# Active and Passive Asset Management

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# Outline

- The classic academic advice: go passive (Malkiel 1973).
- The "new view": Berk and Green (2004), Berk and van Binsbergen (2015, 2017), Gârleanu and Pedersen (2018).
  - Diminishing returns to scale in active management, at either the manager level or the industry level.
- Asset pricing and corporate finance: does indexing destroy competition? Azar, Schmalz, and Tecu (2018) and Backus, Conlon, and Sinkinson (2021).
- Disclosure: I spend one day a week doing active institutional asset management at Arrowstreet Capital, so I have a financial interest in this topic.

# The Classic Academic Advice: Go Passive

- Few active US equity mutual funds beat the market after fees, and many underperform a passive index.
  - Del Guercio and Reuter (2014) find that on average directly sold active funds break even after fees, while broker-sold funds underperform.
- There is little persistence in return after fees (except at the left tail where inertia keeps a few investors in small funds that charge high fees to cover their fixed costs).
- Yet investors direct flows to mutual funds that have performed well recently ("return chasing").
- Classic finance-academic advice: buy low-cost index funds.
  - Often linked with a strong belief that stock prices are efficient so active managers have no skill.
  - Burt Malkiel, *A Random Walk Down Wall Street* (12 editions since 1973).

# Is the Classic Advice Correct or Complete? (1)

- The profession now believes that factor portfolios (HML, SMB, MOM, etc.) are part of a mean-variance efficient portfolio.
- These are marketed at relatively low cost as "smart beta" funds.
- But they are still active since they require turnover and all investors cannot hold them.

# Is the Classic Advice Correct or Complete? (2)

- Active funds seem to do better **before** fees. Del Guercio and Reuter (2014) find that active managers of directly sold funds do pick stocks that beat the market on average.
- Active funds also look better in international equity markets and non-equity asset classes.
- Some research finds that institutional asset managers do better (Gerakos, Linnainmaa, and Morse 2017).
- Conceptually, if investors are smart enough to make the market efficient, how can they be so ignorant as to persistently waste money on active mutual funds?
- This has led to a "new view" (Berk and Green 2004, Berk and van Binsbergen BvB 2015, 2017, Gârleanu and Pedersen 2018) that emphasizes
  - Rational forward-looking fund investors
  - Skilled managers
  - Diminishing returns to scale
  - An efficient market for skill rather than for stocks.

# A Schizophrenic View of Investors

*"Until recently, many financial economists maintained a rather schizophrenic view of investors. When investors invest directly in stocks, the widely accepted view is that the rational expectations equilibrium so closely approximates the actual equilibrium that changes in stock prices in reaction to news can be used as evidence in a court of law as a measure of the value of that news. However, when investors invest indirectly in stocks through mutual funds, the generally accepted view was that, in this market, investors are naïve. Consequently, according to this view, they choose to invest almost exclusively in investments with negative net present value."*

BvB (2017)

# Skill and Diminishing Returns

- BvB (2015, 2017) model.
- A manager has skill measured by two parameters:

$$\alpha^g(q) = a - bq,$$

where $q$ is assets under management (AUM), and $\alpha^g(q)$ is gross excess return ("alpha") before any fees are charged. $a$ is the excess return on the first dollar invested, and $b$ captures diminishing returns to scale in asset management (exhaustion of ideas, market impact, etc.)

- Dollar value added is

$$V(q) = q\alpha^g(q) = aq - bq^2.$$

# Value Added Maximization

- If the manager maximizes $V(q)$, then optimal AUM is

$$q^* = \frac{a}{2b}.$$

- This delivers gross alpha

$$\alpha^g(q^*) = \frac{a}{2},$$

and maximized value added

$$V(q^*) = \frac{a^2}{4b}.$$

- In equilibrium, gross alpha is independent of the scalability skill parameter $b$! $V(q)$ captures the effects of both skill parameters.

