




Predicting Insolvency and Preventing Losses Using Transaction Analytics:

Customer Treatment in Real Time

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AGENDA

- Transaction Analytics Background
- Insolvency Growth in the United Kingdom
- Preventing Losses from Balance Build up – Case Study
- Benefit Evaluation for Transaction Analytics:
 - Prediction
 - Timing
 - Monetary Benefit
- Conclusions



Traditional Scoring Approaches



- Accounts scored at billing cycle
 - Summary data
 - Monthly totals
 - No behaviour memory

- Great results for many sections of portfolio
- What about accounts you can't score?
- Could score be better?

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What is a Transaction?



- Transaction is a time-stamped record of an event or state
 - Authorisations / settlements
 - Payments and payment reversals
 - Cycle billing
 - Collection activities
- Characteristics of transactions
 - Transaction volumes can be enormous
 - Transaction timing is irregular
 - An opportunity to change the outcome – real-time decisions

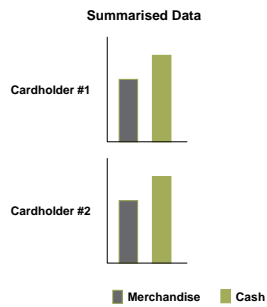
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Transaction Data Contain a Wealth of Information



LOOKING ONLY AT SUMMARISED DATA, THESE TWO CARDHOLDERS APPEAR TO HAVE SIMILAR RISK



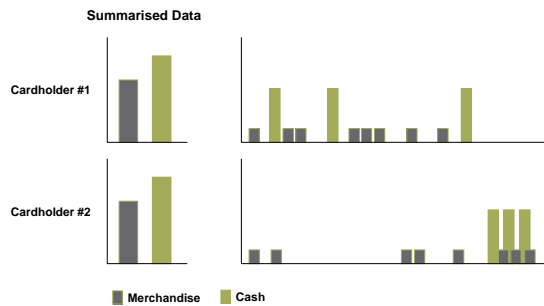
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Timing of Transactions is Vital Information



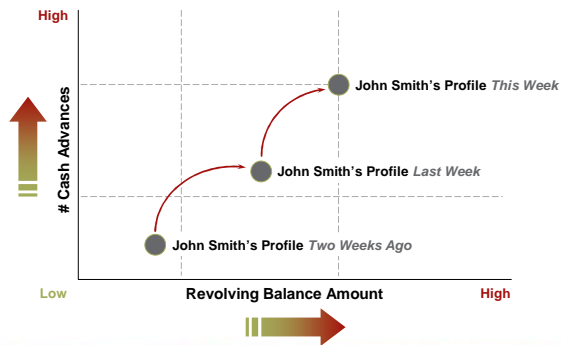
NOTE THE DIFFERENCE IN APPARENT RISK WHEN TRANSACTION DATA ARE EXAMINED



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Trending – Recognise Shifts in Individual Cardholder Behaviour



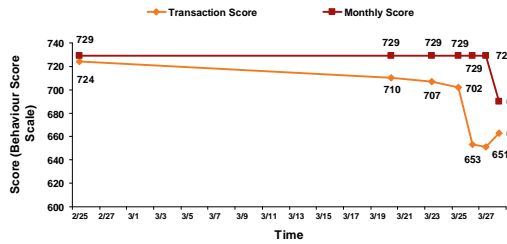
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What About Stability?



REAL DATA EXAMPLE: HOW MUCH DO SCORES CHANGE DURING A MONTH?



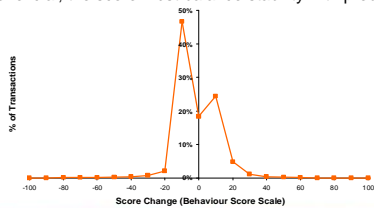
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Transaction Score Stability



- Most transactions only cause a minimal change in the score
- About 89% of transactions caused a score change of less than 10 points in either direction
- Some variation in score is good, otherwise the benefit of having transaction analytics is lost
- To be beneficial, the score must balance stability with predictive power



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Transaction Scoring Credit Risk Score vs. Traditional Behaviour Score

