

100

ML | ANALYTICS

THE ASCENDANCY OF MACHINE LEARNING
IN INVESTMENT MANAGEMENT

AGENDA FOR THE DAY

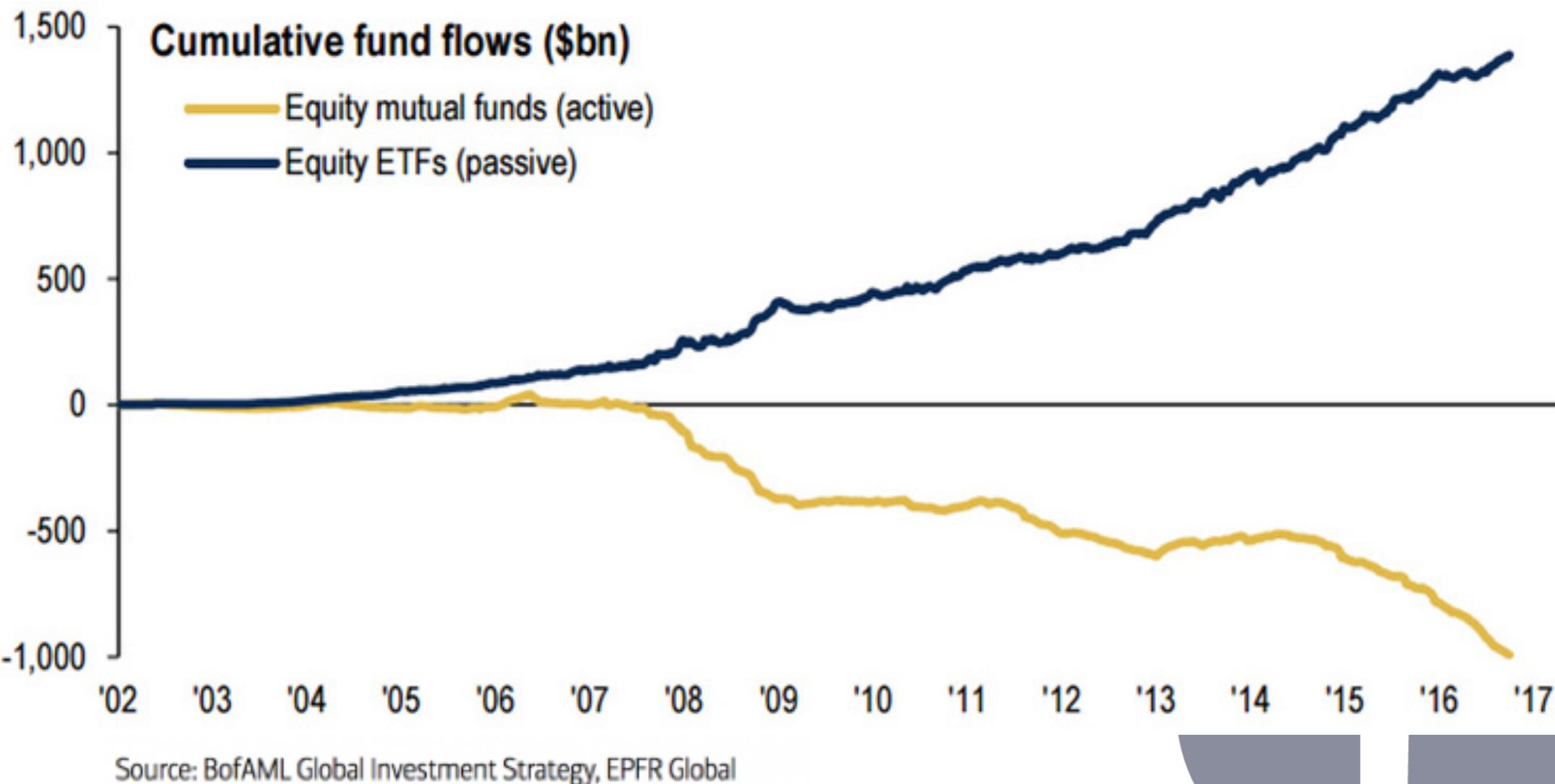
1. 9:00 – 9:15 – **SENZO LANGA** – WELCOME AND INTRODUCTION
2. 9:15 – 9:45 – **MARK LINDHIEM** – AI & ML AS A GAME CHANGER FOR INVESTMENT MANAGEMENT?
3. 9:45 – 10:30 – **ALIS** – MODEL VELOCITY AT SCALE
4. 10:30 – 11:15 – **DIFFERENTIAL CAPITAL** – LESSONS IN INCORPORATING DATA SCIENCE WITH FUNDAMENTAL ANALYSIS
5. 11:15 – 11:45 – **TEA / COFFEE BREAK**
6. 11:45 – 12:30 – **JACQUES JOUBERT** – LEARNING SIDE AND SIZE
7. 12:30 - 13:15 – **LIMA CAPITAL** – CONSTRUCTING INVESTMENT STRATEGIES USING ML
8. 13:15 – 14:00 – **PANEL DISCUSSION AND CLOSE**



STATE OF THE INDUSTRY / CHALLENGES FACED

- Increasing competition
- Waning “Edge”
- Pressure on fees
- Increasing regulation
- Rise of “alternatives” on both sides – i.e. passive and PE
- Challenging markets and complex products
- Poor savings culture
- BEE





Markets

End of Era: Passive Equity Funds Surpass Active in Epic Shift

By [John Gittelsohn](#)

