**Chapter 1: Financial Systems**

* Financial system: provides for efficient flow of funds by bringing savers and borrowers together via financial markets and institutions
  + Move money from savings to investments because that’s what creates jobs
* Financial institutions
  + Most common: commercial banks
  + Also, credit unions, mortgage lenders, mutual fund companies, insurance companies, government-sponsored entities, a nation’s central bank
    - Companies that provide financial services to consumers, businesses, and government units
  + Other than the central bank, the goal is to bring money in and a low rate and deploy it at a high rate
  + Cover costs and make profits for the owners of the institutions by means of interest rate spread
  + Invest their funds in financial assets
* Financial markets
  + NYSE, bond markets, US Treasuries market, money market, commercial paper market, Fed Funds market, credit default swaps market, primary and secondary markets
  + Venues where people buy and sell financial claims (financial instruments or securities)
  + Cover costs and make profits for the owners of the market by commissions and fees
  + Cannot have an advanced economy without an efficient financial system
* Money markets vs. Capital markets
  + Money markets: < 1 year, short-term debt
    - $6 trillion
    - Commercial banks and businesses adjust their liquidity by borrowing or lending for short periods of time
  + Capital markets: > 1 year, corporate stock, debt of more than a year
    - $60 trillion
    - Business firms obtain funds for long-term investment projects and consumers can finance the purchase of long-term assets

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| --- | --- |
| **Short-term debt instruments** | **Long-term debt instruments** |
| T-bills | Corporate bonds |
| Commercial paper | Treasury notes and bonds |
| Negotiable CDs | Municipal bonds |
| Fed Funds | Mortgage bonds and CDOs |
| Repurchase agreements | Student loans |

* Financial claims
  + Issuer and a holder
  + Financial claim: a claim on the issuer’s income or assets, the issuer must financially do something for the holder
    - Ex. Buy Apple stock: Apple is the issuer and you are the holder, you have a claim on their assets and they must pay dividends
    - Liability for the borrowers/issuers, asset for the lenders/holders
  + While issuer remains the same, the holder may change many times
    - Ex. If Apple issues stock, there can be multiple holders and they change when they buy and sell the stock
  + Legislation and regulation give financial claims strength and renders them legally enforceable in the US
* Bond: loan you can buy, it’s a long term (1+ years) debt instrument that obligates the issuer to make specific payments at specific times to the holder, can count on it
* Stock: claim on the income and assets of a corporation, can’t expect payments on a specific day or of a specific amount
* Money
  + Amount of cash (bills and coins) is growing but usage of cash is declining
  + Cash in domestic use is down to ~2% of GDP (=$19 trillion)
  + A bill lasts ~5 years and costs ~12 cents to make
  + US Mint is not producing as many 1’s, 5’s, and 10’s; demand for 100’s has exploded
  + Total US currency (cash) outstanding is $1.5 trillion
    - 80% of this is in the form of 100’s and is mostly held by foreigners
  + “legal tender”: people must accept US currency, can pay off debts with it
* Economic units
  + Have a budget, fall into 3 categories:
    - Households
    - Business firms
    - Governments
  + For any period, the budget will be in a:
    - Surplus (income>spending)
    - Deficit (income<spending)
    - Balanced
* SSUs and DSUs
  + Surplus Spending Units (SSUs): results in savings
    - Savers, lenders, investors
  + Deficit Spending Units (DSUs): results in borrowing
  + DSUs issue financial claims to obtain the funds that they need
    - * Claim=security
  + SSUs only part with their money if the characteristics/conditions of the financial claims they receive are to their satisfaction
    - Sometimes they don’t match up so intermediaries step in
* Challenge of the financial system:
  + The task of matching up SSUs with DSUs
    - Direct financing: one end of the financing continuum, no middleman, ideally one’s first choice, often better this way if possible
    - Indirect financing: other end of the continuum, involves the use of an intermediary, most financing is done this way because direct financing is often not practical
      * Middleman=financial intermediaries
* Direct financing
  + Must find each other and bargain (difficult)
  + SSU transfer funds directly to DSU
  + DSU issues financial claim directly to SSU
  + However, preferences/characteristics must match
    - Amount, maturity, risk, liquidity/marketability of financial claim
    - Any problem here is a deal breaker
  + Ex. Borrowing money from a family member to start business
  + Direct financing balance sheets
  + **A financial claim is an asset to its holder and a liability to its issuer**
* Importance of Marketability and Liquidity
  + Marketability: importance of being able to resell the financial claim
    - Ex. SSU has $2 million to lend for 3 years, DSU needs $2 million for 20 years
      * Denomination: yes
      * Risk: yes
      * Maturity: no
    - Problem is solved if there is marketability: if the saver can sell the DSU to someone else after 3 years then it will be okay
    - Marketability allows an SSU to buy a claim with a longer maturity but sell it at the end of the period or to buy with a shorter maturity then reinvest in something else later
  + Liquidity: ability to be converted to cash without having to sacrifice value
    - Liquid: Apple stock
    - Illiquid: Car
* Indirect financing
  + DSU and SSU probably don’t know each other
  + An intermediary transforms the characteristics of financial claims
  + Indirect financing balance sheets
* Commercial banks: issue financial claims to SSUs in the form of checking accounts, savings accounts, CDs
  + If the bank has a lot of customers then they have a large pool of money
  + Then with the money, they buy financial claims from DSUs (they lend money to the DSUs)
  + Whereas SSUs can always achieve liquidity with claims from an intermediary, claims held by banks are not always liquid
* 11 types of financial intermediaries ranked
  + banks
  + mutual funds
  + government pension funds
  + private pension funds
  + government-sponsored entities (ex. Fannie Mae, Freddie Mac)
  + life insurance companies
  + money market funds
  + casualty insurance companies
  + finance companies
  + credit unions
  + savings institutions
* Total assets of the intermediaries = 3.5 x GDP
* 4 categories of financial intermediaries
  + Deposit-type institutions
    - commercial banks
    - thrift institutions
    - credit unions
  + Contractual savings institutions
    - life insurance
    - casualty insurance

