Pricing Excellence for CLIENT

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- **Study background**
- Methodology walk-through
- Important findings

Why is the pricing of banking more challenging than other industries?

The general business model of banking makes pricing more customer-oriented rather than product-oriented

Simplified business model

ALM duty | BU duty

Deposit

- Sell **the surplus deposit** to inter-bank exchange market
- Buy money externally if **deposit is not sufficient** to meet capital requirement

Loan

Deposit cost | **Fund value** | **Fund cost** | **Loan value**

On the aggregated level, loan and deposit customers are the same entity

- **Deposit pricing:**
  - **maximize the profit**
  - **meet the capital requirement (keep pace with loan growth)**

- **Loan pricing:**
  - **maximize the profit**
  - **boost the cross-sell of deposit and fee product**

SOURCE: Team analysis

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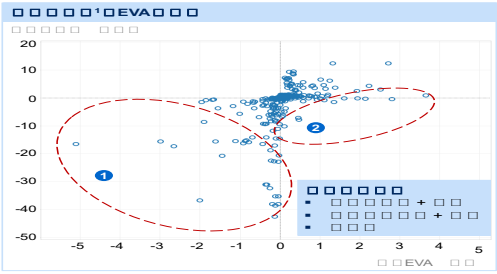
This study mainly covers four pricing topics

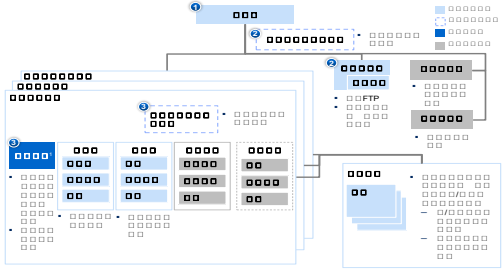
Analytics-driven approach

Pricing leakage analysis



- Analyzed **pricing data for 500K corporate clients YTD 2015** (totally 200 million items of data)
- Applied mature pricing leakage analysis model to review current pricing level from **bank-wide, comprehensive customer relationship and single product** perspective
- **Long-term mechanism and short-term quick-wins based on leakage analysis**

Pricing governance system

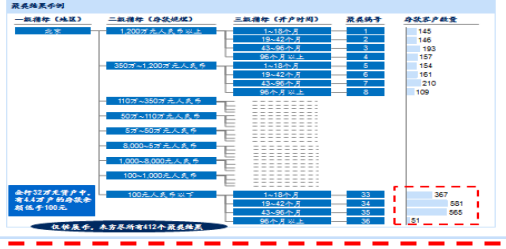


- **High-level pricing org structure for CLIENT,** including board, ALCo, ALM, SBU pricing committee and pricing center etc.
- **Definition and description of roles & responsibilities for different departments (committees)**
- Defined and designed **8 pricing core processes (flow chart)**
- Put forward **main supporting mechanism & capabilities** for pricing implementation

Deposits list pricing

- **Comprehensive analysis of multiple available list pricing strategy options**, including several deposit list rate case studies home and abroad
- Preliminary suggestions on CLIENT's list rate strategy: **"pyramid" deposit list rate strategy**
- **Preliminary suggestions on CLIENT's list rate mgmt mechanism**

Relationship pricing model



- Developed a relationship pricing model based on **customer clustering and internal benchmarking**
- Leveraged the **risk-based pricing model and Excel calculator for lending**
- **Piloted risk-based pricing model** in some branches and **did data calculation and analysis in batch**

SOURCE: team analysis

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- Study background
- **Methodology walk-through**
- Important findings

Core concept in pricing diagnostic: Focus on the overall EVA (economic value added) of a customer rather than single product pricing; Take risk cost and capital cost into full account in pricing process

Basic concept

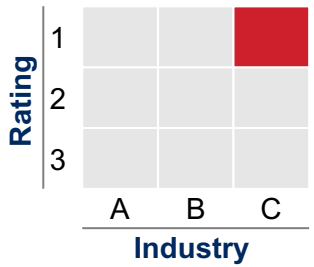
- **Leakage definition:**
  - Customer's overall EVA<0
  - Single product pricing is lower average within the cluster
- Leakage takes **customer overall EVA and product pricing** as two important metrics, fully considering profit transfer in the process of multiple product sales

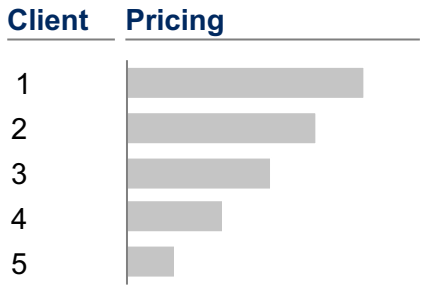
Methodology

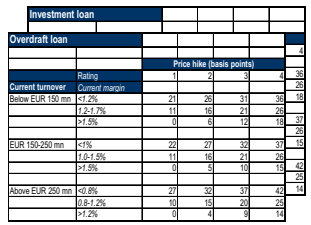
Com-mercial leakage

Customer clustering → **Individual product pricing** → **Multi-product pricing**

- Identify most influential variables and perform customer clustering via statistical regression
- Understand individual product pricing distribution within each cluster and take customer EVA into full account; perform internal benchmarking on this basis
- Within each cluster, analyze EVA distribution of different customer and understand impact of individual product pricing on EVA