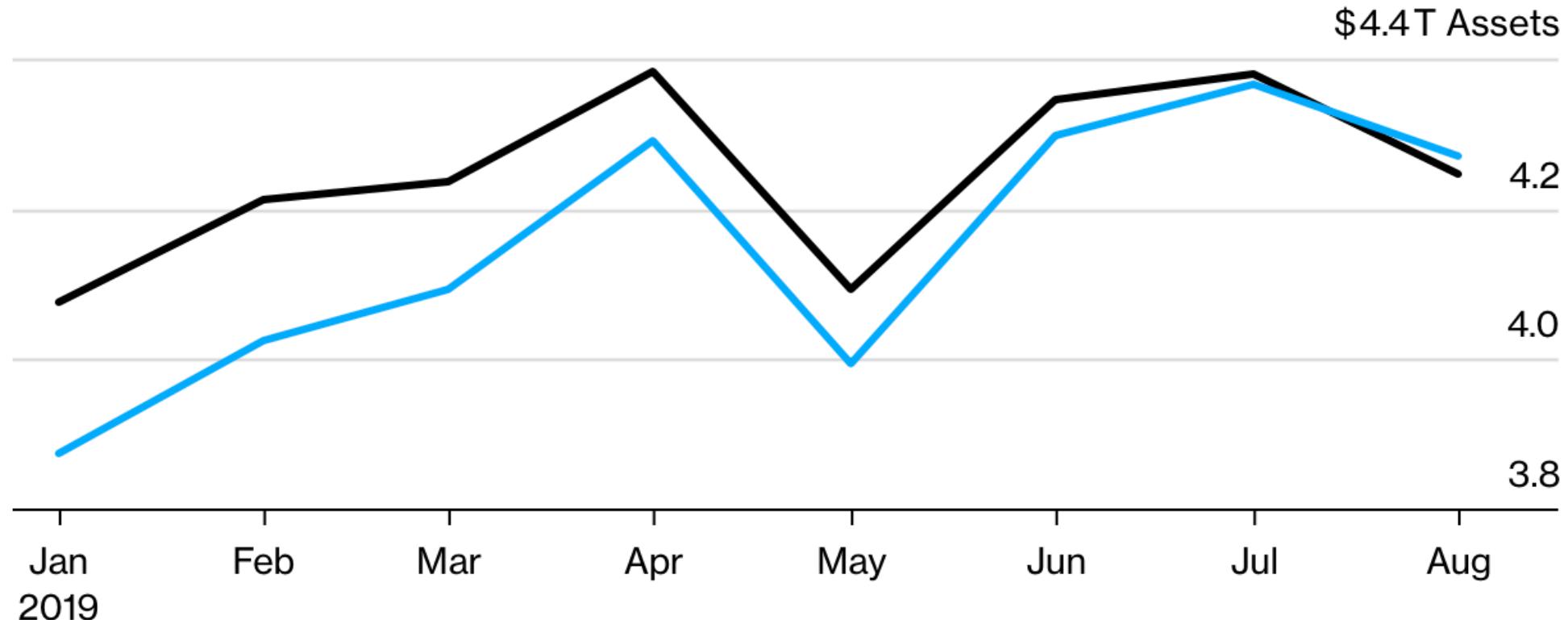
September 11, 2019, 5:21 PM GMT+2 *Updated on September 11, 2019, 9:31 PM GMT+2*



Passive Edge

More money is now managed in passive than active US equity funds

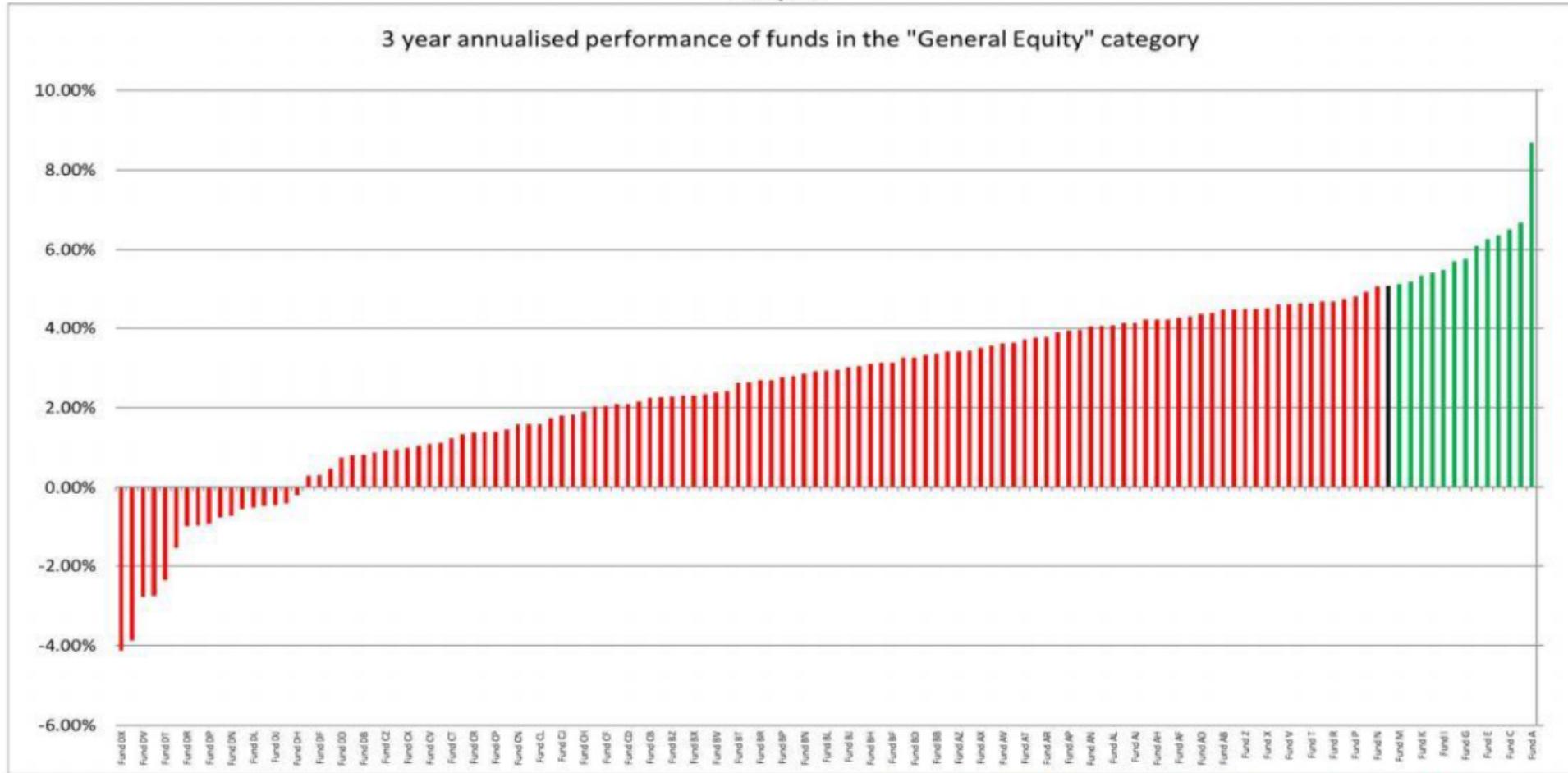
— Active Stock Funds ↗ Passive Stock Funds