They take the money they get and invest it into stocks, bonds, and securities

* + - pension funds
  + Investment funds
    - mutual funds
    - money market funds
  + Other financial institutions
    - finance companies
    - federal agencies
* Intermediation Services—what do they do?
  + Denomination Divisibility: pool the savings of many small SSUs into large investments
    - Banks, enough people deposit money that they can safely lend it out
  + Currency Conversion: buy and sell financial claims denominated in various currencies
  + Maturity Flexibility: maturities, from 1 day to 30 years, to both DSUs and SSUs
    - Money is able to come in short term and go out long term
  + Credit Risk: probability that the money is not paid back as promised
    - Diversification
    - Enables SSUs to not put all of one’s eggs in a basket
  + Liquidity: SSU savings at an intermediary are usually immediately or quickly converted to cash
* Risk faced by financial institutions
  + Credit Risk
    - Firms need to assess potential borrowers
  + Interest Rate Risk
    - Security price fluctuations as a result of changes in interest rates
    - If rates go up, prices of securities go down and vice versa
  + Liquidity Risk
    - Risk that an institution may be unable to disburse required cash outflows
    - Banks should keep a safety amount of cash in case a bunch of people want to withdraw at once
  + Foreign Exchange Risk
    - If dealing in foreign currencies or investments abroad
  + Political Risk
    - Risk of harmful government or regulatory action
* Advantages of Intermediaries
  + Economies of scale due to specialization and ability to spread out fixed costs
  + Reduced costs in search for credit information (done once per DSU for all SSUs)
  + Banks often privy to more than what comes up in a normal credit check due to involvement in the community (helps them make sounder loans)
    - Aka have the advantage of knowing the people and community instead of just relying on the reports
* Brokers vs. Dealers
  + Brokers do not take a position in the transaction, they simply just match buyers and sellers and they make money by charging a fixed or percentage fee
  + Dealers “make markets” by buying at any time for inventory, and selling at any time from inventory and they make money by buying low and selling high
    - Car dealers, NASDAQ
    - Most debt instruments transact with dealer markets
    - A buyer buys at ask price and sells at bid price
    - OTC: over-the-counter market
      * Another name of dealer market
      * Generally, have no central location like organized exchanges
      * Vast majority of debt instrument markets are OTC
* Primary market vs. Secondary market
  + Primary: stock is sold for the first time—new issues are sold to initial buyers
  + Secondary: people can buy and sell already existing financial claims
    - People are more likely to buy a financial claim in the primary market if there’s a secondary market
    - Provides liquidity for the claim
    - People want the option to cash out whenever they want
    - NYSE
* Numbers to know
  + US pop: 325 million
  + UGA revenues: $2 billion
  + China pop: 1.4 billion
  + US student loan debt: $1.4 trillion
  + US paper money outstanding: $1.5 trillion
  + US coin in circulation: $50 billion
  + Money market: $6 trillion
  + Capital market: $60 trillion
    - Equity portion of market: 1/3
  + US GDP: $19 trillion
  + Total US national debt: $20 trillion
  + Assets held in financial intermediaries: 3.5 x GDP
* Deposits at FDIC-Insured Institutions
  + Standard insurance amount is $250,000 per depositor, per institution
    - What happens if a married couple has $1 million to deposit?
      * 2 single accounts of $250,000 per owner
      * 1 joint account of $250,000 per co-owner
    - After $1 million it becomes hard to keep safe
* Credit Unions
  + Non-profit, tax-exempt organizations
  + Take in money from depositors with the idea of making consumer loans to members
  + Mutual ownership: “owned” by depositors who are “members”
  + Must be some common bond among the members
    - Could be location, job
    - There’s a UGA credit union for employees, interest rates are normally lower
    - Ex. Dr. Steuer wanted to buy a car when he worked at UK, opened up an account and became a member and then was able to borrow the money at a lower rate
* Casualty vs. Life Insurance Companies
  + Casualty claims are less predictable so a greater proportion of a casualty insurance company’s investments must be in highly marketable securities
  + Casualty: earthquake, tornado, hurricane
* Savings and Loans
  + Thrift institutions that are like a bank but are chartered under a different set of rules, not many around today
  + S&L crisis of 1986-1995
  + Cost the government $150 billion
* Pension funds
  + Since inflows and outflows of pension funds can be predicted with considerable accuracy, can invest (like life insurance companies) in long-term projects like private equity, hedge funds, venture capitalism
    - Private equity: idea is to buy a company, improve it, and sell years later at a higher price
* Universities
  + University endowments are also big investors in long-term projects
* Money Market Mutual Funds
  + Uninsured substitutes for deposit accounts, usually buy money market instruments
  + If you have more than $1 million to deposit
* Disintermediation
  + When SSUs take money out of intermediaries to invest in financial claims directly

