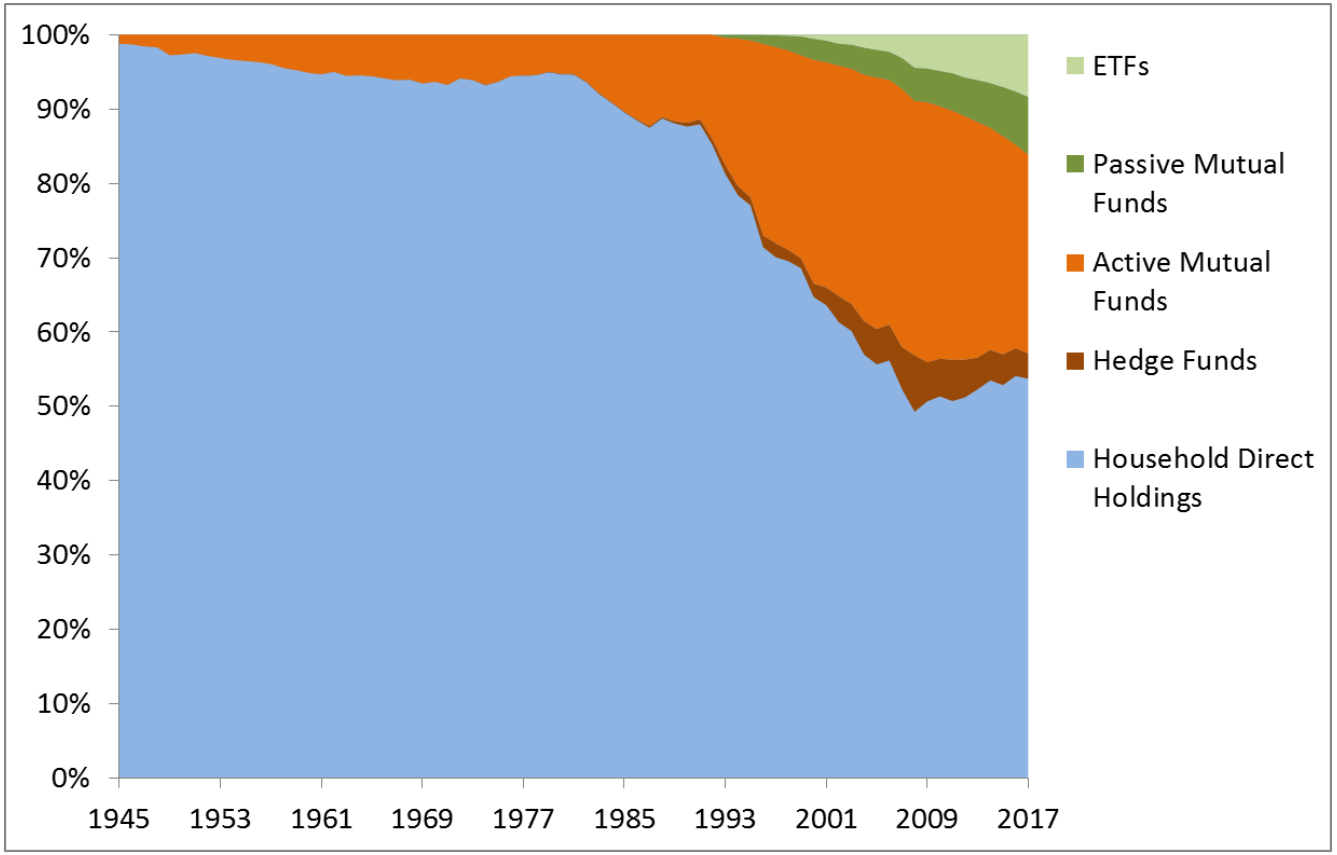
The Future of Asset Management – Active or Passive?

Lasse Heje Pedersen

Copenhagen Business School and AQR Capital Management

Active vs. Passive: Market Shares



Research questions:

What is better

- active or passive?

Future of asset management:

- 100% passive?

Active vs. Passive: Industry Dynamic Driven by Academic Fight

All investing active
Success: return>0

First index fund **1972**

Can active beat the market?

Growth of active managers

Growth of passive managers

1964 **Sharpe**'s CAPM and the market portfolio

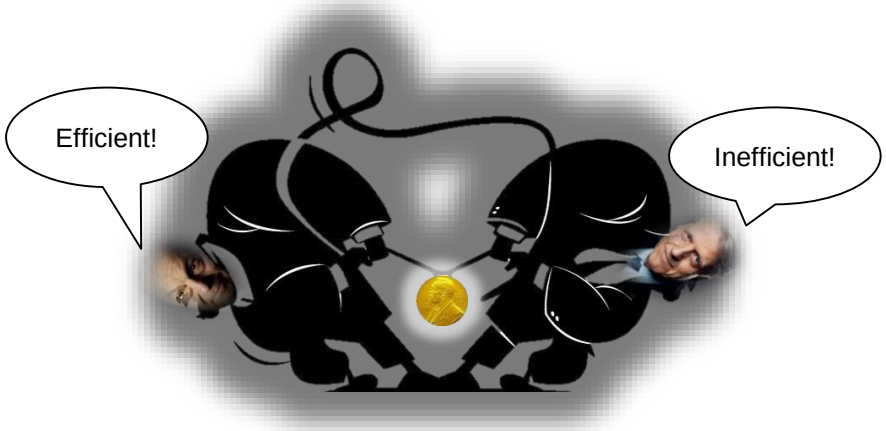
1970 **Fama**'s Efficient market hypothesis

