INTRODUCTION

- Def'n: firms using techn to disrupt FS.
- Think about how tech has changed the way we shop, drive, communicate, get our entertainment. It's starting to impact financial services like it's already hit those industries. In 5 years, this industry will look very different.
- I'll provide my perspective on where the FinTech space is going, and along the way highlight some regulatory issues that might prevent us from getting there. Then we'll throw it open for discussion.
    - But heads-up that I'm not a securities lawyer, so the overlap between regulation and fintech trends is one that you'll have to fill in yourselves. I'll just point you in some interesting directions.

FINTECH OVERVIEW

- There are many different lenses through which to view the FinTech space. Here's the one I like best. It's not comprehensive, but it covers the vast majority of what we care about.
- Five verticals; I'll briefly discuss what's happening in each of the five, but the two messages I hope come across are the breadth of the disruption that's on the horizon, and how regulation isn't ready for it (I'll highlight one regulatory issue per vertical):
    1. Alternative Funding Platforms
    2. Digital wallets and payments
    3. Transfers and remittance
    4. Retail investing and personal finance (including robo-advisors)
    5. Cryptocurrencies

  These aren't comprehensive (e.g., InsurTech is ignored). They're supported by new underlying technologies like
    - Blockchain
    - Data sciences
    - Crowdsourcing

  Let's not get the underlying technologies confused with the applications that will revolutionize financial services.
- **AFPs:** Provide funding and liquidity outside of the banking channel…in the shadows. The disruption here is about providing capital to those who don't currently have access.
    - Some do this through ***peer-to-peer platforms,*** like Lending Club, Prosper and SoFi, who are all creating a marketplace that brings together individual lenders and individual borrowers.
    - Some are building ***crowdsourced*** platforms like Kickstarter and CircleUp.
        - E.g., Sammy couldn't have done a roadshow (120 people, $7200 versus $2500 goal for Exosuit, and IronMan-like powered exo-skeleton).

      No investor talks, no roadshows, no presentation decks, no bank involvement… again, opening up funding to a previously excluded market.
    - Some are using data sciences to assess and price ***granular risks***, like Avant, Earnest and ZestFinance. All these us DS to evaluate and offer small loans that banks would typically avoid.

  - This vertical will have the biggest economic impact of the verticals (Fed study from last month, showing the good LendingClub is doing; SMB has always been the engine of growth for US economy). Maybe that's why it's the area of the biggest turf battles amongst the regulators. More later in this talk.
- **Digital wallets and payments.** Soon, you won't carry a wallet.
  - First wave of disruption (payments) is already here, and it's revolutionized how we shop. Think PayPal. We all shop differently as a result; opened up online shopping.
  - Second wave of disruption (digital wallet) is happening as we speak. (remove cards/cash from my wallet as I walk through these)
    - Digital key replaced hotel keycard; ApplePay at bike store; Sent $35 to rowing club hostess with Venmo; United card in Apple Wallet; Paid for tube by touching in with smartphone; Family photos; Starbucks...