**Chapter 2: The Federal Reserve System**

* Purposes of a central bank
  + Supervises a nation’s money supply and payments system
  + Acts as a chief regulator of financial institutions
  + Be a “lender of last resort” when financial system has liquidity problems
  + Implement nation’s monetary policy (setting interest rates, controlling money supply, etc.)
  + Act as the national government’s “fiscal agent” (i.e. depository bank)
    - Acts as the government’s bank
* Central banks of the US
  + Bank of the US (1791-1811)
  + Second Bank of the US (1816-1832)
    - Free Banking Era (1837-1863)
    - National Banking System Era (1863-1914)
  + Federal Reserve System (1914-present)
  + The first 2 banks failed because of
    - General distrust in centralized power
    - Too many regions of the country felt that they weren’t treated fairly
* Banknotes
  + In the US past, various private banknotes served as money as they were supposed to be redeemable for bullion on demand
  + Could take silver, gold, US gov bond, or another bank’s banknote to a bank
    - Get in exchange banknotes from the current bank
    - Leave amount in bank as a demand deposit (denominated in banknotes from the current bank)
  + A loan from a bank came in the form of banknotes from that bank
  + Today, all from the central bank
* No Central Bank (1832-1914)
  + Banknotes carried the default risk of the bank that issued it
  + The cost of a good depended on the banknote used to pay for it
  + At one time, there were 15,000 different banks issuing banknotes
  + Discount books were published by dealers who dealt in banknotes listing what they would pay for a given note
  + The different banknotes made commerce difficult
* Free Banking Era (1837-1863)
  + Federal legislation in 1837 removed restraints on banking
  + Money supply unstable during this era
    - No standard currency, only various private banknotes
    - “hard currency” (gold/silver) much preferred
    - No coordinated payments system
  + All banks became state-chartered and unregulated
* National Banking Era (1863-1914)
  + National Banking Acts of the mid-1860s
    - Purpose was to strengthen the banking system, to try and make all banks federally chartered, and move toward a more uniform currency
    - State chartered banks had to pay 10% annual tax on their banknotes, but began to focus on checking accounts
    - Federally chartered “National Banks” could issue banknotes without being taxed but must be printed by the US Mint to prevent counterfeiting
    - Banknotes had to be backed by US government bonds
    - Banks had to maintain minimum reserve requirements and submit to periodic examinations
* Reserves
  + Refers to the proportion of deposits that has not been used to buy financial claims
* National Bank System Era Problems
  + “run” on a bank: everyone tries to withdraw at once
  + Pyramiding of reserves: a bank was allowed to count as reserves, money that it had deposited at other banks (common for banks to deposit at other banks)
    - Thus, a run on the first bank causes it to withdraw money from the other bank, now second bank has a problem
    - In this way, a run on one bank can result in a run on others
  + Call loans: typical of loans during this era, were due when “called in” by bank (usually when they were low on reserves), caused borrowers to draw down their own deposits or default, caused more bank illiquidity and more calls
  + Contagion: people see what’s happening at their neighbor’s bank then worry about their own
  + Bank panics: spread, dragged economy into recession
* Boom/Bank Panic/Recession Cycle
  + Economy improves🡪loan demand increases🡪system builds upon itself🡪eventually banking system makes too many bad loans
  + A few run low on cash🡪since their accounts are not insured, people panic
  + Bank runs🡪people call in loans
  + Disrupts business🡪layoffs🡪banks fail
* Panic of 1907
  + Stock market fell close to 50%
  + Banks in NYC couldn’t make withdrawal requests, caused loss of confidence among depositors
  + Bank runs across country
  + Was no central bank to inject liquidity (emergency loans)
  + Bank failures
  + People began to learn from the boom/panic/recession cycles, this panic was the last straw
  + Commission to investigate the issue, they proposed the solution that led to the creation of the Federal Reserve
* Bank Insolvency
  + When a bank’s liabilities exceed its assets
  + Whether bank gets shut down by regulators is a judgment call
  + Depends on whether the situation is temporary or hopeless
  + So a bank may fail for either reasons of illiquidity or insolvency
* Federal Reserve Act of 1913
  + Passed in December but when into effect in 1914, designed to:
    - Create central banking system designed to assure that no region or group had an unfair say
    - To provide for an “elastic” standardized currency in the form of Federal Reserve Notes that could be adjusted in amount to meet the needs of a changing economy
    - To serve as a lender of last resort to keep banks liquid
    - Improve payments system (check clearing)
    - Provide more rigorous supervision of banks