1980s Challenges to EMH by **Shiller**, **Thaler**

1990 Nobel prize **Sharpe**

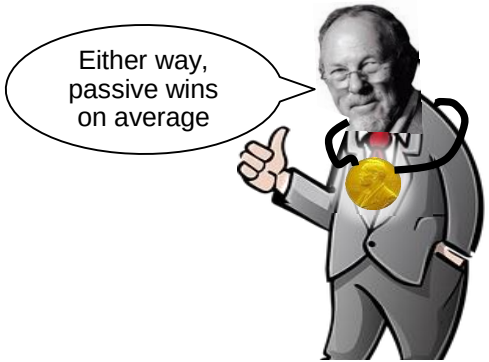
2013 Nobel prize **Fama**, **Shiller**

2017 Nobel prize **Thaler**



Eugene Fama
Nobel Prize 2013

Robert Shiller
Nobel Prize 2013



William Sharpe
Nobel Prize 1990

Bernstein, L.P.
2016

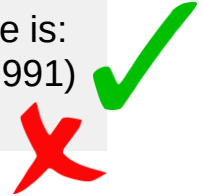
I challenge all these views

Passive Investment: Advantages and Disadvantages

Investors should choose their portfolio to maximize:

Expected gross return – fees and costs – disutility of risk

The expected gross return of passive is:
- equal to average active: Sharpe (1991)
- not necessarily: Pedersen (2018)

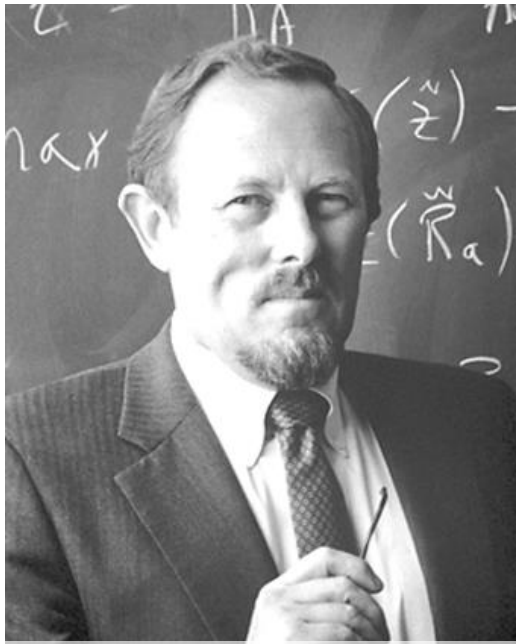


Passive minimizes fees and costs

Passive reduces risk through diversification

Passive is very investor friendly and great choice for many people, but can some investors do better?

Sharpe's "Arithmetic of Active Management"



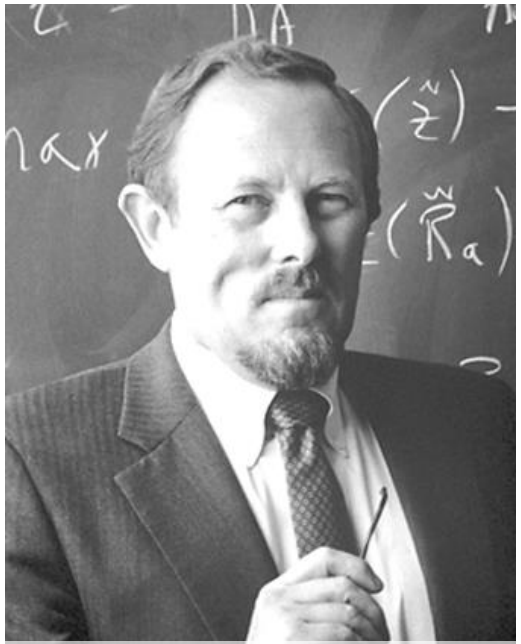
William Sharpe
Nobel Prize 1990

"It ***must*** be the case that
(1) Before costs: average active return = passive return
(2) After costs: average active return < passive return"

"These assertions …
depend only on the laws of addition,
subtraction, multiplication and division.
Nothing else is required."

