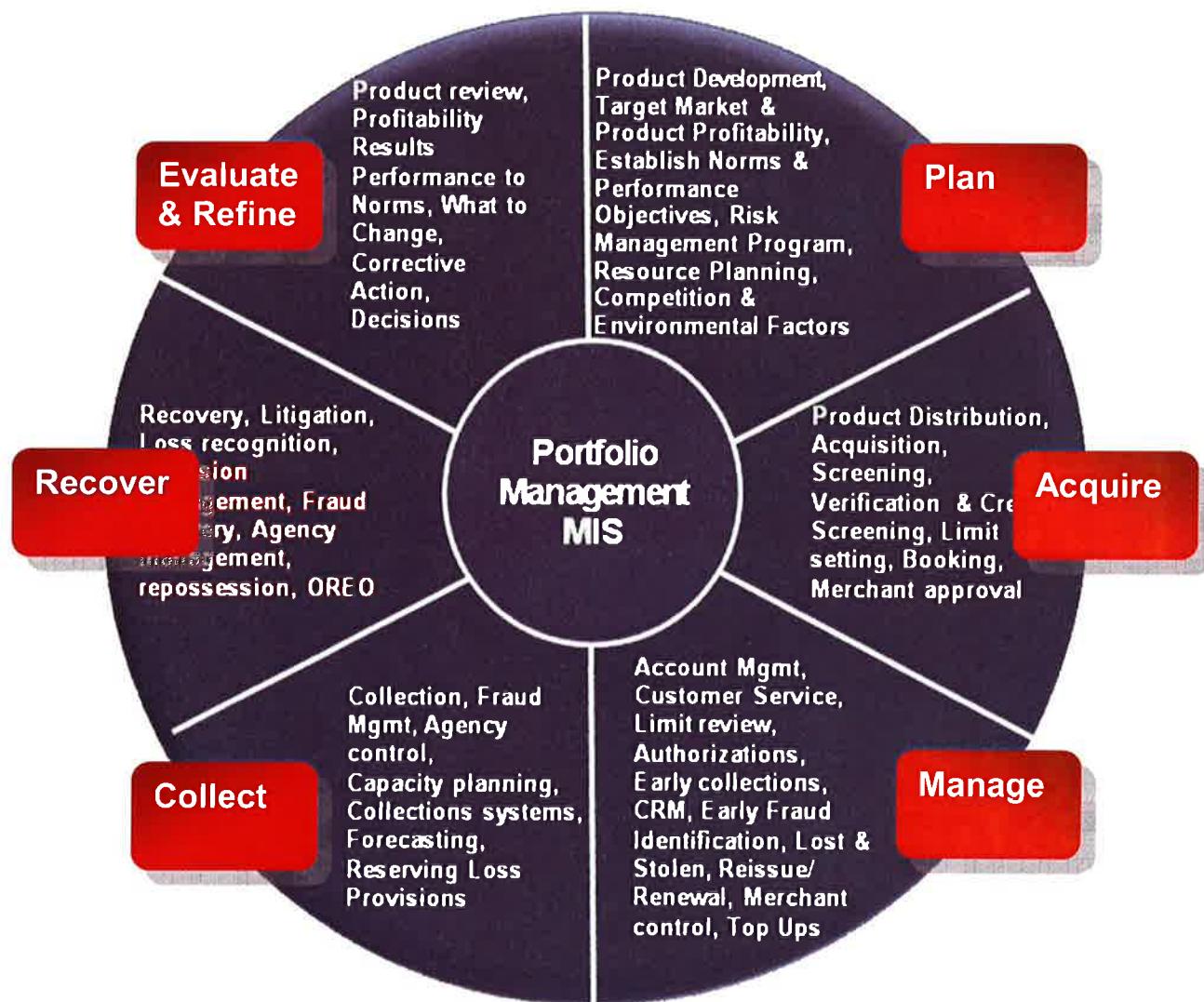


Consumer Credit & Risk



Contemporary Consumer Credit Risk Management
August 2008

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Introductions & Recent Results

Consumer Credit Culture & Policy

Data & Analytics

Plastic Card / Revolving Products

Installment Products

Credit Scoring

Consumer Product Planning

Marketing & Acquisitions

Portfolio Management

Consumer Credit & Risk

Retail Credit Management

July, 2008

HSBC 

Course Goals

- ▶ Introduce credit, loss, and profit dynamics of major retail businesses:
 - Unsecured consumer loans
 - Auto loans, Mortgages
 - Credit cards
- ▶ Transmit knowledge and tools of major risk management functions: marketing, originations, portfolio management, operations & systems
- ▶ Discover credit scoring: scorecard development, score-based strategies & management
- ▶ Learn about credit bureau data and its uses across the consumer lifecycle

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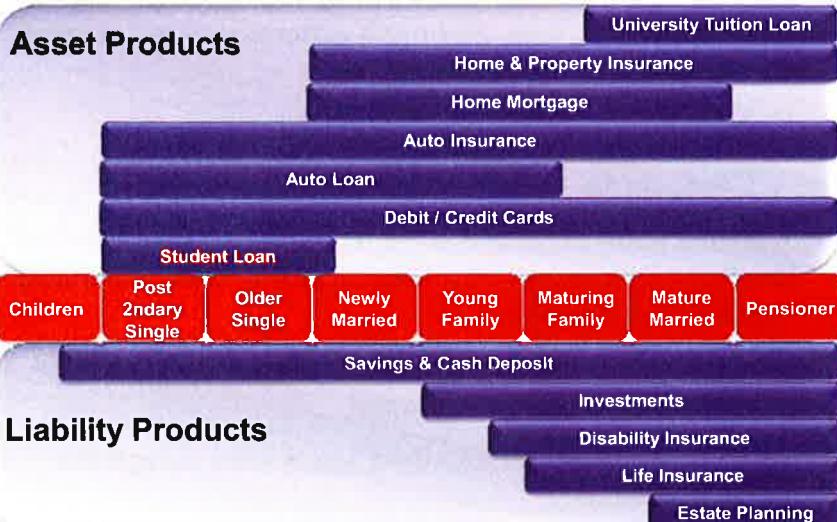
Mixed Module Learning

- ▶ Presentations
- ▶ Country Focus / Open Forum
- ▶ Team Exercises
- ▶ Application Scoring Simulation Game
- ▶ Credit Risk Management Simulation
- ▶ Satisfaction Evaluations
 - Daily
 - Final

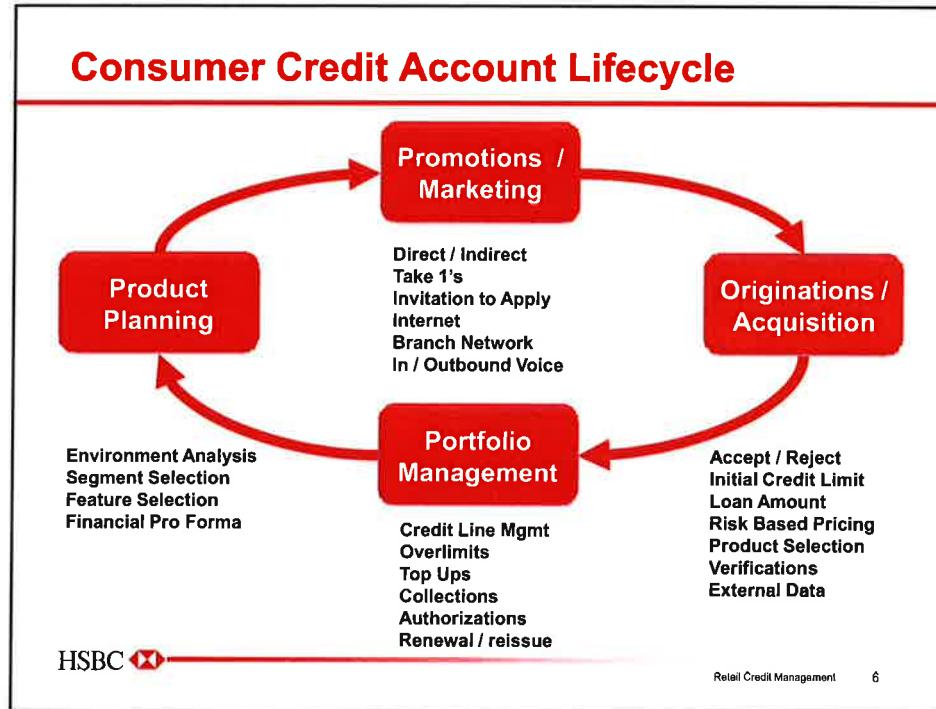
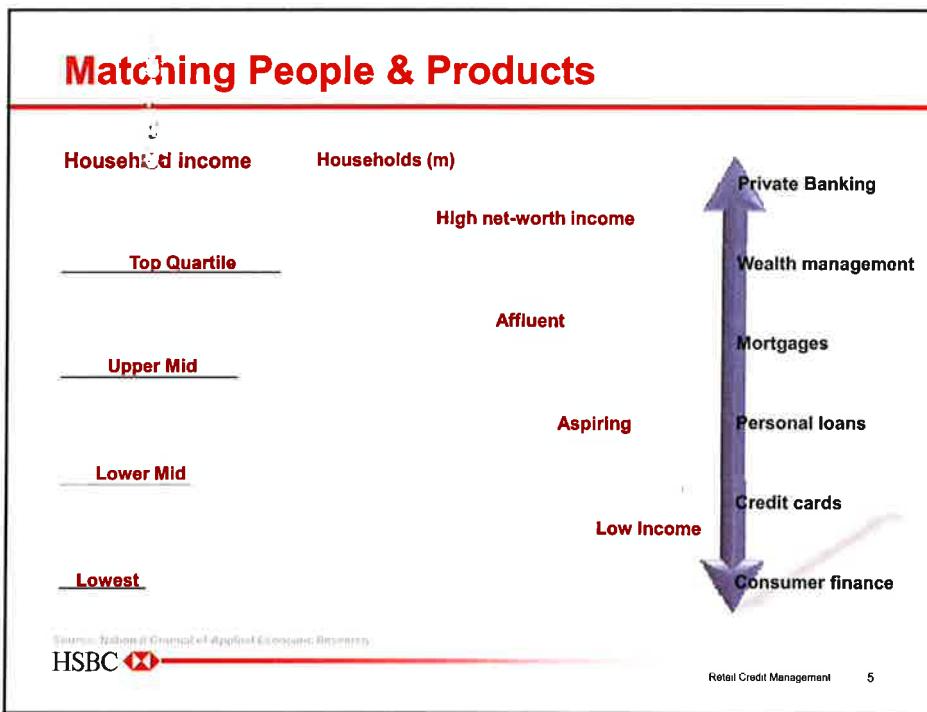
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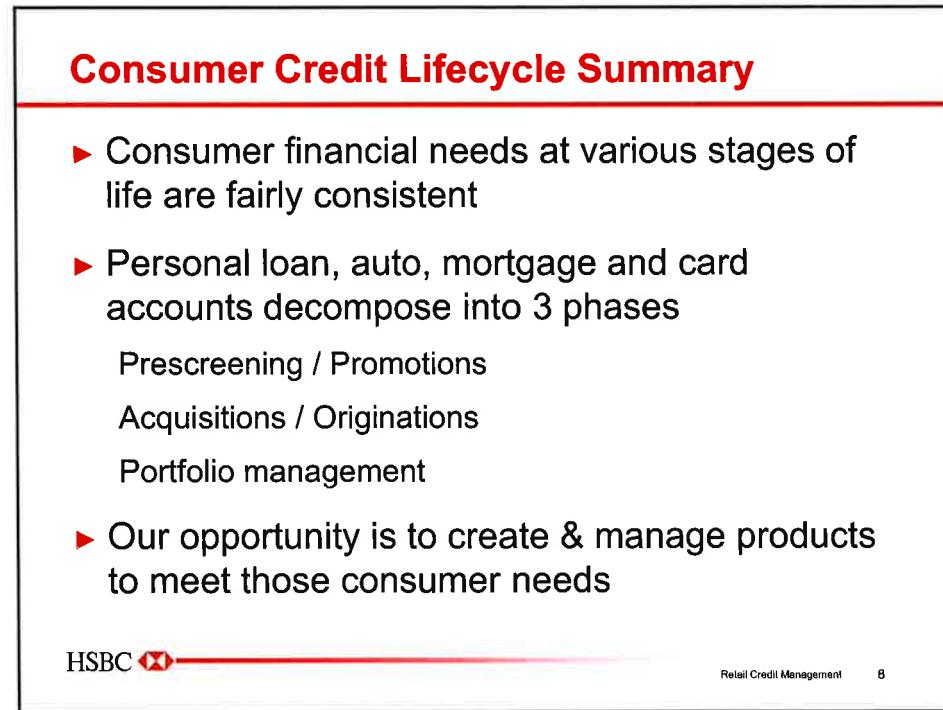
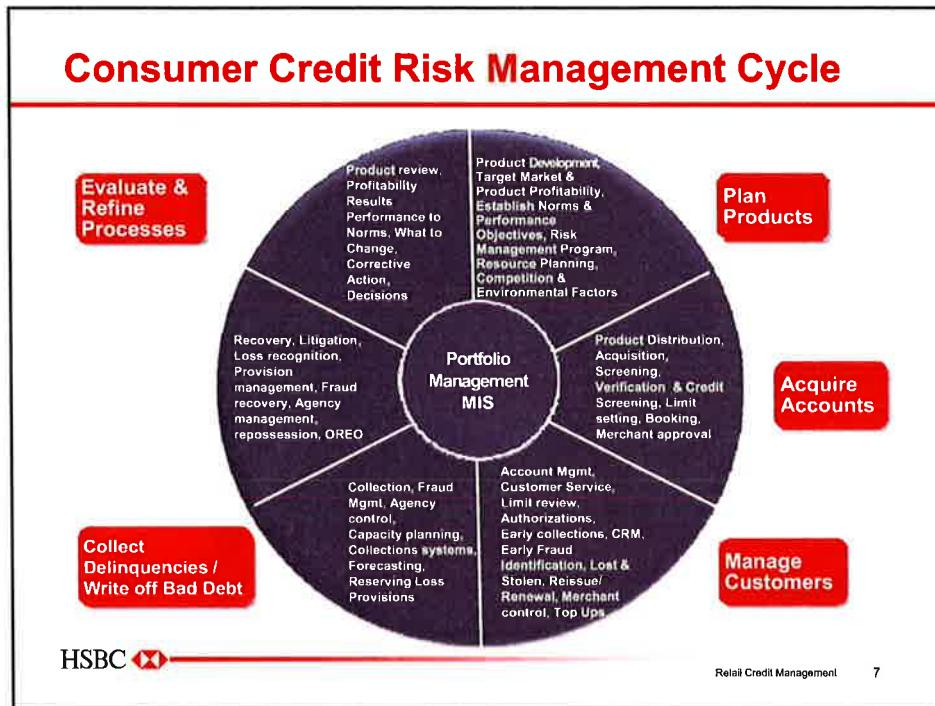
Retail Credit Management 3

Typical Consumer Financial Needs

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Retail Credit Management 4





Attendee Introductions

- ▶ Take 5 minutes
- ▶ Get to know the person on your left:
- ▶ Name, business, country, function and what they mainly do
- ▶ Any experience in credit risk & any unusual goals for the course
- ▶ What's beyond work? hobbies, children, or outside interests

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Recent Results

July, 2008

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2007 : Strategy, Progress & Outlook

- The world's leading International Emerging Markets bank

2006 Profit before tax



2007 Profit before tax



Investing primarily in faster growing and emerging markets

Mainland China

- Among first to incorporate locally in mainland China
- Built largest branch network of any international bank

Taiwan

- Acquired Challease Credit Services
- Agreed to acquire The Chinese Bank

South Korea

- Agreed to acquire 51% of KEB
- Agreed to acquire almost 50% of Hana Life Insurance Company

Vietnam

- Added further 5% to holding in Techcombank increasing it to 14%
- Acquired 10% interest in Bao Viet, the leading insurer

India

- Agreed to invest in a 26% interest in a new life insurance company



Retail Credit Management 11

Geographic & Customer Group PBT Results

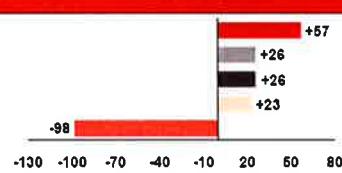
Geography



% share

- Asia Pacific (50%)
- Middle East (5%)
- Latin America (8%)
- Europe (36%)
- North America (0%)

% change 2007 vs 2006



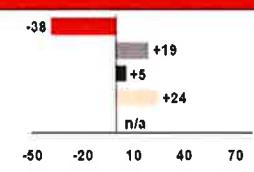
Customer group



% share

- Personal Financial Services
- Commercial Banking
- Global Banking and Markets
- Private Banking
- Other

% change 2007 vs 2006



Retail Credit Management 12

Consumer Finance offsets Strong PFS Growth

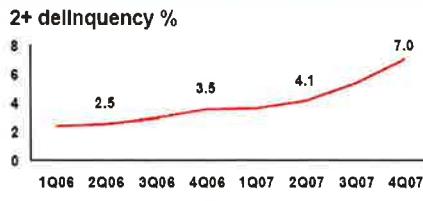
(US\$m)	2007	% chg
Net operating income before loan impairment charges	43,239	+14
Loan impairment charges	(16,172)	+63
Net operating income	27,067	-3
Total operating expenses	(21,757)	+16
Operating profit	5,310	-42
Associates and JVs	590	+55
Profit before tax	5,900	-38
Customer loans (US\$bn)	464.7	+4
Customer deposits (US\$bn)	450.1	+16

- 38% profit decline reflected exposure to US – excluding US consumer finance up 18%
- Strong 16% growth in deposit base well above customer loan growth (+4%)
- Strong growth in wealth management and sales in Hong Kong. Increased contributions from mainland China associates
- Cards in force grew strongly in emerging markets – now 26% of Group (20% in 2006)
- In UK, results affected by one-off charges. Adopted cautious stance in loan books

Credit Quality

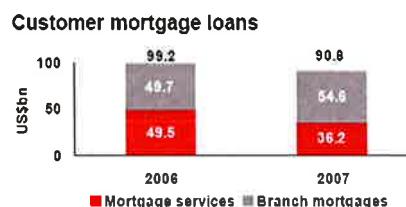
Loan impairment charges	US\$millions		As a % of avg advances	
	2006	2007	2006	2007
Personal Financial Services				
Europe	1,838	2,044	1.39	1.37
Hong Kong	119	175	0.34	0.45
Rest of Asia-Pacific	545	552	1.91	1.75
North America	6,683	11,909	3.10	5.42
Latin America	764	1,492	6.63	7.80
Total	9,949	16,172	2.36	3.53

HSBC Finance Corp. Mortgages



Actions taken

- Reduced Mortgage Services portfolio from US\$49.6bn to US\$36.2bn
- Discontinued correspondent channel acquisitions
- Terminated "Decision One" wholesale business
- Conducted loan modification and foreclosure avoidance programme
- Restructured Consumer Lending branch network
- Tightened underwriting in Consumer Lending

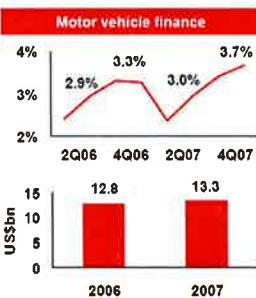
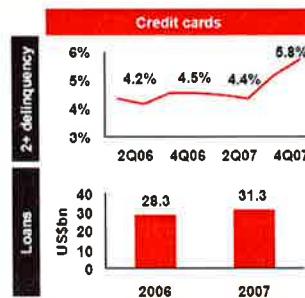


Note:
(1) IFRS management basis which includes operations in UK and Canada.



Retail Credit Management 15

HSBC Finance Corp. Other Businesses



- Actions taken**
- Slowed receivable and account growth
 - Decreased credit lines
 - Modified policies and pricing practices to enhance value and benefits for our customers
 - Integrated Card Services and Retail Services businesses

- Tightening underwriting criteria for all products
- Eliminating guaranteed direct mail loans to new customers

- Reduced new loan originations in the dealer channel
- Emphasis placed on higher credit quality in consumer direct channel

Note: (1) IFRS management basis which includes operations in UK and Canada.



Retail Credit Management 16

North America

Business mix

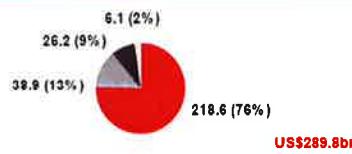
	Profit before tax, 2007, US\$m	2006	2007
Personal Financial Services	3,391	(1,546)	
Commercial Banking	967	920	
Global Banking and Markets	423	(965)	
Private Banking	114	174	
Other	(217)	1,508	
Total	4,668	91	

Growth in profit before tax (%)

2007 v 2006



Customer lending, 31 December 2007, US\$bn



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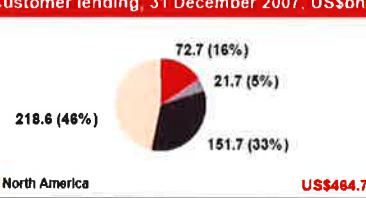
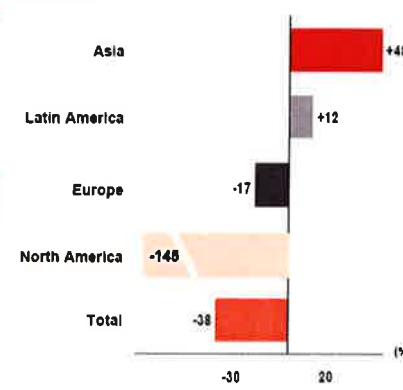
Personal Financial Services

Regional mix

	Profit before tax, 2007, US\$m	2006	2007
Asia	3,357	4,972	
Latin America	800	893	
Europe	1,909	1,581	
North America	3,391	(1,546)	
Total	9,457	6,900	

Growth in profit before tax (%)

2007 v 2006



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Retail Credit Management 18

HSBC Group

We are the world's local bank

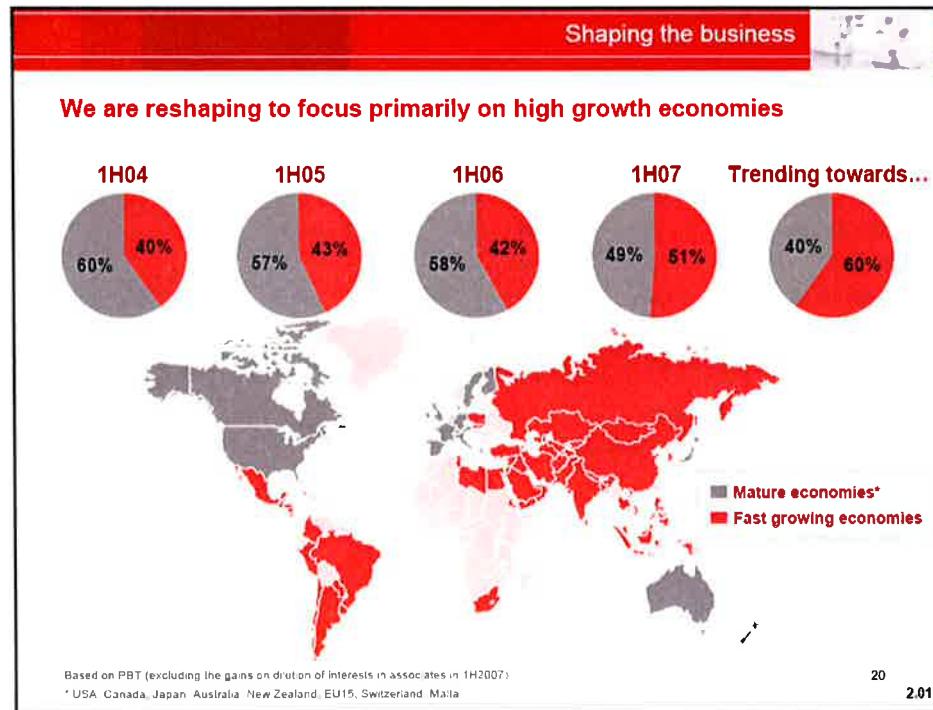
Largest international emerging markets bank

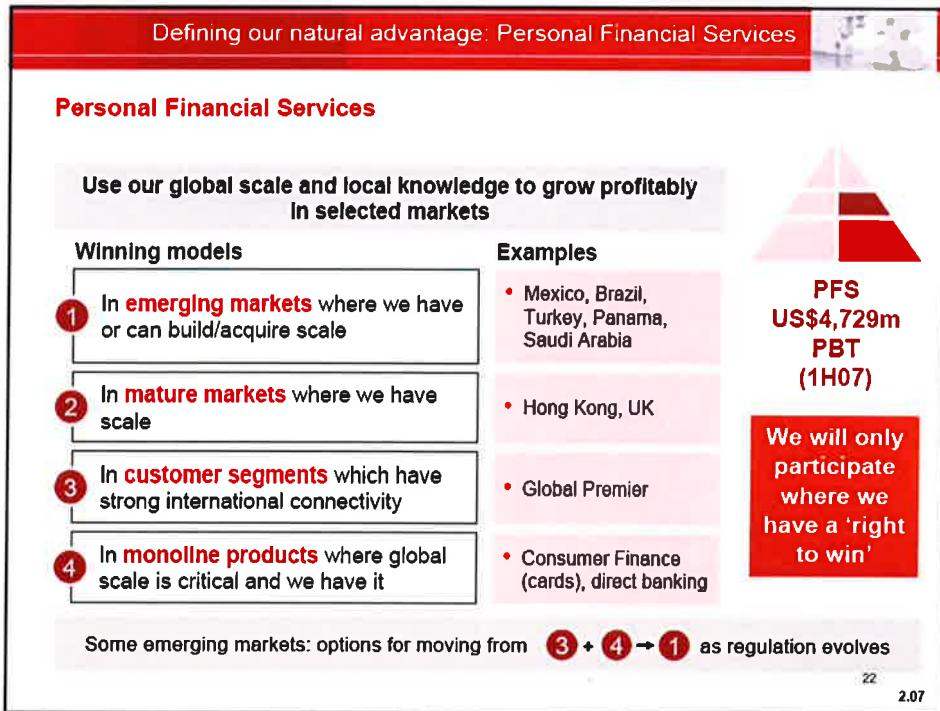
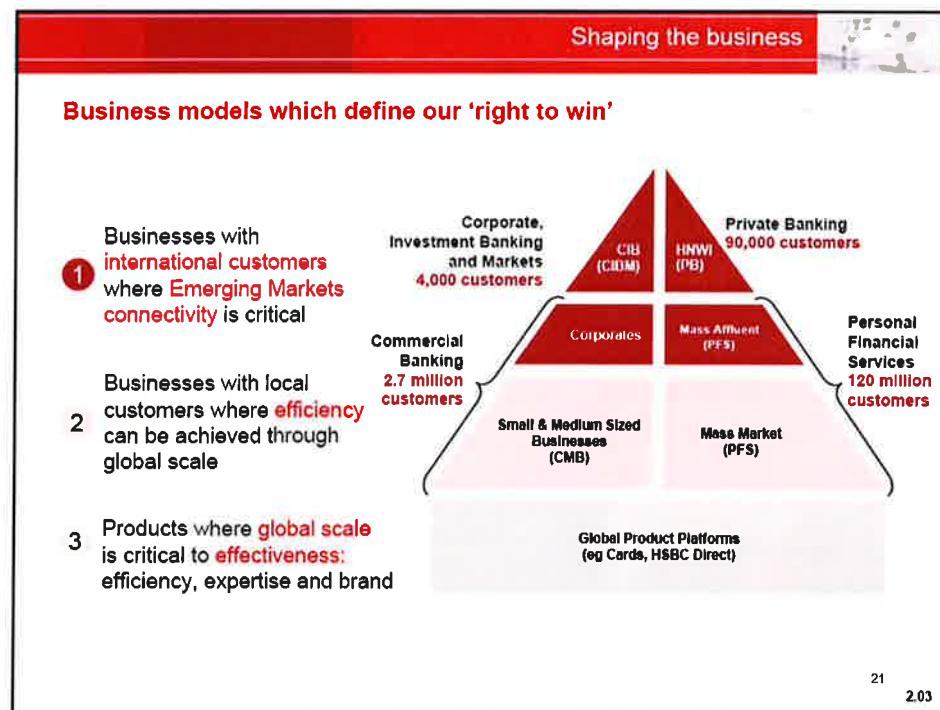
Widespread international network

Uniquely international customer base

Unquestioned financial strength

HSBC Retail Credit Management 19





PFS: scale and local knowledge to grow in selected markets

Credit cards: a leading global proposition in cards building on our global presence and scale economies

Global scale <ul style="list-style-type: none"> • 75% of cards on a global platform • Target of over 90% by end 2008 	Global distribution <ul style="list-style-type: none"> • Top five global issuer with over 120 million cards in force • Issuing in 40 countries, with cutting-edge analytics and strong marketing • 10 countries with more than one million cards, up from six countries in 2003 • Key partnerships including: <ul style="list-style-type: none"> • Marks & Spencer (UK) General Motors (USA) • Best Buy (USA, Canada, China, Mexico) • Wal-Mart through the BoCom JV (China) • Accor Hotels, Ricardo Eletro and DMA (Brazil), Delta Airlines
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Retail Credit Management 23

Global Resourcing

One of the largest 'business and knowledge entity' in financial services evolving from lift-and-shift to re-engineering

**15 Group Service Centres
in five Asian countries**

**Evolving from basic lift-and-shift work
to relocating high-end functions**

29,000+ employees

The timeline shows a progression from 1996 to the "Current" state. In 1996, GSCs handled basic functions like Cards, Consumer Finance, Credit, Care, Insurance, and Finance. By the current state, they handle complex functions like Mortgages, Operations, HR, Analytics, Payments, Trade, Securities, and Research.

Retail Credit Management 24

A Broad-based Bank, 4 Businesses

Personal Financial Services

Consumer finance will remain a core competence

Commercial Banking

International franchise & connectivity is a unique platform

Corporate Investment Banking and Markets

Emerging Markets-led and financing-focused

Private Banking

Powerful international network & connectivity with other Group businesses

Across all these businesses, we will meet our customers' protection, investment and insurance needs

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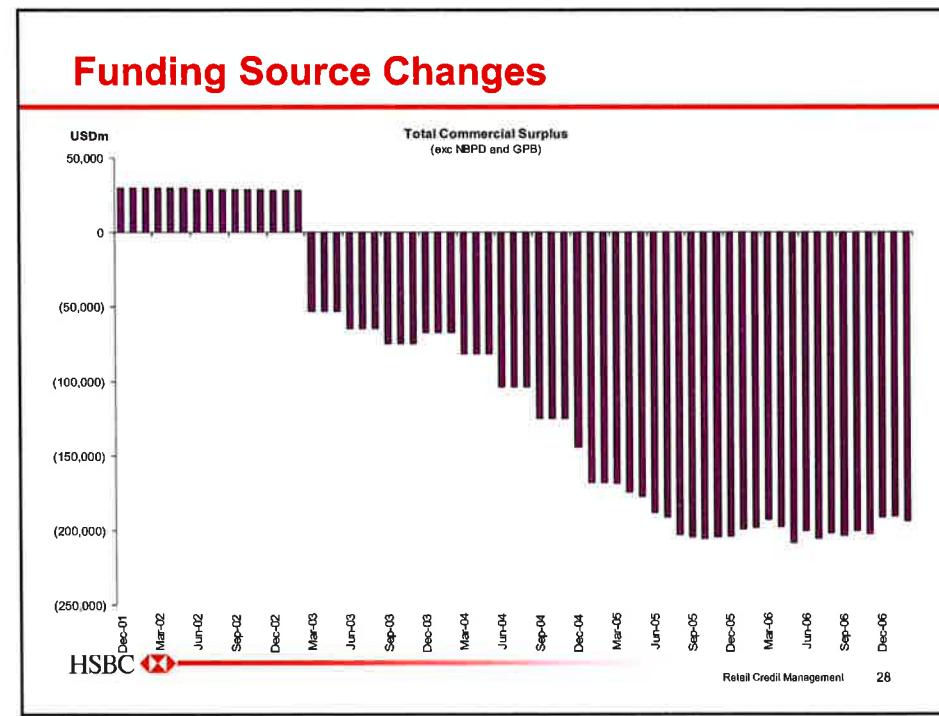
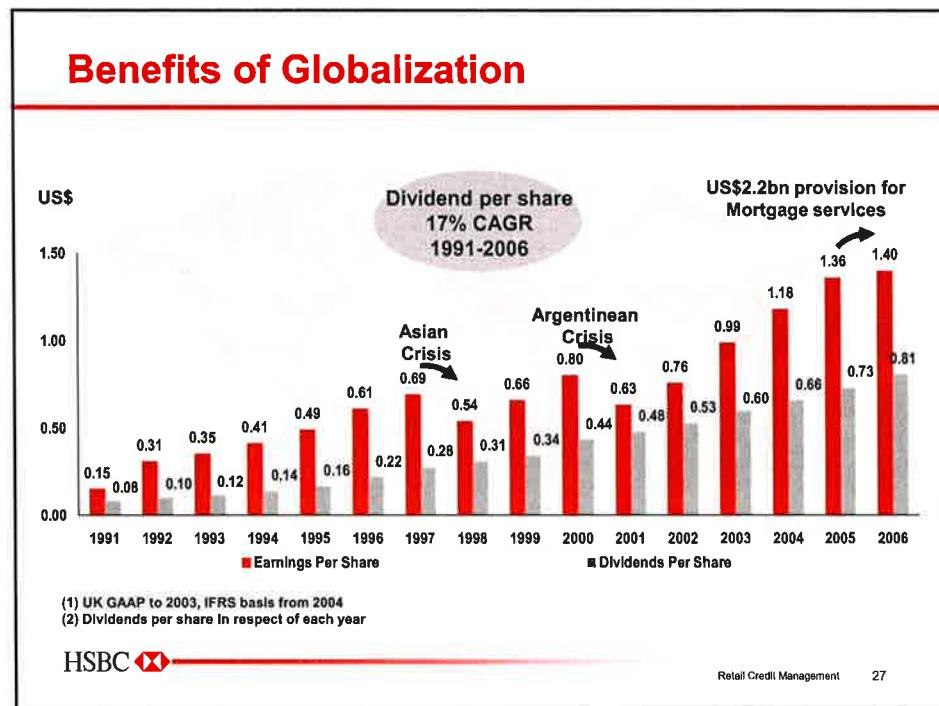
Retail Credit Management 25

Retail / Consumer Businesses

- ▶ Premier Services
- ▶ Amanah Products
- ▶ Credit Cards
- ▶ Private Label
- ▶ Real Estate Loans
- ▶ Secured / Unsecured Loans
- ▶ Insurance
- ▶ Auto Loans
- ▶ Small Business Loans

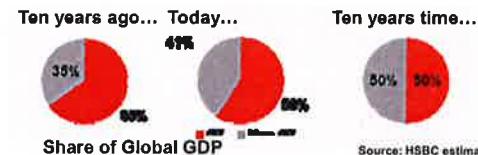
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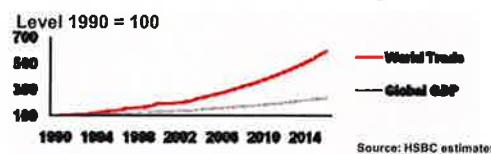


The world as we see it evolving

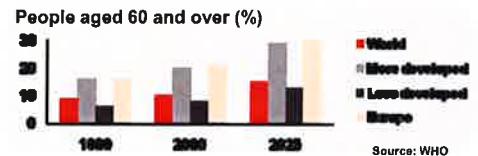
1. Emerging markets growing faster than rich countries...



