

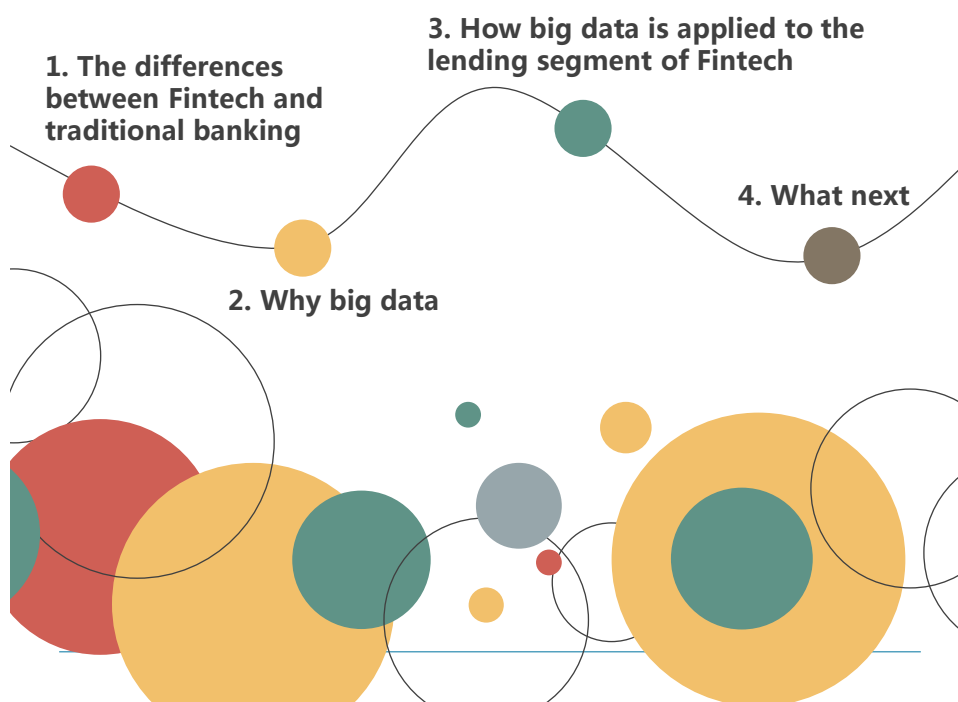


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Can good clients be found? Use big data to improve the credit risk model

Presenter: Cynthia Yuan
Peggy Liang

May 2017





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The Differences Between Fintech and Traditional Banking

Fintech is Coming

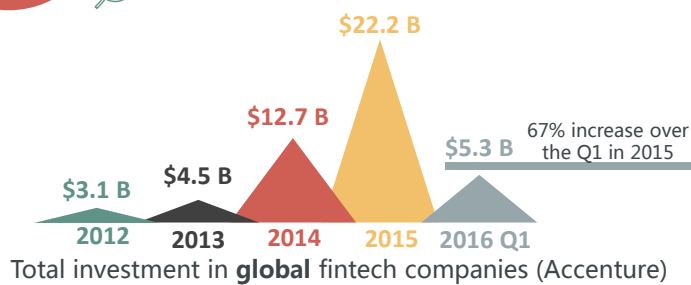


"Silicon Valley is coming"

—JP Morgan Chase CEO Jamie Dimon warned in his 2014 annual letter to shareholders

