and is the slope of the 60-month regression line of the percentage return adjusted for regression tendencies. Beta is utilized to compute the equity cost of capital utilized in the computation of the equity economic value added (EVA). ASSETS is the sum of all short and long term asset categories reported by Stockquest. Beta, assets and the sectors are also used as control variables in the regressions presented later in this paper.

3.2 Univariate Analysis

Table 3 presents the correlation coefficients between the shareholder return variable (STOCK RETURN) and the non-market value creation measures. The correlations for the full sample are presented in the first column. The second column shows the correlations for the companies that reported positive earnings while the third column presents the correlations for the companies that reported negative earnings in 1999.

Column one of Table 3 shows that the accounting profitability measures of ROE, ROIC and ROA had significant relationships with STOCK RETURN. A review of columns two and three reveals that the significant relationships were driven by the companies that reported positive earnings. NPM (return on sales) was also significantly positively correlated with STOCK RETURN for the segment of the sample that reported positive earnings. Examination of column three reveals that none of the profitability measures were significantly positively correlated with STOCK RETURN for the sub-sample of companies that reported negative earnings in 1999. In fact, NPM was significantly negatively correlated with STOCK RETURN.

The results in Table 3 show that neither cash flow performance measure, CFPS or CFROS, was found to have a significant relationship with STOCK RETURN. On the other hand, our analysis found

4 Many past studies [i.e., LeClair (1990), Mastracchio and Lippitt (1996)] have used publicly-traded companies as proxies for closely-held companies.

that significant relationships did exist between shareholder return and the growth performance measures. In column one of Table 3, one can see that EPS GROWTH RATE and SALES GROWTH RATE both had significantly positive relationships with STOCK RETURN. A review of column two and three reveals that earnings growth was significant only for companies that reported profits; however, sales growth was found to have significant relationships with companies that reported positive earnings and those that reported negative earnings. Interestingly, CE GROWTH RATE was found to exhibit a significant negative correlation with the stockholder return variable.

3.3 Multivariate Analysis

In the next step of our analysis we examined the relationship of stock return with specific non-market value creation measures in the following ordinary least squares regression:

(1) STOCK RETURN = $a + b_1$ (non market measure) + bX + e
where, X is a vector of control variables and e is the error term.

Given the results from Table 3, positive relationships between STOCK RETURN and selected non-market value creation measures were expected.[5] The following regressions were run:

Regression 4.1 uses EPS GROWTH for the sample of companies with positive earnings.

Regression 4.2 uses SALES GROWTH as the non-market value measure for the sample of companies with positive earnings.

Regression 4.3 uses SALES GROWTH as the non-market value measure for the sample of companies with negative earnings.

The regressions included variables to control for each company's industry sector. Zero-one dummy variables were included for each sector (e.g., basic goods, consumer cyclicals, consumer non-cyclicals, energy, financials, healthcare, and services).[6] LNASSETS representing the log of each company's total assets was used to control for the size of each company and BETA was used to control for market risk.

The results of the ordinary least squares regressions 4.1, 4.2, and 4.3 are presented in Table 4 in columns one, two, and three respectively. The coefficients show the relationships between STOCK RETURN and the growth measures while controlling for other variables.

Similar to the results shown in Table 3, column one, of Table 4 shows there was a significant positive correlation between EPS GROWTH and STOCK RETURN. If we examine the coefficients for the control variable presented in column one, we can see that the stocks' beta (BETA) was significantly positively related to STOCK RETURN. As one would expect, this suggests that greater risk necessitates greater required return. Note that all of the sector dummies were negatively related to STOCK RETURN, although not all were statistically significant. These negative relationships are not surprising since the technology sector was the excluded set. The correlation coefficient of the natural log of total assets (LNASSETS) was negative, but was not statistically significant.

---

5 Regressions between STOCK RETURN and the significant profitability measures revealed in Table 3 were also run. However, for the sake of brevity, only the results of the regressions examining the stronger relationships of the growth measures are reported in Table 4. The results of looking at the profitability measures were similar.

6 The analysis requires that one sector be excluded. Accordingly, technology was excluded because it had the highest overall stockholder return and excluding it from the analysis would make for better comparisons among the remaining sectors. Results of analysis excluding other sectors were not significantly different from those reported.

