"Chaos Is Hard to Predict"

WHY IS AN EXPERT ON DISRUPTIVE TECHNOLOGY "WORRIED" ABOUT FINANCIAL INNOVATION?

By Sviatoslav Rosov, CFA

The word "disruption" is surely a candidate for 2015 Word of the Year. It seems to appear in any context where technology is seen to be encroaching into an existing industry. Uber disrupted the taxi industry; Apple disrupted the watch industry; and, closer to home, financial technology (fintech) disrupted the financial industry. Robo-advisers in particular are seen as a disruptive—perhaps fatal—challenge to the investment management industry. However, this indiscriminate use of the word "disruption" clouds our analysis of the impact of technological change.

KEY POINTS

"Fintech" has disruptive potential because investors "look for convenience and access rather than someone to talk to," says noted analyst Horace Dediu.

"Financial 'innovations' tend to go through boom/bust cycles where new instruments are abused and lead to chaotic outcomes."

Disruption theory (initially formalized by Clayton Christensen of Harvard Business School in the mid-1990s) posits that an innovation can be, broadly speaking, disruptive or sustaining. A sustaining innovation is one that brings efficiency improvements or other short-term competitive advantages that can ultimately be copied by competitors. A truly disruptive innovation needs to create a new market based on new or different values and, typically, a new business model. This can either be by creating a product that has a drastically different cost/value trade-off or by creating a product for consumption that did not exist previously.

To better understand whether fintech is really disruptive or merely sustaining to the investment management industry, I reached out to Horace Dediu for some insight. Dediu is probably best known for being one of the world's leading Apple analysts, although his day job is as a director at the Christensen Institute, where he researches and extends disruption theory. Having been a market analyst at Nokia a decade ago, he also has a practical understanding of what it means to be disrupted.

You talk a lot in your work about the importance for any business to understand the concept of "jobs to be done" (JTBD). Could you elaborate on what you mean by that?

JTBD is a research method for determining the causes and circumstances for a purchase decision. As such, it permits the marketer to correctly segment customers into groups which have similar jobs to be done and thus address them with the right product. It is also a categorization method which allows management to determine who they are in competition with and enables designers and engineers to make appropriate trade-offs when choosing between alternative features to include in the product.

A simple example could be the job to be done of a guitar. A professional will "hire" a guitar to earn a living. An amateur will hire it to aspire to be a professional, but most people will buy a guitar impulsively because they want to vicariously live the life of musicians or to hope that they will develop musical skills, and spending a bit of money rather than a lot of time will suffice. So the jobs to be done for guitars span from utility to aspiration to a hobby.

As a tool for professionals, the competition is only another guitar, but as an aspiration to a hobby, the competition could be a camera or a sewing kit. So, how should a guitar maker market their guitars?

What is the job to be done for investment management?

Depending on their circumstances, different people will hire investment management for different jobs. Two examples could be to hire investment managers for peace of mind and to get access to investment opportunities that are difficult to find or assess. Investment is stressful, and doing it yourself consumes too much emotional energy. Customers prefer to outsource this job so they can focus on their primary earning potential.

For instance, a recent study done by the Christensen Institute in the peer-to-peer lending industry found that investors were willing to hire automated investment tools to get access to good-quality investment opportunities and to automate the process of reinvesting the profit. Investors therefore look for convenience and access rather than someone to talk to.

Disruption is a word that is often conflated with technical innovation. Could you talk a little bit about the distinction between disruptive and sustaining technical progress?

There are three conditions that characterize disruption: (1) entry into a market where products are over-serving consumers (i.e., are over-engineered) or entry into a non-consuming segment of the market (i.e., targeting people priced out of the incumbent market); (2) a technological core that allows the challenger to rapidly improve their offering so that it follows a relatively steep trajectory of improvement; (3) asymmetry of motivation where the challenger has more to gain from attack than the incumbent has from defense (i.e., incumbents cannot or are not willing to replicate the challenger business model).

In brief, disruptive change is a combination of entrants serving "undesirable" customers and making money in new and different ways because they use a technology that can evolve and adapt rapidly to marketplace experiments and

feedback. It's the result of a very specific kind of asymmetric competition where the incumbent trade-offs are ignored. In contrast, sustaining improvements are the result of direct competition where incumbent trade-offs are observed and merely optimized.

