Banking customer value

A customer-level value framework for banks

Ernest Louw
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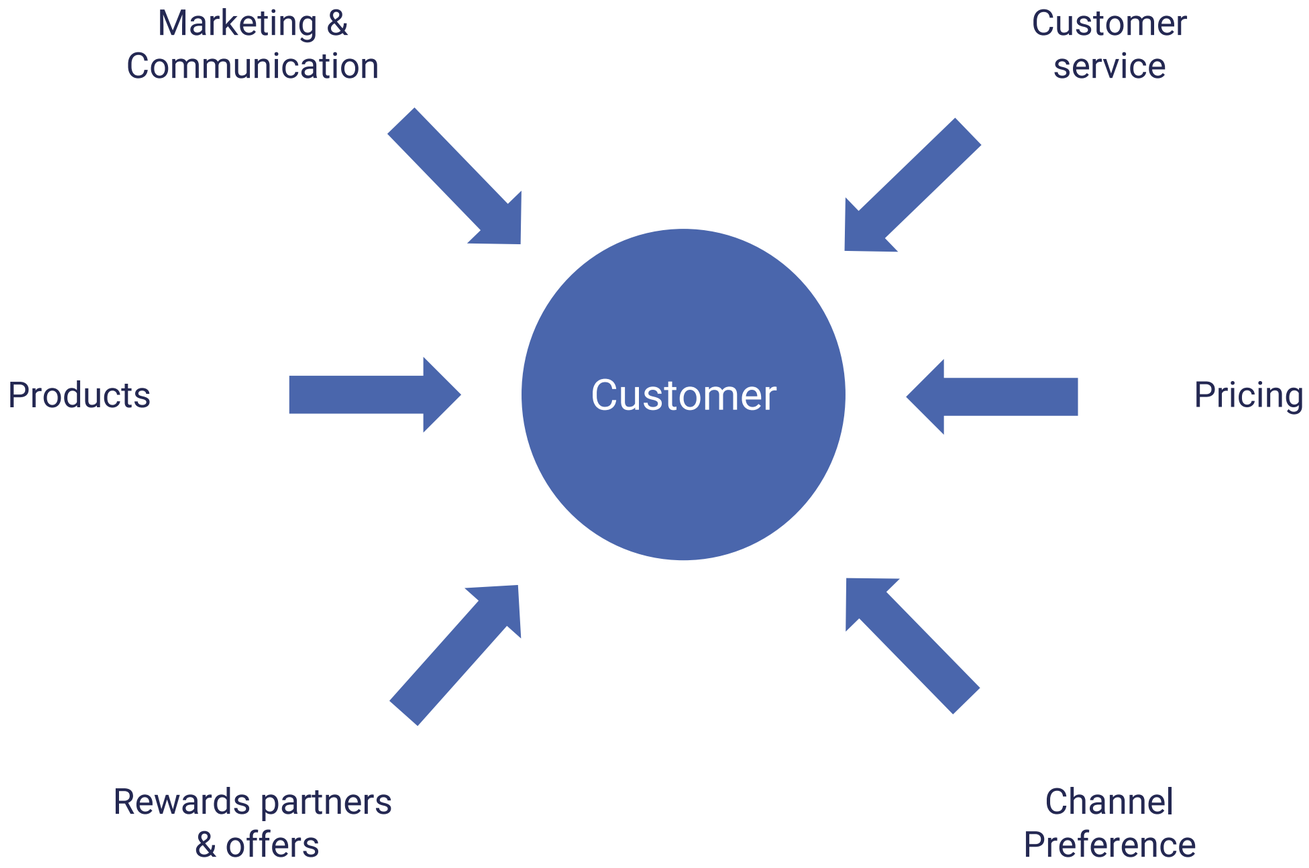
In today's digital world banks need to move towards greater customer-centricity requiring greater focus on understanding individual customers' personal financial needs, preferences and risk profiles resulting in highly-targeted, personalised and proactive engagements with customers



DATA REQUIREMENTS

- Demographics (age, gender etc.)
- Interests and attitudes
- Preferences
- Income
- Geographic location
- Behavioural data (e.g. spending behaviour)
- Product holding
- Social media activity

Also need to understand the value of each customer to the bank and how the factors above affect this value

