

CORPORATE FINANCING STRATEGIES AND FUTURE GROWTH OPPORTUNITIES

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In this study firms are examined to determine the relationship between the current valuation of future growth opportunities and the firms' hedging behaviors. The results suggest that firms mostly follow a long-hedge, or conservative, financing strategy, but that firms considered more growth oriented tend to follow less conservative financing strategies than do other firms. The results also indicate that the firms following more conservative financing policies earn higher risk-adjusted market returns than firms that more closely match maturities. This finding might suggest that the price movement for a growth stock is only impacted slightly by current, or near-term, actions of the firm, because most of the stock's value is based on long-term growth prospects that are not significantly altered by temporary, or short-term, disturbances. However, further analysis, which currently is underway, is needed to provide more concrete conclusions.

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Most financial management textbooks contain discussions regarding the maturity of corporate claims relative to corporate assets.¹ According to these texts, generally it is assumed that firms that match the maturities of liabilities with the maturities of assets follow a hedged, or matching, financing strategy. Financial theory suggests that such hedging is optimal because firms only finance needed assets and do not have liabilities maturing that cannot be repaid. Polar alternative strategies would include capital structures that are overweighted with either permanent financing or short-term financing. The advantages of overweighting with permanent financing would be to assure adequate financing for the firm in times of peak product demand and to insure that these funds are available at a known cost. This long-hedging strategy is seen as a means of reducing the probability of technical bankruptcy during any economic period.² The advantages of overweighting the capital structure with respect to short-term financing are that short-term funds generally are cheaper than long-term funds (i.e., the yield curve typically is upward sloping) and this strategy would utilize borrowing only when it is necessary because it would increase during business expansions and decrease during contractions. But, such a short-hedging strategy (i.e., overloading with temporary financing) might create a "crisis at maturity" due to tight money and high interest rates (Johnson, 1967).

Whether financial managers prefer to follow the hedging concept or the more conservative approach of financing with more long-term funds than needed involves an examination of the risk and return tradeoff of the strategy pursued. Firms generally are considered to be in a riskier posture if the hedging approach rather than the conservative approach is followed because there is

¹See, for example, Brigham, Gapenski, and Ehrhardt (1999), Levy (1998), Ross, Westerfield, and Jaffe (1996), and Van Horne (1998), among others.

²See Silvers (1976) and Van Horne (1969).

less liquidity when the temporary assets are kept at a minimum and the temporary financing just matches that amount. That is, the probability of the firm becoming technically insolvent is greater with less liquidity. Consequently, all else equal, it might be expected that its return increases as a firm more closely follows the hedging approach.

The results of previous research suggest that firms generally do not hedge; instead, for the most part, firms pursue a long-hedge or conservative strategy. Further, it has been shown long-hedged firms earn significantly higher returns than hedged firms, which, in turn, earn significantly higher returns than short-hedged firms. Using the standard deviation of the returns as a measure of risk, long-hedged firms and short-hedged firms have been found to be significantly riskier than hedged firms as suggested by theory. The higher risk of the long-hedged firms results from increased financial leverage that is created by long-term funds, while the higher risk of the short-hedged firms can be attributed to market and financial conditions that create the "crisis at maturity." When evaluated on a risk-adjusted basis, it appears that long-hedged firms provide the greatest reward to variability while short-hedged firms provide the poorest (Besley and Meyer, 1988).

Many financial management textbooks also include a discussion of the valuation of the growth opportunities of firms.³ This subject generally is integrated into topical areas associated with the valuation of long-term assets. In their seminal work, Miller and Modigliani (1961) characterized growth stocks as those that are representative of firms having investment opportunities with returns sufficiently large to attract capital; that is, stocks of companies with positive net present value investment opportunities. According to capital market theory, the value of growth opportunities somehow should be captured in current stock prices via existing market pricing mechanisms.

Over the years, investors have exhibited a special fascination for stocks of young, technologically innovative firms that promise significantly high risk-adjusted returns at some

³See Brealey and Myers (1996).

point. These securities, traditionally called growth stocks, are considered extremely speculative because the actual returns realized normally are derived solely from capital gains that represent current valuation of the future growth opportunities available to corporations. The risk investors take is that these growth opportunities either never materialize, materialize slower than expected, or are much less than originally anticipated.