2. World trade growing faster than GDP...



3. Longevity increasing virtually everywhere...

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Questions & Answers

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Retail Credit Management 30

Discovering Consumer Credit Culture

July, 2008

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Session Goals

- ▶ Introduce HSBC retail credit culture
- ▶ Understand risk management infrastructure, responsibilities and opportunities
 - Goals for the business
 - Goals for independent risk management
- ▶ Discover dimensions of credit policy that support & enhance HSBC credit culture
- ▶ Introduce selected types of automated systems critical to consumer credit risk management

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Managing for Growth

► Supported by 7 Pillars:

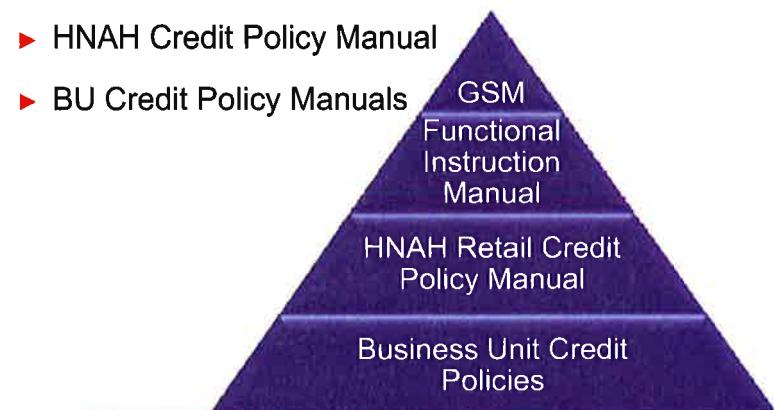
- Our Customers – Service Excellence
- Our Brand – The World's Local Bank
- Our Culture – The Best Place to Work
- Our Global Distribution – Our Global Advantage
- Our Businesses – Building for Sustained Growth
- Our Technology and Process – Joining Up the Company
- Our Organization – Guidance with Wisdom and Delegation with Confidence

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Retail Credit Management 33

Guidance with Wisdom, Delegation with Confidence

- Group Standards Manual (GSM)
- Functional Instruction Manual (FIM)
- HNAH Credit Policy Manual
- BU Credit Policy Manuals



Retail Credit Management 34

Core Consumer Credit Risk Values

- ▶ Facts, not folklore & mythology: An opinion from 15 years ago is not analysis
- ▶ Decisions based on accurate & detailed consumer segment analysis overlay judgment & experience
- ▶ Managerially: Joint Business unit / Independent risk approval for credit programs, large transactions, policy exceptions & credit tests
- ▶ HSBC Brand: Reputation critical. Local failures have global impact



Retail Credit Management 35

Pendulum of Organizational Approaches

Centralized

Well Controlled
Potentially Rigid

Dogmatic
Locally
Insensitive

Combo

Blend Local
Sensitivity with
Risk Controls

Organizationally
Complex
Can lack clarity
on responsibility

Decentralized

Locally
Sensitive
Opportunistic

Potentially
Uncontrolled
Incentive
Sensitive



Retail Credit Management 36

Consumer Credit Risk Dimensions

- ▶ Operational Planning
- ▶ Structure, Incentives, Authority & Thresholds
- ▶ Empirically managed credit programs
- ▶ Process Automation
- ▶ Management Information Systems
- ▶ Optimizing Risk & Reward

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Retail Credit Management 37

Structurally Balancing Risk & Reward

- ▶ Business units incented by growth targets
- ▶ RCM / Group Risk balances growth with strong, practical, independent function representing board & shareholders long term interests
- ▶ Checks & balances optimize long-term profitability, credit quality against growth
- ▶ Dual reporting
 - CCO's report directly to their business managers *and* to Retail Credit Management or Group Credit
- ▶ Centralize risk management functions (data & software purchase, stress testing, forecasting)

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Retail Credit Management 38

Business Unit Responsibilities

- ▶ Sustainable growth
- ▶ Business operations: attracting, booking, managing, collecting & retaining customers
 - Subject to credit authority constraints
 - Subject to loss & delinquency constraints
 - Subject to minimum ROE / ROA requirements
- ▶ Comply with national and local laws governing the business lines
- ▶ Cooperate with regulatory authorities on audits, investigations & questions
- ▶ Work with Regional / Group Credit in establishing portfolio Caps & Limits

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Retail Credit Management 39

Independent Oversight Dimensions

- ▶ Credit authority, policy & procedures – avoid data blindness
- ▶ Committees (credit, pricing)
- ▶ Credit programs (annual policy approvals)
 - Portfolio perspectives
 - Risk appetite, balance sheet, capital considerations
- ▶ Caps, limits, triggers
- ▶ Group Risk oversight of Regional Credit
 - On-site Visits
 - Risk & Portfolio Reviews
 - Reports to Group Mgmt Board & other Boards
- ▶ Monthly dashboards & reporting

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Risk Reward Program (RRP) / CEPA

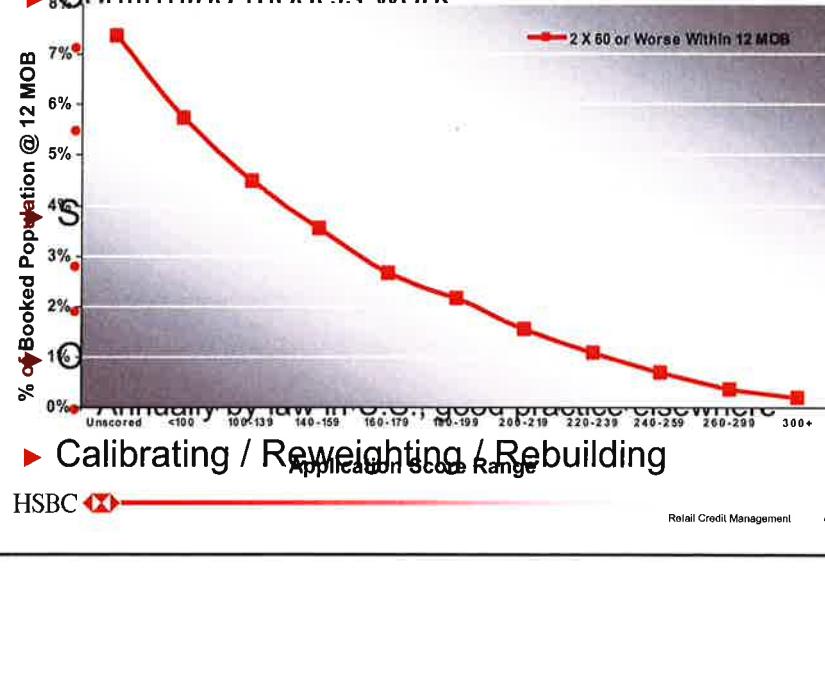
- ▶ Product offer, features, consumer value proposition
- ▶ Marketing approach & strategy within channel: direct, indirect, internet, etc.
- ▶ Risk management strategy for originations, portfolio management & collections
- ▶ Expected return in ROE over “n” years, or other profit metric (NIM, ROA, RAM, etc)
- ▶ Operational, Reputation, Market & Interest rate risk

Risk Mitigation

- ▶ Marketing / Originations
 - Targeting customer segments
 - Clear value proposition to minimize adverse selection
 - Application processing / operations planning
 - ▶ Application data / verifications
 - ▶ Credit bureau data
 - ▶ Upfront internal / external fraud checks
 - ▶ Loan amount / line assignments
- ▶ Portfolio Management
 - Behavior scoring
 - Operations management
 - Actively managing customer relationships

Model Usage

- Confirming models work



- Calibrating / Reweighting / Rebuilding

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Retail Credit Management 43

Fees, Interest & Minimum Payments

- Interest rates must be competitive to minimize reputational risk & inhibit adverse selection
- Fees upon fees is not good practice, must have perceived value to customer
- Decreasing credit lines to boost overlimit fees must be avoided
- Minimum payments should support debt paydown over 36-72 months, if regulated adhere to local rules: potentially 10-20 months
- Negative amortization should be avoided
- Would you sell our products to your Mother?

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Retail Credit Management 44

Managing Customers

- ▶ Assign credit line increases & decreases using customer behavior
 - Internal payment & utilization information
 - External payment information: credit bureau
- ▶ Identify customers likely to generate revenue
 - Low risk overlimits
 - Higher utilization customers
 - Big spending transactors
 - Fee generators: cash users, mild delinquents, overlimits
- ▶ Offer refinancing / top up / fresh money using
 - Internal payments
 - External payment information: credit bureau
- ▶ Cross sell additional HSBC products

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Retail Credit Management 45

Collecting Delinquent Customers

- ▶ Treat customers fairly, effectively & consistently through delinquency buckets
- ▶ Organize customers by delinquency level and account balances (\$, £, ¥) at risk
- ▶ Optimize collections expense vs. dollars saved
- ▶ Match strategy to collections calling capacity
- ▶ Test collections contact methods: mail, phone, email, text messages, visits, etc.
- ▶ Incent collectors to match strategy
- ▶ Understanding how / when to use collections agencies / legal actions

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Process Automation

- ▶ Automated systems & reporting integral to consumer credit:
 - Enables pool based lending & management
 - Permits scale which makes small credits possible & profitable

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Retail Credit Management 47

Complying with Laws & Regulations

- ▶ Understanding national legal environment
 - Marketing
 - Account management (credit lines)
 - Forecasting, delinquencies, capital requirements
 - Collections
- ▶ Monitoring privacy trends
- ▶ Staying in sync with regional / country sensitivities (pricing, loss recognition)
- ▶ Understanding / supporting consumer lending / data sharing transparency

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Retail Credit Management 48

Locally Sensitive: Emerging vs. Developed

► Emerging Markets

- Risk assessment and controls more policy oriented
- Less reliance on empirical scoring & credit bureaus due to larger informal economy – not digital
- Smaller credits, larger margins, more fees, FX risk
- Low volume but often rapid growth - volatility
- Shortage of retail risk skill set

► Developed world

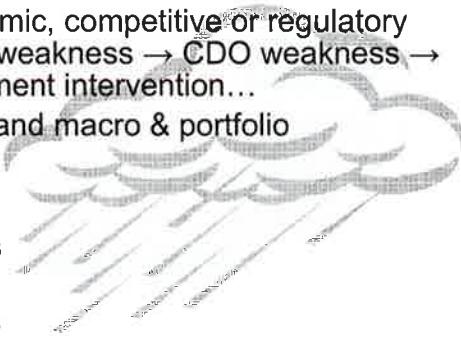
- More automated systems and empirical controls
- More formal economic activity (digital & observable)
- Larger credits, smaller margins & fees, smaller FX risk

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Adapting to A Changing World

- Expect change in economic, competitive or regulatory changes: US Subprime weakness → CDO weakness → bank failures → government intervention...
- When it comes, understand macro & portfolio implications
- Ways to respond:
 - Tighten credit policy rules
 - Raise cutoff scores
 - Block or close credit lines
 - Terminate or suspend weaker segments / dealers
 - Raise behavior cutoffs for benefits: CLI, Overlimit, Authorizations, Refinance
 - Accelerate collection calls & increase collections capacity
 - Securitize receivables

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Retail Credit Management 50

Credit Culture & Credit Policy Summary

- ▶ Operate according to Group standards
 - GSM, FIM, BIM
 - Locally sensitive, globally consistent
- ▶ Empirical approach – use customer history to maximum advantage
- ▶ Ensure people, process & infrastructure are prepared for controlled growth
- ▶ Be sensitive to regional regulatory & political concerns
- ▶ Coming soon to a meeting room near you

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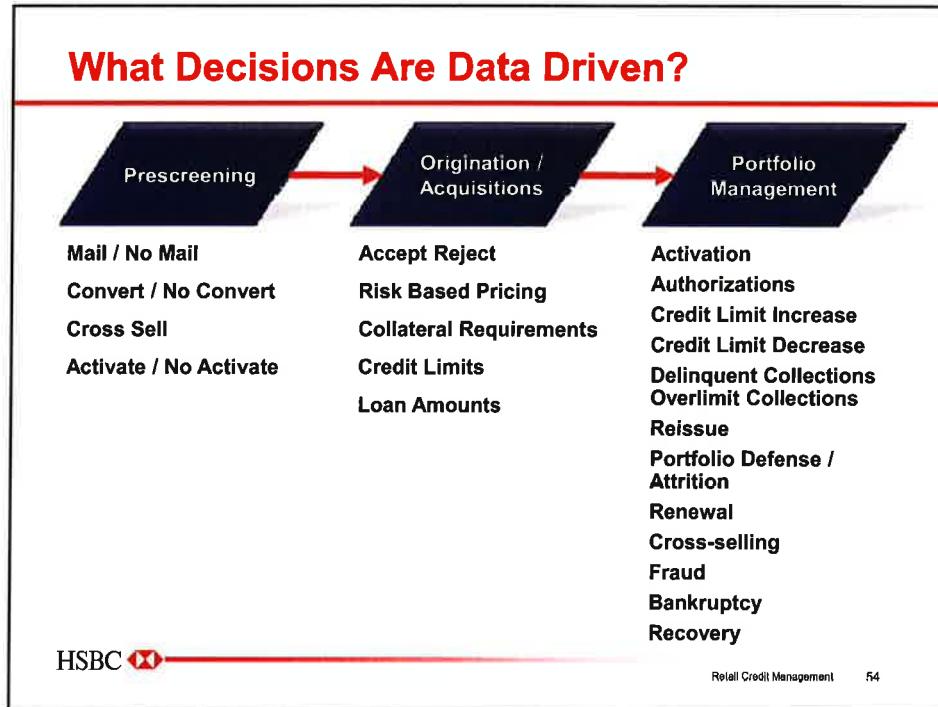
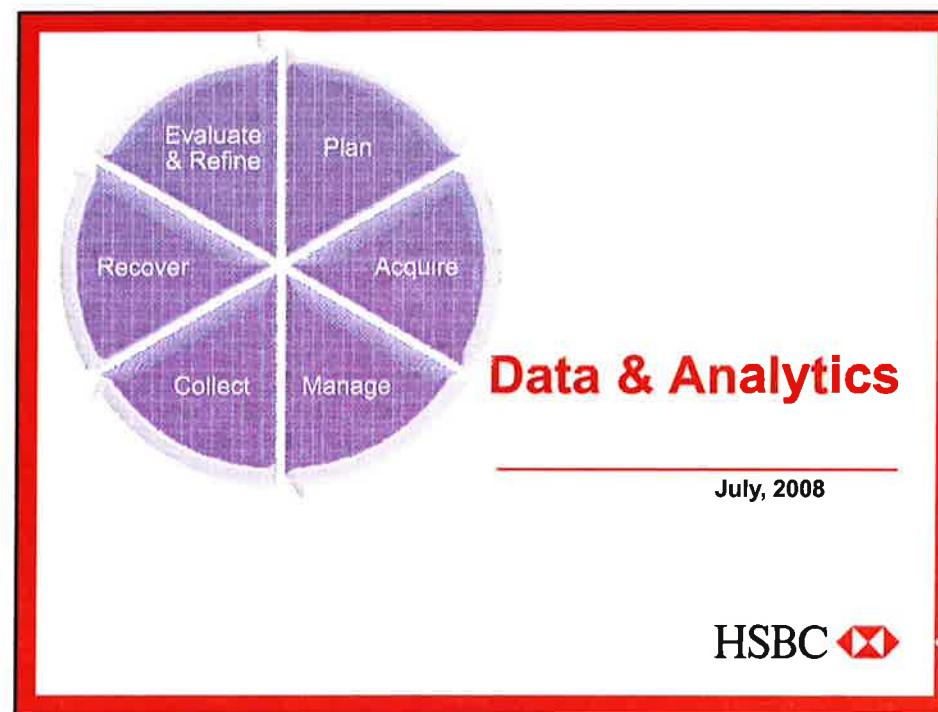
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Questions & Answers

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Data: Business Oxygen

- ▶ How do you know if your strategy is effective?
- ▶ Complete, accurate, meaningful data is critical for analysis, monitoring and managing the risk in a portfolio
- ▶ Internal customer data drives business ability to effectively manage the portfolio
 - Custom scorecards
 - Cross-sell / Up-Sell
 - Account management strategies
- ▶ If you can't measure it, you can't manage it

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Data Architecture

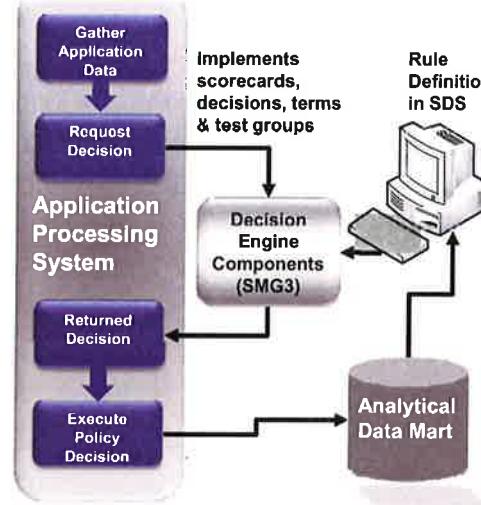
- ▶ Data storage structure: critical to ease of use, accuracy & efficiency
 - Flat files permit intuitive understanding & easy historical analysis
 - Relational databases offer flexibility, efficiency and speedy transaction processing
 - Multi-dimensional databases offer maximum efficiency, but little flexibility
- ▶ Advances in software tools allow for increased ease of access
- ▶ Data warehouse / data marts transform transaction data into historical analysis form

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Application Screening with SMG3

- ▶ Strategy Manager 3 (SMG3) is Group standard application rules processing engine for consumer products
- ▶ Engine can evaluate credit policy rules, scores, fraud rules & other logic to render accept/reject decisions



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Strategy Data: Sources & Expense Measures

- ▶ Strategy development sources:
 - 1st Choice: data from previous experience
 - 2nd Choice: proxy data
 - 3rd Choice: industry benchmark
- ▶ Internal & external data sources
 - Application processing system
 - GEM, WHIRL / Billing & Posting master file
 - Delinquent collections system: café/ Ecafé
 - Data mart / data warehouse, Credit bureau

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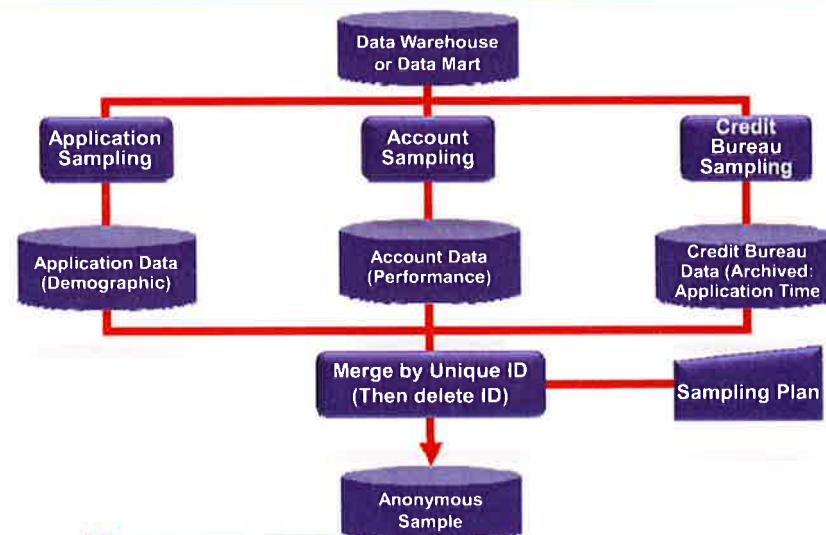
Data Spectrum: Too Much or Too Little

- ▶ When we have overwhelming amounts of account data: Sample or reduce it to permit processing
- ▶ Sampling permits data reduction down to a representative sample while maintaining optimal strategy results
- ▶ Where data is limited, everything (census) is used
- ▶ When data is scarce, “bads” can be over-sampled to provide enough sample points to model

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Protecting Consumer Privacy

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Statistical Techniques

- ▶ Decision Trees
 - CHAID
 - CART
- ▶ Regression
 - Linear
 - Logistic
- ▶ Software Based / Proprietary
 - eMiner
 - Clementine (SPSS)
 - Knowledge Studio
 - Fico Inform+
 - Infocentricity Xeno

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Champion / Challenger

- ▶ Champion / challenger concept
 - Champion – Tried & true strategy / process
 - Challenger – New & different idea
- ▶ Test / control concept
 - Test – New & different idea
 - Control – Can be no action or business as usual
- ▶ Can use a combination of both

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Strategies: Continuous Learning Process

Each transaction is an opportunity to learn how to treat customers more appropriately



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Retail Credit Management 63

Strategy Design Process Steps

- ▶ Evaluate Current Results
- ▶ Select Strategy Goal
- ▶ Gather & Evaluate current / previous strategy MIS
- ▶ Design new strategy segmentation; assign to treatments
- ▶ Audit selection of accounts for execution & consistency with other decision areas
- ▶ Implement new strategy
- ▶ Monitor revenue, expense & operational results Test vs. Control strategies
- ▶ Evaluate results

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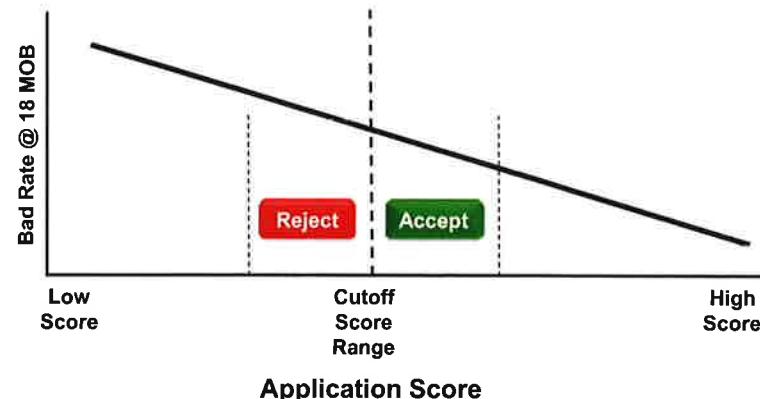
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Strategy Development: Gather & Analyze

- ▶ Gather historical data
 - Clean data to eliminate invalid values or outliers
 - Ensure sample is statistically significant (Do we have enough data to make a decision?)
 - Sample down or reduce, if necessary
- ▶ Develop strategy using statistical analysis
 - Univariate analysis for each candidate decision key
 - Decision tree techniques determine most predictive decision keys and their values
 - Compare different options to determine optimal strategy (i.e. increase revenue, maintain losses)

Using An Application Score Cutoff

- ▶ Set cutoff at breakeven odds or better
- ▶ Mitigate by business growth / cleanup considerations



Estimate Results, Audit, Implement & Monitor

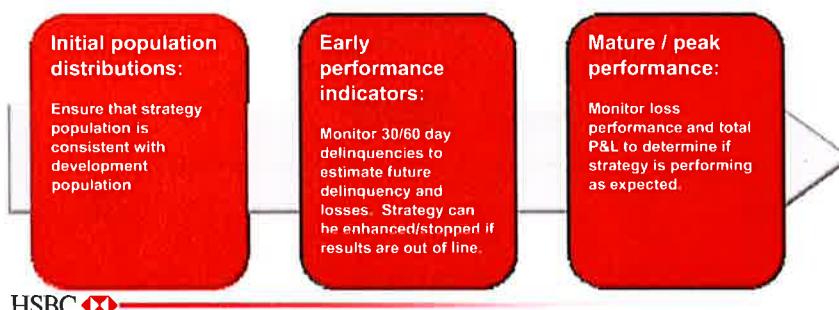
- ▶ Simulate strategy & estimate results
 - Once strategy chosen, pull recent sample to simulate its impact on revenue, expenses, operations & attrition
 - Use current population distribution and historical performance, with forward view to estimate loss results
Population distribution shifts may cause results to be significantly different from expected
- ▶ Implement Strategy
 - Perform User Acceptance Testing (UAT) & Auditing
- ▶ Monitor early results and population distributions

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Retail Credit Management 67

Evaluate Strategy Effectiveness

- ▶ When strategy has run for a sufficient period, assess results to determine effectiveness
 - Definition of sufficient varies by type of strategy, asset class, and risk level
 - Read results for at least 3 separate time periods



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Retail Credit Management 68

Comparing Strategy Results

- ▶ Gather & clean strategy performance data
 - Ensure strategy performance data is not polluted
 - Data from other tests
 - Accounts not under system control (i.e. VIP's, employees, frauds)
 - Ensure statistically significant sample - several hundred to several thousand accounts
 - If counts are thin, consider alternative definitions of negative performance: charge off only vs. charge off + 120 DPD customers
- ▶ Compare challenger against benchmark – control or BAU strategy

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Retail Credit Management 69

Strategy Comparison Dimensions

- ▶ Revenue: Balances & revenue increases
- ▶ Expense: Delinquency & charge off differences
- ▶ Differential operational effects
- ▶ Differential attrition
- ▶ Use test results to
 - Declare test success & rollout to other Random Digit Groups
 - Declare test limited success: use experience to derive a new champion / challenger test
 - Declare test a failure: note & avoid repetition

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Retail Credit Management 70

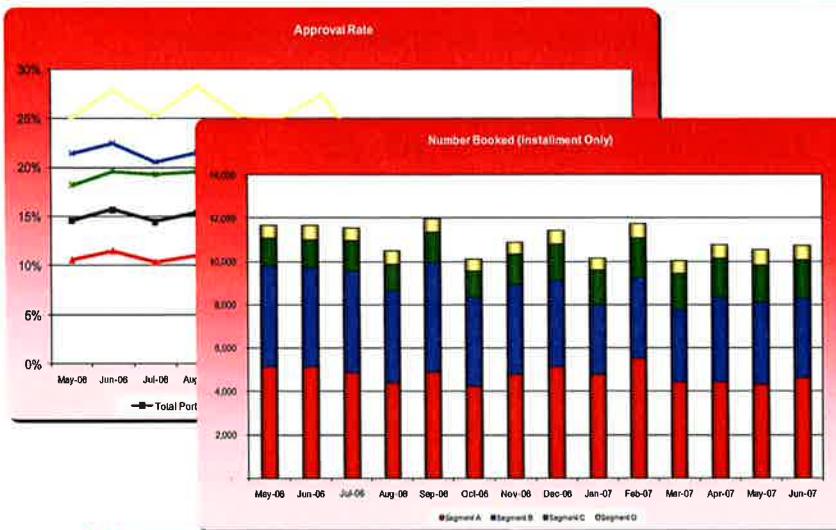
Key Portfolio Reports

- ▶ Approval rates
- ▶ Initial credit quality indicators
 - Applicant / booked score distributions
 - Debt to income / LTV by score
- ▶ Delinquency & roll rate reporting
- ▶ Portfolio statistics
 - Attrition / liquidation, repossession/foreclosure, losses
- ▶ Key financials
 - NIM, RAROC, ROA, ROE, RAR, RAY
- ▶ Vintage tracking

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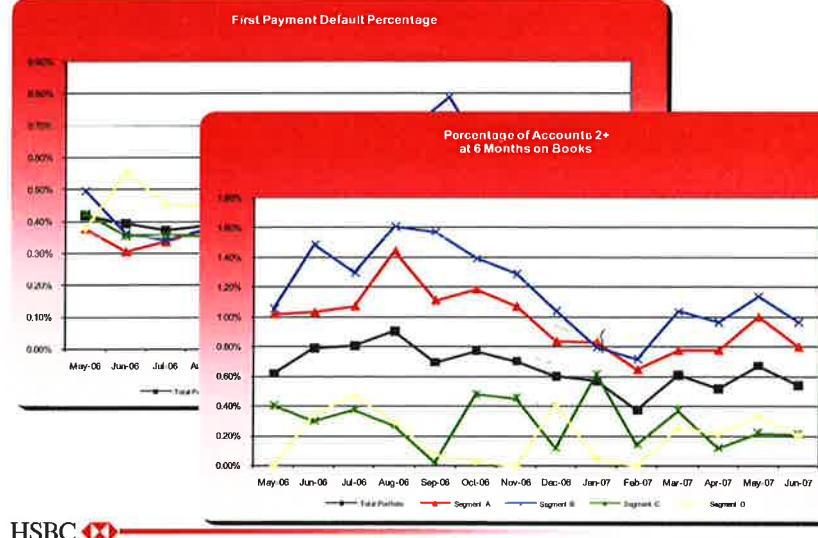
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Approval & Booking Measures

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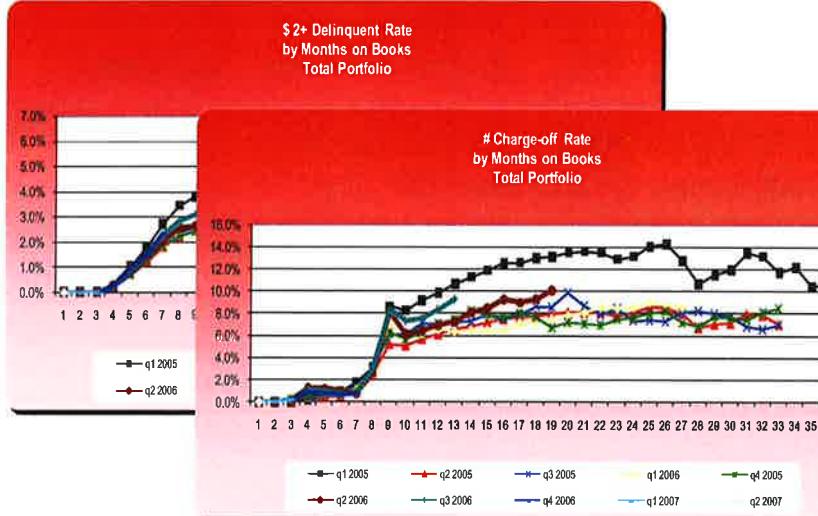
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Key Early Warning Delinquency Reports

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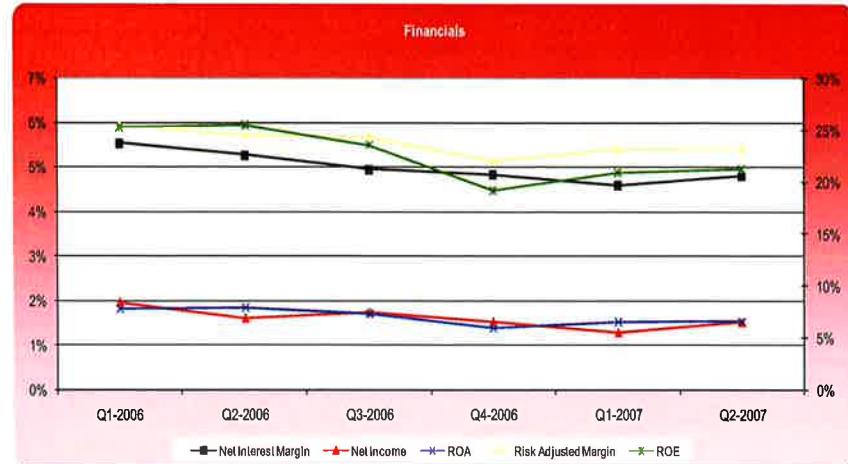
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Vintage Analysis Reports: Overall View

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Retail Credit Management 74

Key Finance Measures

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Retail Credit Management 75

Data & Analytics Summary

- ▶ Quality accessible data underpins all of consumer credit marketing and risk analytics
- ▶ Analytics critical to understanding consumer marketing & risk behavior
- ▶ Test & control is the rule based on statistically comparable groups of customers
- ▶ All tests must be compared against control strategy for revenue, expense, operational & attrition effects

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Retail Credit Management 76

Profiting from Plastic Cards

July, 2008



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Plastic Card Module Goals

- ▶ Understand bank perspective on credit cards
- ▶ Learn merchant acquiring process
- ▶ Understand major business models & features
 - Lender
 - Spender
 - Fee
- ▶ Discover key components of profit & loss
- ▶ Optimizing card risk and reward
 - Marketing
 - Originations
 - Account management

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Retail Credit Management 80

Why Bankcards?

- ▶ High margin on small credits
 - Profit metrics per account per year USA / UK
 - Profit per portfolio Prime vs. Subprime
 - ROE of 20+%
 - Short life cycle compared to installment / mortgage / auto loans
- ▶ Good wallet entry point
- ▶ Serves consumer needs: builds brand

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Retail Credit Management 81

Plastic Card Types

- ▶ Debit Cards
- ▶ Bankcards (Visa / Master / Amex / Discover / China Union Pay)
 - Affinity
 - Secured
- ▶ Charge (T&E) Cards
- ▶ Co-Brand Cards
- ▶ Private Label Cards

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Retail Credit Management 82

Debit Cards

- ▶ Access to consumer's current deposit account sometimes with overdraft feature
- ▶ Two transaction types
 - Pin based online access to deposit account
 - Offline through Visa / MasterCard network
- ▶ Bank earns flat fee for Pin based transactions and interchange percentage for Visa & MasterCard network transactions
- ▶ Credit losses non-existent, fraud losses should run <50 BPS

Typical Credit Card Customer Segments

- ▶ New / Young- Short time on books, sometimes younger consumers
- ▶ Transactor - Customers who transact and pay in full each month
- ▶ Revolver - Customers who carry a balance from month to month and generate interest for HSBC
- ▶ High Value – high revolving propensity
- ▶ Convenience revolvers – 1x / 2x per year – holiday, big purchases
- ▶ Convenience users - inactive, but for 1x / 2x per year
- ▶ Inactive - Customers who've not used their cards
- ▶ Rate Surfers - Customers continually seeking promotional rates
- ▶ VIP / Private Bank - Consumers with large deposits / other relationships
- ▶ Overlimit - Customers who have gone over contractual limits
- ▶ Delinquent - Customers who are late on their payments

Promotional Approaches

- ▶ Teaser / Go to rates
- ▶ Low interest, fees
- ▶ No Fee
- ▶ Balance transfer / debt consolidation
- ▶ Reward points / mileage
- ▶ Cobrand / Affinity
- ▶ Rebate / Cash back
- ▶ Credit Line amount
- ▶ Secured cards
- ▶ Which card network: MC, Visa, Amex, Private

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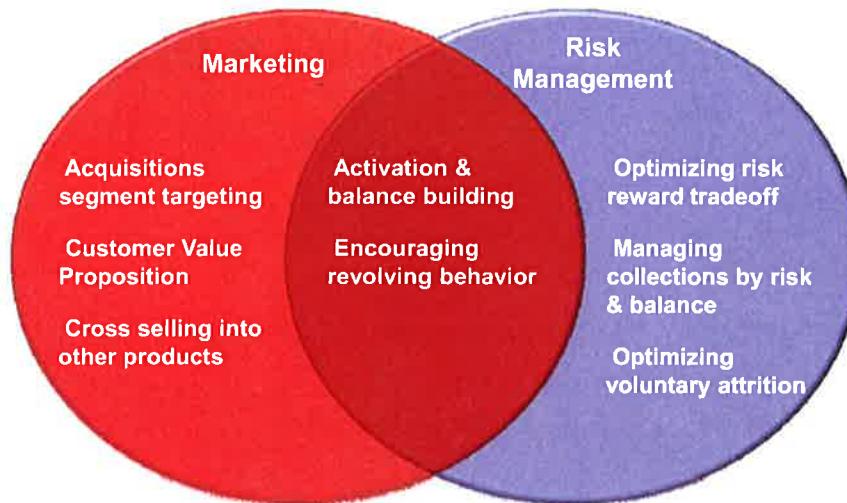
Retail Credit Management 85

Basic Tech: Interchange Funds Flow

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Retail Credit Management 86

Bankcard Success Factors



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Managing Credit Card Accounts

- ▶ Acquire, activate
- ▶ Build balances to encourage revolving
- ▶ After 3 months on book use behavioral score to
 - Aim line increases at “meaty middle” – lower middle of behavior score risk range (Higher risk / higher revenue)
 - Control overlimit, cash & delinquent transactions (fee contributions)
 - Segment collections activities by forward roll propensity & treat accordingly – early, standard, late or no action

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Real World Credit Card Profit Components

Revenue – Expenses = Profit



The diagram illustrates the components of credit card profit. It features two large, light-gray rounded rectangles with black outlines, each containing a list of items. Above each rectangle is a small icon of a house with a roof and a chimney. A red horizontal line connects the bottom of the left rectangle to the top of the right rectangle.

Revenue

- Interest
- Fee Income
- Activation
- Pricing
- Purchases
- Interchange
- Cash Utilization
- Insurance
- Attrition / Retention

Operating Costs

- Acquisition
- Origination
- Collections
- Funding
- Servicing

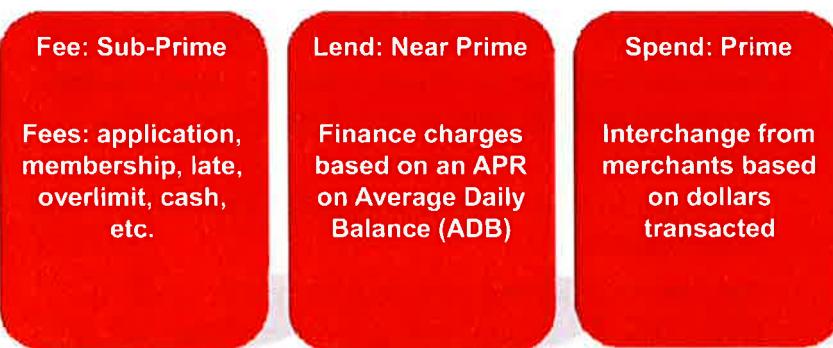
Net Profit

- Net Credit Loss
- Charge off
- Recoveries

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Revenue Assumptions

- ▶ 3 revenue approaches:
- ▶ All cards have a mixture of the 3
- ▶ Class by dominant source: 70%+ of total revenue



The diagram shows three red rounded rectangles, each representing a different revenue approach. A horizontal red line connects the bottom of the first rectangle to the top of the third.

Fee: Sub-Prime

Fees: application, membership, late, overlimit, cash, etc.

Lend: Near Prime

Finance charges based on an APR on Average Daily Balance (ADB)

Spend: Prime

Interchange from merchants based on dollars transacted

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Revenue Assumptions (cont'd)

► Other terms to be familiar with

- Transactors – People who pay off balances every month. We target them with the Spending model
- Revolvers – People who maintain balances and pay interest on them. We target them with the Lending model
- Which are you?