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Simplified Income Statement and Balance Sheet for a typical commercial bank

Income Statement	FY2020
Revenue	
Net interest income	
Non-interest revenue	
Investment income	
Operating Expenses	
Personnel costs	
Business costs	
Premises cost/rental	
IT costs	
Operating profit (before impairments)	
ECL impairments charges	
Operating profit (after impairments)	
Tax on operating profit	
Profit after tax	

Balance Sheet	FY2020
Assets	
Loans and advances to customers	
Loans and advances to banks	
Cash at Central Bank	
Sovereign debt securities	
Bank debt securities	
Other assets	
Liabilities	
Customer deposits	
Deposits by banks	
Debt securities issued	
Equity	
Ordinary share capital	
Retained earnings	

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Segmented Banking Income Statement (by customer segment/geographical region)

Income Statement	Youth	Mass Market	Mass Affluent	Wealth
Revenue				
Net interest income				
Non-interest revenue				
Investment income				
Operating Expenses				
Personnel costs				
Business costs				
Premises cost/rental				
IT costs				
Operating profit (before impairments)				
ECL impairments charges				
Operating profit (after impairments)				
Tax on operating profit				
Profit after tax				

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Banking Income Statement – Segmented at a customer level

Income Statement	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	1	2	3	4	5	6
Revenue																																
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Non-interest revenue																																
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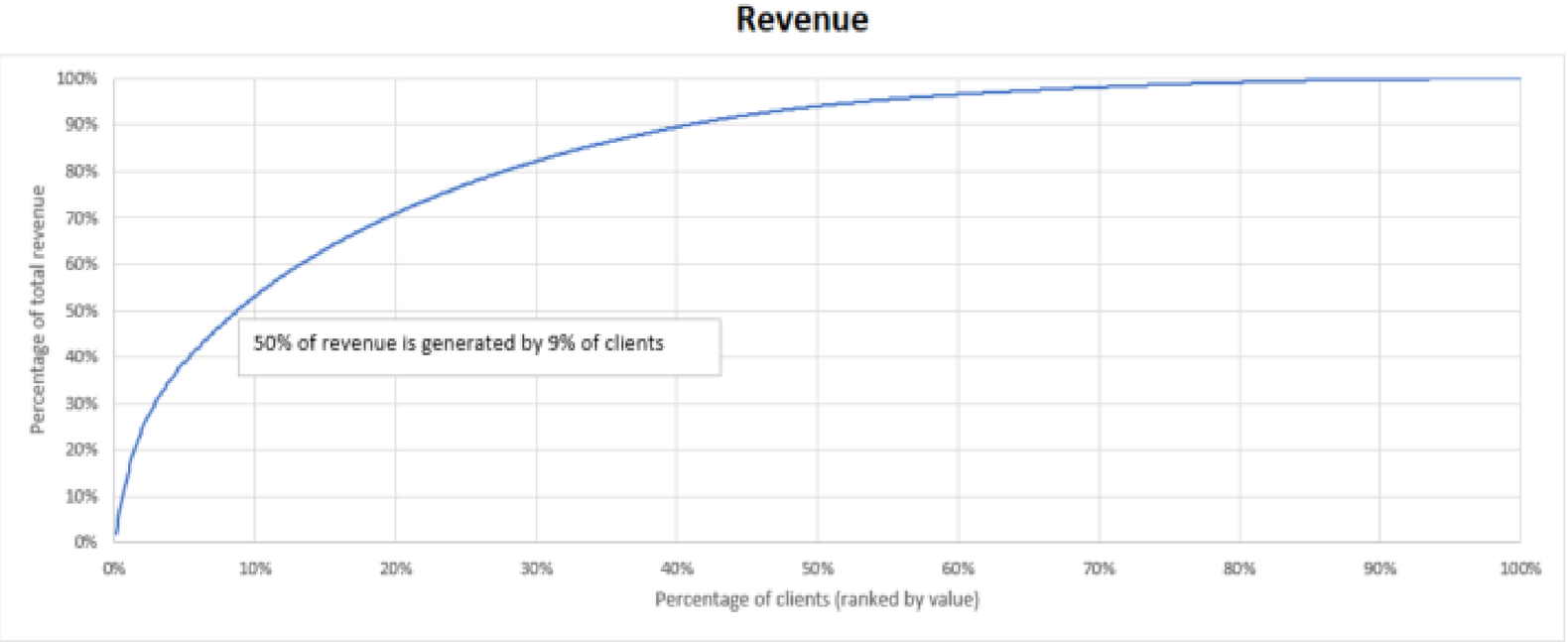
Not all banking customers are equal – some relationships are more valuable to the bank than others. Deriving the 'value' for each customer relationship across all products/business units can be useful



Personalisation and uniqueness of customers are paramount in the digital age.