For illustrative purposes only.
Image courtesy of http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/1990/sharpe-bio.html

Sharpe's "Arithmetic of Active Management"



William Sharpe
Nobel Prize 1990

Focus first on returns before fees

Results for net returns follow from higher fees for active

Sharpe's starting point:

market = passive investors + active investors

market return = average (passive return, active return)

Passive investing defined as holding market-cap weights

market return = passive return

Conclusion:

market return = passive return = average active return

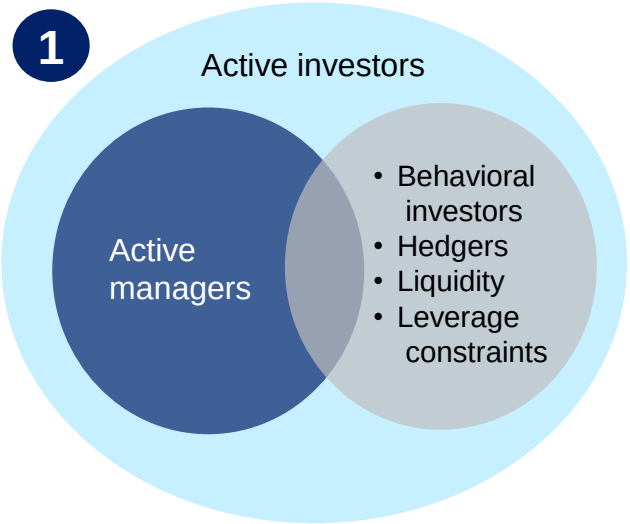
For illustrative purposes only.
Image courtesy of http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/1990/sharpe-bio.html

Sharpening the Arithmetic of Active Management

My Arithmetic

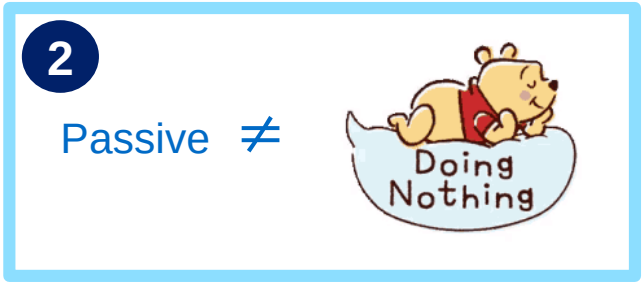
Sharpe's important insights that I agree with

- When active trade with active, they play a zero-sum game
- Fees and costs are important (and add up over time)
  - diminish investor returns
  - many managers may not be worth their fees
  - many individual investors are best served by passive



Nevertheless, Sharpe's arithmetic does not hold exactly in the real world:

1. **Active managers ⊊ active investors**
   Good managers may outperform even if the average active investor doesn't
2. **Can you be passive by being inactive?**



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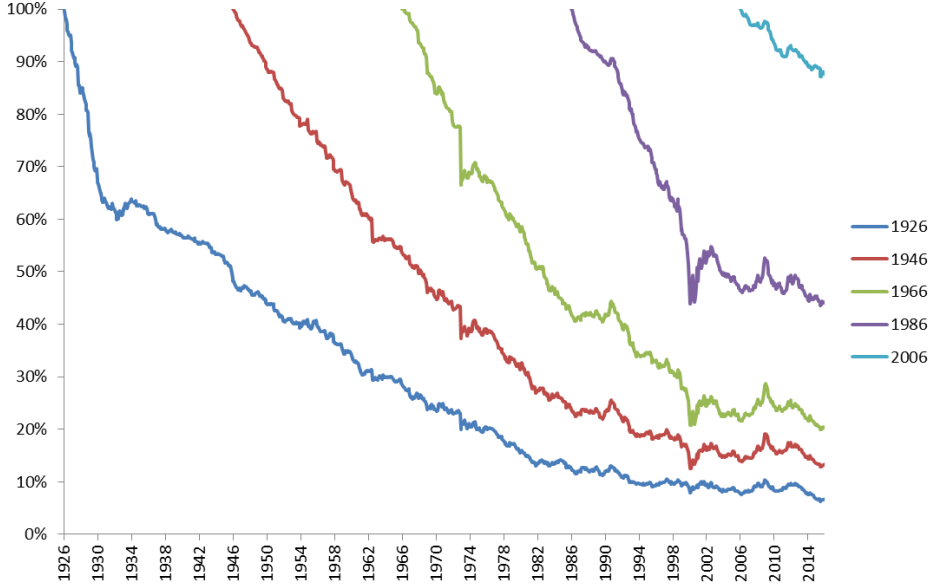
Even a “Passive” Investor Must Trade



The fraction of the market owned by an investor who starts off with the market portfolio but never trades after that (i.e., no participation in IPOs, SEOs, or share repurchases). Each line is a different starting date.

Source: Sharpening the Arithmetic of Active Management (Pedersen 2016). Shows path of an investor starting in a given year (1926, 1946, 1966, 1986, 2006) with the market portfolio and not trading thereafter. Market portfolio is all stocks included in the Center for Research in Security Prices (CRSP) database. For illustrative purposes only. Past performance is not a guarantee of future performance. Please read important disclosures in the Appendix.

