

Machine Learning & Investment

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What's going on?

An Interview of traditional fund manager



Martin Taylor, Nevsky Capital

- Nevsky Capital, a \$1.5bn hedge fund, earlier this month decided to call it quits after a long period of success, partly blaming “black box algorithmic funds” for making markets harder to navigate for old-fashioned investors.
- Common lament among fund managers

Source - <http://www.ft.com/cms/s/0/5eb91614-bee5-11e5-846f-79b0e3d20eaf.html#axzz4C07WwHSs>

Man Group's AHL fund steps up AI push



Founded : 1783

Hedge Fund : 78.1B\$

- The success of its machine learning experiments in recent years led the company to plough more money into the field, and it is now the single biggest investment area at AHL.
- A machine learning strategy helped one of AHL's funds swing from a narrow loss to a narrow gain in August last year, when markets were convulsed by concerns over China, by autonomously buying and selling stock at vital junctures in the turmoil. Many traders initially stood on the sidelines, unable to quantify rapidly-changing data.

Source - <http://www.ft.com/intl/cms/s/0/c31f8f44-033b-11e6-af1d-c47326021344.html#axzz4C07WwHSs>

The Rich Are Already Using Robo-Advisers, and That Scares Banks

15%

About 15% of Schwab's robo-clients have at least \$1 million

50% ↑

Betterment's \$3.3 billion of assets under management comes from people with more than \$100,000

1/3 ↑

Wealthfront has more than a third of its almost \$3 billion in assets in accounts requiring at least \$100,000

Source - <http://www.bloomberg.com/news/articles/2016-02-05/the-rich-are-already-using-robo-advisers-and-that-scaries-banks>

