Mu Sigma

DO THE MATH

Vertical Write-up

Banking Industry

September 23

2019

Introduction

Banking, financial services and insurance (BFSI) is an industry term for companies that provide a range of such financial products or services. This includes universal banks that provide a range of financial services or companies that operate in one or more of these financial sectors. BFSI comprises commercial banks, insurance companies, non-banking financial companies, cooperatives, pensions funds, mutual funds and other smaller financial entities. The Banking part of BFSI may include core banking, retail, private, corporate, investment and cards. Financial services may include stock-broking, payment gateways, mutual funds. Insurance covers both life insurance and general insurance.

History and Evolution

1913: US government formed the Federal Reserve Bank, commonly referred to today as the Fed, to ensure that no private banker like J.P. Morgan would ever have major control over currency.

1929: When the stock market crashed on Black Tuesday, the already sluggish world economy was knocked out. The Federal Reserve couldn't contain the crash and refused to stop the depression. The aftermath had immediate consequences for all banks.

1944: World War II saved the banking industry from complete destruction. The industrialization it generated lifted the U.S. and world economies back out of the downward spiral.

1960: The first ATM was developed, and first machines started to appear by the end of the decade. By the 1970s the first electronic payment systems for both international and domestic payments developed. The international SWIFT payment network was established in 1973.

2000s: Developments in telecommunications and computing resulting in major changes to the way banks operated and allowed them to dramatically increase in size and geographic spread.

Segments of Banking

Banking can be divided into 4 segments:

i) **Retail banking**: This part of banks offers checking accounts, savings accounts and other services to the general public. It also lends money to individuals by issuing credit cards and loans such as mortgage and automobile installments.

ii) **Investment banking**: Investment banking is a specific division of banking related to the creation of capital for other companies, governments and other entities. Investment banks underwrite new debt and equity securities for all types of corporations, aid in the sale of securities, and help to facilitate mergers and acquisitions, reorganizations and broker trades for both institutions and private investors. Investment banks also provide guidance to issuers regarding the issue and placement of stock.

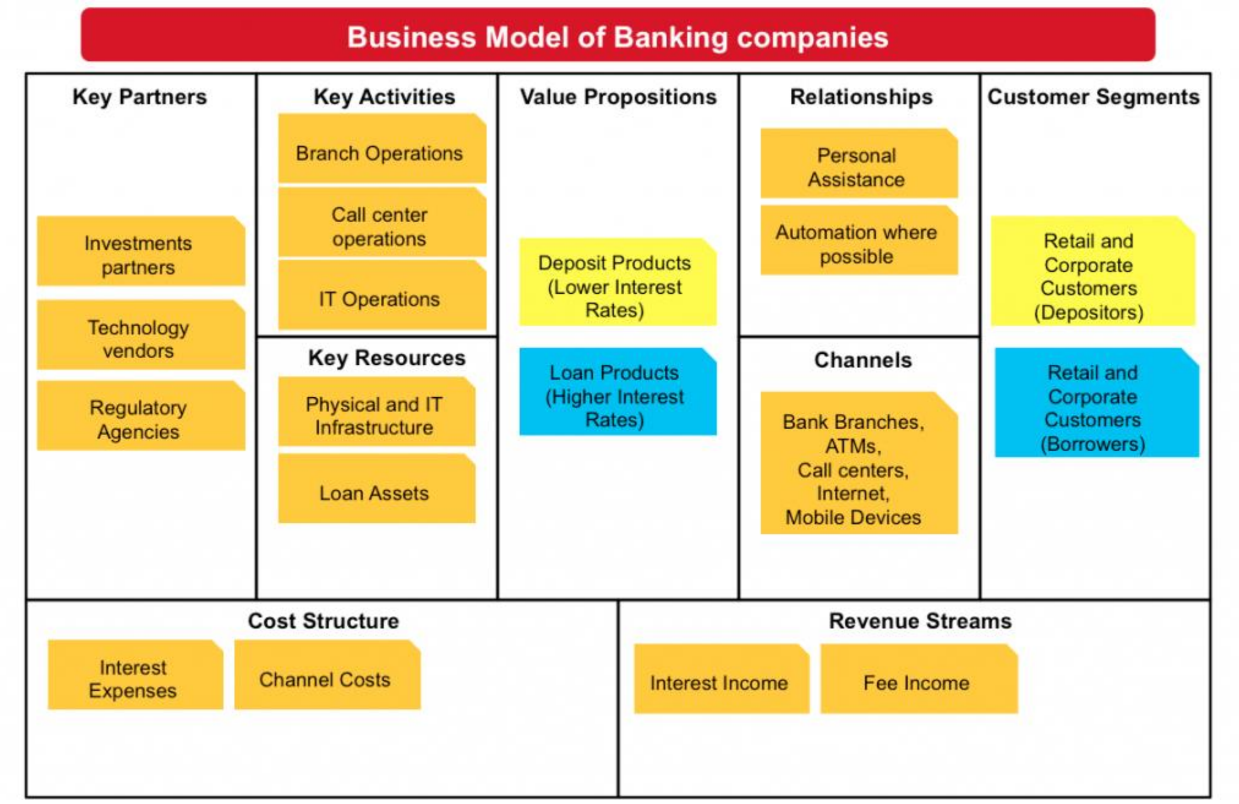
iii) **Wholesale banking**: The saving amount in one bank does not often match the amount of accessible safe borrowers, and in this circumstance, they will lend money to other financial organizations or borrow from others. There are financial markets serve financial organizations exclusively, and trades here are of high efficiency.