Investment loan						
Overdraft loan						
						4
		Price hike (basis points)				
	Rating	1	2	3	4	36
Current turnover	Current margin					28
Below EUR 150 mn	<1.2%	21	26	31	38	18
	1.2-1.7%	11	16	21	26	
	>1.5%	0	6	12	18	37
						26
EUR 150-250 mn	<1%	22	27	32	37	15
	1.0-1.5%	11	16	21	26	
	>1.5%	0	5	10	15	42
						25
Above EUR 250 mn	<0.8%	27	32	37	42	14
	0.8-1.2%	10	15	20	25	
	>1.2%	0	4	9	14	

Technical leakage

End-to-end technical leakage diagnostic

- Through interview and other qualitative analysis methods, sift through end-to-end pricing process and identify potential technical leakages
- Propose tentative anti-leakage advice

Challenges in application

- **Frequent change of FTP curve:** FTP has been reduced for multi times this year with large variations
- **Lack of accurate measurement of risk cost:** we create proxies by revising "provision" field
- **Higher cost of fund:** coefficient for cost of fund is up to 14%, higher than peers
- **Inaccurate data record:** some income accounting cannot be attributed to customers and products

SOURCE: Team analysis

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Customer clustering methods and main results

Basic variables

Account transaction details
- Details on deposit/loan/fee-based operations
- Breakdown on part of off-balance sheet (OBS) activities and off OBS activities

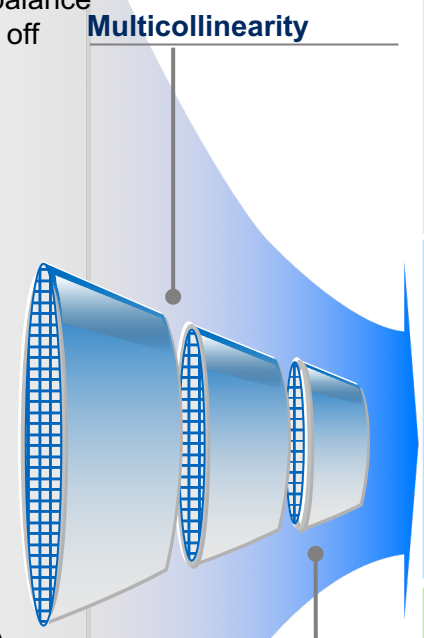
Customer basic info
- Operating performance
- Industry Category
- Region

Customer risk data
- Risk rating
- Debt rating
- Default and Overdue

RM data
- Operating institutions
- RM

Customer value data
- Info about customers' EVA
- Product holding history
- Internal tags on customer value

Industrial cluster data
- Group customer tags
- Upstream & downstream industrial chain tags



Key factors in the clustering model

Factors specific to non-loan customers

Deposit size
- Divide into nine scales on the basis of deposit amount

Account opening time
- Divide into four intervals by account opening time

Common factors

Region
- Locate the branches in China into 19 regions.

Factors specific to loan customers

Risk level
- Grade corporate credits into four levels: High-grade, good-grade, investment-grade and other

Industry Category
- Categorized industries into eight categories: agriculture, real estate, manufacturing, high-tech, transportation, services, culture and public utilities

Clustering results

Clustering of non-borrowers

- **Clusters: 412**
- Maximum number of customers in a cluster: 3,423
- Minimum number of customers in a cluster: 5
- Average number of customers in a cluster: 631

Clustering of borrowers

- **Clusters: 120**
- Maximum number of customers in a cluster: 961
- Minimum number of customers in a cluster: 1
- Average number of customers in a cluster: 156

