Lecture 1
Introduction

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FN 312 – INVESTMENTS

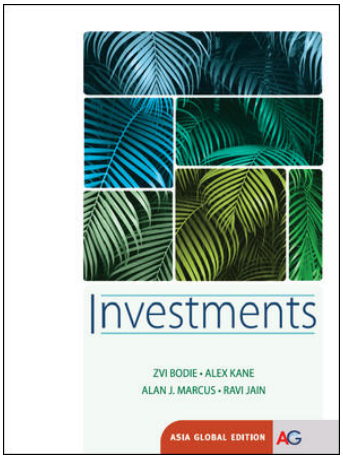
What is an "*investment*"?

- Wikipedia: In economics, investment is related to saving and deferring consumption. In finance, investment is putting money into an asset with the expectation of capital appreciation
- Investopedia: An asset or item that is purchased with the hope that it will generate income or appreciate *in the future*
- Google: 1. The action or process of investing money for profit or material result 2. A thing that is worth buying because it may be profitable or useful *in the future*
- Bodie et al. (2013): An investment is the current commitment of money or other resources in the expectation of reaping future benefits

Everyone invests – even without knowing it

About this course

- See course syllabus



Why is this class useful?

- Satisfy degree requirement
- This class prepares you for a career in finance as a money manager, financial analyst, investment professionals, CFO, etc.
- Perhaps more importantly, this class prepares you for becoming a successful lifelong investor

Assets: real versus financial

- Asset
  - Real (physical) assets
  - Financial assets:

The link between real and financial assets

- Real assets generate net income to the economy but financial assets simply define the allocation of income or wealth among investors
- Return on securities come from the income produced by the real assets that were financed by the issuance of those securities

Liability

Does national wealth consist of financial securities?

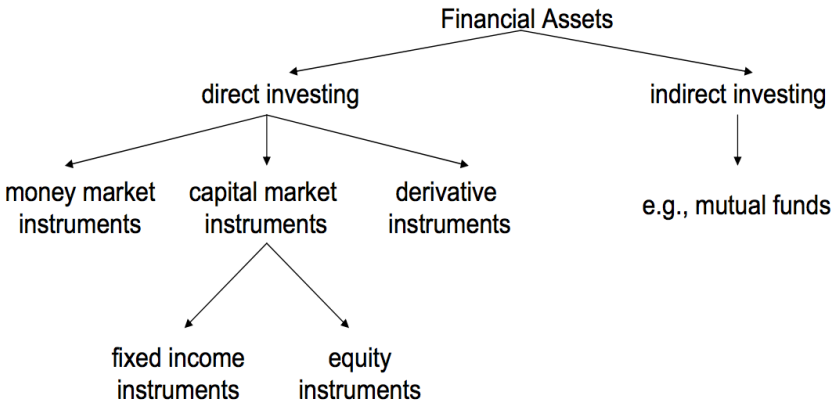
Assets	$ Billion	% Total	Liabilities and Net Worth	$ Billion	% Total
Real assets			**Liabilities**		
Equipment and premises	$ 100.7	1.0%	Deposits	$ 6,865.3	65.9%
Other real estate	6.8	0.1	Borrowed funds	1,242.5	11.9
Total real assets	$ 107.5	1.0%	Subordinated debt	161.3	1.5
			Federal funds and repurchase agreements	771.4	7.4
			Other	320.8	3.1
			Total liabilities	$ 9,361.3	89.9%
Financial assets					
Cash	$ 457.5	4.4%			
Investment securities	2,180.0	20.9			
Loans and leases	6,089.3	58.5			
Other financial assets	822.3	7.9			
Total financial assets	$ 9,549.1	91.7%			
Other assets					
Intangible assets	$ 379.2	3.6%			
Other	375.1	3.6			
Total other assets	$ 754.3	7.2%	*Net worth*	$ 1,049.6	10.1%
Total	$ 10,410.9	100.0%		$10,410.9	100.0%

TABLE 1.3

Balance sheet of commercial banks, 2007

Note: Column sums may differ from total because of rounding error.
Source: Federal Deposit Insurance Corporation, **www.fdic.gov,** September 2007.

Types of financial assets



The Investment Process

- Portfolio = collection of investment assets
- Portfolio construction:

Top down or bottom up approach?