Sharpening the Arithmetic of Active Management

Sharpe's hidden assumption:

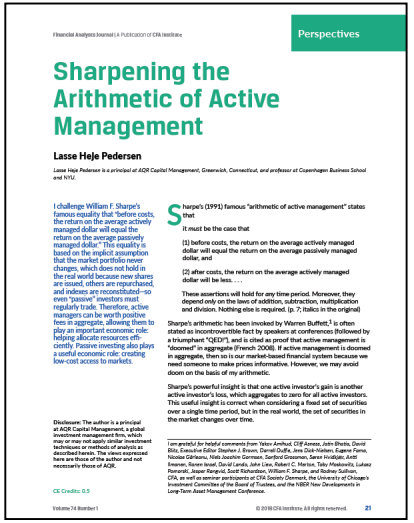
- Market never changes and passive investors trade to their market-cap weights for free
- This assumption does **not** hold in the real world (IPOs, SEOs, share repurchases, index inclusions, deletions, etc.)

Relaxing this assumption breaks Sharpe's equality

- When passive investors trade, they may get worse prices
- Passive investors deviate from "true market"

So active can be worth positive fees in aggregate

- Empirical questions:
  - Do active managers actually add value?
  - If so, how much? More/less than their fees?
- Theoretical questions:
  - What is a more realistic model of financial markets?
  - What are the additional implications?



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Perspectives

Sharpening the Arithmetic of Active Management

Lasse Heje Pedersen

Lasse Heje Pedersen is a principal at AQR Capital Management, Greenwich, Connecticut, and professor at Copenhagen Business School and NYU.

I challenge William F. Sharpe's famous equality that "before costs, the return on the average actively managed dollar will equal the return on the average passively managed dollar." This equality is based on the implicit assumption that the market portfolio never changes, which does not hold in the real world because new shares are issued, others are repurchased, and indexes are reconstituted—so even "passive" investors must regularly trade. Therefore, active managers can be worth positive fees in aggregate, allowing them to play an important economic role: helping allocate resources efficiently. Passive investing also plays a useful economic role: creating low-cost access to markets.

Sharpe's (1991) famous "arithmetic of active management" states that

> It must be the case that
>
> (1) before costs, the return on the average actively managed dollar will equal the return on the average passively managed dollar, and
>
> (2) after costs, the return on the average actively managed dollar will be less. . . .
>
> These assertions will hold for *any* time period. Moreover, they depend *only* on the laws of addition, subtraction, multiplication and division. Nothing else is required. (p. 7; italics in the original)

Sharpe's arithmetic has been invoked by Warren Buffett,[1] is often stated as incontrovertible fact by speakers at conferences (followed by a triumphant "QED"), and is cited as proof that active management is "doomed" in aggregate (French 2008). If active management is doomed in aggregate, then so is our market-based financial system because we need someone to make prices informative. However, we may avoid doom on the basis of my arithmetic.

Sharpe's powerful insight is that one active investor's gain is another active investor's loss, which aggregates to zero for all active investors. This useful insight is correct when considering a fixed set of securities over a single time period, but in the real world, the set of securities in the market changes over time.

Disclosure: The author is a principal at AQR Capital Management, a global investment management firm, which may or may not apply similar investment strategies to those discussed in this article described herein. The views expressed here are those of the author and not necessarily those of AQR.

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CE Credits: 0.5

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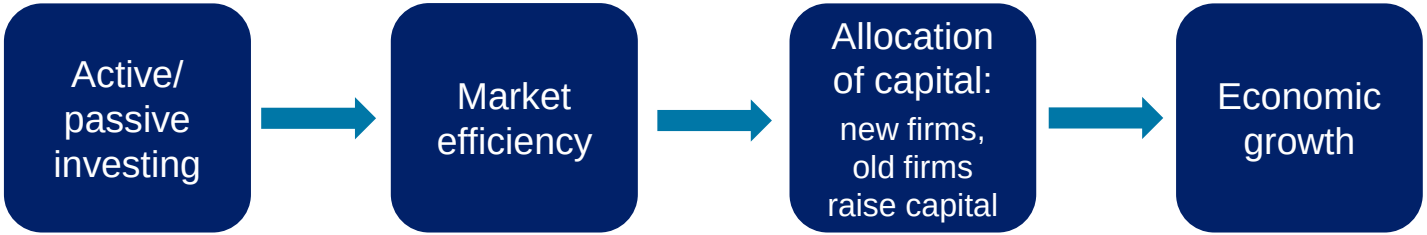
Implications for the Real Economy

Sharpening the Arithmetic of Active Management: fundamental economic issue, not a small ”technical” issue