iv) **Private bank**: A private bank is one owned by either an individual or a general partner(s) with limited partner(s). Private banking consists of personalized financial services and products offered to the high-net-worth individual (HNWI) clients of a retail bank or other financial institution. Services include investing and portfolio management, tax services, insurance, and trust and estate planning.

Business Model

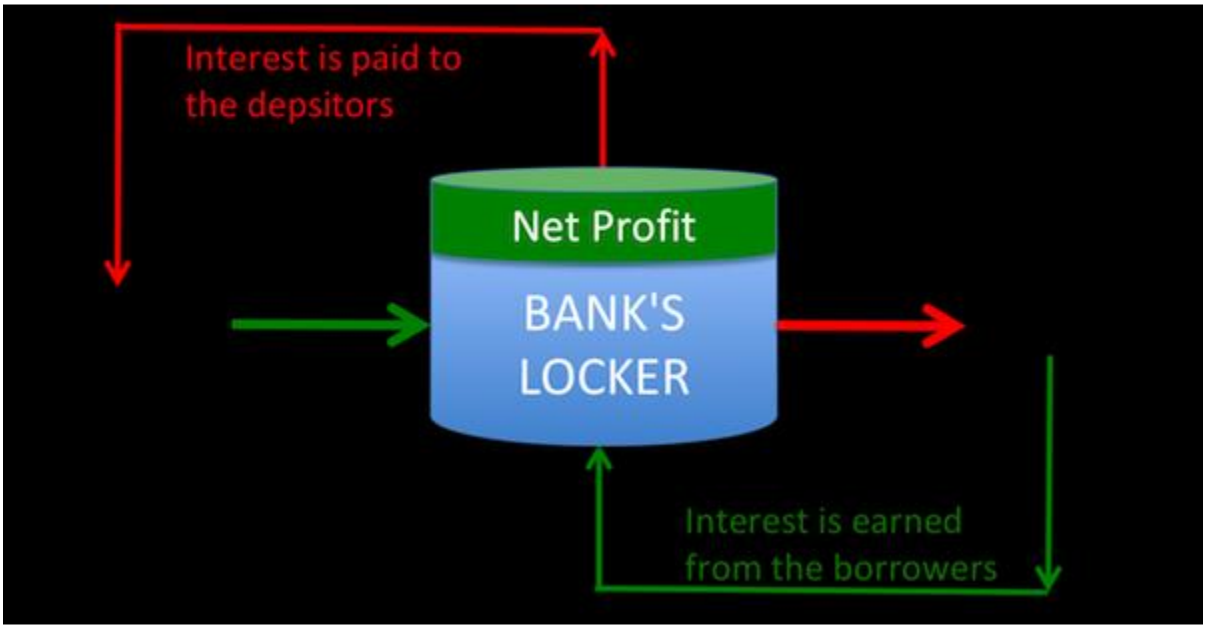
A business model is a company's plan for making a profit. It identifies the products or services the business will sell, the target market it has identified, and the expenses it anticipates.