A disruptive business model will be difficult to accept for an incumbent because it will likely lead to a worse financial outcome. In contrast, the new business model enables the entrant to gain a foothold despite the entrant's learning curve disadvantage and steadily improve its situation. The asymmetry is such that the new option offers the incumbent much to lose and little to gain while the entrant has nothing to lose and something to gain. The technological core plays a crucial role in enabling such new, asymmetric business models.

Do you see robo-advisers as disruptive or sustaining innovations for investment management?

The theory states that three conditions need to apply for disruptive change. Let's test them.

First, do robo-advisers target non-consumers or overserved consumers? Disruption can only begin when the new product becomes good enough for a subset of typically less demanding customers. So far, this seems to be the case with this class of entrants. They are tolerant of lower fee structures and lower individual deposits. They are also better than incumbents in terms of convenience and transparency.

Second, do robo-advisers leverage a technological core that allows them to improve so that they can target the higher tiers of the market? From what we know so far, it seems that the algorithms are able to evolve and "improve" to reach higher returns. However, we need to be careful. Performance is not the only rate of return. It's also about access and peace of mind. We imagine the quality of a relationship with a human will appeal to the more demanding customers but not as much to the younger, less affluent customers. The question of robots being able to climb all strata of performance remains to be answered.

Third, are robo-advisers sufficiently asymmetric to avoid incumbent response? If incumbents are able to devise business models that enable them to also deploy robo-advisers to profitably serve the low end of the market, then the impact of robo-advisers is unlikely to be disruptive—that is, it won't change the structure of the industry [so much that] the leaders are displaced. An illustrative example could be Vanguard, which launched its own symmetric competitor to robo-advisory firms, garnering the highest assets under management of any robo-adviser services.

Do you have any insight into how quickly these sorts of technologies are able to displace existing business models?

There are two drivers to the rate of change: how quickly the technology can be improved and how quickly customers are willing to accept change. Technological improvements are probably easier to predict given all the improvements in the drivers—algorithms, processing speed, etc. Consumer acceptance is more difficult and depends on conformability of the solution to how people use it. This is where the job to be done plays a big part. If the job is psychologically dependent on trust or interaction, then acceptance will be slower. Countering this might be improvements by the entrants in terms of convenience, time saved, reliability, and predictability. Availability in the form of distribution and pricing might also cause acceleration.

Does technical innovation always end in displacement/replacement?

The professions being challenged include physicians, lawyers, consultants, and analysts. Algorithms and sensors could conceivably displace some subset. However, it's not a certainty. One way to fend off automation displacement is to redefine and change the scope of the profession.

The classic example is from the birth of the Industrial Revolution. As machines replaced certain tasks, new jobs were created which required higher skills and hence education, leading to universal matriculation and eventually the popularity of higher education. Professionals need to "invent" new jobs for themselves as a means to keep disruption at bay.

Do you think this spread of software-based investment management is more likely to have a positive or negative impact on investor protection?

This is more difficult to answer. Algorithms have some unintended side effects. When all investors use the same "best algorithm," it's possible to sabotage the market by exploiting the absence of randomness in actions. Diversity of opinion might be a key assumption in the algorithm, which might turn out to be false if there is only one opinion—that of the robot.

How will software-based investment management affect investor protection?

Algorithmic investment might go the way of HFT and boom, but it also may lead to pitfalls and setbacks. If trust is lost in the systems, we might see a delay in widespread adoption. Financial "innovations" tend to go through boom/bust cycles where new instruments are abused and lead to chaotic outcomes. Unfortunately, chaos is hard to predict.

Generally, I'm very worried about "financial innovation." Finance is a fragile construct of society. It depends too much on flimsy assumptions about how markets work. Black swans lurk there.

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"The Asset Manager's Dilemma: How Smart Beta Is Disrupting the Investment Management Industry," *Financial Analysts Journal* (January/February 2016) [www.cfapubs.org]

"Is Your Portfolio Ready for an Invasion of Disruptive Technologies?" *Enterprising Investor* (5 May 2015) [blogs.cfainstitute.org/investor]

"A View to the Future: Changes in the Investment Industry," *Enterprising Investor* (28 April 2015) [blogs.cfainstitute.org/investor]