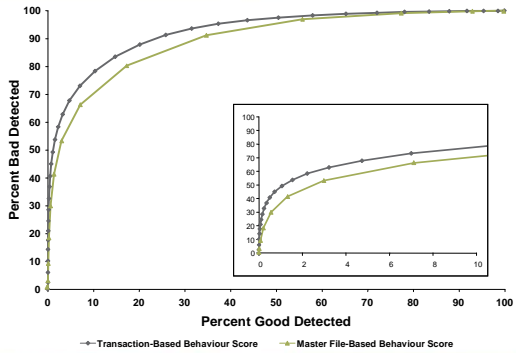


Segment	Transaction Score K-S	Monthly Score K-S	Difference K-S
Overall	66.4	61.9	4.5
Young (TOB)	59.9	48.6	11.3
Current	58.8	57.2	1.6
Delinquent	50.8	48.5	2.3
1 Cycle Delinquent	42.0	40.2	1.8
2 Cycles Delinquent	34.2	27.8	6.4

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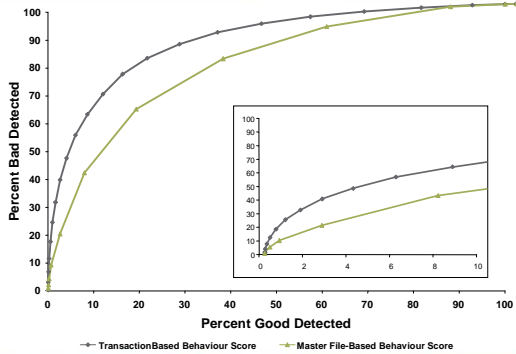
Credit Risk Model Performance Improvement



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Young (TOB) Account Segment Benefits More



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Transaction Analytics Benefits



- Transaction analytics in Customer Management decisions
 - Transaction data enables more accurate prediction
 - Transaction data yields earlier indication of performance change (even when compared at cycle time)
 - Changes in consumer profiles are more easily detected
 - More reliable inference in certain populations (e.g. young TOB)
- Scores calculated more frequently
 - With every new transaction, rather than at cycle time
 - More opportunity for customer review and contact
 - Intra-cycle calculation enables real-time customer intervention
- Score accuracy and timing should enable greater prevention of losses

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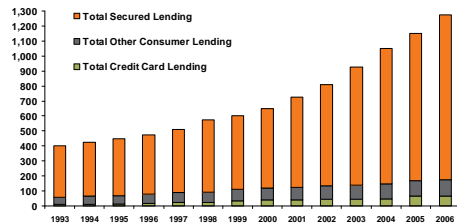
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Consumer Credit Growth in the UK



- Personal debt is at a record high. Debt is 104% of Gross Domestic Product
- The Rate of Growth slowed in 2006 for the first time in over a decade


TOTAL UK PERSONAL DEBT
£ bn




Source: Credit Action

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Case Study 

- Objectives:
 - Test the incremental power and value of transaction-based scores in identifying insolvent accounts and preventing balance build
- Quantify the benefit of using transactions data in lieu of cycle based scores
 - Cycle scores
 - used master file and payment history data
 - scored at cycle
 - Transaction scores
 - used a combination of transaction data, master file data and payment history data
 - scored after each transaction

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Data Used 

- 3 million accounts from UK credit card portfolios - contributing data had a 2.6% bad rate (representative of UK portfolios at the same time)
- BK and IVA data were not fully populated, so "Bad" was used as a proxy (includes 3+ cycle delinquent, charge-offs and BK)
- A random sample was chosen from the 3 million accounts
 - Selected sample beginning with March of 2005
 - Accounts already delinquent 2+ in March were excluded from the analysis
 - Observed accounts for a period of 8 months

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Analytical Approach



- Score thresholds were selected at scores equivalent to bad rates of 5%, 10%, 15% and 20% using a 6 month observation window
- Study assumes action is taken on the account as soon as account hits the score trigger under either scenario
 - While aggressive, the relative power comparing both approaches is indicative
- Each score threshold is independently analysed
- The score is the only trigger used
- Clearly a detailed strategy would include other characteristics, and multiple channels of intervention