Business Model of a Bank



- Give loans, earn interest (revenue)
- Accept deposits, pay interest (cost)
- Earned interest minus paid interest is profit

For a bank to be profitable, interest earned on loans should be more than interest paid on deposits. This income is called "Interest Income".

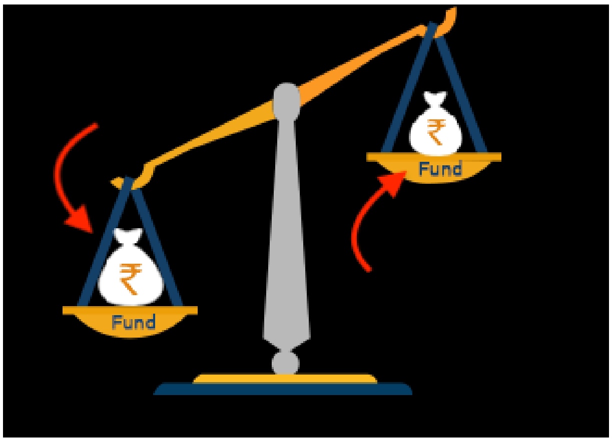


Important Function of a Bank

Banks also make money from the other sources like:

- Distribution of mutual funds
- Distribution of insurance schemes
- Offering wealth management services
- Treasury operations (buying/selling debt securities)

By providing these services, banks charge a nominal fee. Income earned from other source is called "**Other Income**".



Stakeholders

An industry stakeholder would be anyone who has an active interest in the success of that industry. Stakeholders can affect or be affected by the organization's actions, objectives and policies.

- Shareholders: The people that own shares in various banks. They expect a return on their investment and therefore want the bank to succeed in order to increase the value of their investment
- Regulators: The regulator of all banks have a stake as they are compensated by these bank's performance. Example: RBI
- Employees: Some employees may own stock in the company, most of them are stakeholders as their job is their primary source of income
- Communities: The communities surrounding banks have a stake because the banks provide a place for the community to purchase necessary services and are a source of employment
- Consumers: Customers use the Bank's services. The Bank's stability depends greatly on their preferences

Services provided by Retail Banks

- Transactional accounts
- Savings accounts
- Debit cards
- ATM cards
- Credit cards
- Mortgages
- Home equity loans
- Personal loans, etc

Market Situation for Retail banking

- In the recent years, retail banking has become a key area of strategic emphasis in the US banking industry, as evidenced by rising trends in retail loan and deposit shares on commercial bank balance sheets, and a continuing increase in the number of bank branches.
- Retail banks offer consumers credit to purchase homes, cars, and furniture. These include mortgages, auto loans, and credit cards. The resulting consumer spending drives almost 70% of the US economy.
- Digital media is gaining importance in the banking sector. In 2013, 43% of the retail banking customers expected their banks to invest in and develop online banking stream, 20% wanted a similar investment in mobile banking, and 7% in social media.