SOURCE: McKinsey analysis

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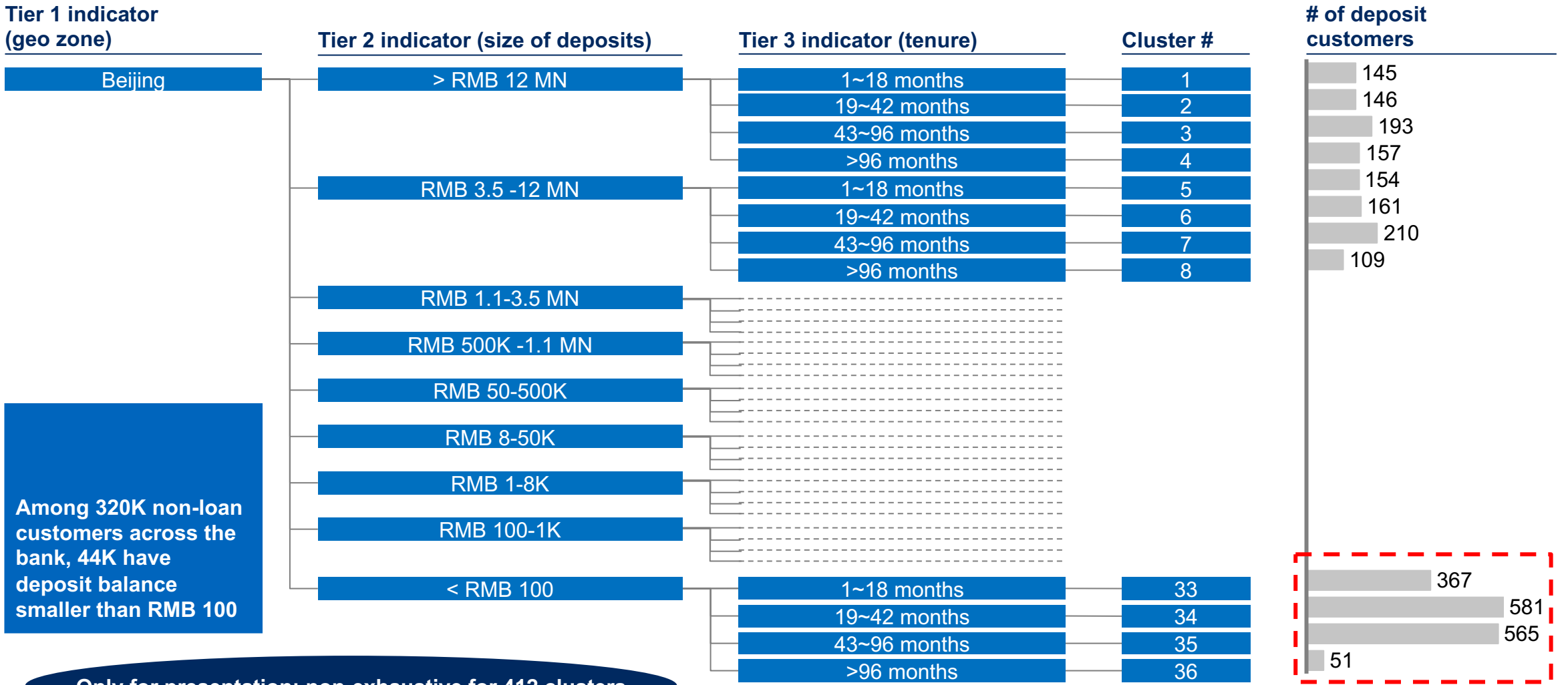
There are 412 clusters for non-loan customer and each has 631 customers on average

Example of clustering result



SOURCE: Team analysis

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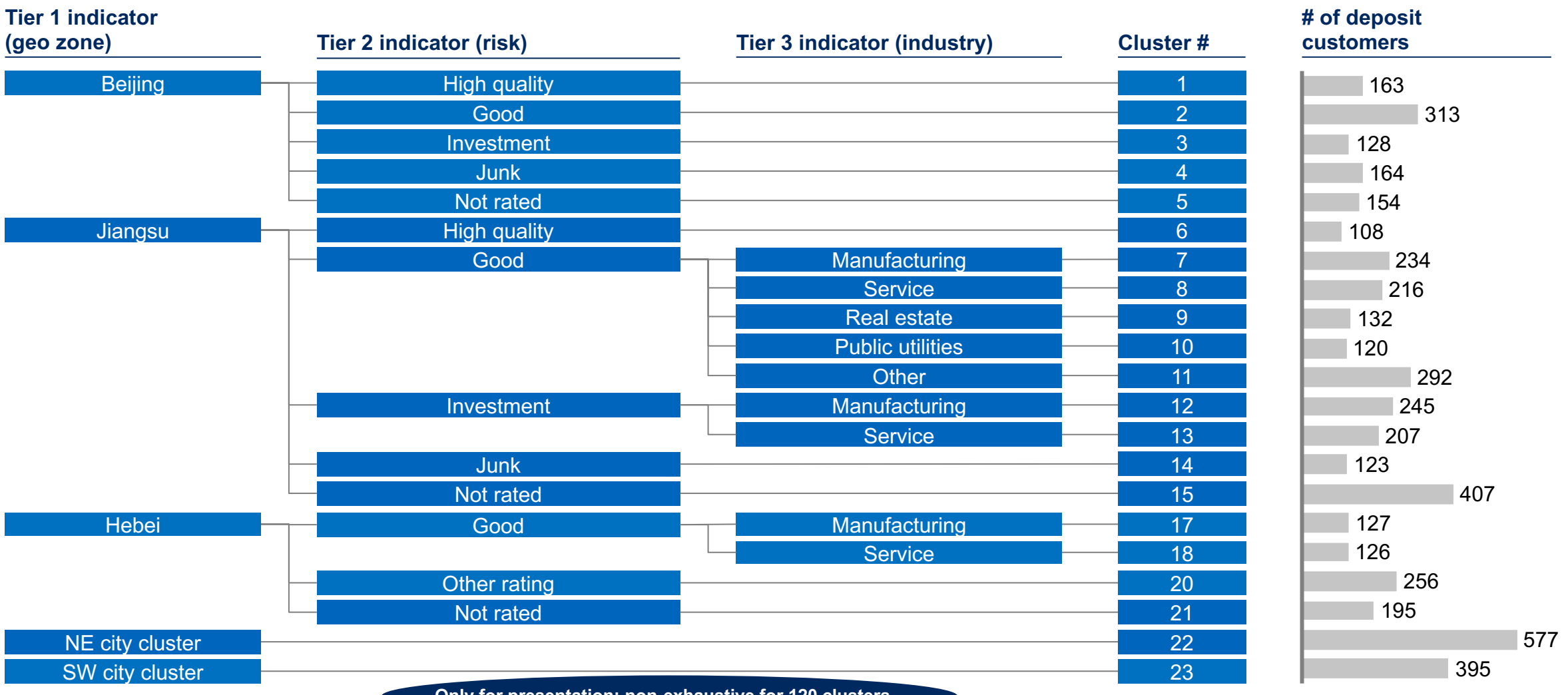
There are 120 clusters for loan customers and each has 156 customers on average

