Credit Risk Programme

Module 12

Current Trends in Retail Lending

CORESTRAT

OLIVER WYMAN

CURRENT TRENDS IN RETAIL LENDING
SENIOR MANAGEMENT RETAIL CREDIT RISK PROGRAM

22ND MARCH 2016

MARSH & McLENNAN COMPANIES

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MARSH & McLENNAN COMPANIES

- **Revenue 2014: US$13.0 BN**
- **Staff: 57,000**
- **Clients in more than 130 countries**
- **Listed on the New York Stock Exchange**

OLIVER WYMAN GROUP

Management , economic and brand strategy consulting

- **Strategy**
- **Organization**
- **Operations**
- **Risk management**
- **Transformation management**

- **Revenue 2014 US$1.71 BN**
- **Staff: 3,700**
- **50+ offices in 26 countries**

GUY CARPENTER

Risk and reinsurance specialist

- Reinsurance and risk management
- Contract management, claims handling, and fiduciary accounting

- Revenue 2014 US$1.15 BN
- Staff: 2,300
- Offices in over 50 countries

MERCER

Talent, health, retirement and investment consulting

- Personnel strategy
- HR systems
- Compensation
- Incentive systems
- Communication

- Revenue 2014 US$4.35 BN
- Staff: 20,500
- Offices and operations in more than 130 countries

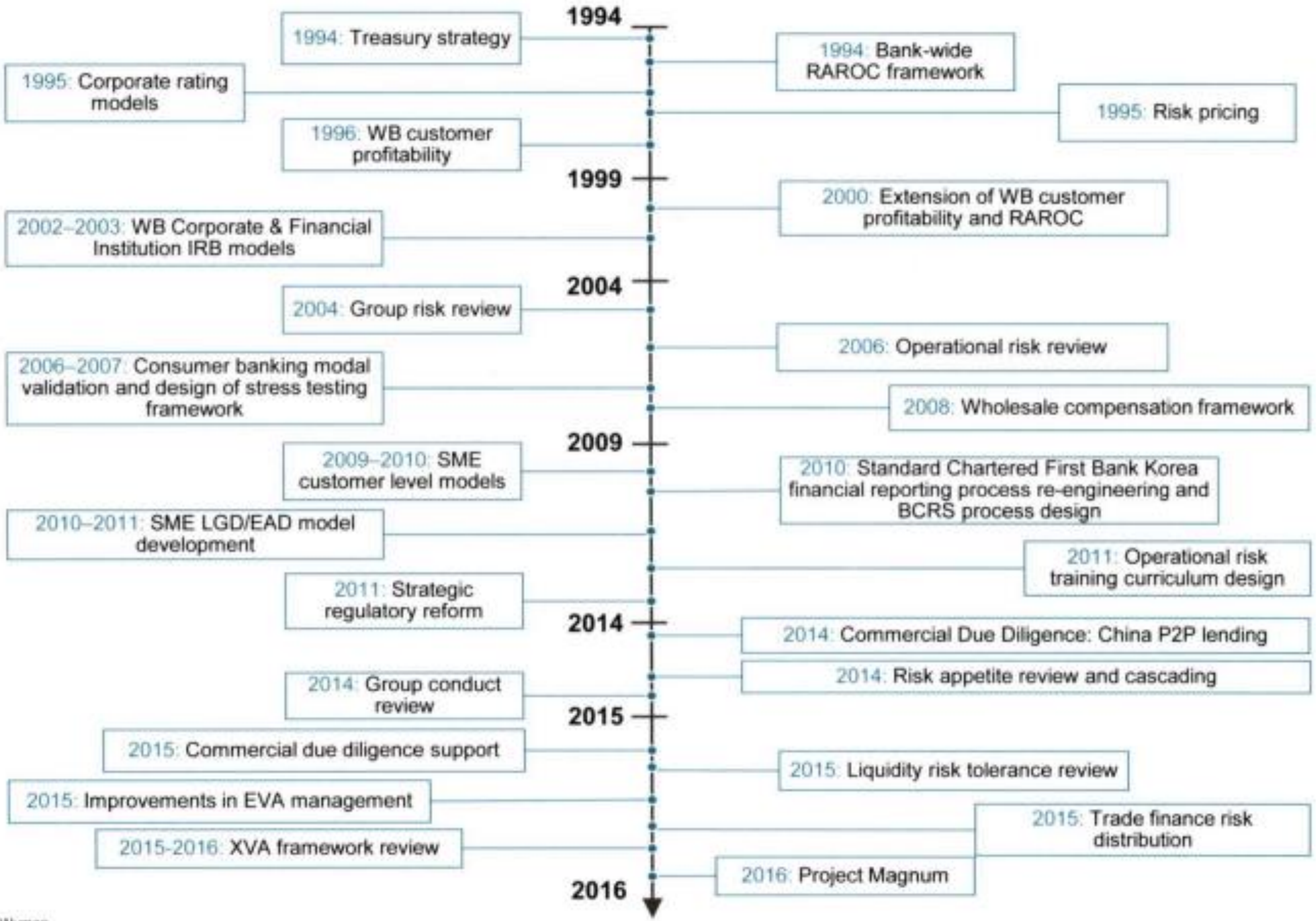
MARSH

Insurance broker and risk advisor

- Risk management, consulting, and transfer
- Financial solutions and insurance program management services

- Revenue 2014 US$5.75 BN
- Staff: 26,000
- Clients in over 130 countries

We have partnered with Standard Chartered on multiple engagements since 1994



Our dedicated Retail Risk practice serves leading global/ regional banks on the full spectrum of retail risk issues

Selected recent clients

- Lloyds Banking Group
- Intesa Sanpaolo
- Santander
- Danske Bank
- Barclays
- Deutsche Bank
- CIMB Group
- mandiri
- RBS The Royal Bank of Scotland
- Fifth Third Bank
- HSBC
- Bank of America
- nab

Retail risk themes

- Customer protection and conduct regulation
- Digital shaping customer expectations and business models
- Availability of new data and analytical capabilities
- Focus on balance sheet optimization

Customer protection and conduct regulation

- Conduct risk management and regulation as a response to the perception that financial services has "lost its way" in its ethics and principles
- Regulators clamping down on perceived 'unfair' dealings with unsophisticated/ vulnerable client groups
- Potential risk exposure across all product lines, customer segments and distribution channels

Digital shaping customer expectations and business models

- STP will become the norm as customers increasingly expect "On demand" service, improved Customer Experience
- Digital technology enabling new business models, new entrants targeting unsecured lending to under-served segments
- Risk capabilities need to address new expectations and enable innovation