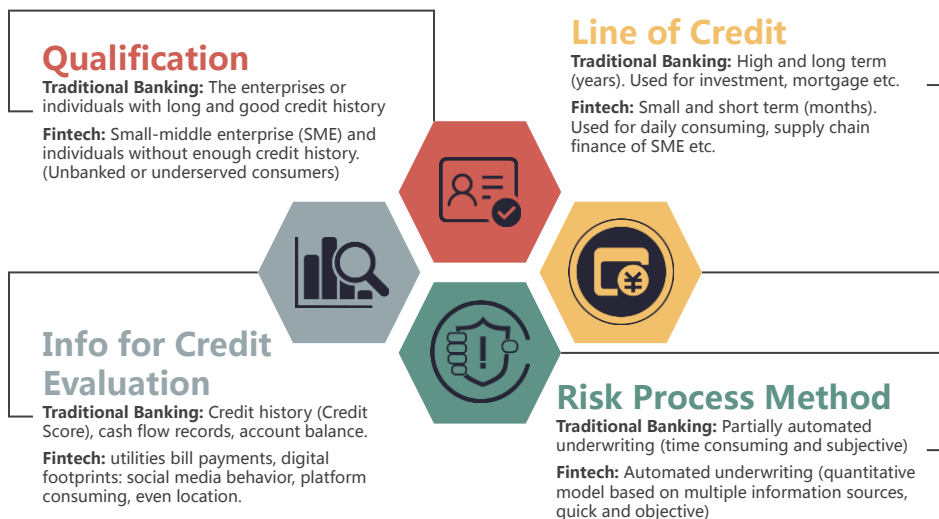


- The following presentation will focus on the lending segment of fintech



Differences in Target Customers

Fintech Lending: Big Data Small Credit



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Differences in Financial Services

"Static" products in Traditional banking.

- ✓ Product Homogeneity;
- ✓ Always Long Term;
- ✓ Single Mode of Repayment;
- ✓ Difficult to Be Diversified
- ✓ ...

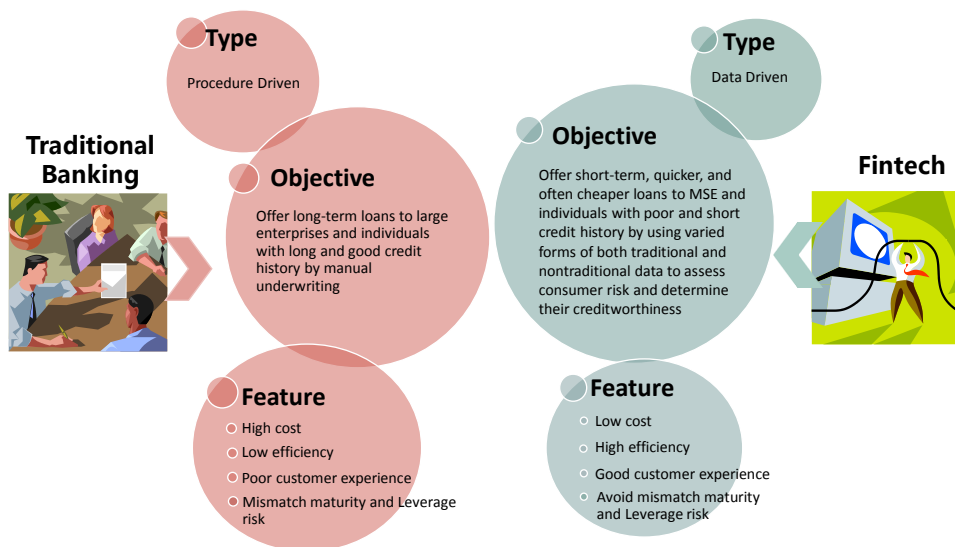


"Dynamic" products in Fintech.

- ✓ "Lower" Cost to Serve;
- ✓ Improved Customer Experience;
- ✓ Advanced Analytics;
- ✓ Customer-centric Approach
- ✓ Operational Efficiency;
- ✓ ...

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Differences in Business Driven Methods



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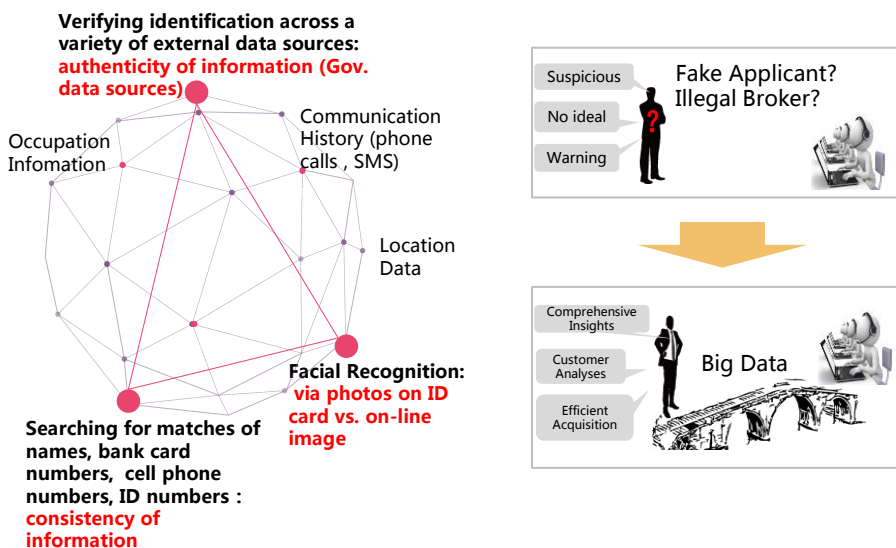