= changes in market portfolio

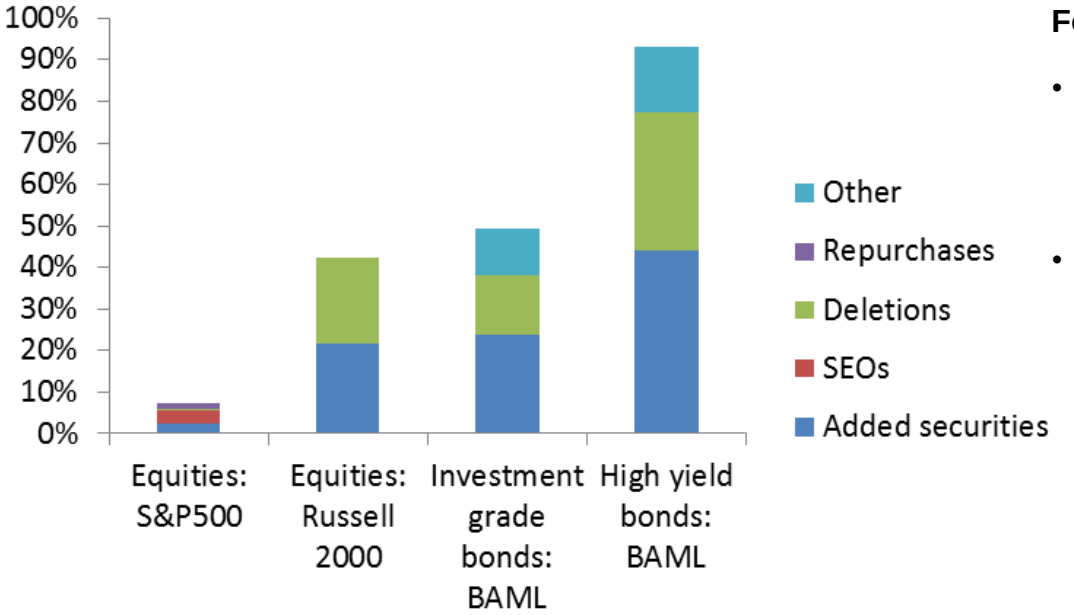
Allocation of capital is *both* the reason active management can

- make money in aggregate
- help the broader economy - **capital markets are about raising capital!**

Cost of active management to society

- Not the fees (at least directly) – zero sum
- Human and physical capital used in active management

The Cost of “Passive” Trading: Indices

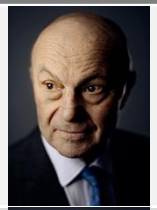


For S&P 500 and Russell 2000 (Petajisto, 2011)

- Price impact from announcement to effective day has averaged:
  - **+8.8% and +4.7%** for additions and **−15.1% and −4.6%** for deletions
- Lower bound of the index turnover cost:
  - **21–28 bp** annually and **38–77 bp** annually

Source: Sharpening the Arithmetic of Active Management (Pedersen 2016). Turnover from 1926-2015 for equity indices (S&P500 and Russell 2000) and corporate bond indices (BAML investment grade and high yield indices), and turnover is computed as sum of absolute changes in shares outstanding as a percentage of total market value in the previous month. “Other” includes mergers that may not require trading. For illustrative purposes only. Past performance is not a guarantee of future performance. Please read important disclosures in Appendix.

Security Markets vs. Asset Management Markets
Two Paradoxes

	Security markets	Asset management markets
Efficient	 Fama (1970)	
Inefficient	 Shiller (1980)	 Fama (1970)

Definition: efficiently inefficient markets

- Inefficient enough that active investors are compensated for their costs
- Efficient enough to discourage additional active investing

Said differently:

- These markets must be difficult – but not impossible – to beat
- Grossman and Stiglitz (1980): “equilibrium degree of disequilibrium”

Source: *Efficiently Inefficient* (Pedersen 2015).

Efficiently Inefficient Markets: Mathematical Model and Empirical Tests

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The Journal of THE AMERICAN FINANCE ASSOCIATION

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Efficiently Inefficient Markets for Assets and Asset Management

NICOLAE GÂRLEANU and LASSE HEJE PEDERSEN*

ABSTRACT

We consider a model where investors can invest directly or sear
ager, information about assets is costly, and managers charge an
efficiency of asset prices is linked to the efficiency of the asset ma
investors can find managers more easily, more money is allocate
ment, fees are lower, and asset prices are more efficient. Informe
form after fees, uninformed managers underperform, while the
performance depends on the number of "noise allocators." Small
main uninformed, but large and sophisticated investors benefi
informed active managers since their search cost is low relativ
managers with larger and more sophisticated investors are expe

ASSET MANAGERS PLAY A CENTRAL role in making financial
their size allows them to spend significant resources on a
ing information. The asset management market is subje
however, since investors must search for informed asset
stitutional investors fly literally around the world to exa
assessing their investment process, trading infrastructu
and so on. Similarly, individual investors search for asse
local branches of financial institutions, others via the int

In this context, a number of questions arise naturally:
for asset managers affect the efficiency of security ma
manager is expected to outperform? And, which type of
active investing?

