
VALUE WIZARD INSIGHTER - December 1999

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1. Systems of Stock Selection

There are many different mechanical systems for selecting stocks for investment. Although one or more may have superior performance looking backward with 20/20 hindsight over time periods selected after the fact, none has stood the test of forward-looking performance over all periods based on total return after all then-contemporaneous transaction costs and income taxes, either on an absolute basis or when compared to the total net return for a broad market proxy such as the S&P 500 Common Stock Index. Nevertheless, the publishers of such mechanical stock-picking systems sometimes also provide useful statistical data and information in an efficient manner which might justify the subscription cost.

Systems that use fuzzy logic or other variation of artificial intelligence are still mechanical because they are designed to be substitutes for case-specific human judgments informed by experience. Sometimes the mechanical screens, filters or selection criteria are transparent, but more often they are opaque and hidden behind the veil of proprietary intellectual property in a mysterious black box. Mechanical systems are objective (blind), emotion-free (judgment-free), stable (rigid and invariant), and consistent (automatonic).

The promoters of some mechanical systems also periodically publish model portfolios and actionable ratings for the investor. Such published results may be used to drive up the price of stocks that the promoter has purchased in anticipation of such price action. Other published results may merely be a convenience to save potential investors the time and effort of calculation. If there are secret formulas to do the screenings, rankings and ratings, then the system can create an infantilized relationship with continuing dependency on the publication of system reports.
In contrast to mechanical systems are what may be referred to as organic approaches that require on-going human judgments. Organic approaches cannot be reduced to a mere formula because situations and conditions significantly vary the emphasis in each case. There are six areas where case-specific judgments are called upon in estimating the investment value of a common stock.

1. Identifying a circle of competence
2. Forecasting the relevant cash flows
3. Determining the growth rate
4. Selecting the appropriate discount rate
5. Choosing a suitable safety margin
6. Weighting other facets of value

These judgment calls are necessarily investor-specific because no two investors have the same abilities and interests which determine their circles of competence. In addition, no two investors will arrive at the same cash flow forecasts, growth rates and discount rates to estimate an intrinsic value. Furthermore, no two investors will require the same margin of safety in every case. Lastly, no two investors will consider the same other facets of valuation nor give them the same relative weighting.

It should be no surprise that an investor who has found a stock that meets his or her criteria after all the necessary study and investigation will not readily publicize this information. Therefore, where would one expect to find a reliable track record of estimates of investment value? Possibly in the audited accounts of private hedge funds whose managers are rewarded based on performance and who may provide such information to their clients.

Empirical academic studies of intrinsic value or investment value are stillborn because of the idiosyncratic, non-generalizable, judgment-based nature of the estimation of these quantities. Such studies would have to control for measured IQ and common sense of the estimator; operational definitions of intrinsic value, appraised value, quality value, and other facets of value; and case-specific judgments of all the major variables as outlined above beginning with the circle of competence. The estimation of investment value is a means to an end, and as such, great precision is not required even if possible. The end of all evaluations is the decision to either buy, sell or hold the subject stock.

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2. Quality of Company Reputation

Quality is an intangible facet of value. One aspect of quality is company image or reputation. Corporations spend billions of dollars annually for public relations. Efforts are underway to scientifically measure and justify these expenditures as part of "reputation management" programs.

For example, one metric called the Harris-Fombrun Reputation Quotient (RQ) is a standardized survey instrument that measures a company's reputation based on how the public rates companies and their common stocks according to 20 attributes related their products and services, financial performance, workplace environment, social responsibility, vision and leadership, and emotional appeal. The ratings of each company are weighted by demographic variables, and RQ scores are then calculated for each company to determine their rankings. The highest possible RQ score is 100. Using the RQ metric, pollsters can identify the best-regarded companies within their sampling universe and determine the attitudes toward buying the companies' stocks.

Although these ratings and rankings may not be available for every company and its common stock, the criteria can be used by the individual investor as a guideline to assess this aspect of investment quality and its impact on value.

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3. Variable-Specific Sensitivity

Variable-specific sensitivity is contrasted with model-specific sensitivity as explained in the October 1999 issue of Insighter. In the example calculation for the 1-Stage Single-Point Value model using the default values for the input variables, Yahoo common stock is estimated to have an intrinsic value of about $95 per share.

The sensitivities of calculated intrinsic value to changes in five of the most important model-specific input variables are plotted in a graph that is included with the calculation results for the 1-Stage model. The following data from this graph show the change in intrinsic value resulting from a minus 20% change and from a plus 20% change in each of the input variables, all else remaining the same. The variables are listed by their rank in the final column.

Input Variable	-20%	$Change	Rank	+20%	$Change	Rank
Growth Rate	$ 54	-41	1	$170	+75	1
Years Forecast	56	-39	2	158	+63	2
Base FCFE	76	-19	4	114	+19	3
Discount Rate	116	+ 21	3	79	-16	4
Price/FCFE Ratio	85	-10	5	106	+11	5

For example, a decrease of 20% in the Price/FCFE ratio (price to free cash flow to equity) results in a decrease of the estimated intrinsic value per share from $95 to $85 or minus $10, and the absolute value of this change is $10.

The ranking of the sensitivities at each of the two percentage changes (minus 20% and plus 20%) in the levels of the input variables is based on the absolute value of the change in intrinsic value per share. The absolute rankings and the ranking of each variable relative to each of the other variables are stock- and case-specific, and in this particular case vary from one level of change to the other for some of the input variables.

What this shows is that among these five input variables the estimated intrinsic value is most sensitive to the Growth Rate and second-most sensitive to the number of Years Forecast. Therefore, any scenario analyses would be best performed by altering these two most sensitive assumptions. Of course, it is not necessary to make these calculations of sensitivities. Rather, one glance at the graph can tell which variables are most critical in the specific case for the subject company.

Because Growth Rate and Years Forecast can interact in surprising ways in a particular estimation of intrinsic value, a model-specific and case-specific graph of these two variables and the estimated intrinsic value per share is also included in the presentation of results. The X-, Y-, and Z-axes are Growth Rate %, Forecast Period Years, and Value per Share $, respectively. This graph indicates where the slope of Mount Improbable becomes too steep to be plausible. In the 1-Stage Single-Point Value example case for Yahoo common stock, the following points can be interpolated visually from the 20-by-20 X-Y surface plot with grid increments of 1% and 1 year, respectively:

Z : X value at Y = 20 Years
Y value at X = 20 %
Y value at X value (midpoints)

$ 40 : 11 Years at 20%
12% at 20 Years
16% at 17 Years

$ 60 : 15 Years at 20%
14% at 20 Years
18% at 18 Years

$ 80 : 19 Years at 20%
19% at 20 Years
19% at 19 Years

$100 : 20 Years at 20%
20% at 20 Years
20% at 20 Years

In the region above approximately Z = $90 per share for Yahoo common stock under the case-specific conditions, the surface becomes so steep that only generous assumptions would justify these combinations of compounded annual Growth Rate and Years at that growth rate.

It is important that the origin point of this three-dimensional graph be located at X=0, Y=0, and Z=0 in order that it be interpreted correctly. An arbitrary section of the three-variable space could distort the relative slopes of the surface when viewed from each axis. One way to avoid misleading interpretation of graphs is to anchor them at the zero-point for all variables. This has its limitations when the range of one or more variables is very large, but in the case of intrinsic values, an upper limit of 20% compounded per year for the Growth Rate and 20 Years of forecast growth should reveal the steep ascent region of the surface plot in most cases.

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