Even God Would Get Fired as an Active Investor

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Empirical asset pricing research can sometimes get monotonous because you end up circling back relentlessly to the same conclusions: value, momentum, trend-following are all interesting, and yet, markets are remarkably competitive (perhaps not efficient). But, *sometimes,* research uncovers absolutely stunning and counter-intuitive results–and this is where things get truly exciting. The study below is what we consider "exciting" research because the results are so profound (at least to us).

Our bottom line result is that perfect foresight has great returns, but gut-wrenching drawdowns. In other words, an active manager who was clairvoyant (i.e. "God"),(1) and knew ahead of time exactly which stocks were going to be long-term winners and long-term losers, would likely get fired many times over if they were managing other people's money.

Question: If God is omnipotent, could he create a long-term active investment strategy fund that was so good that he could never get fired?

The answer is striking: *God would get fired.*

Let that settle in a bit.

The Design of Our "God" Study

Starting on 1/1/1927 we compute the 5-year "look ahead" return for all common stocks for the 500 largest NYSE/NASDAQ/AMEX firms. For simplicity, we eliminate any firms that do not have returns for a full 60 months.(2) We look at gross returns and all returns are total returns including dividends. Next, we create decile portfolios based on the *forward* five-year compound annual growth rate (CAGR).

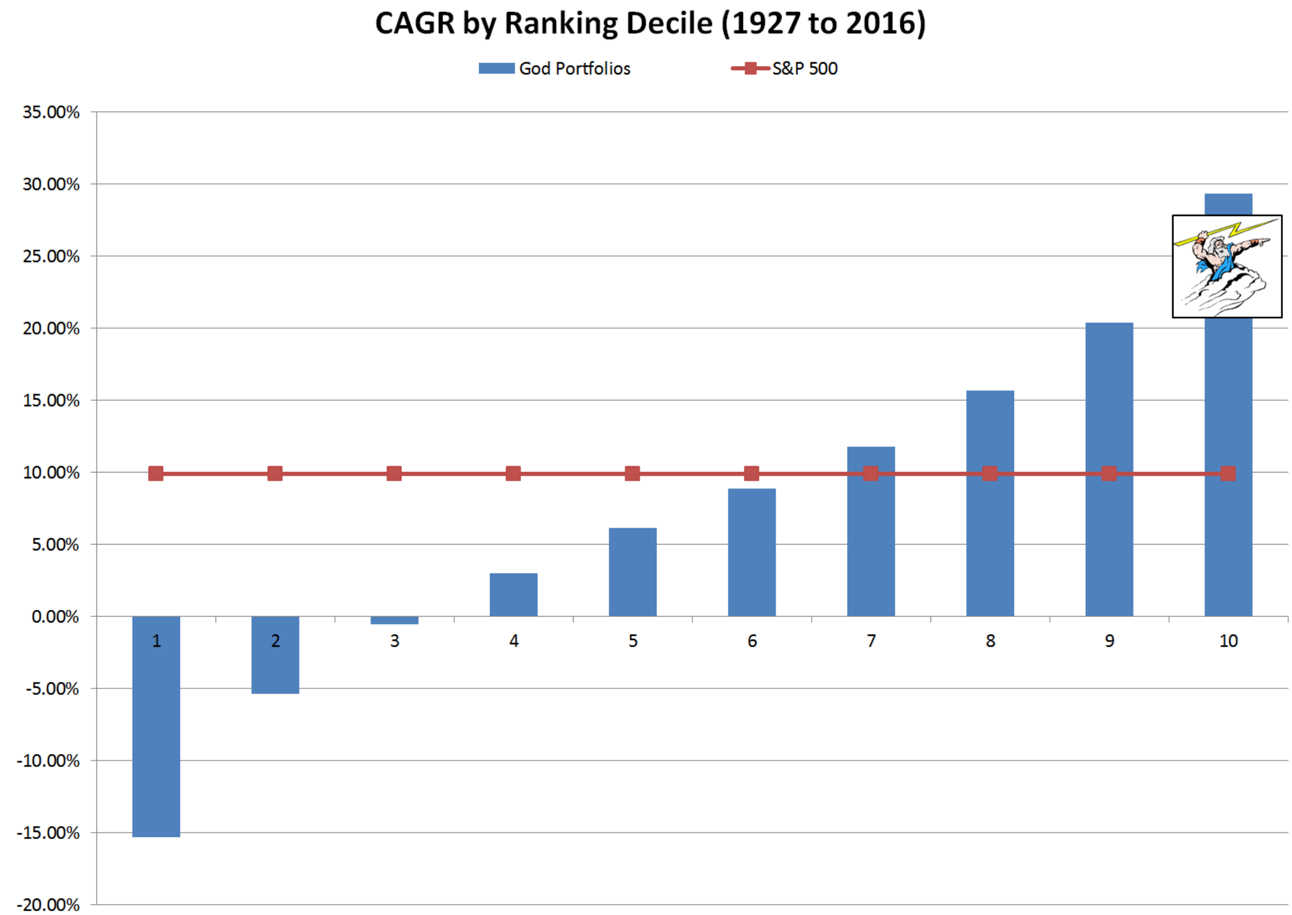
We rebalance the names in the portfolio on January 1st of every fifth year. The first portfolio formation is January 1, 1927 and is held until December 31, 1931. The second portfolio is formed on January 1, 1932 and held until December 31, 1936. This pattern repeats every fifth year. To be clear, this is a non-investable portfolio that would require one to know with 100% certainty the performance of the top 500 stocks over the next 5 years.