Availability of new data and analytical capabilities

- Data being captured in unprecedented volumes – potential to leverage data from social media, mobile application usage and online footprint in credit decisions
- Web app technology has democratized software development and expanded possibilities
- The cloud, mobile devices and high bandwidth communication have broadened the occasions in which insights can be applied

Focus on balance sheet optimization

- Full transparency on the use (liquidity, capital and leverage) and effectiveness (EVA) of financial resources
- Deep analytics supporting decision making at granular business unit, product, customer segment level
- RWA optimization: methodology/ computation; process; business strategy

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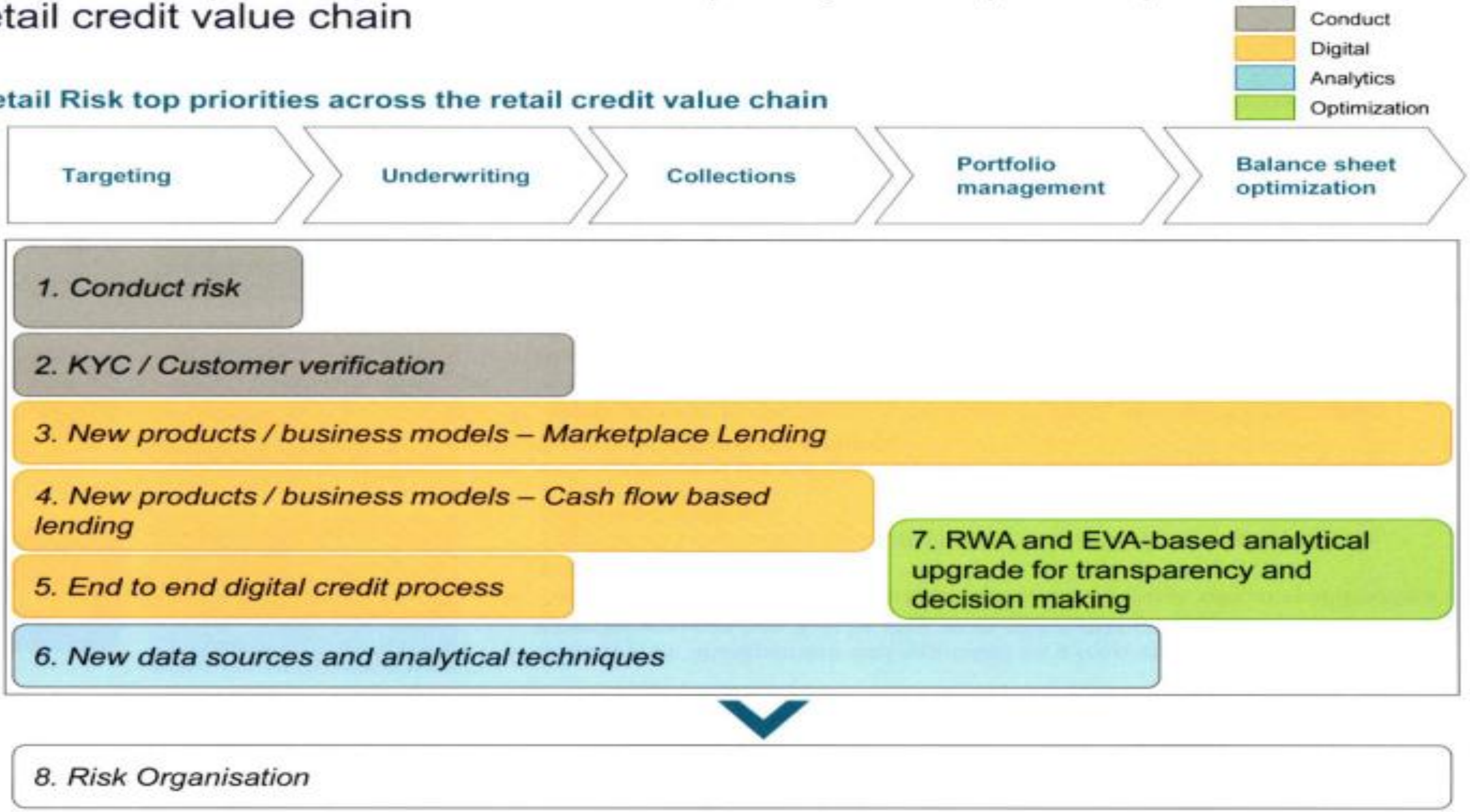
We see 8 key priority areas for new capability development spanning across retail credit value chain

Retail Risk top priorities across the retail credit value chain



Conduct risk management and regulation is in part a response to the perception that financial services has "lost its way" in its ethics and principles

Key findings from a recent survey of UK and US finance professionals

30%
had observed wrongdoing in the workplace

20%
would commit a crime (insider trading) if they could get away with it

32%
feel pressured to compromise standards due to incentive structure

25%
believe that unethical/illegal conduct is needed for success

32%
find the current regulatory regime effective

Source: Labaton Sucharow

Key things to know about Conduct Risk

- Encompasses product suitability and performance, treating customers fairly, mis-selling, market conduct and anti-competitive behaviour
- Many markets clamping down on perceived "unfair" dealings with unsophisticated/vulnerable client groups
  - All retail banking/insurance clients
  - Municipalities, SMEs, public sector, HNWs
  - Retail investors at asset management firms
- Potential risk exposure across all product lines, customer segments and distribution channels
- Cross-functional challenge across front line, operational risk, compliance etc.
- Regulators are increasingly demanding evidence at board level and below about active Conduct Risk management

In the retail space, there are multiple risk areas that may require increased attention

Retail areas most impacted by Conduct Risk

Client suitability/ mis-selling

Bundled solutions (esp. insurance cover)

