

Pretty Good Protection

A disciplined allocation strategy that seeks to achieve absolute returns

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After 2008 many investors expressed dissatisfaction with their performance and asked their advisors, “How can we participate in the market when it is going up but protect the portfolio when it is going down?” Pretty Good Protection (PGP) is a simple, rules-based strategy designed to accomplish this goal and to provide more attractive return-risk attributes than a traditional static balanced (e.g., 60/40) strategy.¹

The rule for PGP is to be invested in the stock or commodity if the current price is at or above its 231-trading day (approximately 11 calendar months) moving average and to be in cash otherwise. The long-term results are relatively stable with respect to the duration of the moving average (MA). Frequently a 200-day average is used, but we found slightly less turnover and more tax efficiency with a 231-day average. These back-test results reflect acting on signals only at month-end. We have studied daily and weekly signals. Shorter periods generate higher turnover without significant difference in maximum drawdowns. However, acting on signals only monthly may bother investors when the market is moving and nothing is being done. Weekly signals may provide the best trade-off between net performance and client satisfaction in practice.

In this article we illustrate PGP with two back-tests. One (S&P vs. Cash) switches between U.S. equities (S&P 500) and cash (30-day T-bills). We show this model because we have a longer set (January 1928–August 2011) of daily prices and monthly total returns. We

also show a broadly diversified implementation using a strategy including stocks, bonds, and inflation hedges.² Our results reflect a 0.25-percent trading cost.

PGP is a trend-following system forcing buys as the market moves up and sells as the market declines. While this runs counter to a “buy low, sell high” approach to maximize return, PGP’s goal is to avoid losses over an intermediate period of time. Similar to a stop-loss order, selling as the market declines tends to protect wealth. There is exten-

sive research on more-complicated approaches (e.g., Black and Jones 1987). The method described here is similar to one documented in Faber (2007).

Before we present the results, here are some caveats:

- The analysis is based on historical data and past performance is no guarantee for future returns.
- This strategy will not protect when markets gap down, meaning the market does not fall smoothly but crashes. These results reflect only month-end trading.

TABLE 1: SINGLE ASSET CLASS MODEL–PERFORMANCE TABLE, DECEMBER 1928 TO AUGUST 2011

	PGP: S&P 500 vs. Cash	S&P 500 Index	60% Stocks/40% Bonds*
Returns			
Max (December 28–August 11)	9.8%	9.1%	8.1%
30 years	11.5%	10.9%	10.4%
10 years	7.6%	2.7%	4.4%
Standard Deviation			
Max (December 28–August 11)	11.9%	19.3%	11.8%
30 years	11.5%	15.5%	9.7%
10 years	8.1%	15.8%	8.9%
Worst 12 Months			
Max (December 28– August 11)	–31.4%	–67.6%	–47.1%
30 years	–24.0%	–43.3%	–26.6%
10 years	–3.6%	–43.3%	–26.6%
Max Drawdown			
Max (December 28–August 11)	–45.1%	–83.4%	–62.1%
30 years	–24.0%	–50.9%	–29.9%
10 years	–13.2%	–50.9%	–29.9%
Turnover			
Max (December 28– August 11)	57%	0%	0%
30 years	45%	0%	0%
10 years	25%	0%	0%

*Bonds are represented by the Ibbotson U.S. Intermediate-Term Government Bond Index.

- This strategy is appropriate for long-term investors. We recommend that investors evaluate the performance of this strategy over at least three years. Strategies that provide protection over short periods (e.g., buying puts) generally have high opportunity costs and high explicit costs.
- This strategy can be expected to lag in a volatile, sideways-moving market.

Single Asset Class Model
S&P 500 vs. Cash Model

Table 1 and figure 1 summarize the results of the simpler S&P 500 vs. Cash model. PGP has provided significantly smaller maximum drawdowns and standard deviations than an all-equity portfolio. The worst 12-month returns are similar, indicating that PGP is risky over short horizons. Despite having less risk, S&P 500 vs. Cash outperformed the S&P 500, an unexpected outcome if one expects higher returns to be associated with higher risk. The long-term return advantage to PGP was the result of the portfolio maintaining its value during bear markets. We do not hold an opinion as to whether PGP will outperform a buy and hold in the future. In our view, PGP is attractive for risk-averse clients even if it does not.

The conventional approach to controlling downside risk is to hold more bonds. The S&P 500 vs. Cash implementation of PGP has exhibited less risk than a 60-percent stock/40-percent bond portfolio. PGP was invested in stocks 73 percent of the time over the past 30 years and 66 percent of the time for the past 10 years and in the December 1928–August 2011 period.