*Nicolae Gârleanu is at the Haas School of Business, University o
NBER. Lasse Heje Pedersen is at AQR Capital Management, Copenha
York University, and CEPR; http://www.lhpedersen.com. We are grat
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Capital, CEMFI, IESE, Toulouse School of Economics, MIT Sloan, Impe
School, Tinbergen Institute, Copenhagen Business School, and Bost
participants at NBER Asset Pricing, Queen Mary University of London
Yale University, the European Financial Management Association Co
Liquidity Conference, the IF2015 Annual Conference in International
ference, ABFER (2016), and the Karl Borch Lecture. Pedersen gratef
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Active and Passive Investing

Nicolae Gârleanu and Lasse Heje Pedersen*

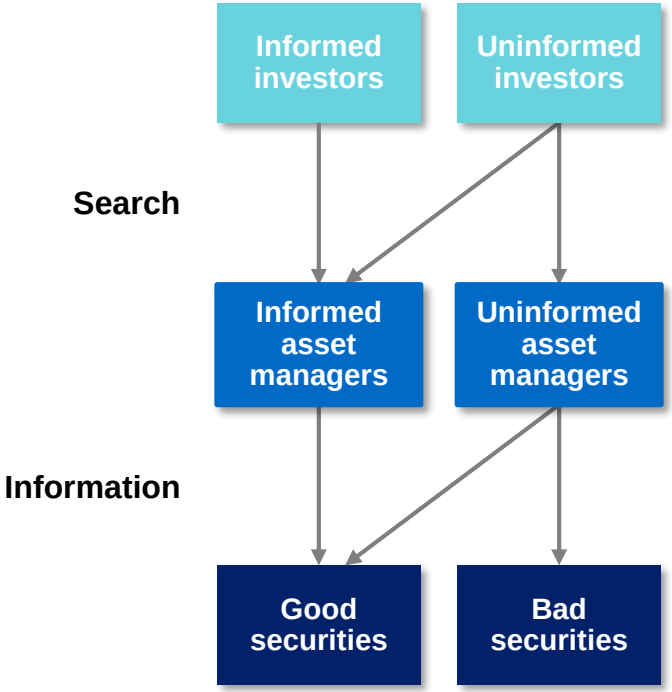
This version: March 2018

Abstract

We model how investors allocate between active and passive asset managers, managers choose their portfolios of multiple risky securities, fees are set, and security prices determined. The optimal passive portfolio is linked to the "expected market portfolio," while the optimal active portfolio has elements of value and quality investing. We make precise Samuelson's Dictum by providing conditions under which macro inefficiency is greater than micro inefficiency. Further, we show how the costs of active and passive investing affect macro- and micro-efficiency, asset management fees, and assets managed by active and passive managers. These findings help to explain empirical facts about the rise of delegated asset management, especially passive investing, and the resulting changes in financial markets.

Keywords: asset pricing, market efficiency, asset management, search, information
JEL Codes: D4, D53, D83, G02, G12, G14, G23, L10

*Gârleanu is at the Haas School of Business, University of California, Berkeley, and NBER; e-mail: garleanu@berkeley.edu. Pedersen is at AQR Capital Management, Copenhagen Business School, New York University, and CEPR; www.lhpedersen.com. We are grateful for helpful comments from Antti Ilmanen and Peter Norman Sørensen as well as from seminar participants at the Berkeley-Columbia Meeting in Engineering and Statistics, Federal Reserve Bank of New York, and Copenhagen Business School. Pedersen gratefully acknowledges support from the FRIC Center for Financial Frictions (grant no. DNRF102). AQR Capital Management is a global investment management firm, which may or may not apply similar investment techniques or methods of analysis as described herein. The views expressed here are those of the authors and not necessarily those of AQR.



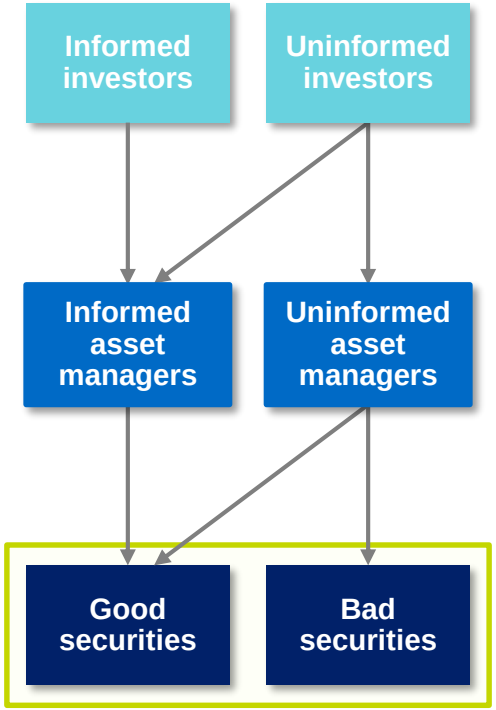
Efficiently Inefficient: Security Markets

Several styles have historically outperformed
- Value, momentum, quality, carry, low-risk