Needs-based assessments in sales processes

Incentive structures

Robo-advice through algorithms not humans

Complex product structures

Social media interactions

Accreditation to demonstrate staff competencies

Inbound/ outbound call monitoring

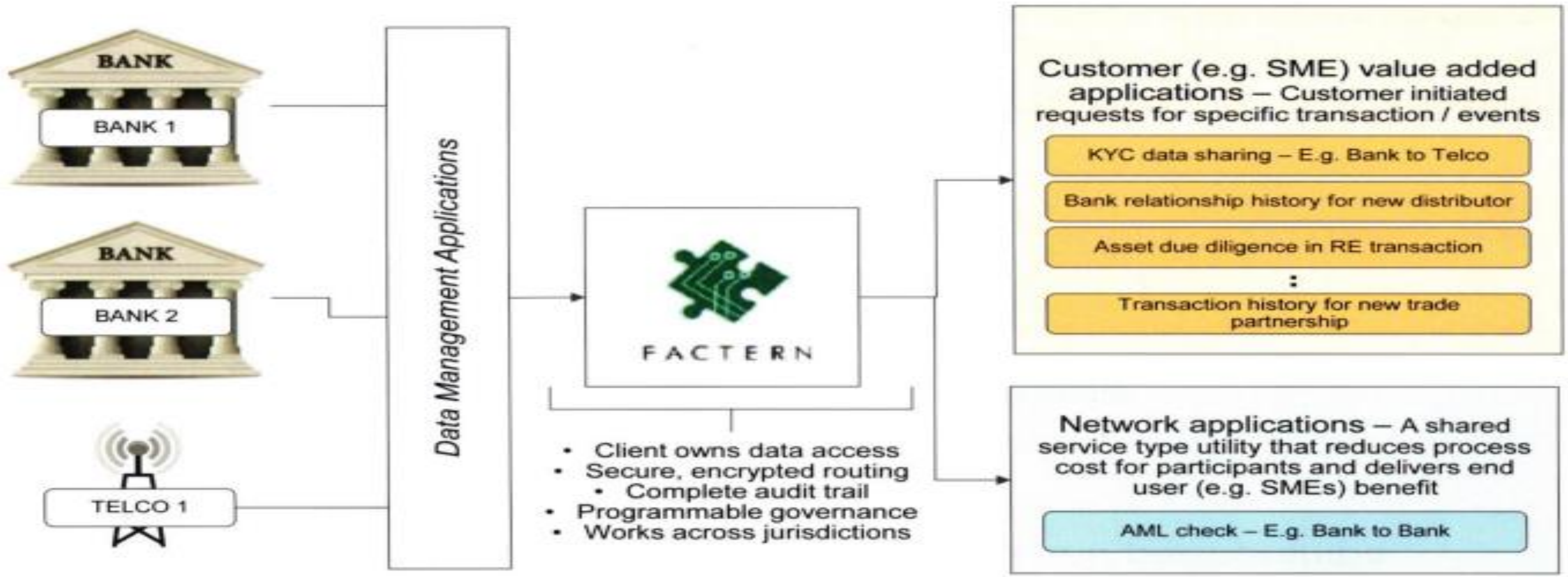
Source: Labaton Sucharow

Thoughts for the CEO agenda

- Can you/your board explain the biggest conduct risks and what is being done about them?
- Do you know the risks embedded in your back-book?
- Can your sales force define who a vulnerable client is?
- How robust are training and incentive mechanisms to conduct scrutiny?
- How is culture evolving to embed appropriate conduct?
- Have you set standards for good conduct of business? Who is monitoring this?
- How do you prevent Conduct creating yet another 2nd line of defence layer? How will you incorporate this into existing responsibilities?

"Open data" environment and customer privacy concerns are shaping new ideas on industry data sharing – OW has been early mover (via Factern)

Illustrative overview of "Open data" application ecosystem including Factern (Data sharing platform)



Various players are developing innovative approaches to customer verification process – leveraging new technology and partnerships

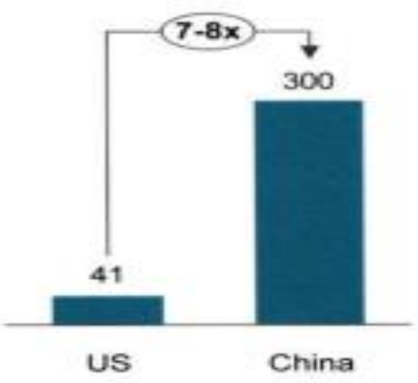
Type of platform

Key feature	Individual / Bi-lateral	Shared
New technology	amazon, MasterCard • Trialling new technology allowing customers to pay online by taking a selfie	IBM • Deployed voice recognition to improve contact center experience and efficiency • Voice authentication within first 30 seconds of call. Multiple mechanisms can be used in conjunction (e.g. voice + fingerprint + secure token)
Partnership	uangteman • **Indonesian start-up digital lender** partners with **local telco** for **innovative address verification**	NUMBER26, IDnow • German bank Number 26 uses IDnow technology for **digital personal identification checks** and **electronic signatures** • Verifies identity of customers and enables digital contract signing **< 5 minutes**

We see five primary impacts the FinTech disruption can have for banks

Revenue pool growth
e.g. China P2P Lending

US vs China's P2P market 2014, RMB BN, transaction volume



- Focus of banks on lending to SOEs at expense of private sector
- Lack of alternative investment products for retail customers

Margin Compression
(e.g. price aggregators)

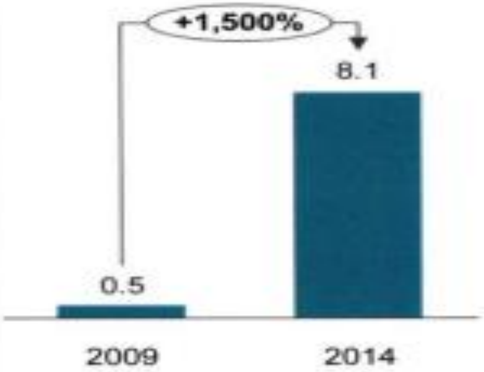
Price comparison website

Provides comparison of rates and charges for personal loans and credit cards

- Greater transparency and more convenient access to multiple quotes that improve price competitiveness

Revenue pool shifts
e.g. China e-Payments

3rd party internet payments RMB TN, 2009–2014



- Payments sector relatively unregulated, limited barriers
- Chinese millennials comfortable with digital technology, less trust in banks
- Payments highly transactional service with limited customer relationship/loyalty

Cost reduction
e.g. Distributed ledger

Potential savings from distributed ledger technology

$15-20BN[1]

Cost savings around
- Cross-border payments
- Securities trading
- Regulatory compliance

- Payments infrastructure highly complex – numerous counterparties at each end of transaction
- Cross-border payments as high friction service – settlement requires multiple days

Reduced risk
e.g. better underwriting

Advanced underwriting abilities

Aggregates much broader set of data than traditional bank lending to make informed decisions

- Technology enables aggregation of diverse and unconnected sets of data

1. Oliver Wyman & Santander innoventures: Fintech 2.0

Payments currently witnessing most significant disruption, particularly in Western markets, but pockets of disruption emerging across broad range of banking activity including Retail Lending

