evaDimensions

The Predictive Accuracy Score

PAS

A new method to grade the predictive power of PRVit scores and enhance alpha

Notice

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The PRVIT Predictive Accuracy Score ("PAS")

Introduction

While PRVit scores generally provide reliable insights into the relative valuation and likely returns of stocks, they have been found to be relatively less accurate for certain types of companies, such as those in commodity price sensitive sectors and ultra-fast-growing companies. The valuations of such companies tend to be driven by sudden supply-demand shifts or technological and competitive developments that cannot be accurately modeled by financial statement analysis, even analysis as sophisticated and penetrating as the Economic Value Added (EVA) framework used in PRVit. PAS is a formal recognition of this.

Like PRVIT itself, each stock is assigned a PAS score from one to four where a score of 1 indicates that more predictive accuracy is likely to exist, based on an examination of past predictive accuracy and other corporate attributes. EVA Dimensions will revise PAS scores monthly, even though the correlation of PAS scores month to month is high.

Construction

The specific factors which determine the PAS scores are:

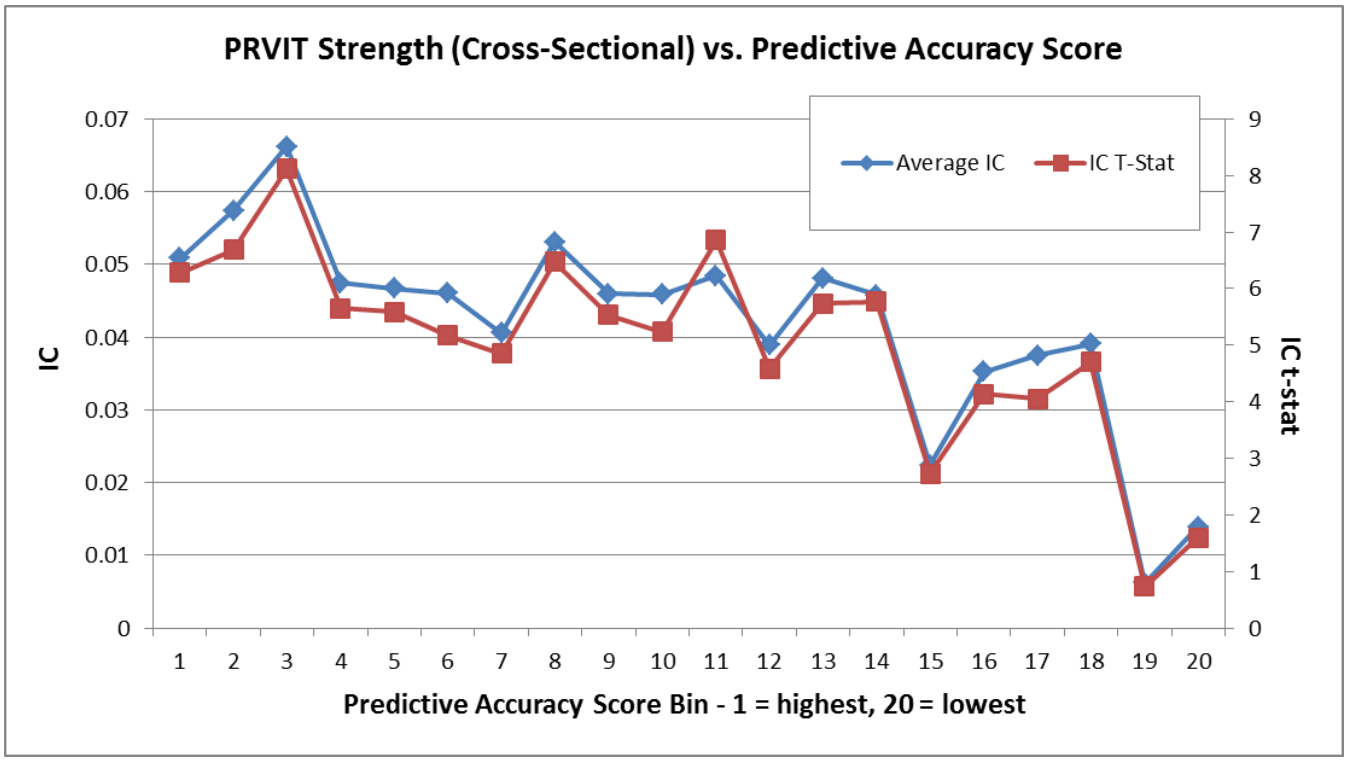
1. **Historical Accuracy:** This measures how well the PRVIT score has worked over the past five years for each stock. It is based on the hypothetical profits from a trading strategy which buys or shorts each stock according to its PRVIT score. Higher profits lead to a higher PAS score because a track record of predictive accuracy tends to persist -- and vice versa.
2. **Sales Growth Rate:** Companies that have extremely high rates of sales growth are inherently more speculative and somewhat less predictable based on extrapolating their past performance trends. Let's not overstate the case, though. PRVIT still contains valuable information about future stock returns for "growth" companies. It's just *relatively* less predictive than for value or core stocks.
3. **EVA Momentum:** EVA Momentum measures the rate of growth in EVA profit, scaled to trailing sales. When companies have extremely high EVA Momentum growth rates, the same logic applies. The model is less adept at predicting the returns of these high-flyers.
4. **Valuation:** When companies trade for extraordinarily low valuation multiples, PRVIT tends to give them a high score and that is not always such an accurate prediction. A reasonable interpretation is that their valuations are ultra-low for a good reason -- like a major contingent liability or significant erosion in patent protection or impending loss of a major contract -- which the market knows about but PRVit doesn't.
5. **Sector/Industry**: PRVIT is not as good at predicting returns right across the board for utilities, materials, and real estate firms. The stock returns of such companies are generally driven by external factors such as the regulatory environment, commodity prices, local real estate