Malkiel (1963) has shown that growth stocks are inherently more volatile than non-growth stocks. That is, the percentage change in price for a growth stock for a given percentage change in required return will be greater than the percentage change in price for a non-growth stock given the same change in required return. Basically, this result occurs because growth stocks have longer durations than non-growth stocks. Those stocks that have a great proportion of price accounted for by the present value of growth opportunities (PVGO) fall in the growth stock category because a large portion of the present value is accounted for by more distant cash flows. Hagin (1984) has shown that stocks of firms that failed to achieve forecasted growth rates that were optimistic tended to experience large negative returns. He labeled these stocks "torpedo" stocks because their large negative returns could cause the return for an entire portfolio to be much less than expected even if just a few were held.

The combination of volatility that accrues naturally to growth stocks and the potential for disastrous returns in stocks where much of the current price is a bet on the growth opportunities suggests that these securities might be subject to below average risk-adjusted performance. Earlier findings confirm that stocks for which a low portion of total value was accounted for by PVGO showed greater returns than those for which PVGO represented a large portion of the stock price during the period 1976-1994 (Besley, Meyer, and Wieand, 1995). Further, not surprisingly, the risk associated with growth stocks was significantly greater than the risk associated with non-growth stocks.

The evidence concerning the performance of growth stocks suggests that growth firms might also exhibit the characteristics of firms that are more inclined to be short hedgers, or follow riskier strategies with respect to decisions concerning the mix of permanent and temporary

financing—both growth firms and firms with greater proportions of temporary financing relative to total financing display high degrees of risk. The purpose of this research is to provide empirical evidence on the extent to which firms practice the hedging concept relative to the future growth opportunities available for investments, and to investigate the risk and return characteristics of firms' operations. It is expected that those firms that can be classified as growth investment opportunities also are the firms most likely to follow hedging strategies that exhibit an overweighting of their capital structures with respect to short-term financing. The rationale is that such firms have sufficient positive net present value investment opportunities to require the investment of most funds, whether long-term or short-term, in long-term assets with high returns relative to short-term assets.

I. Methodology

A. Hedging Strategy

The ratio of current assets (CA) to fixed assets (FA) was calculated on a quarter-by-quarter basis for each of the companies in the initial sample. The lowest figure found for each company among the quarters of data was assumed to be that company's permanent current asset ratio, PCAR. This ratio then was multiplied by the fixed assets in each quarter, t , to estimate the amount of permanent current assets held by a given firm. That is,

$$PCA_t = PCAR \times FA_t \quad (1)$$

This particular approach was taken to recognize an increase in the level of permanent current assets as the firm grew in size over time. Once the permanent current assets were found, temporary current assets (TCA) were easily calculated as the difference between current assets and permanent current assets

$$TCA_t = CA_t - PCA_t \quad (2)$$

Permanent assets (PA) were defined as the sum of fixed assets and permanent current assets, or equivalently, as total assets less temporary current assets

$$PA_t = FA_t + PCA_t = TA_t - TCA_t \quad (3)$$

Spontaneously generated liabilities (SL) were found by taking the difference between current liabilities and interest-bearing current liabilities; i.e., $SL = \text{current liabilities} - \text{interest-bearing liabilities}$. These spontaneous liabilities then were allocated to temporary and permanent current assets by multiplying the ratios of temporary current assets to current assets and permanent current assets to current assets by the amount of spontaneous liabilities

$$TSL_t = \left(\frac{TCA_t}{CA_t} \right) \times SL_t \quad (4)$$

$$PSL_t = \left(\frac{PCA_t}{CA_t} \right) \times SL_t = SL_t - TSL_t \quad (5)$$

Here, TSL and PSL represent “temporary” spontaneous liabilities and “permanent” spontaneous liabilities, respectively.