Source: Morningstar Direct
Preliminary estimates through August

How managers perform over time – 31 March 2018

Graph 2



Source: Morningstar, 3-year performance from 31 March 2015 to 31 March 2018

Investing

Three in four active equity managers have underperformed

The latest Spiva scorecard is not encouraging for the average investor.

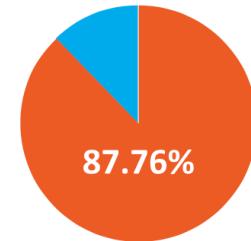
Patrick Cairns / 15 October 2019 10:10



Percentage of Equity Funds Underperforming over 15 Years
15 Years (7/1/2004 - 6/30/2019) | Net-of-Fee

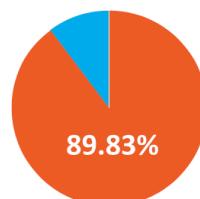
U.S. DOMESTIC

All Domestic Funds

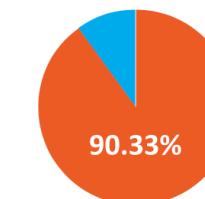


- Percentage of Funds That **Outperformed** Their Respective Benchmarks
- Percentage of Funds That **Underperformed** Their Respective Benchmarks

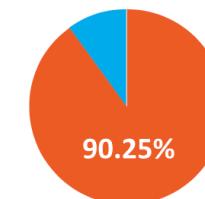
All Large-Cap Funds



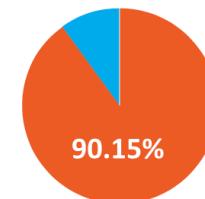
All Mid-Cap Funds



All Small-Cap Funds

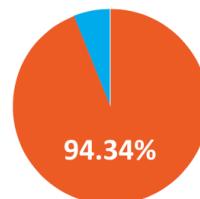


All Multi-Cap Funds

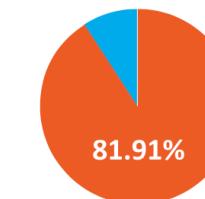


INTERNATIONAL

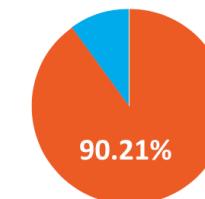
Emerging Market Funds



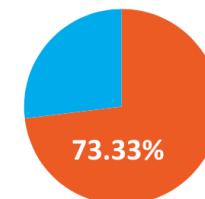
Global Funds



International Funds



Int'l Small-Cap Funds



source: S&P Dow Jones Indices LLC, eVestment Alliance. Past performance is no guarantee of future results. Indexes are not available for direct investment and performance does not reflect expenses of an actual portfolio. Chart is provided for illustrative purposes. This is not to be construed as an offer, solicitation, recommendation, or endorsement of any particular security, product or service. There are no guarantees investment strategies will be successful. Investing involves risks, including possible loss of principal. © 2019 Index Fund Advisors, Inc. (IFA.com)

Active Managers Just Can't Win the Loser's Game

They've cut fees, made more concentrated stock bets and reduced churn. And they're still underperforming.