conditions, and long-gestation development projects. Again, PRVIT is not without insight and predictive power in these sectors, but it is less effective and more inconsistent.

EVA Dimensions combines these factors into an aggregate percentile score, which is translated to the final PAS score between 1 to 4. PAS is "neutral" to PRVIT itself – meaning that it is approximately uncorrelated with PRVIT. Put another way, companies with low PAS scores are approximately evenly distributed from the highest to lowest PRVit scores. As result, there will always remain an even division of PRVIT buy and sell recommendations across the whole market even when low PAS rated stocks are excluded.

Results

The following chart plots 20 equal-sized bins of stocks organized from highest to lowest PAS scores on the "X" axis versus the predictive power associated with the stocks in each bin on the "Y" axis. It shows that PRVIT's predictive strength falls off for stocks with high PAS scores.

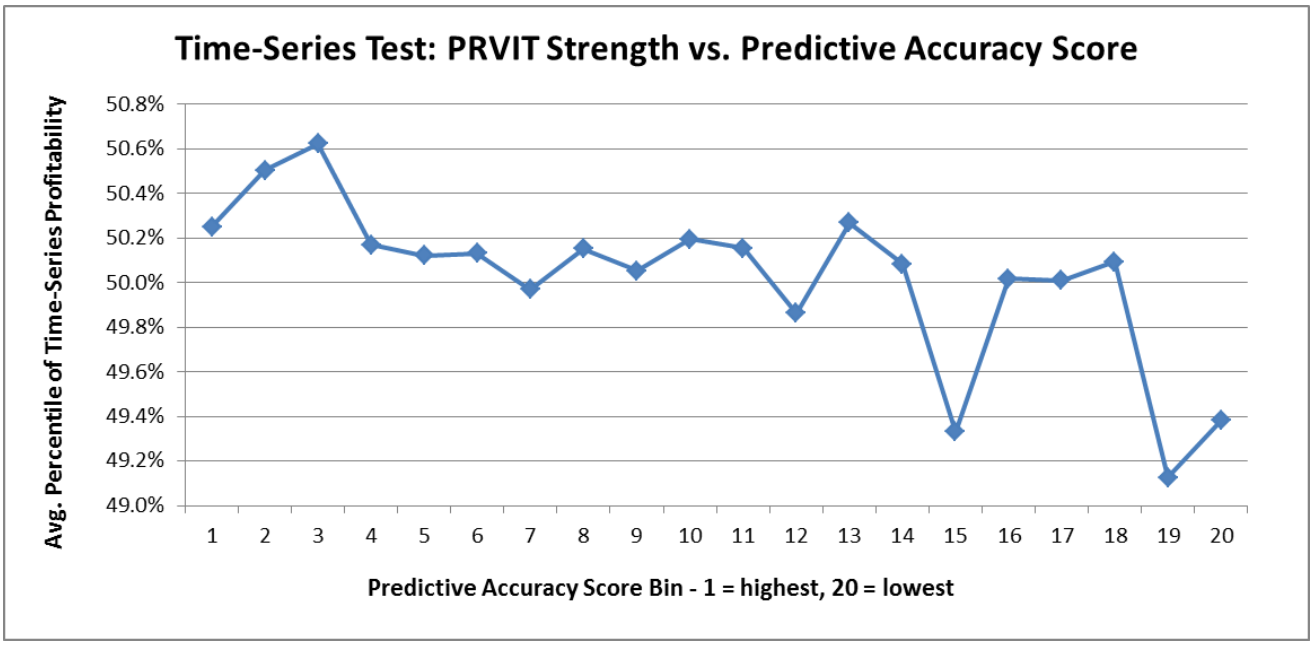


** The scores and returns used in the calculations above are residual of both the Russell 3000 and all GICS industry effects. The date range is 05/31/1998 – 12/31/2010. Rank correlations are used.*

Predictive accuracy is measured here using the cross-sectional information coefficient (IC), which is the correlation between scores and subsequent stock returns across all the companies, and with a "t-stat" for the IC, which is a measure of significance related to the ratio of the average IC over the whole measurement interval to the standard deviation of IC. For the PAS bins with the lowest accuracy, , the IC is just around 1% as shown for bin 20 in the chart above. The PAS bins with the highest accuracy

has an IC between 5-6%, as shown for bins 1-3 in the chart above. The most notable feature is the sharp drop-off in efficacy for the worst 10 percent of stocks ranked by PAS. These are accordingly assigned the a PAS score of 4, indicating a low predictive rating, as will be discussed.

Another way to look at PRVIT strength is with time-series statistics which measure how accurately the PRVit score has predicted each stock's return over time. One way to do that is to measure the profitability of a trading strategy which takes a larger long position in a stock as its PRVit score ranges above 50 to 100 and a larger short position as it ranges from 50 down to zero 0. In other words, treat a PRVit score of 50 as no position and buy or sell with more conviction as the score ranges farther into the top and bottom PRVit percentiles. The return from following such a strategy is computed for each stock, and then the returns are averaged for the stocks that fall into each of 20 PAS score bins, as is plotted below. The same pattern emerges – time-series profitability, a measure of PRVIT strength, falls for bins 15-20, particularly in the last two PAS bins.



Implications

Given these observations, EVA Dimensions assigns all covered stocks into the following 4 PAS rating categories.

PAS Percentile Range	PAS Category	Implications
90-100	4 - Weak	Historically, these PRVit scores have been only a little better than random picks.
75-90	3 - Medium	The PRVIT scores are approximately 30% less predictive than for stocks in the strongest two categories.
50-75	2 - Strong	PRVit scores have proven to be accurate return predictors.
0-50	1 - Best	

