**Introduction to Fintech (S2-24\_MBACCZG516) - NOTEs**

**Class 1: May 3, 2025**

Introductory class

**Class 2: Notes - May 10, 2025**

**Core Concepts of Fintech**

Four pillars:  
**1. Domain Knowledge**

A strong grasp of the financial industry’s inner workings is essential in fintech. This includes understanding banking systems, insurance, investments, lending, payments, wealth management, and more. It also involves familiarity with financial products, risk management, credit scoring, accounting principles, and economic drivers.

* **Example:** A fintech startup offering digital lending must understand underwriting, credit risk, interest rate policies, and collections to function effectively.

**2. Technology**

Technology is the key enabler and differentiator in fintech. It includes both the infrastructure (cloud computing, APIs, blockchain, etc.) and the applications (mobile apps, digital wallets, robo-advisors, AI-based fraud detection, etc.) that allow companies to deliver financial services in new and improved ways.

* **Why it matters:** Innovation in technology allows fintech companies to scale quickly, lower costs, improve accessibility, and create seamless user experiences.
* **Example:** UPI (Unified Payments Interface) in India revolutionized digital payments by making transactions instant, interoperable, and free for users.

**3. Regulations**

Financial systems operate within stringent regulatory frameworks due to the sensitive nature of money and personal data. In India, institutions such as the **RBI** (banking & payments), **SEBI** (securities market), **IRDAI** (insurance), and **PFRDA** (pensions) oversee compliance.

* **Why it matters:** Navigating regulations correctly ensures legal compliance, builds trust, and helps avoid penalties. Fintechs must often work closely with regulators to launch new products or expand operations.
* **Example:** A digital lending platform must follow RBI's digital lending guidelines, which cover transparency in loan terms, data privacy, and grievance redressal mechanisms.

**4. Consumer Behavior**

Understanding and influencing consumer behavior is vital for fintech adoption. Factors like trust, digital literacy, ease of use, convenience, and financial incentives heavily impact whether people will use a fintech product or service.

* **Why it matters:** Even the best technology won’t succeed if users don’t adopt it. Fintechs must align their offerings with users’ habits, preferences, and financial goals.
* **Example:** The success of “Buy Now, Pay Later” (BNPL) solutions lies in tapping into consumers’ desire for affordability and convenience in online shopping.

Key Fintech Verticals:

**1. Payments & Remittances**

This is one of the most mature fintech sectors. It includes solutions for transferring money digitally—both domestically and internationally—across individuals, businesses, and platforms.

* **Examples:**
  + **Paytm, PhonePe, Google Pay (India)** – Enable UPI-based instant money transfers and bill payments.
  + **Wise (formerly TransferWise)** – Offers low-cost international remittances with transparent exchange rates.
  + **Razorpay, Stripe** – Help businesses accept online payments through multiple methods (cards, wallets, UPI).
* **Innovation highlight:** Instant settlement, QR code payments, and cross-border blockchain-based remittances.

**2. Lending (including Buy Now, Pay Later - BNPL)**

Digital lending platforms use alternative data and AI to offer loans quickly without traditional paperwork. BNPL is a sub-vertical allowing users to split purchases into smaller, interest-free installments.

* **Examples:**
  + **ZestMoney, LazyPay** – BNPL platforms in India targeting online shoppers.
  + **Cred, EarlySalary, PaySense** – Offer instant personal loans based on credit profile and usage.
  + **LendingClub (USA)** – Pioneered peer-to-peer lending connecting borrowers directly to investors.
* **Innovation highlight:** AI-based credit scoring, real-time underwriting, and loan disbursal via mobile apps.

**3. Insurance (including IoT-based Underwriting)**

Insurtech simplifies the process of buying insurance, managing policies, and settling claims. Some use IoT data (e.g., from wearables or vehicle sensors) to price premiums more accurately.

* **Examples:**
  + **Acko, Digit Insurance** – Fully digital insurance providers in India.
  + **Lemonade (USA)** – AI-driven claim settlements within minutes.
  + **Tesla Insurance** – Uses vehicle telemetry data to offer customized auto insurance.
* **Innovation highlight:** Usage-based insurance, instant claims, and data-driven underwriting.