Example of clustering result



Only for presentation; non-exhaustive for 120 clusters

SOURCE: Team analysis

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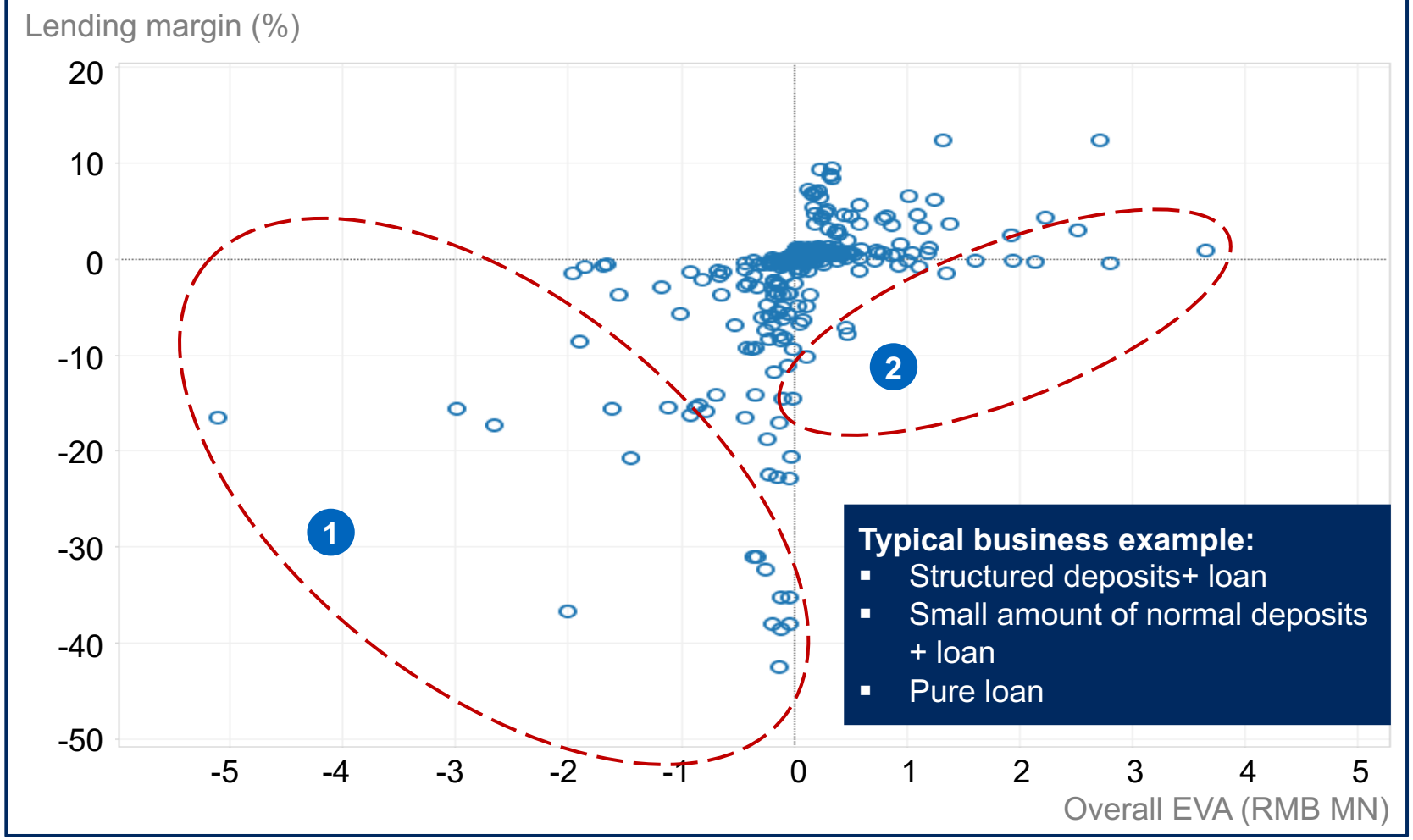
Leakage analysis: RM is able to identify leakage customers from combining the product dimension and EVA dimension

SANITIZED EXAMPLE

Correlation between lending margin[1] and EVA



Main observations

1. **Lending margin and customer comprehensive EVA are both negative:** pricing purely falls in the range of negative margin and customers fail to create corresponding comprehensive EVA; pricing cant' be justified with negative EVA

   Suggestion: review pricing for each loan one by one

2. **Lending margin is negative, but customer comprehensive EVA is slightly positive:** deposit and fee business create larger EVA to compensate for discounts in lending business