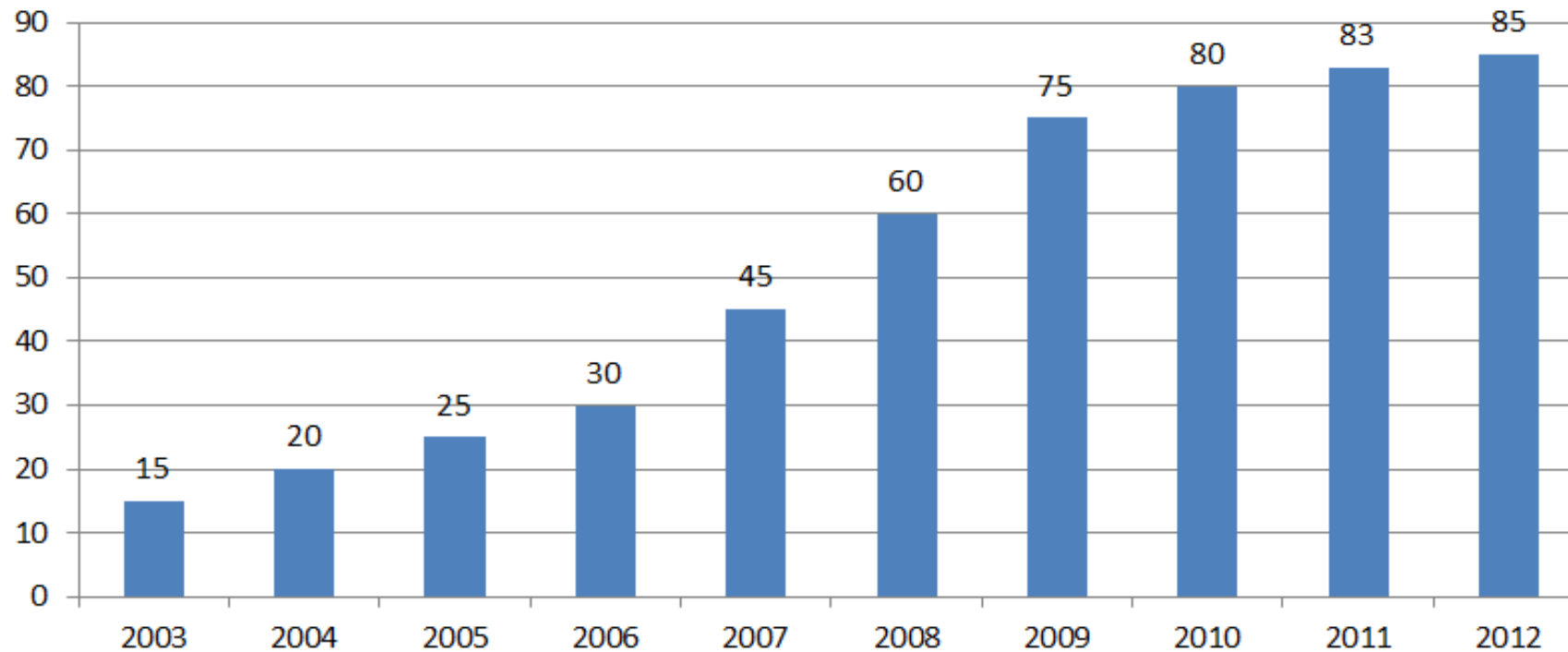
Paradigm Shift Shifted

From Human to Machine



In Fact, Machine to Machine Battle Already

Algorithmic Trading. Percentage of Market Volume



Source - https://en.wikipedia.org/wiki/Algorithmic_trading

Renaissance Technologies

Renaissance



Hedge Fund Rank 12

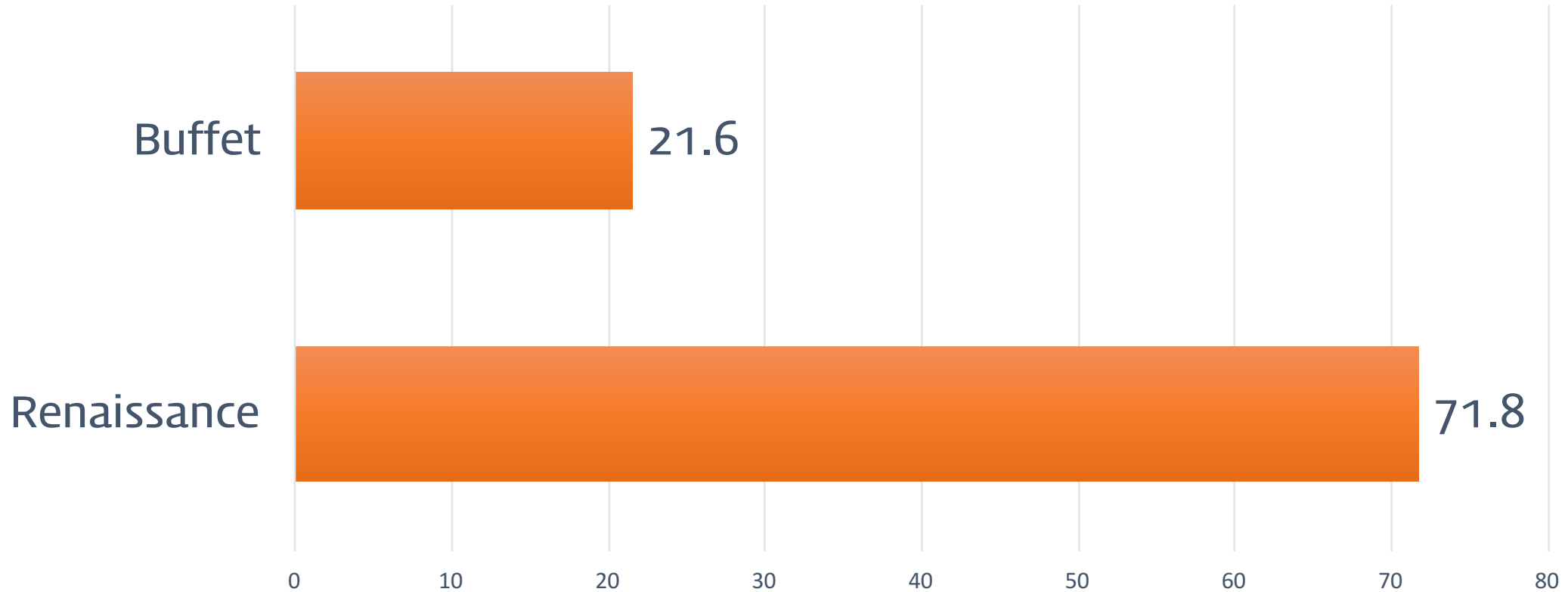
AUM : 65B\$

Top-Performing Hedge Funds

- Renaissance is one of the first highly successful hedge funds using quantitative trading — known as "quant hedge funds" — that rely on powerful computers and sophisticated mathematics to guide investment strategies.
- Medallion Fund : From 1994 through mid-2014 it averaged a 71.8% annual return before fee