- Asset allocation
- Security selection

When investing, keep in mind:

- The risk-return tradeoff
  - Benefits of diversification
- Markets are efficient (?)
  - Active versus passive management

Why create and trade financial assets?

- Liquidity motivated trading
  - Consumption timing
  - Allocation of risk
- Information motivated trading
  - People have different access to and capacities of processing information and hold different views on future outlooks

How are securities traded?

A securities market is a place where you buy or sell financial assets such as bonds, stocks, options or futures

Exchange vs. OTC

- Securities can be traded in a formal organized exchange such as the SET with a specific list of securities deemed eligible for trading and membership requirement for members
- In the over-the-counter market generally there is no formal rules or regulations regarding the quality of products as well as traders

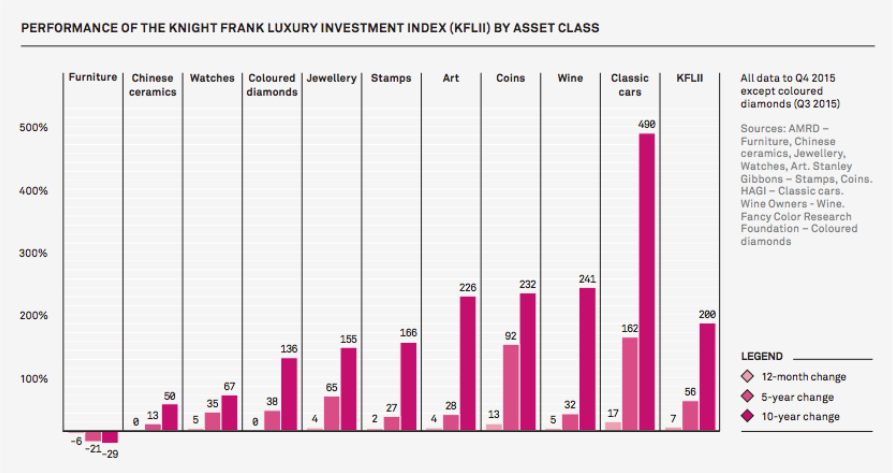
Primary and Secondary Markets

- The primary market for securities refers to the initial sale of securities to the public by a firm
  - new issues of the securities are sold
  - issuers receives the proceeds from sale
- The secondary market is where previously issued securities are then traded among individuals and institutions
  - Issued securities are traded via organized exchanges, OTC, electronic trading, dealers, brokers
  - Issuing firm does not receive proceeds and are not directly involved

Taxonomy of Markets

- Money markets or “cash”
- Capital markets
  - Fixed income capital markets (Bond Markets)
  - Equity Capital Markets (Stock Markets)
- Derivative Securities Markets (Options and Futures)
- Alternative Investments

Alternative Investment: Luxury Goods



Alternative Investment: Bitcoins

Money Market Instruments

- Short, marketable, liquid, low-risk debt securities, sometimes called “cash equivalents”
- Transaction size is typically large (>$100,000)
- Can be sold by governments, financial institutions, and corporations
- The return or profit from investing is lower than a riskier asset

Money Market Instruments

1) Treasury bills
   - Issued by the US government at frequent intervals
   - Sold in minimum denominations of $100
   - Less than one year maturity
   - Income earned on T-bills are except from all state and local taxes
   - Least risky, most marketable and liquid of all money market instruments, but low return

Eg. US Treasury maturing in 6 months has a face value of $10,000. It is being sold at 9877.25. What is the investor's return?

What moves T-bill rates up and down?

Treasury Bills

MATURITY	DAYS TO MAT	BID	ASKED	CHG	ASK YLD
Sep 01 11	56	0.045	0.015	0.030	0.005
Oct 06 11	91	0.025	0.015	0.005	0.015
Nov 03 11	119	0.040	0.020	0.015	0.020
Jan 05 12	182	0.070	0.060	0.070	0.061
Mar 08 12	245	0.085	0.070	0.005	0.071
Jun 28 12	357	0.185	0.180	0.015	0.183

- Bank Discount Yield

$$r_{BDY} = \frac{10{,}000 - P}{10{,}000} \times \frac{360}{n}$$

- Bond Equivalent Yield

$$r_{BEY} = \frac{10{,}000 - P}{P} \times \frac{365}{n}$$

Money Market Instruments (cont.)