Banks need to know the value of each customer in order to effectively build and maintain relationships and allocate resources.

Having a system in place with the ability to derive a customer-level income statement (and even balance sheet) means that the bank can "roll-up" it's financial reporting to any subset of customers and derive a value for each. Combined with additional customer data, this can be very useful.

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There are practical challenges with creating a complete income statement view at a customer level. In particular, key line items need to be allocated down to a granular, customer level

Measure	Description
Revenue	Net Interest income and fees earned per customer
Operating costs	Direct costs incurred per customer, loading for overhead costs
Credit Loss provisions	Expected credit losses on loans and advances per customer
Off-balance sheet exposures	Undrawn but committed facilities & guarantees
Economic capital	Total economic capital allocated to each customer

Revenue per customer

Revenue earned from the client relationship is a simple measure that can usually be derived quite easily from transactional data, aggregating over all products over a period.

Business Unit/Product	Revenue component	Calculation
Transactional accounts e.g. checking accounts	Net interest income	Average account balance X Credit Interest Spread*
	Fee income	Account fees
		Transaction charges X Volume of transactions
	Interchange revenue	Total card spend X Net Interchange rate**
Credit Cards	Net interest income	Average outstanding balance X Debit Interest Spread*
	Fee income	Account fees
		Transaction charges
	Interchange revenue	Total card spend X Net Interchange rate**
Credit facilities e.g. overdraft facilities, vehicle finance, mortgages, asset-backed finance	Net interest income	Average outstanding balance X Debit Interest Spread*
	Fee income	Initiation and administration fees
Cash deposits	Net interest income	Average account balance X Credit Interest Spread*
Foreign exchange	Margin	Transaction value X Bid-offer spread
	Fee income	Transaction charges

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* Debit Interest spread = Interest rate charged to customer less internal funds transfer price
* Credit Interest spread = Internal funds transfer price less interest rate paid to customer
** Net interchange rate = Percentage commission earned by issuing bank on card spend less the cost of rewards accruing to clients from using their cards

Expenses per customer

Determining expenses at a customer level is usually more difficult to do than revenue per customer. This may require some assumptions.

- Different customers will have different costs to serve as a result of:
  - Differences in channel usage (e.g. in-branch vs digital transactions)
  - Differences in transactional volumes
  - Differences in utilisation of value-added benefits e.g. airport lounge visits, private banking services

- To the extent that these differences not allowed for in pricing e.g. where there are cross-subsidies inherent in the pricing structure, the higher revenue customers may not always be the most profitable customers

- Some banks may have activity-based costing (ABC) in place which may make it easier to determine direct costs per customer