Fee: SubPrime

Lend: Near Prime

Spend: Prime



Retail Credit Management 91

Cards Lending Business Model

- Intuitive – Charge interest on outstanding balance on the account
- 3 categories of account balances
 - Purchase
 - Balance Transfer
 - Cash
- Common to have introductory (teaser) rates on purchases & balance transfers to build account balances
- Many ways to determine interest rates (APRs)
 - Prime + X
 - Fixed
 - Variable

Business depends on customers building & maintaining high balances

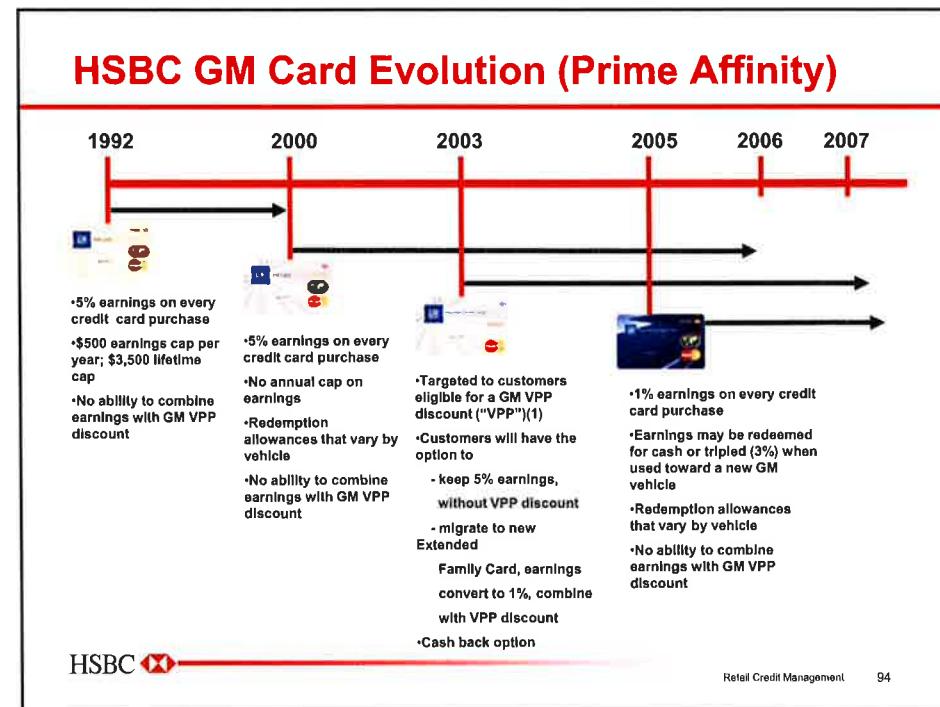


Retail Credit Management 92

	<550	550-599	600-659	660-704	705-764	765+
Go To APR	14.90% WA	14.48% WA	14.71% WA	13.84% WA	12.84% WA	12.69% WA
Annual Fee	-6% w/ Fee, \$92 WA	-6% w/ Fee, \$68 WA	-4% w/ Fee, \$63 WA	-1% w/ Fee, \$71 WA	-1% w/ Fee, \$82 WA	-2% w/ Fee, \$88 WA
Intro Type	None 66% Full, 11% BT Only, 1% Purchase Only, 12%	None 61% Full, 18% BT Only, 11% Purchase Only, 21%	None, 34% Full, 18% BT Only, 23% Purchase Only, 24%	None, 24% Full, 31% BT Only, 26% Purchase Only, 18%	None, 19% Full, 42% BT Only, 29% Purchase Only, 10%	None, 23% Full, 40% BT Only, 32% Purchase Only, 6%
Intro Rates	BT 29% at >0% Purchase 0% at >0%	BT -20% at >0% Purchase -6% at >0%	BT -16% at >0% Purchase -6% at >0%	BT -21% at >0% Purchase -8% at >0%	BT -21% at >0% Purchase -6% at >0%	BT -27% at >0% Purchase -6% at >0%
Purchase Intro Duration	8.7 Month WA 6-7 Months ~46% 8-14 Months ~37% 15+ Months ~10%	8.6 Month WA 6-7 Months ~56% 8-14 Months ~33% 15+ Months ~9%	8.5 Month WA 6-7 Months ~53% 8-14 Months ~33% 15+ Months ~9%	9.8 Month WA 6-7 Months ~40% 8-14 Months ~40% 15+ Months ~17%	11.1 Month WA 6-7 Months ~24% 8-14 Months ~50% 15+ Months ~24%	11.2 Month WA 6-7 Months ~19% 8-14 Months ~59% 15+ Months ~21%
BT Intro Duration	17.3 Month WA 6-11 Months ~16% 12-14 Months ~48% Paydown ~5%	13.8 Month WA 6-11 Months ~35% 12-14 Months ~40% Paydown ~8%	12.0 Month WA 6-11 Months ~42% 12-14 Months ~35% Paydown ~3%	12.3 Month WA 6-11 Months ~37% 12-14 Months ~36% Paydown ~6%	13.7 Month WA 12-14 Months ~41% 15+ Months ~28% Paydown ~10%	14.1 Month WA 12-14 Months ~42% 15+ Months ~31% Paydown ~11%
BT Usage Fee on Intro	-75% have BT Fee -19% No Max	-86% have BT Fee -45% No Max	-80% have BT Fee -37% No Max	-75% have BT Fee -34% No Max	-71% have BT Fee -30% No Max	-66% have BT Fee -30% No Max
Pet w/Rewards	-1%	-12%	-25%	-36%	-57%	-78%
Reward Type	Points ~34% Miles ~1% Cashback ~6%	Points ~48% Miles ~1% Cashback ~30%	Points ~46% Miles ~12% Cashback ~26%	Points ~44% Miles, 12% Cashback ~26%	Points ~46% Miles ~16% Cashback ~27%	Points ~47% Miles ~38% Cashback ~19%
Reward Level	1% rate on 91% of offers	1% rate on 94% of offers	1% rate on 94% of offers	1% rate on 93% of offers	1% rate on 95% of offers	1% rate on 92% of offers

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Retail Credit Management 93



Cards Spending Business Model

- ▶ Targeted at customers with high disposable incomes
- ▶ All card labels (Visa, MC, Amex, etc.) charge merchants a % of the transaction amount called **Purchase Interchange**
- ▶ Part of this goes to the card issuer (HSBC, Citi, Chase, etc.)
- ▶ Issuers offer a part of their interchange to the customer in reward form – cash back, miles, reward points – to make them spend more

Business depends on getting the customer to spend more

Cards Fee-based Business Model

- ▶ Targeted at customers with few credit options
- ▶ Low card limits – up to a few hundred dollars at most
- ▶ Issuer charges fees for specific card benefits
 - Application
 - Annual membership
 - Cash advance
 - Overlimit
 - Late
 - Returned check
- ▶ Customers pay for issuer flexibility when they exceed limits, pay late, or have other issues

Business assumes customers are inconsistent with payments

Private Label Model

- Closed loop no interchange fee assessed by Visa, Master, Amex or other network



- Usable only in the individual retailer, not anywhere else
- Lender offers promotional rates on larger purchases
 - Deferred payment: "No payment for 12 months"
 - Deferred interest promotion: "No interest for 12 months"
 - Purchase discount for card

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Retail Credit Management 97

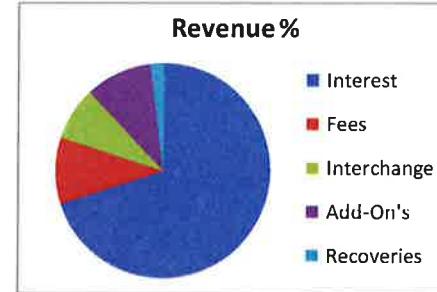
Private Label Promotional Model

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Retail Credit Management 98

Where does the Revenue Come from?

- ▶ Interest
- ▶ Fees
- ▶ Interchange
- ▶ Add-on products
 - Credit Life
 - Credit disability
 - Bureau monitoring
- ▶ Cross sell prospecting

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Retail Credit Management 99

Open Ended Product Cash Flows

- ▶ Credit cards are unsecured, open-ended credit lines, unlike home mortgages or car loans
- ▶ Credit card life is theoretically indefinite
- ▶ We make assumptions about cash flows
 - HSBC USA model cash flows plan for 60 statements
 - Assume a terminal value for NIAT (Net Income After Tax)
 - ▶ We cannot model cash flows indefinitely, assume value at last Month on Books to represent all cash flows
 - ▶ Several ways to calculate Terminal Values, generally the calculation is strictly watched
 - ▶ Typically, Terminal Values should not be a large percentage of PV

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Retail Credit Management 100

Early Card Monthly Cash Flow Model

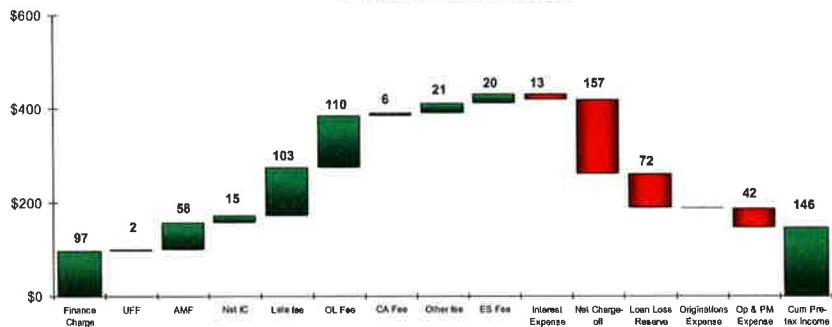
Months on Book	1	2	3	4	5	6	7
Net Payments	\$0	\$22,782	\$30,542	\$28,664	\$28,174	\$26,760	\$26,490
Net Purchases	(\$62,528)	(\$37,155)	(\$21,984)	(\$17,420)	(\$17,473)	(\$16,775)	(\$19,847)
Net Cash Advances or Access Cheques	(\$4,557)	(\$4,571)	(\$2,196)	(\$1,552)	(\$1,277)	(\$1,086)	(\$1,136)
Net Balance Transfers	(\$1)	\$0	\$0	\$0	\$0	(\$10)	(\$3)
Net Interchange	\$1,085	\$700	\$444	\$364	\$327	\$301	\$289
Interest Expense	(\$65)	(\$168)	(\$216)	(\$227)	(\$235)	(\$251)	(\$272)
Program Fees	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Net Recoveries	\$0	\$0	\$0	\$4	\$22	\$22	\$36
Net Charge Off	(\$2)	(\$3)	(\$4)	(\$1)	(\$2)	(\$3)	(\$20)
Marketing Expense (Originations)		(\$3,138)					
Marketing Expense (Acct Mgmt)		(\$21)	(\$42)	(\$41)	(\$40)	(\$39)	(\$38)
Operating Expense (Excl. Fraud Charge offs)	(\$3,043)	(\$2,137)	(\$2,742)	(\$2,707)	(\$2,748)	(\$2,827)	(\$2,904)
Cash Basis Tax (Expense) / Benefit	(\$1,189)	(\$4,886)	(\$5,691)	(\$5,937)	(\$6,041)	(\$6,052)	(\$5,686)
Increase (Decrease) in Borrowings	\$24,871	\$16,260	\$3,772	\$455	\$3,058	\$3,396	\$5,489
(Increase) Decrease in Cash		\$0					
Monthly Cash Flow		(\$48,588)	(\$9,220)	\$1,904	\$1,603	\$3,766	\$3,437
Terminal Cash Flow							\$2,398
Total Cash Flow		(\$48,588)	(\$9,220)	\$1,904	\$1,603	\$3,766	\$3,437

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Retail Credit Management 101

Subprime Revenues & Expenses

Deconstructing SubPrime Profit @ 18 Months
1 Quarter of Bookings

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Retail Credit Management 102

Comparing Card Offers

	Bank A	Bank B
Average Monthly Balance	\$2,500	\$2,500
Annual Percentage Rate (APR)	18.0%	14.0%
Annual finance charges	\$450	\$350
Overlimit Fee		\$30
Late Fee		\$30
Cash Usage Fee		\$20
Insurance Fee		\$75
Annual fee	\$20	\$0
Total cost	\$470	\$505

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Retail Credit Management 103

Risk Based Pricing

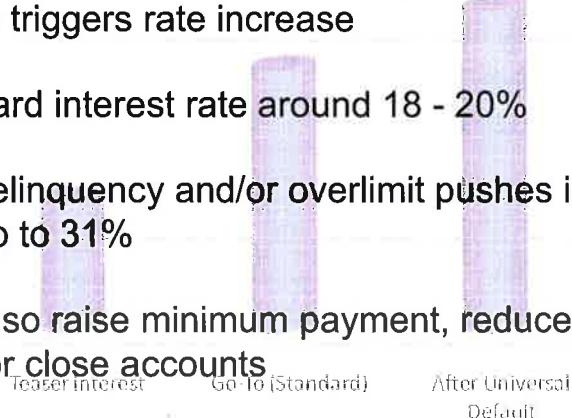
- ▶ Use incidence & magnitude of average bads to establish segment ROE, NIM, PBT profitability
- ▶ React with varied pricing – chiefly interest rates (initial & go-to) + service fees (application + overlimit + late/delinquency + enhancements)
- ▶ Achieved via interest rates or fee structure
- ▶ Sensitive regulatory topic: Developed & emerging markets – who gets the “best price” & why?

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Retail Credit Management 104

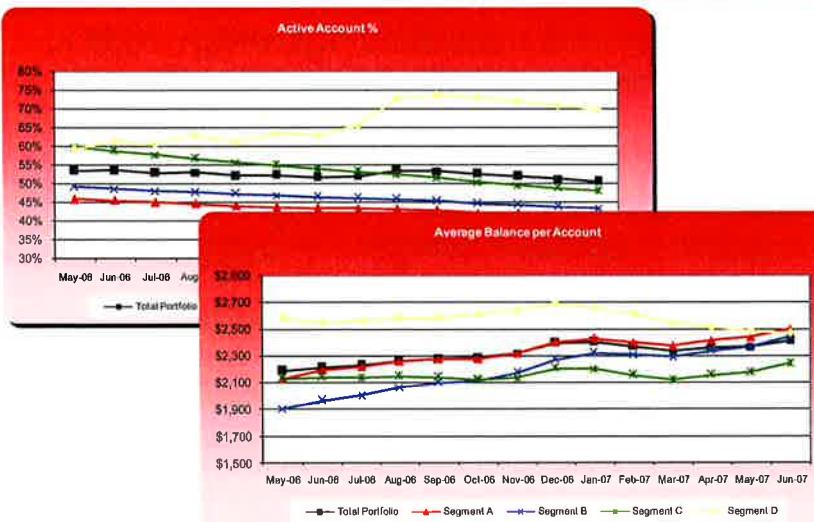
U.S. Cards Punitive Actions

- ▶ Universal default – a late on any account (ours or not) triggers rate increase
- ▶ Standard interest rate around 18 - 20%
- ▶ Any delinquency and/or overlimit pushes interest rate up to 31%
- ▶ Can also raise minimum payment, reduce credit lines or close accounts

HSBC 

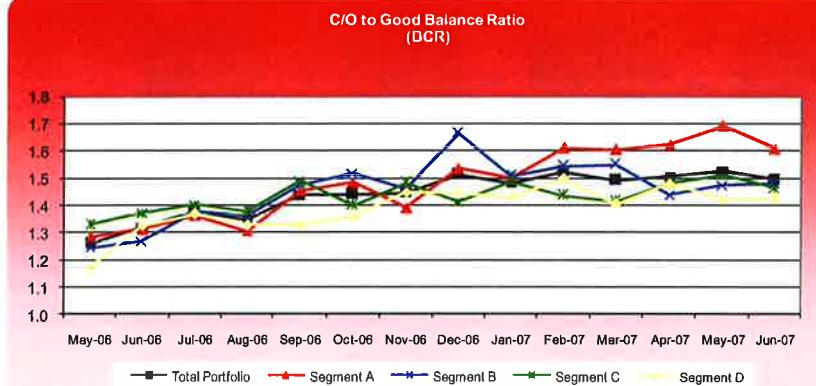
Retail Credit Management 105

Balances & Actives Drive Revenue

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Retail Credit Management 106

Balance Control Ratio

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Retail Credit Management 107

Choose a Scenario

	Scenario 1	Scenario 2
Incident Rate	3.0%	1.8%
Losses	\$ 6,075,000	\$ 4,387,500
Balance Control Ratio	1.50	2.57
Dollar Loss Rate		
Number of Accounts		
Yield		
Risk Adjusted Yield		
Risk Adjusted Revenue		

HSBC 

Retail Credit Management 108

Key Loss Rate Components

$$\$ \text{Loss Rate} = \frac{1}{\text{Activation Rate}} * \text{Incident Loss Rate} * \text{Balance Control Ratio}$$

Function (Product, Pricing, Offer) Function (Score Cutoff) Function (Credit Line)

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Retail Credit Management 109

Loss Rate Decomposition

$$\begin{aligned}
 \$ \text{Loss Rate} &= \frac{1}{\text{Activation Rate}} * \text{Incident Loss Rate} * \text{Balance Control Ratio} \\
 &= \frac{\# \text{Booked}}{\# \text{Active}} * \frac{\# \text{Charge off}}{\# \text{Booked}} * \frac{\text{Avg. C/O Bal}}{\text{Avg. Good Bal}} \\
 &= \cancel{\frac{\# \text{Booked}}{\# \text{Active}}} * \cancel{\frac{\# \text{C/O}}{\# \text{Booked}}} * \frac{\$ \text{C/O}}{\cancel{\# \text{C/O}}} * \cancel{\frac{\# \text{Active}}{\$ \text{Good}}}
 \end{aligned}$$

HSBC 

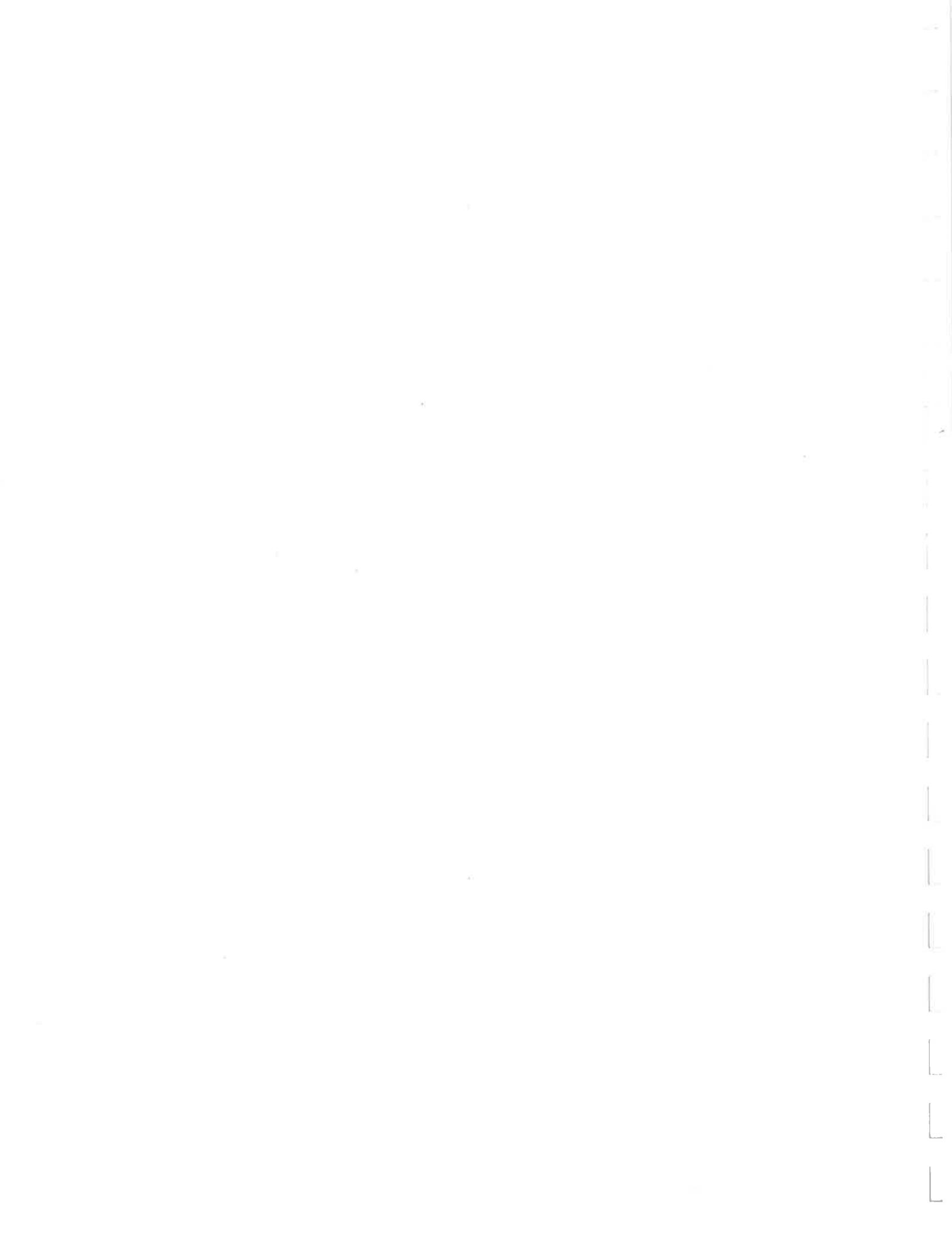
Retail Credit Management 110

Plastic Card Summary

- ▶ High margin instrument conveniently serves customer needs
- ▶ 4 Common models
 - Debit
 - Lender
 - Spender
 - Fees
- ▶ Drivers: targeting, booking rates, activation rates, revenue sources, delinquencies
- ▶ Balance control ratio provides key insight into credit line management

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Retail Credit Management 111



Installment Lending

July, 2008

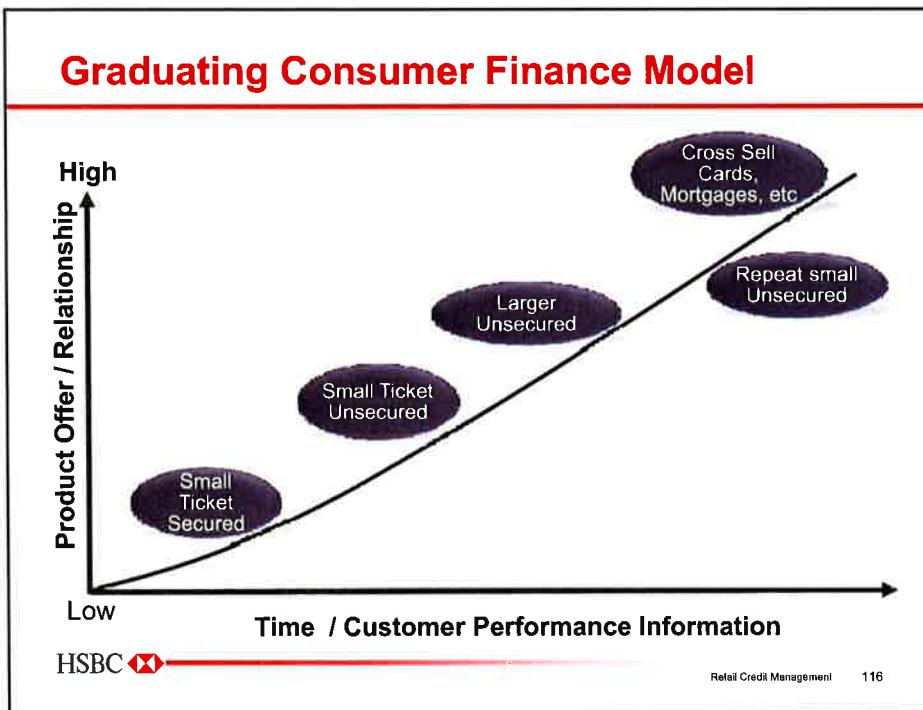
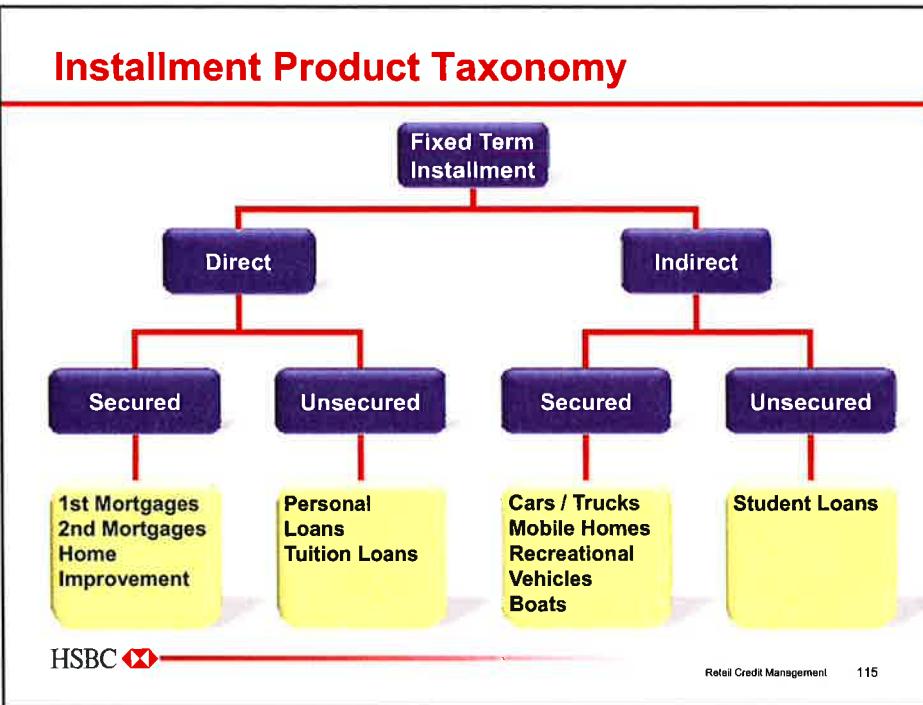
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Installment Module Goals

- ▶ Learn about personal loan, auto & mortgage products
- ▶ Discover installment business models
- ▶ Review major credit risk management dimensions for secured & unsecured products
 - Selection, policy and disaster screens
 - Product pricing, contract variations
 - Role of collateral / security in underwriting
 - Account management decision areas & strategies

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Retail Credit Management 114



Refinance / Top Up: Churn to Earn

- ▶ Finance & pay down good; finance & top up better...
- ▶ Good customers can be solicited to take “fresh money”, to “top up” or renew their loan back to original amount - or more
- ▶ 40 – 80% of portfolio can be repeat customers at higher margin – how?
 - Select & price smarter using previous payment data
 - Use updated credit bureau information to find segments to target offers

Common Loan & Mortgage Types

- ▶ Fully amortizing most common
- ▶ Balloon payment loan
 - Low payments until arrival of the balloon payment
 - Finance more money more cheaply
- ▶ Bullet loan
 - 1 year @ 10% interest rate, interest only until it comes due
- ▶ Debt consolidation
 - Cards @ 19.9% - offer a closed loan on balance @12%, In USA, reduces taxable income
- ▶ Side loan adjunct to secured loan
- ▶ Mortgages: Fixed rate/term, Adjustable Rate

HSBC Asia Pacific Loan Application

The screenshot shows a web-based loan application form for HSBC Asia Pacific. The form is divided into several sections:

- Personal Information:** Fields include Name, Date of Birth, Nationality, Marital Status, Present Home Address, Password, and Number of years at present address.
- Employment Details:** Fields include Employment status, Employee/Business name, Place of work, Position, Job title, Current income, Time in current job, and Length of remaining contract.
- Loan Application:** Fields include Loan type (Personal Credit Line or Stage Credit Line), Loan amount (in GBP), Purpose, Monthly repayment amount (for stage credit line only), Repayment period, and Repayment method.
- Applicant's Details:** Fields include Full name in English with the family name, Email address, and Gender.
- Contact Information:** Fields include Preferred branch for appointment, Preferred personal banker, and Customer service officer to contact.

At the bottom left is the HSBC logo, and at the bottom right is the text "Retail Credit Management 119".

Verifications

- ▶ Application data elements often volunteered by applicants
- ▶ Verifications confirm truth of information from direct sales agents, brokers, dealers & applicants
- ▶ Typical phone / visit verified data: consumer identity, phone, home address, income, employment (true / false & with whom...), personal references

Credit Policy Rules

- ▶ New / existing / former customer
- ▶ Overall debt to income ratio / Debt burden
- ▶ Payment as % of monthly income (PTI ratio)
- ▶ Loan purpose
- ▶ Loan to value of a secured asset
- ▶ Verifiability of income sources
- ▶ Homeowner vs. Renter
 - Different product offerings / cross sell potential

HSBC 

Retail Credit Management 121

Understanding Debt Burden

- ▶ Shows consumer capacity for repayment, not the probability that they will...
- ▶ Monthly Payments / Monthly Income
- ▶ What is a reasonable debt burden in your country?

Car Payment +	\$300
Credit Cards +	\$150
Rent	\$1,000
<hr/>	
Total Monthly Payments	\$1,450
<hr/>	
Gross Monthly Income	\$5,000
<hr/>	
Debt Burden	29%

HSBC 

Retail Credit Management 122

Loan to Value

- ▶ Loan amount as a percentage of any collateral used to secure the loan
- ▶ Don't justify an otherwise risky loan with low LTV
 - Assets often depreciate
 - Repossession may be difficult, impossible or take a very long time (12 - 24 months)

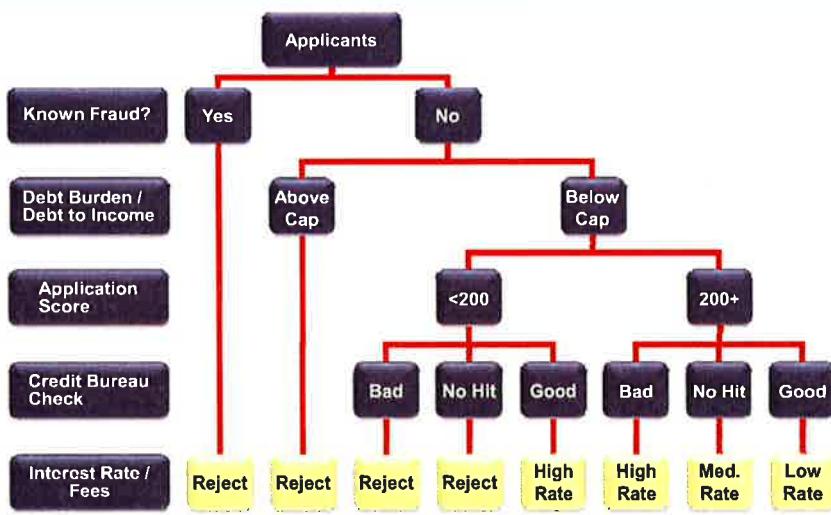
Vehicle Cost +	\$30,000
Vehicle Taxes, Licensing +	\$600
Registration Fee	<u>\$3,000</u>
Total Cost	\$33,600

Loan Amount	\$33,600
Loan to Value	$=33,600 / 30,000$
	112%



Retail Credit Management 123

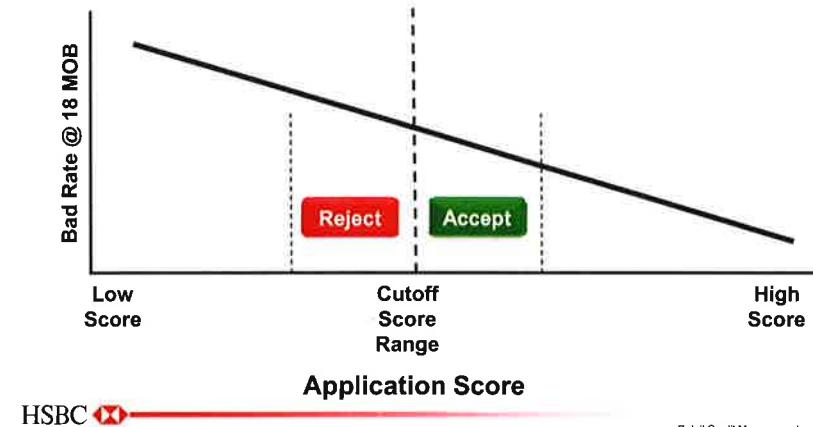
Loan Origination Strategy Example



Retail Credit Management 124

Using An Application Score Cutoff

- ▶ Set cutoff at breakeven odds or better
- ▶ Mitigate by business growth / cleanup considerations



Retail Credit Management 125

Segmenting Installment Customers

- ▶ Installment loans have limited behavior data after money is provided
 - Full payment, partial payment, no payment
 - Bounced checks, demographics
 - Mild to serious delinquency pattern in payments
- ▶ Credit bureaus invaluable source of insight into current financial status beyond HSBC loan
- ▶ Segment for portfolio management actions by combining payment history & periodically updated bureau report (quarterly / monthly)

Portfolio Management Actions

- ▶ Rate drop / Refinance / Top Up / Back to High
 - Provide new money on timely repayment of some portion of original loan balance
 - Closed end equivalent of line increase
- ▶ Collections
 - Collect delinquent accounts
- ▶ Restructure / Rewrite / Re-age
 - For delinquent customers who make agreed to # of timely payments, account reset / reported as current
 - Gives stretched consumers a chance to remediate
 - Can be abused to understate delinquencies and losses – critical in acquisitions due diligence

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Retail Credit Management 127

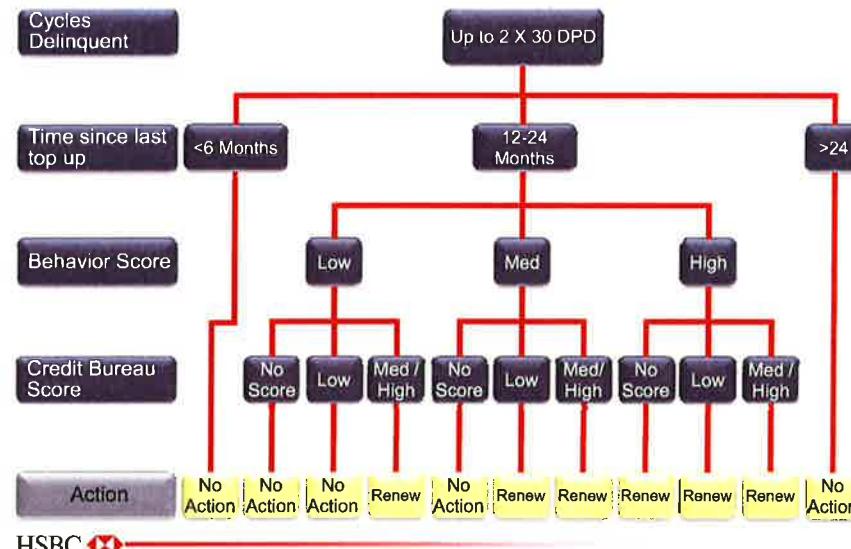
Refinance / Renew with Negative Bureau



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Retail Credit Management 128

Renewal with Behavior & Bureau Score



Retail Credit Management 129

How Secure is Secured?

- ▶ Secured: legal claim on the home or other asset (car, boat, etc.)
- ▶ Our real security is borrower ability and interest in repayment
- ▶ Consider repossession or foreclosure a fallback when borrower collections efforts fail
- ▶ Different countries have differing foreclosure and repossession laws which can limit our collections & disposition options
- ▶ Asset value volatility limits security value of collateral

Retail Credit Management 130

Auto Lending

- ▶ Two customers to take care of: consumer & the dealer
- ▶ Vehicle sales (new & used) good loan demand proxy
- ▶ Key competitors are manufacturers finance arms
 - Ford Motor Credit, Toyota Motor Credit etc.
 - Offer 0% financing with higher vehicle price
 - Their prize is dealership inventory finance, consumer finance is not quite an after thought
- ▶ Loan to Value can run to 150% - vehicle price + licensing + dealer add-ons

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Retail Credit Management 131

How Auto Makes Money

Loan Revenue	Finance Charges	\$ 118,964
	Interest Expense	\$ (33,901)
	Net Interest Margin	\$ 85,063
Fee Revenue	Net Fees & Commissions	\$ 5,708
	Other Operating Income	\$ 1,316
	Total Other Income	\$ 7,024
Total Losses	Net Charge Offs	\$ (48,586)
	Excess Provision	\$ 4,012
	Total Provision	\$ (44,574)
Money Spent to Operate	Total Operating Expenses	\$ 25,715
Tax	PreTax Income (Loss)	\$ 21,798
	Tax (Expense) Benefit	\$ (7,956)
	Net Income	\$ 13,842

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Retail Credit Management

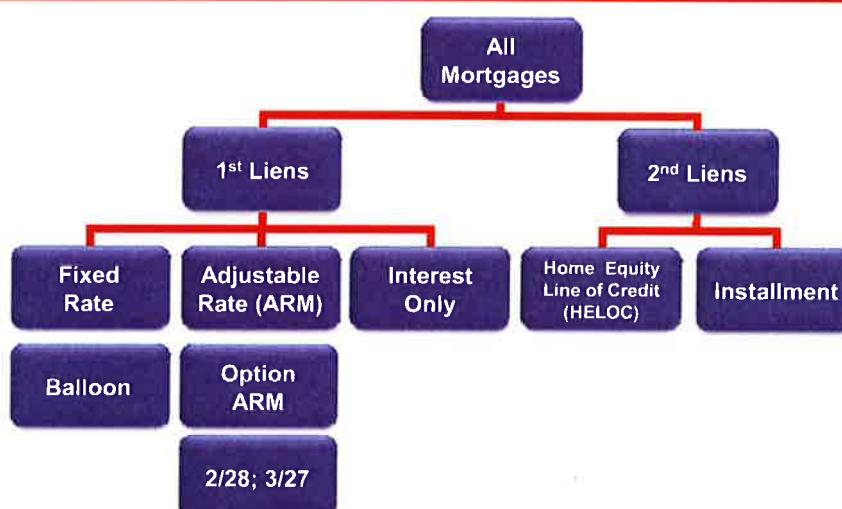
Auto Lending Deal Breakdown

- ▶ Contract rate – interest rate paid by consumer, perhaps 12%
- ▶ Buy rate – what the dealer pays HSBC for the financing, perhaps 10%
- ▶ Dealer keeps difference: perhaps 2% (12-10)
- ▶ Difference can be split by “participation”: dealer keeps 70%, HSBC gets 30%
- ▶ At 12% vs. Captive finance rate of 0.0%, what fraction of our business is new cars?
 - On the other hand used cars depreciate more slowly

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Retail Credit Management 133

Major Mortgage Types

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Retail Credit Management 134

Traditional Fixed Rate Mortgages

- ▶ Large value (\$100,000 & up), loans secured by right of repossession of the collateral property
- ▶ Interest rate fixed at time of origination
 - Bank bears interest rate risk
 - Consumer buys security of a fixed payment
- ▶ Mature over very long periods
 - 1-5, 10, 15, 20, 25, 30 year periods are typical
 - 100 year or Multi-generation in some countries
- ▶ Can be 1st lien or 2nd lien

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Retail Credit Management 135

Segmenting the U.S. Mortgage Market

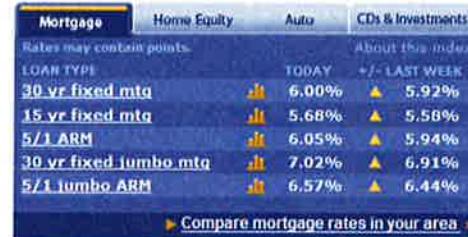
- ▶ Prime
 - First lien
 - Blended / Combo – 1st + Second liens
- ▶ Alt – A
 - Unusual prime / near prime applicants
 - Often less documentation on property value or income
- ▶ High Ratio LTV (Loan to Value)
 - Typically >100% LTV (especially important when doing HE loans)
- ▶ Non-Prime
 - Blemished credit record applicants
- ▶ Sub-prime
 - Higher risk – high LTV, debt burden, poor previous credit history
- ▶ Hard Money
 - Highest risk applicants paying premium over prevailing rates
 - Hard to fund properties (in construction, specialty types)
- ▶ Bridge
 - Single payment bridging sale of old home after purchase of new

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Retail Credit Management 136

Comparing Rates across Types

- ▶ Lowest for shorter term fixed
- ▶ Higher if consumer gains lower payment from longer term
- ▶ Higher if consumer gains lower initial payments
- ▶ Highest for higher loan amount with bank bearing interest rate risk

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Retail Credit Management 137

Adjustable Rate Mortgages (ARM's)

- ▶ Cheaper: transfers some interest rate risk to consumers
 - Good for short term property holders, if they sell before interest rates rise dramatically
 - But... attracts property speculators: low cost funding source
- ▶ Downsides:
 - Payments can rise dramatically (50%+) with little warning to consumers, creating untenable debt loads
 - Adjustable nature not always fully disclosed to consumers by commissioned brokers
 - Untenable debt becomes delinquency & foreclosure for banks
 - High LTV's can create portfolio performance similar to unsecured, but underwritten as secured

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Retail Credit Management 138

Second Liens / Home Equity Lines of Credit

- ▶ Use owner's equity to collateralize a loan or line of credit
- ▶ Helps consumers derive additional value on what is often their largest investment
- ▶ Used for many purposes from home improvement to children's education to debt consolidation
- ▶ Can be full documentation, low documentation or stated income
- ▶ Riskier in falling housing market as behavior approaches unsecured performance
- ▶ Second position on repossession / disposal of asset

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Retail Credit Management 139

Walkthrough of a 3/27

- ▶ Start loan @5.5% for first 36 Months
- ▶ First reset at Month 37

Loan Amount	\$ 100,000		
Index Rate (LIBOR)	5.0%		
Bank's Margin	2.0%		
Fully Indexed Rate	7.0%		
Initial (Teaser) Interest Rate	5.5%		
"Teased" by	1.5%		
Initial Rate Rise Cap	3.0%		
Subsequent Rate Rise Cap	1.0%		
Lifetime Rate Cap	9.0%		
		+14%	+24%
	@5.5%	@7.0%	@8.0%
	\$ 100,000	\$ 94,000	\$ 94,000
Initial Monthly Payment	\$565		
Post Reset Monthly Payment		\$643	\$704

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Retail Credit Management 140

3 Bets Underneath Mortgages



Property Prices

Interest Rate Risk



Credit Risk

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Retail Credit Management 141

Property Underwriting

► Macro level

- National / local prices rising / falling? Bubble?
- Which asset classes are rising/falling: condominiums co-op's, multifamily, single family, second homes
- Check housing starts & building industry health
- Time to foreclose / complete legal action?
- Does bankruptcy law permit foreclosure?