2) Certificate of deposits or CDs
   - Time deposit with a bank
   - Cannot be withdrawn before maturity without penalty
   - Safe investment because it is FDIC insured
   - The interest rates are higher than a current account deposit

3) Commercial paper
   - Short term borrowing notes issued by large corporations
   - In the US they have a maturity less than 270 days

Money Market Instruments (cont.)

4) Banker's Acceptance
   - Contracts by a bank to pay a specific sum of money on a particular date

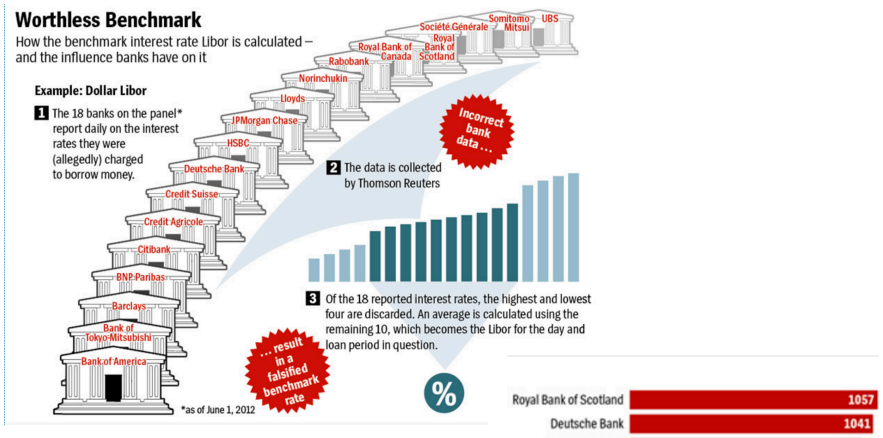
5) Eurodollars
   - Dollar-denominated deposits at foreign banks/branches of American banks

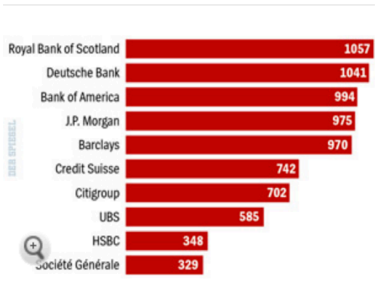
6) Repos and reserves
   - A short-term agreement between a borrower and lender to sell and repurchase a US government security

7) Federal funds
   - Funds in the bank's reserve account
   - Sometime used as short-term funding among financial institutions

The LIBOR Market

- The London Interbank Offered Rate is the rate at which large banks in London lend money among themselves
- Premier short term interest rate in the European money market and a key reference rate
- Based on a survey of "estimated borrowing rates"

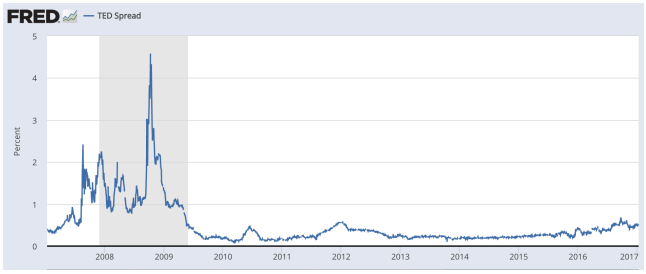




DER SPIEGEL

Graphic: Potential civil suit penalties resulting from Libor.

TED spread



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Fixed-Income Securities (cont.)

1) Treasury notes and bonds
   - Government issued debt
   - Treasury notes have maturity between
   - Treasury bonds have maturity between
   - Par value commonly $1000, coupon paid semiannually
   - Some bonds are callable, while notes are not

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Fixed-Income Securities (cont.)

2) Treasury Inflation Protected Treasury Bonds (TIPS)

- Government issued bonds whose face value depends on the CPI
- The interest from these bonds also depend on the CPI
- If inflation goes up, investors get paid more
- Yields on TIPS are often considered as a real (inflation-adjusted) rate

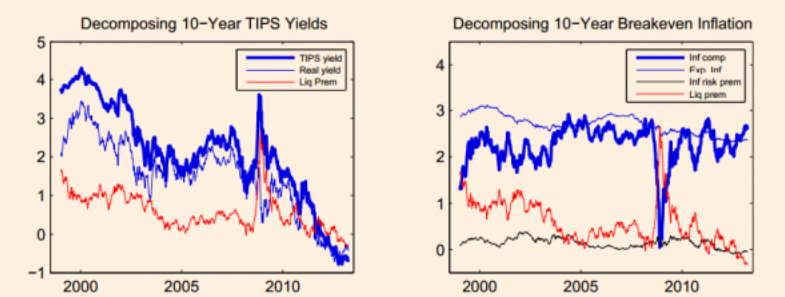


Figure 8: Decomposing TIPS Yields and TIPS Breakeven Inflation

Fixed-Income Securities (cont.)