Renaissance vs Buffet

Annualized Return



New Breed : TwoSigma Investment



TWO SIGMA

Hedge Fund Rank 11

AUM : 35B\$

Machine Learning, Distributed Computing

1×10^{14}

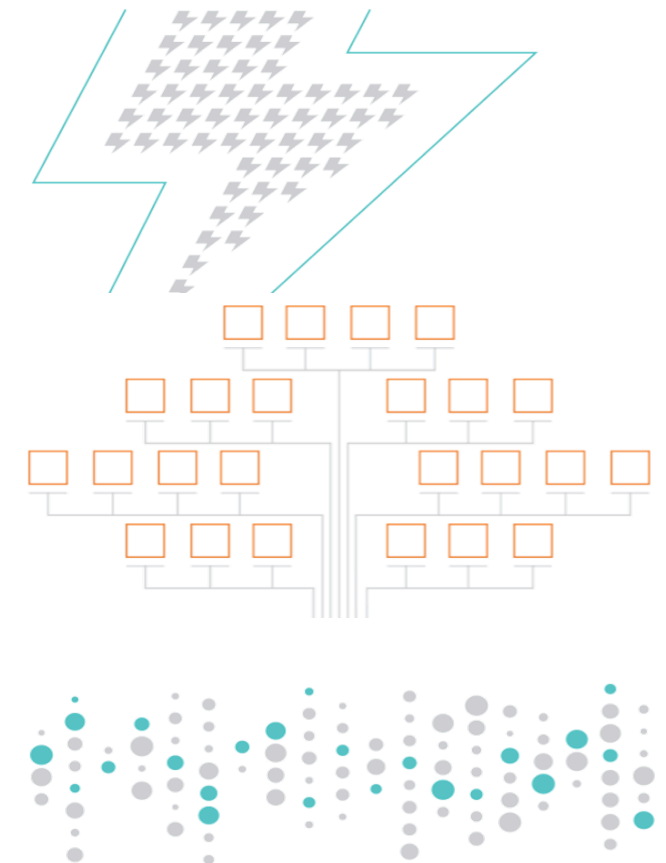
Calculations per second: With 100 teraflops of computing power, we have the tools to model the most complex investment ideas.*

87,000

CPUs With 1,000 terabytes of memory: This is what a tech-driven investment manager looks like.*

10,000+

Data sources, both public and proprietary: We look beyond the obvious. So we can find connections that lead to the next great investment idea.*



Emerging Paradigm in Trading

Quantitative Techniques

Model by Human



Machine Learning

Model by Machine
Automatic Evolution

This is the present



New Opportunity

99.3% are untouched so far!