Potential revenue disruption by bank revenue pool and geography

Business area	Global bank revenue pools (2014)	Risk adjusted profitability	US	Europe	Developed Asia	Emerging Asia
Transactions GTB, retail payments	~10%	High	Less-regulated segment – low barriers to entry Purchasing decision reoccurs frequently Traditional service provision highly frictional in many instances			
Intermediation Wealth mgmt., capital markets	~10-20%	Medium	Disruption occurring around inefficient solution/services (e.g. capital markets intermediation) and areas with poor service/fee ratio (e.g. wealth)		Asian markets smaller – less opportunity for new entrants Less developed advisory model to disrupt	
Credit Risk & Maturity transformation Lending, deposits	~70-80%	Low	Greater regulation acts as barrier to entry Products more bespoke, with direct comparisons across providers more difficult and relationship led Most disruption in unsecured retail and SME lending in underserved segments			

Low | Medium | High — Likelihood of revenue shift disruption in the medium term – relative qualitative assessment

Source: Oliver Wyman proprietary data and analysis

3. New products and business models – Marketplace lending

A proliferation of attackers offering unsecured lending to under-served segments

Balance sheet lenders

CAPITAL FLOAT
OnDeck
Kabbage
LENDINGKA₹T
CAN CAPITAL

Market place – MSME focused

点融网 Dianrong.com
开鑫贷 gkkxd.com
Lendico
人人贷 renrendai.com
FUNDING SOCIETIES
Funding Circle

Market place – Individual focused

Lufax.com
(Does MSME loans as well)
拍拍贷 ppdai.com
zopa
WeLab
FAI₹CENT
PROSPER
LendingClub

Aggregators

Deal4Loans
lendio
lendingtree
vow FINANCIAL
fundera
SME CORNER.COM

Example: Conditions in China facilitated dramatic growth in Marketplace Lending

1	2	3	4
SOEs choking off credit to MSMEs	Limited alternatives to bank borrowing	Search for yield	Sitting on deposits

MSME financing gap – >$700 BN (by 2018) | Investible assets – >$2.3 TN (by 2018)

An increasingly web savvy population

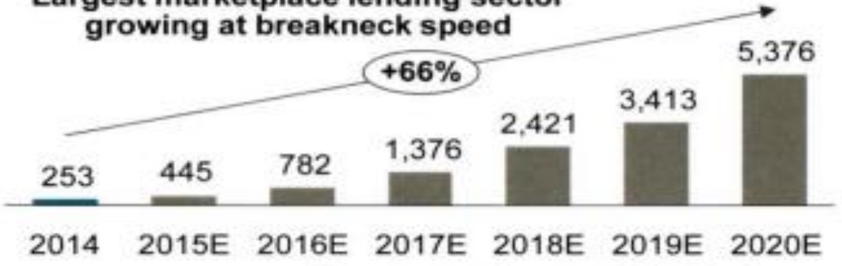
5.5x Growth in broadband penetration over the last 10 years

36% Share of adult population using smartphone in China

Favourable regulatory framework

- Overseen by CBRC as "Financial institutions" vis-à-vis SEC as an exchange in US
- CBRC has provided clear guidance on what these platforms can and can not do (10 principles)

Largest marketplace lending sector growing at breakneck speed



Primarily funding MSMEs

96% Of all loans are given to MSMEs

Primarily funded by retail investors

98% Of funding is currently coming from retail

Fragmented competitive landscape with few large player and many small ones

陆金所 Lufax.com | 点融网 Dianrong.com | 开鑫贷 gkkxd.com | 人人贷 renrendai.com | 拍拍贷 ppdai.com | Top 5 market share 70% + | + | 2,000+ other players

StanChart needs to prepare for potential disruptors throughout its network

1 Does your market have a large unmet credit need in individual or Micro SME segments?

2 Is there a large share of affluent/mass affluent or institutional deposits in deposits but seeking higher yield?

3 Has there been an exponential rise in smartphone and online penetration?

4 Is there a regulatory policy shift towards support for Micro SMEs/unbanked?

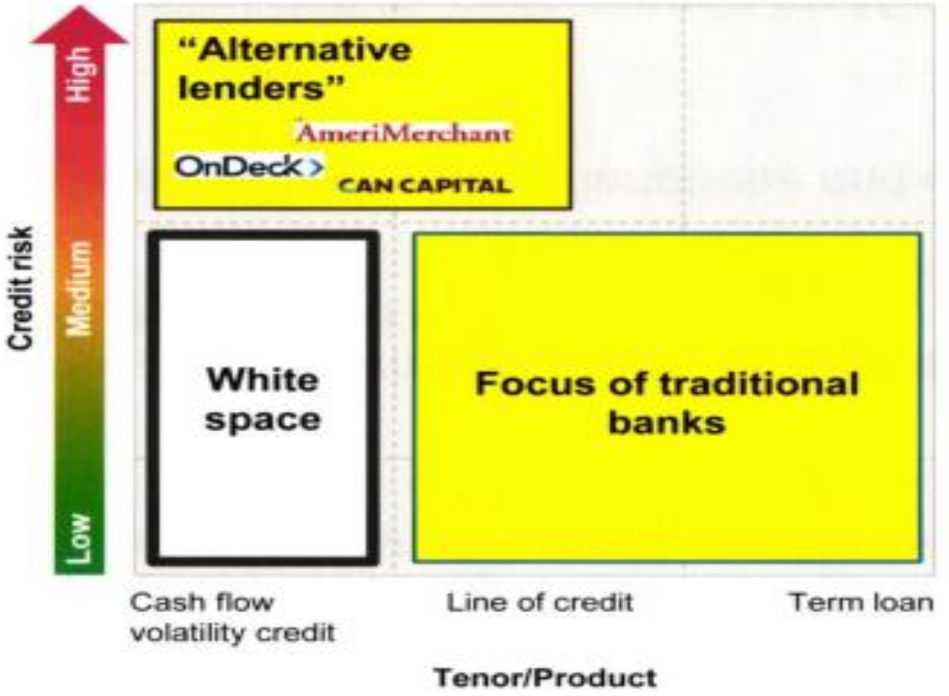
5 Is there an open-minded and pragmatic regulatory attitude towards innovation?

