Course

FINA 4000
Financial Institutions and Markets

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Purpose

To understand
- an economy's financial system
- how it finances the economy
- how it oversees the economy's money supply

A financial system provides for the efficient flow of funds from savings to investment by bringing savers and borrowers together via financial markets and financial institutions.

- much about the financial issues we read about in the paper every day

Two Parts

1. Financial institutions
2. Financial markets

Then there is Money which spans both parts

1. Financial Institutions

commercial banks, mortgage lenders, mutual fund companies, insurance companies, government sponsored enterprises, a nation's central bank, …

Other than for central bank, goal is to bring money in at a low rate and deploy it at a higher rate.

Cover costs and make profits for the owners of the institutions mostly by means of the <u>interest rate spread</u>.

2. Financial Markets

New York Stock Exchange, bond market, US Treasuries market, money market, commercial paper market, Fed Funds market, credit default swaps market, primary market, secondary market,…

Venues where people buy and sell financial claims (financial instruments or securities).

Cover costs and make profits for owners of the markets mostly by means of the commissions and fees.

Cannot have an advanced economy as in the US, Japan, Germany, Canada… without an efficient financial system.

Money Markets vs. Capital Markets

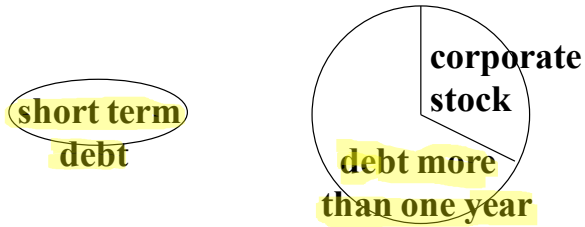
Money Markets < 1 year	Capital Markets ≥ 1 year
	corporate stock
short-term debt	debt more than one year

yellow is this course

Money Markets vs. Capital Markets (US)

Money Markets $6 trillion*

Capital Markets $60 trillion*



*roughly

Financial Claims

- With financial claims, there is an issuer and a holder.
- A financial claim is a claim on the issuer's income or assets.
- While issuer remains the same, the holder may change many times.
- In our society, legislation and regulation give financial claims strength – that is, renders them legally enforceable.

Best Known Financial Instruments

A <u>bond</u> is a loan that you can buy. It is a long-term (one or more years) debt instrument that obligates the issuer to make specific payments at specific times to the holder.

A <u>stock</u> is a claim on the income and assets of a corporation.

While stocks are the most widely followed, world of debt instruments is much larger. Course is mostly about debt instruments.

How Big is $1 billion?

Annual revenue of UGA is roughly $2 billion.

Annual Revenue / Marketcap

Citigroup	62 / 187B
Costco	119 / 69B
Apple	216 / 826B
Bank of America	93 / 245B
Boeing	94 / 141B
General Electric	124 / 221B

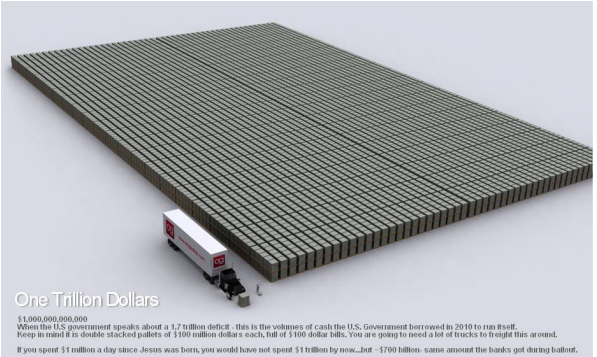
Millions, billions, trillions

$1 million

$100 million

$1 billion

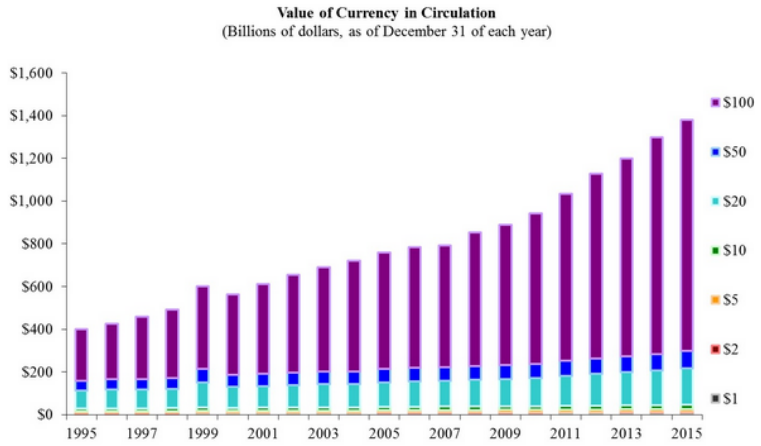
$1 trillion



Some Comments about Money

- Although amount of cash (bills and coin) outstanding is growing, usage of cash is in decline.
- Cash in domestic use down to ≈2% of GDP (which is $19 trillion).
- A bill lasts ≈5 years, costs ≈12 cents to make.
- While US Mint not producing as many 1's, 5's and 10's, demand for 100's has exploded.
- Total US currency (cash) outstanding $1.5 trillion.
- 80% in form of 100's, most held by foreigners.
- "legal tender" - something when offered in payment extinguished the debt.