**4. Wealth Management & Robo-Advisory**

These platforms help users manage investments, savings, and financial planning using algorithms, with or without human advisors.

* **Examples:**
  + **Groww, Zerodha, Upstox** – Allow users to invest in stocks, mutual funds, and ETFs easily.
  + **Scripbox, INDmoney** – Offer automated financial planning and portfolio management.
  + **Betterment, Wealthfront (USA)** – Robo-advisors that automatically manage diversified portfolios.

**5. Neobanking & Digital Banking**

Neobanks are digital-only banks that offer banking services without physical branches. Some partner with traditional banks to offer regulated services.

* **Examples:**
  + **Fi Money, Jupiter, Niyo** – Indian neobanks targeting salaried professionals or travelers.
  + **Revolut, Monzo, N26 (UK/EU)** – Fully digital banks offering multi-currency accounts and budgeting tools.
* **Innovation highlight:** Intuitive apps, real-time spend tracking, zero-balance accounts, and instant KYC.

**6. Crowdfunding & Crowd Investing**

These platforms allow individuals or organizations to raise money from a large number of people, often through equity, debt, or reward-based models.

* **Examples:**
  + **Kickstarter, Indiegogo** – Reward-based crowdfunding for creative and tech projects.
  + **OurCrowd, AngelList** – Enable equity investments in startups by individual investors.
  + **Ketto, Milaap (India)** – Platforms for donation-based medical and social fundraising.

**7. Regulatory Tech (RegTech)**

RegTech uses technology to help financial institutions comply with regulations efficiently and accurately—often using AI, big data, and blockchain.

* **Examples:**
  + **Trulioo** – Provides global identity verification services.
  + **ComplyAdvantage** – AI-driven risk and compliance screening for financial institutions.
  + **Signzy (India)** – Offers digital onboarding and compliance solutions for banks.

**8. Compliance Solutions (e.g., KYC, AML)**

These tools help fintechs and banks fulfill their legal obligations related to **Know Your Customer (KYC)** and **Anti-Money Laundering (AML)**.

* **Examples:**
  + **Onfido, Jumio** – Use AI to verify identities through documents and facial recognition.
  + **IDfy, HyperVerge** – Indian startups enabling video KYC and fraud detection.

**9. CFO Stack & Business Finance Tools**

These are fintech tools tailored for SMEs and startups to manage accounting, invoicing, payroll, expense tracking, and cash flow.

* **Examples:**
  + **Khatabook, Vyapar, OkCredit (India)** – Simplify bookkeeping and ledger management for small businesses.
  + **TallyPrime, Zoho Books** – Help with accounting, GST filing, and inventory tracking.
  + **Brex, Ramp** – Corporate cards and expense management for startups in the US.

Evolution of Banking and technology:  
1. From Barter to Modern Banking

* Barter System: Direct exchange of goods (e.g., 2 goats for 1 sack of grain).
* Coins & Paper Money: Standardized currencies enabled formal trade.
* Early Banks: Stored wealth, issued loans, and facilitated commerce.

*Example:* Medieval banks in Italy issued paper notes in place of gold.

2. Rise of Digitization

ATMs

* Enabled 24/7 cash withdrawals.  
   *Example:* Use an HDFC ATM to get cash anytime.

Core Banking Systems (CBS)

* Centralized system for all branches.  
   *Example:* Deposit in Delhi, withdraw in Mumbai.

Mobile Apps

* Banking on-the-go.  
   *Example:* Use YONO SBI or PhonePe to transfer money.

AI & Voice Banking

* Chatbots, fraud detection, voice commands.  
   *Example:* HDFC EVA chatbot or Alexa for balance check.

3. The Future: Mobile-First & Branchless

* Neobanks: 100% digital banking.  
   *Example:* Fi Money, Jupiter
* AI-Driven: Smart budgeting & alerts.  
   *Example:* App reminds you of bills based on past usage.

Technology Drivers of Fintech

* One of the drivers can be AI and Gen AI which enables personal banking, fraud detection and credit risk modelling.
* Blockchain as well as it allows secure,trustless transactions and smart contracts without intermediaries
* Other things like cloud,saas and iot can also have a major impact as these can be used for Insurtech etc.