* Today’s Federal Reserve System
  + 12 district federal reserve banks
  + 3,000 member commercial banks
  + 7-member Board of Governors
  + 12-member Federal Open Market Committee (FOMC)
  + All kinds of advisory committees
* 7-member Board of Governors
  + Appointed by POTUS, approved by Senate
    - Everyone must be from a different district
    - 14-year terms, nonrenewable
  + Chairman determined by POTUS
    - 4-year term and may be reappointed
    - Current: Janet Yellen
    - When new chairman appointed, old one leaves regardless of how much time is left in term
    - Before Yellen was Alan Greenspan and Ben Bernanke
* About the 3,000 member commercial banks
  + All nationally-chartered banks are members of the Fed and 17% of state-chartered banks also belong (for about 76% of all banking assets)
  + Dependent upon assets, all member banks must own stock in the Federal Reserve bank of its district (get a 6% dividend)
  + After dividends, rest of the profits are distributed to the Federal Government
  + Each district bank has a 9-member board:
    - 6 elected by member banks in district, 3 appointed by the Board of Governors
    - Must have 3 from the banking industry, 3 from business sector, and 3 must represent the public
* 12 member FOMC
  + 8 permanent, 4 rotating
    - The 7 governors are permanent members
  + President of NY FRB has a permanent seat (because the NY bank carries out FOMC’s open market directives)
    - 8 permanent = 7 BOG + P of NY
  + Presidents of 4 other FRBs rotate through 1-year terms
  + Chairman of BOG is Chair of FOMC (Janet Yellen)
  + Meets 8 times a year
* FOMC
  + Decides when and how much to expand or contract money supply
  + Instructs FRB of NY to conduct open market operations, which involve the buying and selling of US gov/agency securities
  + Buying securities increases the money supply, selling securities decreases the money supply
  + Works mostly with primary approved dealers (23)
    - Giant commercial banks, domestic and international
* Money on reserve at the Fed
  + All banks that are members of the Fed must have accounts at the Fed
  + Money in these accounts is money on reserve
  + Also known as “depository institution balances” at the Fed
* Primary approved dealers
  + The trading counterparties (23) of the New York Fed in its implementation of monetary policy
  + When Fed buys securities, it credits the dealer’s reserves at the Fed (money in)
  + When Fed sells securities, it debits the dealer’s reserves at the Fed (money out)
    - Ex. Wells Fargo is a dealer so the Fed will buy and sell securities to/from them, can easily just add and subtract money from its bank account
* System of Checks and Balances
* Functions of Fed
  + BOG
    - Set reserve requirements
    - Regulates banks
    - Regulates consumer finance
    - Oversees district FRBs
  + FRBs
    - Propose discount rates
    - Holds reserve balances
    - Lends through discount window
    - Furnishes currency
    - Transfers funds among department institutions
    - Handles US Treasury bank account
  + FOMC
    - Specifies open market operations
    - Set Fed Funds target rate
    - Decides on discount rates
  + Trading desk at FRB of NY
    - Carries out open market operations
* Independence of the Fed
  + Created by congress, not under its control but gets a lot of pressure
  + Governors appointed by, but not answerable to POTUS
  + Government has no “power of the purse” as Fed is very profitable
  + Fed operates this way because monetary policy has historically been a non-partisan issue
  + An independent Fed can take necessary but unpopular steps
  + Government generally content with Fed independence, can always blame fed when economy falters
* Fed Balance Sheet (in millions), December 2006
* Assets explained
  + Loans to depository institutions: emergency loans to banks, 488 is a good number, means that banks are doing well
  + Repurchase agreements: don’t need to know now, just know they exist
  + Securities: debt instruments, Fed never owns stock
  + Agency securities: bonds issued by government-sponsored enterprises
    - Fannie Mae, Freddie Mac
* Liabilities and capital
  + Depository institution balances (reserves): kept at the Fed to meet required reserves (RR). Relationships:
    - RR = k(DEP)
    - TR = balance at Fed + vault cash
    - TR = RR + ER
  + Where TR = total reserves, ER = excess reserves, DEP = institution’s total deposits, and k is a “simplistic” reserve requirement
  + Before the crisis of 2007, balances at the Fed (for meeting RR and clearing checks) earned no interest, but now they earn 0.25%
  + Simplistic example
    - 80,000 DEP
    - 2,500 vault cash
    - 3,000 “on reserve at the Fed”
    - assume k = 9%
    - RR = 0.09(80000) = 7200
    - TR = 2500 + 3000 = 5500 (should be equal to 7200)
    - ER = -1700
* “15.5/115.1” Reserve Requirements
  + Today’s current reserve requirement schedule (usually changes a little each year):
  + Example: suppose a bank has $400m in transaction deposits
    - (3%)(115.1-15.5) = 2.988 m
    - (10%)(400-115.1) = 28.490 m