# Comparing Two Managers with Different Skills

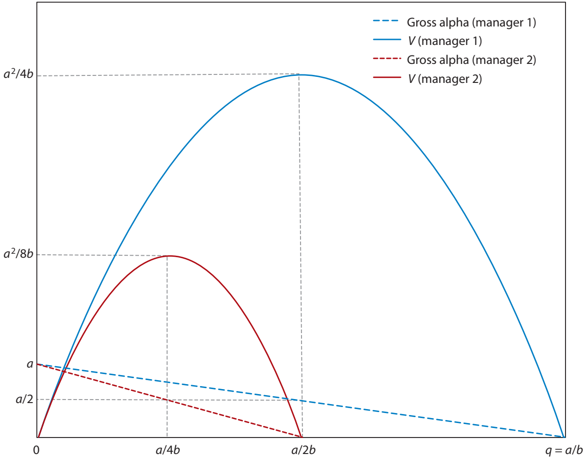



**Figure 2**

Size, value added, and gross alpha. The graph shows the relationship between size and value added/gross alpha for two managers. Manager 1 is more skilled than manager 2, although both make the same gross alpha on the first cent they invest. Manager 1 has an investment strategy that is more scalable than that of manager 2. That is, the parameter $b$ representing decreasing returns to scale is higher for manager 2 than for manager 1.

# Behavior of Fund Investors

- The manager charges a fee $f$. Risk-neutral fund investors allocate capital to funds until the net alpha is driven to zero:

$$\alpha^n(q) = \alpha^g(q) - f = 0.$$

- At the optimal scale $q^*$, $\alpha^g(q^*) = a/2$, so setting the fee to this level will give the manager the optimal AUM.

# Set Your Own Fee and AUM

- But in fact, a lower fee can work just as well for the manager if it is possible to put all capital above $q^*$ in an index ("closet indexing"):

$$\alpha^g(q) = \left(\frac{q^*}{q}\right)\left(\frac{a}{2}\right) + \left(\frac{q-q^*}{q}\right)0 = \frac{a^2}{4bq}.$$

- From the condition $\alpha^g(q) = f$, we then have

$$q = \frac{a^2}{4bf},$$

and

$$V(q) = qf = \frac{a^2}{4b} = V(q^*).$$

- A manager can choose to have a low fee and a high AUM, or a high fee and a low AUM, but dollar value added is determined only by skill.

# Why Do Investors Chase Returns?

- With a fixed fee, if investors learn that $a$ is higher or $b$ is lower (the manager is more skilled), then $q$ increases.
- If they learn from past returns about manager skill, then return chasing is justified.
  - Not in the sense that return chasers do better than indexers (net alpha is always zero), but in the sense that they do equally well.
  - And return chasing is the mechanism that enforces zero net alpha and that pays managers for their skill in an efficient labor market.
- Directly sold US equity funds fit this story, broker-sold funds do not because they tend to have negative net alpha.
  - This may be implicit compensation for the financial advice that gets less sophisticated investors into the stock market at all.

# The Iron Law of Active Management

- The “iron law of active management” says that the average return to active management must be zero before transactions costs, and negative after transactions costs
  - Because the average dollar invested earns the passive return by definition.
- Therefore there must be losers if there are winners: these may be retail investors who trade directly, or unsophisticated institutions.
- In the BvB model, skilled managers are the winners, retail fund investors break even, and other direct investors are the losers.
- Compare the Kyle model where the insider is the winner, marketmakers break even, and noise traders are the losers.

# What If Managers Share with Clients?

- Even if net alpha is not competed to zero, we have

$$V(q) = q\alpha^g(q) = q(\alpha^n(q) + f).$$

- When $\alpha^n(q) > 0$, money extracted from markets is divided between clients and managers.
  - This is likely the case when clients provide scarce resources such as large, stable pools of capital (institutional asset management).
- When $\alpha^n(q) < 0$, more than all of value added goes to managers.
  - In this situation fees are implicitly charging for some other service besides investment management (broker-sold funds charging for financial advice?)

# Measuring Value Added

- BvB argue that value added should be measured relative to available index funds at each point of time (they use Vanguard funds), not Fama-French portfolios whose properties were discovered more recently and which fail to charge for the transactions costs of rebalancing.
- To support the importance of this, they show that Fama-French portfolios have positive net alpha relative to available Vanguard funds (22bp/month for SMB, 35 for HML, and 70 for UMD).
- They regress gross returns on active funds on net returns to Vanguard funds, which implies positive gross alpha equal to fees charged for Vanguard funds. They interpret this as the value of diversification services provided by Vanguard and other fund managers.
- Gross alpha is the residual from this regression, and value added is gross alpha times AUM.