Banking Sector Insights (India)

**Net Interest Margin (NIM)**

Formula: NIM = Lending Rate – Deposit Rate

It's the profit banks make from lending after paying interest on deposits.  
 *Example:* If a bank lends at 10% and pays 5% on deposits, NIM = 5%.

**Non-Interest Income**

Banks also earn from fees, commissions, and service charges.  
 *Example:* Charges for ATM use, loan processing fees, or credit card annual fees

**Public vs. Private Banks in India**

Public sector banks still have the largest market share.

But private banks like HDFC, ICICI, Axis are growing rapidly with better tech and customer service**.**

**VC Investments in Fintech**

Peaked in 2021, then declined due to global economic slowdown.

Still significant, especially in lending, payments, and insurtech sectors.  
 *Example:* Funding in startups like Zerodha, Razorpay, and Groww continues, though at lower levels.

**Class – 3 Notes: May 17, 2025**

Understanding Banking through Roleplay

**Bank Creation Scenario (Bank Sindhur)**

**Initial Setup**

* **Investors**: Nirmala & Yuvraj (₹1,00,000 each)
* **Capital** = ₹2,00,000
* **Assets** = Cash ₹2,00,000
* **Liabilities** = Shareholder Capital

**Loan Transactions**

* **Borrower**: Jitesh
* Loan: ₹2,00,000 at 9% interest for 1 year
* End of year:
  + Repayment = ₹2,18,000
  + Profit = ₹18,000 (shared ₹9,000 each)
  + Return on Capital = **9%**

Repeat Scenarios with Variations

**Version 2 – Bank Takes Loan**

* **Depositor (Loan to Bank)**: Mitali @10% interest, ₹1,00,000
* Total Funds = ₹3,00,000
* **Lends to Jitesh @8%**
* Profit = ₹24,000 | Interest to Mitali = ₹10,000
* Investor Return = ₹7,000 each (**7%**)

**Learning:**

Borrowing at a higher rate than lending = reduced profitability.

**Version 3 – Bank Negotiates Better**

* Mitali agrees @7%
* Loan to Jitesh @9%
* Total repayment = ₹3,27,000
* Investors get ₹1,10,000 each → **10% return**

**Learning:**

Optimize borrowing and lending rates for higher investor return.

**Version 4 – More Depositors**

* New Depositors: Sowmya @7%, ₹1,00,000
* Total Capital = ₹2,00,000, Deposits = ₹2,00,000 → ₹4,00,000
* Jitesh borrows @8%
* Repayment = ₹4,32,000
* Interest paid to depositors = ₹14,000
* Investors get ₹1,09,000 each → **9% return**

**Learning:**

More capital doesn't guarantee better return if rates aren't optimized.

**Version 5 – Optimal Rates**

* Jitesh borrows full ₹4,00,000 @9%
* Repayment = ₹4,36,000
* Investor return = **11%**

**Version 6 – Increased Leverage**

* More depositors added → Total Capital = ₹2,00,000, Deposits = ₹4,00,000
* Loans to Jitesh & Rangaraj @9%
* Repayment = ₹6,54,000
* Investors return = ₹1,13,000 each → **13%**

**Version 7 – Default Scenario**

**Rangaraj Defaults**

* No repayment of principal or interest
* Total recovery = Only from Jitesh's business
* Investor return = ₹4,000 each → **-96%**

**Learning:**

* Leverage (debt) amplifies returns **AND** losses
* Default risks must be managed

Important concepts:  
Leverage

* Debt/Equity Ratio refers to the proportion of borrowed money (debt) compared to the owner's money (equity) in a business.
* A higher debt level means the business is using more borrowed funds relative to its own capital.
* This can lead to higher potential returns because borrowed money can be used to generate more income.
* However, higher debt also means higher risk—if the business faces losses, it still has to repay the debt, which can amplify losses.
* Leverage works well when business conditions are favorable (good times), as profits increase.
* But during bad times, high leverage can cause massive financial losses or even bankruptcy.