Column two of Table 4 presents the results of Regression 4.2 in which SALES GROWTH was substituted for EPS GROWTH for the sub-sample of companies which reported positive earnings. The results are similar to Regression 4.1 with SALES GROWTH found to be significantly positively correlated with STOCK RETURN. The sector control variables continued to be negatively related to STOCK RETURN. However, LNASSETS was statistically significant in Regression 4.2, suggesting that stockholder return was greater for smaller companies.

The results of the ordinary least squares regression 4.3 are reported in column three of Table 4. Regression 4.3 repeats the analysis of 4.2, but uses the sub-sample of companies which reported negative earnings instead of positive earnings. As can be seen, the correlation coefficient for the SALES GROWTH variable was statistically significant, while the sector and size control coefficients were not significant.

4. Conclusion

This study statistically examines the relationship of numerous non-market measures of value creation with the total shareholder return for a sample of small publicly-traded businesses (i.e., less than $100 million). A rather wide range of non-market value creation measures were examined in our investigation: (1) accounting earnings performance measures: earnings per share, return on sales, return on equity, return on capital employed, asset utilization, and economic value added (EVA); (2) cash flow performance measures: cash flow per share and cash flow return on sales; and (3) growth measures: earnings growth, sales growth, and operating earnings growth. We examined the relationships univariately while controlling for the effects of other key variables associated with stock performance. The control variables included the industry sector in which the company operated, the size of the company, and the market risk of the company.

The results of our analyses revealed that statistically significant correlations existed between shareholder return and the profitability measures of return on equity, return on assets and return on invested capital. However, the positive correlation between shareholder return and the profitability measures existed only for the small entrepreneurial type of companies that reported positive earnings. Stronger correlation relationships were found to exist between shareholder return and the earnings growth and sales growth measures. In fact, sales growth was found to be positively correlated with the stock return variable for companies that reported positive or negative earnings. These findings are also consistent with the contention that because so many of the new start-ups and technology companies were far from earning profits, use of "price to sales" multiples emerged as the valuation estimation tool of choice.

Our results suggest that accounting performance measures and non accounting performance measures provide information that interested parties may use to help them track and estimate the value of entrepreneurial businesses. It is especially interesting to note how our sales growth measure had the strongest and most consistent relationship with the stockholder return measure. Since many small businesses, especially in their early years, have a hard time generating positive cash flows, entrepreneurial owners should take heed of the importance stakeholders place on steady sales growth.

Caution needs to be considered when interpreting our results, as despite the significant positive relationships found between certain non-market performance measures and shareholder return, the explanatory power of the non-market measures on shareholder return were relatively low. This was true even when we controlled for the sectors in which the companies operated and the companies' systematic risk. Perhaps future research can further examine these relationships and see how robust they may be over extended time periods and or changing environmental conditions.

REFERENCES

Ang, James, (1991-A), "Small Business Uniqueness and the Theory of Financial Management," **The Journal of Small Business Finance,** v1(1).

Ang, James, (1991-B), "On the Theory of Finance For Privately Held Firms," **Journal of Small Business Finance**, v1(3).

Bacidore, J. M., Boquist, J. A., Milbourn, T. T. and A. V. Thakor, (1997), "The Search for the Best Financial Performance Measure," **Financial Analysts Journal**, May/June.

Ehrbar, Al, (1998), **EVA: The Real Key to Creating Wealth**, John Wiley and Sons.

Heaton, Hal B., (1998), "Valuing Small Business: the Cost of Capital," **Appraisal Journal**,
Internal Revenue Service, (1968). Revenue Ruling 59-60. Washington, D.C.: Government Printing Office

LeClair, Mark S., (1990), "Valuing the Closely-Held Corporation: The Validity and Performance of Established Valuation Procedures," **Accounting Horizons**, (September).

Mastracchio, Nicholas J. and Jeffrey W. Lippitt, (1996), "A Comparison of the Earnings Capitalization and the Excess Earnings Models in the Valuation of Closely-Held Businesses," **Journal of Small Business Management**, (January).

Olson, Eric E. and James A. Knight, (1997), "Managing for Value," **Handbook of Modern Finance**, WG&L/RIA Group, Boston and New York.