We are explicitly engaging in look-ahead bias.

Returns are analyzed from 1/1/1927 to 12/31/2016. Portfolios are value-weighted returns for month *t* are weighted using the market capitalization at the end of month *t-1*. All returns are gross of transaction costs, taxes, and fees.

Performance of the Decile Portfolios

We first look at the decile portfolios rebalanced every 5 years. These portfolios highlight what perfect foresight can achieve. The Decile 10 portfolios represent value-weighted portfolios sorted on future top 5-year performers and the Decile 1 represent value-weighted portfolios sorted on future bottom 5-year performers. The compound annual growth rates for the 10 decile look-ahead portfolios are mapped below:



The results are hypothetical results and are NOT an indicator of future results and do NOT represent returns that any investor actually attained. In fact, these returns are EXPLICITLY IMPOSSIBLE TO ACHIEVE. Indexes are unmanaged, do not reflect management or trading fees, and one cannot invest directly in an index. Additional information regarding the construction of these results is available upon request. Note: these results were updated on 6/14/2017.

As expected, a portfolio formed on the names that have the best 5 -year performance, have the best 5-year performance. Duh. God would compound at nearly 29% a year, in theory. In practice, he would run into capacity constraints and own the entire market (see here for details).

We know God would knock it out of the park, but the details are interesting…

Summary Statistics

Here we investigate some statistics and charts on the performance of the 5-year look ahead portfolio.

- **God_Best** = Top decile 5-year winner portfolio
- **God_Worst** = Bottom decile 5-year loser portfolio

- **SP500** = S&P 500 Total Return Index

First, the raw summary statistics:

Summary Statistics	God_Best	God_worst	SP500
CAGR	29.37%	-15.32%	9.87%
Standard Deviation	22.41%	29.13%	18.96%
Sharpe Ratio (RF=T-Bills)	1.12	-0.53	0.42
Worst Drawdown	-75.94%	-99.99	-84.59%