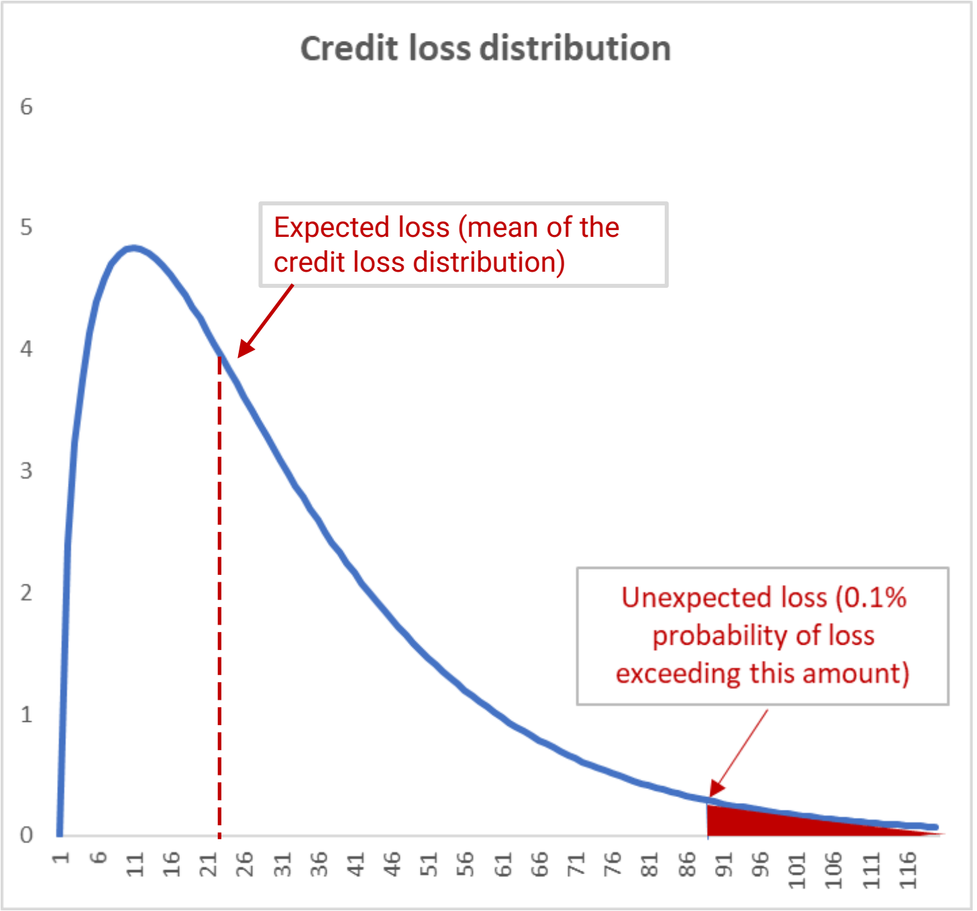
- When allocating expenses to customers, the bank will need to consider the appropriate allocation (or not) of fixed expenses – depends on final use of the value metric

Sidenote: Difference between Expected Loss (EL) and Unexpected Loss (UL)

Expected Loss (EL)

The amount a bank can expect to lose on a credit portfolio over a given period due to the failure of customers to repay their debts.

Banks hold provisions to cover their expected losses and typically include a credit spread in their loan pricing to allow for these losses.



Unexpected Loss (UL)

Different definitions of unexpected loss exist:

- Standard deviation of Loss
- Value-at-risk (VaR) for given confidence level
- Difference between VaR and the EL

Banks will hold economic capital to cover losses that exceed the expected loss up to a certain threshold.

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Expected Credit Loss provisions per customer

Allowing for impairments allows the bank to calculate a risk-adjusted value measure as higher risk clients will require higher credit loss provisions

- Banks typically use their IFRS 9 models to determine the expected credit loss (ECL) provisions per facility/account

- This can be rolled up to a customer level to give the total ECL provision per customer

- Operating profit per client over a period can be calculated as follows:
  - Revenue
  - Less operating expenses
  - Less the increase in provisions over the period (impairment charge)

- The operating profit for a particular client will therefore decrease if the “riskiness” of the customer increases over the period. This may be due to:
  - **Macroeconomic factors** (the bank assumes a general deterioration in credit quality based on the economic cycle, which may vary for different customers), or
  - **Specific factors** that indicate that the customer is credit-impaired (e.g. missing a contractual payment or customer losing their job)

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Economic capital

Banks can calculate capital requirements at a customer level and therefore derive the return on capital (or return on equity) and economic profit for each customer.