Failure of the Law of One Price:
- Stocks: Siamese twin stock spreads
- Bonds: Off-the-run vs. on-the-run bonds
- FX: Covered interest-rate parity violations
- Credit: CDS-bond basis

Bigger anomalies when
- Information costs for managers are high
- Search costs for investors are high

<u>Conclusion</u>: security markets are
- Not fully efficient
- Efficiently inefficient



Efficiently Inefficient: Asset Managers

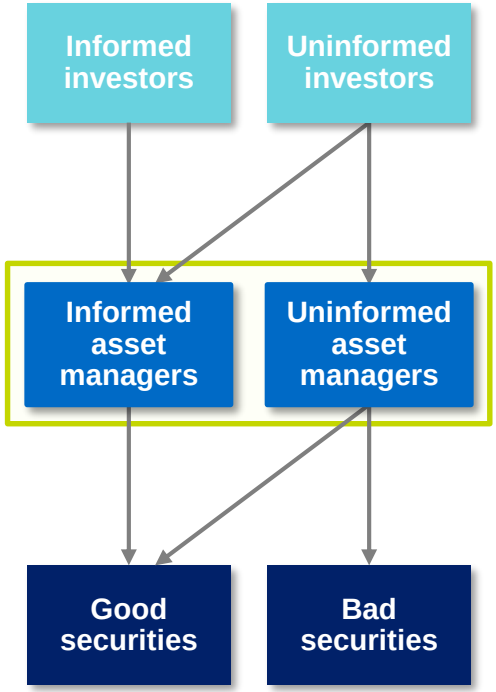
"Old consensus" in the academic literature:

- **Average active equity mutual fund underperforms after fees:** Interpreted as "no skill", Jensen (1968), Fama (1970)

"New consensus" in the academic literature

- **Skill exists among mutual funds and can be predicted:** Fama and French (2010), Kosowski, Timmermann, Wermers, White (2006):
  "We find that a sizable minority of managers pick stocks well enough to more than cover their costs. Moreover, the superior alphas of these managers persist"
- **Skill exists among hedge funds:** Fung, Hsieh, Naik, and Ramadorai (2008), Jagannathan, Malakhov, and Novikov (2010), Kosowski, Naik, and Teo (2007):
  "Top hedge fund performance cannot be explained by luck"
- **Skill exists in private equity and VC:** Kaplan and Schoar (2005)
  "We document substantial persistence in LBO and VC fund performance"

Conclusion: asset management market is efficiently inefficient
Good managers exist, but picking them is difficult, especially after fees (requires resources, manager selection team, due diligence, etc.)



Efficiently Inefficient: Investors

Institutional investors outperform retail investors

- Gerakos, Linnainmaa, and Morse (2015)

  "Institutional funds earned annual market-adjusted returns of 108 basis points before fees and 61 basis points after fees"

Larger institutional investors outperform smaller ones

- Dyck and Pomorski (2015)

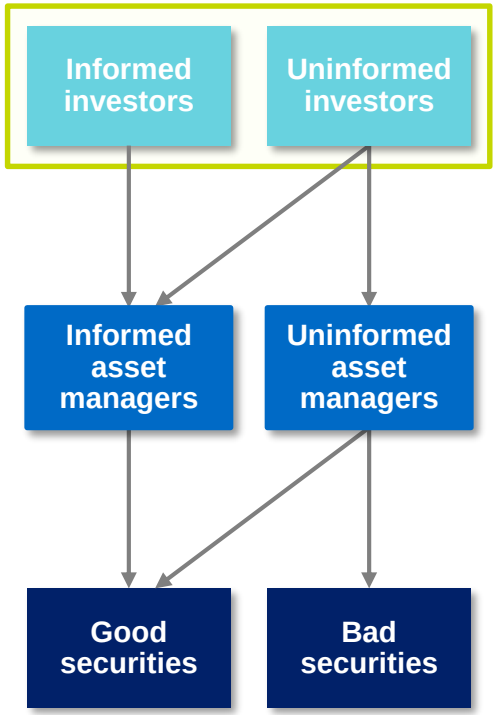
Follow the smart money

- Evans and Fahlenbrach (2012)

  "Retail funds with an institutional twin outperform other retail funds by 1.5% per year"

<u>Conclusion</u>: efficiently inefficient investors

- Evidence that more sophisticated investors can perform better
- These educate themselves and spend resources picking managers



Sources: Gerakos, Joseph, Juhani T. Linnainmaa, and Adair Morse (2016), "Asset manager funds," working paper. Evans, Richard, and Rudiger Falhenbrach (2012), "Institutional Investors and Mutual Fund Governance: Evidence from Retail – Institutional Fund Twins". Dyck, Alexander, and Lukasz Pomorski (2015), "Investor Scale and Performance in Private Equity Investments" and (2011), "Is Bigger Better? Size and Performance in Pension Management." For illustrative purposes only. Past performance is not a guarantee of future performance.

