

# What the CEM Database Tells Us About the Efficient Market Hypothesis

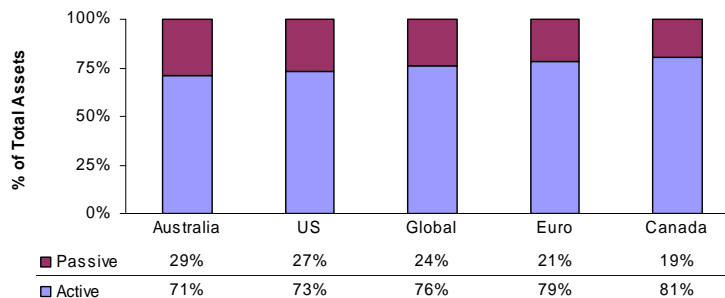
## ***The Efficient Market Hypothesis***

The Efficient Market Hypothesis (“EMH”) contends that asset prices fully and immediately reflect all available public information. The theory embodies three related ideas. First, it is impossible to add value over the long term through active management. Second, rational, profit-maximizing participants drive different markets into similar highly efficient states of equilibrium. Third, efficient markets progress to higher and higher levels of efficiency over time. In this article, these fundamental ideas are tested against the CEM database.

## ***Plans Practiced Active Management***

The EMH dismisses active management. According to the EMH, there can be no consistent winners or, by extension, losers. However, as highlighted below, the CEM database showed that pension plans believe strongly in active management. From 1995 to 2004, roughly three-quarters of the total assets managed by global pension plans were managed under an active style. Further, the allocation range from region to region was narrow. It ranged from 71% in Australia to 81% in Canada. Was active management rewarded?

**Implementation Style by Region, 1995-2004**



Data for Australia from 1998-2004

## ***Active Management Added Value***

Our database showed that active management did in fact add value. The magnitude of the value added was an average of 20 basis points (“bps”) per annum. The measure used was net value added (“NVA”). NVA was calculated as total fund return less benchmark return and total cost. The finding was robust. It was based on 2,880 observations over a 10-year period from 1995 to 2004. The statistical significance of the 20-bps NVA was tested. The t-value was 3.6. The result was significant at a confidence level in excess of 99%. If global pension plans were the consistent winners, who, one wonders, were the consistent losers?

## ***The Most Value Added Was Generated in Down Markets***

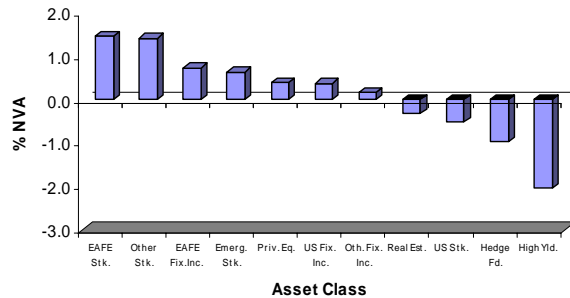
The second EMH proposition mentioned above concerns overall market efficiency. In efficient markets, neither up markets nor down markets presents a value-adding opportunity. To test this idea, NVA was regressed against US large cap stock benchmarks in different market cycles over the past ten years. In the up markets of 1995 to 1999 and 2003 to 2004, a 10% market rise was associated with a 20 bps decline in NVA. In the down market of 2000 to 2002, a 10% market fall was associated with a 100 bps rise in NVA. Based on 2,658 observations, active managers offered higher utility in a bear market.

## ***Market Efficiency Varied Widely Across Asset Classes***

In the EMH world, rational, profit-maximizing participants drive different markets into neutral states of equilibrium. The opportunity for gain or loss across asset classes should be not only small but also uniformly small. Here, the database showed that net value added across asset classes for the global universe varied widely. In the 10-year period to 2004, the asset classes that generated the highest and lowest average

annual net value added were EAFE stock at 150 bps and high yield securities at –200 bps, respectively. The average annual spread between the best performing and the worst performing asset class was 350 bps.

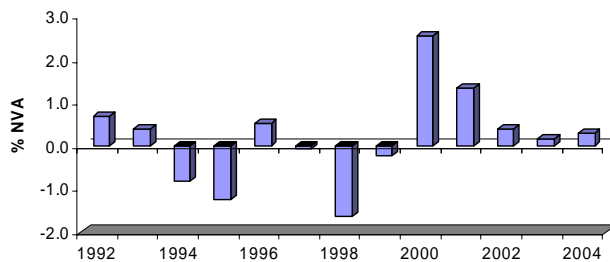
### Variation in Net Value Added by Asset Class, Global Universe, 1995-2004



### Market Efficiency Was Cyclical

The third EMH idea noted above maintains that markets progress to higher levels of efficiency over time. Presumably, the tools of efficiency, such as information processing and communication, improve over time. Consistently declining net value added would signal ever-increasing market efficiency. On the contrary, the chart below highlights the fact that net value added was distinctly cyclical over the past 13 years.

### Cyclical Net Value Added, Global Universe, 1992-2004



### New Research Provides Framework

How do these findings reconcile with an extensive body of research literature that supports the EMH model and is skeptical of the value of active management? New research provides a theoretical framework for the CEM findings. Professor Andrew Lo of the Massachusetts Institute of Technology offers a compelling alternative to the EMH model, which he calls the Adaptive Market Hypothesis or AMH<sup>1</sup>. The AMH model has concrete implications for equity risk premium, asset allocation, performance cycles, and risk preferences.

The thesis draws upon the theory of evolution. Lo states that market efficiency varies according to how well market participants adapt to their market environments. As markets change, investors make mistakes, learn and adapt. (Lo notes that these three behaviours do not exist in the EMH world of constant equilibrium.) As a result, Lo concludes, “market efficiency is not an all-or-none condition but is a characteristic that varies continuously over time and across markets [...]”<sup>2</sup>.

On the market’s ascension to higher and higher degrees of efficiency and on the wisdom of active management, Lo says, “Rather than the inexorable trend to higher efficiency predicted by the EMH, the AMH implies considerably more complex market dynamics, with cycles as well as trends, and panics, manias, bubbles, crashes and other phenomena that are routinely witnessed in natural market ecologies. These dynamics provide the motivation for active management [...]”<sup>3</sup>.

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<sup>1</sup> Andrew Lo, “Reconciling Efficient Markets With Behavioral Finance: The Adaptive Market Hypothesis,” *Journal of Investment Consulting* 7.2 (2005): 21-44.

<sup>2</sup> Lo 22.

<sup>3</sup> Lo 35.