Next, we determined what the financial structure of each firm would look like if it was hedged. The hedged amount of interest-bearing short-term debt (HSTD) was calculated by taking the difference between temporary current assets and the allocated portion of spontaneous liabilities

$$HSTD_t = TCA_t - TSL_t \quad (6)$$

The hedged amount of long-term financing (HLTF) was defined as the difference between permanent assets and allocated spontaneous liabilities

$$HLTF_t = PA_t - PSL_t \quad (7)$$

The firm's hedged position (HP) then was determined by taking the difference between the actual amount of short-term interest-bearing debt (STD) and the hedged amount of short-term debt. To adjust for differences in firm size this figure was divided by total assets

$$HP_t = \frac{STD_t - HSTD_t}{TA_t} \quad (8)$$

If the sign of this ratio was positive, the firm was termed short-hedged; if zero, it was perfectly hedged; and if negative, it was long-hedged. Because few firms would be perfectly hedged, it was assumed that the firm followed a maturity-matching strategy if its hedged position fell in the range of -0.05 to $+0.05$. All firms were then placed in one of the three groups (short-hedged, hedged, or long-hedged) on a quarter-by-quarter basis. If a firm was placed in a single category in more than sixty percent of the quarters, it was assumed to follow that hedging strategy. Those firms not meeting this qualification were not classified.

B. Present Value of Growth Opportunities

Brealey and Myers (1996) and Myers (1987) illustrate that the traditional discounted cash flow model for valuation cannot be strictly applied to value firms with significant growth opportunities because such firms generally pay little or no dividends. A more appropriate evaluation can be made by capitalizing earnings when there is no growth (i.e., current earnings) and determining the present value of expected growth opportunities. Using this relationship, the value for a share of stock, V_0 , can be written as

$$V_0 = \frac{E_0}{k} + PVGO \quad (9)$$

where E_0 is the current earnings per share, k is the firm's required rate of return, and PVGO represents the present value of the firm's expected growth opportunities.

Both the current value per share and the current earnings per share are directly observable. The required rate of return can be estimated using the security market line, where the beta coefficient is calculated using the market model with the S&P 500 as a proxy for market returns. Monthly data are used for the computation of beta and the returns associated with the stocks.

Using observed values for price and the risk-free rate of interest, and estimated values for stock betas, earnings, and the required return to the market, the quarterly PVGO is estimated for each stock by rearranging Equation 9 such that

$$\text{PVGO} = V_0 - \frac{E_0}{k} \quad (10)$$

where V_0 is the price per share of stock at the end of March (the rationale for this timing is given in the next section) and E_0 is the normalized earnings based on a five-year computation. For each company, the proportion of stock price represented by estimated PVGO is calculated by dividing the computed PVGO by V_0 . The results are evaluated with respect to the three hedging groups created when the hedge ratios are calculated.

II. Sample Characteristics

The sample for this study was constructed using Standard and Poor's Compustat databases for the years 1977-1995. Companies were included if (1) the company had a December 31 fiscal year; (2) the industrial code (SIC) was between 2000 and 4000; and, (3) all relevant data existed. These criteria produced a database that contained 490 manufacturing firms over the period of study. Firms included in the sample were required to have a December 31 fiscal year because, for this study, portfolios were assumed to be formed and adjusted at the end of March each year; thus, the annual investment horizon was from April of one year through March of the following year. The reason for this assumption was to account for the fact that financial data (e.g., annual reports) often are not available until two to three months following the close of the

fiscal year. Requiring firms included in the sample to have a December 31 fiscal year allowed formation of portfolios and any subsequent adjustments to be accounted for at the same time during the calendar year.

A five-year hold-out period was used for estimation of long-term (permanent) beta coefficients and normalized earnings for each firm. Therefore, the actual period of study during which investment portfolios were formed was from 1982 to 1995. A company was excluded from the sample for a particular year if the relevant data did not exist during that year or the information from the previous five years was not sufficient to estimate a beta coefficient or to compute the normalized earnings.

Monthly risk-free returns and market risk premia were collected from *Stocks, Bonds, Bills and Inflation - 1996 Yearbook*. The U.S. Treasury bill index was used as a proxy for the risk-free rate of return. The remainder of the data were derived from the Compustat databases.