Over $1 trillion in $100 bills



Economic Units

Economic units (i.e., units that have a budget) fall into three categories

- Households
- Business firms
- Governments

For any period, an given economic unit's budget will be in a

- Surplus position (income > spending)
- Deficit position (income < spending)
- Balanced position

SSUs and DSUs

Surplus spending units (SSUs) have income for the period that exceeds spending, results in savings. Other words for SSU are *saver, lender, investor*.

Deficit spending units (DSUs) have spending for the period that exceeds income, results in borrowing.

DSUs issue financial claims to obtain the funds they need.

SSUs only part with their money if the characteristics of the financial claims they receive are to their satisfaction.

Challenge of Financial System

Task of matching up SSUs with DSUs.

1. Direct financing -- one end of financing continuum. No middleman. Ideally, one's first choice. Often better this way if possible.

2. Indirect financing – other end of continuum. Involves use of an intermediary. Most financing is done in this way because direct financing often not practical.

Direct Financing

SSU		DSU
Households	→	Households
Business firms		Business firms
Governments		Governments

- DSU and SSU find each other and bargain
- SSU transfers funds directly to DSU
- DSU issues financial claim directly to SSU
- However, preferences (characteristics) must match

Example: Borrowing money from a family member to start a business.

Difficulties of Direct Financing

SSU		DSU
Households	→	Households
Business firms		Business firms
Governments		Governments

- SSU and DSU must be able to find each other
- To work, characteristics of financial claim must be agreeable to both parties
  - denomination (amount)
  - maturity
  - risk
  - liquidity of financial claim (i.e., marketability)
  - any other important characteristics
- Any problem here is a deal breaker.

Direct Financing Balance Sheets

SSU	
Assets	Liabilities

DSU	
Assets	Liabilities

A financial claim is an <u>asset</u> to its holder, and a <u>liability</u> to its issuer.

Liquidity and Marketability

One has liquidity if can be quickly converted to cash without having to sacrifice value.

- Liquid investments
- Illiquid investments

Marketability: Ease with which a financial asset may be sold to another SSU.

- Can buy claim with a longer maturity, but sell at end of period
- Can buy with a shorter maturity, then reinvest in something else

Importance of Liquidity (Marketability)

Importance of being able to resell financial claim. Suppose:

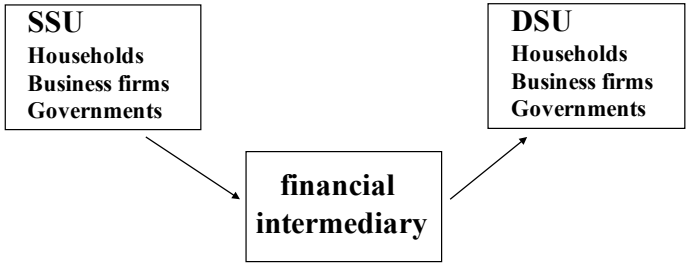
SSU has $2 million to lend for 3 yrs.	a DSU needs $2 million for 20 yrs.

denomination, okay
risk, okay
maturity, not okay.

Problem solved if there is marketability.

Being able to achieve liquidityby marketability always helps a lot. Good to have well functioning markets.

Indirect Financing



Indirect financing is when money flows from an SSU through an <u>intermediary</u> to a DSU. DSU and SSU probably never know each other.