By [John Authers](#)

November 18, 2019, 7:05 AM GMT+2 *Corrected November 18, 2019, 7:20 AM GMT+2*

To Battle Passive Funds, Active Investors Shun Diversification

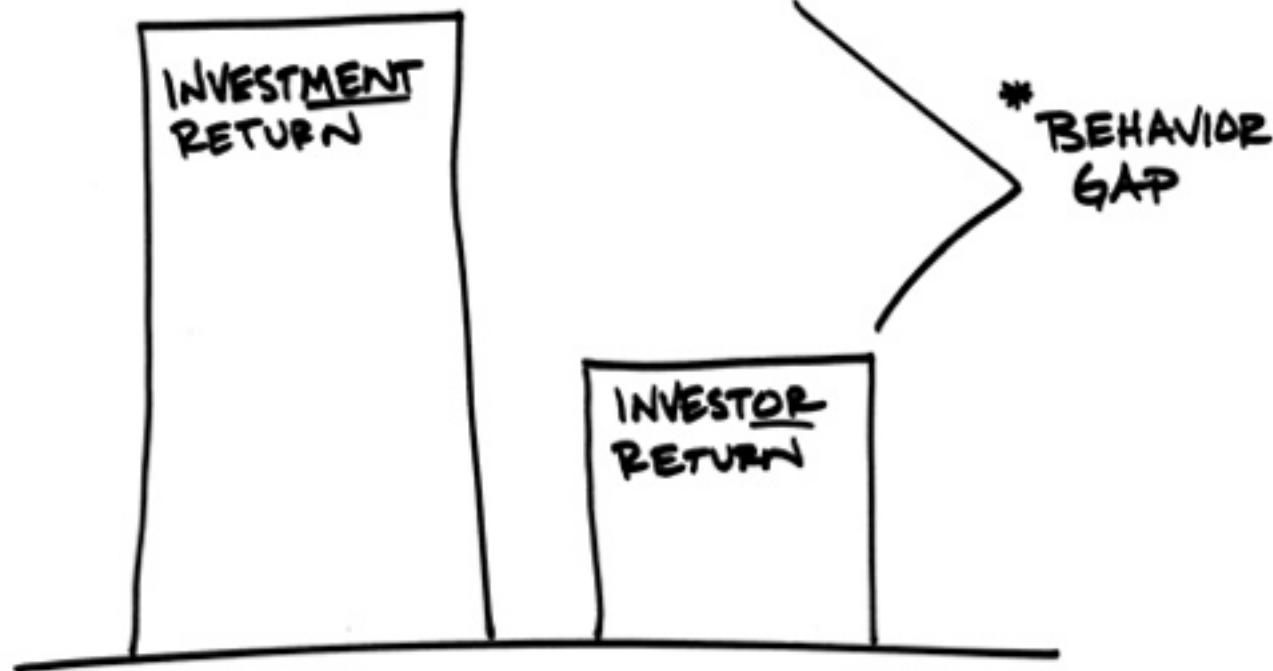
Stock pickers are making more concentrated bets, hoping to distinguish themselves from passively managed, diversified index funds. Trouble is, the results haven't been great.

By Mischa Frankl-Duval

Updated Dec. 2, 2019 7:20 pm ET

Advisors	Advisor fee - initial Advisor fee - ongoing
Multi-manager/aggregator fee	Combo fees (AM/Platform/Advice)
Asset managers	Asset manager fee - fixed fees Asset manager fee - performance fees
Platforms/Administrator	Platform fee Administrator fee
Broker	Trading costs - brokerage Trading costs - exchange fees Trading costs - investor protection levy
Bank / Custodian	Bank charges
Bank / Custodian	Custodian Fee
Bank / Custodian	Strate fees
Taxes and Levies	STT Vat