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Why Big Data

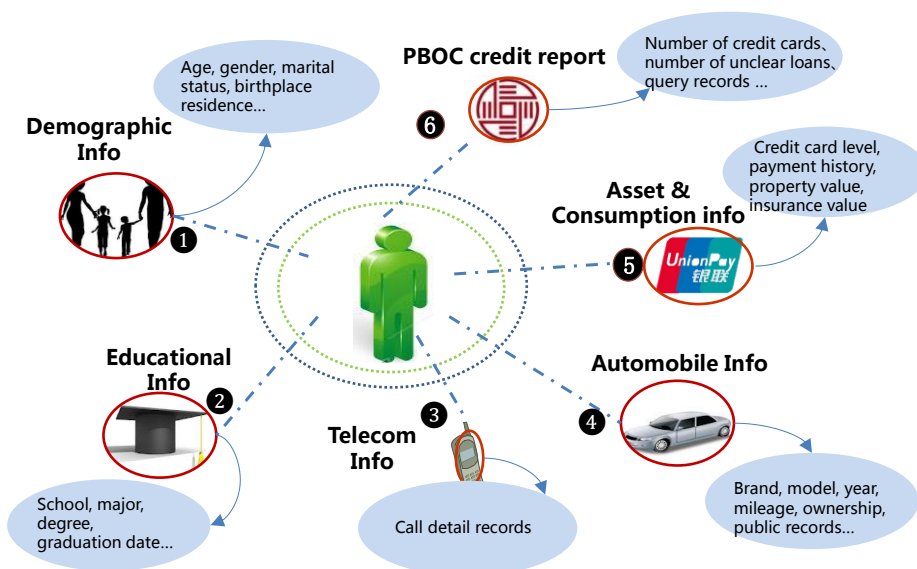


Fraud Detection-Prove You Are Yourself



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Evaluate Credit Risk-Prove You Are Credible



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Customers' Credit Profile Mining

Risk Level

- **Fraud Detection Model**
-Predict the fraud probability
- **Credit Risk Model**
-Predict credit risk of applicants



Payment Capacity

- **Income prediction model**
-Predict applicant's income level
- **Multiple asset sources**
-MPF, assets(car, house)...

Financial Behavior

- **Consumption Model**
-Evaluate applicant's purchasing power
- **Wealth Management**
-Evaluate applicant's current status of possessing financial products and insurance policies

Social Behavior

- **Living pattern tracking**
- **Social status connection**

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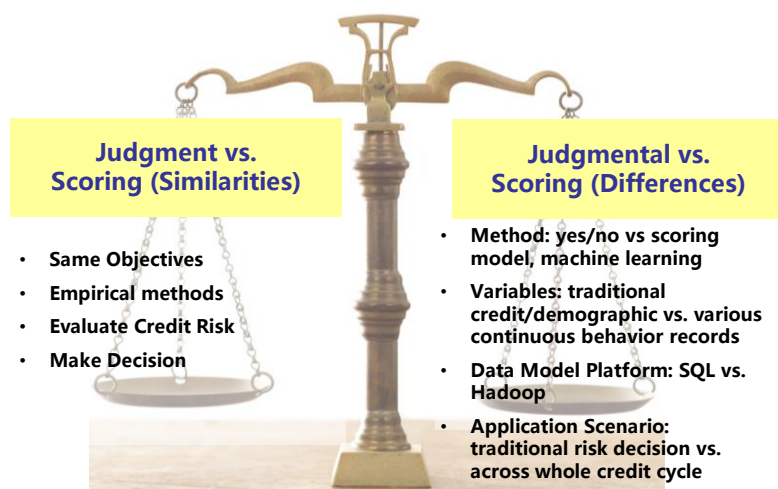


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Big Data vs Traditional Methods