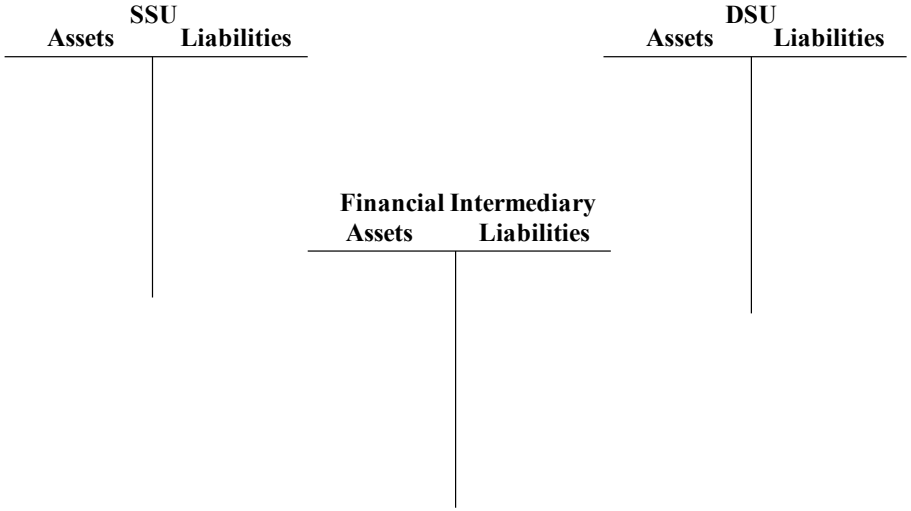
An intermediary transforms the characteristics of financial claims.

Transformation of Claims

<u>Financial intermediation</u> means selling financial claims to SSUs with one set of characteristics, and buying financial claims from DSUs with another set of characteristics.

Financial intermediaries specialize in this for SSUs and DSUs to get money moved.

Indirect Financing Balance Sheets



Indirect Financing

Because an SSU's claim is against the financial intermediary rather than the DSU, the financing from DSU to SSU is indirect.

Consider a commercial bank. Issues financial claims to SSUs in the form of checking accounts, savings accounts, certificates of deposit,…

Then with the money, buys financial claims from DSUs.

Whereas SSUs can always achieve liquidity with financial claims from an intermediary, financial claims held by a financial intermediary from DSUs are typically not liquid.

11 Types of Financial Intermediaries

		March-15	
		Total Assets	% of
Intermediary	Rank	($ Billions)	Total
Commercial banks	1	14,737.0	22.3
Mutual funds	2	12,903.8	19.5
Government pension funds	3	9,226.0	14.0
Private pension funds	4	8,629.5	13.1
Government-sponsored enterprises	5	6,353.5	9.6
Life insurance companies	6	6,316.8	9.6
Money market funds	7	2,609.9	4.0
Casuality insurance companies	8	1,586.3	2.4
Finance companies	9	1,502.1	2.3
Credit unions	10	1,102.9	1.7
Savings institutions	11	1,041.0	1.6
Total		66,008.8	

Total assets of financial intermediaries ≈ 3.5 × GDP

4 Categories of Financial Intermediaries

	Assets	Liabilities
Deposit-type institutions		
Commercial banks	Business loans	Checkable deposits
	Consumer loans	Time and savings deposits
	Mortgages	Borrowed funds
Thrift institutions	Mortgages	Now accounts and savings deposits
Credit unions	Consumer loans	Share accounts
		Time and savings deposits
Contractual savings institutions		
Life insurance companies	Corporate bonds	Life insurance policies
	Corporate stock	
Casualty insurance companies	Municipal bonds	Casualty insurance policies
	Corporate bonds	
	Corporate stock	
Private pension funds	Corporate stock	Pension fund reserves
	Government securities	
	Corporate bonds	
State and local government pension funds	Corporate stock	Pension fund reserves
	Government securities	
	Corporate bonds	
Investment funds		
Mutual funds	Corporate stock	Shares in fund
	Government securities	
	Corporate bonds	
Money market funds	Money market securities	Shares in fund
Other financial institutions		
Finance companies	Consumer loans	Commercial paper
	Business loans	Bonds
Federal agencies	Government loans	Agency securities

Intermediation Services

1. **<u>Denomination Divisibility</u>. Pool the savings of many small SSUs into large investments.**
2. **<u>Currency Conversion</u>. Buy and sell financial claims denominated in various currencies.**
3. **<u>Maturity Flexibility</u>. Maturities, from 1 day to 30 years, to both DSUs and SSUs.**
4. **<u>Credit Risk</u> (probability money not paid back as promised) <u>Diversification</u>. Enables SSUs to not put all of one's eggs in one basket.**
5. **<u>Liquidity</u>. SSU savings at an intermediary are usually immediately or quickly convertible into cash – generally accept low rates for the privilege.**

Risks Faced by Financial Institutions

1. Credit risk
2. Interest rate risk – security price fluctuations as a result of changes in interest rates
3. Liquidity risk – risk that a financial institution may be unable to disburse required cash outflows
4. Foreign exchange risk – if deal in foreign currencies or have investments abroad
5. 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 (this helps banks make sounder loans)

Brokers vs. Dealers

Brokers do not take a position. Simply specialize in matching buyers with sellers. 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. Make money by buying low and selling high.

- One buys at "bid price" and sells at "ask price"

OTC

When people say over-the-counter (OTC), mean going through a dealer.