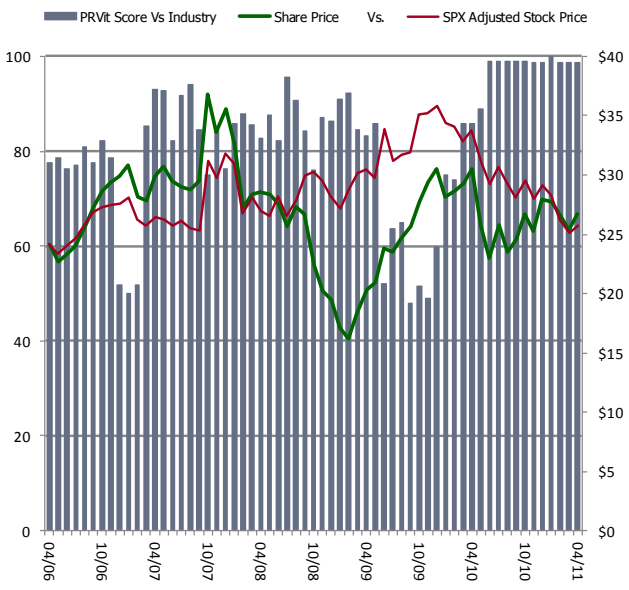
Examples

An example of a poor PAS rating is Microsoft (MSFT), a stock which many analysts have described as "stuck" between $20 and $30. Due to its very strong EVA performance, coupled with its low risk profile and low valuation multiples, PRVIT has had either a Buy or Overweight rating, with occasional transitory forays to Hold, since 2001. Yet MSFT has resisted the temptation to appreciate in value as PRVit suggested it should. As of April 2011, the predictive accuracy score (PAS) on MSFT was 3 out of 4. It is low due to the PRVit's poor predictive track record of PRVIT and because Microsoft's EVA Momentum is ultra-high. PAS advises investors to think twice before taking PRVIT's counsel on MSFT.

MICROSOFT CORP	MSFT	Software	$26.71	28-Apr-11

Historical PRVit Scores & Ratings

Date		Action	Rating	Score	Share Price
4/1/2010	▲	UPGRADE	BUY	85	$29.29
1/5/2010	▲	UPGRADE	OVERWEIGHT	67	$30.95
10/1/2009	▼	DOWNGRADE	HOLD	47	$25.72
7/1/2009	▼	DOWNGRADE	HOLD	52	$23.77
11/4/2008	▲	UPGRADE	BUY	85	$22.62
1/3/2008	▲	UPGRADE	BUY	86	$35.22
11/2/2007	▲	UPGRADE	BUY	85	$37.06
3/31/2007	▲	UPGRADE	BUY	85	$27.87
12/30/2006	▼	DOWNGRADE	HOLD	51	$29.86
12/31/2005	▼	DOWNGRADE	OVERWEIGHT	69	$26.15
10/1/2005	▼	DOWNGRADE	OVERWEIGHT	63	$25.73
3/2/2005	▲	UPGRADE	OVERWEIGHT	72	$25.28
2/2/2005	▲	UPGRADE	OVERWEIGHT	71	$26.39
1/1/2005	▼	DOWNGRADE	OVERWEIGHT	60	$26.72
10/1/2003	▼	DOWNGRADE	OVERWEIGHT	69	$27.80
6/29/2002	▲	UPGRADE	OVERWEIGHT	60	$27.35
2/1/2002	▲	UPGRADE	OVERWEIGHT	77	$31.86
1/1/2002	▲	UPGRADE	OVERWEIGHT	75	$33.13
4/3/2001	▼	DOWNGRADE	HOLD	48	$27.91
3/31/2001	▲	UPGRADE	OVERWEIGHT	76	$27.34
2/2/2001	▼	DOWNGRADE	HOLD	51	$31.19
2/1/2001	▲	UPGRADE	OVERWEIGHT	65	$30.53
1/3/2001	▼	DOWNGRADE	HOLD	48	$21.69
12/8/2000	▲	UPGRADE	OVERWEIGHT	66	$26.56
10/3/2000	▼	DOWNGRADE	OVERWEIGHT	71	$29.56