   Suggestion: understand sales of such business by sampling and learn from its experience of comprehensive pricing

1 Lending margin is defined as NIM (net interest margin) minus cost of capital and cost of risk

SOURCE: Team analysis

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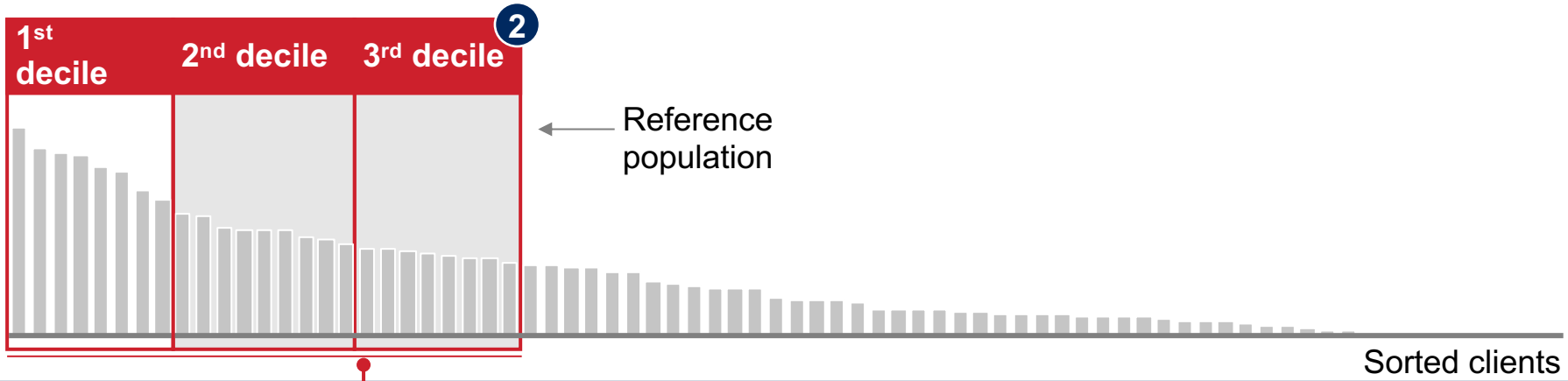
Relationship pricing: Within each cluster a reference population is selected in order to define key benchmark metrics

SANITIZED EXAMPLE

sEVA/Turnover (%)

1. Rank clients in descending order in terms of sEVA/ Turnover
2. Select the 2nd and 3rd decile to be used as reference population
3. Calculate reference margins for the selected products

1 sEVA/Turnover (%)

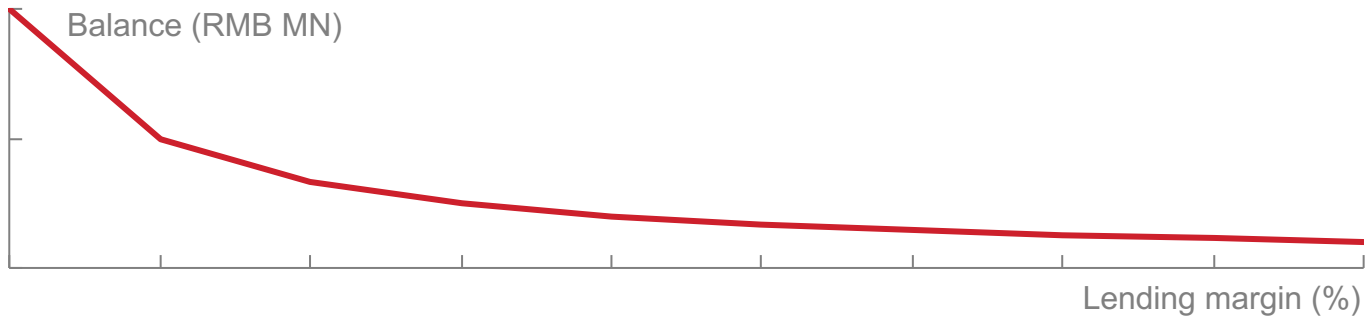


3 Reference population metrics (2nd & 3rd decile)

Metric

- Commercial Margin
  - i Loans
  - ii Deposits
  - iii Letters of credits
  - iv Guarantees
  - v Etc.

Benchmark 'price-volume' curve



SOURCE: McKinsey team analysis; CEE 2020 Pricing and Account planning team analysis