III. Results

Table 1 and Table 2 show the results of the computations for both the proportion of value represented by PVGO and the proportion short-hedged broken down by industry and by period, respectively. These tables also contain the results of the statistical tests performed to determine whether firms hedge (i.e., the hedge ratios are different from zero) and whether significant portions of stocks' prices are accounted for by PVGO (i.e., the PVGO ratios are different from zero). The hypothesis that the PVGO ratio was *not* significantly different from zero was rejected overwhelmingly, both for the aggregated data and when the data were analyzed either on an industry basis or on a quarter-by-quarter basis. Consequently, these results suggest firms' values, to some extent, are affected by PVGO factors. The results for the hypothesis test that firms follow hedging strategies that produce hedge ratios that are not significantly different from zero are mixed. It is interesting that the more recent data indicate, *in aggregate*, the hedge ratio has shifted more toward short hedging. (A negative value for the hedge ratio indicates a negative percentage short hedge, which represents a long hedge.) This might suggest the high

short-term interest rates that existed at the end of the 1970s and the beginning of the 1980s made financial managers more aware that short-term financial management should be a dynamic rather than a passive strategy.

Table 3 contains the measures for the PVGO ratios and the hedge ratios separated into hedge classifications. A firm was assigned a particular hedge classification if it followed the appropriate strategy for at least 60 percent of the study period. The measures for the firms that were not classified also are included for comparative purposes because these firms did not exhibit a particular hedging strategy, following different strategies more than 40 percent of the period.

The results shown in Table 3 indicate the PVGO ratio for hedged firms is significantly greater than for both the short-hedged firms and the long-hedged firms. Also, firms in the "not classified" category exhibited PVGO ratios that were significantly greater than both the long-hedged firms and the short-hedged firms. However, the PVGO ratio for the "not classified" firms was found not to be significantly different from the PVGO ratio for the hedged firms. The category "not classified" also exhibited a value for the short-hedge ratio nearest the value of the short-hedge ratio computed for the firms in the hedged classification. Many of the firms that did not meet the classification requirement (i.e., one strategy was followed 60 percent of the time) shifted from marginally hedged positions either to marginally long-hedged positions or marginally short-hedged positions, or vice versa, so it is not surprising that the statistics computed for the "not classified" firms are similar to those computed for the firms classified as hedged.

The quarterly return on equity (ROE) and the monthly market return associated with the common stock were computed for each firm. These returns were then evaluated relative to the hedging group to which the firm was assigned to determine whether the returns generated by the firms in each hedge category were significantly different from each other. Table 4 gives the group means and standard deviations of the ROEs and the stock returns. The beta measures for each classification also are provided as an indication of the risk associated with each hedge group. The lower part of the table contains the results of hypothesis tests that were performed to determine whether the group means differed significantly from one another. The results found

here indicate that long-hedged firms earned higher stock returns than hedged firms, and hedged firms, in turn, earned higher stock returns than short-hedged firms. The hypothesis tests, however, indicate only the stock returns for the long-hedged firms were significantly different from the stock returns exhibited by firms in the other hedge categories. But, the risk associated with the long-hedged firms also is greater than the other firms, as evidenced by both the beta values and the standard deviations of the stock returns. When adjusted for risk using beta as the risk measure (i.e., the Treynor Index), compared to the stock return of the hedged position, the stock return of the long-hedged position was not statistically significantly different; the stock return of the long-hedge position was only marginally significantly different from the short-hedge position ($\alpha = .10$); and, it was determined to be significantly different from the unclassified firms at a 0.01 significance level or better.

The results of comparing ROEs indicate the short-hedged firms earned the highest ROEs, the long-hedged firms earned the next highest, and the hedged firms earned the lowest ROEs for the firms that qualified for inclusion in one of the three hedge categories. The ROEs for the "not classified" firms were the lowest of all. The ranking of the classifications with respect to ROEs is identical to the ranking with respect to PVGO ratios, and the significance of the statistical differences also are analogous. The result is not unexpected if firms that are considered growth oriented are characterized by a great deal of current reinvestment in the firm, through research and development, rapid company expansion, and so on, to gain potentially greater future returns.

To evaluate the relationship between the hedge position and the proportion of value attributed to PVGO, the firms were ranked each quarter with respect to their PVGO ratio. Then the firms were separated into quintiles according to their PVGO ranking. The results of this procedure are presented in Table 5 along with the mean values of the short-hedge ratios, the stock returns, the ROEs, and the betas for each quintile. These results are consistent with those presented in Table 3 and Table 4.