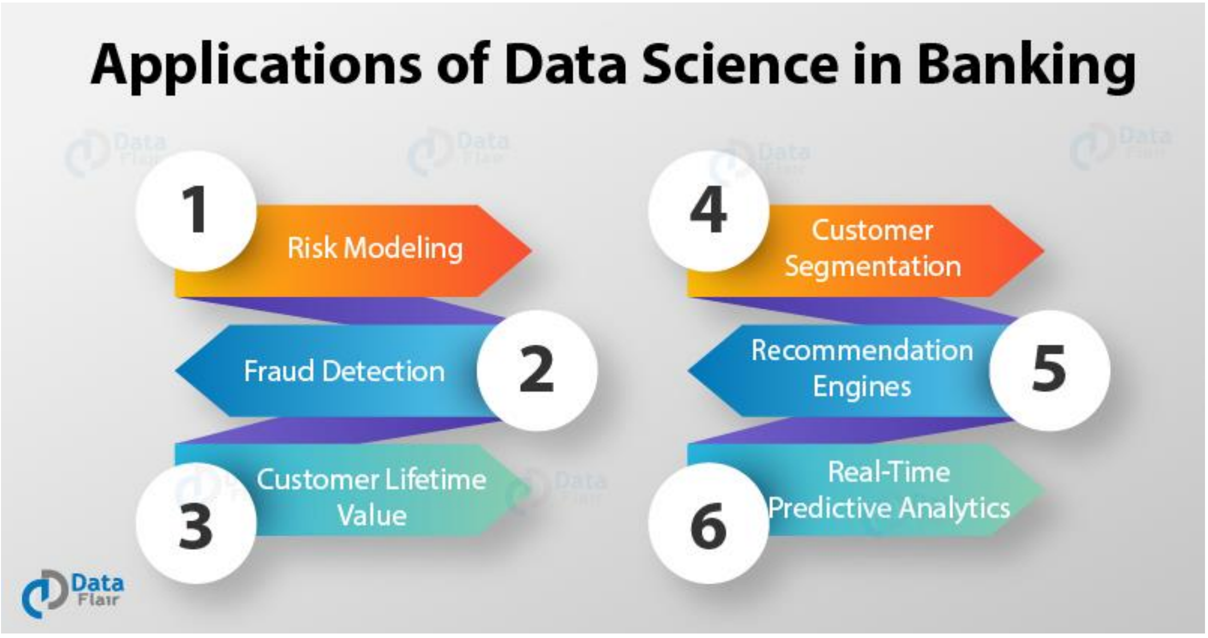
Key players

Rank	Retail Banks	Total Asset
1	Industrial & Commercial Bank of China	$3.62 trillion
2	China Construction Bank Corp	$2.94 trillion
3	Agricultural Bank of China	$2.82 trillion
4	Bank of China	$2.63 trillion
5	HSBC Holdings (HSBC)	$2.57 trillion
6	JPMorgan Chase & Co. (JPM)	$2.45 trillion
7	BNP Paribas	$2.4 trillion
8	Mitsubishi UFJ Financial Group	$2.459 trillion
9	Bank of America (BAC)	$2.15 trillion
10	Credit Agricole Group	$1.91 trillion

Scope for Analysis

In order to discover the set of critical success factors that will help banks reach their strategic goals, they need to move beyond standard business reporting and sales forecasting. By applying data mining and predictive analytics to extract actionable intelligent insights and quantifiable predictions, banks can gain insights that encompass all types of customer behavior, including channel transactions, account opening and closing, default, fraud and customer departure.

Insights about these banking behaviors can be uncovered through multivariate descriptive analytics, as well as through predictive analytics, such as the assignment of credit score. Banking analytics, or applications of data mining in banking, can help improve how banks segment, target, acquire and retain customers.



1. **Risk Modeling**

Risk Modeling a high priority for the banking industry. It helps them to formulate new strategies for assessing their performance. Credit Risk Modeling is one of its most important aspects. Credit Risk Modeling allows banks to analyze how their loan will be repaid. In credit risks, there is a chance of the borrower not being able to repay the loan.

2. **Fraud Detection**

With the advancements in machine learning, it has become easier for companies to detect frauds and irregularities in transactional patterns. Fraud detection involves monitoring and analysis of the user activity to find any usual or malicious pattern. With the increase in dependency on the internet and e-commerce for transactions, the number of frauds has increased significantly.

3. **Customer Lifetime Value**

Formally speaking, a Customer Lifetime Value offers a discounted value of the future revenues that are contributed by the customer. Banks are often required to predict future revenues based on past ones. Also, banks want to know the retention of customers and if they will help to generate revenues in the future as well. Banks want their customers to be satisfied and nurture them for the current as well as prospects. Businesses like banking sectors are required to predict their customer lifetime value.

4. **Customer Segmentation**

In customer segmentation, banks group their customers based on their behavior and common characteristics in order to address them appropriately. In this scenario, machine learning techniques like classification and clustering play a major role in determining potential customers as well as segmenting customers based on their common behaviors.

5. **Recommendation Engines**

Providing customized experiences to clients is one of the major roles that a bank play. Based on customer transactions and personal information to suggest offers and extended services. Banks also estimate what products the customer may be interested in buying after analyzing historical purchases. With this, banks will be able to recommend the product of the companies that have tied up with them.

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