Business Structures

* Sole Proprietorship:  
  The business is owned and run by one person. The owner bears full risk and is personally responsible for all debts and losses.
* Partnership:  
  The business is owned by two or more partners who share the risks and profits. Partners are generally personally liable for business debts.
* Private Limited Company:  
  A separate legal entity where owners (shareholders) have limited liability. This means their losses are limited to the amount of capital they invested in the company. Personal assets are generally protected.

Conclusion:

**Balance Sheet Fundamentals:**  
It is crucial that a bank or any financial institution maintains a balance between its assets (what it owns or is owed) and liabilities (what it owes to others). This balance ensures financial stability and transparency.

**Investor vs Depositor:**  
Investors provide capital and typically have ownership rights, sharing in the profits and risks of the bank. Depositors lend money to the bank but are not owners; they have a right to get their deposits back along with agreed interest, facing different levels of risk.

**Interest Rate Management:**  
Managing the difference between lending rates and borrowing rates is central to a bank’s profitability. Optimizing these rates helps maximize returns while maintaining competitiveness and customer trust.

**Risk Management:**  
Proper assessment and management of financial risks, such as credit risk, liquidity risk, and market risk, are essential to ensure the long-term sustainability of banking operations.

**Roleplay & Simulation:**  
Practical exercises like roleplays and simulations are effective tools to better understand how banking operations work in real life, helping learners grasp complex concepts through experience.

**Class- 4 Notes: May 24, 2025**

Bank Revenue Analysis

**Objective:**

Analyze revenue mix:

* **Interest Income**: Income from loans, investments, RBI balances
* **Fee/Non-Interest Income**: Commissions, custodial services, insurance/mutual fund sales

**Team Work:**

* Team 1: Federal Bank
* Team 2: Equitas Bank
* Team 3: South Indian Bank
* Team 4: TBD
* Task: Analyze % of interest vs fee income over 3–5 years

**Observed Trends:**

* Indian banks like Federal, Equitas show ~80–88% income from **interest**
* Fee income remains around **12–20%**
* Global banks (e.g., BNY Mellon) earn a **higher % from fee-based services**

**Banking Concepts and Income Types**

**1. Net Interest Margin (NIM)**

**Definition:**  
Net Interest Margin is the difference between the interest a bank earns from lending and the interest it pays on deposits.

Formula:  
NIM = Interest from Lending – Interest paid on Deposits

Why it matters:  
It is one of the main sources of profit for a bank. A higher NIM means the bank is earning more from its loans than it is paying out to depositors.

What affects NIM:

* Cost of funds: The interest rate the bank pays on deposits or borrowings.
* Lending rate: The interest charged to borrowers. Higher rates mean more income.
* Operational efficiency: Lower internal costs (staff, branches, tech) help retain more profit.
* Quality of loan assets: If loans go bad (NPAs), income drops. Better-quality loans = more stable interest income.

**2. Fee-Based Income (Non-Interest Income)**

Definition:  
Income earned by the bank that is not related to interest on loans or deposits. It comes from services and third-party product sales.

Sources include:

* Insurance and mutual fund distribution: Commission from selling financial products.
* Custodial services: Holding and managing securities for clients (often for large institutions).
* Trade finance (Letters of Credit): Fees for guaranteeing payments in international trade.
* Brokerage, commissions, advisory fees: Earnings from transactions and services offered to customers.

Key Advantage:  
Unlike lending, fee income is not limited by the bank’s balance sheet.  
This means a bank can scale its fee income by increasing service offerings, without increasing the size of loans or deposits.

**Banking Risks & Challenges**

**Categories of Risk:**

**Stakeholder Risks**

* **Investors:**  
  Exposure to risks such as non-performing assets (NPAs), inefficiencies in operations, liquidity crises, and potential fraud.
* **Depositors:**  
  Vulnerable to risks like bank runs, misinformation or fake news affecting confidence, and delays in receiving payouts.
* **Borrowers:**  
  Face risks including sudden increases in interest rates, mis-selling of products, and poor customer service experiences.

**Operational Risks**

* Internal fraud, such as unauthorized lending activities.
* Gaps in staff training leading to mistakes or insider fraud.
* Failures in IT systems, including data loss.
* Liquidity mismatches caused by differences in the maturity periods of assets and liabilities.