IV. Conclusion

The purpose of this study was to examine the relationship between the hedging strategies of firms (i.e., how closely maturities are matched when financing assets) and the proportion of value that can be attributed to the present value of future growth opportunities (PVGO). The results suggest that firms mostly follow a financing strategy that can be considered a long hedge, or more conservative than other strategies. In addition, the findings indicate that the tendency is for the more growth-oriented firms to follow less conservative financing strategies; they more closely match maturities when financing assets. This finding is not surprising considering the fact that long-term sources of funds are not as readily available to riskier, growth-oriented firms as they are to safer, more conservative firms that have established debt servicing records.

The results also indicate that the firms following more conservative financing policies earn higher market rates than firms that more closely match maturities. This finding seems to suggest that growth stocks might offer little potential for price movement in the near term, even in the face of unexpected information (earnings, dividends, patents, etc.), because growth opportunities already have been discounted into the far distant-future and they constitute a significant portion of the stocks' prices. The impact of current events is relatively small because little of the current value can be attributed to near-term actions of the firm.

This study has provided interesting preliminary findings. But, the puzzle has many more pieces, and further research is required to provide more concrete conclusions. Some areas currently being addressed include examinations of the time series properties of the PVGO ratios and the hedge ratios of firms that move out of the growth stage, and the reaction of firms to unexpected earnings with respect to PVGO ratios and hedge ratios. The results of these ongoing investigations will be included, along with updated tests, in subsequent revisions of this paper.

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TABLE 1

Percent PVGO and Percent Short Hedged Broken Down by Industry

This table shows the means and standard deviations computed for the proportion of the stock price represented by present value growth opportunities (PVGO) and for the proportion of the total assets that were short hedged (negative signs indicate long hedges) broken down by industry classification. The t-values given in the table correspond to tests that the mean values are equal to zero.

Industry Class	Cases	Percent PVGO			Percent Short Hedge		
		Mean	Std Dev	t-Value	Mean	Std Dev	t-Value
Metal Mining	128	0.6649	0.7629	9.8604***	-0.0188	0.0811	-2.6227***
Petroleum Mining	335	0.7186	0.6106	21.5404***	-0.0043	0.0555	-1.4181
Food & Kindred Prod.	180	0.6418	0.3205	26.8663***	0.0218	0.1187	2.4640**
Textile & Apparel	221	0.8256	0.4133	29.6962***	-0.0980	0.2204	-6.6101***
Forest Products	311	0.8713	0.6963	22.0674***	-0.0304	0.0761	-7.0448***
Publishing & Printing	320	0.6331	0.3169	35.7376***	-0.0248	0.0762	-5.8220***
Chemicals	634	0.6569	0.3842	43.0513***	-0.0321	0.1213	-6.6633***
Petroleum Refining	255	0.8734	0.6140	22.7151***	0.0059	0.0742	1.2698
Plastics, Concrete	356	1.0365	0.9807	19.9415***	-0.0107	0.1123	-1.7977 *
Steel Works	122	1.1507	0.9958	12.7635***	0.0063	0.1003	0.6938
Metal Products	437	0.8511	0.5925	30.0285***	-0.0386	0.1013	-7.9656***
Machinery	410	0.6856	0.4442	31.2525***	-0.0537	0.1245	-8.7337***
Electronic Equip.	1194	0.6140	0.4183	50.7204***	-0.1288	0.1605	-27.7296***
Computer Equip.	56	0.8607	0.5624	11.4525***	-0.0104	0.1560	-0.4989
Automobile Manuf.	670	0.8637	0.5087	43.9480***	-0.0523	0.0951	-14.2350***
Instruments	316	0.5820	0.4826	21.4378***	-0.0676	0.1229	-9.7777***
Total Cases	5945	0.7473	0.5671	101.6041	-0.0522	0.1304	-30.8652***

*** significant at 0.01

** significant at 0.05

* significant at 0.10

TABLE 2

Percent PVGO and Percent Short Hedged Broken Down by Time

This table shows the means and standard deviations computed for the proportion of the stock price represented by present value growth opportunities (PVGO) and for the proportion of the total assets that were short hedged (negative signs indicate long hedges) broken down by year and quarter. The t-values given in the table correspond to tests that the mean values are equal to zero.