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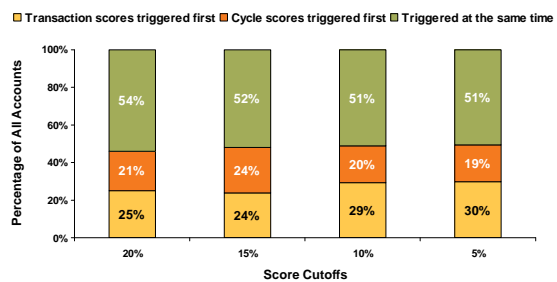
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Results – Timing to Impact



- 27% of all accounts were triggered by the transaction score first, versus 21% were triggered by the cycle score



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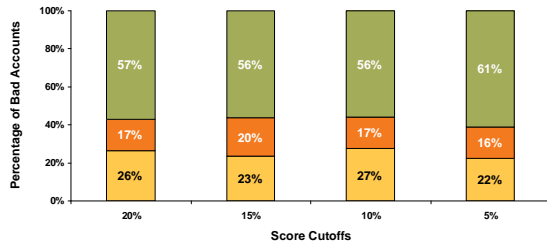
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Results – Timing to Impact Bad Accounts



- 25% of bad accounts were triggered by the transaction score first, versus 18% were triggered by the cycle score

Transaction scores triggered first | Cycle scores triggered first | Triggered at the same time



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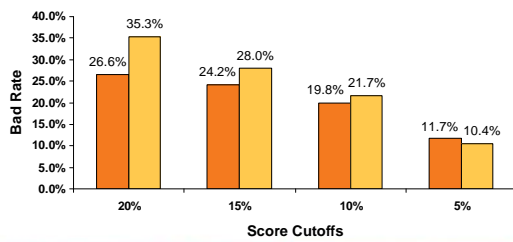
Results – Timing to Impact Bad Rates



- When triggering ahead of cycle scores, transaction scores identified riskier accounts

AVERAGE BAD RATE

Cycle scores triggered first | Transaction scores triggered first



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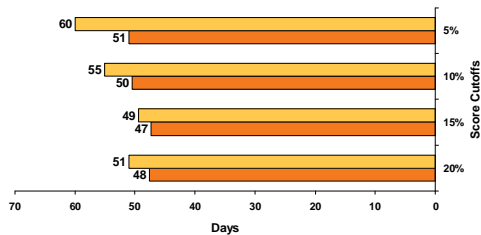
Results – Timing to Impact Timing Difference



- When transaction scores triggered first
 - bad accounts were triggered on average 54 days before the account went bad
 - On average 5 days before cycle scores

TIME FROM TRIGGER TO ACCOUNT GOING BAD

Cycle scores triggered first | Transaction scores triggered first



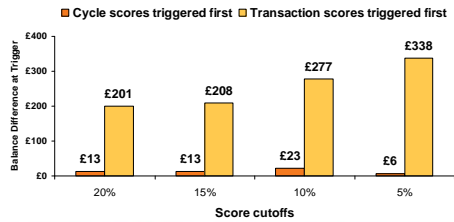
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Results – Saved Balance Build



- Although the trigger timing difference is not as significant as anticipated, the balance difference on the accounts triggered by transaction scores is
 - transaction scores saved an average balance build up of £256 per account on accounts that eventually went bad
 - When triggering ahead, cycle scores only saved an average of £14 per account



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Benefit Evaluation



THE BALANCE BUILD PREVENTED SHOWS SIGNIFICANT BENEFITS

	20%	15%	10%	5%
Balance Build Prevented per Bad Account (all bads)	£ 25.93	£ 45.03	£ 72.76	£ 112.57
Benefit per TOTAL Account	£ 5.92	£ 6.15	£ 8.02	£ 10.49
Annual Benefit for portfolio of 1,000,000 accounts	£ 5,923,118	£ 6,147,972	£ 8,017,022	£ 10,492,403

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Conclusion



- Transaction scores allow earlier and more frequent customer intervention
- At equivalent targets, Transaction Scores enabled greater balance build prevention on insolvent accounts.
- Transaction scores triggered 5 days ahead of cycle scores
 - The preventable balance build on bad accounts triggered using transaction scores was on average £256
 - Savings were £5.92 per TOTAL account scored (at 20% bad rate)
- This model was a traditional risk model. A custom built insolvency model may add significant power
- More detailed strategy and data will enable more opportunity for accurate identification and treatment

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