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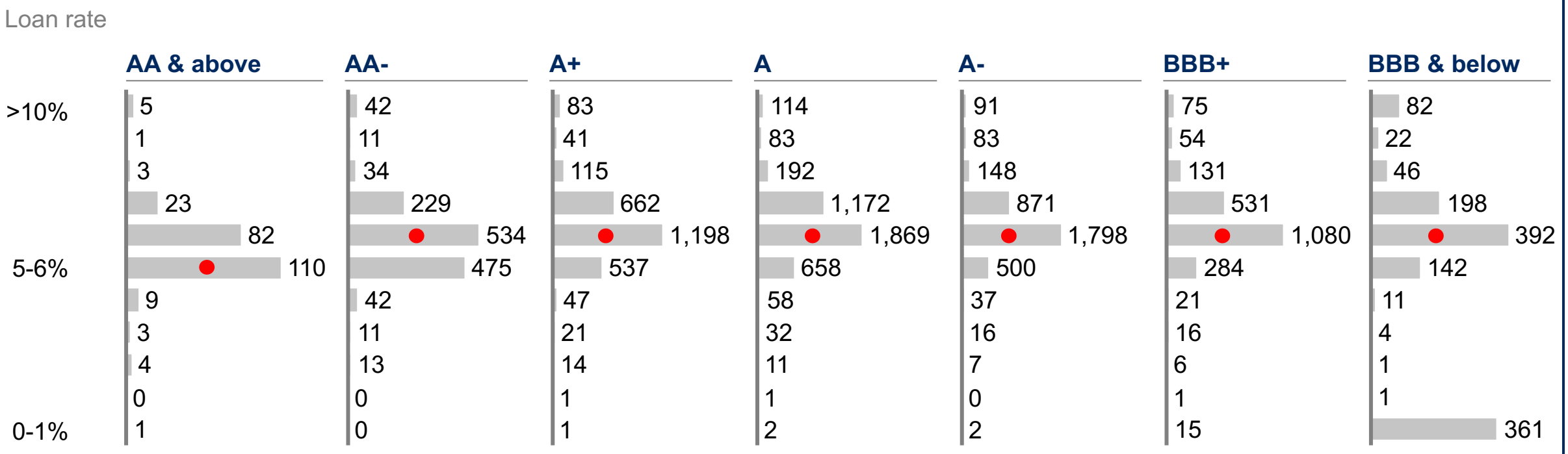
Relationship pricing: Within each cluster a reference population is selected in order to define key benchmark metrics

● Median

Distribution of loan rate for customers with different risk levels



1 Around 4,263 loan customers have no risk rating

SOURCE: Team analysis

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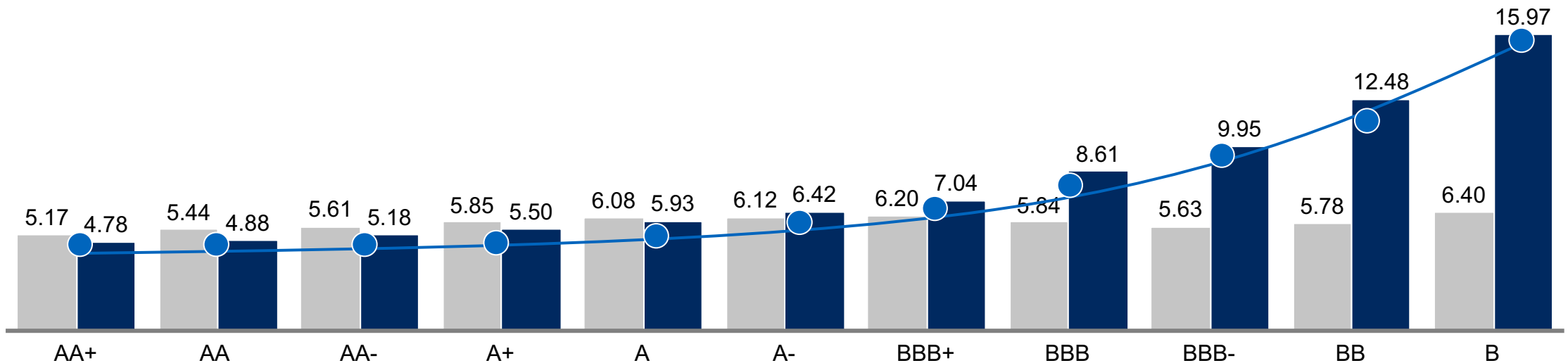
Risk-based pricing model help clients to differentiate the risk pricing of loans, which serves as the solid basis for relationship pricing

Comparison of lending interest rate level for customers with different credit rating

Loan rate by different calculation methods
%



	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB	B
Interest rate differential[1]	0.40	0.56	0.43	0.36	0.16	-0.30	-0.84	-2.77	-4.33	-6.70	-9.58

- Actual exercise rate>model calculated rate
- Relatively smaller differential

- Actual exercise rate<model calculated rate
- Differential shows sharp increase with decrease of rating

1 Interest rate differential=actual exercise rate-model calculated rate

SOURCE: Team analysis

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- Study background
- Methodology walk-through
- **Important findings**

We've gained 8 major findings from CLIENT's pricing practice through quantitative leakage analysis

Product pricing

1. **No reflection of loan risk premium:** no differentiated pricing for customers with different levels of risk
2. **Loan re-pricing activity needs to be improved for downgraded customers:** only 6% downgraded customers were given loan repricing and pricing leakage was found for too many downgraded customers
3. **Too much discounts for fee business:** fee business items, e.g. bank acceptance, letter of guarantee, letter of credit etc., are undercharged, unable to cover corresponding cost of capital
4. **Bundling pricing to be optimized:** high interest rate liability and low interest loan origination may be found on the same customer
5. **Cross-sell performance not improved by bundling pricing:** fail to develop deposit and fee business for large loan customers through comprehensive pricing, leading to some loan customers with negative EVA