**Risk Mitigation Tools**

* Use of collateral to secure loans.
* Involvement of guarantors to back borrower obligations.
* Implementation of credit scoring systems like CIBIL and Experian to assess creditworthiness.
* Adoption of maker-checker processes to ensure checks and balances.
* Enforcing mandatory block leave policies to prevent fraud.
* Installation of CCTV and maintaining audit trails for monitoring and accountability.

**Open Banking & APIs**

APIs in Banking:

* Facilitate the integration of fintech services, enabling Banking-as-a-Service (BaaS) models.
* Support the growth of Neobanks and Challenger Banks by providing seamless access to banking infrastructure.
* Allow third-party applications to deliver regulated financial services through partnerships with banks.

Regulatory Models

| Model | Countries |
| --- | --- |
| Regulator-driven | European Union (PSD2), United Kingdom, Hong Kong, Australia |
| Market-driven | India, Singapore, South Korea, Japan |

Suggested Activity:  
Explore developer portals of both Indian and international banks to understand how APIs are used in practice.

**Banks vs NBFCs (Non-Banking Financial Companies)**

| Feature | Banks | NBFCs |
| --- | --- | --- |
| Deposit Taking | Allowed | Generally not allowed (with some exceptions) |
| Regulatory Scrutiny | High (strict regulations by RBI) | Moderate (regulated but less strictly than banks) |
| Deposit Insurance (India) | Yes, deposits insured up to ₹5 lakh | No deposit insurance for customers |
| Examples | SBI, ICICI Bank | Bajaj Finance, Capital Float |

Additional Points:

* NBFCs like Bajaj Finance have grown significantly, with an asset base of around ₹4.6 lakh crore, making them systemically important players in the financial system.
* Systemically Important Banks in India include SBI, ICICI, and HDFC, meaning their size and role are critical to the stability of the financial system.

Summary:

* Banks are allowed to accept deposits and are highly regulated to protect depositors, including insurance on deposits.
* NBFCs provide loans and other financial services but usually cannot accept deposits from the public, and they face less regulatory oversight. They play a vital role in complementing banks by serving niche or underserved markets.

**Class – 5 Notes: May 31, 2025**

**SESSION NOTES – BANKING, NIM, LENDING, CREDIT, AND COLLATERAL**

**Bank Revenue Structure**

* Example: BNY Mellon earns 67% of its revenue from fee-based (non-interest) income.
* DBS Singapore earns over 90% from interest income, with less than 10% from fees.

**NIM and Profitability**

* Higher Net Interest Margin (NIM) means better bank profits.
* Banks must efficiently manage idle cash, reserve requirements, and liquidity cushions to maintain profitability.

**Fintech Opportunity Zones**

* Technology like AI, Machine Learning, Blockchain, and APIs can help improve NIM.
* Applications include loan management, predictive analytics, and liquidity optimization.

**Open Banking & APIs**

* Open API standards vary globally:
  + Regulatory-driven in EU (PSD2), UK, HK, Australia.
  + Market-driven in India (RBI’s voluntary framework).
* Key focus: Account Aggregators that allow users to share financial data securely across banks with their consent.

**Types of Digital Banks**

* **Neobanks:** No banking license; must partner with a licensed bank to offer services.
* **Challenger Banks:** Fully licensed digital banks that operate independently.
* **Digital Subsidiaries:** Licensed banks owned by traditional banks, offering digital services.

**Banking Regulation Rationale**

* Banks handle public money, so they are strictly regulated.
* Regulations help prevent large-scale financial failures (systemic risk).
* They maintain depositor trust by ensuring safety and stability.

**Lending Concepts**

*Types of Loans:*

* **Retail Loans:** For individuals (home, vehicle, personal, education).
* **Business Loans:** For companies (working capital, equipment purchase, invoice discounting).
* **Modern Loan Forms:** Buy Now Pay Later (BNPL), Embedded Finance, Peer-to-Peer (P2P), Revenue-Based Financing (RBF).

**Loan Lifecycle**

1. **Origination:** Loan application and approval process.
2. **Servicing/Monitoring:** Managing the loan during its term.
3. **Closure:** Loan ends with full repayment or default.