# Skill Ratio Predicts Value Added

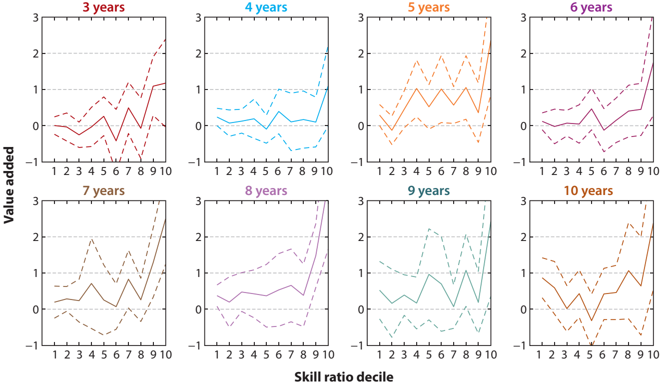



**Figure 3**

Out-of-sample value added. Each graph displays the average out-of-sample value added, $\hat{S}_i$ (in millions of year-2000 dollars/month), of funds sorted into deciles according to skill ratio over the future horizon indicated. The solid lines indicate the performance of each decile and the dashed lines indicate the two standard error bounds. Figure adapted from Berk & van Binsbergen (2015).

# Fee Revenue Predicts Value Added

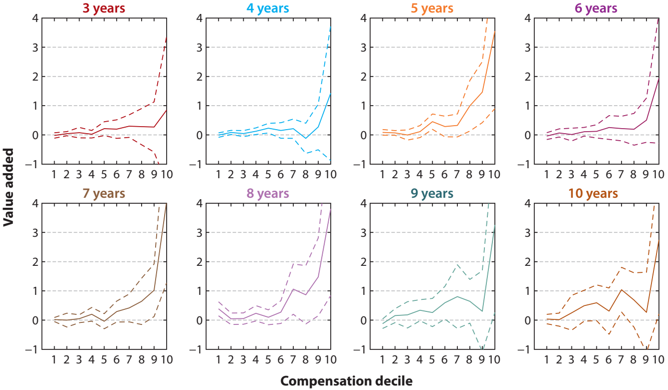



**Figure 4**

Value added, sorted by compensation. Each graph displays average out-of-sample value added, $\hat{S}_i$ (in millions of year-2000 dollars/month), of funds sorted into deciles on the basis of total compensation (fees × assets under management). The solid lines indicate the performance of each decile and the dashed lines indicate 95% confidence bands (two standard errors from the estimate). Figure adapted from Berk & van Binsbergen (2015).

# Nothing Predicts Net Alpha

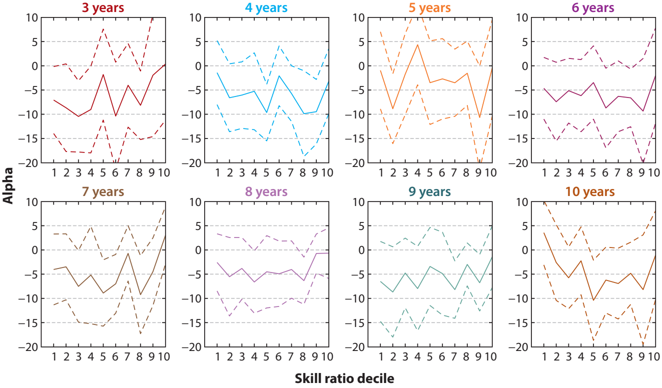



**Figure 5**

Out-of-sample net alpha. Each graph displays the out-of-sample performance (in bp/month) of funds sorted into deciles according to skill ratio over the future horizon indicated. The solid lines indicate the performance of each decile and the dashed lines indicate 95% confidence bands (two standard errors from the estimate). Figure adapted from Berk & van Binsbergen (2015). Abbreviation: bp, basis point.

# Caveats

- BvB assume that fund investors are risk-neutral with respect to tracking error. Stambaugh (2014) instead assumes that they need to be compensated for tracking error, in which case net alpha must be slightly positive in equilibrium.
- BvB assume that each manager faces diminishing returns. An alternative view is that it is the active management industry as a whole that faces diminishing returns. Gârleanu and Pedersen (2018) build a model with this property.