EVA-mgmt

6. **Customer EVA contribution is concentrated:** 24% core customers created 88% total EVA
7. **EVA mgmt capability varies greatly across braches:** 6 branches with overall negative EVA; EVA loss of customers with negative EVA in Top 10 branches accounts for 60% of the total
8. **A few RMs have poor EVA mgmt capability:** loss of worst performing RMs in EVA mgmt takes up 80% of all customers with negative EVA

SOURCE: Team analysis

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Quick-wins: quick wins are suggested to be implemented in three dimensions, i.e. repricing initiatives, pricing authorization optimization and EVA mgmt

	Quick-wins	Estimated impacts RMB 100 MN	Customer involved Number
Launch "repricing" initiative	1 For customers with comprehensive EVA<0, derivative deposits of lending and off-sheet business shall be priced at the list rate	3.5	7,926
	2 For loan customers with comprehensive EVA<0 and on the steady decline trend, set up minimum threshold for lending margin or comprehensive margin for their new business, or select to exit		
	3 For loan customers with rating adjusted, reprice their new loans	3.6	2,394
	4 For non-loan customers having single business, adjust small-volume deposits under RMB 500K to tiered pricing with list rate as the floor	0.5	201,397
Adjust future pricing authorization	5 For customers with comprehensive EVA<0, set up the minimum ratio of earnest money for off-sheet business like bank acceptance etc. and set up the metrics of derivative deposit size for loan customers	4.5	8,120
	6 For customers with comprehensive EVA<0, fee business cannot be free of charge in principle	0.8	1,192
	7 HO controls overall volume of structured deposits and coordinate liability strategy as a whole		
Reinforce EVA and pricing mgmt	8 Order 6 branches with worst EVA mgmt level to make rectification and launch repricing activity		
	9 Carry out list-based administration for bottom 20% RMs with worst EVA mgmt capability		
	Total	**~RMB 1.3 BN**	

SOURCE: Team analysis

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It is estimated annualized EVA in the amount of RMB ~2.6 BN may be created through pertinent "quick-win" initiatives

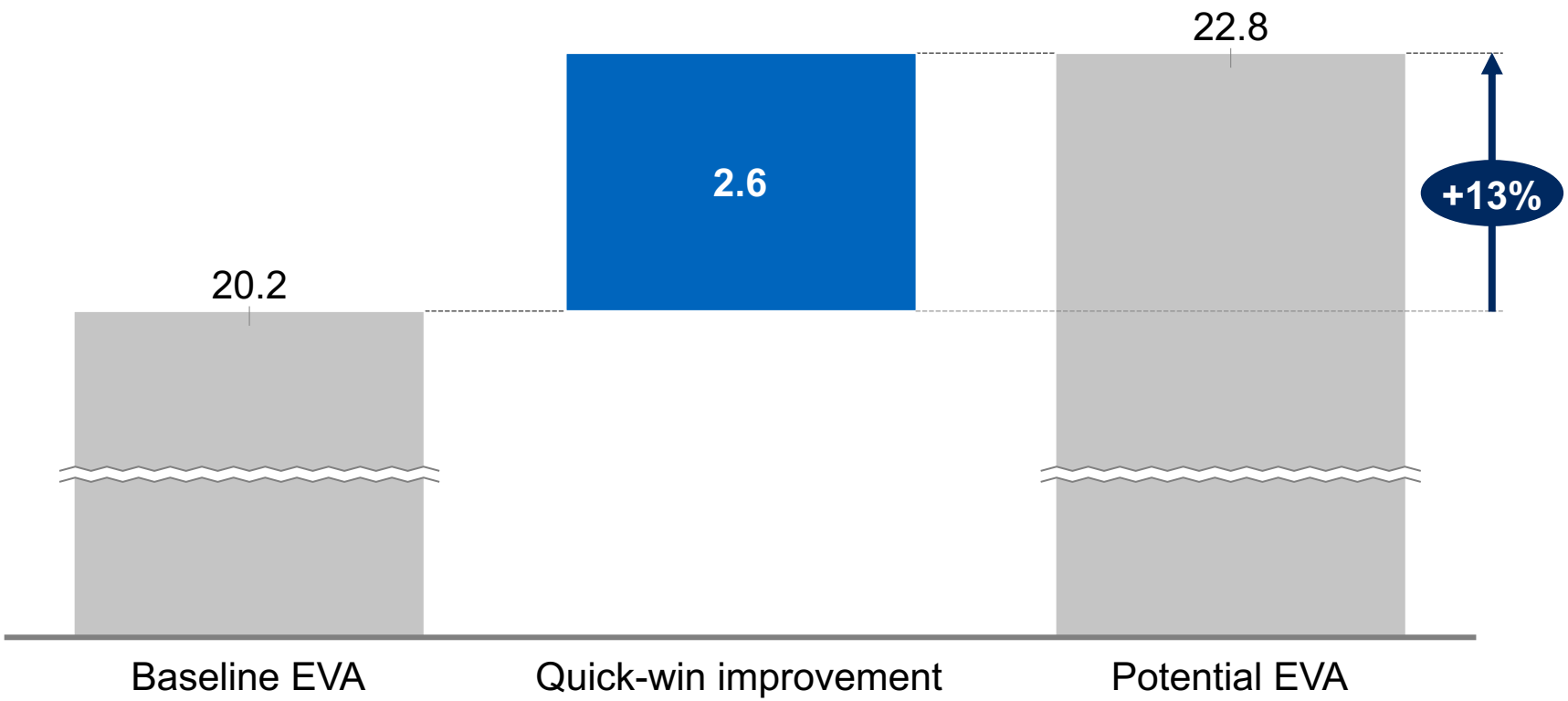
PRELIMINARY ESTIMATE

Anti-leakage quick-win initiatives respectively focus on loan and non-loan customers with leakage, expected to create RMB 2.6 BN annualized EVA increment[1]