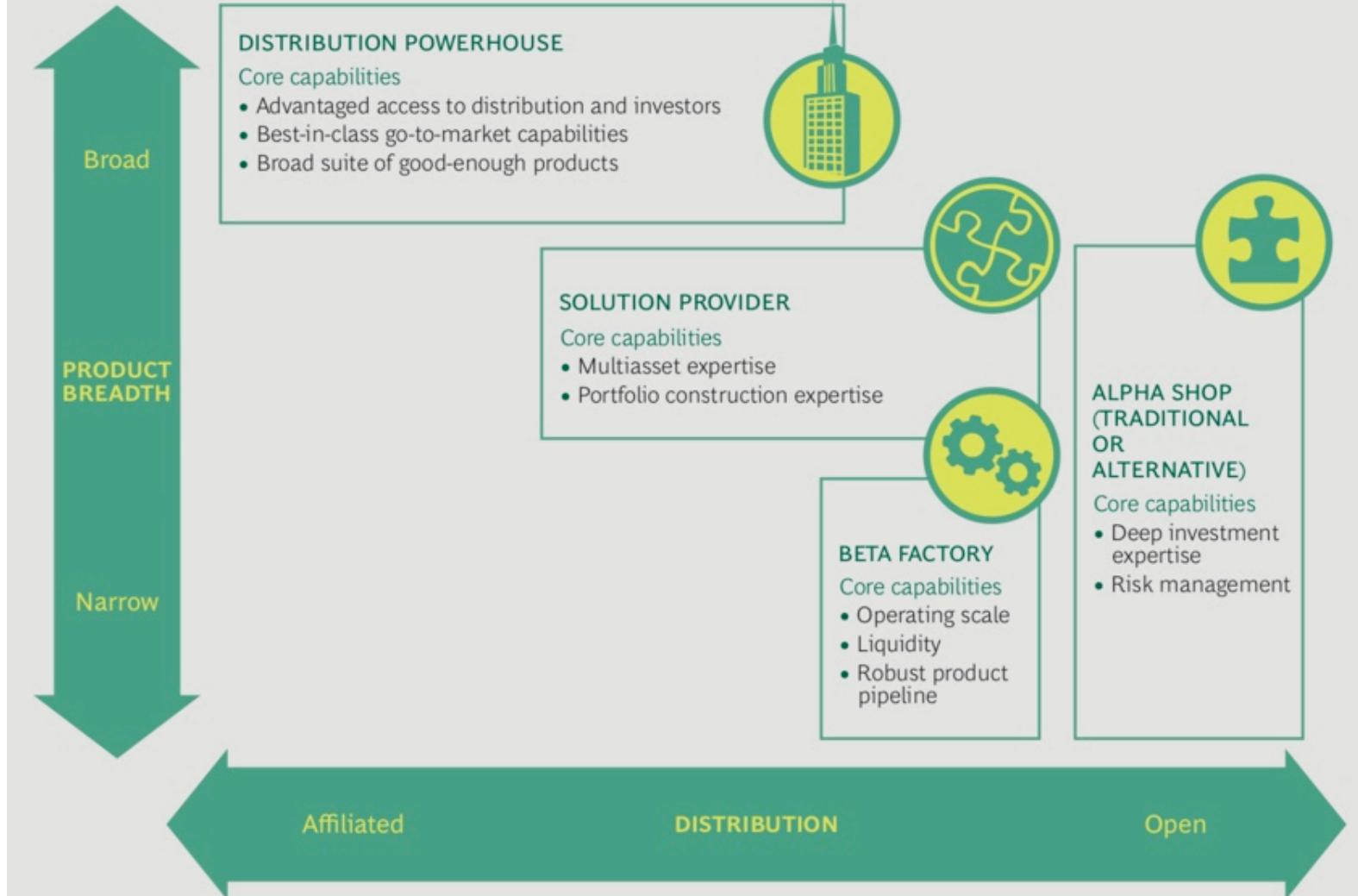


* LOOKS JUST LIKE IT DID 10 YEARS AGO.

© 2013 Behavior Gap

FOUR WINNING ASSET MANAGEMENT MODELS OF THE FUTURE

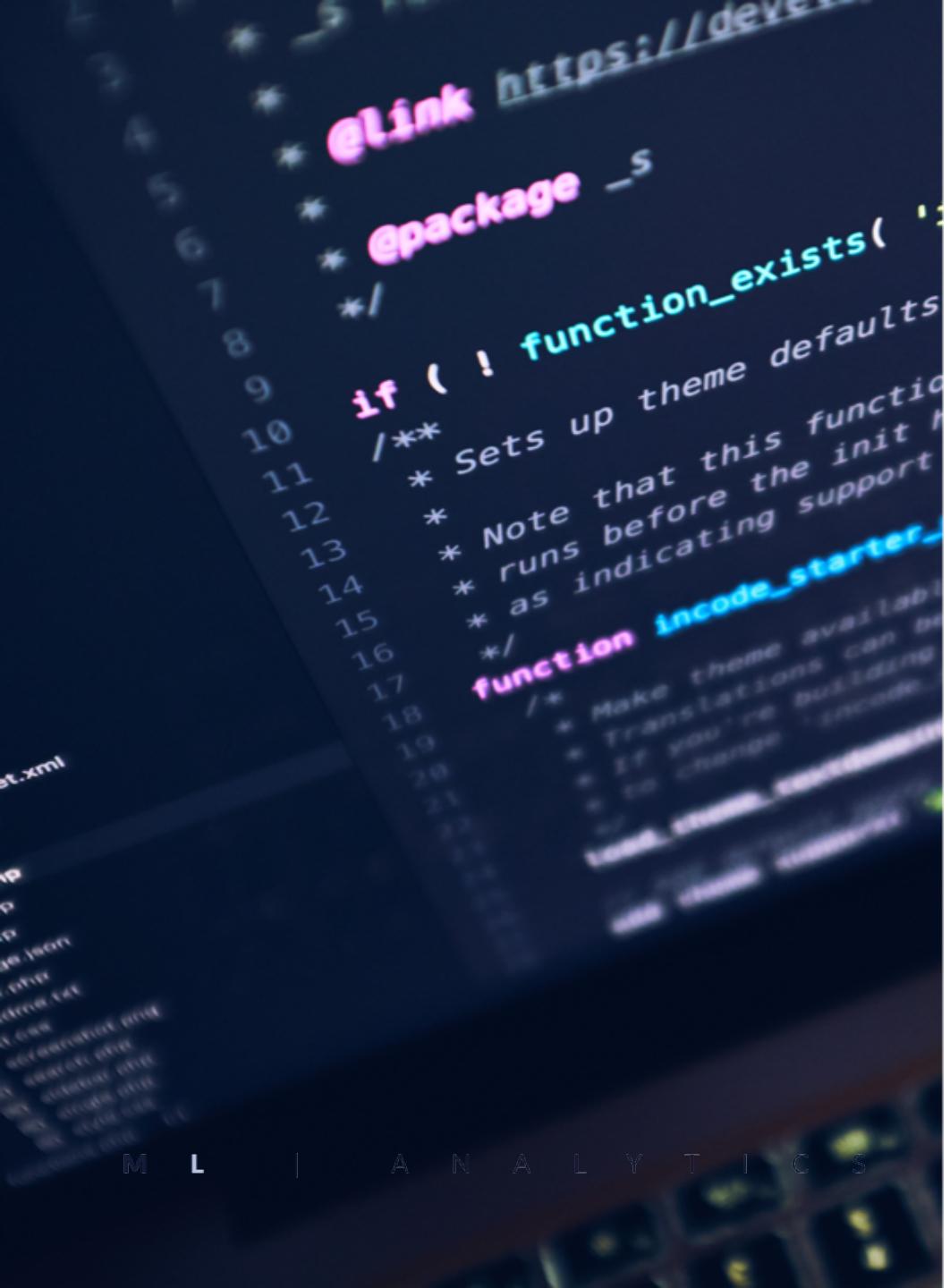
EXHIBIT 13 | Four Winning Asset Management Business Models of the Future



Source: BCG – Global Asset Management 2017 – The Innovator's Advantage

WHAT “EDGE” DO YOU HAVE?