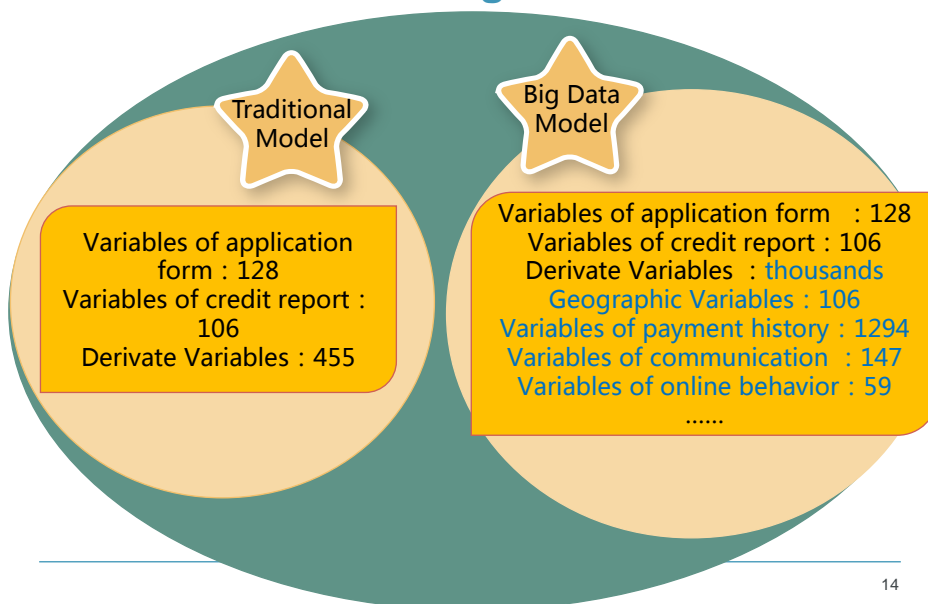


Model Development: Traditional Techniques vs. Big Data



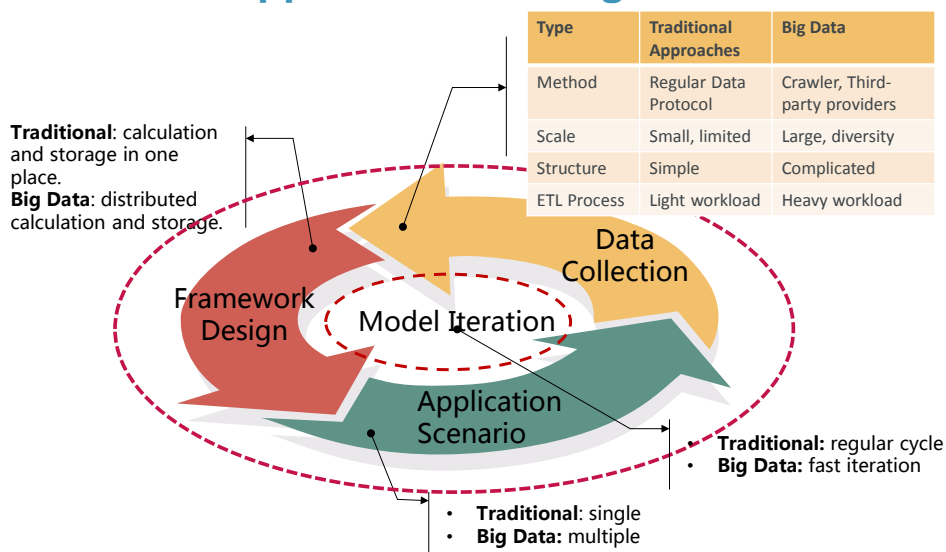
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Variables Used in the Model: Traditional Model vs. Big Data Model



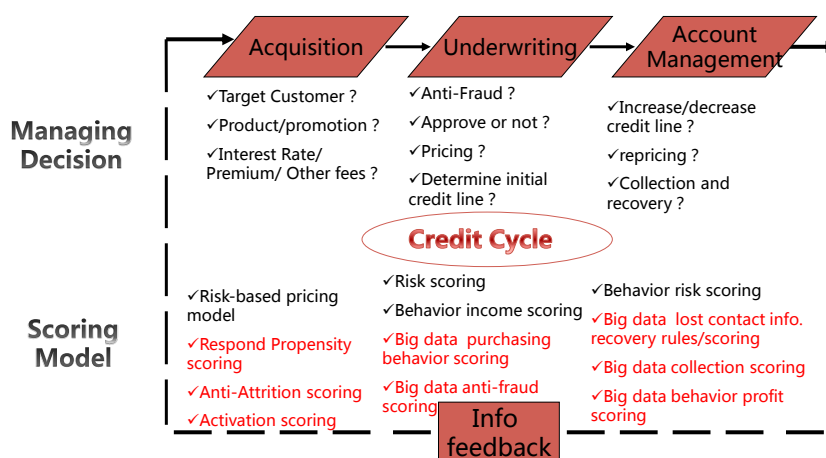
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Model Development: Traditional Approaches vs. Big Data