- Banks' capital models can be used to calculate risk-weighted assets (RWA) for credit risk at a facility level (Basel Standardised or Internal Ratings Based approaches)
- This can be rolled up to a customer level and used to determine the capital allocation per customer (capital is expressed as a percentage of RWA)
- (pre-tax) return on capital (ROC) can be calculated as operating profit divided by the average capital requirement over the period. Return on equity (ROE) can be derived from the ROC (after adjusting for tax and cost of debt capital)
- Economic Profit or Economic Value Added (EVA) represents the profit generated in excess of the required return on capital (i.e. net profit after tax less cost of capital)
- Evaluating the economic profit at a customer level helps the bank identify which customer relationships are adding economic value and which are destroying economic value

Client Lifetime Value

Deriving a customer-level income statement gives you the value of a customer relationship over a period e.g. a year. However, the length of the relationship with the bank is also a critical factor in determining the total value of a customer

Customer-level Income Statement	FY2020
Revenue	
Less: Operating Expenses	
Operating profit before impairments	
Less: ECL impairments charges	
Operating profit	
Less: Cost of Debt Capital	
Profit before tax	
Tax	
Profit after tax	
Less: Cost of Equity Capital	
Economic Profit	

- Simple approach is to calculate annual revenue or profit per customer and multiply by the expected lifetime of the customer relationship
- In reality, annual customer value will change as customer takes up new products, settles existing loans and increases or decreases usage of their accounts over time
- A predictive model could be used to project each customer-level income statement for each future year
- Survival modelling techniques can be used to estimate the expected customer lifetime

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Advantages and Disadvantages of different measures of customer value

Measure	Advantages	Disadvantages
Revenue	Simple to calculate from typical data sources in the bank	• Ignores costs and risk • Historic measure
Operating profit	In addition to revenue and expenses, also considers the expected credit losses from customers	• Does not consider unexpected losses (ignores cost of capital) • Historic measure
Return on Capital/Return on Equity	• Considers unexpected losses (capital requirements) • Determine whether the bank is meeting required return per customer relationship	Does not represent a currency value of each customer (ROC is %)
Economic Profit/Economic Value-Added	• Considers unexpected losses and represents customer value in currency terms • Quantifies the value-add to shareholders per customer	Historic measure
Customer lifetime value	Considers value from relationship over entire lifetime	• Difficult to estimate accurately • Requires forecasting customer value

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Practical considerations

Definition of customer relationship

- What is the definition of a customer relationship? Single individual? Household? Individual and related entities e.g. business/trust?
- Are businesses treated as separate customers?
- How to deal with multiple relationships e.g. a business where partners are also customers of the bank

Computing constraints

- For large banks it could be impractical to segment to an individual customer level
- Could start doing the exercise for a smaller segment of the customer base initially e.g. High Net Worth segment
- Frequency of calculation? Each month-end? Each quarter? Each year?

Practical considerations (continued)

Siloed data

- Data often stored in silos across multiple business units
- Need to create a single customer view across all business units and map key relationships
- Need suitable bank-wide customer identifiers and relationship identifiers

Availability of data

- Revenue data is usually relatively straightforward to derive
- Expenses not usually available at client level so may need to do an expense investigation:
  - Activity-based costing
  - Allocation of fixed/overhead costs
- May require pragmatic approach to allocation of costs and non-credit-risk capital requirements
- Risk-weighted assets usually available at a customer level

Assumptions

- May need to derive some assumptions e.g. cost of equity capital

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Some use cases

Understanding profitability at a micro-segment level

- Combine client value with additional detailed customer data to enhance clustering/segmentation models
- Understand underlying drivers of profitability
- Understand the risks associated with bad customer experience (high-value customer can do more damage)
- Portfolio management of customer base - Derive suitable targeted strategies (retention strategy for high-value customers vs upselling/cross-selling of low-value customers)

Marketing/Rewards cost allocation

- Allocate appropriate resources to acquiring clients (e.g. 24 year old actuary vs 65 year old retiree) based on expected customer value
- Allocate appropriate resources to retention campaigns (e.g. incentive/reward less than expected customer value at risk)
- Allocate appropriate resources to cross-selling/up-selling campaigns (e.g. incentive/reward less than expected value uplift)

Some use cases (continued)

Relationship-level pricing strategy

- Optimise pricing at a customer level to increase total revenue
- Avoid over-discounting – ensure ROC/ROE targets are met a customer relationship level
- Incorporate customer price-sensitivity across products/revenue sources
- Incorporate customer value into pricing engines

Improved reporting

- Calculate value of any sub-segment e.g. customer value of all 24 year old actuaries living in Dubai
- Include in KPI for sales agents to better align incentives
- Incorporate customer value metric into CRM systems
- Identify customers allocated to incorrect value proposition

Thank You