► Account level

- Property Appraisals (model or visit?)
- Recent comparative sales prices
- Title reports / Insurance
 - ▶ Clear ownership chain?
 - ▶ Is property insured or insurable?

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Retail Credit Management 142

Understanding Consumer Repayment Risk

- ▶ Application information
 - Disaster checks
 - Document verification: income, employment, property insurance, title/chain of ownership
 - Debt burden, Debt to income ratio, debt service ratio
 - Credit policy rules
 - Housing payment history (length & timeliness)
 - Application score cutoffs
- ▶ Credit bureau reports
 - Multiple bureaus & scores (if available)
 - Tax liens, judgments, negative public record



Retail Credit Management 143

Factoring in Interest Rate Fluctuations

Falling Rates

Lower risk customers will refinance

Prepare for prepayment risk, portfolio defense actions:

i.e. cutting rates to keep best customers

Rising Rates

Lower prepayments higher default risks

Adjustable rate customers subject to payment shock, bank subject to higher foreclosure, collections & disposal costs

Knock-on delinquency effects in non-mortgage portfolios



Retail Credit Management 144

Customer Equity vs. Property Speculation

- ▶ Loan to Value (LTV): Loan amount expressed as a percentage of the lower of the appraised value or sales price of real property
- ▶ Combined Loan To Value (CLTV): Loan amount of the first lien and any subordinate financing (2nds, home equity loans) as a percentage of the lower of property appraised value or sale price
- ▶ Traditional Mortgages run up to 80% LTV in most countries
- ▶ Exotics can run to 125% LTV; lender generally betting on property price increases

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Retail Credit Management 145

Loan to Value 1st & Combined

- ▶ Mortgage amount as a fraction of property value
- ▶ <90-100%, consumer has equity to protect
- ▶ >100%, lender speculating on property value
- ▶ Property values can fall leaving mortgage value higher than property value

Property Appraised Value £300,000.00

Consumer Equity £60,000.00

Mortgage Amount £240,000.00

Loan to Value

80%

Property Appraised Value \$300,000.00

Second Lien \$100,000.00

Mortgage Amount \$240,000.00

Combined Loan to Value

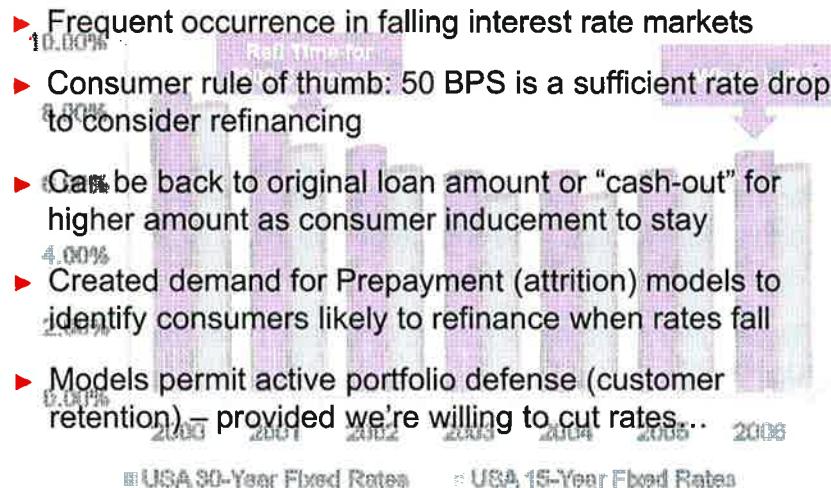
113%

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Retail Credit Management 146

Mortgage Refinancing

- ▶ Frequent occurrence in falling interest rate markets
- ▶ Consumer rule of thumb: 50 BPS is a sufficient rate drop to consider refinancing
- ▶ Can be back to original loan amount or "cash-out" for higher amount as consumer inducement to stay
- ▶ Created demand for Prepayment (attrition) models to identify consumers likely to refinance when rates fall
- ▶ Models permit active portfolio defense (customer retention)— provided we're willing to cut rates...



■ USA 30-Year Fixed Rates □ USA 15-Year Fixed Rates

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Retail Credit Management 147

Repossession: The Last Resort

- ▶ Do *not* use collateral to justify a loan of questionable credit quality:
 - below cutoff,
 - failing underwriting rules

Why?

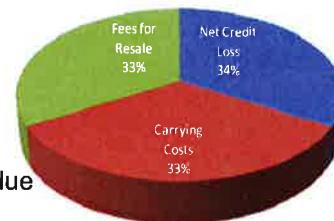
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Retail Credit Management 148

Home Repossession / Foreclosure

- ▶ Consumer loses home + any equity
- ▶ We lose principal, interest
- ▶ We must pay property disposal costs: legal fees, taxes, maintenance, utilities & insurance during our ownership; appraisal fees prior to sale; agent commission on sale
- ▶ Residual value property-market dependent
 - Some markets disposal value runs 40-50% of the original value of the property
 - Can also be 80-120% of original value of the property

Components of Foreclosure Loss

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Retail Credit Management 149

HSBC U.S. Mortgages: What Went Wrong

- ▶ Managerial goal: growth
- ▶ 3 way bet
 - Steady low interest rates
 - Properties rising
 - Credit quality
- ▶ Operational failures
 - Unvalidated / Out of date pricing model
 - Adverse selection from overpaying
 - Failure to perceive competitor actions
 - Application processing time rose from 15 to 90 days
- ▶ High turnover in risk management personnel

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Retail Credit Management 150

Audit Findings

- ▶ Growth focus aimed at “thick margin” business
 - High yield functionally equated to higher risk
 - ▶ Stated income
 - ▶ 2nd liens
 - ▶ Adjustable rate mortgages to higher risk customers
 - ▶ Sometimes all 3!
- ▶ Lots of data, Limited information
 - Limited vintage analysis
 - No calculation of economic profit
- ▶ No limits or caps on higher risk products / segments
- ▶ No counter balance from independent risk

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Retail Credit Management 151

Remediating / Cleaning up

- ▶ Closing down high risk source(s)
- ▶ Focusing on collections strategy & capacity
- ▶ Staffing changes
- ▶ Isolation of non-performing assets into “ring fence”
- ▶ Change in reporting lines & responsibilities
- ▶ Sales must now clear volume-affecting policy / appetite decisions with operations
- ▶ Foregoing some ARM resets to keep customers in their homes

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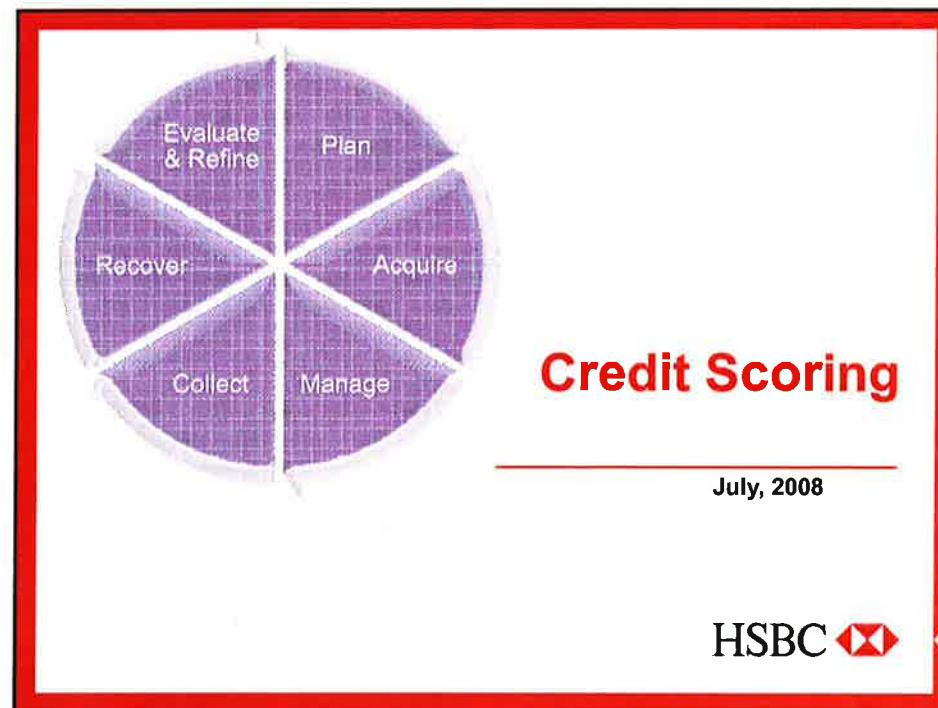
Retail Credit Management 152

Installment Lending Summary

- ▶ Closed end installment loans serve wide variety of consumer needs
- ▶ Unsecured: credit quality vs. price question
- ▶ Existing & former customers make better understood prospects
- ▶ Security of collateral only goes so far
- ▶ Mortgages are a 3 dimensional bet
 - Consumer credit risk
 - Property Value
 - Interest rate changes
- ▶ Macro (national / regional) & micro (account level) risk views must be reflected in acceptance and pricing
- ▶ Exotic forms permit customer flexibility at the cost of high variety of loss & profitability scenarios

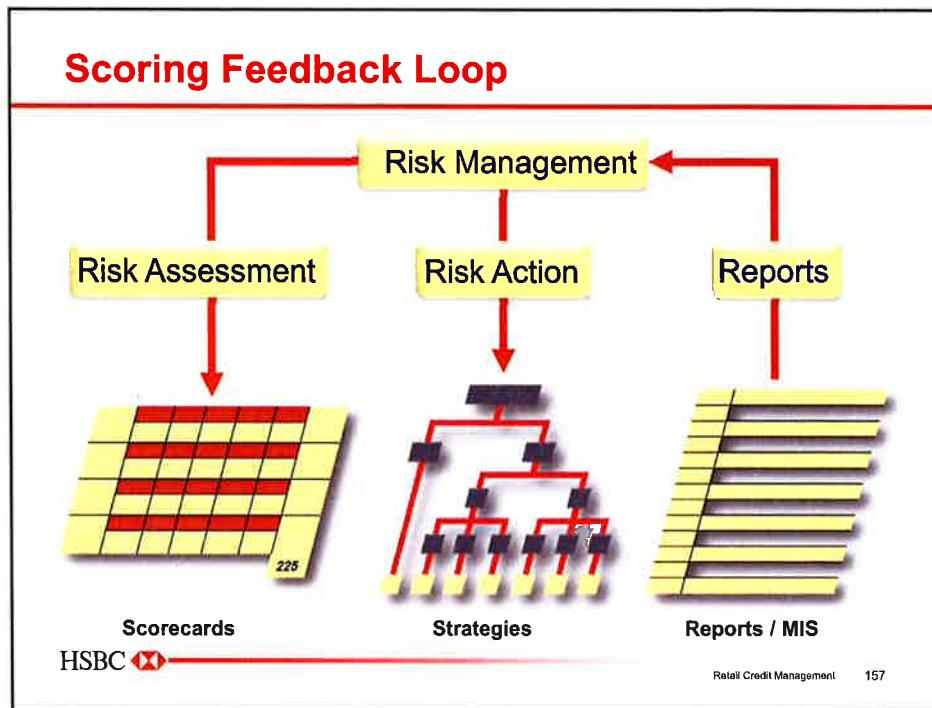
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Retail Credit Management 153



Data & Analytics Module Goals

- ▶ Discover credit scoring
 - Application scoring
 - Behavior scoring
 - Credit Bureau scoring
- ▶ Learn about model product & maintenance practices
- ▶ Understand ways to select cutoff scores
- ▶ Tracking model predictive value



Comparing 2 Applicants

Characteristic	Attribute	Characteristic	Attribute
Time on Job	2.5-5.49	Time on Job	2.5-5.49
Residential Status	Own	Residential Status	Own
Time at Address (Years)	.5-2.49	Time at Address (Years)	11.5
Major Credit Card / Store Card	Not Answered	Major Credit Card / Store Card	Major Credit Card
Occupation	Office	Occupation	Office
Bank Reference	Not Answered	Bank Reference	Check & Save
Years On Credit Bureau File	3-4	Years On Credit Bureau File	5-7
# of Loans Outstanding	3-5	# of Loans Outstanding	0
# of Inquiries Last 6 Months	5	# of Inquiries Last 6 Months	2
Worst Credit Bureau Reference	2	Worst Credit Bureau Reference	2
Final Score	Satisfactory	Final Score	Satisfactory

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Retail Credit Management 158

Comparing 2 Other Applicants

Characteristic	Attribute	Characteristic	Attribute
Time on Job	5.5-12.49	Time on Job	1.5-2.49
Residential Status	Live with Parents	Residential Status	Own
Time at Address (Years)	11.5	Time at Address (Years)	.5-2.49
Major Credit Card / Store Card	Major Credit Card	Major Credit Card / Store Card	Both
Occupation	Other/Not Answered	Occupation	Blue Collar
Bank Reference	Savings	Bank Reference	Check & Save
Years On Credit Bureau File	3-4	Years On Credit Bureau File	8+
# of Loans Outstanding	0	# of Loans Outstanding	0
# of Inquiries Last 6 Months	3	# of Inquiries Last 6 Months	4
Worst Credit Bureau Reference	1	Worst Credit Bureau Reference	Any Slow
Final Score	Satisfactory	Final Score	

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Retail Credit Management 159

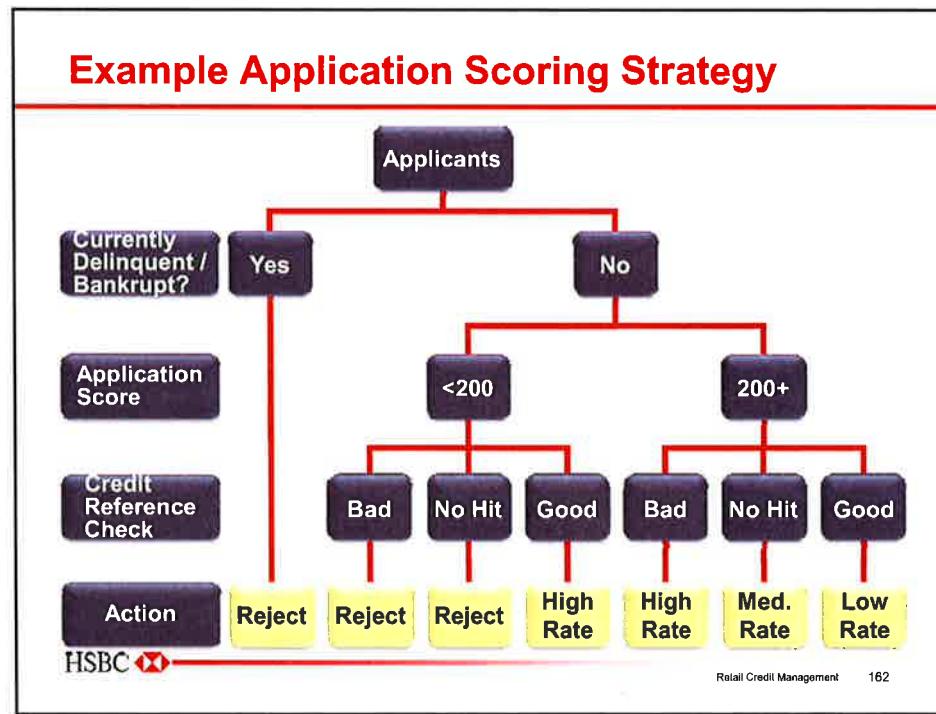
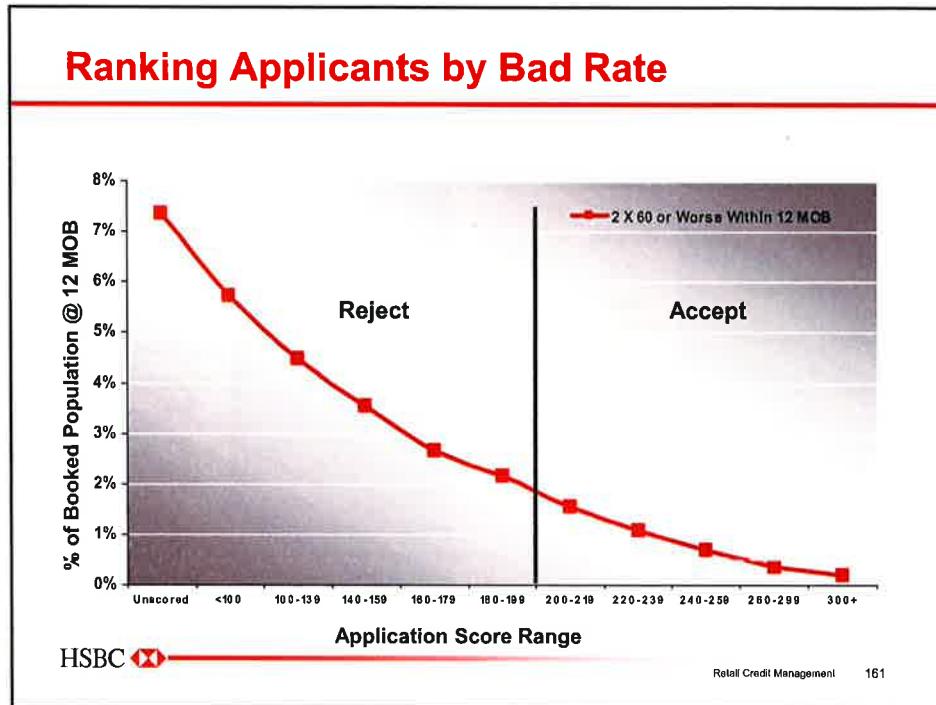
Sample Application Scorecard

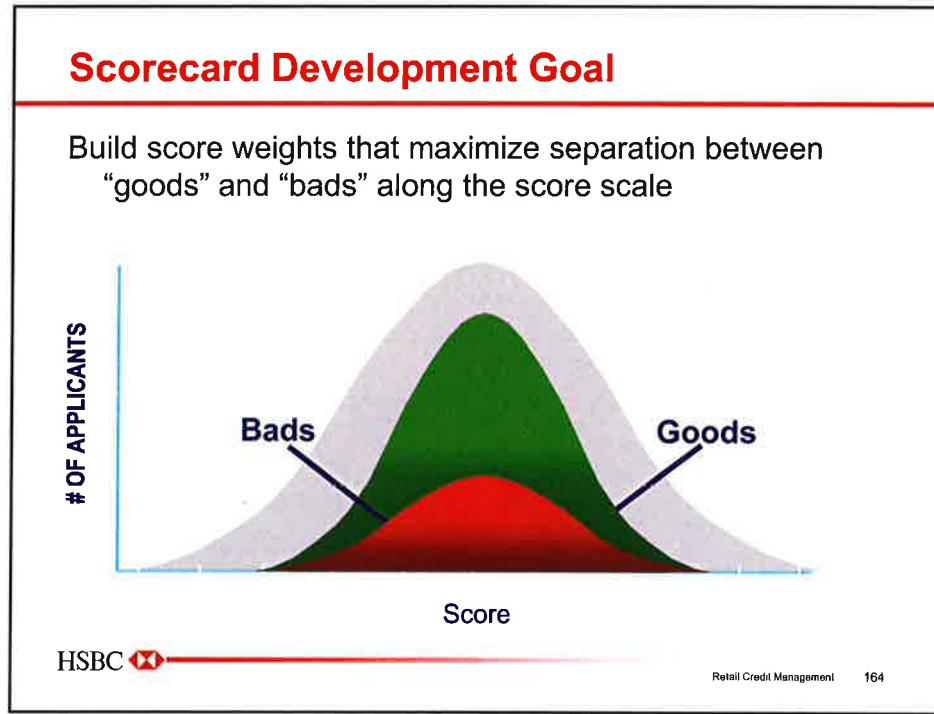
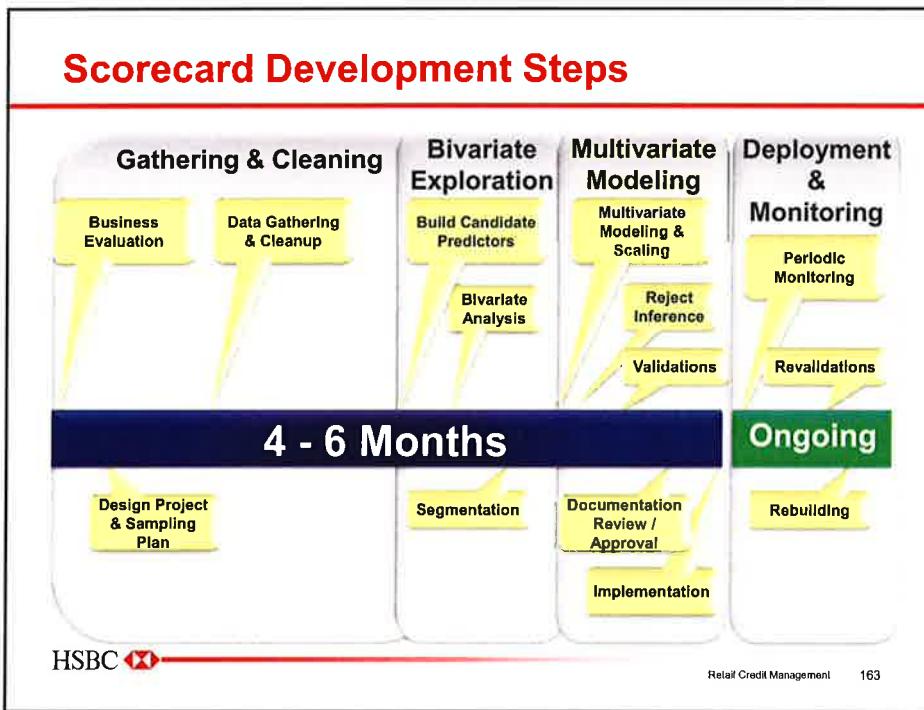
Characteristics		Attributes					Score Weights	
Time on Job	Less than .5	1.5-1.49	1.5-2.49	2.5-5.49	5.5-12.49	12.5	Retired	
Residential Status	Own	Rent	Live with Parents	Not Answered	Other			
Time at Address (Years)	Less than .5	1.5-2.49	2.5-5.49	6.5-10.49	10.5+	Not Answered		
Major Credit Card / Store Card	Both	Major Card	Dept. Store	Not Answered	None			
Occupation	Prof	Semi-Prof	Blue Collar	Office	Retired	Mkt.	Other	
Bank Reference	Check & Save	Checking	Savings	Other	Not Answered			
Years On Credit Bureau File	No Record	Less than .5	.5-2	3-4	5-7	8+		
# of Loans Outstanding	No Record	0	5	15	30	40		13
# of Inquiries Last 6 Months	5	5	12	8	4			12
Worst Bureau Reference	No Record	1	2	3	4	5		5
	5	22	14	12	5	0		
	0	17	20	25	-29	-14		20

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Retail Credit Management 160

171





Applicant Good/Bad Performance Definitions

1 X 90
2 X 60
Ever 120
Charge off
Bankrupt
Repo
Foreclosure

<3 Mos. On Book
Never active
High Balance=0
2 X 30
1 X 60

Never 30
1 X 30
2 X 30



Indeterminate

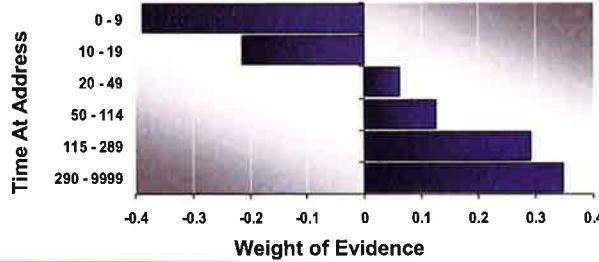


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Typical Characteristic Analysis

Time at Current Residence (months)		Total	Bad Rate	WOE	InfoValue
Range	# Good	# Bad			
0 - 9	2985	315	9.5%	-0.387	0.257
10 - 19	2300	204	8.1%	-0.213	0.159
20 - 49	4619	311	6.3%	0.063	0.238
50 - 114	3573	226	5.9%	0.125	0.174
115 - 289	3532	189	5.1%	0.292	0.151
290 - 9999	1224	62	4.8%	0.347	0.051
Total	18233	1307	6.7%		1.031

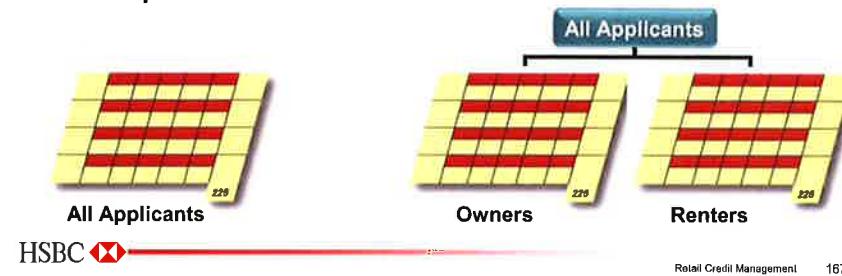


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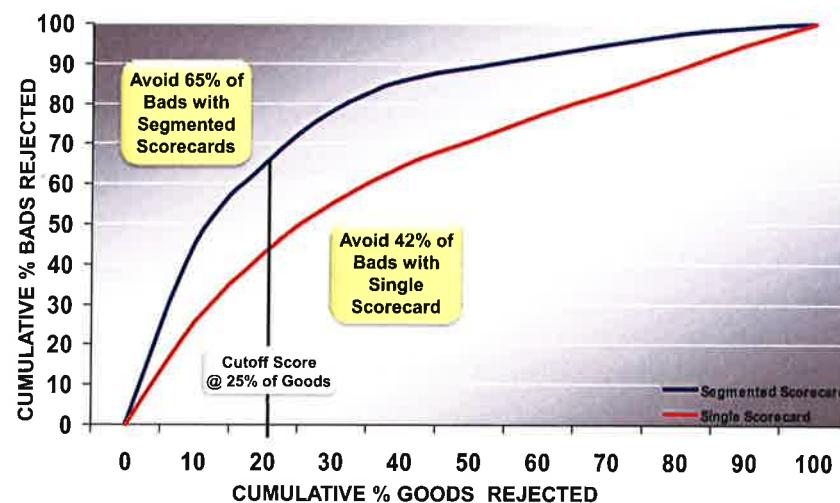
Scorecard Segmentation

- ▶ Goal: build multiple models with higher predictiveness for specific subgroups instead of 1 model for all
- ▶ Method: test various “splitter” variables to create segmented cards against a single model
- ▶ Compare renter to renters & owner to owners

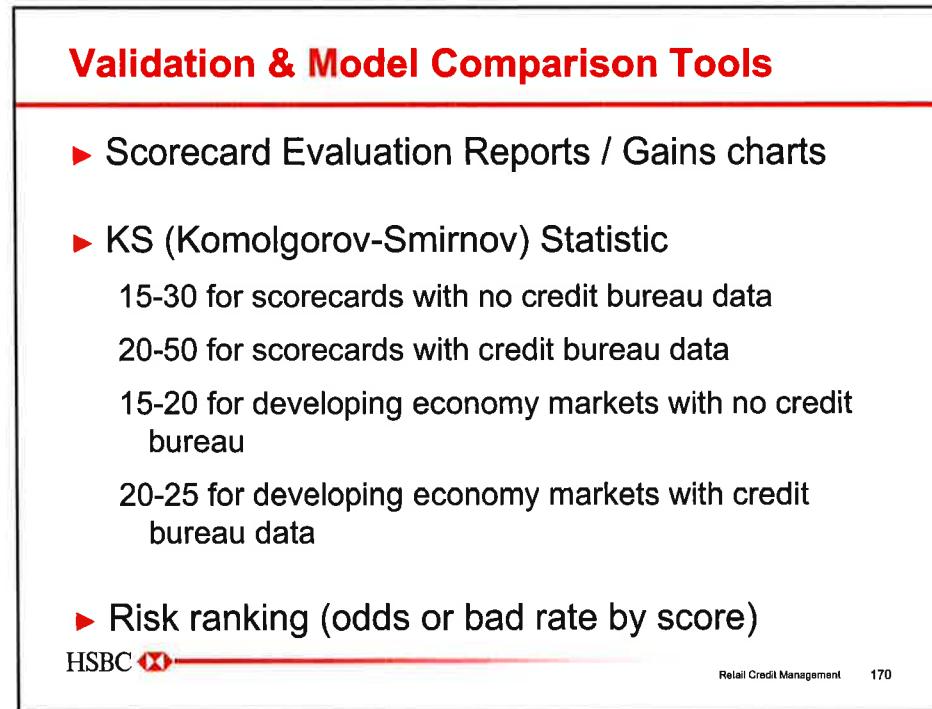
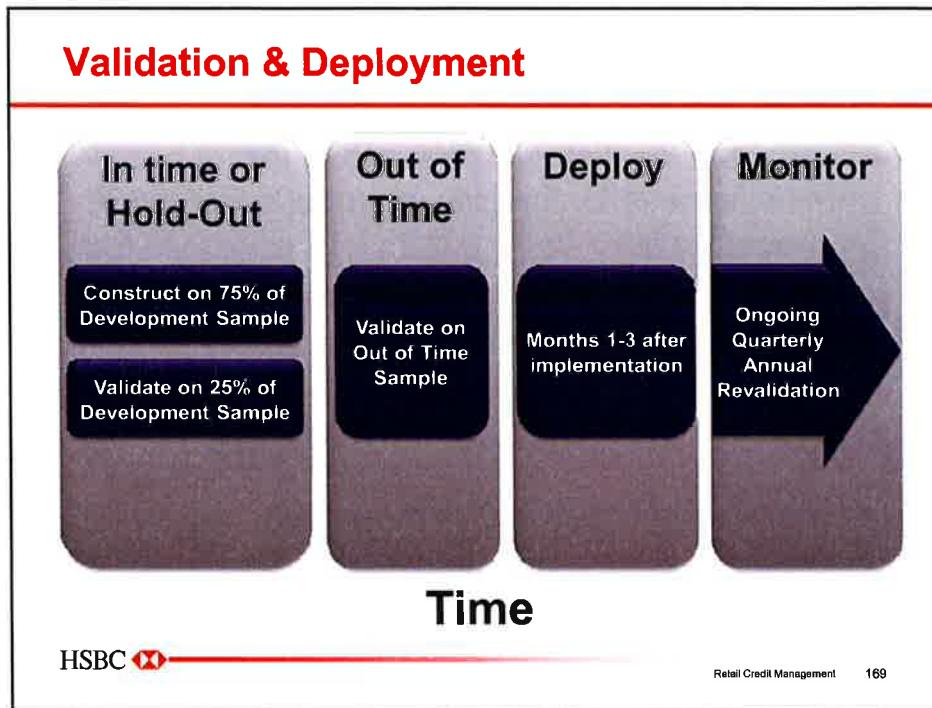
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Segmentation Business Results

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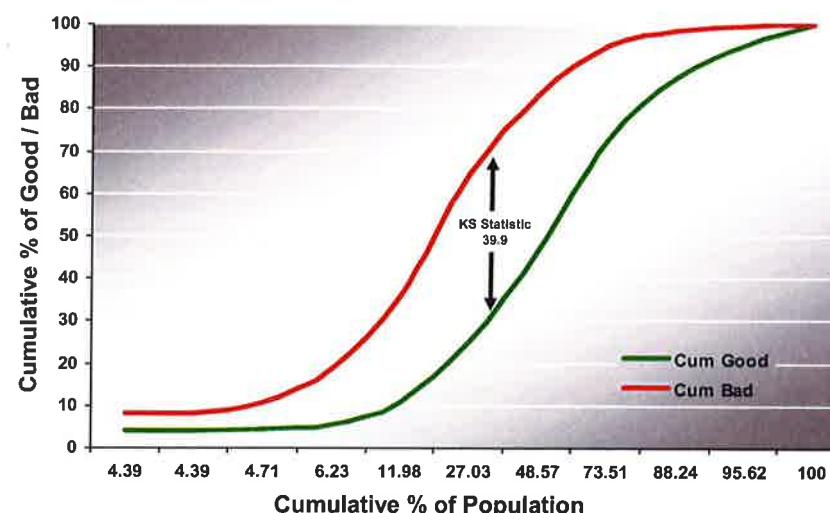
Example Scorecard Evaluation Report

Score Range	Interval Statistics						Performance						Cumulative Statistics					
	Counts						Performance			KS Estimate			Portfolio					
	# Good	% Good	# Bad	% Bad	# Total	% Total	G/B	Bad Odds	Bad Rate	Cum Good	Cum Bad	G - B (KS)	Cum % Total	G/B Odds	Bad Rate	(Desc)		
Unscored	1/50	4.2%	189	8.1%	1939	4.4%	9.3	9.7	4.2	8.1	3.9	100.0	17.9	5.30				
<100	1	0.0%	1	0.0%	2	0.0%	1.0	50.0	4.2	8.1	3.9	95.6	18.6	5.09				
100-139	82	0.2%	58	2.5%	141	0.3%	1.4	41.5	4.4	10.6	6.2	95.6	18.6	5.09				
140-159	481	1.1%	191	8.2%	673	1.5%	2.5	28.5	5.5	18.8	13.3	95.3	19.1	4.97				
160-179	2142	5.1%	399	17.0%	2541	5.7%	5.4	15.7	10.6	35.8	25.2	93.8	20.8	4.59				
180-199	5973	14.3%	679	29.0%	6652	15.1%	8.8	10.2	24.9	64.8	39.9	88.0	24.9	3.86				
200-219	9083	21.7%	436	18.6%	9520	21.5%	20.8	4.6	46.6	83.5	36.8	73.0	38.2	2.55				
220-239	10759	25.7%	263	11.2%	11021	24.9%	40.9	2.4	72.3	94.7	22.4	51.4	57.7	1.70				
240-269	6414	15.3%	93	4.0%	6507	14.7%	69.0	1.4	87.7	98.7	11.0	26.5	93.1	1.06				
260-299	3243	7.7%	21	0.9%	3264	7.4%	151.4	0.7	95.4	99.6	4.2	11.8	164.4	0.60				
300+	1924	4.6%	10	0.4%	1934	4.4%	192.4	0.5	100.0	100.0	0.0	4.4	192.4	0.52				
Totals	41,852	100.0%	2,342	100.0%	44,193	100.0%	17.9	5.3	KS*	=	39.9							
Bad Rate		5.3%																

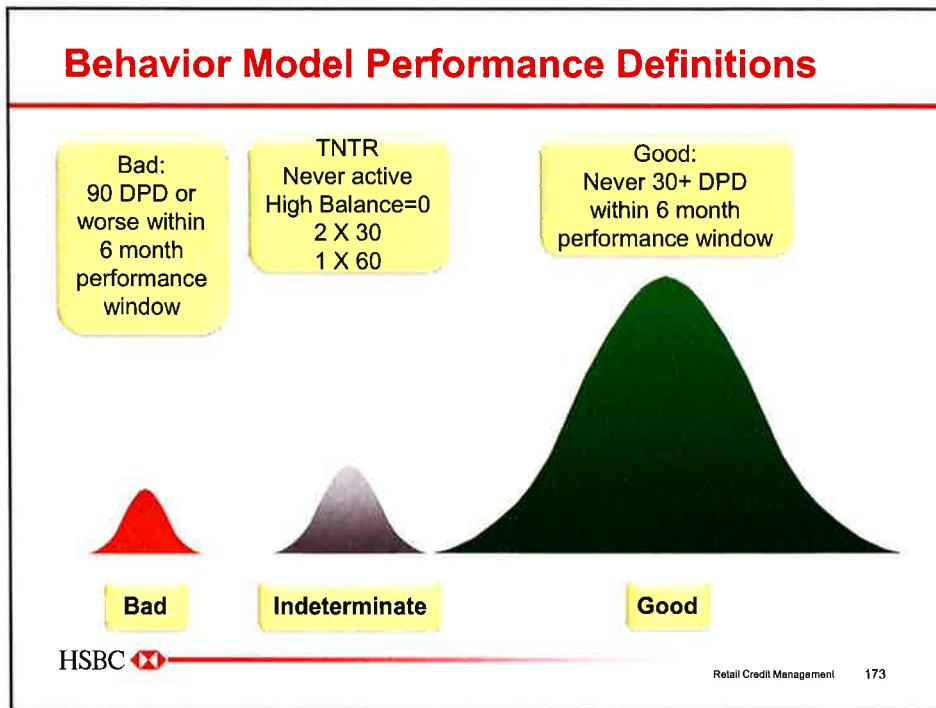
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Calculating KS from Evaluation Reports

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Retail Credit Management 172