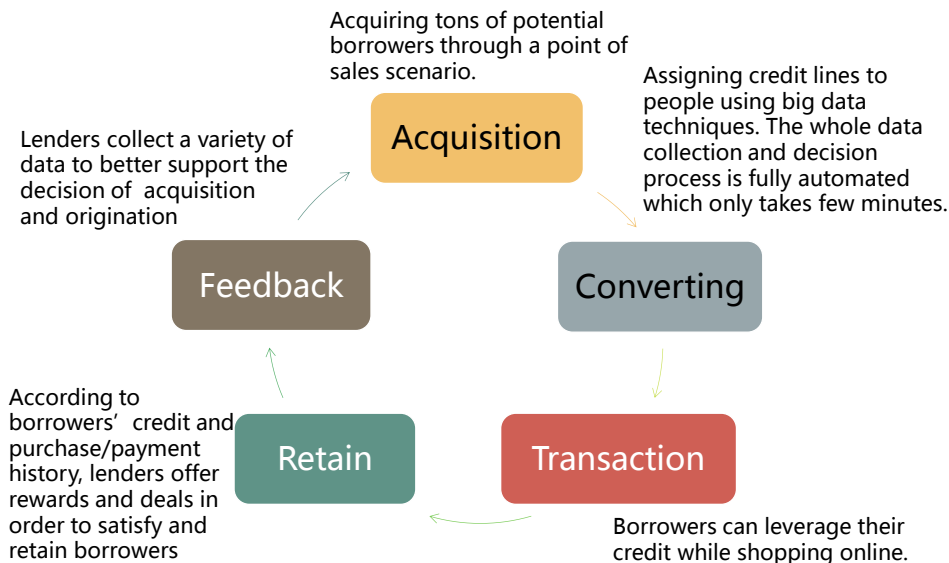
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The Advantages of Big Data in Credit Cycle Management



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O2O Mode of Personal Finance



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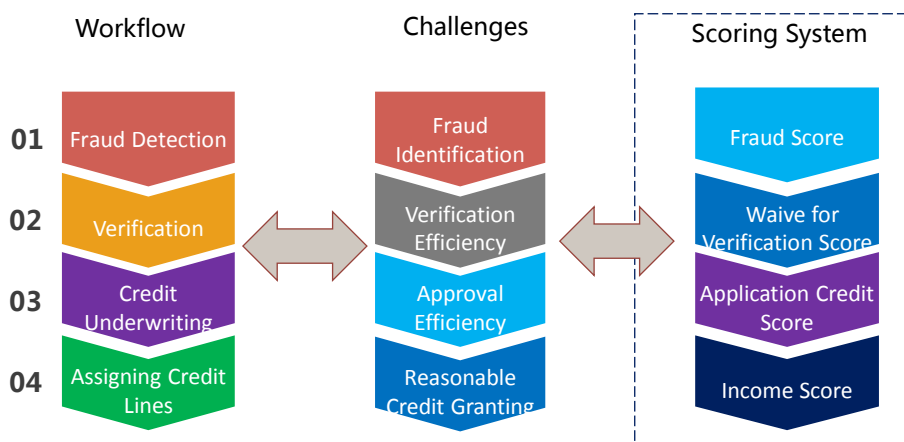
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Examples of Applying Big Data



Case 1:Credit Score Model for Consumption (POS-point of sales)

Four-Level Scoring System for Application



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Case 1:Credit Score Model for Consumption