1. Information
2. Analytics
3. Behavioural
- (4. Organisational
and
5. Client)



The wisdom and power of the crowd

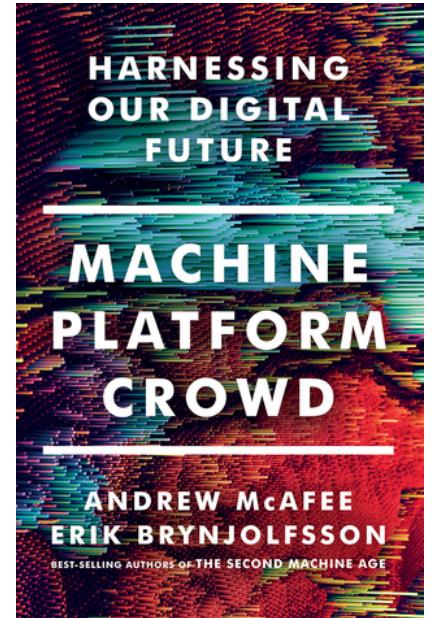


Photo: Jered Gruber

JUST A NORMAL DAY AT THE NATION'S MOST IMPORTANT FINANCIAL INSTITUTION...



DECISION SCIENCE?



The Biggest Wave?

WHERE MIGHT AI (ML) BE BETTER THAN US?

Aspect	Reason
Memory	Humans have poor memories and can make up memories
Emotions	While humans have the advantage of emotions we are not very good at them (Poor EQ)
Speed of analysis and execution	Fastest SuperComputer: +/- 200 petaflops
See things we don't	Pattern recognition
Consistency	Humans can be inconsistent in applications to same problems in different environments
Energy	Computers don't need sleep



AI in Asset Management

AI IN ASSET MANAGEMENT MAP

(@DiligenceVault)

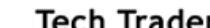
KNOWLEDGE, CAPITAL, DATA & AMBITIONS



NEW & EMERGING IDEAS



euclidean ...
technologies



PLATFORMS, SERVICES, RESOURCES





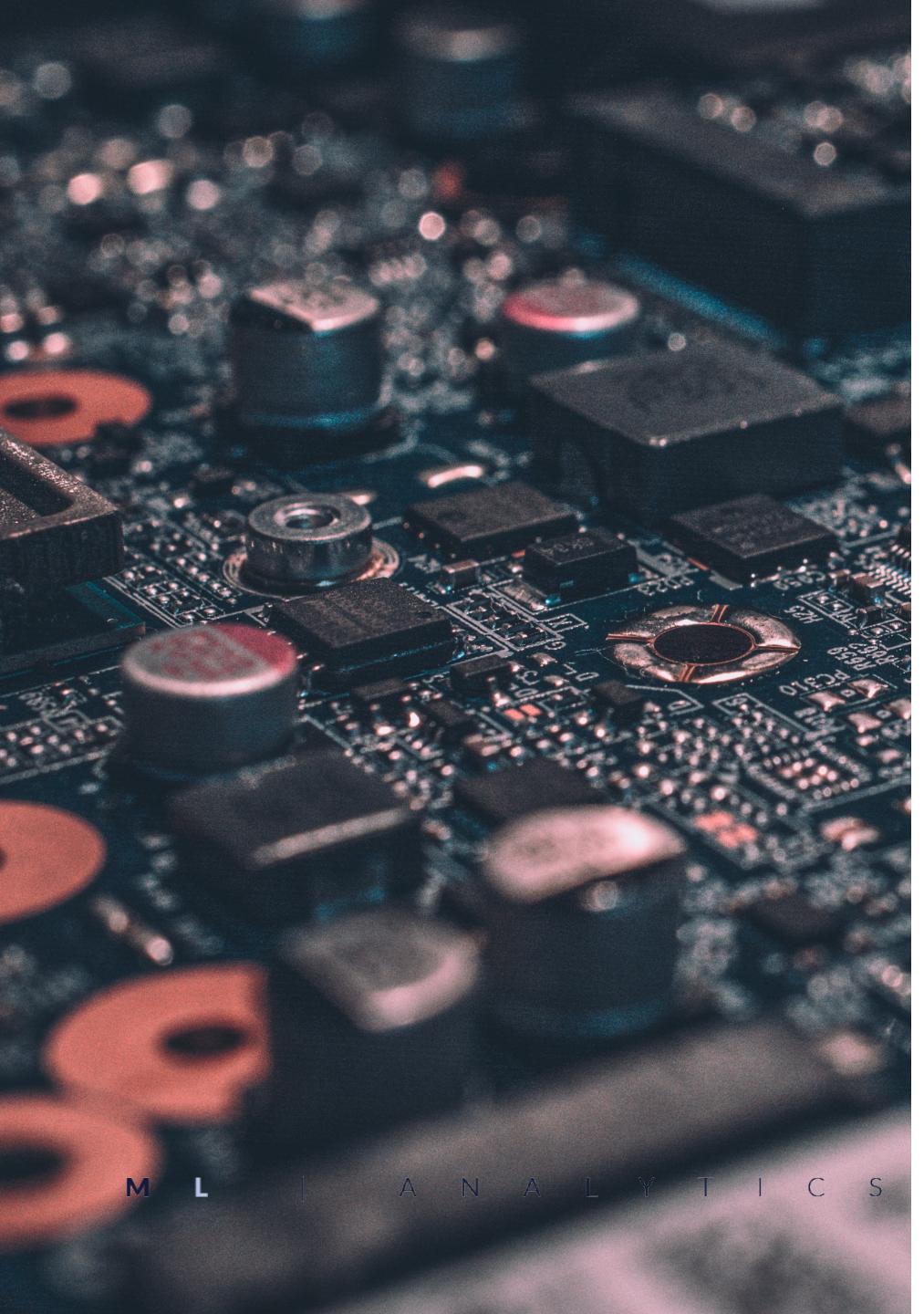
New study suggests that fund managers can outperform index funds