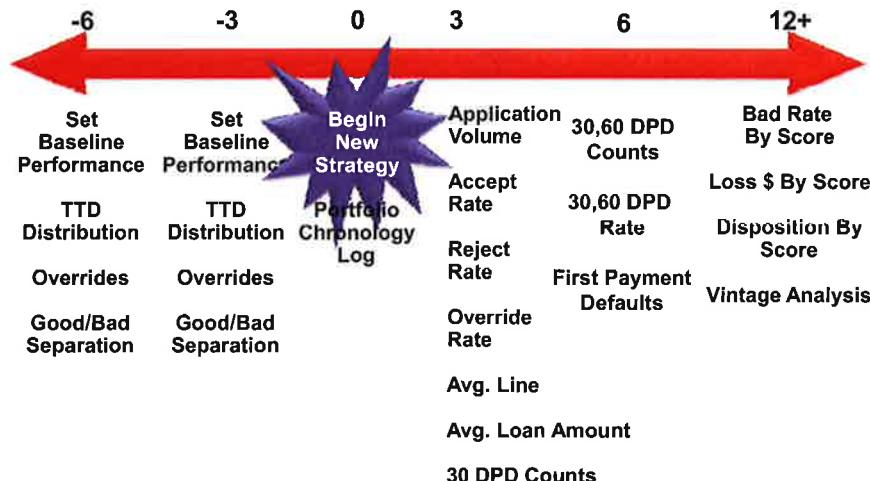
Sample Current Behavior Scorecard

	Min to -1	0	1	2	3 Or More			
Max Consecutive Months Delinquent >0	50	90	75	50	40			
Balance % Limit	55	80	60	55	45			
Months On Books	55	40	45	50	55	60	65	70
Months Since Delq. >0	55	50	55	60	80	55		
Average Balance Last 6 Months	Min to -1	0 to 1000	1001 to 2500	2501 to 10000	10001 Or More			
Average Cash Adv	55	65	60	50	45			
Payment % Balance	45	55	50	55	60	65		
Pct (Pay>Amt Due) Last 9 Mos.	Min to -1	0	1 to 20	21 to 60	61 to 80	81 Or More		
Number Of Cards	55	50	65					
Payment % Amount Due	Min to -1	0 to 100	101 to 150	151 to 200	201 Or More			
Balance % of Max Balance 6 Months	Min to -1	0 to 90	91 to 95	96 to 99	100 to 100	101 Or More		
Times Returned Check	55	60	45					
Months Since Delq. >1	Min to 1	2 to 5	6 to 12	13	14 Or More			

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Scorecard Tracking



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Population Stability Report

- ▶ Shows changes in population distribution by score
- ▶ Review monthly, quarterly or every 6 months depending on volume
- ▶ Compare applicant or customer distribution in recent period to historical norm: development data or recent prior period
- ▶ Discover minor to major changes in applicant and/or booked populations – react with policy, strategy or marketing changes

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Population Stability Report: Calculating PSI

Score Range	Development Time		Recent Time		Information Difference F (E - C)	Odds G (E / C)	Weight Of Evidence H Ln(G)	Info Value (Stability Index) I (F * H)
	Count	Percent	Count	Percent				
	B	C	D	E				
<100	33	0.25%	36	0.26%	0.00%	1.017	0.017	0.000
100-124	210	1.61%	250	1.79%	0.18%	1.110	0.104	0.000
125-149	927	7.11%	1250	8.94%	1.83%	1.257	0.229	0.004
150-174	1,865	14.31%	2215	15.85%	1.54%	1.107	0.102	0.002
175-199	2,256	17.31%	2436	17.43%	0.12%	1.007	0.007	0.000
200-224	2,127	16.32%	2567	18.37%	2.04%	1.125	0.118	0.002
225-249	2,106	16.16%	2054	14.70%	-1.46%	0.909	-0.095	0.001
250-274	1,717	13.18%	1754	12.55%	-0.63%	0.952	-0.049	0.000
275-299	1,095	8.40%	857	6.13%	-2.27%	0.730	-0.315	0.007
301&Up	695	5.33%	557	3.99%	-1.35%	0.747	-0.291	0.004
Total	13031	100%	13976	100%			Population Stability Index	0.021

Retail Credit Management 177

Characteristic Analysis Report

- ▶ Shows detail for each characteristic on what is contributing to a change in population distribution
- ▶ Can be calculated monthly but quarterly is often enough
- ▶ Compare recent applicant or booked population distribution by attribute to your standard
- ▶ Can be used to understand shifts in population from many sources including scorecard security breaches or coding errors

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Retail Credit Management 178

*If PSI < 71.5
the model nodes
if PSI 72.5
the model
doesn't work*

Characteristic Analysis

Characteristic: Time on Job

	Dev. Sample Count	Recent Sample Count	Dev. Sample %	Recent Sample %	Difference	Points	Difference X Points
<.5	4,000	500	4.0%	2.1%	-0.02	3	-0.06
.5-1.49	21,000	2,500	21.0%	10.3%	-0.11	9	-0.96
1.5-2.49	35,000	6,250	35.0%	25.8%	-0.09	18	-1.66
2.5-5.49	15,000	6,250	15.0%	25.8%	0.11	22	2.37
5.5-12.49	10,000	3,750	10.0%	15.5%	0.05	29	1.58
12.5 & Up	10,000	3,000	10.0%	12.4%	0.02	38	0.90
Retired	5,000	2,000	5.0%	8.2%	0.03	39	1.27
Total	100,000	24,250	1	1	Score Difference:	3.44	

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Retail Credit Management 179

Using Credit Bureau Data

- ▶ What is credit bureau data?
 - Negative – delinquency, debt & bankruptcy history
 - Positive – balance, limit & account type record
- ▶ Very predictive in scorecards
- ▶ Highly useful in consumer credit strategies
 - Online: Acquisitions / origination
 - Offline: Marketing, Account management
- ▶ Archive data
- ▶ Aggregated data
- ▶ Consumer transparency

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Retail Credit Management 180

Typical Credit Bureau Data Elements

Consumer Name

Consumer Address

Reporting Company

Account Number
(truncated)

Account Open Date

Loan Term

Account Status

Last Payment Date

Current Balance

Consumer Comment

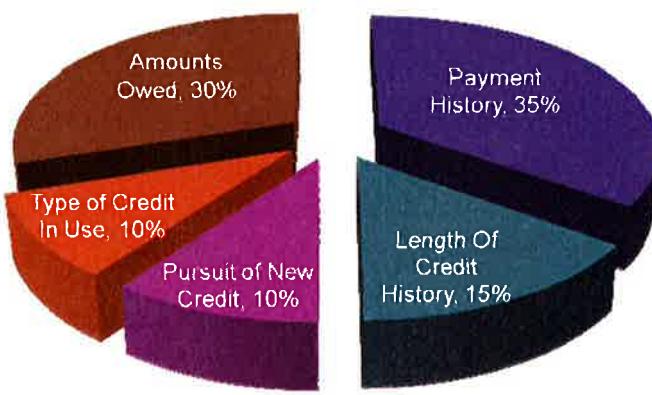
Last Payment
Amount

Portfolio Type

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Retail Credit Management 181

Bureau Scores: Predictive contribution



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Retail Credit Management 182

Statistical Techniques

- ▶ Decision Trees
 - CHAID
 - CART
- ▶ Regression
 - Linear
 - Logistic
- ▶ Software Based / Proprietary
 - eMiner
 - Clementine (SPSS)
 - Knowledge Studio
 - Fico Inform+
 - Infocentricity Xeno

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Retail Credit Management 183

Credit Scoring Summary

- ▶ Different data, different uses
 - Application models screen applications
 - Behavior models used on current customers
 - Bureau models used throughout lifecycle
- ▶ Cutoffs selected by business goals, not statistical measures
- ▶ Analytics also used in strategy to determine strategy decision keys to assign actions to homogenous groups of customers
- ▶ Odds to score relationship is dynamic & critical

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Retail Credit Management 184

Questions & Answers

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Retail Credit Management 185

Application Scoring Exercise

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Planning Module Goals

- ▶ Discover major aspects of consumer credit product planning
- ▶ Learn to plan for profitable, valuable consumer credit product by understanding
 - Consumer Targeting
 - Customer segmentation
 - Revenue Generation
 - Delinquency & loss control
 - Return on Equity (ROE) / ROA Measurements

Consumer Credit Planning Dimensions

- ▶ Understanding the environment
- ▶ Analyzing the line of business
 - Mechanics: P&L dynamics
 - Competition
- ▶ Targeting specific consumers groups with specific credit use & repayment behaviors
- ▶ Selecting product features, terms, & conditions
- ▶ Estimating profitability / product performance
 - Segment up
 - Portfolio ROA down
- ▶ Acquiring country / group investment / approvals

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Retail Credit Management 189

Planning Ladder: Steps in Succession

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Retail Credit Management 190

Environmental Analysis

- ▶ Credit active population size
- ▶ Historical GDP growth rate / expected medium term growth rate
- ▶ Economic history – barbell or bell shaped wealth distribution?
- ▶ Political history / current regime stability
 - Regulatory governance
- ▶ Social history / current level of social stability
- ▶ Legal environment
 - Bankruptcy procedures / consumer protections
 - Repossession / foreclosure protections, processes for lenders

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Retail Credit Management 191

Business Analysis

- ▶ Legal constraints
 - Marketing vs. privacy
 - Pricing - usury caps? Fee caps? Risk based pricing permitted?
 - Collections – consumer protections
 - Loss recognition requirements
- ▶ Evaluating the competition
 - Locals only or multinationals present?
 - Recent P&L results from public competitors?
 - What consumer products available at what pricing?
 - Typical product terms, conditions & rewards
 - Recent loss results

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Retail Credit Management 192

Product Features / Consumer Targets

- ▶ What differentiates HSBC renting a commodity?
 - Target market: underbanked, unbanked, informal economy participants
 - Pricing
 - Techniques: Points / rebates / discounts / merchandise
- ▶ Which consumer segments beyond rich people?
 - Students, small business owners, government employees, public/private company employees, self-employed
- ▶ Can we empirically size consumer segments to understand our opportunity

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Exercise: Sizing & Targeting Segments

- ▶ Take 8 minutes to discuss ways to identify the following credit-active groups in the home country from 1 group member:

Group 1:
Small
Business
Owners

Group 2:
Gov't /
Public
Employees

Group 3:
Private
Company
Employees

Group 4:
Self-
Employed

Group 5:
University
/ Technical
School
Students

- ▶ If credit card opportunity were large enough what value proposition would you offer your assigned group?

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Retail Credit Management 194

Consumer Credit Performance Targets

- ▶ U.S. businesses work to 20% or better ROE Target
- ▶ Additional profit targets: ROA, NIM, NIAC, PV, etc.
 - Lower for mortgage products
 - Middling for loan / installment products
 - Higher for credit card products
 - Highest for subprime products
- ▶ HSBC has many pricing models (200+?)
- ▶ Wall Street herd instincts: ROE of 40% may not be ok if losses exceed 25%

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Retail Credit Management 195

Calculating ROE & ROA

- ▶ Return on Assets

$$\frac{\text{Total ([Net Profit Before Tax] * 12)}}{\text{Total ([Average Assets])}}$$

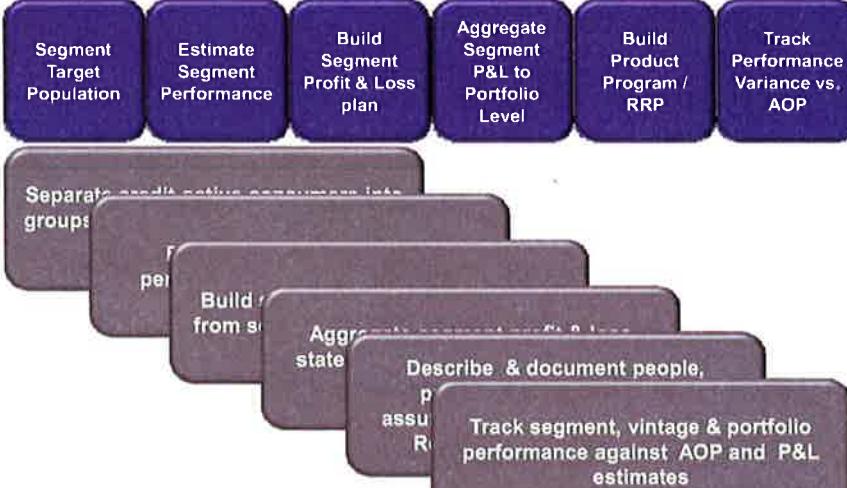
- ▶ Return on Equity

$$\frac{\text{Net Profit Before Tax}}{\text{Average Equity}}$$

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Pricing Model Elements

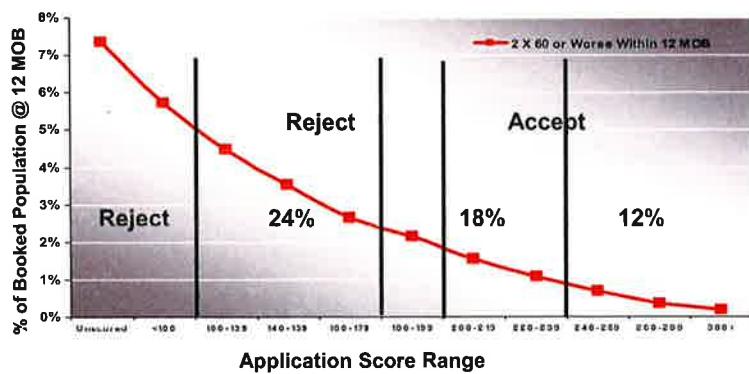


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Retail Credit Management 197

Risk Based Pricing

- Using scorecards and other objective factors to create a pricing structure which rewards lower risk customers with cheaper pricing



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Retail Credit Management 198

Profit Model Principles

- ▶ Models are used in origination activities: mass mailings, branch originations, bulk purchases, cross-sales, portfolio purchases
- ▶ Vintage based pro-forma P&L's
 - Use history to understand trends; react with changes to credit criteria, score cutoffs, and pricing
- ▶ Develop profit models at segment level – not portfolio
 - More granularity = more flexibility to react to market, credit risk and other signals
- ▶ Good practices
 - Pricing models should contain indicators of 2+ \$ / account delinquency @ 3, 6 MOB reflecting expected charge-off performance
 - Validate at least as often as scoring models by group independent of pricing model builders
 - Where possible use macro-economic data and stressed performance to understand portfolio exposures to macro-shocks (recessions, depressions, currency shocks, etc.)

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Retail Credit Management 199

Defining Segments & Estimating Performance

- ▶ Identifying / Creating Population Target Segments
- ▶ Separate credit active population into groups with different repayment performances:
 - High income,
 - Affinity Group Members
 - Mature
 - Students
 - Young married
 - Blemished credit
 - Rate insensitive (transactors, subprime)
- ▶ Understand size of each credit active population segment

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Retail Credit Management 200

Estimating Segment Performance

- ▶ **Segment level performance estimates allow BU to understand relative risk of each segment**
- ▶ Estimate key variable performance (e.g. activation, utilization attrition, charge-off) using available empirical data
 - If unavailable, borrow data from other business units, countries or work from credit bureau / industry benchmark data
- ▶ Forecasting segment & portfolio level performance helps business establish expectations for:
 - Volumes, Average credit lines, loan amounts, volume, delinquency & loss
- ▶ Use performance estimates to create early warning report comparison benchmarks (Units & Currency)
- ▶ Business Unit & Independent review of performance estimates required prior to mapping into the P&L

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Retail Credit Management 201

Planning Segment Level Profit & Loss

- ▶ **Segment level profit & loss measurements permit each business unit to find & monitor unprofitable segments for reject or pricing action**
- ▶ Build benchmarks for early warning unit and currency indicators using borrowed, industry or credit bureau data
- ▶ Early warning reports allow quick responses when for underperforming segments or marketing campaigns
 - First Payment Defaults by Score at 3 MOB; 2+ \$ / 2+ Units >30 DPD at 6 MOB
 - Early warning reports & standard originations MIS (TTD By Score, Accept Rate by Score, Policy Failure by Rule, etc) required for monitoring from Month 1 after a new product is rolled out

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Retail Credit Management 202

Segment Level 5 Year Pro Forma P&L

	Year 1	Year 2	Year 3	Year 4	Year 5
Avg Outstandings	\$ 1,000,000	\$ 820,000	\$ 565,800	\$ 333,822	\$ 63,426
Revenue					
Interest Income	\$ 90,000	\$ 73,800	\$ 50,922	\$ 30,044	\$ 5,708
Fee Revenue	\$ 7,500	\$ 7,688	\$ 6,630	\$ 4,890	\$ 1,161
Interest Expense (COF)	\$ 45,000	\$ 36,900	\$ 25,461	\$ 15,022	\$ 2,854
Net Interest Margin	\$ 52,500	\$ 44,588	\$ 32,091	\$ 19,912	\$ 4,016
Expenses					
Bad Debt Expense	\$ (6,000)	\$ (12,300)	\$ (11,316)	\$ (10,015)	\$ (2,537)
Overhead/Allocations	\$ (11,500)	\$ (4,715)	\$ (2,440)	\$ (1,080)	\$ (154)
Salaries	\$ (6,750)	\$ (4,151)	\$ (2,148)	\$ (951)	\$ (135)
Servicing Expenses	\$ (2,500)	\$ (2,050)	\$ (1,415)	\$ (835)	\$ (159)
Statement Expense	\$ (750)	\$ (615)	\$ (424)	\$ (250)	\$ (48)
Total Expense	\$ (27,500)	\$ (23,831)	\$ (17,743)	\$ (13,130)	\$ (3,033)
Net Income Pre-Tax	\$ 25,000	\$ 20,756	\$ 14,348	\$ 6,782	\$ 983
Tax	\$ 9,000	\$ 7,472	\$ 5,165	\$ 2,442	\$ 354
Net Income After-Tax	\$ 16,000	\$ 13,284	\$ 9,183	\$ 4,341	\$ 629
After-Tax ROA	1.60%	1.62%	1.62%	1.30%	0.99%
Retail Consumer Rate	9.00%	9.00%	9.00%	9.00%	9.00%

Retail Credit Management 203

Alternative Scenario: Higher Credit Losses

	Year 1	Year 2	Year 3	Year 4	Year 5
Avg Outstandings	\$ 1,000,000	\$ 820,000	\$ 565,800	\$ 333,822	\$ 63,426
Revenue					
Interest Income	\$ -	\$ -	\$ -	\$ -	\$ -
Fee Revenue	\$ 7,500	\$ 7,688	\$ 6,630	\$ 4,890	\$ 1,161
Interest Expense (COF)	\$ -	\$ -	\$ -	\$ -	\$ -
Net Interest Margin	\$ 7,500	\$ 7,688	\$ 6,630	\$ 4,890	\$ 1,161
Expenses					
Bad Debt Expense	\$ (9,000)	\$ (18,450)	\$ (16,974)	\$ (15,022)	\$ (3,806)
Overhead/Allocations	\$ (11,500)	\$ (4,715)	\$ (2,440)	\$ (1,080)	\$ (154)
Salaries	\$ (6,750)	\$ (4,151)	\$ (2,148)	\$ (951)	\$ (135)
Servicing Expenses	\$ (2,500)	\$ (2,050)	\$ (1,415)	\$ (835)	\$ (159)
Statement Expense	\$ (750)	\$ (615)	\$ (424)	\$ (250)	\$ (48)
Total Expense	\$ (30,500)	\$ (29,981)	\$ (23,401)	\$ (18,137)	\$ (4,301)
Net Income Pre-Tax	\$ (23,000)	\$ (22,294)	\$ (16,771)	\$ (13,247)	\$ (3,140)
Tax	\$ (8,280)	\$ (8,026)	\$ (6,037)	\$ (4,769)	\$ (1,130)
Net Income After-Tax	\$ (14,720)	\$ (14,268)	\$ (10,733)	\$ (8,478)	\$ (2,009)
After-Tax ROA	-1.47%	-1.74%	Below ROA Hurdle of 1.5		
Retail Consumer Rate	9.00%	9.00%	9.00%	9.00%	9.00%
Cost of Funds	4.50%	4.50%	4.50%	4.50%	4.50%
Net Credit Losses	0.90%	2.25%	3.00%	4.50%	6.00%
Voluntary & Involuntary Attrition		18%	31%	41%	81%

Retail Credit Management 204

Aggregating Up to P&L for Review

- ▶ Aggregate segment level results to determine product / portfolio profitability
 - Does P&L meet Group standards for ROE / ROA / PBT
 - Do you believe the estimates?
- ▶ BU & Independent Review & Approvals
- ▶ Document development, monitoring & governance processes must include business unit & independent reviews
- ▶ Documentation must include MIS demonstrating early performance against expectations including financial assumptions
- ▶ Review processes must take place at least quarterly
 - Both forecasted segment level and overall P&L's will be reviewed and approved
 - Financial assumptions, such as cost of funds, operating expenses, etc. will also be reviewed and approved

Build Portfolio Pro Forma from Segments

The diagram illustrates the aggregation of three separate segments into a single portfolio-level pro forma statement. On the left, three separate tables labeled "Segment 1", "Segment 2", and "Segment 3" are shown. Arrows point from each of these three tables to a larger, central table on the right labeled "Portfolio Pro Forma". The "Portfolio Pro Forma" table contains the aggregated financial data from all three segments.

	Segment 1	Segment 2	Segment 3	Portfolio Pro Forma
Revenue	\$ 1,000,000	\$ 820,000	\$ 965,800	\$ 335,822
Interest Income	\$ 90,000	\$ 73,800	\$ 60,922	\$ 30,044
Interest Expenses (IC)	\$ 45,000	\$ 36,900	\$ 25,481	\$ 15,022
Net Interest Margin	\$ 52,500	\$ 44,568	\$ 32,661	\$ 19,912
Expenses	\$ (6,000)	\$ (12,300)	\$ (11,316)	\$ (10,015)
Bank Credit Expenses	\$ (11,500)	\$ (4,715)	\$ (2,440)	\$ (1,060)
Overhead/Allocations	\$ (6,500)	\$ (4,151)	\$ (2,100)	\$ (951)
Servicing Expenses	\$ (2,600)	\$ (2,419)	\$ (1,419)	\$ (603)
Administrative Expense	\$ (750)	\$ (815)	\$ (424)	\$ (250)
Other	\$ (27,300)	\$ (23,831)	\$ (17,743)	\$ (13,150)
Net Income Pre Tax	\$ 25,000	\$ 20,756	\$ 14,348	\$ 6,782
Tax	\$ 9,000	\$ 7,472	\$ 5,165	\$ 2,442
Net Income After Tax	\$ 16,000	\$ 13,284	\$ 9,183	\$ 4,341
Margin %	1.60%	1.62%	1.07%	1.30%
ROE %	9.00%	9.00%	9.00%	9.00%
Capital Funds	4.50%	4.50%	4.50%	4.50%
Net Income Margin %	0.80%	1.50%	2.00%	3.00%
Voluntary & Incentive	18%	31%	41%	81%
ROE Calculations				
Total ROE	\$ 70,923	\$ 63,077	\$ 43,923	\$ 29,679
ROE %	12%	12%	12%	12%
IC	21%	21%	17%	13%
Voluntary & Incentive	18%	31%	41%	81%

Working from ROA Hurdle to Criteria

- ▶ Where cell ROA > ROA Hurdle, book it...
- ▶ Price – Annualized Losses – Annualized Expenses = Cell ROA

ROA	4% Pre-Tax								
Price to Consumer									
Credit Score	LTV	Annualized Net Credit Losses Rate	720-759	680-719	660-679	640-659	620-639	600-619	<600
<50	800+	760-709	720-759	680-719	660-679	640-659	620-639	600-619	<600
50-54	750-700	9.50%	9.75%	10.00%	10.25%	10.50%	11.00%	11.50%	N/A
55-59	700-650	9.75%	10.00%	10.25%	10.50%	11.00%	11.25%	12.00%	N/A
60-64	650-600	10.00%	10.25%	10.50%	10.75%	11.00%	11.25%	11.50%	N/A
65-69	600-550	10.25%	10.50%	10.75%	11.00%	11.25%	11.50%	12.00%	N/A
70-74	550-500	10.50%	10.75%	11.00%	11.25%	11.50%	11.75%	12.50%	1.6%
75-79	500-450	10.75%	11.00%	11.25%	11.50%	11.75%	12.00%	12.50%	N/A
80-84	450-400	11.00%	11.25%	11.50%	11.75%	12.00%	12.25%	12.75%	N/A
85-89	400-350	11.25%	11.50%	11.75%	12.00%	12.25%	12.50%	12.75%	N/A
90-94	350-300	11.50%	11.75%	12.00%	12.25%	12.50%	12.75%	13.00%	N/A
95-99	300-250	11.75%	12.00%	12.25%	12.50%	12.75%	13.00%	13.25%	N/A
100+	250+	12.00%	12.25%	12.50%	12.75%	13.00%	13.25%	13.50%	N/A
	100+	1.64%	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Build RRP / Credit Program Elements

- ▶ Business Objective
- ▶ Business Strategy
- ▶ Risk Environment
- ▶ Financial Highlights
- ▶ Performance Highlights
- ▶ Product Summary
- ▶ Target Market
- ▶ Economic & Competitive Analysis
- ▶ Product Description
- ▶ Principal Terms and Conditions
- ▶ Credit Authority Matrix
- ▶ Credit Life Cycle
- ▶ Account Initiation
- ▶ Underwriting
- ▶ Account Management
- ▶ Collections
- ▶ Funding & Pricing Strategies
- ▶ Funding Strategy
- ▶ Pricing Strategy
- ▶ Basel II Metrics
- ▶ Segmentation
- ▶ PD, EAD, LGD
- ▶ Product Performance Table
- ▶ Financial Performance
- ▶ Financial Detail
- ▶ Stress Testing
- ▶ Product Change Request Form

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Tracking Performance Against AOP

- ▶ Produce Monthly / quarter MIS showing actuals against estimated performance
- ▶ Produce actuals in total and for same segments identified in Step 3 and forecasted in Steps 4 through 5
 - Compare results to expectations
 - Determine which segments, products & portfolios perform as expected
- ▶ Build feedback loop reporting: update forecasts with recent actual performance
- ▶ Review financial assumptions for ongoing credibility: cost of funds, loss assumptions, collections & operating expenses, etc.
- ▶ BU's required to document comparison of quarterly actuals against expectations for 24 – 60 months, based on Basel II portfolio / product segmentation

Return on Equity Profit Model

- ▶ When “building up” price consider operational efficiency and capacity in relation to product pricing & performance
- ▶ Build pricing at risk cell, segment, & product levels, to appropriately set price across customer population
- ▶ Generalized pricing schemes can result in adverse selection, if competitors give better customers a lower rate, and higher risk customers a higher rate.

Debt to Equity: Leverage Effect on ROE

Price "Build-Up" Example	Unsecured Loan	SubPrime Card	Mortgages
Cost of Funds*	5.50%	5.96%	4.75%
Acquisition Expense**	0.75%	1.20%	1.00%
Servicing Expense	0.15%	4.00%	0.10%
Net Credit Loss Expense***	1.25%	10.00%	0.10%
Allocation of Fixed Expense	0.50%	1.75%	0.15%
Pre-Tax ROA Hurdle	2.00%	3.50%	1.00%
Price to Consumer	10.15%	26.41%	7.10%

* Cost of funds is based on equity leverage ratio, cost of equity and the cost of debt.
For example, if you have a 12:1 ratio, \$1 of equity is required for every \$12 of debt used to fund the product receivables.
In this case, equity expense is 18% and debt expense is 5%.

Debt expense is driven by funding methodology, expected weighted average life and market rates.

The leverage ratio is a function of the "riskiness" of the asset and may vary by segment, etc.

	Loan	Card	Mortgage
Equity (Bank Cash or Equivalent)	1	18.00%	1
Debt	12	4.46%	8
Cost of Funds	13	5.50%	9

**Expenses are on an annual basis.

Total expense divided by the weighted average life of the asset and the average outstanding balance.

First scenario \$1,000 acquisition expense divided by 3 years average life and \$44,500 average balance yields a 0.75% expense

(Small second lien on a home)

***Credit loss expenses will be driven based on the lifetime expectations for losses.

Expectations for net credit loss typically vary by risk cell and result in price variation.



Fast Moving Emerging Markets

- ▶ Emerging becoming developed markets quickly
 - Improved regulatory regimes
 - Privacy concerns
 - Investment in infrastructure
 - Creation of bureaus
- ▶ Keys to identify "developed" status
 - Good communications infrastructure
 - Regulatory concerns about credit limits & pricing
 - Arrival of positive credit bureau data
 - Increased competition / new products arrive
- ▶ Plan for margin compression as countries develop



Product Planning Summary

- ▶ Evaluate environment
- ▶ Understand competition & business constraints
- ▶ Identify consumer segments
- ▶ Build segment level P&L
- ▶ Aggregate segment P&L to portfolio
- ▶ Evaluate from ROA perspective
- ▶ Write RRP / CEPA to obtain investment & signoffs
- ▶ Assuming a “go”, track against AOP targets

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Questions & Answers

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Retail Credit Management 214



Marketing & Acquisitions

July, 2008

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Marketing & Acquisitions Module Goals

- ▶ Discover consumer credit sales channels
 - Goals for common channels
 - Levers of control
 - What to monitor
- ▶ Learn new applicant origination processes
 - Credit policy rules
 - Application Scoring
 - Fraud checking
- ▶ Understand key pieces of MIS to track originations

Typical Marketing Responsibilities

- ▶ Define consumer segments
- ▶ Identify & understand consumer needs
- ▶ Select promotional technique / channel
- ▶ Create offers
- ▶ Manage offer campaigns
- ▶ May have input on risk side
 - Product Pricing
 - Application length
 - Policy rules & score cutoffs
- ▶ Generally manages to volume incentives

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How Many App. Sources Can We Name?

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Direct or Mass Marketing & Promotions

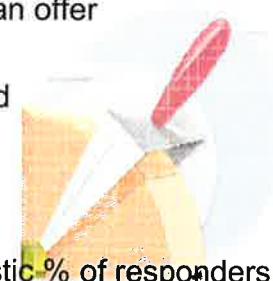
- ▶ Use available data to target & attract prospects
- ▶ Sources: government census, voter rolls, credit bureau data, previous purchase data
- ▶ U.S. style Pre-approvals using bureau data banned in most places by law or bureau association rules
- ▶ Non-personal bureau & other data may help locate physical presence points:
 - Kiosks / Branches / Sales Agents / ATMs
 - Take 1 / Invitation to Apply
 - Direct Mail

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Mass Marketing Levers & Measures

- ▶ Targeting data & marketing cost
 - Use data to define target groups: prime, near prime, subprime
- ▶ Mailbase – how many receive an offer
- ▶ Response Rate
 - % of prospects who respond to an offer
- ▶ Approval Rate
 - % of responders who are booked
- ▶ Net Response rate
 - Approvals as % of Mailbase
- ▶ Activation rate
 - Cashed cheques / activated plastic % of responders

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Mass Marketing Actions

- ▶ Purchase / acquire data for targeting
- ▶ Create targeting criteria and filters
- ▶ Build offer / target existing offer
- ▶ Mail offer or invitation to apply
- ▶ Track campaign response, booked, and loss rates
- ▶ Locating a physical presence point in high traffic area
 - Application kiosk / ATM
 - Branch / Direct Sales office

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Measuring Mass Marketing

- ▶ Number of Mailed pieces
 - Understand marketing expenditures
- ▶ Response Rates
 - Correctness of targeting, offer, terms & conditions
 - Note by segment / geography
- ▶ Number of Responders
- ▶ Number of booked accounts / Activations

Subprime Example

Mailbase	33,644,415
Gross Response Rate	0.92%
Approval Rate	62.41%
Net Response Rate	0.58%

Near Prime Example

Mailbase	16,062,003
Gross Response Rate	0.71%
Approval Rate	76.02%
Net Response Rate	0.54%

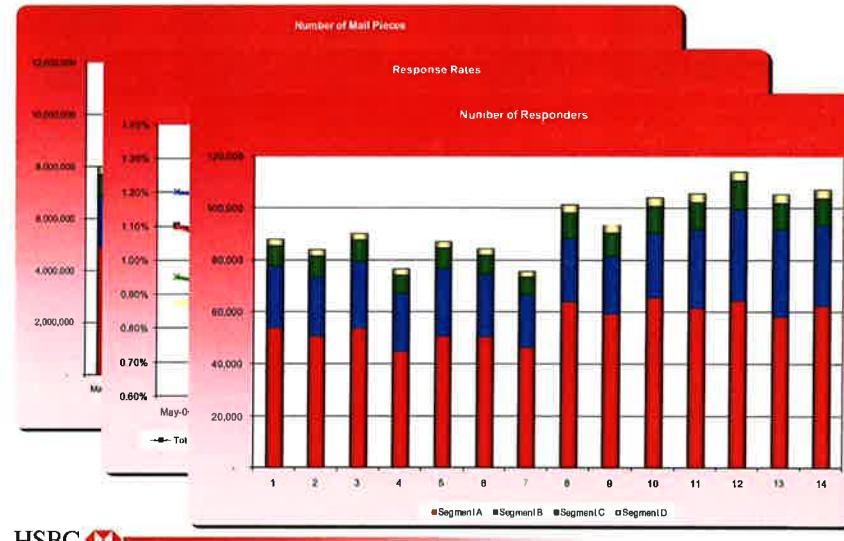
CPA per Booked Account	\$55.61
CPA per Active Account (Yr 1 Avg)	\$71.19
FL-CPA per Active Account (Yr 1 Avg)	\$72.77
CPA per \$1000 of Rec. (MOB 12)	\$220.12

CPA per Booked Account	\$59.23
CPA per Active Account (Yr 1 Avg)	\$77.56
FL-CPA per Active Account (Yr 1 Avg)	\$78.67
CPA per \$1000 of Rec. (MOB 12)	\$106.23

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Retail Credit Management 222

Mass Marketing Success Measures



Retail Credit Management 223

Emerging vs. Developed Markets

Emerging Markets

Use application data and heavy or selected verifications via phone or onsite visits

Heavier human intervention & manual verification of facts:

- Employment
- Income
- Residence
- Phone

Some governments encouraging creation of credit bureaus to encourage consumer lending

Developed Markets

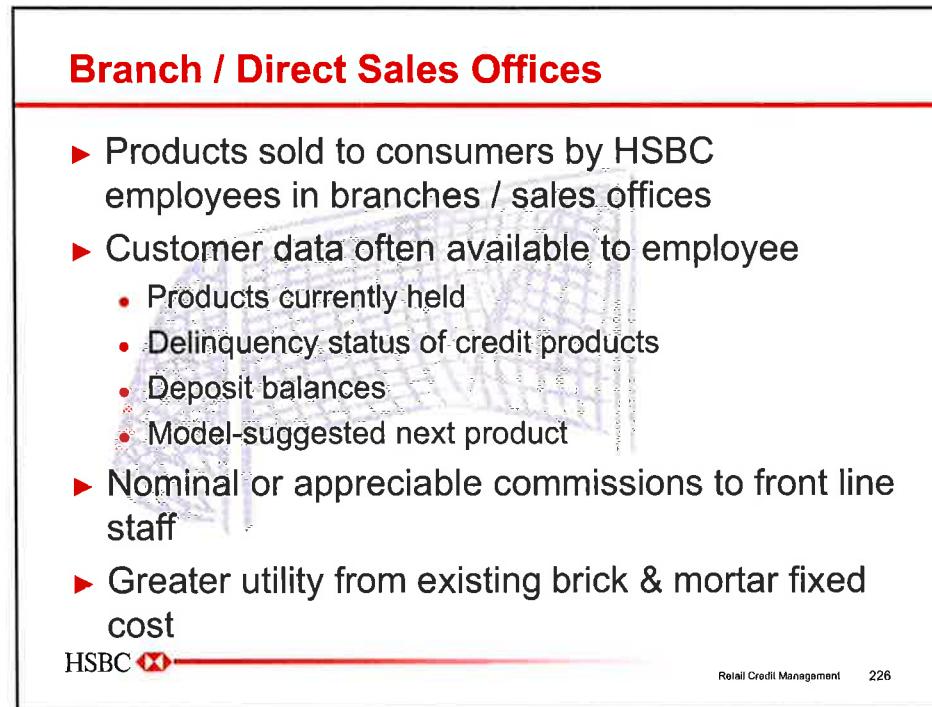
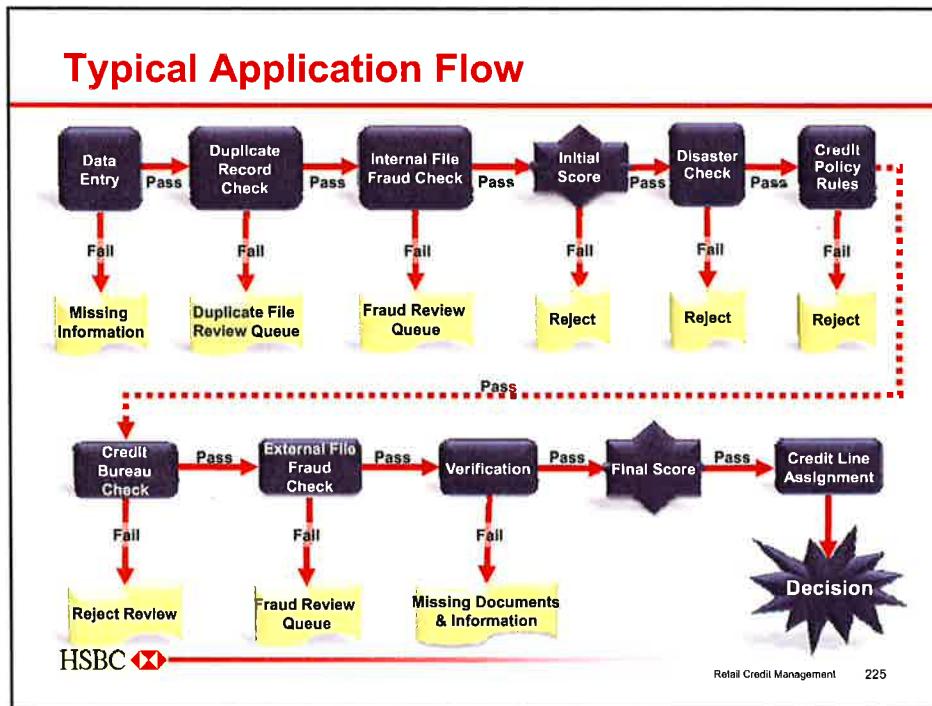
Credit bureau centric process to avoid applicant conflict of interest with respect to veracity of volunteered information

Underwriting highly automated

Consumers increasing privacy sensitive due to digital data aggregation & tracking

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Branch / Direct Control Levers

- ▶ Compensation to front line staff
 - Large enough to get some attention
 - Small enough to discourage annoying customers there doing other business
 - Vary by product: \$10 - \$50 one time commission / bonus
- ▶ Training / Scripting for staff on how to approach sales
- ▶ Data displayed to CSR's / Tellers
 - Guide on "what product next"
 - Actions to close sales: refer to officer, sell, suggest, etc.