    Anyone know what I'm left with? Driver's license. But that's coming too…in 2050. If that's all there was, it'd be interesting but not a big deal. But this is only the beginning…Blockchain allows digital wallet to include stock share records, etc., eventually allowing us to trade securities w/o Wall Street. I can trade stocks with you directly, selling to you at whatever price we agree on. That's big.
  - Regulatory issue: Opens up cybersecurity and data protection risks that must be overseen by someone.
- **Transfers and Remittance.** One example is transferring money abroad … difficult.
  - Talk through how we went through this last year with Ryan in Vancouver...first transfer got retail rate, second went through our banker to the institutional FX trading desk. Lots of emails with lots of people on the email chain. Complicated.
    - But identical to 35 years ago when I moved here from Canada, except then it was telephone instead of email.
  - But that was last year. This year, TransferWise gives us Peer2P FX transactions, eliminating the middleman…no more FR talking to correspondent banks talking to RBS, each taking their 1% cut. Banks will lose the 3% retail spread.
  - Ripple uses its own cryptocurrency to facilitate international FX transfers.
  - Regulatory issue: If I can transfer money for a YVR condo on Ripple or TransferWise, what about AML…couldn't the Gambino family do that too? And which regulator should oversee this?
- **Retail investing and personal finance**
  - *Investors*: Motif and Quantopian, who crowdsource investment strategies. (investments side of our industry)
  - *Aggregators*: LearnVest, Mint, Personal Capital combine all ccards, banking and investments into one app, aggregates (data side of our industry) [compare this to PMing, where rule #1 is to "know what you own."]
  - *Robo-advisors*: Wealthfront, Betterment, FutureAdvisor, Financial Engines, and the biggest of them all, Vanguard (advisory side of our industry)
  - Soon they'll all blend together. Yesterday's robos provided asset allocation and rebalancing advice. Tomorrow's robos will use data sciences to analyze us, then prescribe and implement security-level robo advice that accounts for our assets, liabilities, risk tolerance, expertise, habits (both conscious and unconscious), etc.

    - Today, the key to success is still customer acquisition, which depends on user experience. After market matures, investment content will become equally important.
  - Of the five verticals, this is most at risk of being shaken up. Add fee compression, add shift from active to exposures, add regulatory pressures, and this industry won't look the same in five years.
    - Highlights a key regulatory issue: At current pace of regulatory reform, these firms will either be unregulated or regulated by the same laws as BLK. Both options are bad.

Cryptocurrencies: ("digital currencies") Anyone know how many there are? Over 200!! (Robeco, p7)

  - Regulatory issue #1: With digital currencies, who controls the money supply? Are we taking away our best economic policy tool? What's next?
  - #2: Of course, we all know that Bitcoin was created by the Gambino family, for the Gambino family. How will we manage AML issues? And can a digital currency even be regulated?

BEFORE LOOKING CLOSER AT REGULATION, LET'S GO BACK TO THE 50K FOOT LEVEL FOR A QUICK FORECAST:

- To identify winners, you only have to go back to the last FinTech revolution in the late 1990s (online and internet banking, HFT, algorithmic trading). Lots of financial startups, but winners in that revolution were established players (Wells, BofA, BLK, Citi). Do you really think…
  - Motif can go it alone? They need Franklin to buy them, at which point Franklin becomes the winner..
  - Vanguard would sit back and let Financial Engines take over the 401k market? They partnered a long time ago. So Vanguard's the winner. Similarly, BLK bought Future Advisor a couple of years ago.
  - Prosper (or any P2P) can build sufficient scale (network effects) without a partnership with a BlackRock? So BLK is the winner.
  - Pluribus Labs (and 80 other data science companies) can sell the same alpha to multiple firms after their models have been proven? No, they need a different business model – to be acquired by a big asset manager – to monetize their capabilities. That's why P-Labs sold to GGC. GGC is the winner.
  - The correspondent banks will just sit back and let TransferWise put them out of business?
- Losers? Retail investors, who typically overvalue growth of the sexy new segments. And FinTech certainly qualifies.

BUT in the end, the winners and losers will be determined by how government regulators apply laws that may go back a hundred years or more. So let's turn to that…

REGULATORY LANDSCAPE

Three points to make:

1. Confusion reigns, favoring incumbents
2. US is behind, and falling further behind.
3. Recommended path

Confusion reigns: I'm so confused that I don't know where to start…

- Start with the *philosophical question* about whether FinTech is a financial company or an IT service provider. And the answer depends on whether you're a regulator or "regulatee~~regulate~~," an incumbent or startup.
- *Who regulates this space anyway?* Everyone wants to have a say:
  - Fed Reserve Board
  - Financial Industry Regulatory Authority
  - SEC
  - FDIC
  - Consumer Financial Protection Bureau
  - 50 state regulators.