Unmet client needs present a "White space" in SME credit, necessitating a novel solution – cash flow based loans

SME customers face significant challenge in predicting cash flows

- **Underlying drivers of cash flow variability:**
  - Delays in buyer payments
  - Emergency repair/ replacement
  - Discounted purchase opportunities
- **>40% of ASEAN SMEs disclosed they find cash flow projections very challenging** – in an Oliver Wyman survey conducted in 2015

Supply gap in addressing SME cash flow volatility credit need



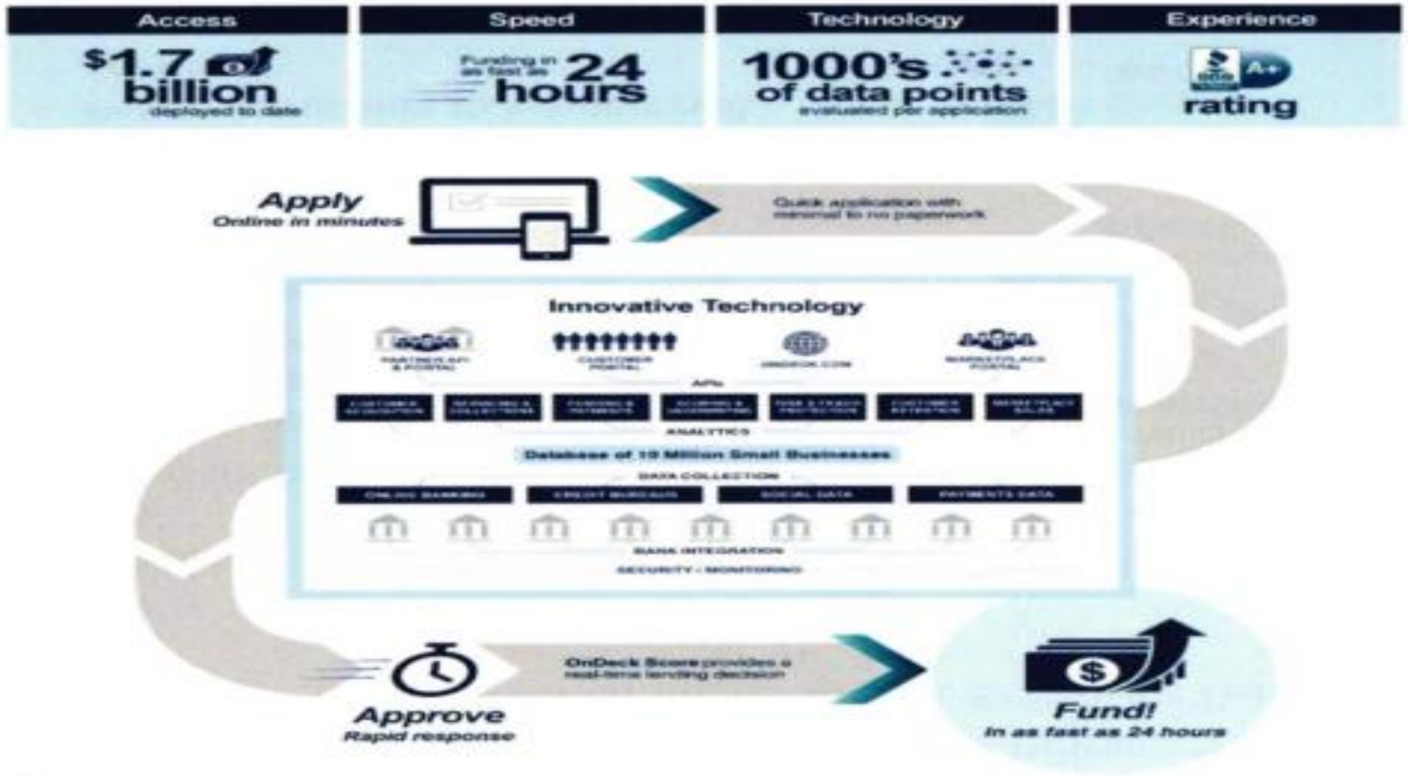
A novel solution powered by superior credit analytics

- **Short and small:** Avg. loan size of $50 K for 3 months
- **Delivered in 1–3 days** with minimal manual process (often limited to site inspection)
- **Credit underwriting** based on **largely** automated policy rules and decision engine
- **Risk managed** via daily deductions and extensive early risk indicators

Cashflow based lending is a significant opportunity but requires banks to develop crucial new capabilities throughout the end-to-end activity chain

OnDeck

- SME loan approval and funding in < 24 hours
- Uses data aggregation and algorithm
- Founded in 2006, $1.3 BN at its IPO in 2014
- **Caveat**: Experienced severe decrease in value since March 2015 due to losses



Key capabilities

- **Fast, easy and convenient application**
  - Online application
  - Automated data collection
- **High level of automation**
  - Applications made online
  - Credit decision and pricing done automatically
  - Only manual moment is document / fraud checks
- **Early warning signals**
  - Credit decision based on up-to-date cash flow
  - Faster repayments as they are done daily
  - Ability to monitor sales data in real time for early identification of risk for losses

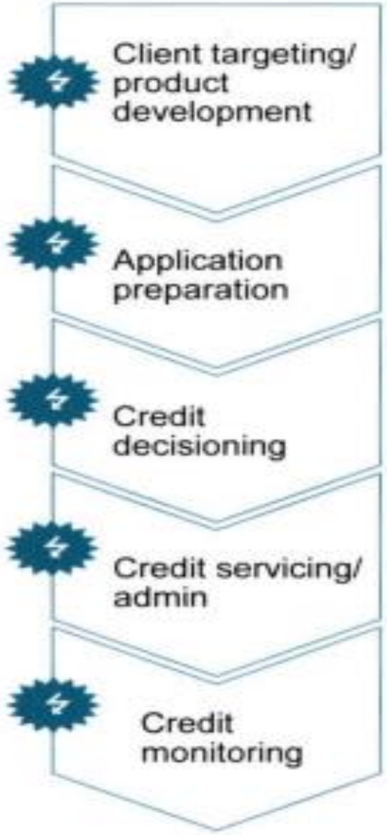
A fundamental transformation in capabilities is necessary to remove hassles across various points of SME credit activity chain

Disguised OW client example

Client context

- Leading UK bank with global operations
- Need to revamp strategy to **transform operating model** and **differentiate credit underwriting process**
  - **Challenging macro environment**: increased defaults and muted demand
  - **Regulatory changes**: increased funding costs and capital requirements
  - **Political pressure to support real economy**
  - **Business model**: decreased profitability of ancillary products and cost pressure
  - **Competition**: Increased institutional investor appetite