3) Federal Agency Debt
- Securities issued by various federal agencies that have been granted the power to issue debt to help certain sectors of the economy that Congress believes might not have received adequate credit through private sources
- Eg. Federal National Mortgage Association (Fannie Mae), Federal Home Loan Mortgage Corporation (Freddie Mac)

4) Municipal bonds
- Issued by state or municipalities
- Differs from corporate bonds due to tax treatment
- Interest income is tax-exempt at the federal, state and local level

Fixed-Income Securities (cont.)

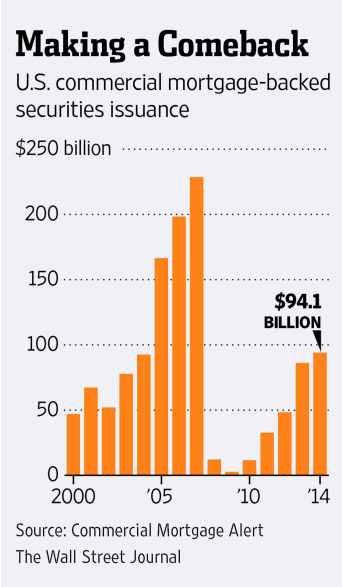
5) Corporate bonds
- Debt issued by corporations to raise money
- It pays investors back the face value and interest semi-annually (annual payments in some countries)
- The riskiness of corporate bonds depends on each corporation's financial situation. The default risk is larger than government securities
- The interest on these bonds will vary depending on risk
- Some corporate bonds are callable

6) International bonds
- Corporations can issue bonds in other countries to borrow money
- Yankee bonds refers to bonds issued by foreign companies in US dollars
- Samurai bonds refer to bonds issued by foreign companies in Yen
- Eurobond is a bond denominated in a currency other than that of the country in which it is issued

Mortgage-backed Securities

- An ownership claim in a pool of mortgages
- Pass-through securities

- Subprime mortgages



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Equity Securities

- Common stocks
  - Ownership shares in a corporation
  - Voting rights
  - Residual claim on the earnings
  - Limited liability
  - Low dividend stocks tends to offer higher capital gains

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Equity Securities (cont.)

- Preferred stocks (perpetuity)
  - Has some characteristics of common stock and debt
  - Pays periodic payments like coupons but are called dividends, and there is no return of principal since its lifetime is infinite
  - No voting rights
  - Unpaid dividends can be paid later, and cumulated payment has priority over common stocks
  - Callable (redeemable) and can be converted to common stocks
  - Some corporations can get tax exclusion for 70% of dividends

Factors that affect stock prices

- Market wide level

Factors that affect stock prices (cont.)

- Individual level

Stock Market Indexes

- Indexes are used to identify the performance of a group of stocks
- Dow Jones Industrial Average (DJIA)
  - Price-weighted average of 30-blue chip stocks
  - It is often used to gauge the performance of the overall US stock market
  - The popularity of DJIA is partly due to historical significance. It has been used since 1896.

Price-weighted average

- Computed by adding the prices of 30 stocks and dividing by an adjustment factor
- The percentage change in the DJIA measures the return on a portfolio that invests one share in each of the 30 stocks

Versus … Value-weighted Indexes

Company	Shares Outstanding	Price per Share	
		Beginning of Year	End of Year
ABC	200 million	$30	$39
XYZ	50 million	$80	$140

Stock Market Indexes (cont.)