Waldron, D. and C. Hubbard, (1991), "Valuation Methods and Estimates in Relationship to Investing versus Consulting," **Entrepreneurship: Theory and Practice**, Fall, Volume 16, Number 1.

Table 1

Sample of Companies With Less Than $100 Million
In Total Assets Listed by Sector During the Year 1999

Sector	Number of Companies
Basic Materials	179
Capital Goods	195
Consumer Cyclicals	217
Consumer Non-Cyclicals	137
Energy	121
Financial	186
Healthcare	585
Services	677
Technology	982
Total Companies	3,279

* There were approximately 7200 companies listed in the 12/31/99 "StockQuest" data set. Our initial screen which excluded companies with over $100 million in total assets reduced the data set approximately by half.

** As of May 2001, "StockQuest" was renamed to "NetScreen" by Market Guide.

Table 2
Descriptive Statistics for the Sample of Firms

Variable	Mean	Median	Maximum	Minimum
STOCK RETURN	16.04	-9.09	699.29	-99.92
BETA	0.78	0.75	4.93	-4.73
ASSETS	30.75	21.60	99.90	0.26
Profitability Measures				
EPS	-0.45	-0.14	33.34	-34.40
ROE	-26.08	-9.25	99.45	-193.08
ROIC	-19.79	-9.55	89.01	-144.35
ROA	-18.95	-12.32	59.06	-85.33
AU	1.17	1.29	35.50	0.44
NPM	-9.56	-0.83	57.43	-99.89
EVA	-0.46	-0.57	9.83	-4.21
Cash Flow Measures				
CFPS	0.97	0.82	10.32	0.00
CFROS	17.03	12.21	136.74	0.01
Growth Measures				
CE GROWTH RATE	22.25	14	182.17	0.00
EPS GROWTH RATE	42.93	2.83	350	-100
SALES GROWTH RATE	30.58	5.33	928.87	-179.70

STOCK RETURN=total percentage return including price appreciation and any payment of dividends; BETA=slope of the 60 month regression line of the percentage return adjusted for regression tendencies as reported by Stockquest; ASSETS=sum of all short and long term asset categories; EPS=adjusted income available to common shareholders divided by diluted weighted average shares outstanding; ROE=income available to common shareholders divided by average common equity, expressed as a percentage; ROIC=income after taxes divided by the average total long term debt, other long term liabilities and shareholders' equity, expressed as a percentage; ROA=income after taxes divided by the average total assets, expressed as a percentage; AU=revenues divided by total assets; NPM=net profit margin (or return on sales) computed as the income after taxes divided by total revenues, expressed as a percentage; EVA=economic value added for shareholders computed as the [adjusted net income available to common shareholders – (cost of equity capital x book value of equity capital)] divided by the number of common shares outstanding; CFPS=(income after taxes minus preferred dividends plus depreciation, depletion and amortization) divided by the number of outstanding shares of common stock; CFROS=cash flow per share divided by sales per share; CE GROWTH RATE=capital expenditure growth rate expressed as a percentage; EPS GROWTH RATE=earnings per share growth rate expressed as a percentage; SALES GROWTH RATE=sales growth rate expressed as a percentage.

Table 3
Pearson Correlation Coefficients - Stock Return with Various Performance Measures

Measure	All Firms	Companies With Positive Earnings	Companies with Negative Earnings
BETA	0.0253 (0.1562)	0.0171 (0.5646)	0.0263 (0.2395)
ASSETS	-0.0033 (0.8508)	-0.0924 (0.0010)	-0.0283 (0.1818)
Profitability Measures			
EPS	0.0088 (0.6025)	-0.0264 (0.3473)	0.0191 (0.3704)
ROE	0.0722 (0.0001)	0.1281 (0.0001)	0.0073 (0.7524)
ROIC	0.0618 (0.0007)	0.1658 (0.0001)	0.0031 (0.8895)
ROA	0.0516 (0.0001)	0.1027 (0.0001)	0.0021 (0.9232)
AU	-0.0121 (0.4800)	0.0106 (0.7072)	-0.0129 (0.5497)
NPM	0.0157 (0.4190)	0.0857 (0.0024)	-0.0723 (0.0067)
EVA	0.0142 (0.4326)	0.0215 (0.4212)	0.0098 (0.4621)
Cash Flow Measures			
CFPS	-0.0251 (0.3741)	-0.0256 (0.3672)	0.0001 (0.9999)
CFROS	0.0322 (0.3563)	0.0311 (0.3421)	0.0000 (0.9999)
Growth Measures			
CE GROWTH RATE	-0.0408 (0.0338)	-0.0281 (0.3638)	-0.0459 (0.0618)
EPS GROWTH RATE	0.2503 (0.0001)	0.2503 (0.0001)	0.1039 (0.7479)
SALES GROWTH RATE	0.2599 (0.0001)	0.1915 (0.0001)	0.2892 (0.0001)