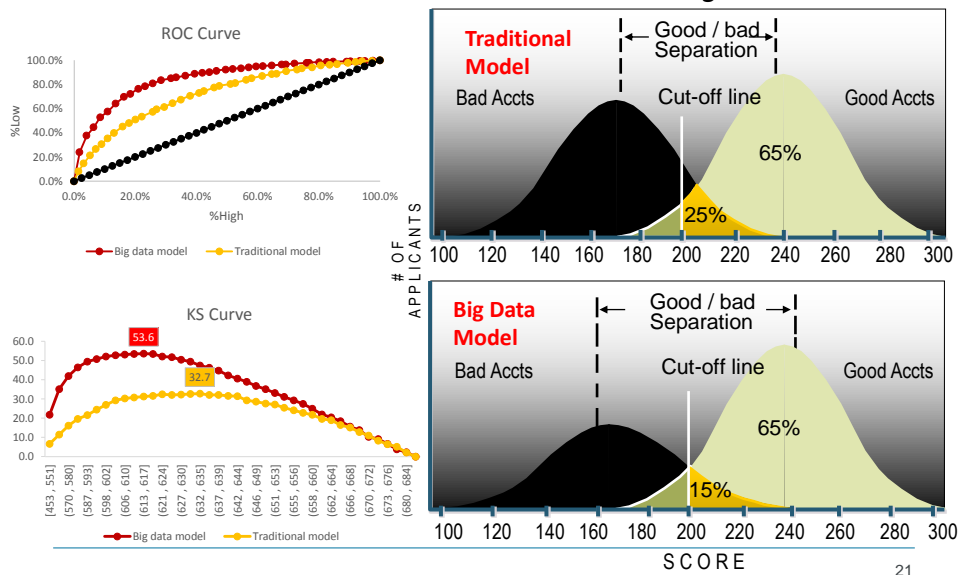
Example of Big Data Application Risk Models for Consumption

Age	18 – < 21	21 – < 25	25 – < 30	30 – < 40	40 – < 50	50 – High	Incomplete
	5	10	20	30	35	45	5
Marital Status	Single	Married	Divorced	Other	Incomplete		
	15	20	5	15	5		
# of Dependants	0	1	2	3 – 4	4 – High	Incomplete	
	15	15	35	10	5	5	
Residential Status	Own	Rent	Parents	Company	Incomplete		
	40	20	20	25	15		
Time mobile # registered	< 1	1 – < 3	3 – < 6	6 – < 10	10 – < 15	15 – High	Incomplete
	15	20	25	30	35	40	15
Occupation	Prof / Ret	Skilled	Office Staff	Unskilled	Self-Emp	Others	Incomplete
	35	30	30	15	10	30	10
Distance bet. Applicant location/branch	< .5	.5 – < 2.5	2.5 – < 5	5 – < 8	8 – High	Incomplete	
	10	20	30	35	40	10	
Time spend on complete Application	<3	3_High	Incomplete				
	30	10	10				
Home Address Fuzzy Matching	<30	30_<50	50_<80	80_High	Incomplete		
	5	10	15	20	5		

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Case 1: Application Credit Score Model

Model Performance: Traditional model VS Big data model



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Case 1: Application Credit Score Model

Approval Strategies : Revenue & Risk



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Case 1: Application Credit Score Model

Simplified Example of Initial Credit Line

Credit Score		Income Score		
		Low	Medium	High
Low		Decline	Minimum credit line	Minimum credit line
Medium		Minimum credit line	Regular credit line	Regular credit line
High		Regular credit line	High credit line	High credit line

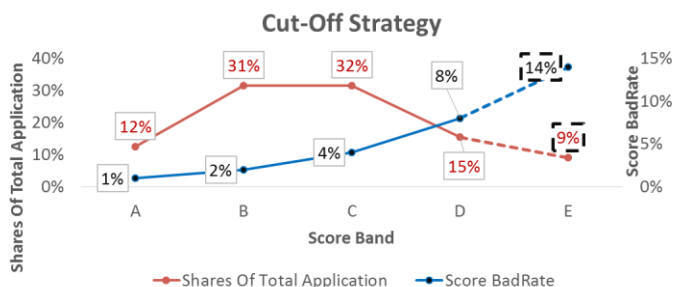
		Approval Rate	Bad Debt Rate	Revenue (A)	Credit Loss per Year (B)	profit Lift
Traditional	I	60%	4%	F(# app, 60%, line, 4%)	=# app×60%×4%×10000×100%=480 mln	/
Big Data	II	60%	2%	F(# app., 60%, line, 2%)	=# app×60%×2%×8000×100%=200 mln	280 mln
	III	85%	4%	F(# app, 85%, line, 4%)	=# app×85%×4%×8000×100%=600 mln	Rev. 55% vs Loss 25%