# Gârleanu and Pedersen (2018) Framework

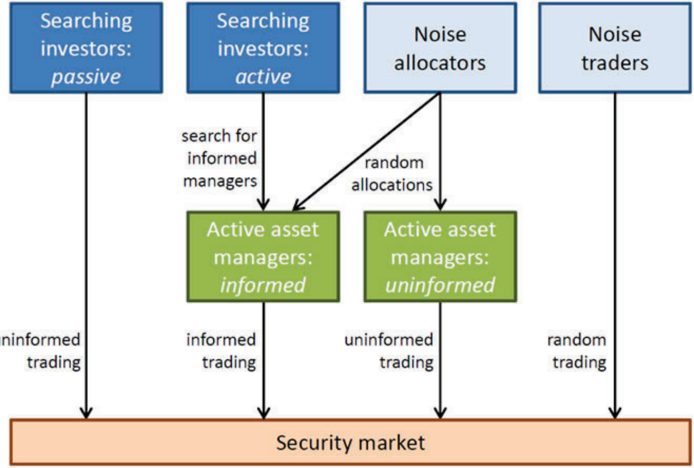
- Gârleanu and Pedersen (2018) build an extension of the Grossman-Stiglitz model in which
  - All informed investors see the same signal so diminishing returns apply to the informed group as a whole
  - Managers can choose to be informed or uninformed
  - Investors can choose to invest directly (uninformed) or search for an informed asset manager
  - There are "noise allocators" who pick funds randomly, and "noise traders" who trade stocks randomly
  - In an interior equilibrium, both managers and investors are indifferent between getting information/searching or not.
  - The market is "efficiently inefficient".

# Gârleanu and Pedersen (2018) Model (1)

- There are $\overline{M}$ managers of whom $M$ are informed (observe a noisy signal of the risky asset payoff at cost $k$) and the rest are uninformed.
- There are $\overline{A}$ investors of whom $A$ find an informed asset manager at cost $c(M, A)$ and the remainder invest directly (and uninformed).
  - All investors have CARA utility with risk aversion parameter $\gamma$.
  - Investors and managers negotiate an asset management fee $f$ using Nash bargaining where the manager's information cost and the investor's search cost are both sunk.
- There are $N$ noise allocators who pick funds randomly.
  - They find an informed manager with probability $M/\overline{M}$.
- The total mass of informed investors is

$$I = A + N\left(\frac{M}{\overline{M}}\right).$$

# Gârleanu and Pedersen (2018) Model Structure



# Gârleanu and Pedersen (2018) Model (2)

- The equilibrium pricing function satisfies

$$q = Ix_i + (\overline{A} + N - I)x_u,$$

where $x_i$ and $x_u$ are the optimal demands of the informed and the uninformed.

- Define a measure of price inefficiency:

$$\eta = \log\left(\frac{\sigma_u}{\sigma_i}\right),$$

where $\sigma_i$ and $\sigma_u$ are the standard deviations of prediction error of fundamental value by the informed and the uninformed.

  - As in Grossman-Stiglitz, $\eta$ is decreasing in the number of informed agents. GP present an explicit solution for $\eta$ given $I$.

- $\eta$ also captures the utility differential because

$$\eta = \gamma(u_i - u_u).$$

# Gârleanu and Pedersen (2018) Model (3)

- Fees are determined by bargaining between investors and informed managers. With sunk costs of search the investor gains $u_i - u_u - f = \eta/\gamma - f$ from reaching agreement, while the manager gains $f$. Nash bargaining maximizes the product of these gains, so

$$f = \frac{\eta}{2\gamma}.$$

- Investors are indifferent between searching and not searching if $u_i - c - f = u_u$, or equivalently if

$$c = f = \frac{\eta}{2\gamma}.$$

- Investors prefer to search and find an informed manager, rather than paying to become informed themselves, if $k \geq c + f = 2c$ which is a plausible restriction.

# Gârleanu and Pedersen (2018) Model (3)

- Managers choose to become informed if the extra revenue from being selected by searching investors covers the cost:

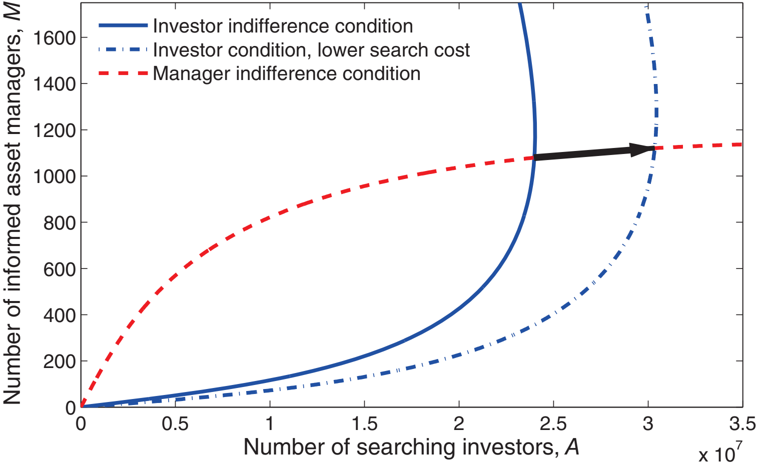
$$f\frac{A}{M} \geq k.$$

- Putting this all together, the model requires solving two equations in two unknowns:

