Technology & Banking

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# Project Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Company</th>
<th>Background</th>
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<tbody>
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<td>Distributed Systems</td>
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<tr>
<td>Vicky Xu</td>
<td>VMware</td>
<td>Virtualization, Cloud</td>
</tr>
</tbody>
</table>
Disrupting retail banks

- Bank of America
- Citi
- JPMorgan Chase
- Wells Fargo

- Commercial Banks
- Central Banks
- Investment Banks

Retail banks
Credit Unions
Savings and Loans
Sweden Is Going To Be The First Country In The World Completely Free Of Cash

CONSUMER AFFAIRS

New technology threatens old banking institutions
Accenture survey suggests younger generation more open to alternative banking options

The Tech Trends That Could Help Apple Pay Disrupt Banking

The Verge

PayPal who? Dwolla is the most daring digital payment startup you've never heard of
The company kills the fees and delays of the old system, but can't fully escape it yet

Bank Economists Warn Crowdfunding Will Disrupt Banking

Bloomberg

Real Estate Crowdfunding Firm Seeks Lending Revolution
Banks feel pressure to upgrade digital banking experience
Neobanks, Moneyhawks forcing disruption in traditional services
What do banks do?

- Lending
- Payments
- Customer Engagement
- Customer money management
How technology is disrupting banks

- Credit will be more cheaper and accessible
- Bank branches will cease to exist
- Payments will shift to pure mobile transaction
- Customer money management will be online only
Lending
Peer-to-peer (P2P) lending

- Direct online market for unsecured loans
- Efficiency: 4% better than banks
- Major players
  - LendingClub (USA, $5B)
  - Prosper (USA, $1.5B)
  - Zopa, Lenddo, Kiva, ...
Accurate risk assessment

• Old: FICO credit score (automated)
  • expensive, inaccurate, poor predictive power
• New: social networks, character-based assessments
Payments
Credit card payment model

1. Present Card for Payment
2. Check Balance
3. Check Balance
4. Balance Status
5. Balance Status
6. Accept / Reject Payment

2.4% (total)

1.8%

0.6%

Fees

Issuer

Acquirer

Cardholder

Merchant

VISA
Threat: New Payment Enablers

By 2022 Non-Cash Transactions to top $700 T
Bank Revenue to top $1.1 T
25% of total bank revenue

Evolutionary threat
- IT competitors take an increasing part of issuer/acquirer fees
- New payments are attractive to customers, e.g. “pay-at-the-rack”
- Lower costs, decreased fees

Revolutionary threat
- New IT-formed banks (e.g. Amazon) replace the payments structure entirely
Threat: payment model is replaced

- Direct customer-to-merchant payments
  - Bypasses conventional network with multiple layers
- Dwolla fees:
  - No charge for <$10 transactions
  - $0.25/transaction otherwise
Customer Engagement
Customer Engagement: Purpose & Trends

• Purpose
  – Customer Acquisition
  – Advisory Services
  – Financial Transactions
  – Problem Solving
  – Brand and Trust

• Trends

From whom did you buy financial services products in the last year?

Higher-margin products

<table>
<thead>
<tr>
<th>Financial Product</th>
<th>Primary Bank</th>
<th>Other Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Checking</td>
<td>90%</td>
<td>10%</td>
</tr>
<tr>
<td>Savings</td>
<td>80%</td>
<td>20%</td>
</tr>
<tr>
<td>CDs</td>
<td>70%</td>
<td>30%</td>
</tr>
<tr>
<td>HELOCs</td>
<td>60%</td>
<td>40%</td>
</tr>
<tr>
<td>Money Market</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>Personal Loan</td>
<td>40%</td>
<td>60%</td>
</tr>
<tr>
<td>College Loan</td>
<td>30%</td>
<td>70%</td>
</tr>
<tr>
<td>Credit Card</td>
<td>20%</td>
<td>80%</td>
</tr>
<tr>
<td>Private Banking</td>
<td>10%</td>
<td>90%</td>
</tr>
<tr>
<td>Mortgage</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>Auto Loan</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>Retirement</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>Student Loan</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>Life Insurance</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>Brokerage</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>Auto Insurance</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>P&amp;C Insurance</td>
<td>0%</td>
<td>100%</td>
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</table>

Primary bank

[Image: Cartoon showing the importance of customer satisfaction and financial strategies]
Customer Engagement: Disruptions

- Cost of Branch Banking: $50B/yr for 25 banks in US
  - Changing Cost/Value creates ripe environment for disruptions; by banks and new entrants
- Game Changer: “How do I find and serve customers?” → “How do customers find me and my services in real-time where, when, and how they want?”
- Disruptors
  - Money Transfer
  - Mobile Only Bank
  - Social Banking
  - Xaction & Money Mgmt
  - Social Investment Network
  - Lending
Customer Money Management
External threat: Mobile money

• Emerging markets
  – “Unbanked” vast majority -- 2.5 B adults
  – Gates Foundation: Access to financial services key to reducing poverty

• Opportunity
  – “Mobile money” system already under way, in parallel to banking
    • Bank-like services: payment, savings, credit, remittance, insurance
  – Mobile subscriptions = 4 x bank accounts
  – Mobile often only infrastructure, especially in rural areas
  – So far, cooperation with banks

• Threat
  – System with huge scale invades developed markets
  – No space for 2 parallel systems
  – Direct competition
Neo-banks: Future of banking?

- Extension of fast growing pre-paid debit card business
  - US Gov will use prepaid cards for $120 B in benefits by 2017
- Deviate from traditional banks
  - No branches. Web and mobile based. Low friction
- Streamlined, low cost day-to-day banking experience, transparent fees
  - Checking account, credit card, even checks
- US neo-banks, already 9% share
  - Bluebird / American Express
  - GoBank / chartered bank
  - Moven / wholesale partners
  - Simple / wholesale partners
Future trends
Who will benefit from Bitcoin

- Merchants can retain more margin
- Can reach more customers, including those countries without sophisticated banking system

Transform traditional industry, enabling content industry to allow articles to be published instead of magazines

- Who should be concerned
  - Banks who rely solely on charging fees
Growing pains with Bitcoin

• Perception that Bitcoin is associated with illegitimate transaction
• Trading of bitcoin itself is very speculative
  – Will Bitcoin ever be a stable currency to replace dollar?
  – Is it elastic enough to implement monetary policy?
• Irreversible: how to fix errors & mistakes?
  – Still need escrow company to manually intervene
• Slow speed, can take between 10 minutes to 1 hour for the transaction to happen.
Threats summary

• Lending
  • Neo-lenders will significantly erode, but not replace, bank lending
  • Mortgages are not (currently) under threat

• Disintermediated Customer Engagement
  • Neo-banks take market shares from banks with reduced costs and good enough services
  • Customer engagement is unbundled; customer open to financial services from many channels when, how, and where she wants it

• Customer Money management
  • Mobile money already took off, especially in emerging markets

• Payments
  • Nimble, secure money transfer networks to enable instant transfers
  • Technology innovators own the digital experience/interface for payments

• Currency
  • Digital currency (bitcoin) further removes friction in the payment system, especially in the international transactions
Conclusion

• Banks have the money. Other industries want it
• Threats from various industries, leveraging their strengths: internet, social, mobile etc.
• What can banks do?
  • Ignore -- lose revenue streams over time
  • Adapt -- co-opt threats, turning them into new growth opportunities
  • Fight back -- use regulation to blunt threats