Year	Quarter	Cases	Percent PVGO			Percent Short Hedged		
			Mean	Standard Deviation	t-Value	Mean	Standard Deviation	t-Value
1982		514	0.7460	0.3534	47.8579***	-0.1224	0.1080	-25.6945***
	1	123	0.7051	0.3374	23.1771***	-0.1329	0.1084	-13.5972***
	2	124	0.7332	0.3624	22.5292***	-0.1222	0.1119	-12.1605***
	3	125	0.7068	0.3308	23.8883***	-0.1177	0.1107	-11.8873***
	4	142	0.8273	0.3681	26.7819***	-0.1178	0.1019	-13.7758***
1983		545	0.6437	0.3078	48.8217***	-0.1129	0.1113	-23.6808***
	1	130	0.6739	0.2829	27.1603***	-0.1160	0.1072	-12.3377***
	2	133	0.6063	0.2940	23.7830***	-0.1082	0.1128	-11.0623***
	3	133	0.5692	0.3061	21.4451***	-0.1132	0.1159	-11.2639***
	4	149	0.7172	0.3246	26.9702***	-0.1141	0.1103	-12.6271***
1984		551	0.6564	0.3112	49.5114***	-0.1011	0.1110	-21.3798***
	1	133	0.6492	0.2922	25.6227***	-0.1033	0.1066	-11.1756***
	2	133	0.6363	0.2935	25.0023***	-0.0931	0.1121	-9.5779***
	3	134	0.6184	0.2954	24.2332***	-0.1018	0.1149	-10.2561***
	4	151	0.7142	0.3490	25.1468***	-0.1055	0.1112	-11.6583***
1985		607	0.6343	0.3916	39.9067***	-0.0927	0.1143	-19.9816***
	1	147	0.5842	0.3434	20.6262***	-0.1004	0.1121	-10.8589***
	2	147	0.7283	0.4555	19.3857***	-0.0952	0.1142	-10.1072***
	3	147	0.6109	0.3835	19.3136***	-0.0904	0.1195	-9.1719***
	4	166	0.6162	0.3664	21.6681***	-0.0856	0.1122	-9.8296***
1986		202	0.5456	0.4274	18.1433***	-0.0800	0.1541	-7.3784***
	1	47	0.5485	0.4798	7.8373***	-0.0964	0.1223	-5.4038***
	2	49	0.5044	0.4132	8.5450***	-0.0817	0.1666	-3.4328***
	3	50	0.5236	0.4137	8.9495***	-0.0777	0.1750	-3.1396***
	4	56	0.5987	0.4108	10.9062***	-0.0668	0.1493	-3.3482***
1987		222	0.9710	0.5154	28.0706***	-0.0828	0.1609	-7.6674***
	1	53	0.9494	0.5344	12.9336***	-0.0774	0.1560	-3.6121***
	2	54	0.9474	0.4691	14.8411***	-0.0804	0.1595	-3.7042***
	3	56	0.1000	0.5971	1.2533***	-0.0873	0.1597	-4.0908***
	4	59	0.8897	0.4394	15.5528***	-0.0857	0.1713	-3.8428***
1988		233	0.6675	0.3426	29.7401***	-0.0722	0.1432	-7.6961***
	1	57	0.7438	0.3603	15.5858***	-0.0816	0.1439	-4.2812***
	2	57	0.6541	0.3441	14.3515***	-0.0795	0.1461	-4.1082***
	3	58	0.6302	0.3435	13.9722***	-0.0656	0.1467	-3.4056***
	4	61	0.6440	0.3200	15.7181***	-0.0629	0.1389	-3.5368***

(Table 2 continues)

(Table 2 continued)