Tue, 12/11/2019 - 10:36



Tags : Surveys & research

Active fund managers could preserve more than 1.2 per cent per year, net-of-fees, of outperformance versus passive index funds, according to Essentia Analytics' latest report.



PROOF?

THE MAN
WHO SOLVED
THE MARKET

HOW
JIM SIMONS
LAUNCHED
THE QUANT
REVOLUTION

Gregory Zuckerman

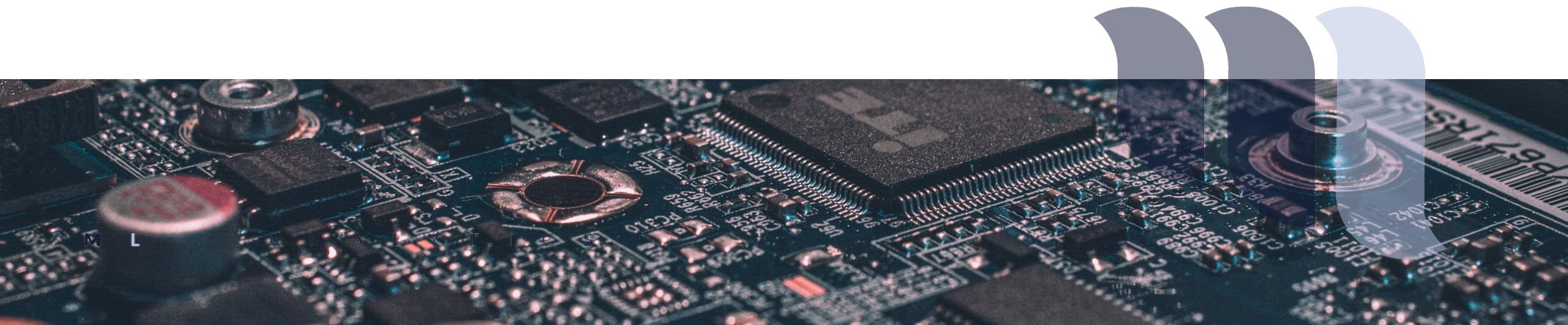
Author of *THE GREATEST TRADE EVER*

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Mathematical equations and diagrams are overlaid on the right side of the image, including:
 $E = \frac{1}{2} MgL \dot{\theta}_o^2$, $\ddot{\theta}_o = \frac{d\dot{\theta}_o}{dt}$, $\ddot{\theta}_o = \frac{Mg}{MgL} \sum_i E_i = c^{1/2} \left(\frac{1}{2} \sum_i r_i^2 \right)$, $\frac{dr}{dt} = \frac{d^2 r}{dt^2}$, $\sqrt{n} \delta_{r,n-1} = \frac{d\theta}{dt} \left(\frac{g}{L} \right)^{1/2} (\theta_o - \theta)$, $\frac{d\theta}{dt} = \frac{d^2 r}{dt^2} \left(\frac{1}{2} \right)$, $W(\theta) = \frac{1}{r(\theta)}$, $r(\theta) = A \sin(\frac{\theta}{\theta_0}) + B \cos(\frac{\theta}{\theta_0})$, $b = \sqrt{1 - c^2}$, $\frac{dx}{dt} = v$, $v = \frac{dx}{dt}$, $f = \frac{dv}{dt} = \frac{d^2 x}{dt^2}$, $f = \frac{d^2 x}{dt^2} = \frac{c^2}{L^2} x$, $\ddot{x} = -\frac{c^2}{L^2} x$, $M \ddot{x} + c^2 x = 0$, $x = A \sin(\omega t + \phi)$, $\omega = \sqrt{\frac{c^2}{L^2}}$, $\omega = \sqrt{\frac{M}{I}}$, $I = \frac{1}{2} M L^2$, $K \frac{1}{2} M \ddot{x} = \frac{1}{2} M \left[\omega_0 \pi \cos(\omega t + \phi) \right]^2$, $\int_{t_0}^{t_1} \frac{dx}{dt} dt = \int_{x_0}^{x_1} \frac{dx}{dt} dt = \int_{t_0}^{t_1} \frac{v}{\cos^2(\omega t + \phi)} dt = \frac{1}{\omega} \int_{t_0}^{t_1} \frac{v}{\cos^2(\omega t + \phi)} d(\omega t + \phi)$, $E = \langle K \rangle = \langle U \rangle = \frac{1}{2} M \omega^2 R^2$, $\theta = \theta_0$, $E_0 = E + \frac{1}{2} \epsilon + \frac{1}{2} \epsilon_0$, $\frac{dP_R}{dt} = \frac{dP_R}{dt} \frac{\Delta P_R}{\Delta t} = \left(1 - \frac{v}{c} \right)^{1/2} \frac{\Delta P_R}{\Delta t}$, $\int_{t_0}^{t_1} \frac{dI}{dt} dt = \frac{1}{c} \int I dt = V_0 < 0$, $\langle \psi \rangle = E \langle \psi \rangle = \frac{1}{2} \frac{d\psi}{dt} + \frac{1}{c} \partial \psi - V - w^2 G M_1 M_2 + w^2 \int \psi$.