While PGP requires turnover, our analysis of the tax efficiency suggests that PGP is tax-efficient because gains tend to be long-term while losses are short-term.

Multi Asset Class Model

Our data going back to 1928 with the S&P are encouraging, but we recognize that the future may be different

from the particular path the S&P took. The S&P vs. Cash PGP model is often 100-percent equities. Despite the past results, we would be uncomfortable using this strategy for clients who want

to avoid downside risk because there is no protection against gaps in the market. Instead we prefer a model that uses more asset classes and always has some allocation to bonds. The second

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FIGURE 1: SINGLE ASSET CLASS MODEL – GROWTH OF \$1

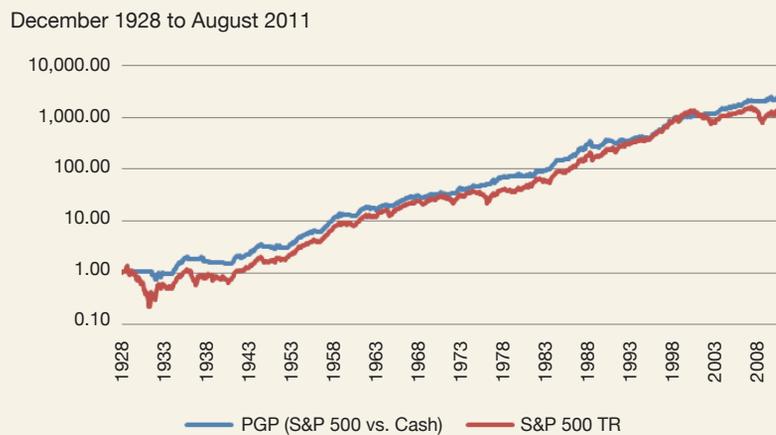
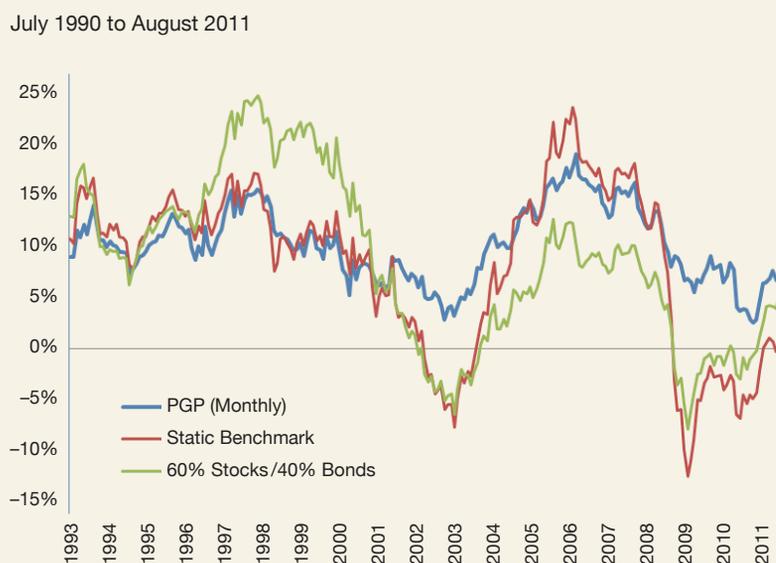


FIGURE 2: MULTI ASSET CLASS MODEL – ROLLING 3-YEAR RETURNS



model we show allocates among cash and U.S. equities, international equities, emerging market equities, real estate investment trusts (REITs), and commodities based on whether the month-end price is above or below the 231-day moving average for those asset classes. A maximum of 30 percent is allocated to U.S. equities, 20 percent to international equities, and 10 percent each to emerging markets, commodities, and REITs while 20 percent is always allocated to bonds. We compare these PGP strategy results with a fixed (static benchmark) allocation to the maximum weights allowed in each asset class. We also compare it to a 60-percent S&P 500/40-percent bond allocation.

In Figure 2, we show a rolling three-year return period for PGP strategy, static benchmark, and a traditional 60-percent stocks/40-percent bonds benchmark. As Figure 2 indicates, PGP did not have a three-year return below 0 percent for the evaluation period while the static benchmark and 60/40 allocations did. Figure 3 shows the option-like payoff of PGP.

Table 2 shows the risk-return numbers for the strategy and the two benchmarks. Notice the higher returns and lower downside risks of the PGP strategy.

Figure 4 provides a picture of the steadier performance of PGP, especially during bear markets.