  At least for banks (who also have multiple regulators) there's clarity about who's responsible. Not so for FinTech. Issue isn't multiple regulators, it's confusion caused by multiple regulators who all want to have a say.
  - So when the OCC announces plans to introduce special charter that would move P2P shadow banks under their regulatory umbrella, making them subject to federal banking rules, does it even mean anything for Lending Clubs of the world? (Launched a turf war amongst US and state regulators; FinTechs stayed quiet.)~~.~~
- *How close can a fintech get to a regulated activity* before it invites the wrath of the watchdogs?
  - *Retail investing and personal finance:* You think you're just offering investment information, but the SEC sees it as unlicensed financial advice.
  - *Alternative funding platforms:* You create a start-up to facilitate crowdfunding, until a regulator bans it as the illegal sale of unregistered securities. (SEC in 2008 tried this on Prosper and Lending Club. Recently Congress forced SEC to streamline rules for investment-oriented crowdfunding.)
  - *Cryptocurrencies:* Bitcoin and other payment innovators are already under the gun – are they alternative forms of currency or fronts for electronic money laundering?
  - As the FinTechs get bigger, the incumbents complain and the burdens become barriers.
- *Lack of global coordination:* On the Internet-based AFPs, it's just as easy to lend/ borrow/ invest globally as it is from neighbors. But laws regulating lending practices are local and complex. So until banking regulations are rationalized across borders, we'll have to accept things like (a) forum shopping for the softest regulator and (b) unethical practices (e.g., discriminatory lending).
- *Summary: Confusion reigns.* But don't expect a coherent fintech policy…too many vested interests, on the regulators side and the financial services side and the FinTech side.

US is behind

- 2016 UK Treasury report: CA's Dep't of Financial Oversight and NY's Dep't of Financial Services both have a heavier regulatory hand on FinTech startups than any other FinTech country (UK, SNG, Ger, Aus, HK). Following perhaps related issues push us to bottom:
  - Confusion (above)
  - Lack of initiatives to support FinTechs…or even to engage with them
  - Command and control regulatory environment, vs supportive environment
- Everyone else is adjusting regulations to promote the rise of FinTech, even EU, China, India. E.g., look at what EU has done:
  - *Payments space:* EU overhauled laws related to payment services to benefit startups (takes effect 2018…startups can access customer's banking info, in return for regulation about data protection…makes online payments, aggregators, etc. legit…also allows consumers to bypass the banking sector).

  So one of the developed world's worst regulatory environments (Brexit comment) has recognized need to soften, and is acting on it. Yet nothing like that happening in US.
- Not to say *nothing* good is happening. You've got Rep. Patrick McHenry's Financial Services Innovation Act of 2016, but it's stuck in committee. Might be there until next administration.

Solution

- Various goals: (1) Protect consumer, while (2) encouraging innovation (doesn't have to be either/or). Do this by (3) creating certainty/clarity.
- Integrating FinTech into current regulatory regime is a mistake. It fails (3) above…our~~Our~~ regime is too unwieldy…fragmented. Last thing FinTech firms need is this uncertainty.
  - Current regulators would need to collaborate to make current system work (OCC report)…and that ain't gonna happen.
- Gold standard – Learn from the UK FCA's "Project Innovate" (2014) approach to support FinTech & integrate it under a common set of regulatory expectations. What'd they do?
  - Designate a primary regulator for financial innovation
  - This entity coordinates the regulation across regulatory branches
  - Regulators should support new entrants and business models. Useful tool:
    - Sandbox: Allow for "regulatory beta testing" period in which data is gathered while firm is exempt from regulation, to facilitate better regulatory rules. (like a medical clinical trial…experiment with human lives in less-regulated environment while gathering data. If we can do this with human lives, we should be able to do it with human pocketbooks.)

  Singapore and Australia and Ireland have followed UK's Innovation Hub lead…why not the US?