THINGS TO REMEMBER

- What Job are you trying to do for the customer?
- What is your differentiation and why does the customer care?
- How will you explain your value proposition?
- How will you price your services correlated to the value you add?
- How will you manage your clients' experience / journey?





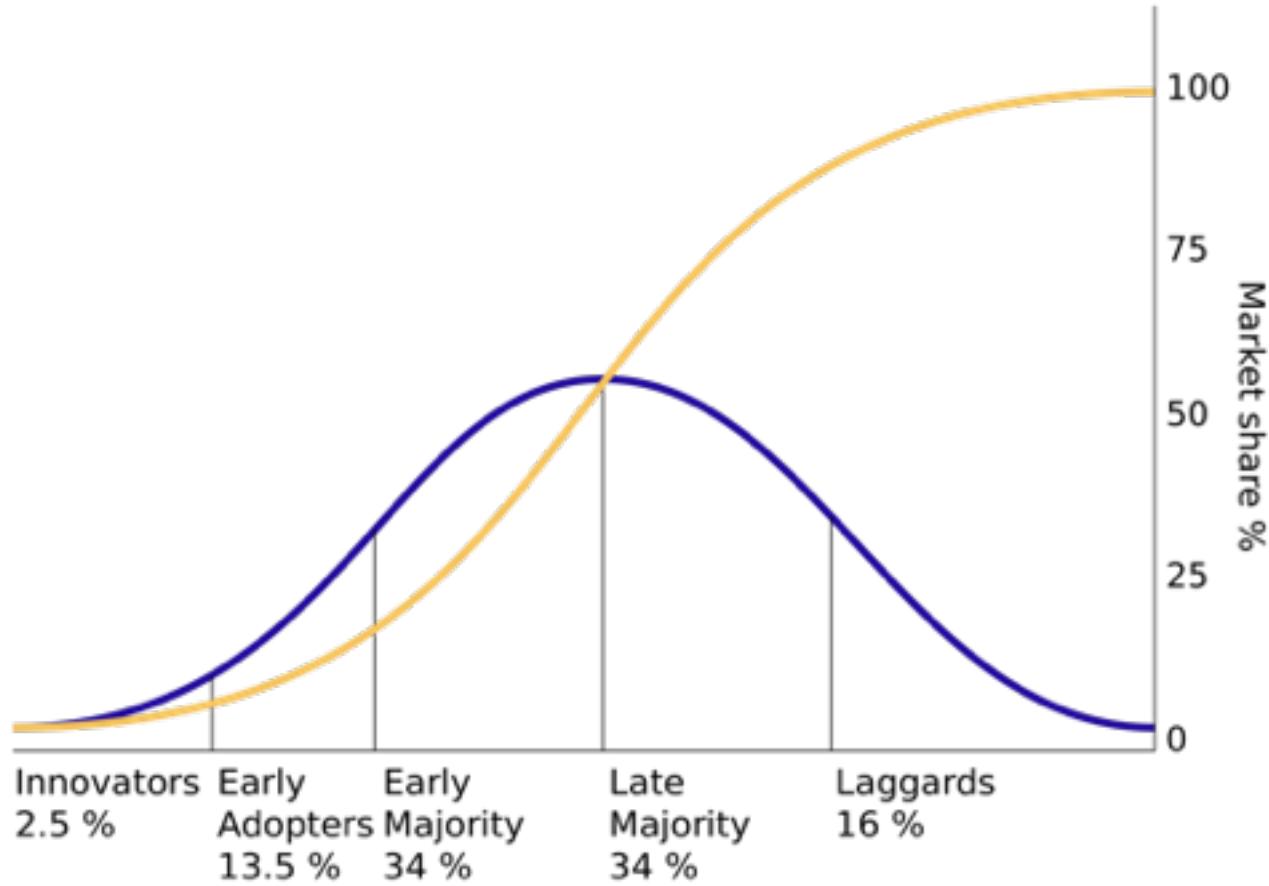
**The two greatest enemies of the equity fund investor
are expenses and emotions**

John C. Bogle - Founder of Vanguard

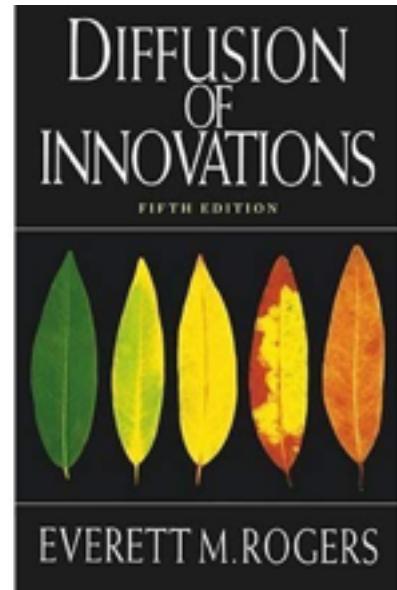


We're blind to our blindness. We have very little idea
of how little we know. We're not designed to know
how little we know.

- Daniel Kahneman



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THANK YOU