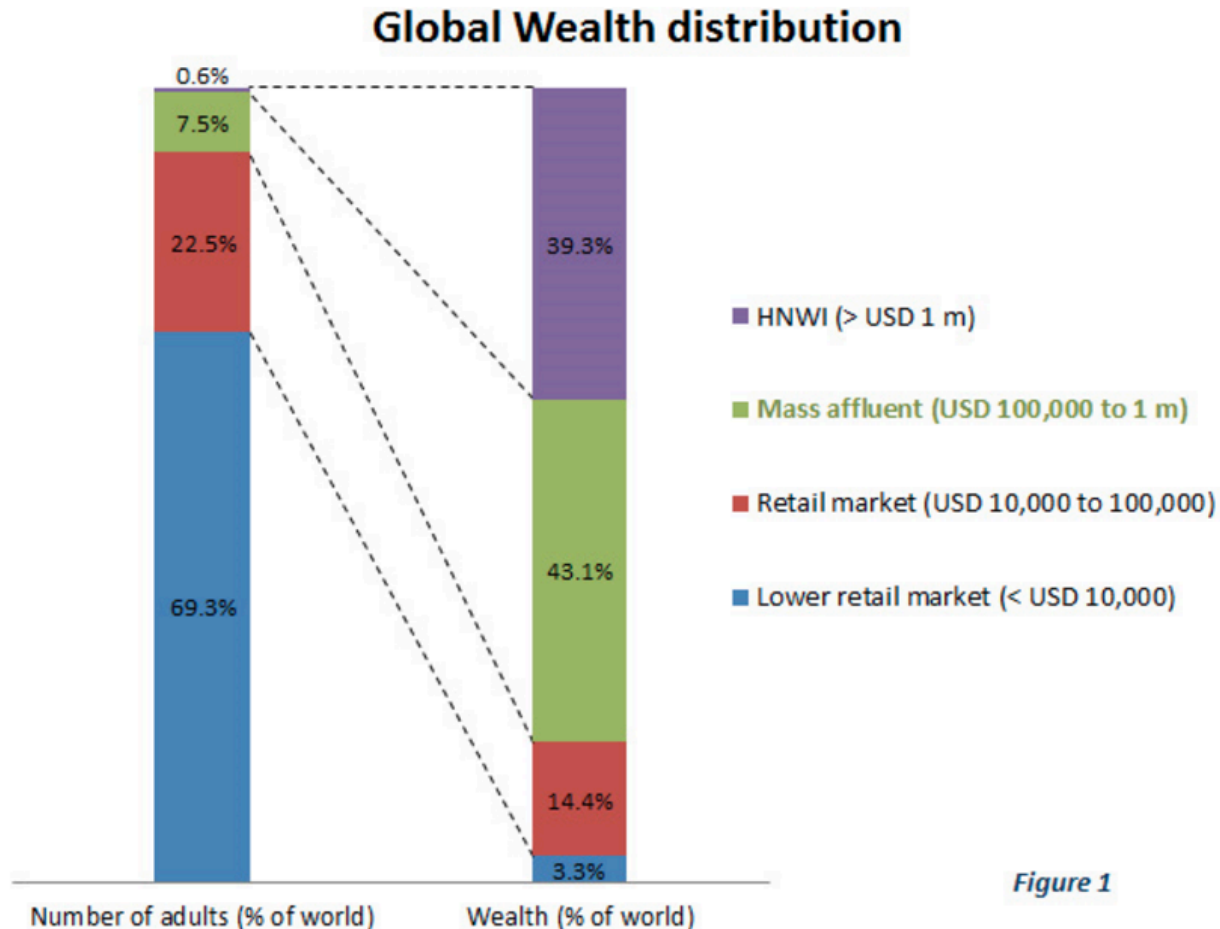


Figure 1

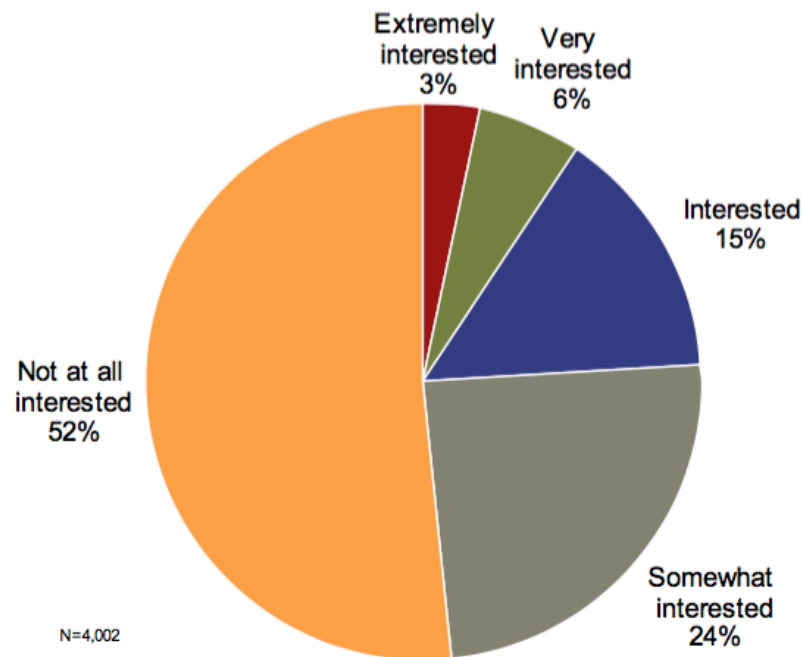
So far,
Mass Affluent are
Untouched
In Wealth Management

Source - <http://www.soprabanking.com/en/news-events/news/2013/08/26/the-mass-affluent-hold-43-of-global-wealth-they-need-better-services>