Typical activity chain in SME credit and interventions



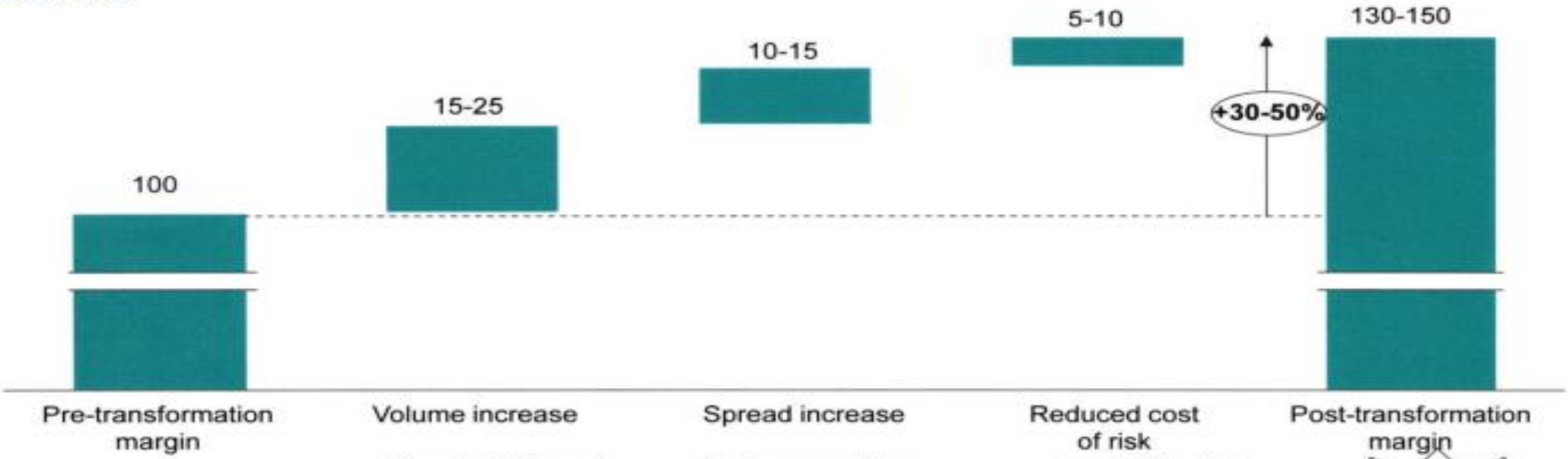
- Improved accessibility of policies via dedicated intranet site
- Enhanced overall KYC operating model through IT design and RM training
- Developed best-in-class electronic platform linking every product to specific client account and generate automatic pricing
- Automated credit assessment and decision through a decision engine
- Developed forward looking rating approaches through pro-forma simulation
- Usage of electronic flow tools to monitor the end-to-end credit process

5. End to end process digitization

The case for change is persuasive given the economic impact we have observed in other client situations

Disguised OW client example

Observed increase of interest margin after cost of risk
Index 100



Volume increase

- **Greater RM push** thanks to upselling tools and streamlined process
- New process **more attractive to customers**

Spread increase

- Customers willing to accept **higher price for a faster process**

Reduced cost of risk

- A sophisticated decision engine **may outsmart manual underwriters** on small tickets

Post-transformation margin

- **5–10 screens max**
- **Lead time from 1–2 weeks to real time (small files)**

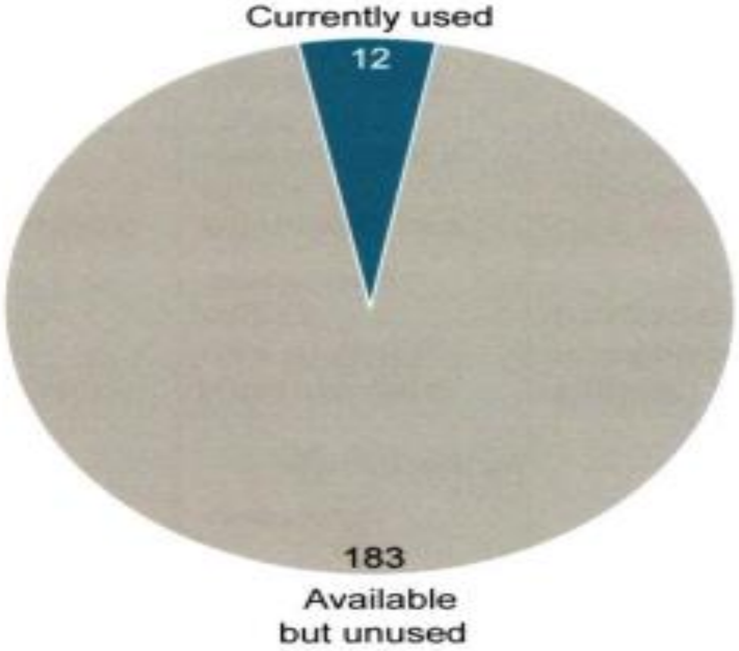
Technological developments and increasing digital footprint have led to availability of new data types / sources and analytical techniques

Expanding horizons of Retail Analytics

	Traditional data	***Traditional 2.0***	**New sources of data**
	Demographics / Account behaviour	Transaction-level data, balance volatility, etc.	Social media, Online footprint, etc.
Traditional technique (e.g. logistic regression)			
New analytical techniques (e.g. machine learning)	 Web app and cloud technology has democratized software access to data organization and analytics tools	 This has unlocked analytical horse power necessary to analyze internal data that went unnoticed until now	 Increasing frequency of digital interactions are creating new data sources and opening up new application points

Banks are only beginning to realize the value of data assets they are sitting on

In a comparable bank only 6% of the available, predictive features were used for decisions
Client example (data used for decisioning and marketing)



Source: Oliver Wyman

A wide range of predictive data is available but unused due to the available analytical methods
Illustrative unused data types (non-exhaustive)

- **Spend history** – correlation between spend patterns with repayment behavior
- **Account organization** – inference of risk from patterns of account use and organization
- **Sources of income** – inference of repayment ability
- **Channel use** – implication of risk from banking frequency (e.g. >4 mobile log-ins per day indicative of high-level of financial awareness in under 30 yr. olds)
- **Social groupings** – connections between borrowers (addresses, payments, etc.) can be used to identify lower risk social groups (e.g. members of high income families)
- **Voice-to-text /call notes** – indication of financial health from customer phone call analysis (e.g. specific key words used)

Large financial service providers are applying advanced techniques to leverage Traditional 2.0 data across a variety of applications