$31.478 m

* Borrowing at the “Discount Window”
  + Means borrowing from the FRB’s lending facility, which is done at your district FRB, increases the money supply
  + Part of Fed’s “lender of last resort” function
  + Done for short term (usually overnight), normally only done occasionally
  + Historically has carried stigma of bank failure. Banks are wary of “discount window scrutiny”
  + All borrowings must be fully collateralized with high-quality securities (usually Treasury and agency securities)
  + Fed extends 3 types of credit
    - Primary: primary rate is also known as the discount rate, for the first batch of money borrowed. Currently 1%
    - Secondary: if you need more money after borrowing, usually 0.5-1% higher (currently 1.5%)
    - Seasonal: for vacation and agricultural areas, currently 0.55%
    - \* there is a stigma for primary and secondary, not seasonal because they could have a good excuse
* Liabilities and Capital on the Fed Balance Sheet explained
  + Reverse repurchase agreements
  + Deposits
    - All banks have accounts at the Fed
    - Depository institutional balances is all of the accounts added up
    - Also called “on reserve at the Fed”
  + Capital: stockholders equity portion of the balance sheet
    - Paid in capital
    - Retained earnings
  + \*\*\*if you borrow at the discount window: reflected as an asset, in “loans to depository institutions”
* Examples regarding the Federal Balance Sheet