**Collateral**

* Secured loans are backed by collateral (assets).
* Value depends on current market price, future prospects, and how much can be recovered in auctions.
* Banks may require insurance on collateral (property or vehicle) and life insurance for large loans to reduce risk.

**3 Cs of Lending to Individuals**

* **Character:** The borrower’s intention to repay, usually checked through their credit score.
* **Capacity:** The borrower’s ability to repay, calculated as income minus expenses.
* **Collateral:** Assets pledged to secure the loan.  
  *All three are important, but lenders often focus on character first.*

**Credit Scores**

* In India, credit scores come from agencies like CIBIL (based on FICO) and Experian.
* Score below 500 = High risk borrower.
* Score above 750 = Generally eligible for loans.
* New borrowers are labeled as “New to Credit” (NTC).
* Some lenders also use alternative data like utility bills or rent payments for scoring.

**Class Discussion Insights**

* Students shared real examples of personal, home, and vehicle loans.
* Banks often pay home loans directly to property builders.
* Escrow accounts are used abroad to handle property tax payments securely.
* Loan insurance is commonly used to protect against defaults

**Class 6- June 7, 2025**

**Lending & Gold Loans, Student Loans, MSMEs, and Payments**

**Gold Loans – RBI Guidelines Update**

* Loan-to-Value (LTV) increased from 75% to 85% for loans up to ₹2–2.5 lakhs.
* No credit checks required for small gold loans.
* Loans allowed against Gold & Silver ETFs (virtual assets).
* Valuation standardized using 22K gold price averaged over 30 days from recognized exchanges.
* Only certified assayers can evaluate gold quality.
* Proof of ownership needed to prevent fraud.
* **Benefits:** Easier access for underserved groups, faster loan disbursement, reduced purity risk with ETFs, better liquidity for banks.

**Student Loans – Strategy & Fintech Ideas**

* Challenge: Students have no current income; repayment depends on future earnings.
* Innovations: Disburse loans directly to institutes, use academic progress (GPA, rankings) for eligibility, offer refinancing after good performance, profile risk by institute and course.

**Lending to Organizations – 6 Cs**

1. Capacity – Cash flow ability
2. Capital – Equity invested by founders
3. Collateral – Assets pledged
4. Conditions – Loan terms and oversight
5. Creditworthiness – Past repayment history
6. Character – Reputation and integrity of founders

**Loan Assessment Criteria**

| **Factor** | **Individual Loans** | **Business Loans** |
| --- | --- | --- |
| Credit Score | Essential | May not exist for SPV |
| Income Proof | Salary or tax returns | Projected revenue, EBITDA |
| Collateral | Optional | Often required |
| Monitoring | Minimal | Strict, especially for working capital or capex |

**Loan Categories**

* Consumption Loans: For non-income generating needs (e.g., weddings, medical) – higher interest.
* Income Generating Loans: For assets/businesses that generate returns.
* Bullet Loans: Full repayment (principal + interest) at maturity, max 12 months.

**Peer-to-Peer Lending (P2P)**

* Cuts out banks by directly connecting lenders and borrowers.
* Offers higher returns to lenders and lower rates to borrowers.
* Requires strong credit risk tools; growing fintech space with AI-powered credit scoring.

**Creative Lending Products**

* Refinancing based on academic performance.
* Loans for second-hand vehicles, emergencies, informal sector businesses.
* Need for credit assessment tools for those without formal credit history.

**Fintech Business Idea Guidelines**

1. Know the domain well (banking, lending).
2. Identify clear fintech opportunities (cost reduction, revenue boost, access improvement).
3. Ensure regulatory compliance (RBI, NBFC laws).
4. Consider user adoption and behavior.
5. Demonstrate ROI and scalability.
6. Build a solid financial model (funding, expenses, break-even).

**Payments – Basics**

* Merchant Discount Rate (MDR): Offline 0.4–1.5%, Online 0.4–2% (domestic), ~3% (international).
* POS fees: ₹400–600/month plus MDR.
* Agent-based payments use AEPS, mobile ATMs, Aadhaar services.
* UPI lowered costs, enabling cheap/free peer-to-peer payments.
* Merchants often avoid cash due to MDR losses.