Year	Quarter	Cases	Percent PVGO			Percent Short Hedged		
			Mean	Standard Deviation	t-Value	Mean	Standard Deviation	t-Value
1989		239	0.6435	0.2961	33.5977***	-0.0433	0.1456	-4.5975***
	1	58	0.6154	0.3079	15.2217***	-0.0545	0.1350	-3.0745***
	2	58	0.6267	0.2675	17.8423***	-0.0511	0.1347	-2.8891***
	3	58	0.7068	0.3253	16.5473***	-0.0318	0.1454	-1.6656*
	4	65	0.6272	0.2807	18.0144***	-0.0367	0.1651	-1.7921*
1990		245	0.7539	0.3763	31.3590***	-0.0306	0.1637	-2.9259***
	1	61	0.7192	0.3653	15.3768***	-0.0248	0.1692	-1.1448
	2	61	0.7589	0.3701	16.0151***	-0.0261	0.1698	-1.2005
	3	60	0.7345	0.3760	15.1314***	-0.0308	0.1823	-1.3087
	4	63	0.8013	0.3964	16.0447***	-0.0403	0.1347	-2.3747**
1991		273	0.9264	0.6018	25.4348***	-0.0377	0.1460	-4.2665***
	1	67	0.9421	0.5558	13.8745***	-0.0413	0.1468	-2.3028**
	2	67	0.8686	0.5588	12.7233***	-0.0392	0.1425	-2.2517**
	3	68	0.9860	0.7008	11.6021***	-0.0467	0.1405	-2.7409***
	4	71	0.9091	0.5869	13.0520***	-0.0242	0.1555	-1.3113
1992		220	0.9273	0.5092	27.0112***	-0.0308	0.1495	-3.0558***
	1	69	0.0167	0.5933	0.2338	-0.0357	0.1592	-1.8627*
	2	68	0.9128	0.4989	15.0875***	-0.0431	0.1448	-2.4545**
	3	67	0.8535	0.4406	15.8561***	-0.0228	0.1519	-1.2286
	4	16	0.9121	0.4028	9.0576***	0.0096	0.1157	0.3319
1993		839	0.8750	0.8045	31.5038***	-0.0071	0.0969	-2.1223**
	1	207	0.8933	0.7722	16.6438***	-0.0095	0.1038	-1.3168
	2	210	0.8832	0.7798	16.4130***	-0.0085	0.1039	-1.1855
	3	209	0.8762	0.7630	16.6017***	-0.0091	0.0989	-1.3302
	4	213	0.8477	0.8983	13.7724***	-0.0016	0.0796	-0.2934
1994		844	0.8069	0.8521	27.5106***	0.0146	0.1169	3.6284***
	1	215	0.8626	0.9145	13.8307***	0.0048	0.0807	0.8721
	2	212	0.8648	0.8973	14.0329***	0.0133	0.0844	2.2944**
	3	206	0.7814	0.7743	14.4843***	0.0130	0.0819	2.2782**
	4	211	0.7171	0.8079	12.8933***	0.0275	0.1851	2.1580**
1995		411	0.6571	0.4549	29.2844***	0.0141	0.0661	4.3245***
	1	104	0.6525	0.4247	15.6680***	0.0116	0.0687	1.7219*
	2	104	0.7029	0.4721	15.1837***	0.0143	0.0670	2.1766**
	3	104	0.7009	0.5093	14.0346***	0.0136	0.0702	1.9757**
	4	99	0.5677	0.3964	14.2500***	0.0172	0.0582	2.9405***
Total Cases		5945	0.7473	0.5671	101.6040***	-0.0522	0.1304	-30.8651***

*** significant at 0.01
** significant at 0.05
* significant at 0.10

TABLE 3

Percent PVGO and Percent Short Hedged Broken Down by Hedge Class

The top portion of this table shows the means and standard deviations computed for the proportion of the stock price represented by present value growth opportunities (PVGO) and for the proportion of the total assets that were short hedged (negative signs indicate long hedges) broken down by hedge classification. The t-values given in the table correspond to tests that the mean values are equal to zero. The bottom portion of the table provides the results of difference in means tests for the various hedged classification pairs for the same measures.

Hedge Position	Cases	Percent PVGO			Percent Short-Hedged		
		Mean	Standard Deviation	t-Value	Mean	Standard Deviation	t-Value
Long-Hedged	1736	0.6546	0.3504	77.8371***	-0.1664	0.1361	-50.9413***
Hedged	2395	0.7848	0.5753	66.7602***	-0.0092	0.0687	-4.1420***
Short-Hedged	322	0.7129	0.7369	17.3599***	0.0864	0.0802	19.3316***
Not Classified	1492	0.8025	0.6896	44.9503***	-0.0184	0.1174	-6.0539***
Total Cases	5945	0.7473	0.5671	101.6040***	-0.0522	0.1304	-30.8651***