Firm	Capital One, barclaycard	Lloyds Banking Group	barclaycard	zopa	Multinational Bank (Retail Collections
Application	**Internal data use in CVM, digital marketing**	**Digital marketing, trigger-based**	**Pre-approvals**	**Advanced use of bureau data**	**Right party contact**
Description	Advanced use of use of internal data in CVM incl. trigger-based Direct Mail campaigns and mobile channel targeting	Use of sophisticated rule-set that triggers marketing activities and next-best-action based on customer actions (e.g. transactions, branch visits, "Off-Us" activity, complaints)	Use of Group customer base group scoring to pre-approve customers for credit cards and personal loans. Based on policy rules and customer behaviour (e.g. transactions)	Customer creditworthiness defined by credit score obtained from Equifax (credit bureau), using "quotation searches" (not credit applications)	Introduced "machine learning" to enhance collections process. This actively incorporates customer responses to collections activity to identify best means to attempt future contact

In addition, a wide range of new data sources are becoming available

Big Data underwriting data sources

Traditional data

Base

- Client type/relationship type
- Occupation
- Income
- Age
- Location/region

Behavioral score

- Most recent behavioral score of the customer/SME

Customer/SME credit profile

- Limit utilization
- Number of open accounts
- Number of closed accounts
- Payment arrears
- Past delinquency

Innovative data

Online footprint

- Social media activity
- Personal & professional background
- Online likes/interests
- Online application usage

Internet usage

- Web browser type
- Web browser history
- Location (IP address)
- Operating system
- Screen resolution
- ...

Mobile usage

- Location (IP address)
- Mobile device brand
- Operating system
- Screen resolution
- Online application usage
- Phone and text messaging patterns

Transaction channels

- Transaction count
- Number of loyalty/ credit cards
- # of purchased goods
- # of chargebacks

Combination of unused existing data, new data and new analytical techniques are producing significant uplifts in predictive power

Use case 1: Social media networks

Affluent customer targeting for a leading East European Bank

50K

"High value" prospects identified based on digital footprint information

Use case 2: Online footprint data

Credit risk prediction with online footprint data – Leading European Bank

22%

Increase in "PD Model" Gini

Use case 3: Social media; online footprint

First payment default prediction – leading bank in Turkey

20%

Increase in "FPD model Gini

Use case 4: Unstructured call centre data

"Big data" analytics in Collections – leading global bank

37% *Fewer calls*

27% *Fewer agent contacts*

21% *Less handle time*

StanChart is moving towards Risk-Adjusted Performance Management, linking vision and strategy to key processes and decisions via common performance metrics which are risk-adjusted and have "bite"

Topics of our recent work at Group level

Full cascading of Group risk appetite

Development and use of EVA metrics

Development and cascading of risk-adjusted performance criteria

More detailed risk analysis as part of planning

We helped SCB to develop an EVA framework which underlie the key principles of the risk-adjusted performance metrics

EVA framework objectives

Core objectives

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Use of the EVA framework

- The EVA will be **used at Group level as part of regular performance management** reporting
- Key management decisions **require balanced, strategic considerations** to which the EVA should contribute but not be the only input (e.g. accounting profit, leverage, brand considerations)

The EVA framework aimed to enable key stakeholders to make informed strategic decisions

	CFO/ Group Finance	Global Segment Heads (e.g. CIB)	Regional Segment Heads (e.g. Retail)	Country Heads (e.g. Singapore CEO)
Uses	• Strategic country/ segment sustainability assessments • Annual planning and budgeting process/ target setting • Quarterly performance management • Cross-group capital allocation • Business model strategy (hub vs. spoke approach)	• Annual strategic planning/ budgeting/ target discussions • Strategic viability assessment of country coverage (within segment) • Quarterly segment performance management • Business model strategy (hub vs. spoke approach)	• Annual strategic planning/ budgeting/ target discussions • Strategic viability assessment of country coverage (within segment) • Global/ regional client segment/ product strategy • Quarterly segment performance management	• Annual strategic planning/ budgeting/ target discussions • Quarterly country performance management • Segment performance assessment • Booking hub vs. origination business model strategy • Capital and Balance Sheet management
Decisions	• Grow/ transform/ retrench from countries • Grow/ transform/ retrench businesses/ segments • Inform group dividend/ capital issuance policy	• Grow/ retrench from client segments and products • Optimise capital (RWA) usage	• Grow/ transform/ retrench from countries • Grow/ transform/ retrench businesses/ segments	• Grow/ retrench from segments in the market • Steer local portfolio composition (risk capital) • Upstream capital (e.g. group dividends policy)

1. IFRS adjusted local TCE. // 2. PRA RWA to be adjusted for major risks (e.g. concentration) in the medium term // 3. Global RWA/ ECAP based metric used for additional information

Product/customer segment analytics reveal portfolio skews and quantify impact of cross-selling on customer level profitability