BETA=slope if the 60 month regression line of the percentage return adjusted for regression tendencies as reported by Stockquest; ASSETS=sum of all short and long term asset categories. P-values for statistical significance are in parentheses; EPS=adjusted income available to common shareholders divided by diluted weighted average shares outstanding; ROE=income available to common shareholders divided by average common equity, expressed as a percentage; ROIC=income after taxes divided by the average total long term debt, other long term liabilities and shareholders' equity, expressed as a percentage; ROA=income after taxes divided by the average total assets, expressed as a percentage; AU=revenues divided by total assets; NPM=net profit margin (or return on sales) computed as the income after taxes divided by total revenues, expressed as a percentage; EVA=economic value added for shareholders computed as the [adjusted net income available to common shareholders – (cost of equity capital x book value of equity capital)] divided by the number of common shares outstanding; CFPS=(income after taxes minus preferred dividends plus depreciation, depletion and amortization) divided by the number of outstanding shares of common stock; CFROS=cash flow per share divided by sales per share; CE GROWTH RATE=capital expenditure growth rate expressed as a percentage; EPS GROWTH RATE=earnings per share growth rate expressed as a percentage; SALES GROWTH RATE=sales growth rate expressed as a percentage.

Table 4

OLS Regression Examining the Stock Return for Firms with Assets < $100 Million

	Regression 4.1 (Earnings>0)	**Regression 4.2 (Earnings>0)**	**Regression 4.3 (Earnings<=0)**
Variable	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)
INTERCEPT	41.2594 0.0019	89.5026 (0.0001)	110.5993 (.0001)
LNASSETS	-4.8675 (0.1591)	-10.7186 (0.0047)	-9.7963 (0.0532)
BETA	23.3631 (0.0001)	8.1316 (0.0150)	0.3435 (0.1838)
Model F-value	11.522	14.672	15.588
Model Adjusted R-square	0.1206	0.1350	0.1492
Industry Sector			
BASIC MATERIALS	-33.5619 (0.0186)	-48.1321 (0.0040)	-80.4737 (0.0320)
CAPITAL GOODS	-46.7427 (0.0002)	-44.6490 (0.0020)	-94.7015 (0.0120)
CONSUMER CYCLICALS	-11.1999 (0.3889)	-18.3160 (0.2399)	-82.5188 (0.0154)
CONSUMER NONCYCLICALS	-16.6633 (0.2532)	-33.3936 (0.0606)	-104.9472 (0.0175)
ENERGY	-40.7145 (0.0898)	-66.3901 (0.0160)	-99.1071 (0.0111)
FINANCIALS	-18.6606 (0.1190)	-44.4101 (0.0022)	-83.6959 (0.0459)
HEALTHCARE	-33.3405 (0.0054)	-27.0021 (0.0405)	-70.0482 (0.0014)
SERVICES	-26.8640 (0.0037)	-29.7124 (0.0057)	-70.5050 (0.0020)
Growth Measures			
EPS GROWTH	0.0166 (0.0001)		
SALES GROWTH		0.0398 (0.0010)	0.0405 (0.0002)

LNASSETS=natural log of the sum of all short and long term asset categories; BETA=slope if the 60 month regression line of the percentage return adjusted for regression tendencies as reported by Stockquest; the sectors referred to in Table 1 are entered as 0, 1 dummy variables with TECHNOLOGY the excluded set; EPS GROWTH RATE=earnings per share growth rate over 1999 expressed as a percentage; SALES GROWTH RATE=sales growth rate over 1999 expressed as a percentage. P-values for statistical significance are in parentheses.