Hypothesis Tested	Percent PVGO			Percent Short-Hedged		
	Difference in Means	t-Value	Signif.	Difference in Means	t-Value	Signif.
Long-Hedged = Hedged	-0.1302	-9.01	0.000***	-0.1572	-44.21	0.000***
Long-Hedged = Short-Hedged	-0.0583	-2.21	0.027**	-0.2528	-45.65	0.000***
Hedged = Short-Hedged	0.0719	2.03	0.042**	-0.0956	-20.40	0.000***
Long-Hedged = Unclassified	-0.1479	-7.83	0.000***	-0.1480	-32.81	0.000***
Hedged = Unclassified	-0.0177	-0.86	0.390	0.0092	2.75	0.000***
Short-Hedged = Unclassified	-0.0896	-2.09	0.037**	0.1048	15.26	0.000***

*** significant at 0.01

** significant at 0.05

* significant at 0.10

TABLE 4

Beta, Monthly Stock Return, and Return on Equity Broken Down by Hedge Class

The top portion of this table shows the means and standard deviations computed for the beta coefficient, return on the stock, and the return on equity (ROE) broken down by the hedge classification. The t-values that correspond to tests that the mean values are equal to zero are omitted for simplicity in the top portion. The bottom portion of the table provides the results of difference in means tests for the same measures for the various hedged classification pairs (t-values are included).

Hedge Position	Cases	Beta		Stock Return		ROE	
		Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Long Hedged	1736	1.3157***	0.4760	0.0309***	0.2038	0.0289***	0.1202
Hedged	2395	1.0654***	0.3783	0.0168***	0.1826	0.0239***	0.0968
Short Hedged	322	0.9250***	0.2458	0.0031	0.1924	0.0679***	0.0956
Not Classified	1492	1.1067***	0.4424	0.0125***	0.1910	0.0152***	0.1942
Total Cases	5945	1.1413***	0.4361	0.0191***	0.1918	0.0256***	0.1530

Hypothesis Tested	Beta		Monthly Stock Return		ROE	
	Difference in Means	t-Value	Difference in Means	t-Value	Difference in Means	t-Value
Long-Hedged = Hedged	0.2503	18.81	0.0141	3.00	0.0050	1.64
Long-Hedged = Short-Hedged	0.3907	14.38	0.0278	2.59	-0.0390	-5.48
Hedged = Short-Hedged	0.1404	6.48	0.0137	1.26	-0.0440	-6.63
Long-Hedged = Unclassified	0.2090	12.85	0.0184	3.20	0.0137	3.08
Hedged = Unclassified	-0.0413	-0.58	0.0043	0.69	0.0087	1.97
Short-Hedged = Unclassified	-0.1817	-7.13	-0.0094	-0.80	0.0527	5.32

*** significant at 0.01
 ** significant at 0.05

* significant at 0.10

TABLE 5

Percent PVGO, Percent Short Hedge, Monthly Stock Returns, ROE, and Beta Broken Down by PVGO Quintiles

This table shows the means and standard deviations computed for the proportion of the stock price represented by present value growth opportunities (PVGO), the proportion of the total assets that were short hedged (negative signs indicate long hedges), monthly stock return, return on equity, and beta coefficient broken down by PVGO quintile classification from lowest PVGO to highest PVGO.

Quintile	Cases	% PVGO		% Short Hedge		Monthly Stock Returns		ROE		Beta	
		Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
1 - Lowest % PVGO	1138	0.2548	0.1239	-0.0723	0.1496	0.0118	0.2149	0.0241	0.1046	1.3762	0.5523
2	1316	0.4748	0.1240	-0.0554	0.1169	0.0178	0.1981	0.0251	0.1643	1.1982	0.4027
3	1372	0.6538	0.1284	-0.0485	0.1224	0.0250	0.1831	0.0308	0.0585	1.0930	0.3839
4	1182	0.9147	0.1654	-0.0391	0.1339	0.0210	0.1773	0.0263	0.0757	0.9978	0.3428
5 - Highest % PVGO	937	1.6541	0.8204	-0.0455	0.1272	0.0188	0.1830	0.0196	0.1681	1.0276	0.3620
Total Cases	5945	0.7473	0.5671	-0.0522	0.1304	0.0191	0.1918	0.0256	0.1202	1.1413	0.4361