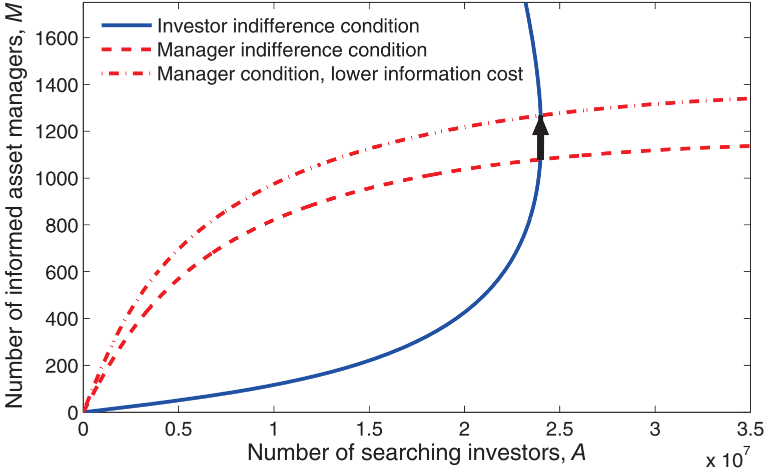
$$\begin{aligned}\frac{\eta(I)}{2\gamma} &= c(M, A)\\ \frac{\eta(I)}{2\gamma} &= \frac{M}{A}k,\end{aligned}$$

where $I$ is a linear function of $M$ and $A$.

# Gârleanu and Pedersen (2018) Equilibrium (1)



# Gârleanu and Pedersen (2018) Equilibrium (2)



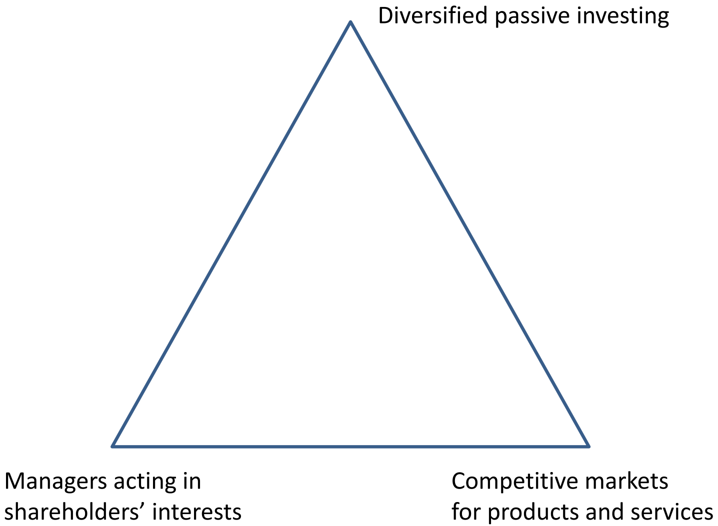
# Gârleanu and Pedersen (2018) Model (4)

- The model can be extended to allow investors to have different sophistication (search costs) and absolute risk aversion.
  - Low absolute risk aversion corresponds to high wealth or low relative risk aversion.
- In equilibrium, investors with low search costs or absolute risk aversion specialize in search.
- They will invest with informed managers so
  - Investors like this (institutions or the wealthy) are likely to outperform small retail investors.
  - Managers who have investors like this (institutional asset managers or hedge funds) are likely to outperform retail mutual funds.

# What if Indexing Destroys Competition?

- Azar, Schmalz and Tecu (AST 2018) argue that diversified owners (index funds) suppress competition because they want to maximize the profits of the corporate sector as a whole, not any individual firm in their portfolio.
  - They can do this simply by not encouraging competition, and giving free rein to managers' preferences for a quiet life.
- Taken to an extreme, this argument would imply that index funds should be illegal under anti-trust law!
- Unsurprisingly, it has provoked a raging debate.
  - Many IO economists are skeptical of AST's empirical claims that common ownership has reduced competition in the banking and airline industries.
  - Many corporate finance economists believe that managers are properly incentivized to compete by stock and option compensation, cash bonuses tied to firm performance, etc.
  - Indexing may also strengthen the hands of activist investors who only need to control the shares not owned by index funds.