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Case 2 : Lending Strategy based on scoring

- ❑ **Lending Product** : Cash Loan **Tenor** : 12 mon. **Sales Channel** : off-line
- ❑ **New Score Model Implement** : March, 2016
- ❑ **Cut-off Strategy** : Cut-Off score band、add-on differentiate manual verification、credit line
- ❑ **Performance** : one year outcome period , approval rate, bad rate, underwriting cost, time-spend on underwriting

Improve Underwriting efficiency , reduce operating cost by automatically declining E score band around 3,600 app per mon., operating cost \$80 per app., in sum, reduce operating cost in 3.5 million.

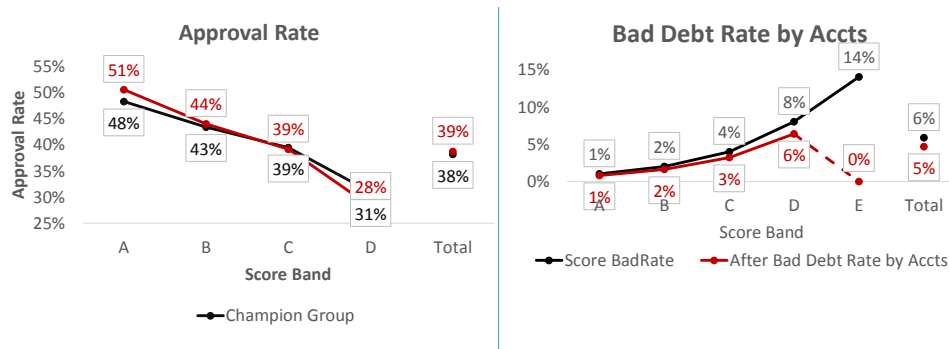


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Case 2 : Lending Strategy based on scoring

Improve approval by rules-based differentiation critical in each score band, which can increase 1% approval rate and reduce 1% account bad rate simultaneously

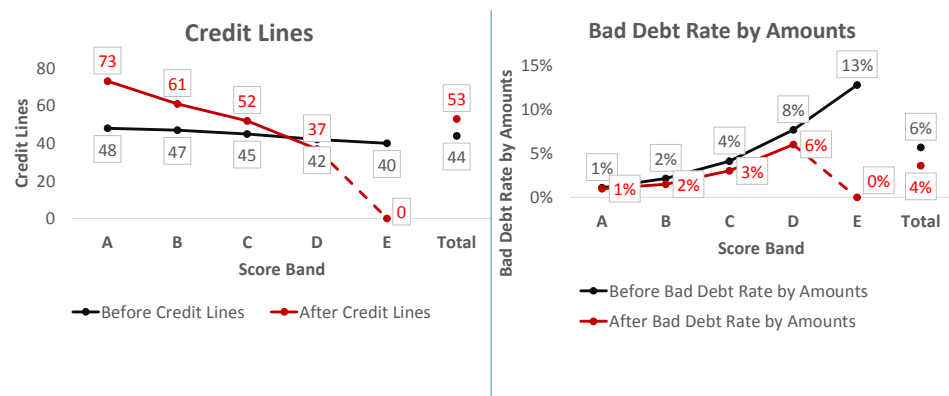
The strategy simulation is using champion vs. challenge groups in the manual underwriting process to see the impact on approval rate and bad rate.



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Case 2 : Lending Strategy based on scoring

In addition, to assign credit line based on the theory of lower risk band with higher credit line assigned, to ensure the final total outstanding weighted more one low risk account. The score-based line assignment strategy will reduce 2% bad rate finally.



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What Next

The Direction of Integrating Big Data into Fintech

Technology Driven

- Guarantee the diversity of **Decision Data**;
- Enhance advanced **technique in data architecture, mining, modeling**;
- Optimize **algorithms** and analysis methodology and techniques

Business Driven

- Enhance the application of whole cycle in **Risk Control Models** and Strategy;
- Expand **business application** scenarios by various loan products/customer profile, etc.



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Thank You

Q&A