Historical data must be taken with a grain of salt. Cash offered higher returns in our back-test than it yields today. The future downside may be lower when cash provides less of a cushion. Also, in periods in which the market is trendless and volatile, particularly around its 231-day moving average, PGP will fall behind the static benchmark as losses mount from selling after the market has moved down and buying after it has moved up.

For what kind of investor is PGP suited? We suggest that clients who become more risk averse as their wealth declines will be more comfortable with PGP than with a static approach. A

FIGURE 3: MULTI ASSET CLASS MODEL—SCATTER PLOT OF 3-YEAR ROLLING RETURNS

July 1990 to August 2011

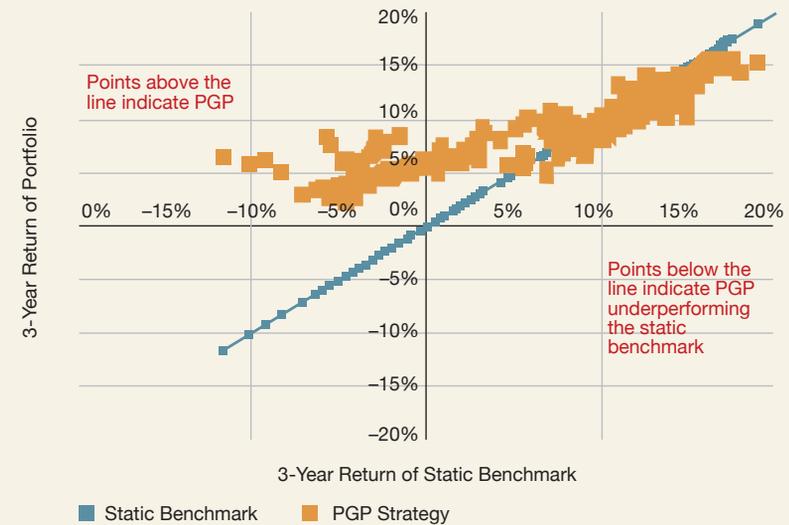


TABLE 2: MULTI ASSET CLASS MODEL—PERFORMANCE TABLE, JULY 1990 TO AUGUST 2011

	PGP	Static Benchmark	60% Stocks /40% Bonds
Returns			
Max (July 90–August 11)	8.8%	7.7%	8.1%
10 years	8.7%	6.5%	4.3%
Standard Deviation			
Max (July 90–August 11)	7.0%	11.7%	9.3%
10 years	7.0%	13.4%	9.5%
Worst 12 Months			
Max (July 90–August 11)	-6.6%	-42.5%	-28.1%
10 years	-6.6%	-42.5%	-28.1%
Max Drawdown			
Max (July 90–August 11)	-9.5%	-46.9%	-32.7%
10 years	-9.5%	-46.9%	-32.7%
Turnover			
Max (July 90–August 11)	56%	0%	0%
10 years	49%	0%	0%

client who tends to bail out of declining markets may benefit from the disciplined buy-and-sell rules of PGP. In contrast, clients whose tolerance for risk is unaffected by changes in their wealth may be comfortable with a static allocation. PGP is ill-suited for contrarian investors as well.

PGP strategy is flexible, easy to understand, and easy to implement, and the fixed bond allocation can be adjusted to meet a client's risk tolerance. This strategy will appeal to investors who are looking for absolute returns over a longer time horizon.

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FIGURE 4: MULTI ASSET CLASS MODEL—GROWTH OF \$1



Even though this strategy has characteristics of an option strategy, a client may escape the brunt of bear markets without the use of derivatives or counterparty risk. 

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Endnotes

- 1 The name “Pretty Good Protection” is taken from the data encryption program Pretty Good Privacy, which is a play on the name of the grocery store in Garrison Keillor’s fictional town of Lake Wobegon. Our use emphasizes that the protection offered is pretty good, not perfect.
- 2 Specifically we include: U.S. equities (S&P 500 Index), international equities (MSCI EAFE Index), emerging markets (MSCI EM Index), commodities (S&P GSCI Index), REITS (S&P Developed Property Index), bonds (Barclays Capital U.S. Government/Credit Bond Index), and cash (30-day T-bills). We have daily data starting in August 1989 for these indexes.

References

- Black, Fischer, and Robert Jones. 1987. Simplifying Portfolio Insurance. *Journal of Portfolio Management* 14, no. 1 (fall): 48–51.
- Faber, Mebane T. 2007. A Quantitative Approach to Tactical Asset Allocation. *Journal of Wealth Management* 9, no. 4 (spring): 69–79. <http://ssrn.com/abstract=962461>.