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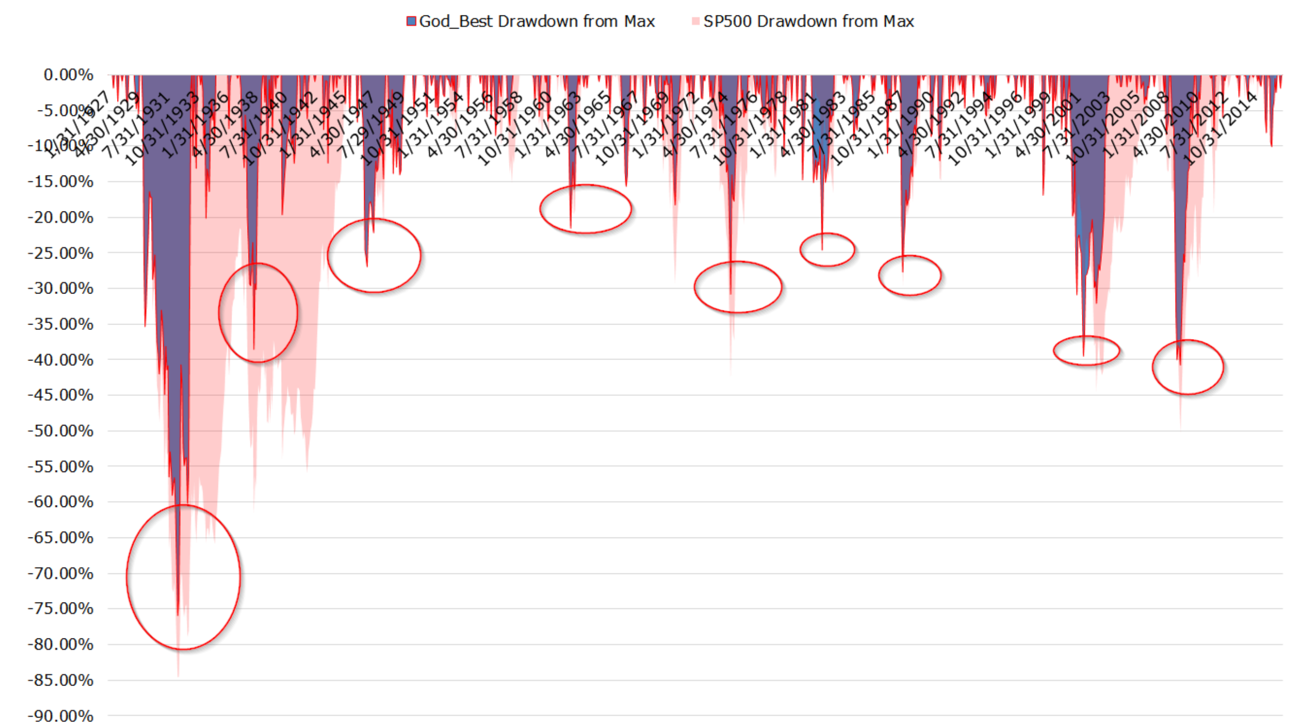
The 29% CAGR is obviously awesome for the look-ahead portfolio. Expected.

The volatility is high on the God_Best portfolio — higher than the market. Interesting.

The Sharpe Ratio is above 1, but not by much. A far cry from the 2+ Sharpe Ratios touted by some hedge funds. Interesting.

But how about them drawdowns! The perfect foresight portfolio eats a devastating 76% drawdown (Aug 1929 to May 1932). But the pain doesn't end there, here is a chart of the drawdowns on the portfolio over time:



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And here are some details on the drawdowns:

Drawdown Rank	Drawdown	Date of Prior Peak	Date of Low	Date of Recovery	Peak to Low (days)	Low to Recovery (days)	Peak to Peak (days)
1	-75.94%	8/30/1929	5/31/1932	6/30/1933	1005	395	1400
2	-40.75%	5/31/2008	2/28/2009	3/31/2010	273	396	669
3	-39.51%	8/31/2000	9/30/2001	9/30/2003	395	730	1125
4	-38.54%	2/27/1937	3/31/1938	12/31/1938	397	275	672
5	-30.81%	12/31/1973	9/30/1974	4/30/1975	273	212	485
6	-27.69%	8/31/1987	11/30/1987	1/31/1989	91	428	519
7	-26.94%	5/31/1946	11/30/1946	4/30/1948	183	517	700
8	-24.61%	11/30/1980	9/30/1981	8/31/1982	304	335	639
9	-21.53%	2/28/1962	6/30/1962	1/31/1963	122	215	337

10	-20.13%	3/31/1934	7/31/1934	4/30/1935	122	273	395

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Clearly, even a “perfect” long portfolio can bring a long-only investor a ton of pain.