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Retail Credit Management 227

Branch / Sales Office Actions

- ▶ Identify existing / new customers for product sales
 - Cross sell bankcard to deposit / loan customers
 - *Don't* cross sell & maybe collect from seriously delinquent customers
- ▶ Sell appropriate products guided by frontline systems & advice
 - Investments & mortgages to students?
 - Student loans to Private Bank Clients
- ▶ Line increase or collections in the branch?

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Retail Credit Management 228

Measuring Branch Office Performance

- ▶ Number of booked accounts per month / quarter
- ▶ Delinquency & losses on credit accounts
- ▶ Average # of Products per customer by branch
- ▶ Bonuses / commissions paid per branch
- ▶ Product mix per branch: % of
 - Cards
 - Loans
 - Mortgages
 - Other products
- ▶ Mix & performance should differ by branch depending on clientele

HSBC 

Retail Credit Management 229

Indirect Lending

- ▶ A third party between HSBC and customers
 - Mortgage broker
 - Private label partner (department store)
 - Automobile dealer
 - Other intermediaries
- ▶ Interests diverge
 - We want profitable loans
 - 3rd party wants a "yes" decision & competitive price
- ▶ 3rd party management critical to profitability
- ▶ In effect 2 customers: Broker & consumer

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Retail Credit Management 230

Indirect Control Levers

- ▶ Sales commissions & product pricing: absolute & relative to competitors
- ▶ Verifiable consumer data
- ▶ Data on submissions from 3rd parties
 - Volume at dealer / sales office / broker level
 - Average application / bureau scores
- ▶ Managing long term profitability
 - Delinquency & losses at dealer / sales office / broker level
 - Proceeds from relationship to both parties for a portfolio

HSBC 

Retail Credit Management 231

Indirect Lending Actions

- ▶ Relationship management
 - Raise / lower commissions to brokers
 - Raise / lower pricing
 - Raise / lower score cutoffs and underwriting standards
- ▶ In the extreme
 - Pursue contractual recourse
 - Appoint / terminate broker
 - Initiate legal action for fraudulent activity
- ▶ To avoid adverse selection, must be competitive on price and producer compensation

HSBC 

Retail Credit Management 232

Measuring Indirect Lending

- ▶ Number of booked accounts per month / quarter
- ▶ Commissions / compensation paid to agents / accounts paid to individual business partners
- ▶ Average sales per agent per month / quarter
• Average amount per account
• Exception rates
• Credit policy
- ▶ Delinquency & write-off rates for agent accounts



THEY GET PAID WHEN WE SAY "YES"

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Retail Credit Management 233

Affinity Groups

- ▶ Credit offers constructed with benefits unique to a tightly, clearly defined group of consumers
 - Membership Clubs
 - Fraternal Organizations
 - Loyalty Clubs
 - Co-Branding Efforts
- ▶ Seek intersection of profitability goals and customer perceived value
 - Points / rewards consumers will use: alumni donations to university, discounts for pet supplies, auto parts, etc...

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Retail Credit Management 234

Cross Selling: Which product next?

- ▶ Offering existing customers of one product additional products or services
- ▶ Identifying consumer needs, risk level and profit potential by product
- ▶ Must be cognizant of privacy laws – can we share data across products or legal entities?
- ▶ Manage consumers at customer level, not account level
- ▶ Use analytics to discover which products should be offered in what order to which segments
- ▶ Establish loss leader product to bundle with additional offers?

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Retail Credit Management 235

Cross Selling Requirements

- ▶ Political will to share data across business units
- ▶ Accurate, comparable account level profitability data
- ▶ Analytics:
 - Next product selection / right-offer models
 - Product propensity to buy models
- ▶ Interoperable product systems: can cards system receive & use data from loan system for customers with both products?
- ▶ Complexities: which of two delinquent accounts to collect first?
- ▶ Multiproduct customers: higher / lower aggregate limits?

HSBC 

Retail Credit Management 236

Cross Selling Actions

- ▶ Offer / do not offer additional products
- ▶ Identify specific sub-segments of original product for different follow-on offers
- ▶ Given a first product of X, which product to offer next?
 - Mortgage to card customers?
 - Personal loan to card customers
 - Cards to investment customers, etc...
 - Insurances to any / all?
- ▶ Difficult analytical questions...
- ▶ Multiproduct customer pricing: Low / Medium / High for second, third, “n’t” product?
- ▶ Discount first product in wallet on addition of others?

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Retail Credit Management 237

Cross Selling Success Measures

- ▶ Number / % of multi-product customers
- ▶ Average length of HSBC customer relationship
- ▶ Number / % of high margin multi-product customers
- ▶ Penetration / conversion rates to 2nd through nth product
- ▶ Lower cost per acquisition reflecting use of internal data and efficient targeting relative to external data
- ▶ Lower delinquency & loss rates relative to single product customers
- ▶ “Stickier” customers – sticking with us, rather than moving on at next offer point
 - Lower attrition rates
 - Higher refinance rates

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Retail Credit Management 238

Internet Lending

- ▶ Attract internet customers by targeted advertising (banners, pop ups, etc) in search engines: Yahoo, Google, Ask Jeeves, AlltheWeb, etc.
 - Engines paid for advertising on per-click basis
 - Put up HSBC ad up when a consumer searches for specific things: "loans", "credit cards", "mortgage information", etc
- ▶ On click-through, consumer presented with a application, brochure or other call to action
- ▶ Limited filtering on risk profile of consumers who click through – IP data of where they've been...
- ▶ Growing, inexpensive sourcing channel, but fraudulent "clicks" suspected to be as high as 20%



Retail Credit Management 239

Internet Actions

- ▶ Work via aggregators / brokers / financial portals
 - Bid on consumer business against other lenders within broker site
 - Particularly sensitive to adverse selection from uncompetitive offers
- ▶ Online applications under HSBC brand
 - Serendipitous consumer discovery (credit hungry)
 - Response to one of our offers (net savvy)
- ▶ Offer / no offer
 - Loans
 - Cards
- ▶ Product / pricing selection



Retail Credit Management 240

Outbound Telemarketing

- ▶ Lists derived from Axiom, credit bureau or equivalent data source
- ▶ Criteria derived from look-alike model based on previous responders
- ▶ Can be follow up call to direct mail
- ▶ Can take inbound calls from generated from internet or mail offer
- ▶ U.S. acquisition \$65 -70 per account in subprime
- ▶ U.S. acquisition \$80 -120 per account in prime
- ▶ Average risk profile, perhaps slightly lower risk

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Retail Credit Management 241

HSBC USA Auto Loan Application

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Applying with HSBC is Easy!

Call us at 1-877-347-4223

HSBC Auto Finance may be able to help you to meet your needs for either a new or used car loan. Complete HSBC's easy on-line application. Your auto loan rate will be quoted by 45 days from the day your application is approved so you can trade the car off your dreams with confidence.

Apply online today or call us at 1-877-347-4223 to apply by phone.

Apply

Apply now! Quotas are firm. And there is no obligation.

Simple steps. Apply in minutes. Get a response in seconds.

Step 1: **Credit Type** **Personal Information** **Vehicle** **Cost of Car**

Select a Loan Type

Purchasing Refinancing

Are you purchasing or refinancing?

Do you want to apply with a Yes No joint applicant?

Get the Credit You Deserve

HSBC Auto Finance is a division of HSBC Bank USA, N.A. Member FDIC and Equal Housing Lender.

Please Read Our Minimum Requirements Before You Apply.

* No approved vehicles. Non-traded vehicles 1/2 are non-traded, non-traded vehicles, basic household, savings, checking, and/or other HSBC vehicles.

* Lease and sales contracts are not tradable in Alaska, Arkansas, Massachusetts, and Puerto Rico.

* At this time, we pay and issue no approvals and do not accept applications for loans in California, Connecticut, Florida, Georgia, Illinois, Indiana, Massachusetts, Michigan, New Jersey, New York, Rhode Island, and Washington.

Please click here if you wish to apply

Transportation

Place of birth

Entry Date*

Day Month Year

Date of birth*

Day Month Year

Nationality*

BURMA FASO

Marital status*

Present home address

Address

City

State

Zip

Phone

Home

Mobile

Office

No. of years at present address

years

Employment status*

Employee / Business name*

Office address

Postcode

Job title

Annual income

Time in current job

Length of remaining contract

Preference

Preferred branch for application

Preferred personal banker

Customer service officer to contact

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Retail Credit Management 242

Australian Card Fine Print

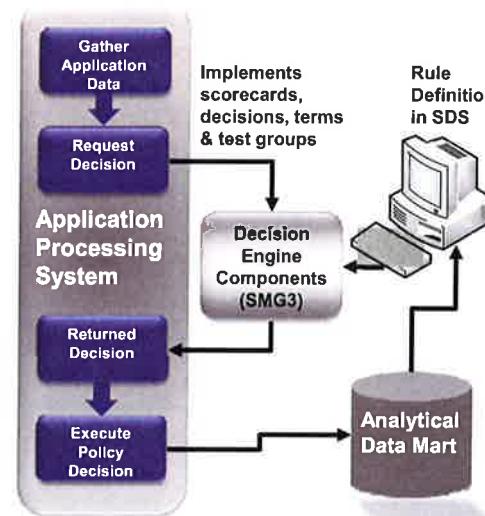
The image shows a scanned copy of the HSBC Low Rate Credit Card Application form. The top section contains the application details. Below it, there are several sections of fine print:

- BALANCE TRANSFER REQUEST (OPTIONAL)**: Instructions for transferring balances from other credit card and other credit sources to your credit card with HSBC.
- AMENDMENT SIGNATURE**: A section for signing changes to the application.
- PRIVACY CONSENT AND DECLARATION**: A detailed declaration about how personal information will be used and shared.

Retail Credit Management 243

Application Screening with SMG3

- ▶ Strategy Manager 3 (SMG3) is Group standard application rules processing engine for consumer products
- ▶ Engine can evaluate credit policy rules, scores, fraud rules & other logic to render accept/reject decisions



Retail Credit Management 244

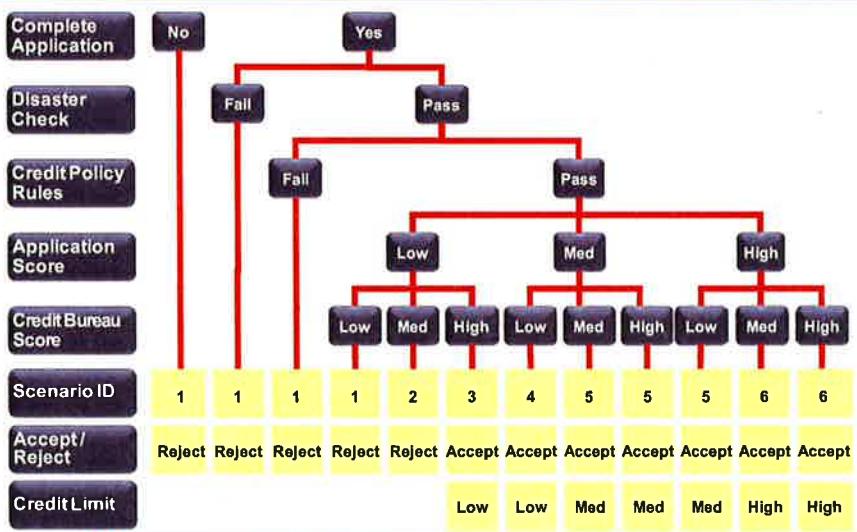
Credit Policy Considerations

- ▶ If portfolio is scored, rules should not be redundant
 - Focus on effects unknown to models
 - ▶ If scorecard is weak, or uses unverified data, policy rules have broader role
 - Emerging markets
 - Developed markets
 - Bureau?
 - ▶ Often less science & more opinion
 - ▶ State / province specific restrictions on amount, refinance, fees, term

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Retail Credit Management 245

Simple Originations Strategy



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Retail Credit Management 246

Overrides

- ▶ Informational – based on information not available to models
- ▶ Intuitive – based on gut feel, opinion or experience
- ▶ High side – should be accepted, judgmentally denied
- ▶ Low side – should be declined, judgmentally accepted
- ▶ Must be tracked by approved reason codes and separately from model based decisions

Example Scorecard Evaluation Report

Score Range	Interval Statistics				Performance			Cumulative Statistics				
	# Good	% Good	# Bad	% Bad	# Total	% Total	G:B Odds	Bad Rate	Cum Good	Cum Bad	G - B (KS)	Portfolio
Unscored	1750	4.2%	189	8.1%								
<100	1	0.0%	1	0.0%								
100-139	82	0.2%	58	2.5%								
140-159	481	1.1%	191	8.2%								
160-179	2142	5.1%	399	17.0%								
180-199	5973	14.3%	679	29.0%								
200-219	9083	21.7%	436	18.6%								
220-239	10759	25.7%	263	11.2%								
240-259	6414	15.3%	93	4.0%								
260-299	3243	7.7%	21	0.9%								
300+	1924	4.6%	10	0.4%								
Totals	41,852	100.0%	2,342	100.0%								
Bad Rate	5.3%											

Would you give up 25% of your goods to avoid 64% of your bads?

Where do most bads fall?

Do Interval Bad Rates get lower As Score goes up?

24.9 64.8

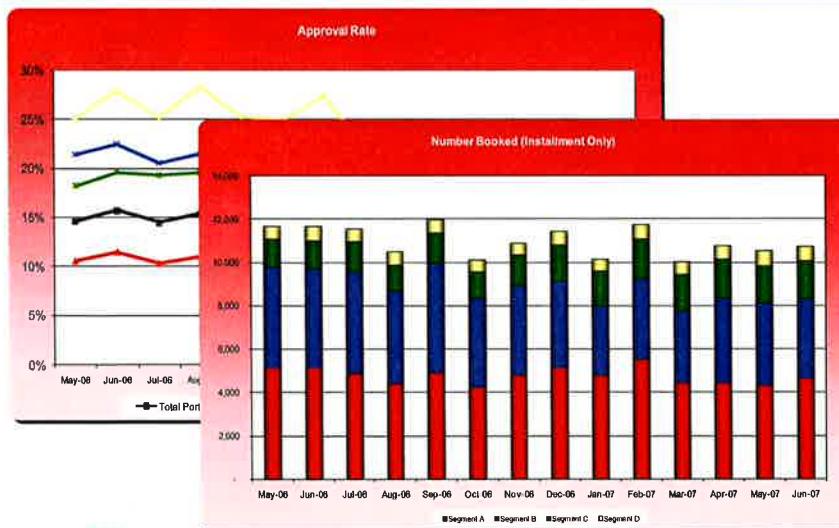
Key Originations Tracking Reports

- ▶ Number of received/accepted applications
- ▶ Applicant credit score distributions
- ▶ Approval rate
- ▶ Approve / decline reasons
- ▶ Average score for through-the-door approved applications
- ▶ Number of new accounts as percentage of open accounts
- ▶ % of high side / low side override
- ▶ Frequency and reasons for applications approved as low side overrides
- ▶ Loan-to-value ratio (secured credit)
- ▶ First payment defaults



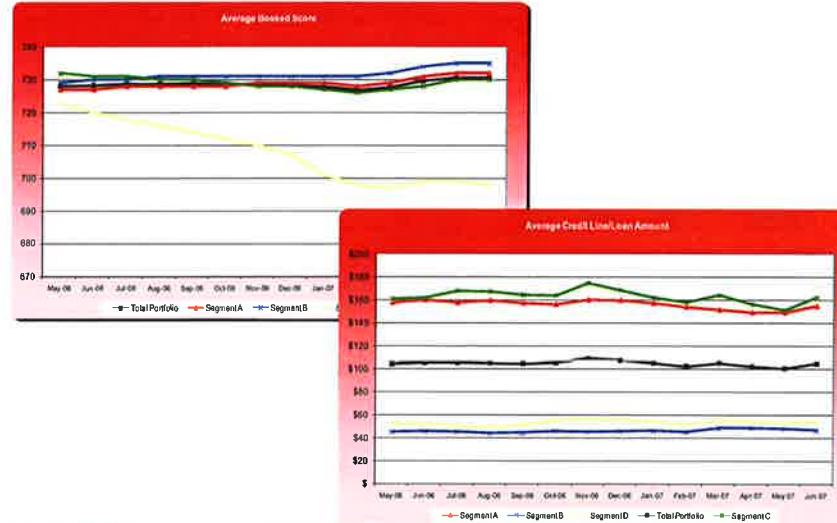
Retail Credit Management 249

Approval & Booking Measures



Retail Credit Management 250

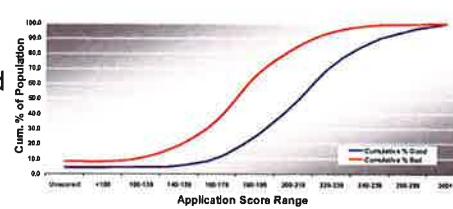
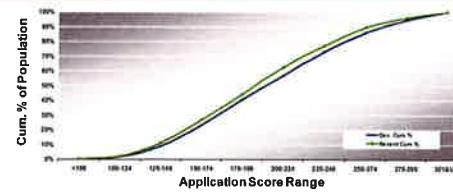
Approval & Booking Measures (cont'd)

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Key Originations Scoring Reports

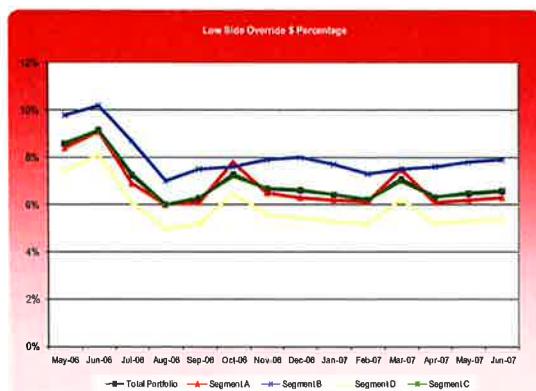
- ▶ Population Stability Reports
 - Applicant population
 - Booked population
- ▶ Scorecard Evaluation Report
 - Today vs. benchmark
 - Development & proxy bad definitions
- ▶ Characteristic Analysis Reports
 - All scored characteristics

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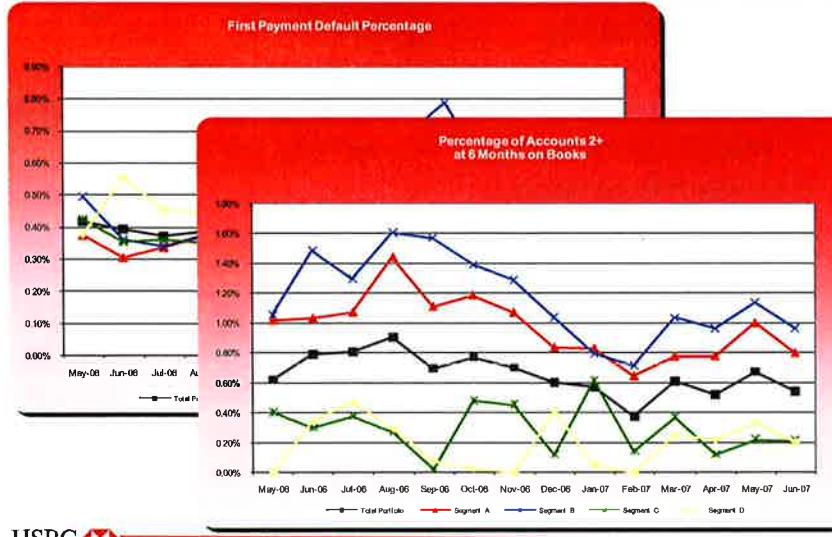
Tracking Lowside Overrides

- ▶ Applicants falling below cutoff score who are approved, contravening strategy
- ▶ Often judgmental, time consuming & harmful to delinquencies & losses

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Key Early Warning Delinquency Reports

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Retail Credit Management 254

Marketing & Acquisitions Summary

- ▶ Consumers can be sourced from many channels
 - Direct has simplicity
 - Indirect has complexity of 2 customers
- ▶ The way forward is customer level management, but we're still getting there
- ▶ Originating an account is highly systems dependent, requires consistent execution of rules:
 - Disaster checks, policy rules
 - Scores
 - Fraud checks

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Questions & Answers

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Module Goals

- ▶ Understand the role scoring tools play in portfolio management
- ▶ Discover how to do continuous learning in portfolio management
- ▶ Learn to construct & evaluate portfolio management performance databases
- ▶ Learn to construct portfolio management strategy trees & action scenarios
- ▶ Learn to implement & monitor champion / challenger tests

Portfolio Management Decision Areas

Credit Limits / Loan Amounts	Risk Based Pricing
Collections	Attrition / Retention
Recoveries	Cross Selling
Authorizations	Activation
Overlimit	Refinance
Renewal / Reissue	Top ups / upsell

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Continuous Learning Process

- ▶ Each transaction is an opportunity to learn how to treat customers more appropriately

1. Select Test Goal

6. Evaluate Results

2. Gather & Evaluate MIS

5. Monitor Test vs. Control

3. Design Strategy Segmentation & Treatments

4. Implement Strategy

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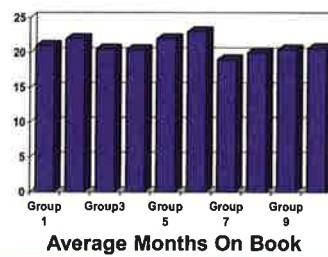
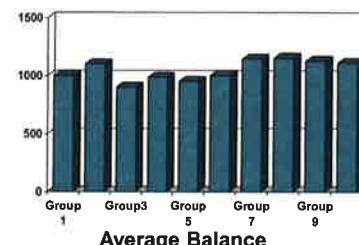
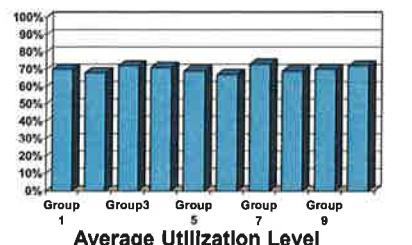
Building Test & Control Groups

- ▶ Randomly assign each account to a group which will be similar enough to others for comparison
 - Application time
 - Random number generator
- ▶ Group size must be sufficiently large to generate statistically reliable performance within 9-12 months
 - Each group should number at least a few thousand
 - When in doubt, go with fewer larger groups
- ▶ Performance Tracking systems and databases must have access to digit group
- ▶ Multiple account customers should have all accounts in same random digit group

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Assignment Frequency Distributions

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Champion / Challenger Testing 1 Nth

- ▶ Champion / Challenger concept
 - Tried & true strategy / process
 - New & different idea
- ▶ Key considerations
 - Control group
 - Population size
 - Length of tests
 - Measurement criteria
 - Clean tests
 - Example

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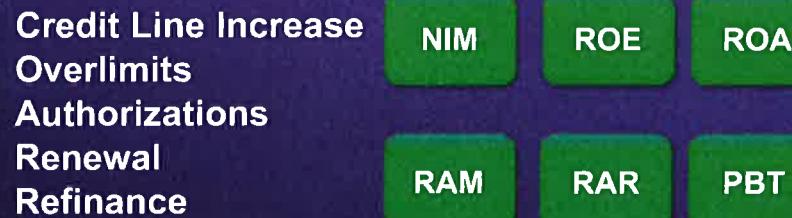
Formal Test Plan Components

- ▶ Test goal
- ▶ Duration
- ▶ Measurement metrics
- ▶ Expected results

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Measuring Strategy: Profit or Roll Rates



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Portfolio Management Strategy Examples

- ▶ Credit Line - pro-active line management, portfolio balance/revenue growth
- ▶ Top Ups / refinance / upsell
- ▶ Overlimit - control average delinquent & charge off balance
- ▶ Authorizations - approve/decline, incremental risk neutral revenue growth
- ▶ Collections - operating efficiencies & accelerate, decelerate decisions

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Strategy Design Process Steps

- ▶ Evaluate Current Results
- ▶ Select Strategy Goal
- ▶ Gather & Evaluate current / previous strategy MIS
- ▶ Design new strategy segmentation; assign to treatments
- ▶ Audit selection of accounts for execution & consistency with other decision areas
- ▶ Implement new strategy
- ▶ Monitor revenue, expense & operational results Test vs. Control strategies
- ▶ Evaluate results

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Strategy Filter Hierarchy



Actions / Treatment

Action Scenario 1

Action Scenario 2

Variable Trigger

Fixed Trigger

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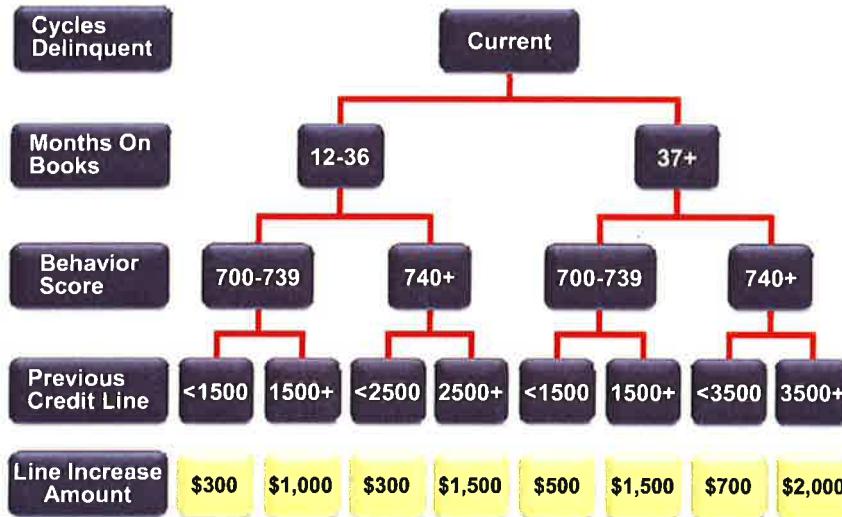
Credit Line Increase Goals

- ▶ Why do a line increase?
 - Promote usage & balance transfers, reduce attrition, and increase profitability
- ▶ How do we do it?
 - Target increases to customers that will grow incremental receivables while minimizing incremental losses
- ▶ Common Mistakes
 - Giving biggest increases to lowest risk customers
 - Giving increases to high risk customers
 - Test and control groups are not statistically similar
 - No control group...

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Credit Line Increase Example

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Typical Credit Line Exclusions

- ▶ Decision area exclusions
 - Secured accounts
 - Business accounts
 - Closed / charged off accounts
- ▶ Line increases
 - Blocked & delinquent accounts
- ▶ Line decreases
 - VIP & disputed accounts
 - Relationship accounts?

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4 Snapshot Evaluation Database

Three Years Ago				Two Years Ago				Last Year				Q1 This Year
Q1 Jan-Mar	Q2 Apr-Jun	Q3 Jul-Sep	Q4 Oct-Dec	Q1 Jan-Mar	Q2 Apr-Jun	Q3 Jul-Sep	Q4 Oct-Dec	Q1 Jan-Mar	Q2 Apr-Jun	Q3 Jul-Sep	Q4 Oct-Dec	
1st AR/Revenue Time Window												
1st Snapshot Delq. / Expense Time Window												
				2nd AR/Revenue Time Window								
				2nd Snapshot Delq. / Expense Time Window								
					3rd AR/Revenue Time Window							
					3rd Snapshot Delq. / Expense Time Window							
						4th AR/Revenue Time Window						
						4th Snapshot Delq. / Expense Time Window						

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Credit Line Segmentation Keys

- ▶ At Product / Income Cap
- ▶ Time On Books
- ▶ Delinquency Status / Block Code
- ▶ Time Since Last Line Increase / Decrease
- ▶ Original Credit Limit
- ▶ % Utilization
- ▶ % Cash Utilization
- ▶ Times Revolved Last 12 Months
- ▶ Behavior Score



Retail Credit Management 273

Credit Line Research Database Elements

- ▶ Decision Key Predictors
- ▶ Performance variables

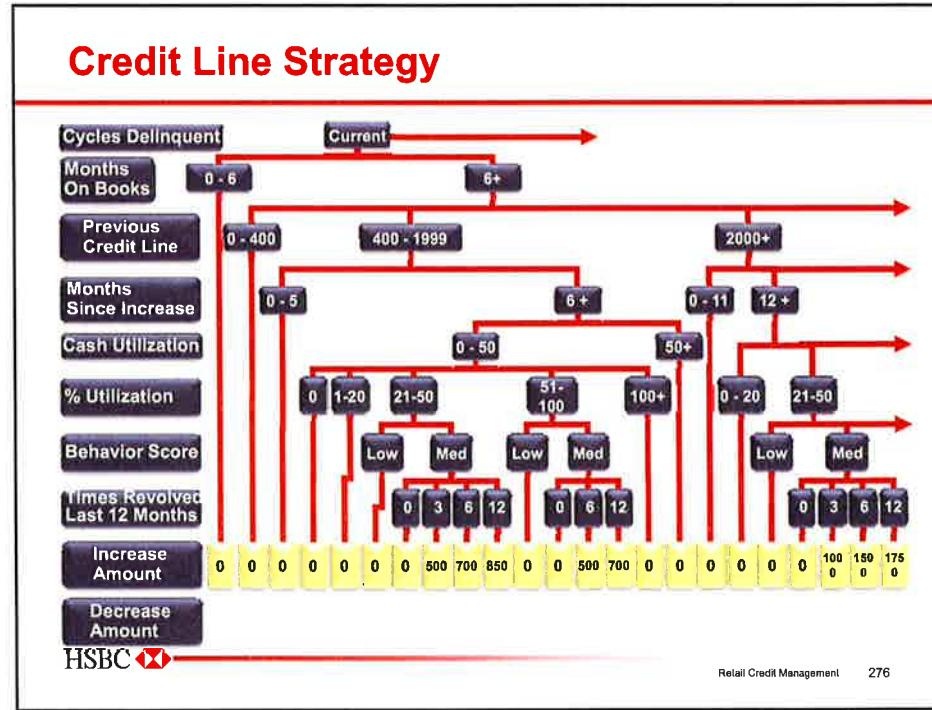
Variable	Months On Books	Current Block Code	Behavior Score	Credit Limit	# of Full Payments Last 12 Months	Current Non-Cash Balance	Revenue Last 12 Mos.	Current Cash Util	Average Cash Use Last 12 Mos.	# of Times Delinquent Last 6 Months	Chargeoff	Risk Adjusted Margin Amount
Datatype	Numeric	Text	Numeric	Numeric	Numeric	Numeric	Numeric	Numeric	Numeric	Numeric	Text	Numeric
Record 1	1	Blocked	31	25000	0	500	1241.83	0		1	0	Acceptable 882
Record 2	10	Blocked	31	25000	3	500	10439.57	0		0	0	Acceptable 794
Record 3	14		181	20000	9	0	1848.96	0		0	0	Acceptable 773
Record 4	1		181	25000	0	0	0	0		0	0	Acceptable 0
Record 5	16		171	20000	0	814.31	1837.48	0		0	0	Acceptable 218
Record 6	1		156	20000	0	450	1289.98	0		0	0	Acceptable 879.22
Record 7	48		166	20000	4	182.85	1858.33	0		1	0	Acceptable 158.65
Record 8	1		167	20000	0	17057.59	8397.86	0		1	0	Acceptable 2035.5
Record 9	37		166	25000	6	0	12158.87	0		0	0	Acceptable 4847.34
Record 10	1		31	20000	0	250	12188.73	0		0	0	Acceptable 5614.88
Record 11	45		186	20000	0	0	5267.63	0		0	0	Acceptable 898
Record 12	1		181	20000	0	0	11956.97	0		0	0	Acceptable 4801.77
Record 13	24		171	20000	8	1119.1	5351.99	0		1	0	Acceptable 1538



Retail Credit Management 274

Line Increase Segmentation MIS										
Employment Type										
Data	Private	Govt	Self	Unknown /						
# Accounts	71,265	1,109	7,601	79,975						
% of Accounts	89.11%	1.39%	9.50%	100%						
RAM % Annual AR	24.7	25.2	20.1	24.0						
Loss% Annual AR	4.2	4.2	6.2	4.5						
Delinquency Code										
Data	None	B	D	E	F	G	I	J	K	M
# Accounts	61,925	1,117	1,184	347	5,167	1,519	1,510	54	1,021	5,456
% of Accounts	77.43%	1.40%	1.48%	0.43%	6.46%	1.90%	1.89%	0.07%	1.28%	6.82%
RAM % Annual AR	26.6	14.3	11.4	-6.5	-3.5	27.0	15.6	22.7	20.7	24.6
Loss% Annual AR	2.1	13.3	15.0	24.3	24.9	4.7	14.8	10.2	8.3	5.1
										4.5
Previous Credit Limit										
Data	Blank	0 - 6000	6001-9000	9001-13,500	13,501-23,500	>23,500	Total			
# Accounts	20,146	12,090	15,200	8,492	10,527	13,520	79,975			
% of Accounts	25.19%	15.12%	19.01%	10.62%	13.16%	16.91%	100%			
RAM % Annual AR	25.1	31.6	27.8	24.8	23.2	20.5	24.0			
Loss% Annual AR	3.6	5.2	4.6	4.4	3.7	5.2	4.5			

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Credit Line Treatments

Higher Risk

No Action

Target Revolvers

Smaller, Frequent Increases

Larger Infrequent Increases

No Action / Line Decrease

Waive Overlimit Fees

Lower Risk

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Retail Credit Management 277

Strategy Limitations

- ▶ Gives higher increase amounts to high scoring, high line accounts
- ▶ Current utilization and incremental usage not considered
- ▶ Because incremental charge-offs outweigh incremental usage, test population net income is lower

	Control	Test	Delta
Number of Accounts	11,152	11,247	95
Net Income \$ Per Account	\$ 222	\$ 216	\$ (6)
Net C/O Rate	3.0%	4.3%	1.3%
Cum Vol Gross Account Attrition	15.24%	14.01%	-1.2%
Unit C/O Rate	1.33%	1.89%	0.6%
2+ Delinquent \$ Rate	4.9%	4.8%	-0.1%
Balance per Good Account	\$ 2,788	\$ 3,093	\$ 305

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Retail Credit Management 278

Improving Strategy Performance

- ▶ Analyze existing strategy population to find accounts with positive net income and good incremental usage
- ▶ Analysis yields additional decision keys that separate accounts by “good” usage and ultimately net income:
 - Revolving behavior
 - Average utilization in the last 3 months
 - Total revolving balances with other issuers

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Retail Credit Management 279

Improved Line Increase Strategy

- ▶ New strategy focuses only on revolvers
- ▶ Accounts with total revolving balances with other issuers of >\$35k excluded
- ▶ Strategy assigns percentage increases not fixed currency amounts
- ▶ Significantly more profitable than original strategy

	Control	Test	Delta
Number of Accounts	620,542	2,132,244	
Net Income \$ Per Account	\$ 231	\$ 276	\$ 45
Net C/O Rate	4.5%	3.6%	-0.9%
Cum Vol Gross Account Attrition	12.50%	11.14%	-1.4%
Unit C/O Rate	2.92%	2.24%	-0.7%
2+ Delinquent \$ Rate	5.2%	5.1%	-0.1%
Balance per Good Account	\$ 2,675	\$ 3,331	\$ 656

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Retail Credit Management 280

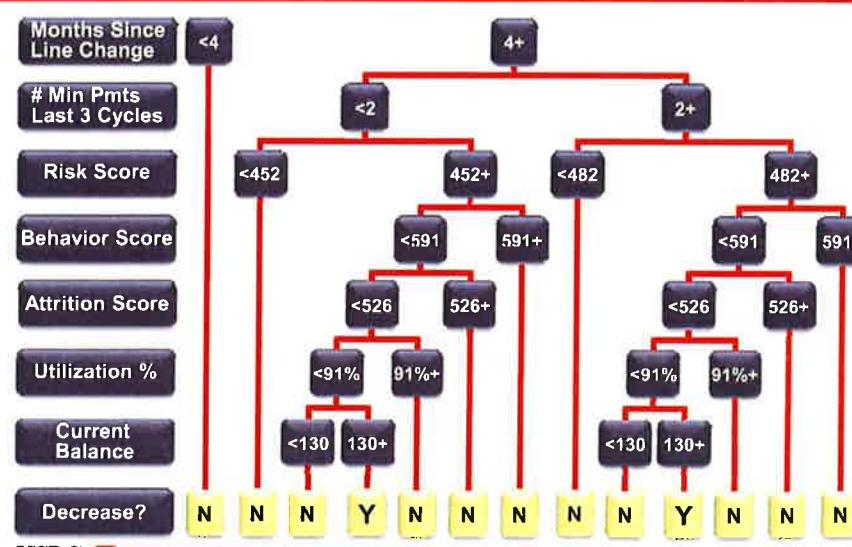
Credit Line Decrease Goals

- ▶ Why line decrease an account?
 - Reduce contingent liability and losses on high risk and inactive accounts
 - Reduce Basel II capital for contingent liability
- ▶ What are you trying to achieve?
 - Balance risk reward trade-off of loss minimization and increased attrition
- ▶ Common Mistakes
 - Line decreasing high risk / highly utilized accounts can lead to high attrition with minimal loss savings due to high utilization

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Retail Credit Management 281

New Credit Line Decrease Strategy



New Strategy Performance

- ▶ Additional criteria reduced test population to 28% of original size
- ▶ Simulating new strategy on test & control populations yielded following results
- ▶ Test outperforms control with incremental net income & flat losses