The Rise of Passive: Implications

Increase in passive may be driven by

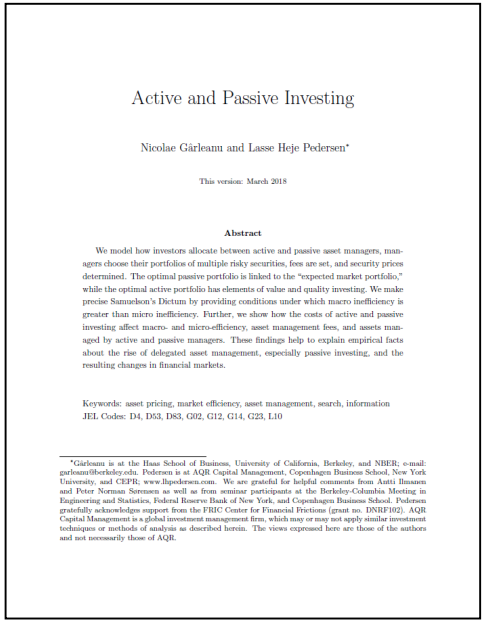
- Lower costs of passive
- Increased awareness of passive

Implications for fees:

- Competitive pressure from passive → lower active fees
- Fewer active → more inefficient markets → higher active fees
- Put the two together → active fees drop by less than passive fees

Implications for efficiency

- Fewer active → more inefficient markets
- Fewer noise traders → less inefficient markets
- Effect greatest for “macro efficiency”
  - Overall market and factor portfolios



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Conclusion: The Future of Asset Management – Doom?

Implications of Sharpe's zero-sum arithmetic:
- Active loses to passive after fees
- Money flows passive → markets less efficient
- Surprisingly active still loses
- Eventually all money leaves active, sector is doomed

What happens if everyone is passive?

All IPOs successful regardless of price
- Everyone asks for their fraction of shares

Initial result: boom in IPOs

Eventual result: doom
- Opportunistic firms fail
- Equity market collapses
- People lose trust in financial system
- No firms can get funded
- Real economy falters

Good For Me

Good for You

For illustrative purposes only.
Image Courtesy of http://dc.wikia.com/wiki/Wonder_Woman_Vol_1_601

Conclusion: The Future of Asset Management

My arithmetic:

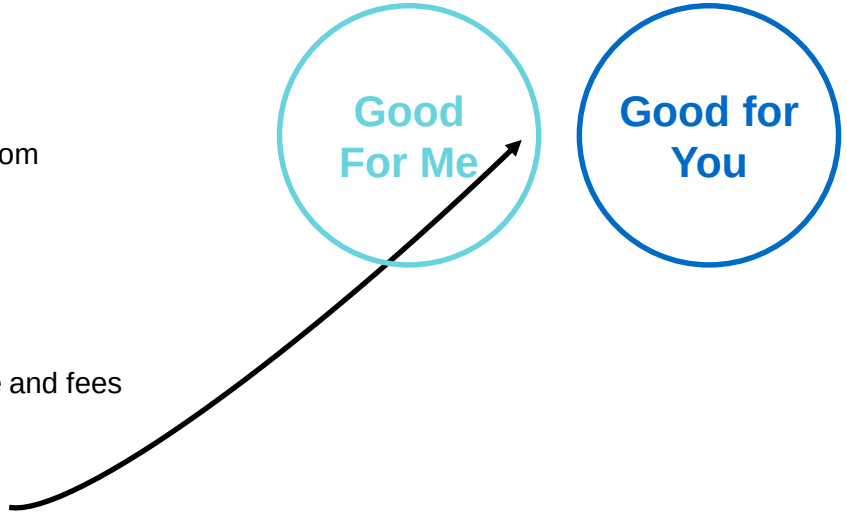
- Suppose active loses to passive after fees
- Money flows to passive → markets less efficient
- Active becomes more profitable → new equilibrium, no doom

The future of asset management

- Passive will continue to grow, but towards a level<100%
- Systematic investing and FinTech will continue to grow
- Active management will survive, pressure on performance and fees

Capital market is a positive-sum game

- Issuers can finance useful projects
- Passive investors get low-cost access to equity
- Active managers compensated for their information costs



For illustrative purposes only

Appendix

How to be Passive? An Active Choice

In practice, even passive investors must make active choices:

- What overall asset allocation (stocks vs. bonds etc)?
- Which indices to follow and how to rebalance?
  - Which equity index? Which bond index? Include emerging markets and frontier markets?
- How much risk to take?
  - The answer depends on risk aversion and perceived Sharpe ratio -- an active choice!

If passive move in and out of (their definition of) the overall market

- Passive could move prices against themselves
- Passive would trade with the active

Active and Passive can be Combined

Active and passive is <u>not</u> either/or

- Active and passive investments can be combined
  - E.g., part of the equity portfolio can be passive, and another part active
- Passive indices can be seen as cheap building blocks
- Active strategies can be used where the investor has an edge