# A Potential Trilemma



# How to Act in Shareholders' Interests (1)

- Backus, Conlon, and Sinkinson (2021) present an analysis of common ownership based on Rotemberg (1984).
- Firm $f$ makes profits $\pi_f$ which depend on its own actions and those of its competitors.
- The total profits of the firm's shareholder $s$ are

$$\widetilde{\pi}_s = \beta_{fs}\pi_f + \sum_{g \neq f} \beta_{gs}\pi_g,$$

  where $\beta_{gs}$ is the fraction of firm $g$ owned by shareholder $s$.
- The firm maximizes a weighted average of the total profits of all its shareholders:

$$\max \sum_s \gamma_{fs} \left( \beta_{fs}\pi_f + \sum_{g \neq f} \beta_{gs}\pi_g \right),$$

  where $\gamma_{fs}$ are the weights firm $f$ places on each of its shareholders $s$.

# How to Act in Shareholders' Interests (2)

- Renormalizing, this is equivalent to

$$\begin{aligned} & \max \pi_f + \sum_{g \neq f} \left( \frac{\sum_s \gamma_{fs} \beta_{gs}}{\sum_s \gamma_{fs} \beta_{fs}} \right) \pi_g \\ = \; & \pi_f + \sum_{g \neq f} \kappa_{fg} \pi_g, \end{aligned}$$

  where $\kappa_{fg}$ are the "profit weights" firm $f$ places on the profits of each other firm $g$.

- It is natural to assume $\gamma_{fs} = \beta_{fs}$. In this case, if we define $\beta_f$ and $\beta_g$ as vectors over all shareholders $s$,

$$\kappa_{fg} = \frac{\beta_f' \beta_g}{\beta_f' \beta_f},$$

  which can easily be greater than one.

# The Evolution of Average Profit Weights in the S&P 500

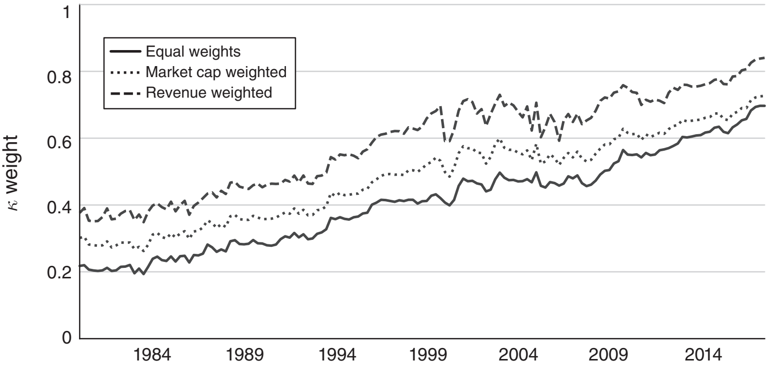
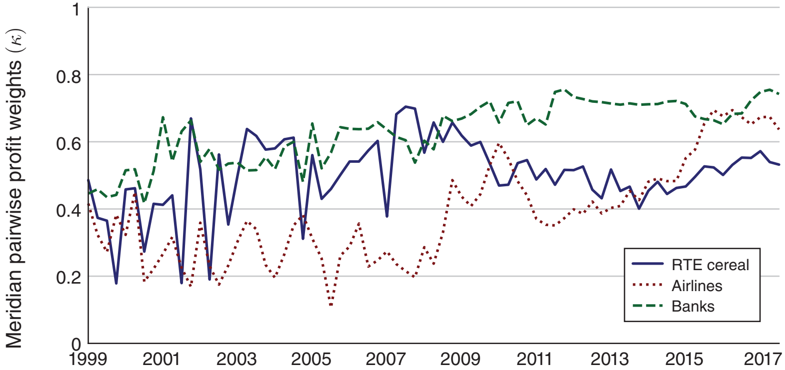



FIGURE 1. COMMON OWNERSHIP PROFIT WEIGHTS OVER TIME

# The Evolution of Profit Weights in Industries of Concern




26.2


27.9
I Got Lost