[Aside: next time, include an example of a FinTech that's taking advantage of the UK's sandbox…even better if it's one that left the US in order to do this in the UK. Or comparable firms in the US and UK, but one with better regulatory environment.]

REFERENCE ONLY…NOT PART OF PRESENTATION

Blockchain

- Amara's Law: We tend to overestimate the effect of a new technology in the SR and underestimate the effect in the LR.
- In SR, benefits are efficiency gains. If that was all there was, it'd be worth it. But gains are much bigger than that. Simply by registering shares on a blockchain, you also get
    - Faster settlement
    - Increased liquidity
    - Corruption resistance
        - Insider trading
        - Backdating
        - Managers pledging shares as collateral
        - Contested proxy votes
        - Empty voting
        - KYC and AML
    - And other things we keep hearing about
        - Trading in private companies
        - International money transfers
        - Cryptocurrencies
- But let's bring the real world into the discussion, using post-trade settlement as the case study. Reasons the SR impact will be muted:
    - The path from here to there will be difficult, expensive and slow. Use analogy of whole world driving on same side of the road.
        - Trade settlement and reconciliation would be a vast, multi-year and industry-wide project, with multiple (divergent and different) stakeholders involved, each with their own agendas
        - Some benefit a little (me), some benefit a lot (BLK, lower costs) and some go out of business (custodians). So it's not even clear who'd pay for the investment costs to change the system-wide plumbing.
    - No reason to overcome the inertia. It's been t+3 for 20+ years, and business case to move to t+0 hasn't been made. Hence no BC consortium in asset management (like R3 CEV in banking) yet.
- Bottom line is that you should expect the applications to be evolutionary not disruptive, with a steady path of innovation. BLK will react at its own speed, without worrying about falling behind. No need to hurry, and no need to develop it themselves.
- And that's Amara's law...impact in SR is overstated and impact in LR is understated.
- Likely winner in financial services is a permissioned blockchain, in which a consortium of banks maintains the ledger while giving access to regulators. Maybe regulators decide who's permissioned and who's not…that could be the key power they have.
    - E.g., R3 CEV consortium of 42 banks seeking to create a BC standard in cooperation with regulators
    - No consortium in asset management yet. BLK should create it, with exchanges and custodians.

INTERESTING FINTECH STARTUPS

- **FundBox:** B2B payments. Get a 30-day advance on your outstanding invoices.
- **Stripe:** Facilitates online and in-app payments, with a simple customer interface
- **Square:** That device that connects to an iPhone and allows merchants to take credit cards. Key is mobile payments.
- **Braintree:** Online and mobile payments processor that allows one-click transfers, e.g. for Uber and AirBnB.
- **SoFi:** Social Finance
- **Avant:** uses DS on 10k inputs to better measure credit risks of small individual loans (avg size $8k) that banks won't grant.
- **Earnest:** ditto, but allows user to target a monthly payment by varying length of loan
- **ZestFinance:** ditto, offers loans to JD.com shoppers in China
- **Vouch:** Allows friends and family to co-sign (min of $110) for a loan, thereby giving loan access to people with bad credit
- **WealthFront:** If >$100k you can buy an SP500 tax-loss harvesting basket. Avg account $90k.
- **Betterment:** 100k users, avg of $25k each
- **Quantopian:** CS quant models, invests in them. Best algos added to the Quantopian hedge fund.
- **Fundrise:** CS for commercial real estate. Accredited investors can invest in any deal on the platform.
- **Estimise:** Crowd-sourced earnings estimates
- **EquityZen:** Matches pre-IPO employee who needs liquidity with accredited investor who want exposure to the pre-IPO company
- **Motif:** Crowd-sourced theme-based portfolios
- **Chain.com**: Builds tools that exploit blockchain for enterprises that don't want to build themselves. E.g., built the BC tool for Nasdaq that allows trading in private companies.