Customer shows strong interest

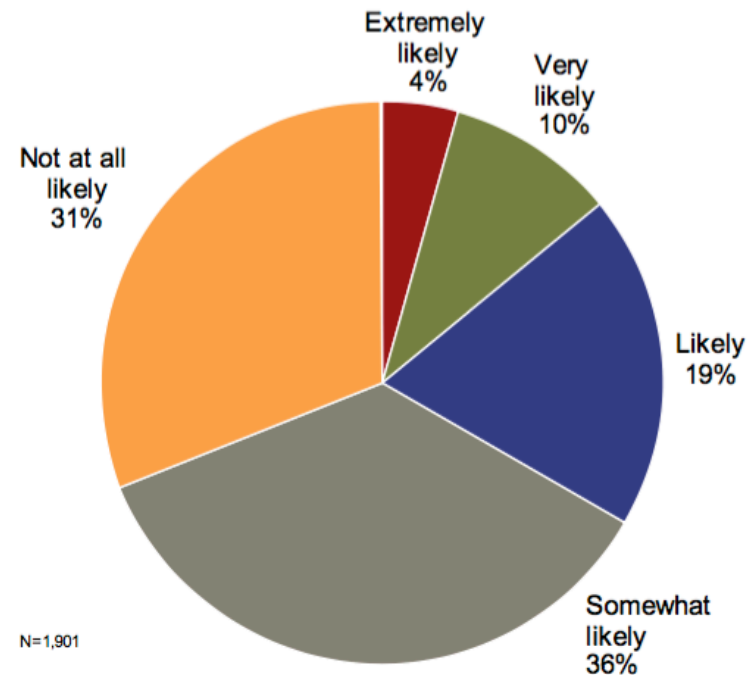
Interest in robo-advisory services

% who selected each level of interest in robo-advisory services among banked consumers



Likelihood to use robo-advisory services to manage household taxable investable assets

% who selected each option among banked consumers whose households own taxable investable assets and are at least somewhat interested in robo-advisory services



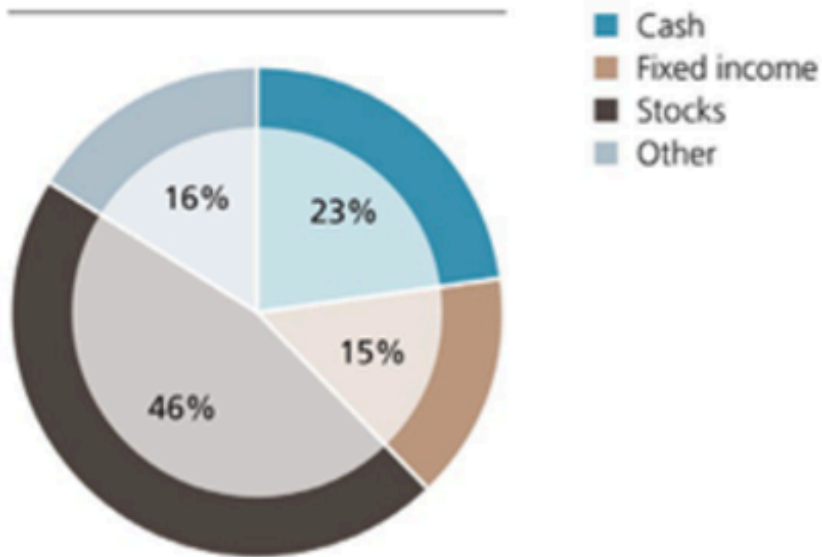
Source – Hype vs reality, The coming waves of robo adoption

ML Based Financial Service meets the needs

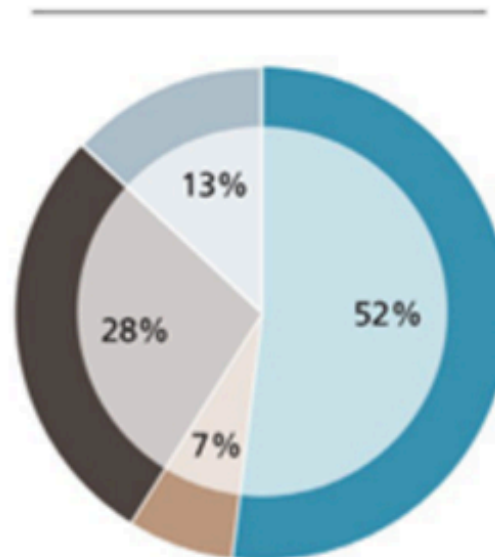
Millennials hold dramatically higher cash allocations, reflecting a wariness of the market and long-term investing

Question: "Please provide your approximate overall asset allocation across all your accounts. 'Other' includes alternative investments, structured products, real estate (excluding own home), commodities/futures/options; 'cash' includes CDs/MMFs."