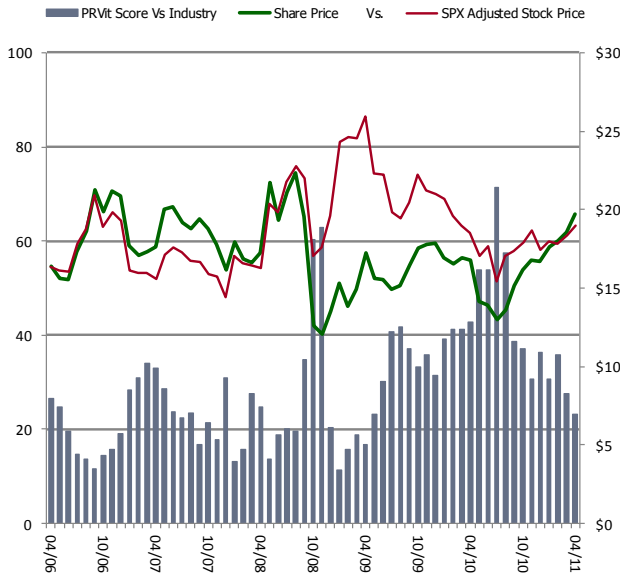


A counter example is Symantec (SYMC), another software shop. PRVIT has historically done a good job of calling the inflection points in SYMC's stock price over the past five years (see table and graph below). SYMC moreover has moderate sales growth, EVA Momentum, and valuation scores, which also puts it into the PRVit sweet spot. The PAS of SYMC as of April 2011 was 1 out of 4, indicating that PRVIT has worked well for this name and thus an investor can use its PRVit score with more confidence. Please bear in mind this is a statistical statement and not a guarantee. It does mean that a portfolio constructed with high PRVit rated stocks that also has a strong overall PAS score is more likely to outperform a high PRVit rated portfolio populated with poorly PAS rated stocks.

SYMANTEC CORP	SYMC	Software	$19.68	28-Apr-11

Historical PRVit Scores & Ratings

Date		Action	Rating	Score	Share Price
11/6/2010	▼	DOWNGRADE	UNDERWEIGHT	31	$17.21
7/30/2010	▲	UPGRADE	OVERWEIGHT	68	$13.03
5/8/2009	▲	UPGRADE	UNDERWEIGHT	25	$14.99
1/1/2009	▼	DOWNGRADE	UNDERWEIGHT	20	$13.52
12/17/2008	▼	DOWNGRADE	HOLD	53	$13.41
10/31/2008	▲	UPGRADE	OVERWEIGHT	68	$12.20
4/1/2008	▲	UPGRADE	UNDERWEIGHT	27	$16.62
1/17/2007	▲	UPGRADE	UNDERWEIGHT	31	$17.79
4/18/2006	▲	UPGRADE	UNDERWEIGHT	25	$16.39
12/31/2005	▼	DOWNGRADE	UNDERWEIGHT	31	$17.50
11/3/2005	▲	UPGRADE	BUY	86	$19.37
10/1/2005	▼	DOWNGRADE	OVERWEIGHT	67	$22.66
4/1/2005	▲	UPGRADE	BUY	85	$21.33
3/1/2005	▲	UPGRADE	BUY	85	$22.01
7/1/2003	▼	DOWNGRADE	HOLD	54	$10.98
6/29/2002	▲	UPGRADE	HOLD	57	$8.21
4/2/2002	▲	UPGRADE	UNDERWEIGHT	27	$10.39
1/1/2002	▲	UPGRADE	UNDERWEIGHT	29	$8.29
4/3/2001	▼	DOWNGRADE	UNDERWEIGHT	25	$5.14
3/31/2001		INITIATED	HOLD	42	$5.23



Other Applications

Another potential use of the PAS is in systematic strategies. Consider a simple long-only basket trading strategy which involves buying the set of stocks that PRVit ranks highest in each of 50 GICS code industry groups. From 1998-2011, this basic strategy handily surpassed a benchmark of the Russell 3000 after estimated trading costs, as shown in the table and graph below. The strategy can be dramatically improved, however, by picking the 50 stocks only from firms with a PAS rating greater than the 20th percentile (i.e., by excluding from consideration the 20% of stocks PAS ranked least accurate). By doing so, the average active return of the strategy is improved by 8%, the risk of the active returns falls by 7%, and the all-important information ratio increases 16%, which is a highly significant improvement.

Annualized Stats with Costs	PRVIT Top 50 Strategy	PRVIT Top 50 Strategy w PAS Adjustment	PAS Improvement
Avg. Total Return	19.2%	20.3%	5%
Avg. Active Return	13.7%	14.7%	8%
Std. Active Return	13.1%	12.2%	-7%
Information Ratio	1.05	1.21	16%
Avg. Turnover	29%	30%	

** Active returns are the total returns of the strategy minus the benchmark (the Russell 3000) return. Information Ratio is the ratio of average active returns to the standard deviation of active returns. Transaction costs of 30 bps each way (60 bps round-trip) are used in simulating performance.*