	Control	Test	Delta
Number of Accounts	2,767	2,805	
Net Income \$ Per Account	-\$315	-\$221	\$94
Cum Vol Gross Account Attrition	8.95%	9.88%	0.9%
Net C/O Rate	32.3%	32.0%	-0.3%
Unit C/O Rate	23.30%	23.51%	0.2%
Balance per Good Account	\$3,078	\$2,662	-\$416
Balance per Bad Account	\$4,592	\$4,041	-\$551
2+ Delinquent \$ Rate	12.1%	13.0%	0.9%
2+ Delinquent # Rate	8.5%	9.0%	0.5%

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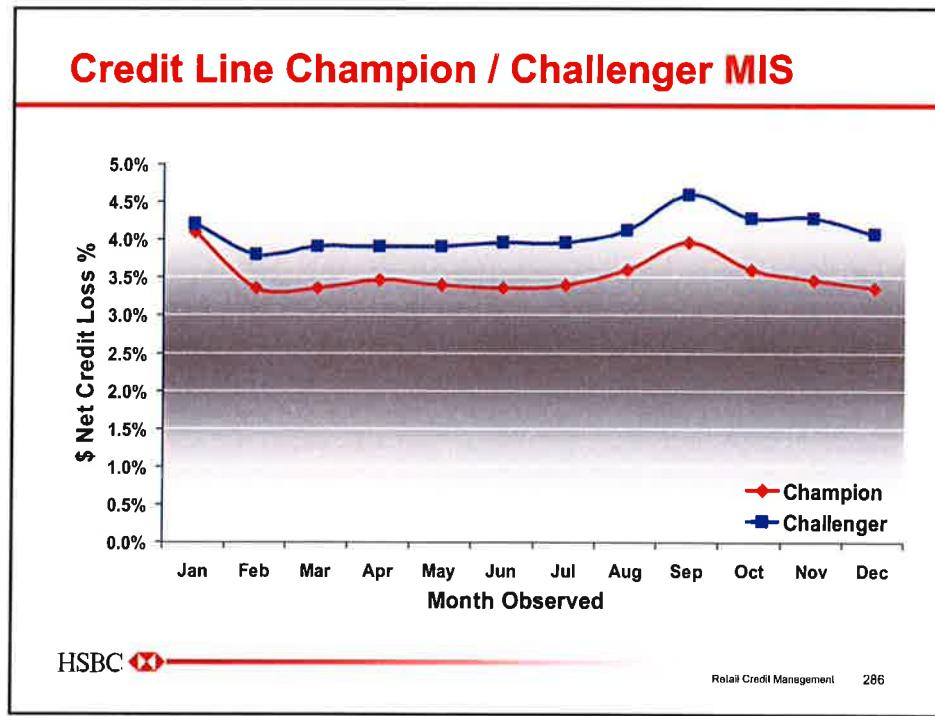
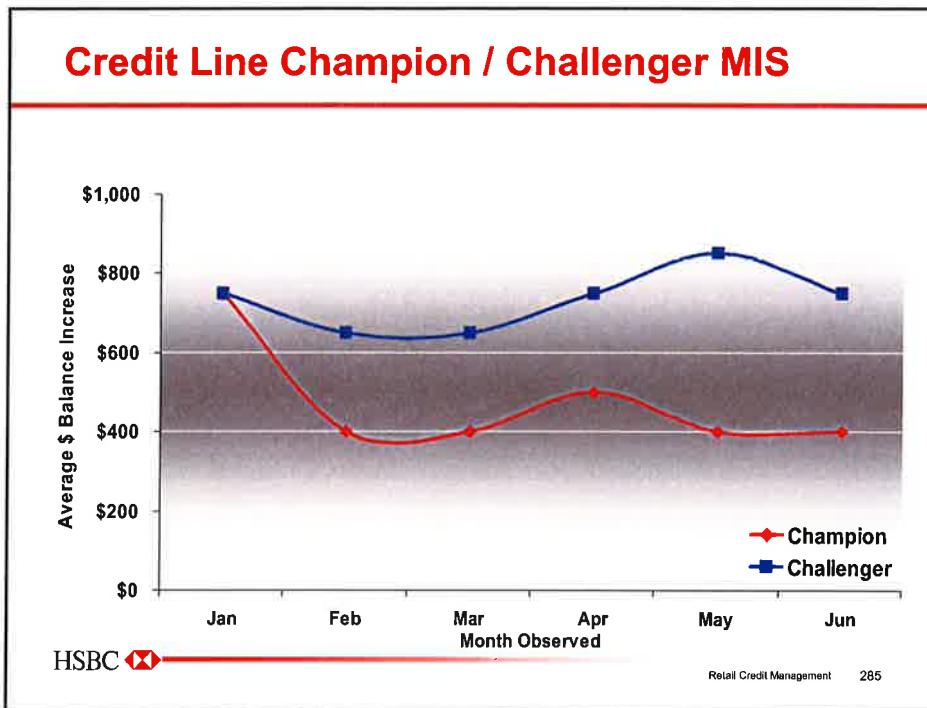
Retail Credit Management 283

Next Steps

- ▶ Track balances & revenue increases from challenger strategy vs. champion
- ▶ Track delinquency and chargeoff differences comparing challenger vs. champion
- ▶ Track differential attrition
- ▶ Use test results to
 - Declare test success and rollout to other Random Digit Groups
 - Declare test limited success; use experience to derive a new champion / challenger test
 - Declare test a failure. Note & avoid repetition

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Retail Credit Management 284



Credit Line Exercise



Overlimit Collections Goals

- ▶ Actively manage overlimit accounts / lines
- ▶ Reduce delinquent accounts and dollars from overlimit accounts
- ▶ Optimize overlimit fees
 - Overlimit fee revenue vs. attrition
- ▶ Authorizations / overlimit interaction
- ▶ Positive & negative actions
 - Limit increase vs. early collections
- ▶ Target credit-hungry low risk customers for increases
- ▶ Collection oriented calling campaigns



Seek Strategic Segments

- ▶ Consider special treatment for strategic segments:
 - Recent inactives
 - Young accounts
 - High acceleration accounts
 - Cash users / Fraud profiles
 - Frequent travelers
 - Multi-product customers

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Retail Credit Management 289

Typical Overlimit Exclusions

- ▶ Closed accounts
- ▶ Blocked accounts
- ▶ Suspended accounts
- ▶ Fraud accounts
- ▶ Delinquent accounts
- ▶ Charged off accounts
- ▶ VIP accounts



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Retail Credit Management 290

Segmentation Keys

- ▶ Behavior Score
- ▶ Balance
- ▶ % Overlimit
- ▶ Amount Overlimit
- ▶ Cash utilization
- ▶ Months on Books

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Retail Credit Management 291

Overlimit Treatment Inventory

Higher Risk

Early
Collections
Calling

Block Card

Statement
Message

Polite
Collections
Letter

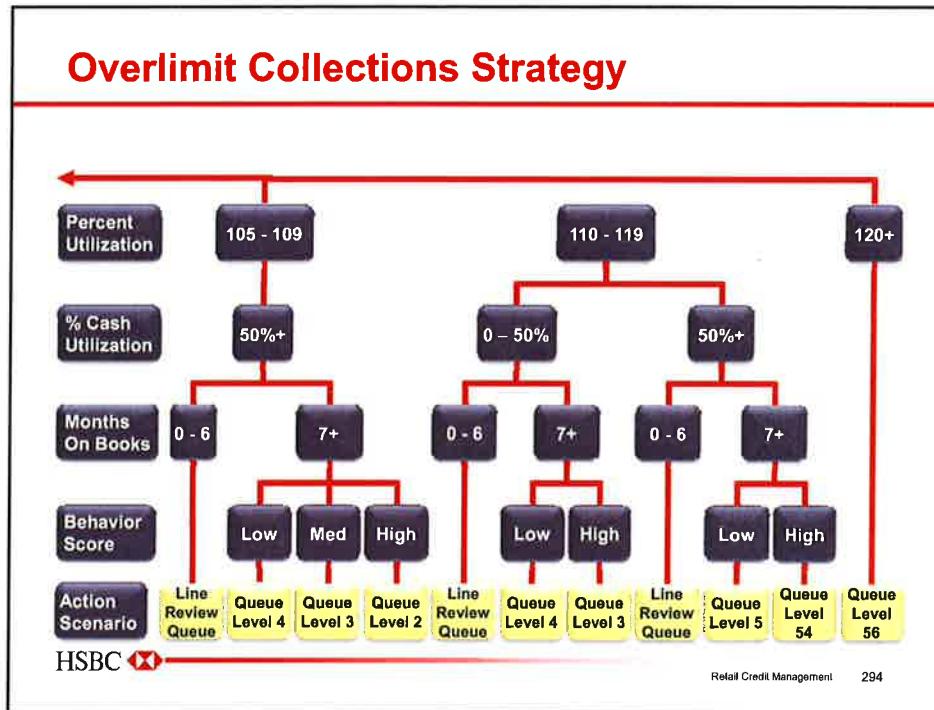
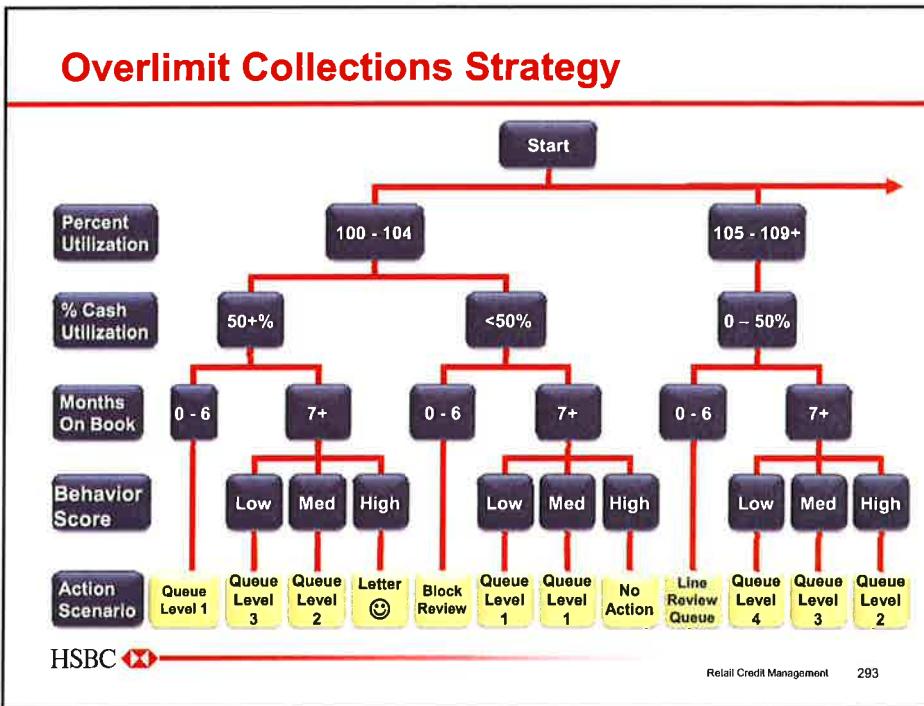
Service
Message
(email, sms)

Line
Increase

Lower Risk

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Retail Credit Management 292



Overlimit Collections Treatments

Strategy	Strategic Segment	M0 - M2			Bucket 0																													
		Acct Flow	# of Accts	% of M1 Accts	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	
Champion	>120	8.00%	1,080	9.0%																														
	110-119	7.00%	1,080	9.0%																														
	106-109	1.80%	5,400	45.0%																														
	103-105	1.10%	1,320	1.0%																														
	Total		12,000	74.0%																														

Strategy	Strategic Segment	M0 - M2			Bucket 0																													
		Acct Flow	# of Accts	% of M1 Accts	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	
Challenger	>120	10.00%	240	6.0%																														
	110-119	5.80%	400	10.0%																														
	106-109	1.00%	1,680	40.0%																														
	103-105	0.50%	300	11.0%																														
	Total		4,000	69.0%																														

Change Call Frequency

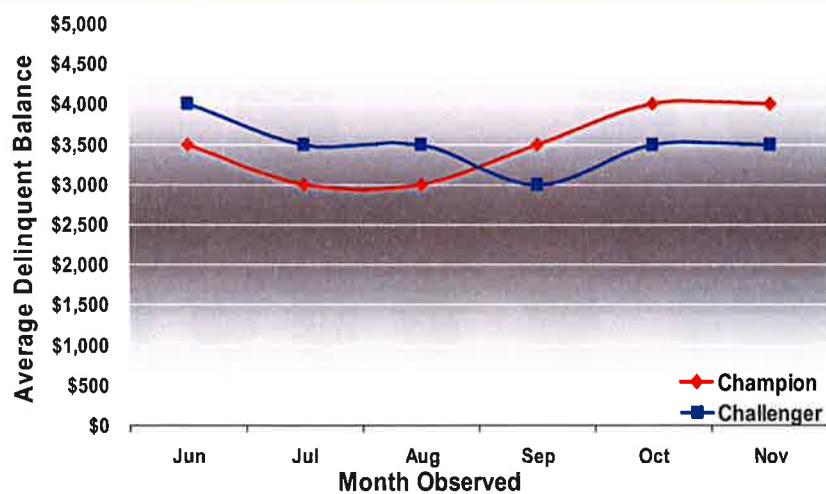
Change Call Tone

Begin Action Earlier

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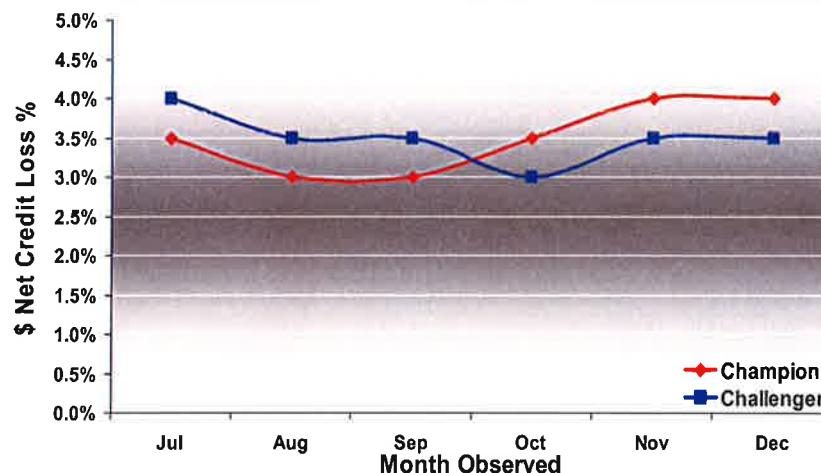
Retail Credit Management 295

Overlimit Champion / Challenger MIS

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Retail Credit Management 296

Overlimit Champion / Challenger MIS

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Retail Credit Management 297

Authorizations Strategy Goals & Tactics

- ▶ Increase volume of transactions approved
- ▶ Increase average ticket size / revenue per acct
- ▶ Control number of referral / decline decisions
- ▶ Generous pads / referral approvals for low risk / high revenue customers
- ▶ Tight pads / referral approvals high risk / delinquent customer referral

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Retail Credit Management 298

Typical Authorizations Exclusions

- ▶ Closed accounts
- ▶ Blocked accounts
- ▶ Suspended accounts
- ▶ Fraud accounts
- ▶ Charge offs
- ▶ Bankrupts

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Retail Credit Management 299

Segmentation Keys

- ▶ Balance
- ▶ Behavior Score
- ▶ Credit Line
- ▶ Months On Books
- ▶ Days / Cycles Delinquent
- ▶ Broken Promise
- ▶ Ever Paid / FPD / Non-Starter
- ▶ Returned Check
- ▶ Transaction Type (Cash, Non-cash, ATM, merch. Type)
- ▶ % Cash / Non-cash Utilization (% Overlimit)

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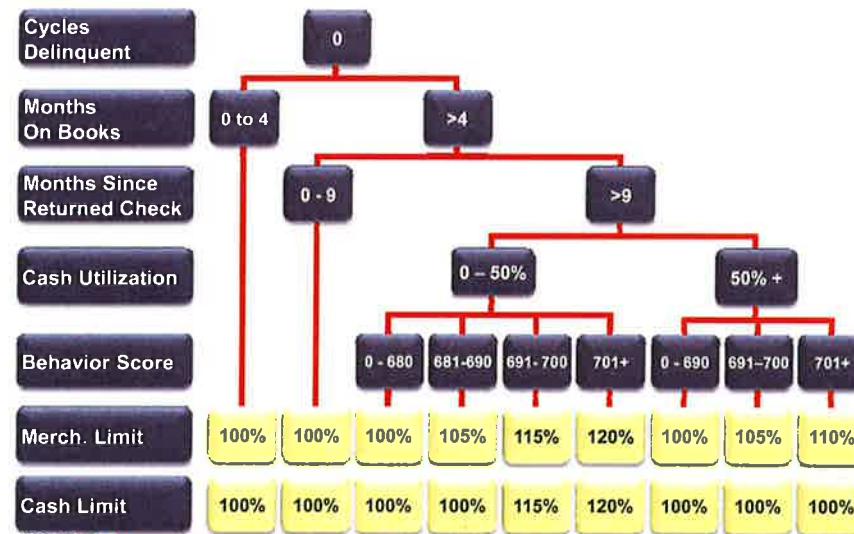
Retail Credit Management 300

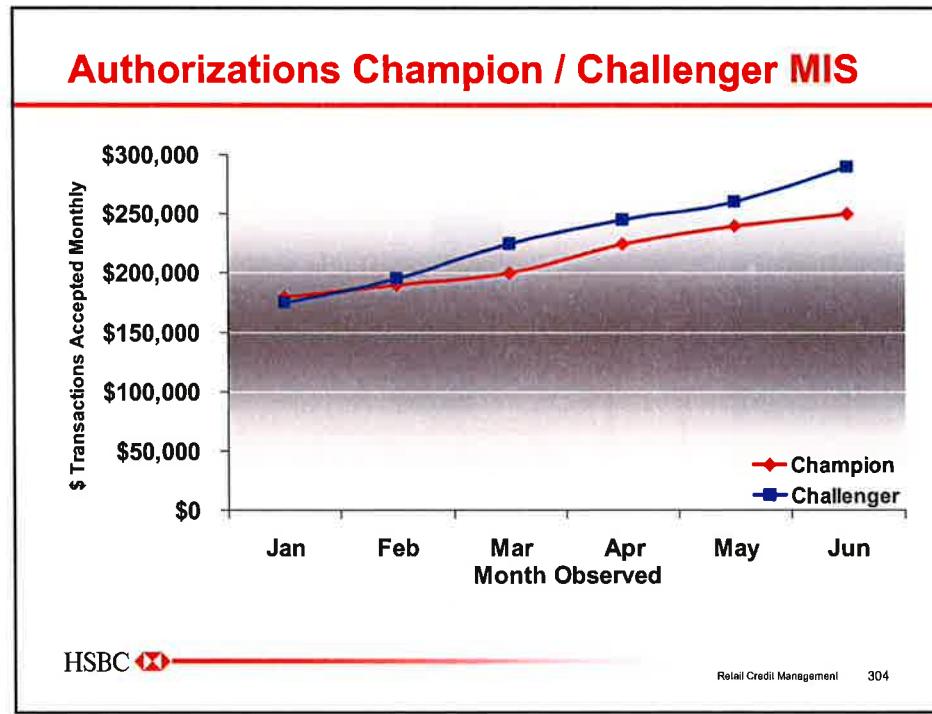
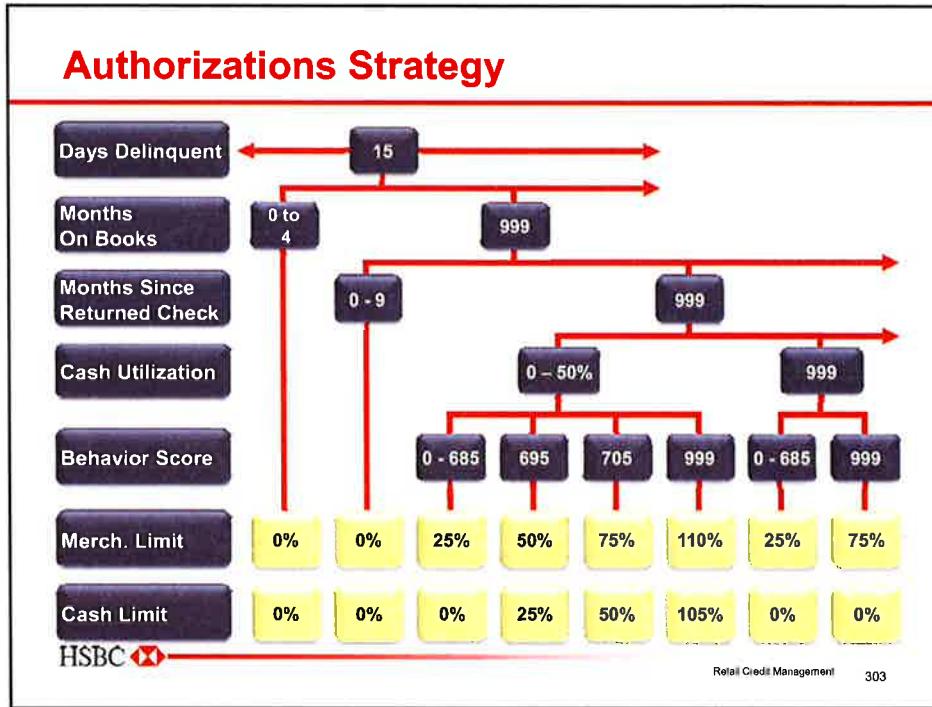
Authorizations Treatments

- ▶ Spending Cushions:
 - Non-cash
 - Cash
 - Holiday
 - Non-holiday
- ▶ Referrals
- ▶ Declines
- ▶ Blocks
- ▶ Customer notifications

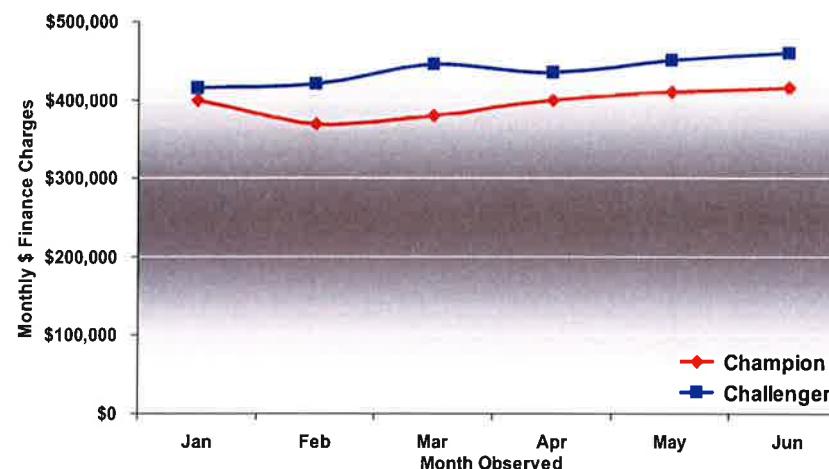


Authorizations Strategy





Authorizations Test Results

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Retail Credit Management 305

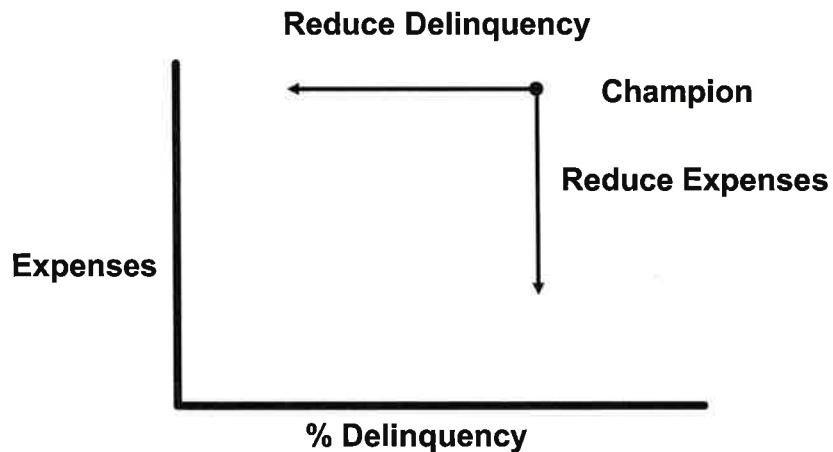
Collections Goals & Tactics

- ▶ Reduce / maintain delinquency
- ▶ Reduce / maintain gross losses
- ▶ Focus collection efforts on high risk customers & away from low risk customers
- ▶ Optimize delinquency vs. collections expenses
- ▶ Retain good customers
- ▶ Treat accounts appropriately through all delinquency stages
- ▶ Segment accounts with different roll rate behavior
- ▶ Reduce 2 bucket roll rate
- ▶ Reclass intra-cycle depending on customer actions

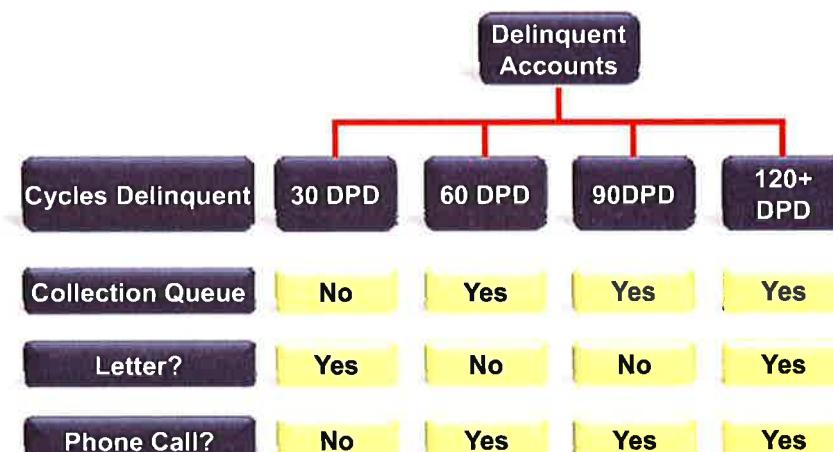
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Retail Credit Management 306

Executing Collections Strategy & Operations



Traditional Collection Strategy



Collection Strategy Guidelines

- ▶ Volume vs. \$ loss reduction goals
- ▶ Segment by risk (scores, balance, key variables)
- ▶ Accelerate & delay actions
- ▶ Delay more than you accelerate
- ▶ Stagger entry into collections
- ▶ Stagger entry from dialer-manual

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Retail Credit Management 309

Special Collection Strategy Queues

Typical high risk collection queues:

- High dollars at risk / large balances
- Delinquent high over limit accounts
- FPD's, reages, broken promises, returned checks
- MOB <6 months (Behavior score)
- Bad phone number
- No contact

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Retail Credit Management 310

Typical Collections Exclusions

- ▶ Disputed accounts
- ▶ Bankrupt accounts
- ▶ Fraud accounts
- ▶ VIP accounts
- ▶ Deceased accounts
- ▶ Charged off accounts

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Retail Credit Management 311

Segmentation Keys

- ▶ Cycles Delinquent
- ▶ Balance
- ▶ Behavior Score / Balance at Risk
- ▶ Months On Books
- ▶ Reclassification trigger
- ▶ Returned check
- ▶ First Payment Default
- ▶ # of Broken Promises Last 6 Mos.

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Retail Credit Management 312

Building An Evaluation Database

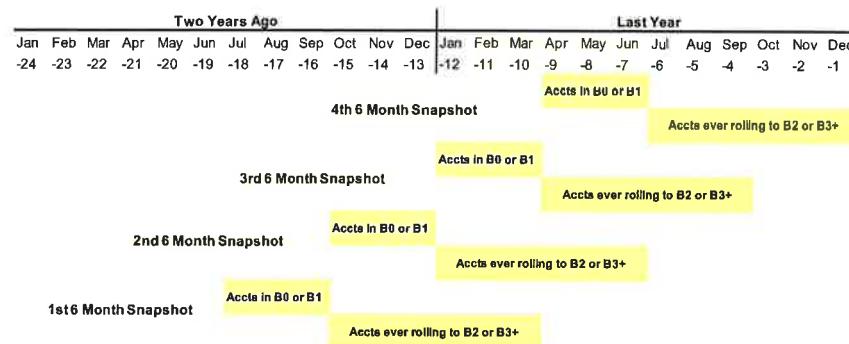
- ▶ Account level
 - Scoring Point Data
 - Policy rule attributes
- ▶ Behavior Score(s)
- ▶ Additional variables
- ▶ Classification Point Performance Data
 - Bucket 0 to Bucket 2 Number of Accounts
 - Bucket 0 to Bucket 2 Currency Units
 - Bucket 1 to Bucket 3 Number of Accounts
 - Bucket 1 to Bucket 3 Currency Units

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Retail Credit Management 313

Evaluation Database Time Window

- ▶ Multiple 3 and 6 month snapshots help avoid seasonality
- ▶ Systems changes often dictate data available



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Retail Credit Management 314

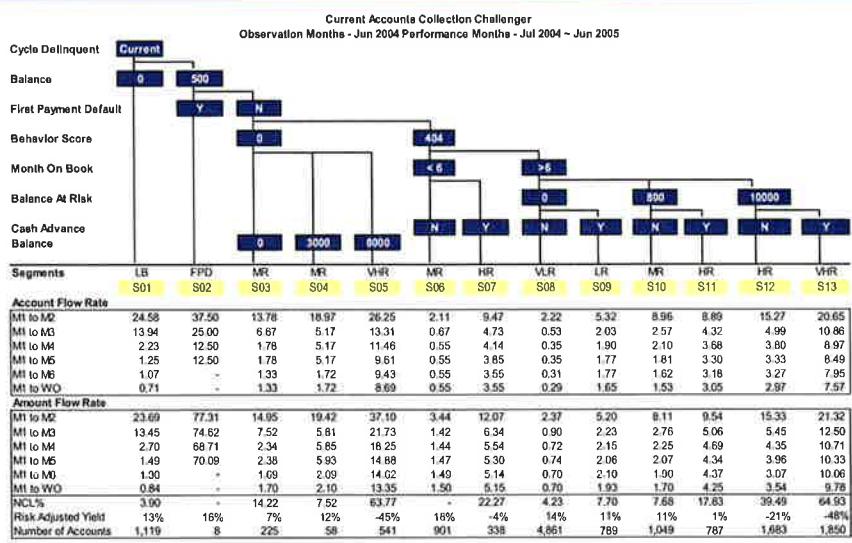
Delinquent Account Collection Treatments

- ▶ No Action
- ▶ Account block
- ▶ Dun letter
- ▶ Accelerate action
- ▶ Delay action
- ▶ Statement insert
- ▶ Send to agency
- ▶ Phone call
- ▶ Customer service
- ▶ Polite Dun
- ▶ Firm Dun
- ▶ Ultra firm Dun
- ▶ Personal visit
- ▶ Repossession
- ▶ Foreclosure
- ▶ Legal action
- ▶ Charge off

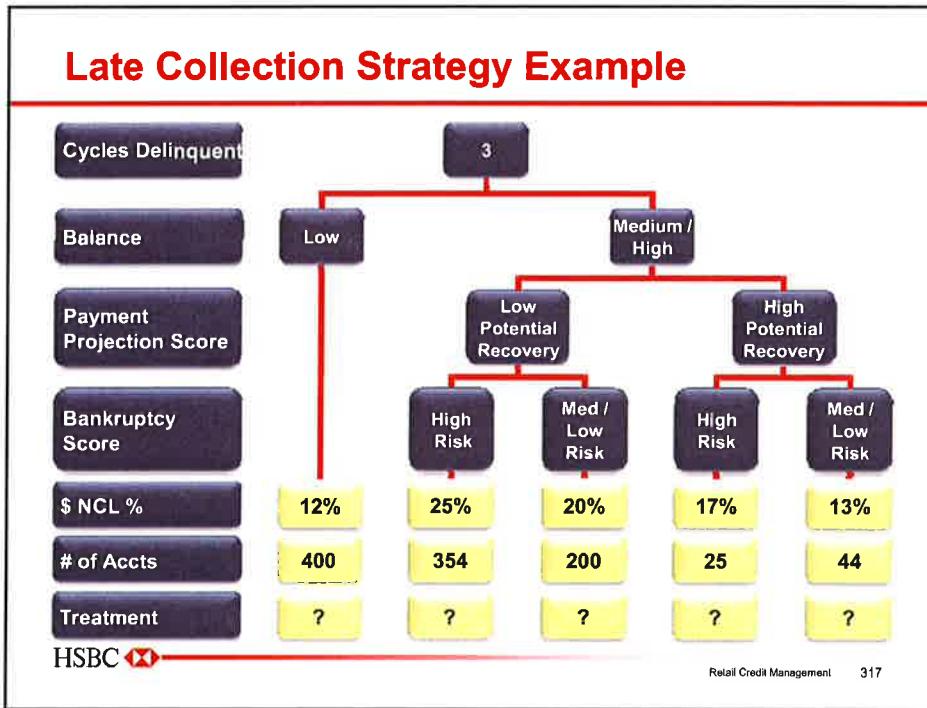
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Retail Credit Management 315

Credit Card Collections Strategy Tree



Retail Credit Management 316



Executing Collection Strategy & Operations

- ▶ Strategy design & tactical treatment
 - Collections example
 - Queue structure, risk classification
 - Letters
 - Blocks
- ▶ Auto dialer & collections system interaction
 - Campaign structure
 - Queue & risk classification negation
 - Calling execution

Delinquent Treatment Plan

Test Group: Current Month Due Accounts					
Risk Level	Extremely High Risk	Very High Risk	High Risk	Medium Risk	Low Risk
Call 1st lien home / cell phone	4 DPD	4 DPD	8 DPD	17 DPD	21 DPD
Call 2nd lien home / cell phone	4 DPD	4 DPD	5 DPD	15 DPD	21 DPD
Holdout Rollbacks for coverage threshold	3 days	3 days	3 days	7 days	7 days
Coverage Threshold	300%	300%	300%	200%	100%
Location	Primary FE	Primary FE	Offshore	Offshore	Offshore
Send Letter	10 DPD	10 DPD	10 DPD	20 DPD	No
Call all phone numbers @	10 DPD	10 DPD	10 DPD	25 DPD	No
Due Diligence if no contact in	10 days	10 days	10 days	No	No
Door Hangers 1st Lien >\$400k	20 DPD	20 DPD	20 DPD	No	No
Door Hangers 2nd Lien >\$150k	20 DPD	20 DPD	20 DPD	No	No
	Saturday: 2 p.m. - 9 p.m.				
V dialer if no promise	Sunday: 9 a.m. - 3 p.m.				
	Supplement all other days				
Control Group (15s)					
Extremely High Risk	Very High Risk	High Risk	Medium Risk	Low Risk	
Predominantly V dial these accounts					
Using digit 1 for both control groups 15 and 30's					
No further treatment beyond V Dialer					
Will V dial control group first					

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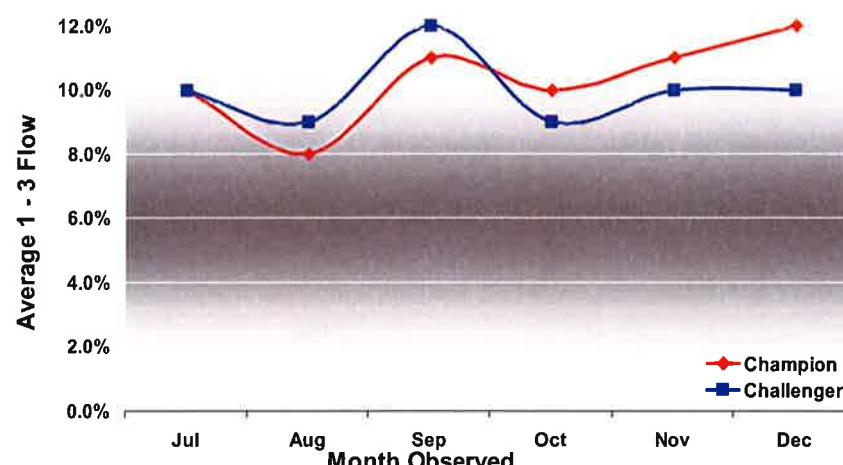
Retail Credit Management 319

Implementing Collection Strategy

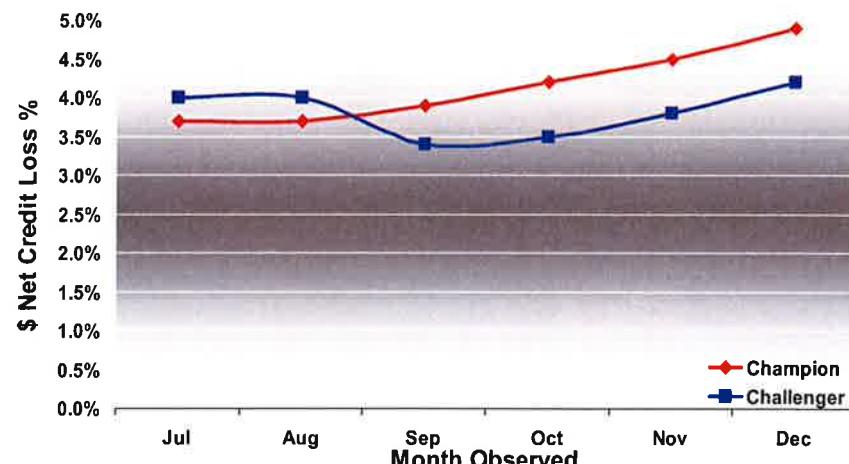
- ▶ Strategy consistency
- ▶ Capacity planning
- ▶ Collector objectives
- ▶ Mid-cycle changes not advised
- ▶ Dialer interaction
- ▶ Collections organization changes
- ▶ Collector measurement criteria
- ▶ Collector & manager training

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Retail Credit Management 320

Collections Champion / Challenger MISHSBC 

Retail Credit Management 321

Collections Champion / Challenger MISHSBC 

Retail Credit Management 322

What Collection Dimension(s) To Test?