Disguised OW client example

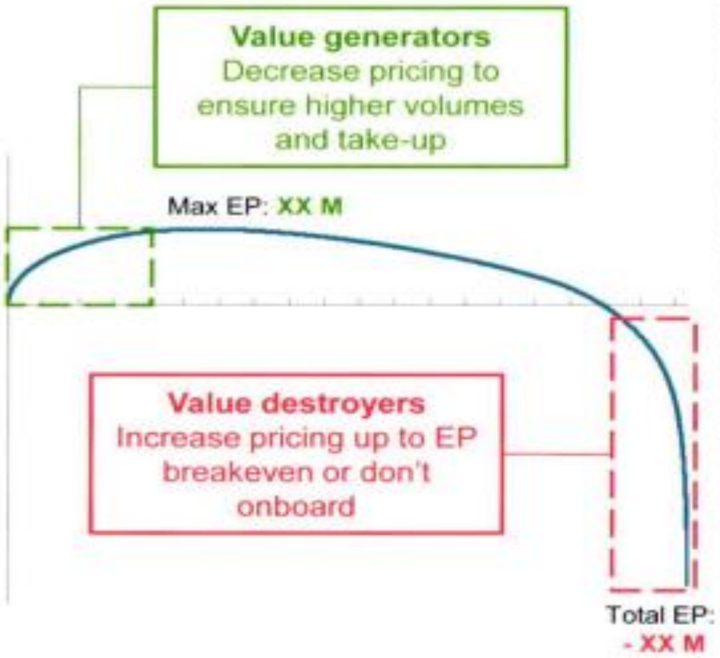
RWA optimisation

OPTIMISE RWA CALCULATION

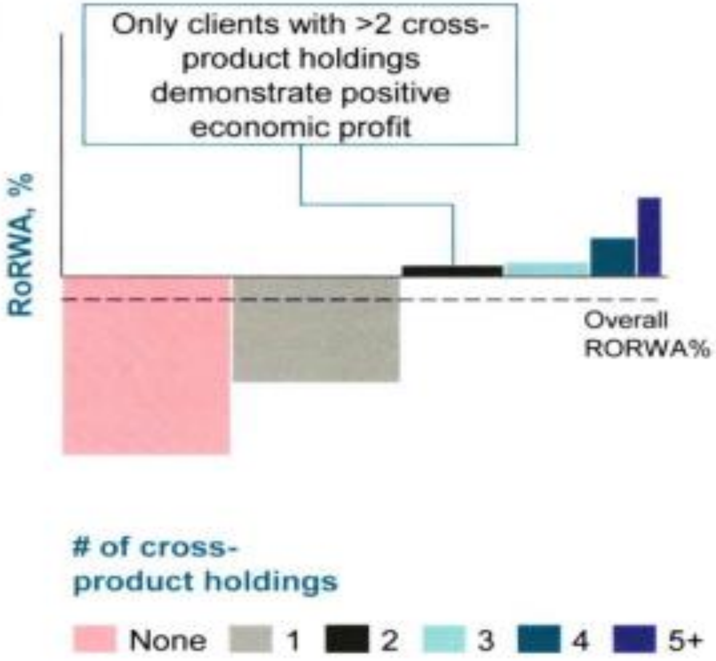
BUSINESS SEGMENT DRILL-DOWNS

ENHANCE GROUP LEVEL PROCESSES

Example: Economic profit skew for mortgage customers in the portfolio



Profitability (RORWA) by cross product holding for mortgage customers

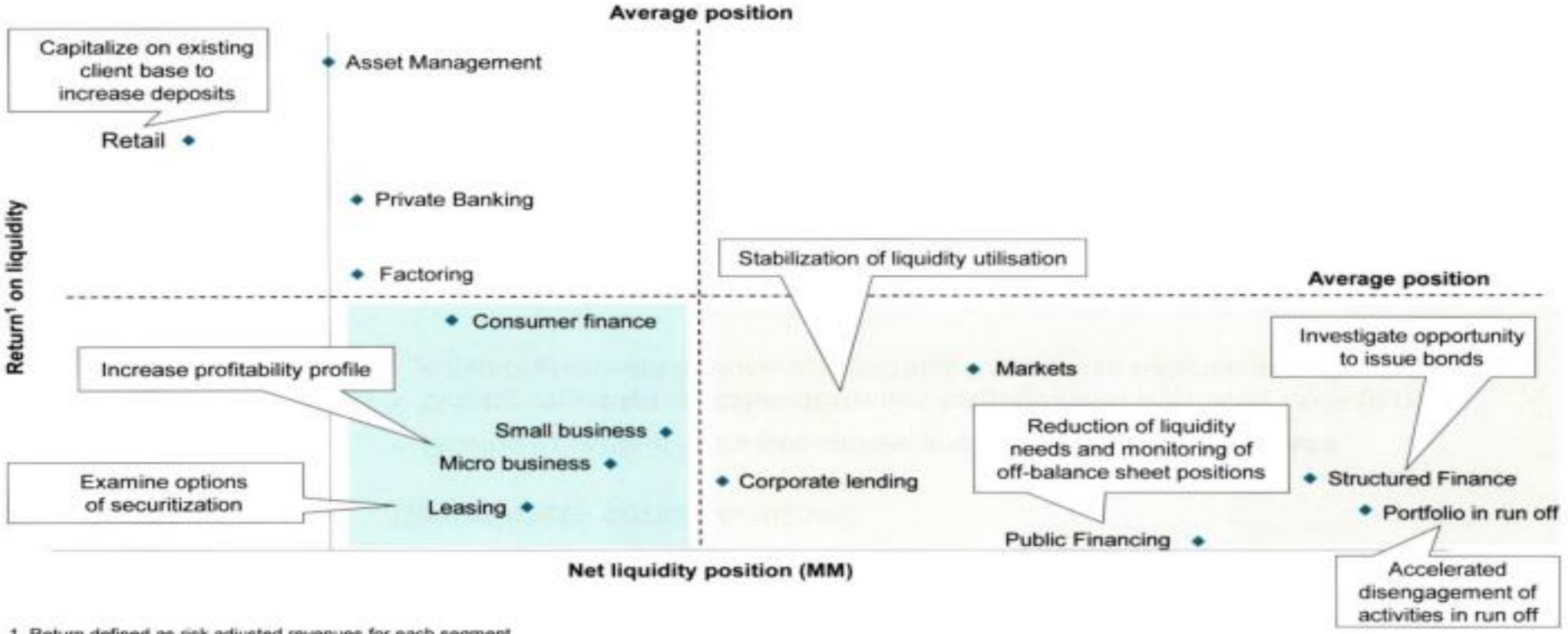


We have a proprietary database of 300+ RWA optimization levers which could lead to 5 – 10% RWA savings even for banks which have already done a first pass

An understanding of the return on liquidity across business units would help banks to devise tactical funding strategies

Disguised OW client example – Universal Bank

Return on liquidity and funding balance by client segment



1. Return defined as risk adjusted revenues for each segment
Source: Oliver Wyman analysis.

Given preceding developments, banks would need to consider how risk organizations should evolve to effectively address these changes

Key themes		Target state considerations
1	Roles and responsibilities	• Moving towards a more **pro-active** and **advisor** role to **business** • Greater **need for collaboration** and **engagement** with other units (e.g. collaboration with finance and strategy to optimize balance sheet)
2	Processes	• Driving increasing **automation** of repeatable processes; leading to fundamental change in machine vs. manual work mix
3	IT / Data infrastructure	• Move towards **a centralised data lake,** consolidating all data for **big data analysis**
4	Talent management	• Shifting of profiles of risk staff **towards deeper expertise on analytics, modern-day quants** vis-à-vis seasoned underwriters
5	Risk Culture	• Increasing involvement of risk in non-traditional areas (e.g. product design) • Evolution of **incentives and KPIs** – more business performance linked

Key Takeaways

- Critically examine business for robustness against current/future. Conduct regulation, and embed appropriate conduct into culture and existing responsibilities.
- Be early mover to embrace trend towards "open data", industry KYC utilities, and innovative approaches to KYC to drive efficiencies and improve customer experience.
- Proactively engage regulators on their approach to innovation, new business models, data sharing, KYC requirements etc. to influence outcomes.
- Build new lending business models to meet unmet needs and defend against onslaught from Fintech attackers, or risk being marginalized in SME lending.
- Make retail analytics a competitive advantage by leveraging existing and new sources of data across the spectrum of retail lending activities.
- Re-design/ optimize credit processes end-to-end to deliver concrete margin uplift.
- Take action now to prepare for cascading to countries of more rigorous risk adjusted performance criteria
- . Future-proof risk organizations, with heavy focus on building analytics capability

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