OTC markets generally have no central location like organized exchanges.

Vast majority of debt instrument markets are OTC.

Primary Market vs. Secondary Market

Primary market is a financial market where new issues are sold to initial buyers.

Secondary market is where people can buy and sell already existing financial claims.

- People are more likely to buy a financial claim in the primary market if there is a secondary market.
- Provides liquidity (ability to convert to cash) for the financial claim.

2016 GDP (Nominal), and Populations

	country	trillions	millions	rank
1.	United States	18.6	325	(3)
2.	China	11.4	1,373	(1)
3.	Japan	4.9	127	(11)
4.	Germany	3.5	81	(18)
5.	UK	2.6	64	(21)
6.	France	2.5	67	(22)
7.	India	2.3	1,266	(2)
8.	Italy	1.9	62	(23)
9.	Brazil	1.8	206	(5)
10.	Canada	1.5	35	(38)

Source: World Bank & CIA World Factbook
Nominal determined by currency exchange rates which can change year to year.

2016 GDP (PPP)

	country	trillions	millions	rank
1.	China	21.4		
2.	United States	18.6		
3.	India	8.7		
4.	Japan	5.3		
5.	Germany	4.0		
6.	Russia	3.4	142	(9)
7.	Brazil	3.1		
8.	Indonesia	3.0	258	(4)
9.	UK	2.8		
10.	France	2.8		

Source: World Bank
PPP is Purchasing Power Parity (takes into account what you can buy)

Working Numbers & Ratios

US pop	325 million
UGA revenues	2 billion
China pop	1.4 billion
US student loan debt	1.4 trillion
US currency outstanding	1.5 trillion
Money Market	6 trillion
Capital markets	60 trillion
US GDP	19 trillion
Total US national debt	19 trillion

- Equity portion of capital market 1/3
- Assets held in fin intermediaries 3.5*GDP

GDP (PPP) per Capita (Source: CIA)

1	LIECHTENSTEIN	$139,100	2009 EST.
2	QATAR	$129,700	2016 EST.
3	MONACO	$115,700	2015 EST.
4	LUXEMBOURG	$102,000	2016 EST.
5	FALKLAND ISLANDS (ISLAS MALVINAS)	$96,200	2012 EST.
6	MACAU	$96,100	2016 EST.
7	SINGAPORE	$87,100	2016 EST.
8	BERMUDA	$85,700	2013 EST.
9	ISLE OF MAN	$84,600	2014 EST.
10	BRUNEI	$79,700	2016 EST.
11	KUWAIT	$71,300	2016 EST.
12	IRELAND	$69,400	2016 EST.
13	NORWAY	$69,300	2016 EST.
14	UNITED ARAB EMIRATES	$67,700	2016 EST.
15	SINT MAARTEN	$66,800	2014 EST.
16	SAN MARINO	$65,300	2016 EST.
17	GIBRALTAR	$61,700	2014 EST.
18	SWITZERLAND	$59,400	2016 EST.
19	HONG KONG	$58,100	2016 EST.
20	UNITED STATES	$57,300	2016 EST.

Deposits at FDIC-insured Institutions

Standard insurance amount is $250,000 per depositor/per institution is as follows:

Single Accounts (owned by one person)	$250,000 per owner
Joint Accounts (two or more persons)	$250,000 per co-owner
Revocable Trust Accounts	$250,000 per owner per beneficiary up to 5*

What happens if a married couple has $1 million to deposit? Can do at one bank, but must open 3 accounts.

Can go over $1 million, but that involves accounts with non-spousal beneficiaries. Probably best to open additional accounts at additional institutions.

*can do more than 5 but rules get more strict.

Credit Unions

- **Credit unions are 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 members.**

Comments

1. **Casualty vs. life insurance companies: Since casualty claims less predictable, a greater proportion of a casualty insurance company's investments must be in highly marketable securities.**
2. **Thrift institutions also known as "Savings and Loans." Like a bank, but chartered under different set of rules. Still some around, but not as many since the S&L crisis 1986-1995. Mopping up S&L crisis cost Government $150 billion.**

Comments (con't)

3. Since inflow and outflows of pension funds can be predicted with a considerable accuracy, can invest (like life insurance companies) in long-term projects like private equity, hedge funds, venture capital, and timber.

   Private equity: idea is to buy up a company, improve company, and sell years later at a higher price

4. University endowments are also big investors in such long term projects.

5. Money Market Mutual Funds: Uninsured substitutes for deposit accounts. They usually buy money market instruments. Historically, have paid slightly higher rates of interest, but about same at the moment.

Disintermediation

When SSUs take money out of financial intermediaries to invest in financial claims via direct financing.