Collector Calls

- ▶ Who to call
- ▶ When to call
- ▶ Calling intensity
- ▶ Who to delay
- ▶ Collector talk-off
- ▶ Collection by risk classification

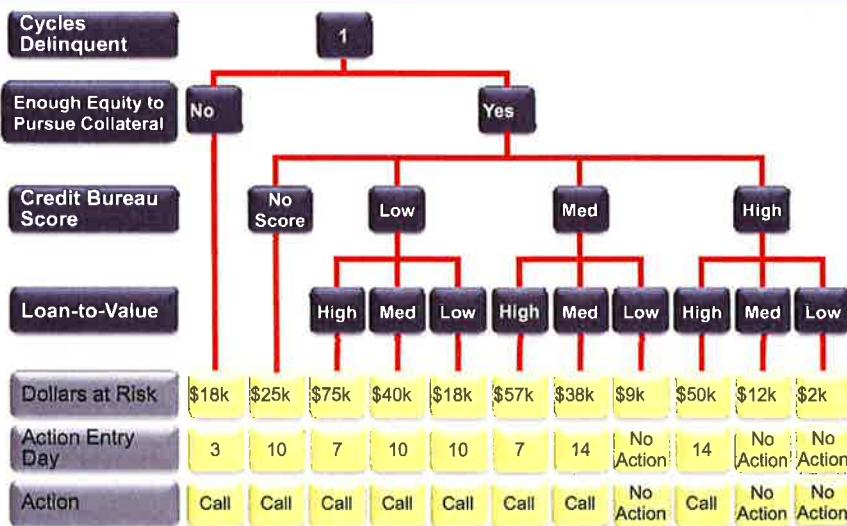
Agency placement

- ▶ In-house
- ▶ Agency
- ▶ Agency tests
- ▶ No contact population
- ▶ Skips

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Retail Credit Management 323

Secured Collections Strategy Tree



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Retail Credit Management 324

Secured Collections Strategies

- ▶ Secured accounts often receive delayed collections entry to permit higher self-cure rates and reduce voluntary attrition
- ▶ Early delinquency strategies focus on contacting highest risk customers with most dollars at risk
- ▶ Mid-stage delinquency focus on finding reasons for default and expected duration of issue
- ▶ Mid stage efforts focus on loss mitigation to avoid foreclosure / repossession where delinquency reasons are severe or permanent

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Retail Credit Management 325

U.S. Collections Treatments

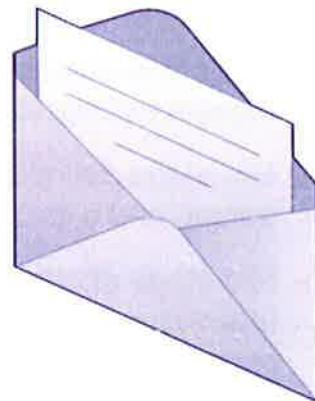
Program	Definition	Criteria
Payment in full	Customer agrees to pay in full	Negotiation start position
Settlement	Card member agrees to pay a specified % of total balance due, account then satisfied and remaining balance charged-off. Account appears on credit bureau as 'Account legally paid in full for less than full balance'.	Settlement % negotiated by collectors empowered to settle down to a specified % based on portfolio and delinquency, or manager approval needed.
Re-age	If account meets specified requirements, delinquency will 're-age' to Current, removing account from Collections	9+ months on book X-day + delinquent One lump-sum payment or payments over 3 consecutive billing cycles equal to minimum payment due. Last payment must be within last 30 days. Certain block codes excluded: Bankrupt, Fraud, Deceased; 1x in 1 yr, 2x in 5 yr.
Debt Management Program	Debt Management Program or external long-term hardship program. Reduced interest and fixed payment arrangements made through an outside debt consolidation agency.	% APR, 2.25% of outstanding balance (fixed payment) for life of loan, paid-off in 5 years; 2x in 5 years (collectively for all long-term programs)

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Retail Credit Management 326

Letter Communications

- ▶ Make letters specific to segmented accounts
- ▶ Special letters for specific segments:
 - FPD's / Non-starters
 - Re-ages / Restructures
 - Rewrites
 - Returned checks
 - TOB < 6 months
- ▶ Stagger letter / queue actions
- ▶ Letter only strategies

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Retail Credit Management 327

Collections Tactics Phone Calls

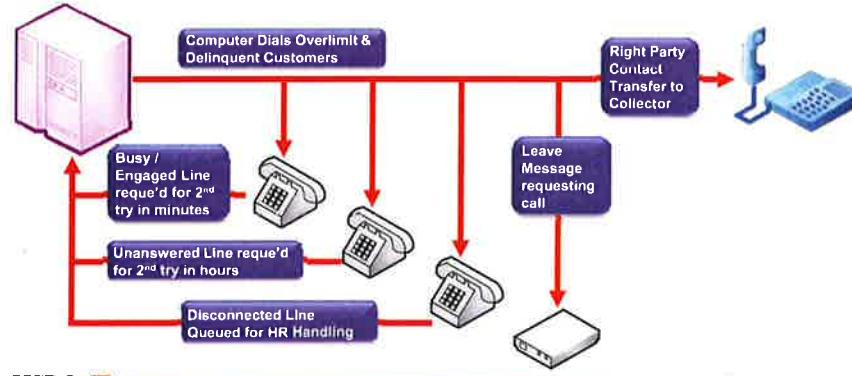
- ▶ Levers
 - Optimal right-party calling time periods M-F, Weekend
 - Talk off / call scripts specific to customer situation
 - Strategy & capacity plan audited for compatibility
 - Production contests
- ▶ Measurements
 - # of right-party contacts
 - # of promises taken
 - Payment % of delq. balance

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Retail Credit Management 328

Auto Dialers – Melita / Davox / Avaya

- ▶ Automated systems seeking live right contacts
- ▶ Minimize non-productive collector time
- ▶ Used in Collections & Marketing



Retail Credit Management 329

Skip Tracing

- ▶ Specialty focused on finding delinquent or charged off customers trying to avoid us
 - Changed addresses, phone numbers, emails
- ▶ Balance must justify collections investment or outside services
- ▶ Lead sources: credit bureau, government ministries (passport, auto registry), landlords, voter rolls
- ▶ Cost sensitive
 - Time & data cost
 - Borrower must still be convinced to pay
- ▶ Recovery models, if available can help identify candidate accounts

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Retail Credit Management 330

Collections Capacity Planning

- ▶ Collections is person to person
- ▶ Collectors must be trained & incented to go after the right accounts
 - Higher balances
 - Higher probability of flowing into later buckets
 - Lower scoring
- ▶ Understanding operational constraints is critical
 - Enough staff for expected number of accounts into collections to make calls?
 - If strategies or environment change, what can we do to react?

Collector Productivity Measures

Efficiency Ratio = $\frac{\text{Time on System}}{\text{Total Operating Hours}}$

Contacts Per Hour = $\frac{\text{Total Contacts}}{\text{Logged In Hours}}$

Promises Per Hour = $\frac{\text{Total Promises}}{\text{Logged In Hours}}$

Kept Promises Per Hour = Kept Ratio X Promises Per Hour

Payment Size = $\frac{\text{Payment \$}}{\text{Delinquent Balance}}$

Capacity Planning Model

Delinquency Bucket	Simple Capacity Planning Model							Required Fulltime Equivalents E / F
	A	B	C	D	E	F		
	Delinquent Account Volume	Self Cure	Net Workable Accounts A - B	Account to Collector Ratio	Productive Fulltime Collectors C / D	Efficiency Ratio		
Overlimit	7,000	1,800	5,200	330	16	85%	19	
1-29	140,000	1,500	138,500	550	252	85%	296	
30-59	28,000	800	27,200	480	57	85%	67	
60-89	14,000	500	13,500	420	32	85%	38	
90-119	11,200	200	11,000	360	31	85%	36	
120-149	7,000	89	6,911	350	20	85%	23	
150-179	4,900	25	4,875	320	15	85%	18	

Retail Credit Management 333

Recoveries

- ▶ Recoveries can be significant source of “revenue” and impact net loss rates, which in turn drive pricing and portfolio return expectations
- ▶ Recoveries can be in-house, externally through 3rd parties, or charged off account sale to debt buyers
- ▶ Design champion / challenger tests to optimize strategy for each product & business
- ▶ Forward-flow sales of charged-off accounts can provide steady revenue stream, given consistent charge off volume and a market appetite for debt

Retail Credit Management 334

Key Recovery Measures

- ▶ How much did we recover?

Payments as % of Balance = $\frac{\text{Payment Value}}{\text{Month Start Account Balance}}$

- ▶ How much did we reduce Gross write offs?

Recoveries as % of Writeoff = $\frac{\text{Recoveries}}{\text{Gross Write Offs}}$

- ▶ Are our efforts well targeted?

Recoveries as % of Original Writeoff = $\frac{\text{Cum. Recoveries}}{\text{Original Write Off}}$

Summing Up Collections

- ▶ Bring practical business experience to bear when developing collection strategies
- ▶ Strategy identifies & isolates unique strategic segments
 - TRIAD is the brains,
 - eCafe/CAC's is the arms,
 - auto dialer and people are the hands
- ▶ Dialer executes strategy actions consistent with CAC's placeholder queue (risk level) structure
- ▶ Unique strategic segments (high, medium low risk accounts) such as First Payment Defaults, Returned Checks, Recent Reages require isolated treatment

Strategy Testing Considerations

Random Digit Group	Credit Line Strategy ID	Overlimit Strategy ID	Delinquent Collections Strategy ID
00 - 25	001	001	001
26 - 50	002	001	001
51 - 75	002	001	001
76 - 99	002	002	001

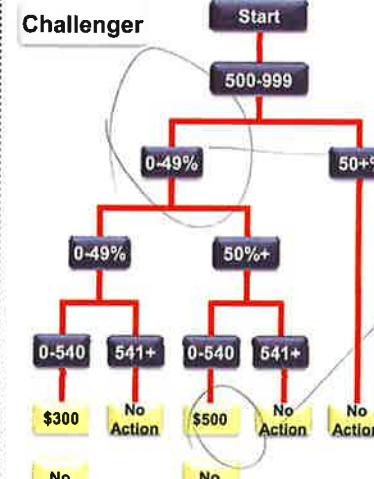
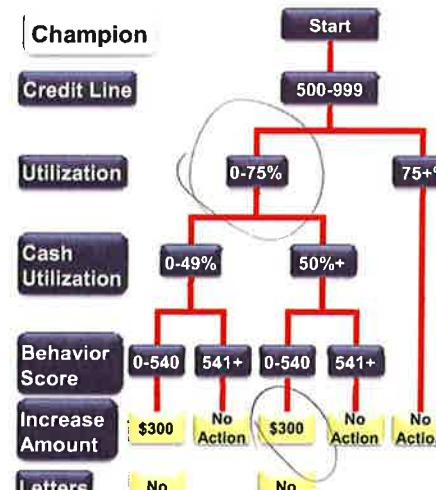
Clean Test?

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Yes

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Strategy Testing Credit Line Example

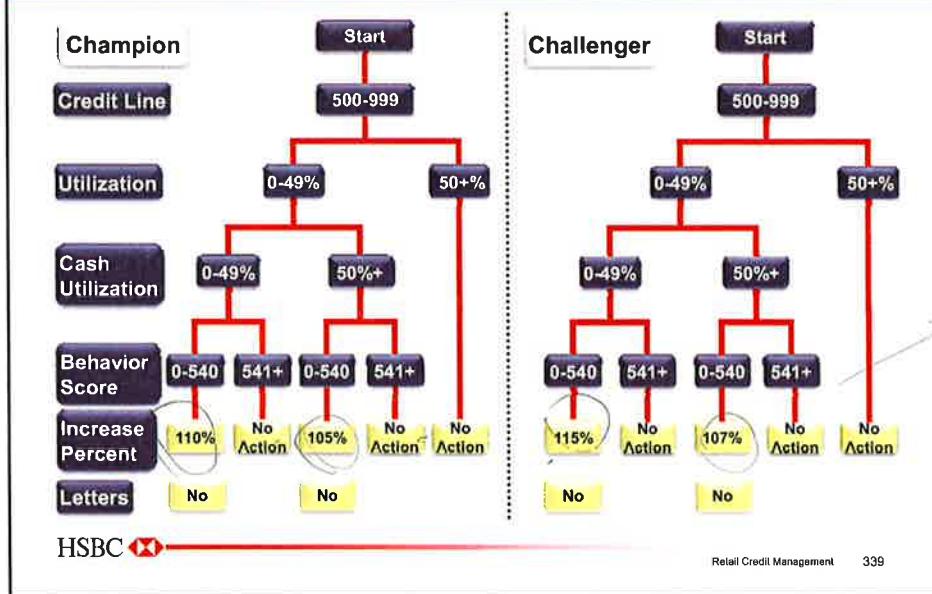


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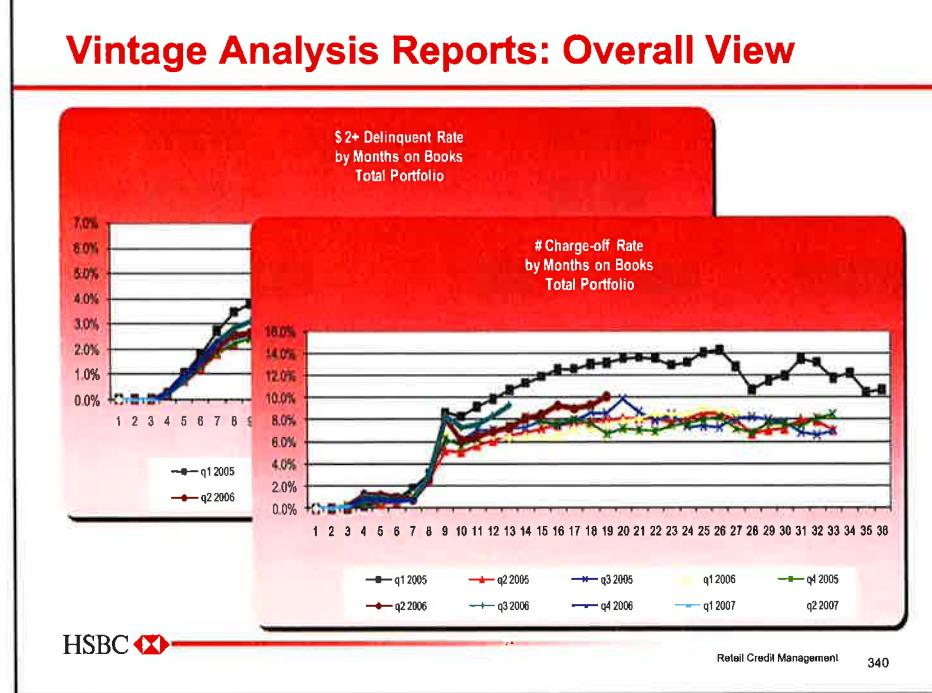
Retail Credit Management 338

Dirty
Test

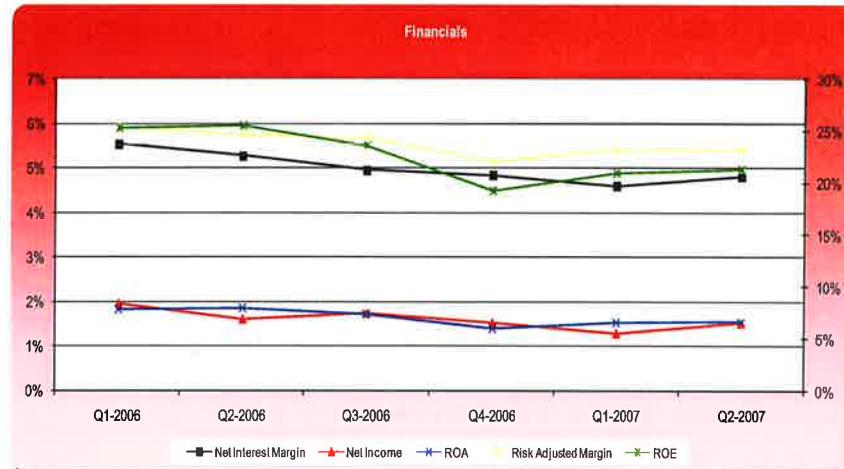
Strategy Testing Credit Line Example 2



Vintage Analysis Reports: Overall View



Key Finance Measures

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Retail Credit Management 341

The Dark Side...

- ▶ “Speedboating” growth to cover mounting losses
 - Add high volumes of new customers
 - Quickly raise lines on new customers (with 3 payments...) to build asset base
- ▶ Re-age, restructure, rewrite, skip-a-pay
 - Deferring losses until after bonuses are paid...
 - If these are significant & recidivism is high....
- ▶ How large the frauds?
 - If delinquency drops suddenly & frauds rise...
- ▶ Originate & securitize before quality is known
- ▶ Delinquent or charged off account sales to pull revenue forward 1 time
- ▶ Fiddling charge off dates / rules
- ▶ Not count REO as charge off – count as asset & value it high
- ▶ Increase / Reduce reserves
- ▶ Manipulated Forecasts – improvements built in today

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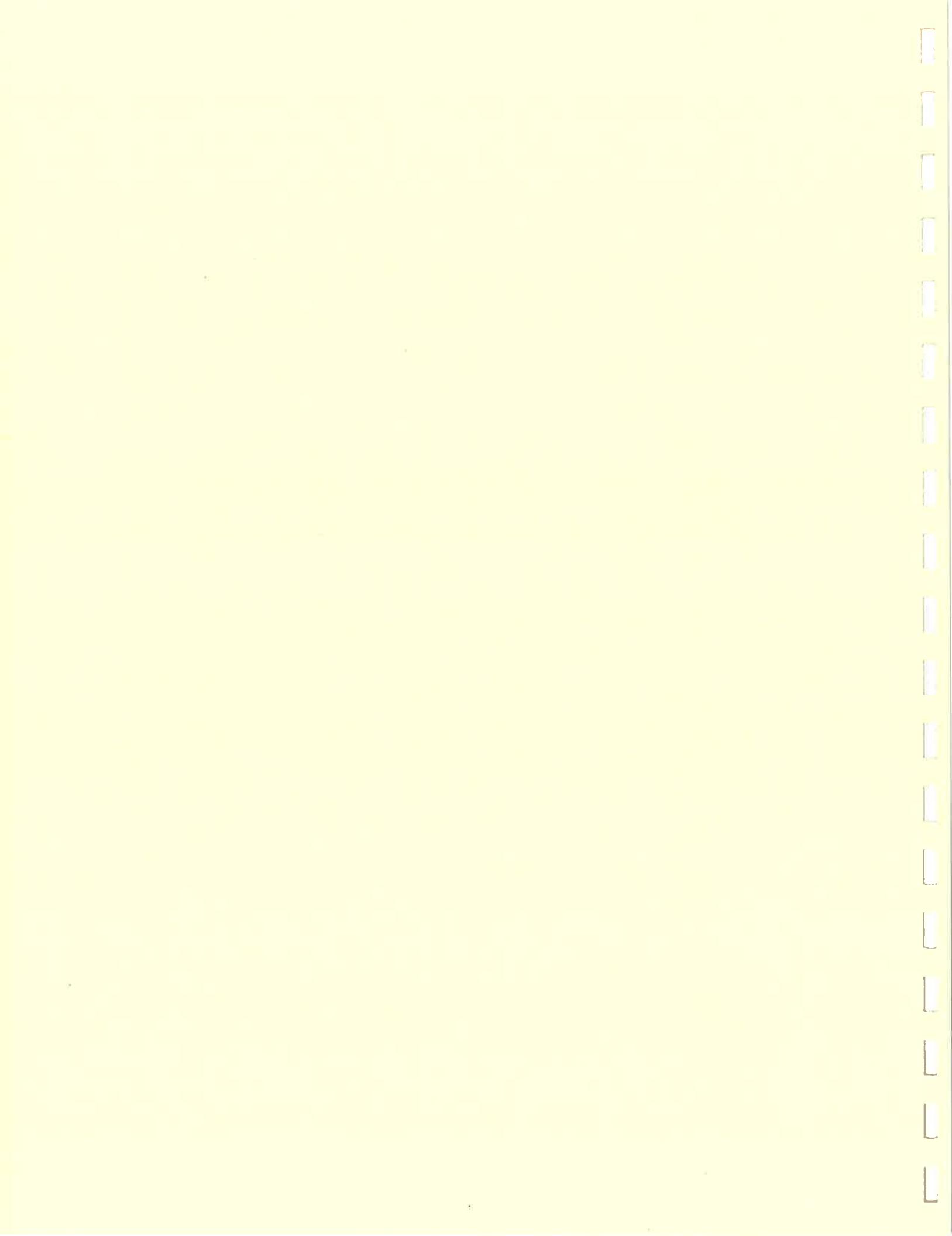
Retail Credit Management 342

Questions & Answers

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Retail Credit Management 343

Appendix





TransUnion®



TransUnion® Credit Report Training Guide

...•

Sample TransUnion Credit Report

1	GOI duncan, elizabeth*2 9932,woodbine,chicago,il,60068*3 555,e,jackson,st,cleveland,oh,44123*5 002-02-2222**										
1A	<FOR>	<SUB NAME>	TRANSUNION CREDIT REPORT	<MKT SUB>	<INFILE>	<DATE>	<TIME>				
(I)	D248	ABC DEPT STORE	06 CH	4/76		5/20/05	09:36CT				
2	<SUBJECT>	DUNCAN, ELIZABETH		2A <SSN>	111-11-1111	2B <BIRTH DATE>					
	<ALSO KNOWN AS>	COOK, ELIZABETH				2/52					
	<CURRENT ADDRESS>	9932 WOODBINE, #9B, CHICAGO, IL. 60693		2C <TELEPHONE>	(555) 555-5555						
	<FORMER ADDRESS>	10 N. CAMINO, OAKLAND, CA. 94583				1/03					
	8500 N. WESTERN AV. CHICAGO, IL 60645					4/99					
	<CURRENT EMPLOYER AND ADDRESS>	ABC HOTELS	<POSITION>	CONCIERGE	<VERF>	<RPTD>	<HIRE>				
	ANYTOWN, IL.				5/05	5/05	3/99				
S P E C I A L M E S S A G E S											
3A	***ID MISMATCH ALERT:	PREVIOUS INPUT ADDRESS DOES NOT MATCH FILE ADDRESS(ES)***									
3B	***HIGH RISK FRAUD ALERT:	INPUT SSN NOT ISSUED BY SOCIAL SECURITY ADMINISTRATION***									
	SSN YEAR OF ISSUANCE:	FILE SSN ISSUED: 1957-1960; STATE ISSUED: IL; EST. AGE OBTAINED: 4-8									
3C	***FRAUD MANAGEMENT PLATFORM										
	FRAUD MODEL SCORE: 650										
	INPUT ZIP CODE NOT VALID FOR CITY										
3D	***OFAC NAME SCREEN: CLEAR***										
	CONSUMER STATEMENT: SEE END RPT										
4	M O D E L P R O F I L E	* * * A L E R T * * *									
	***TRANSUNION NEW ACCOUNT MODEL:	SCORE +550: 24, 23, 10, 07 ***									
	***TRANSUNION BANKRUPTCY MODEL:	SCORE +533: 24, 07, 15, 08 ***									
5	C R E D I T S U M M A R Y	* * * T O T A L F I L E H I S T O R Y									
	PR=2 COL=1 NEG=1 HSTNEG=2-8	TRD=4 RVL=2 INST=1 MTG=1 OPN=0 INQ=4									
	HIGH CRED CRED LIM	BALANCE PAST DUE MNTHLY PAY AVAILABLE									
	REVOLVING: \$10.1K	\$18.2K \$5.4K \$225 71%									
	INSTALLMENT: \$16.9K	\$12.9K \$1128 \$282									
	MORTGAGE \$232.5K	\$173.2K \$1470									
	TOTALS: \$259.5	\$18.2K \$191.5K \$1128 \$1977									
6	P U B L I C R E C O R D S										
	SOURCE DATE LIAB	ECOA	ASSETS	PAID	DOCKET#						
	TYPE Z 4932059 10/03R	COURT C	LOC		ATTORNEY						
	CHAPTER 7 BANKRUPTCY				99B38521						
	ZP5027011 1/03R	\$3128	I	6/03	D. WINSLOW						
	PAID CIVIL JUDGMENT										
7	C O L L E C T I O N S										
	SUBNAME SUBCODE	ECOA	OPENED VERIFIED	CLOSED	SPLACED BALANCE	CREDITOR REMARKS	MOP				
	ACCOUNT# ADVANCED COL Y 999C004	I	5/00 4/05A	5/00F	\$2500 \$1000	ABC BANK	09P				
8	T R A D E S	11 SUBCODE	13 OPENED	16 HIGHCRED	19 TERMS	22 MAXDELQ	24 PAYPAT	1-12	26 MOP		
	9 ACCOUNT#	16 VERIFIED	17 CREDLIM	20 PASTDUE	23 AMT-MOP	24 PAYPAT		13-24			
10	ECOA 12 COLLATRL/LOANTYPE	15 CLSD/PD	18 BALANCE	21 REMARKS	25 MO	30/60/90					
	ABC BK B 6781001	8/03 5/05A	\$16.9K	60M282	1/05 \$1128	445543211111	I05				
	9876543210 I AUTOMOBILE		\$12.9K	*CONTACT	\$1410 05 SUBSCRIBER	111111111111		20 1/ 1/ 5			
	ABC RETAILER D 1234567	12/02 5/05A	\$9.6K \$16.7K	MIN200	2/03 \$2300 02	111111111111	R01				
	1234567890 I /CREDITCARD		\$5.2K		29 1/ 0/ 0						
	ABC MORTGAGE Q 11111111	11/99 5/05A	\$232.5K	360M1470		111111111111	M01				
	1112223333 C /PROPERTY		\$173.2K		48 0/ 0/ 0						
	ABC DEPARTMENT D 7654321	12/04 5/05A	\$500 \$1500	MIN25		11111	R01				
	123123123123 I /CREDITCARD		\$150		5 0/ 0/ 0						
27	I N Q U I R I E S										
	DATE SUBCODE	SUBNAME	DATE	SUBCODE	SUBNAME						
	5/15/05 DCH248	ABC DEPT STORE	3/07/05	BPH9999(EAS)	TEST BANK						
	2/20/05 ASD1234(CAL)	MAIN ST AUTO	1/01/05	DNY7777(EAS)	123 RETAILER						
28	C O N S U M E R S T A T E M E N T										
	#HK# THIS CONSUMER HAS BEEN A VICTIM OF FRAUD. CALL CONSUMER DIRECTLY AT 555-555-5555 BEFORE ISSUING CREDIT.										
29	I N Q U I R Y A N A L Y S I S										
	DATE SUBCODE SUBNAME										
	03/07/05 B 9999 TEST BANK										
	DUNCAN, ELIZABETH (773) 123-4567										
	9932 WOODBINE, CHICAGO, IL 60693										
	02/20/05 A 1234 MAIN ST AUTO										
	DUNCAN, ELIZABETH (773) 555-1234										
	9932 WOODBINE, CHICAGO, IL 60693										
	10 N. CAMINO, OAKLAND, CA 94583										
	EMPLOYER: GRAND HOTEL										
30	C R E D I T R E P O R T S E R V I C E D B Y :										
	TRANSUNION 800-888-4213										
	P.O. BOX 1000, CHESTER, PA 19022										
	CONSUMER DISCLOSURES CAN BE OBTAINED ONLINE THROUGH TRANSUNION AT:										
	HTTP://WWW.TRANSUNION.COM/DIRECT										

This sample report is intended for educational purposes and cannot be used for testing.

The actual Credit Report you receive will be customized to meet your specific request.

TransUnion Credit Report Codes

ECOA (Equal Credit Opportunity Act) Inquiry and Account Designators

- A Authorized user of shared account
- C Joint contractual liability
- I Individual account for sole use of customer
- M Account for which subject is liable but co-signer has liability if the maker defaults
- P Participant in shared account which cannot be distinguished as C or A
- S Account for which subject is co-signer and becomes liable if maker defaults
- T Relationship with account terminated
- U Undesignated
- X Deceased

Date Indicators

- A Automated
- C Closed
- D Declined
- F Repossessed/Written Off/Collection
- I Indirect
- M Manually Frozen
- N No Record
- P Paid Out
- R Reported
- S Slow Answering
- T Temporarily Frozen
- V Verified
- X No Reply

MOP Current Manner of Payment

- 00 Not rated, too new to rate, or approved but not used
- 01 Pays as agreed
- 02 30–59 days past the due date
- 03 60–89 days past the due date
- 04 90–119 days past the due date
- 05 120 days or more past the due date
- 07 Paying or paid under Wage Earner Plan or similar arrangement
- 08 Repossession
- 8A Voluntary repossession
- 8D Legal repossession
- 8P Paying or paid account with MOP 08
- 8R Repossession; redeemed
- 09 Charged off to bad debt
- 9B Collection account
- 9P Paying or paid account with MOP 09 or 9B
- UC Unclassified
- UR Unrated

Type of Account

- O Open Account (30, 60 or 90 days)
- R Revolving or Option
- I Installment
- M Mortgage
- C Check credit (line of credit)

KOB Kind of Business Classifications

- A Automotive
- B Banks and S&L
- C Clothing
- D Department, Variety and Other Retail
- E Employment
- F Finance, Personal
- G Groceries
- H Home Furnishings
- I Insurance
- J Jewelry, Cameras and Computers
- K Contractors
- L Lumber, Building Material and Hardware
- M Medical and Related Health
- N Credit Card and Travel/Entertainment Companies
- O Oil Companies
- P Personal Services Other Than Medical
- Q Finance Companies Other Than Personal Finance Companies
- R Real Estate and Public Accommodations
- S Sporting Goods
- T Farm and Garden Supplies
- U Utilities and Fuel
- V Government
- W Wholesale
- X Advertising
- Y Collection
- Z Miscellaneous

TransUnion Credit Report Fields

1 Inquiry information

Subscriber inquiry information is displayed at the top of the report.

1A On every TransUnion Credit Report the inquiring subscriber's TransUnion-assigned code, name, market area where the file resides within the TransUnion system, date the file was created, and inquiry date and time (Central Standard Time) are displayed.

2 Demographic information

Helps verify consumer identification by providing:

- Consumer's name, plus any known aliases
- Current address and date reported
- Up to two previous addresses and the date reported on first previous address
- If available, telephone number and most current and one previous employer (including position and date employment was verified, reported and/or hired)

2A Social Security number (SSN) if available

2B Date of birth if available

2C Phone Append (optional)

Special messages

Highlights specific credit file conditions that may include:

- Presence of consumer statement
- No subject found

Some optional add-on products may also appear:

3A An ID MISMATCH ALERT* message (optional) appears when: the input address, SSN or surname does not match what is on file; when a minimum of four inquiries have been made against the file within the last 60 days; or when an invalid ZIP code is entered.

3B HIGH RISK FRAUD ALERT* messages (optional) appear if: address, SSN or phone number have been used in suspected fraudulent activity; if the information on an application is inappropriate, such as a commercial or institutional address or if the SSN has not been issued by the Social Security Administration or is that of a deceased person as reported by the Social Security Administration.

3C The FRAUD MANAGEMENT PLATFORM*

(optional) combines the sophisticated fraud-prevention capabilities of both TransUnion and Axiom® into one process. The solution accesses multiple reference databases from both companies, resulting in a solution that can provide a fraud score, messages, and authentication.

Note that the messages returned with the High Risk Fraud Alert option are also incorporated into the Fraud Management Platform.

3D OFAC NAME SCREEN*

(optional) is designed to screen an applicant's name against an enhanced U.S. Treasury Department's Office of Foreign Assets Control (OFAC) database of specially designated nationals, drug traffickers and money launderers.

4 Model profile (optional)

Displays empirically derived scores to help predict a consumer's future credit performance. Other available scores estimate income, project recovery dollars and predict insurance risk.

Risk score factors are displayed numerically or in text, and are displayed in order based on their relative impact on the final score.

ALERT appears after Model Profile heading when Manner of Payment (MOP) is 7 or greater, or when a negative public record or a collection is present on the file.

5 Credit summary (optional)

Provides a "snapshot" of activity on the consumer's credit report.

- Available as an option covering either total file history or 12-month file history.
- "Total File History" or "12-Month History" is in the upper right hand corner of the credit summary depending on the option chosen.

From left to right, headers in the first row read as follows:

PR: Total number of public records

COL: Total number of collection accounts transferred to a third-party collection agency. These accounts are identified with a Kind of Business (KOB) code of "Y".

NEG: Total number of negative accounts (derogatory) with a current Manner of Payment (MOP) of 2 or greater.

HSTNEG: There are two separate pieces of information in this field. Both relate to historical negative information on a tradeline. Historical negative information is defined as any Manner of Payment (MOP) of 2 or greater, occurring in any month (excluding current month). The first half of this field describes the number of tradelines which have historical negative information and the second half describes the number of occurrences.

TRD: Total number of trades. TRD value is the sum of RVL, INST, MTG and OPN values.

RVL: Total number of revolving and/or check credit accounts (account types "R" and "C")

INST: Total number of installment accounts (account type "I")

MTG: Total number of mortgage accounts (account type "M")

OPN: Total number of open accounts (account type "O")

INQ: Total number of inquiries

From left to right, headers on the second row read as follows:

HIGH CRED: Highest amount ever owed on an account

CRED LIM: Maximum credit amount approved by credit grantor

BALANCE: Balance owed as of the date verified

PAST DUE: Amount past due as of the date verified or closed

MNTHLY PAY: Subscriber-reported monthly payment from the "TERMS" field on the account

AVAILABLE: Percent of credit available for revolving, check credit and open accounts. Field is calculated by subtracting balance from credit limit divided by credit limit.

TOTALS: Totals for second row headers are included for: Revolving, Installment and Mortgage Accounts (Open Accounts and Accounts Closed with a Balance are not shown on sample report)

* For more information about any solutions listed in this brochure, please contact your TransUnion sales representative.

Note: Fields with dollar amounts will display K=Thousands, M=Millions.

6 Public records

Public record information is maintained on a consumer's file in compliance with the Fair Credit Reporting Act (FCRA). This information is obtained from county, state and federal courts, and includes civil judgments, state tax liens, federal tax liens, and bankruptcies.

The length of time each record is held on TransUnion's database varies by the type of record.

Typical retention periods (may vary by state)

Civil judgments	Seven years
Unpaid tax liens	Indefinite
Paid tax liens	Seven years from date paid
Chapter 7, 11 or 12 bankruptcies	Ten years
Chapter 13 bankruptcy filings	Ten years
Chapter 13 bankruptcy dismissal or discharges	Seven years
Bankruptcies voluntarily dismissed	Seven years

7 Collections

Identifies consumer accounts that have been transferred to a professional debt-collecting firm. Collection information includes the name of the collection agency providing information, consumer's account number with the collection agency, collector's Kind of Business (KOB) designators and TransUnion-assigned reporting subscriber number (all collection agency subcodes begin with a "Y").

Also included are the Equal Credit Opportunity Act (ECOA) designator**, date the amount was charged off by the original creditor, date the information was verified along with an indicator code**, date the item was turned over to a collection agency (shown as date opened). Also included are original dollar amount of collection, the balance owed as of date verified or closed, name of the original creditor, and an explanation of current account status as reported by the collection agency.

Trades

Provides an on-going historical and current record of the consumer's buying and payment activities.

- Trades are available sorted by most derogatory; followed by date verified or vice-versa.
- Payment pattern is available displaying either 12 or 24 months.

Trade information includes the following:

- 8 **SUBNAME:** Abbreviated name of credit grantor with whom consumer has an account
- 9 **ACCOUNT#:** Consumer's account number with the credit grantor (partial account number will be returned)
- 10 **ECOA:** ECOA is a code representing the ownership designation on the account**
- 11 **SUBCODE:** Credit grantor's Kind of Business (KOB) designator and TransUnion-assigned reporting subscriber number**
- 12 **COLLATRL/LOANTYPE:** Collateral for an installment loan, or the type of loan
- 13 **OPENED:** Date the account was opened
- 14 **VERIFIED:** Date of last update on the account**
- 15 **CLSD/PD:** Date of account status**
- 16 **HIGHCRED:** Highest amount ever owed by the consumer on that account
- 17 **CREDLIM:** Maximum amount of credit approved by credit grantor
- 18 **BALANCE:** Balance owed as of date verified or closed
- 19 **TERMS:** Number of payments, payment frequency and dollar amount agreed upon
- 20 **PASTDUE:** Amount past due as of date verified or closed
- 21 **REMARKS:** Explanation of dispute or account credit condition, as reported by the credit grantor
- 22 **MAXDELQ:** Date on which the maximum level of delinquency for that account occurred
- 23 **AMT-MOP:** Dollar amount of consumer's maximum delinquency and the Manner of Payment (MOP) rating at the time
- 24 **PAYPAT:** The subject's payment pattern with his/her actual rating or Manner of Payment (MOP) over a period of time. Depending on which option a customer chooses either 24 months or 12 months of information will be shown. The default setting is 24 months.

The first position on the left of the first row corresponds to the account status of the previously verified month. This will not correspond to the Manner of Payment (MOP) field, which represents the most recently reported account status, usually the current month. Each subsequent position to the right corresponds to one month further back in time.

In the first example below, the first half of the PAYPAT field is 445543211111. The first position indicates the information reported one month ago (MOP=4):

Manner of Payment (MOP)

One month ago	MOP = 4
Two months ago	MOP = 4
Three months ago	MOP = 5
Four months ago	MOP = 5 Etc.

- 25 **MO 30/60/90:** The four parts of this field summarize any delinquency on the account. The first column represents the number of months being summarized. The second, third, and fourth columns equal the number of times the subject has been 30, 60, or 90 days delinquent, respectively.

In the first example, this field equals 20 1/1/5. This means that 20 months of data was reviewed. The subject was 30 days past due one time, 60 days past due one time, and 90 or more days past due five times.

- 26 **MOP:** Type of Account (R, I, M, O, C) and Manner of Payment (MOP) code at which the account is currently reported**

27 Inquiries

Displays which companies viewed the consumer's credit file over the last two years. Includes date the inquiry occurred, and the inquiring subscriber's TransUnion-assigned account number and name.

- Available in a one or two column display
- If two columns are requested, inquiries are displayed either left to right or top to bottom, by date

28 Consumer statement

Contains an explanation of facts or conditions affecting the consumer's credit file.

29 Inquiry Analysis (optional)

Returns the contact information provided by the consumer when applying for credit within the previous 90 days. Information returned will include the consumer's name and current address, and potentially the consumer's previous address, telephone number, and employment.

30 Credit Report Serviced By

This information should be used to direct consumers to the appropriate location in the event of an adverse action.

** See the codes page of this brochure for more details.

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