- The Standard & Poor's (S&P 500)
  - Represents a broad-based group of 500 stocks
  - It is a market value-weighted average
- The NASDAQ
  - Represents the performance of the stock listed on the NASDAQ stock exchange
  - The majority of NASDAQ traded stocks are technology stocks
- Wilshire 5000 Index
  - Represents the market value of all actively traded stocks in the US.
  - Contains more than 5,000 stocks
- The NYSE Composite Index
  - Market-value weighted index of all NYSE listed stocks

How to invest in an index:

Foreign Stock Indexes

-Nikkei

-FTSE

-DAX

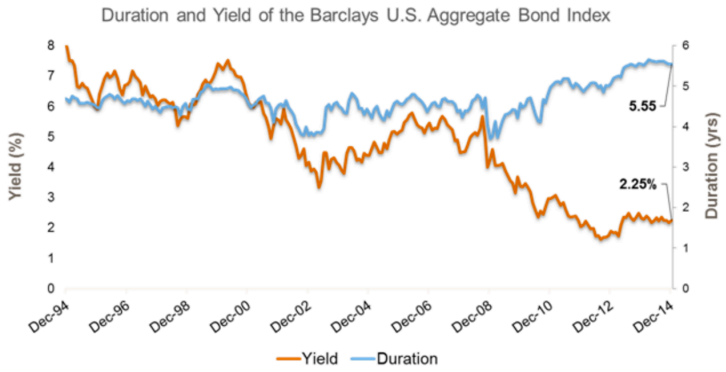
-Hang Seng

-TSX

-SET

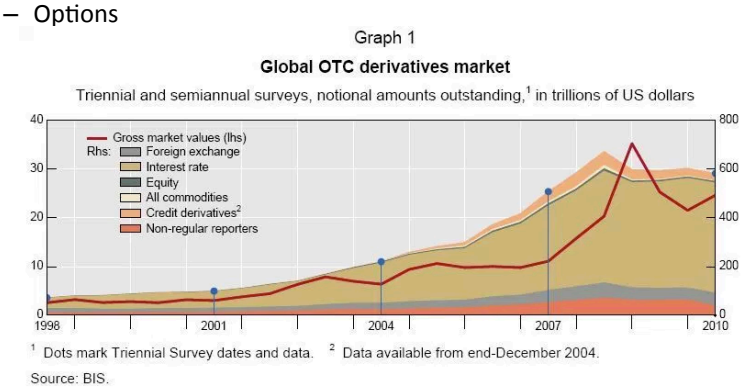
Bond Market Indexes

- Market-weighted total return indexes
- Constructed by Barclays, FTSE, MSCI
- Many bonds are not actively traded which might be a source of inaccuracy



Derivative assets (contingent claims)

- Financial instruments whose payoffs depend on the values of other assets such as indexes, commodity prices, exchange rates
- Two common derivatives
  - Futures
  - Options



Option (or structured warrants)

- A contract that gives the owner the right, *but not the obligation*, to buy or sell an asset or bundle of assets at a certain date or during a particular period of time for a specified price.
- Call option – right to buy underlying asset at the strike or exercise price on or before a specified expiration date
- Put Option - Right to sell underlying asset at the strike or exercise price on or before a specified expiration date

Options example

- A call option to buy GE stocks at a strike price of $35 with a maturity of six months
- If in six months GE stock is trading at $37 dollars, should the long position exercise this option?
- If in six months GE stock is trading at $30 dollars, should the long position exercise this option?

Futures

- An agreement made today to buy or sell an asset at a future time period at a price specified today
- "long" position agrees to buy – benefits from price increase.
- "short" position agrees to sell – benefits from price decrease.
- A future contract calls for the delivery of an underlying asset (or cash) at maturity.

Futures example

- Party A agrees to buy 1000 barrels of jet fuel at $70/barrel in three months
- Party B agrees to sell 1000 barrels of jet fuel at $70/barrel in three months
- In three months oil price increases to $75. Who benefits from the contract?

A Comparison: Options and Futures

- Option
  - Right, but not obligation to buy or sell; option is exercised only when it is profitable
  - Options must be purchased
  - The premium is the price of the option itself
- Futures
  - Obliged to make or take delivery. Long position must buy at the futures price, short position must sell at the futures price
  - Futures contracts are entered into without cost

- Both are side bets on the performance of individual or bundles of securities. There is always a buyer and a seller, and the profit (or loss) to the seller is exactly equal to the loss (or profit) of the buyer)

- The action of the buyer or seller of options or futures does not affect the cash flows to the corporation nor does it result in a change in the number of type of securities the corporation has outstanding

Characteristics of alternative securities

<u>Risk versus Return</u>

- Holding Period Return

- Factors affecting risk
  - Maturity
  - Creditworthiness of issuer
  - Nature and priority of claims the investment has on income and assets
  - Liquidity of the instrument

- Widely accepted measure of risk is the standard deviation