Estimate of impact from anti-leakage quick-wins

RMB BN

PRELIMINARY ESTIMATE, HALF-YEAR DATA



Overview of estimation method:

1. EVA improvement estimation is based on 5 initiatives that can calculate financial impacts quantitatively from anti-leakage quick-wins
2. Caliber of estimation is half-year financial impact and the potential of RMB 2.6 BN is annualized result

1 In the figure above, expected increment is derived based on business data from Jan to Jun 2015

SOURCE: Team analysis

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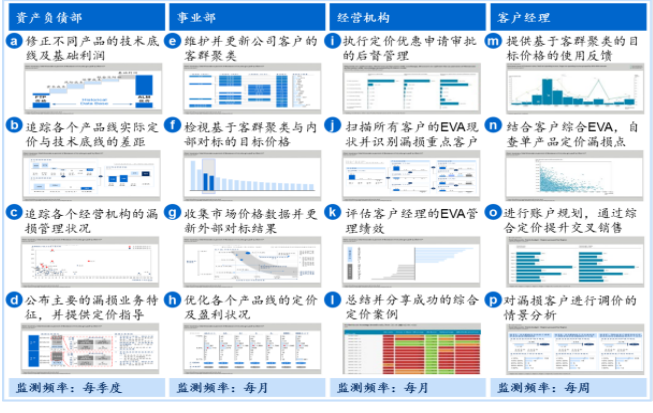
Long-term anti-leakage mechanism should contain three components, ‘monitoring-action-evaluation’

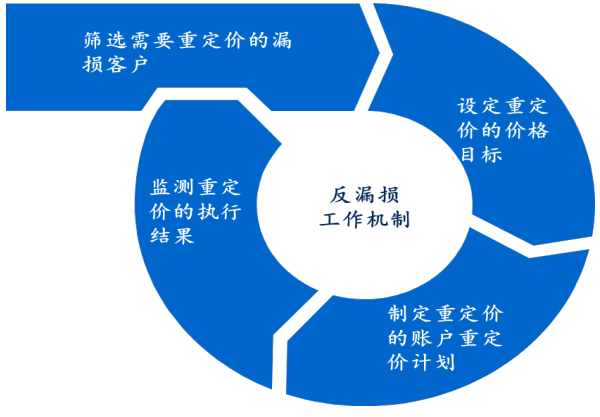
	Build long-term leakage monitoring system	Implement anti-leakage working mechanism	Add relevant KPIs
Specific activities	▪ Develop analytic **models and system** required for leakage monitoring ▪ Design corresponding **leakage monitoring dashboard** based on functional difference across departments in the pricing process ▪ **Define frequency for leakage monitoring and assessment** and embed in daily activities of relevant depts ▪ Set up leakage reporting (esp. leakage warning) “principal review & explanation” system	▪ Screen customers in need of repricing; **screeing criteria** include: – Large negative EVA – Low comprehensive IRR – Business promise unfulfilled – Risk rating downgraded ▪ **Set up the contents of repricing** through internal and external benchmarking ▪ Coordinate RMs and product managers to develop **account repricing plan** ▪ **Monitor the result of repricing execution**	▪ Define **major responsibilities and supporting measurement mechanism** for all pricing functions and RMs ▪ Set up relevant **consequence mgmt system**, including: – Rating and promotion – Bonus – Expenses – Discount authority

Main outputs

Reporting view system for different internal users



“Repricing” work plan and ex-post supervision process



Pricing related KPI measurement and consequence mgmt execution mechanism

当前考核指标

	考核指标	权重 百分比 个人	团队	部门
客户经理	▪ 收入	25	10	…
	▪ 贷款量	10	…	…
	▪ 风险调整资本收益	…	10	…
	▪ 交叉销售效率[1]	…	10	…
	▪ 客户满意度指数	…	5	…
	▪ 定性评价	30	…	…
客户经理团队负责人	▪ 收入	5	25	…
	▪ 贷款量	…	10	…
	▪ 风险调整资本收益	…	10	…
	▪ 交叉销售效率[1]	…	10	…
	▪ 客户满意度指数	…	10	…
	▪ 定性评价	30	…	…
部门负责人	▪ 收入	…	20	…
	▪ 贷款量	…	10	…
	▪ 风险调整资本收益	…	10	…
	▪ 交叉销售效率[1]	…	10	…
	▪ 客户满意度指数	…	10	…
	▪ 税前利润	…	…	20
	▪ 定性评价	20	…	…

SOURCE: Team analysis

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