The Growth of Indexing

What is happening, and why?

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19 February 2020
Assets Tracking the S&P 500

Approximately USD 3.6 Trillion Track the S&P 500

The Growth of Indexing

• Evidence

• Explanations

• Evolution
Evidence
Some Early Observations

“Contrary to their oft articulated goal of outperforming the market averages, investment managers are not beating the market: The market is beating them.”

“A respect for evidence compels me to incline toward the hypothesis that most portfolio decision makers should go out of business – take up plumbing, teach Greek, or help produce the annual GNP by serving as corporate executives.”
Variation in Active Managers’ Success

Most Active Managers Underperform Most of the Time

Persistence of Above-Average Performance – U.S. Five Year Intervals

US Equity Funds in Two Consecutive Five-Year Periods

<table>
<thead>
<tr>
<th>Fund Category</th>
<th>% Repeating in Top Half</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Cap</td>
<td>44.7%</td>
</tr>
<tr>
<td>Mid Cap</td>
<td>33.3%</td>
</tr>
<tr>
<td>Small Cap</td>
<td>45.5%</td>
</tr>
</tbody>
</table>

Source: S&P Dow Jones Indices LLC, CRSP. Data as of Sept. 30, 2019. Table is provided for illustrative purposes. Past performance is no guarantee of future results.
Summarising the Evidence…

• Most active managers underperform most of the time.

• Past success does not predict future success.

• These conclusions apply globally.
Why Is Active Management So Difficult?

• Professionalization

• Cost

• Return Skewness

• Varying Rewards to Skill
No Natural Source of Outperformance

• Investor A can be above average only if Investor B is below average.
  – The total outperformance of the winners must equal the total underperformance of the losers (before costs).
  – The source of the winners’ positive alpha is the losers’ negative alpha.

• Critical variable is whether professionals, rather than undiversified amateurs, dominate a market.

• When funds shift from active to passive, the least skillful active managers lose the most assets.
Cost

• Index funds own a pro-rata slice of the entire market.

• Therefore the aggregate index portfolio is identical to the aggregate active portfolio.

• Average U.S. equity mutual fund expense ratios (2018)
  – Active funds 0.76%
  – Index funds 0.08%

• “…after costs, the return on the average actively managed dollar will be less than the return on the average passively managed dollar” – William F. Sharpe, “The Arithmetic of Active Management,” Financial Analysts Journal, 1991

Source: Investment Company Institute 2019 Fact Book
Skewness

• Stock returns are not normally distributed.
  – A stock can go down only 100%,
  – But can appreciate by much more than that.

• Simple definition of positive skewness: average return > median return

• How often does average return exceed median return?

Source: S&P Dow Jones Indices. Past performance is no guarantee of future results.
Historical Skewness for S&P 500

Chart is provided for illustrative purposes.
Pictures of Dispersion

Dispersion measures the spread of performances among components of an index.

Dow Jones Industrial Average - October 2001


Price Return

INTC MSFT CAT MCD

DJIA +3%

Dow Jones Industrial Average


... and December 2013


Price Return

INTC CAT T MCD MSFT

DJIA +3%

S&P Dow Jones Indices
A Division of S&P Global
Dispersion – U.S.

Dispersion – Europe

Evolution
# Index Evolution

<table>
<thead>
<tr>
<th>Indices</th>
<th>Examples</th>
<th>Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broad Market</td>
<td>S&amp;P 500®, S&amp;P Europe 350</td>
<td>• Capitalisation-weighted</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Aim to represent an asset class</td>
</tr>
<tr>
<td>Specialised</td>
<td>S&amp;P MidCap 400®, S&amp;P Select Sectors</td>
<td>• Focus on a subset of the broader market</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Typically capitalisation-weighted</td>
</tr>
<tr>
<td>Factor/Smart Beta/</td>
<td>S&amp;P 500 Low Volatility, S&amp;P 500 Equal Weight</td>
<td>• Focus on specific patterns or characteristics</td>
</tr>
<tr>
<td>Strategic Beta</td>
<td></td>
<td>• Better “indicise” active strategies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Typically not capitalisation-weighted</td>
</tr>
</tbody>
</table>
S&P 500 Low Volatility Index

Relative Performance, 1991 - 2019
S&P 500 Low Volatility Index vs. S&P 500

Source: S&P Dow Jones Indices. Data from Dec. 31, 1990 through Dec. 31, 2019. Charts are provided for illustrative purposes. Past performance is no guarantee of future results. This chart may reflect hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.
Average Monthly Returns and Spreads

Source: S&P Dow Jones Indices. Data from Dec. 31, 1990 through Dec. 31, 2019. Biggest declines were months when the S&P 500 was down more than -2.46%, moderate declines were months when the S&P 500 returned between -2.46% and 0%, moderate gains were months when the S&P 500 returned between 0% and 2.50%, and biggest gains were months when the S&P 500 gained more than 2.50%. Charts are provided for illustrative purposes. Past performance is no guarantee of future results. This chart may reflect hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

S&P Dow Jones Indices
Final Thoughts

• Active managers face a severe and continuing performance challenge from index funds.

• The index advantage
  – Comes from a variety of sources
  – Is likely to persist
  – Does not depend on assumptions of market efficiency

• Factor indices exacerbate the index challenge.
  – Enable investors to indicise strategies formerly available only via active management
Thank you – Merci – Danke - Grazie

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Performance Disclosure

The S&P 500 Equal Weight Index was launched January 8, 2003. The S&P 500 Enhanced Value Index was launched April 27, 2015. The S&P 500 Quality Index was launched July 8, 2014. The S&P 500 Momentum was launched November 18, 2014. The S&P 500 High Beta Index was launched April 4, 2011. The S&P 500 Equal Weight Index was launched January 8, 2003. The S&P 500 Low Volatility High Dividend Index was launched September 17, 2012. The S&P 500 Low Volatility Index was launched April 4, 2011.

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