

The Search for Persistence: Is Past Performance Related to Future Performance?

Does Performance Persistence Exist?

Is a pension plan's past performance related to its future performance? The relevance of past to future performance has attracted considerable research attention. The debate has explored many dimensions. The search for persistence has examined investment style, asset class, sector, plan size, and expenses. Returns analyzed have been nominal, risk-adjusted, absolute and relative. The debate encompasses the length of the persistence period, potential bias in the historic period examined, value added on a before-fees and after-fees basis and the bias of survivorship.

Some research proclaims persistence at the performance extremes—the top and bottom quartile versus the middle two. Other research contends persistence is a function of poor, not good, performance. What are the overall conclusions? There is unfortunately no consensus.

Identifying Winners

To explore this matter, CEM identified 80 defined benefit plans each with a data history of 10 consecutive years from 1995 to 2004. These plans were selected to form the test group to remove the bias of survivorship. Survivorship bias occurs when winning portfolios gain prominence because poor performing portfolios disappear from the group under scrutiny. Three tests were conducted.

In the first test, the plans were divided into a top half and bottom half performers for each year. The performance metric was net value added (NVA). Plans in the top half of NVA were defined as “winners”. The number of winners in consecutive years was then measured against the number that would be expected according to pure chance. It is a simple but effective measure used by Burton Malkiel to analyze performance persistence in mutual funds¹.

In a second test, nine plans that achieved the greatest number of winning years (non-consecutive) were subjected to an auto regression test to determine whether or not past NVA was related to future NVA. Since these plans had demonstrated the strongest performance in their respective countries, they were logical candidates to exhibit performance persistence.

Third, “winner” was redefined to be a plan that achieved top quartile NVA over the entire period. This provided a larger subgroup of 20 plans to examine more closely. These plans were auto regressed. In each of the three tests, the sample group was partitioned into US and Canadian subgroups.

Findings

As shown in the table below, two of 47 US plans demonstrated high relative NVA over four consecutive years. However, the number predicted by pure chance was two plans. Two of 33 Canadian plans showed persistence over five years. Here, the number expected according to chance was one. In both the US and Canadian samples, from years six to ten, there was not one single consecutive year winner.

¹ Burton Malkiel, *A Random Walk Down Wall Street* (New York: W.W. Norton & Company Inc., 1990) 169-177.

Turning to the second test, of the group of 80 plans, five Canadian plans were in the top half of NVA for seven or more years and four US plans were in the top half for eight or more years. The nine plans were subjected to auto regression, whereby a plan's NVA from 1994 to 2004 was regressed against the plan's NVA lagged by one year. No result was significant at the 95% confidence level. For one Canadian fund, the prior period NVA coefficient was significant at the 90% level.

When "winner" was redefined to be a plan that achieved top quartile NVA over the entire period, the number of winners increased to 20. None of the 20 plans showed a significant relation between past and future performance at the 95% level. For one Canadian and one US plan, the prior period NVA coefficient was significant at the 90% level.

Slight Evidence

Notwithstanding the exceptions, the weight of the evidence above suggests that the repetition or persistence of superior performance is governed by the laws of chance. The results are consistent with Jensen's research on the subject of performance persistence, which concluded no persistence on a pre- or post-fee basis². The results are also consistent with the view expressed by Nobel Laureate Paul Samuelson, who said:

*There is some evidence that last year's winners tend to repeat next year. But it is very slight. Most of the effect comes from the fact that bad funds stay bad. Their expenses are high and their choices stay haphazard.*³

The findings have three qualifications. The sample size was small. The observation period was brief. More importantly, the group comprised only one type of market participant—the pension fund. In tests for persistence, it may be the case that who is measured is more important than what is measured. Consequently, one wonders what the result would be in a test with many different types of market participants.

NVA Persistence: Consecutive Years of Top Half Performance

Year	Cons. Yrs.	US Plans		Canadian Plans	
		Actual No.	No. Predicted by Chance	Actual No.	No. Predicted by Chance
1995	1	23	23	16	16
1996	2	11	11	8	8
1997	3	7	5	4	4
1998	4	2	2	3	2
1999	5	0	1	2	1
2000	6	0	0	0	0
2001	7	0	0	0	0
2002	8	0	0	0	0
2003	9	0	0	0	0
2004	10	0	0	0	0

Hubert Lum, CFA, is Research Director of CEM Benchmarking Inc., a global benchmarking company.

² Michael Jensen, "The Performance of Mutual Funds in the Period 1945-1964," Journal of Finance 23.2 (1967): 389-416.

³ Paul Samuelson, "The Long-Term Case for Equities," The Journal of Portfolio Management Fall (1994).