How About We Create A Hedge Fund Managed by God?

In the analysis above we highlight that God’s long portfolio can endure enormous drawdowns and enhanced volatility. But perhaps we can leverage God’s perfect foresight and go long the known winners and short the known losers. Slam dunk, right?

Let’s investigate…

God’s long/short portfolio is constructed as follows:

> Long God_Best and short God_Worst, rebalanced monthly.

The following portfolios are examined:

- **God L/S** = Long 5-year decile winners; short 5-year decile losers
- **SP500** = S&P 500 Total Return index

Summary Statistics

Here are the high-level stats:

Summary Statistics*	God L/S	SP500
CAGR	46.23%	9.87%
Standard Deviation	20.08%	18.96%
Sharpe Ratio	1.86	0.42
Worst Drawdown	-47.28%	-84.59

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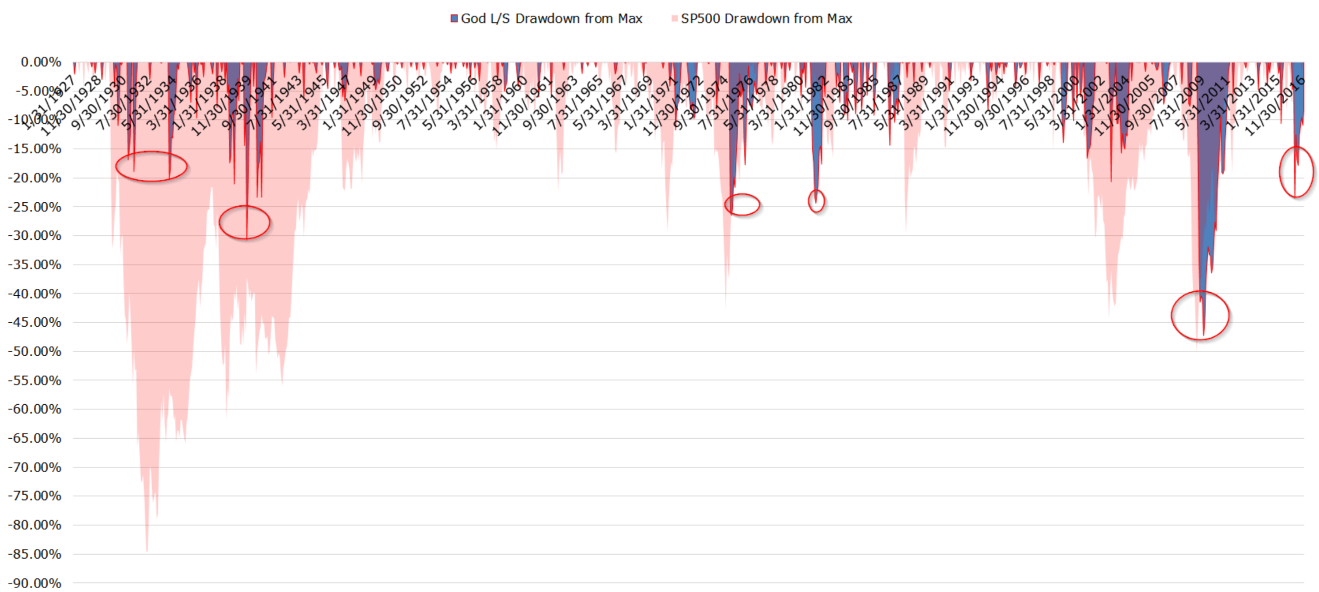
Yowza!