Non-Millennials



Millennials



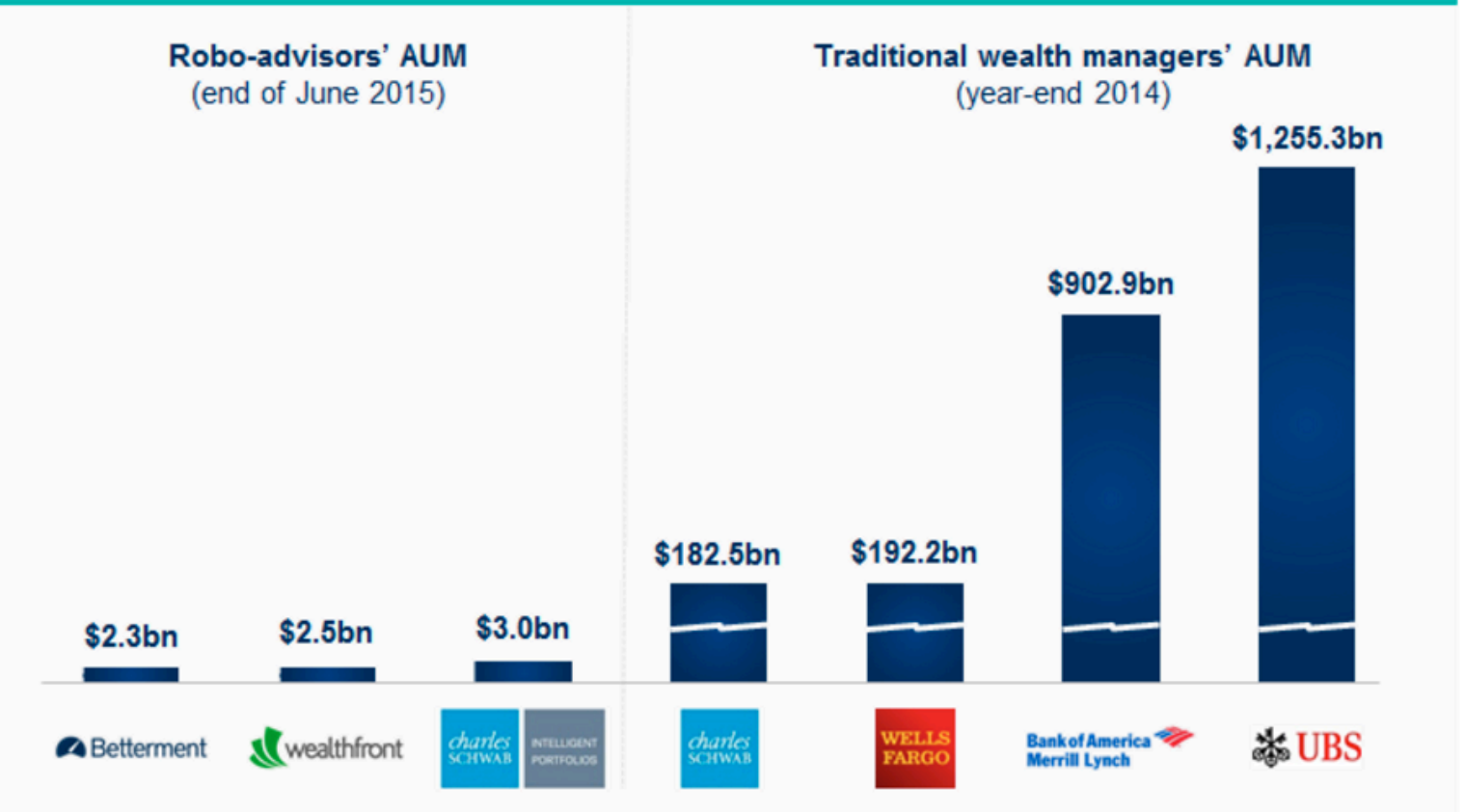
- Unstable Financial Status
- Low Balance
- Wariness of market
- Digital Savvy
- Control Everything

It is a just beginning, I hope

3%

Adoption of robo-advisor services

Robo-advisors' AUM account for just a fraction of the wealth management industry



Sources: Datamonitor Financial's *Wealth Management Super League*; Securities and Exchange Commission.
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Goldman Sachs, We are a technology company

Katrina Brooker, 2015-07-28, Bloomberg



“We are a technology company,” CEO Lloyd Blankfein said in a May podcast on the firm’s website. Blankfein hosted Goldman’s annual shareholders meeting in San Francisco this spring to show the firm is part of the scene. “You better spend a lot of time there,” he said, “and we do.”

Don Duet, co-head of the firm’s technology division, says in an interview. “The disruption technology is going to create, and already has, in our industry is going to be profound. We have to make sure we are not left behind.”

<http://www.bloomberg.com/news/features/2015-07-28/how-goldman-sachs-became-a-tech-investing-powerhouse>

Thanks