Clearly, the ultimate hedge fund does amazingly well — 46% CAGRs would have you owning the world's stock market in short order. Obviously, this sort of return is <u>not possible</u> over a long period — even if someone had perfect "<u>Biff</u>-like" foresight.

Yet, check out the worst drawdown on the PERFECT hedge fund — 47%+. Incredible. And it gets better…

Here is the time series of drawdowns over time for the God L/S portfolio. Certainly not a cake walk!



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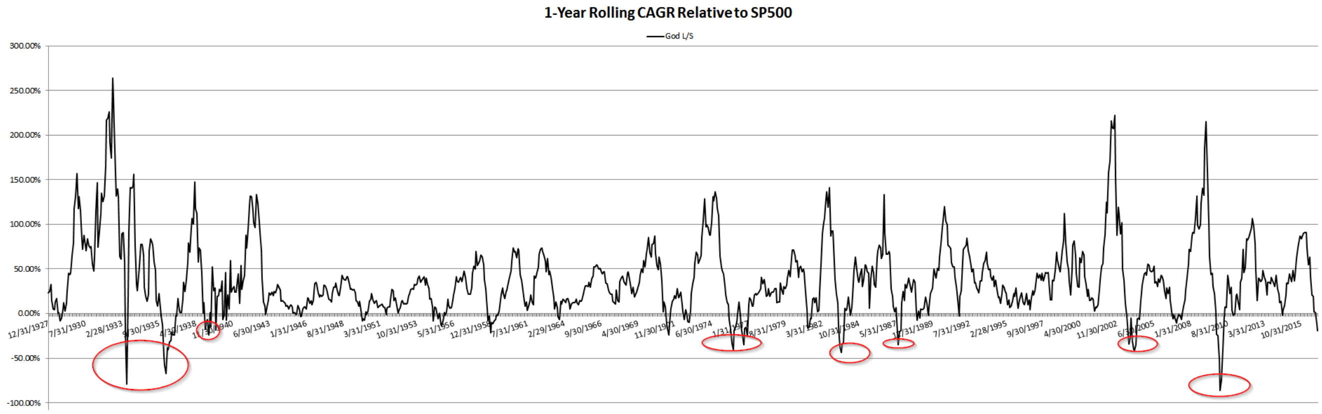
Let that chart sink in a bit. Multiple opportunities to lose 20%+ over time. Clearly not riskless. But it gets even better…

As many investment pros painfully recognize, managing money is often not about absolute performance, but relative short-term performance. Another truism is that the S&P 500 ends up *being everyone's benchmark*, regardless of the strategy — especially during a long-term bull market!

Let's look at the 1-year relative CAGR over time between God L/S and the S&P 500.



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What the chart highlights is that even God would get fired multiple times over. The relative performance of God's hedge fund is often abysmal and he'd surely make the cover of Barron's or the WSJ on multiple occasions throughout his career. The passive index would eat his lunch on multiple occasions — often getting beaten by 50 percentage points — or more — on multiple occasions!

These results highlight the fickle nature of assessing relative performance over short horizons. We've shown this quantitatively, but Ben Carlson talks about the challenge of short-horizon thinking here, and Meb Faber recently highlighted that investors are terrible at timing active investments.

Conclusions

The famous quote attributed (wrongly?) to Keynes is spot-on:

> Markets can remain irrational longer than you can remain solvent!

This study also highlights a truism for all active investors:

> Active investors **MUST have a long-horizon!**

Good luck out there...[3]

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References

1. ↑ We mean no offense by the use of the term and this could be construed as a single deity, multiple deities, or whatever fulfills your definition of an entity or concept that is all powerful and all knowing.
2. ↑ Results are similar with or without this assumption.
3. ↑ h.t., Arturo B. . An old Chicago PhD (1980) we met at the Nantucket Project, who suggested we explore this research question...