Lecture 2 – Trading Securities

Recap from Last Lecture

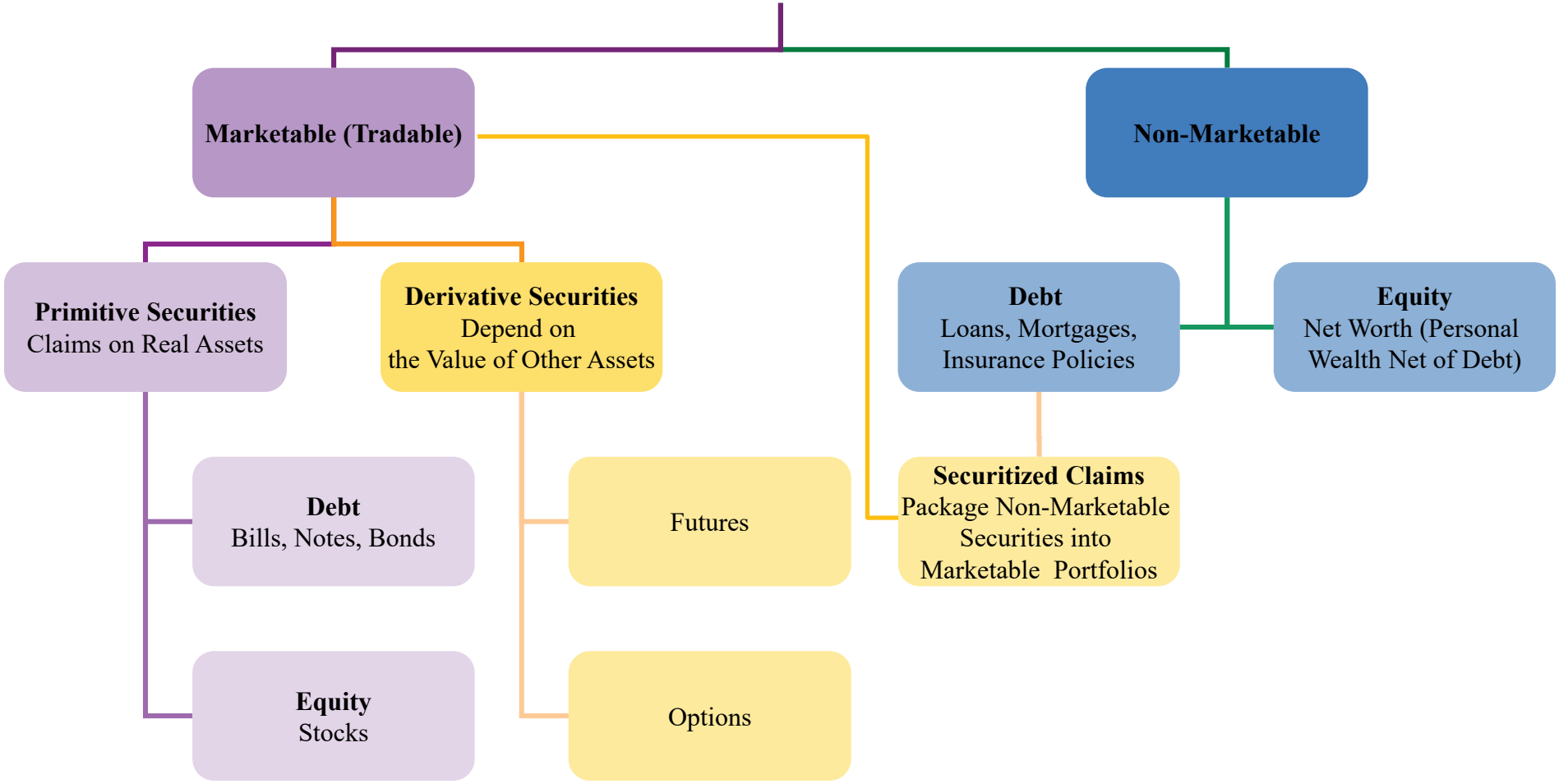
- Review of the Syllabus
- Course Overview
  - Two main components of investments:
    - The current–future tradeoff
    - Uncertain environment
- Real Assets and Financial Assets
- Financial Assets and The Economy

Outline of Today's Lecture

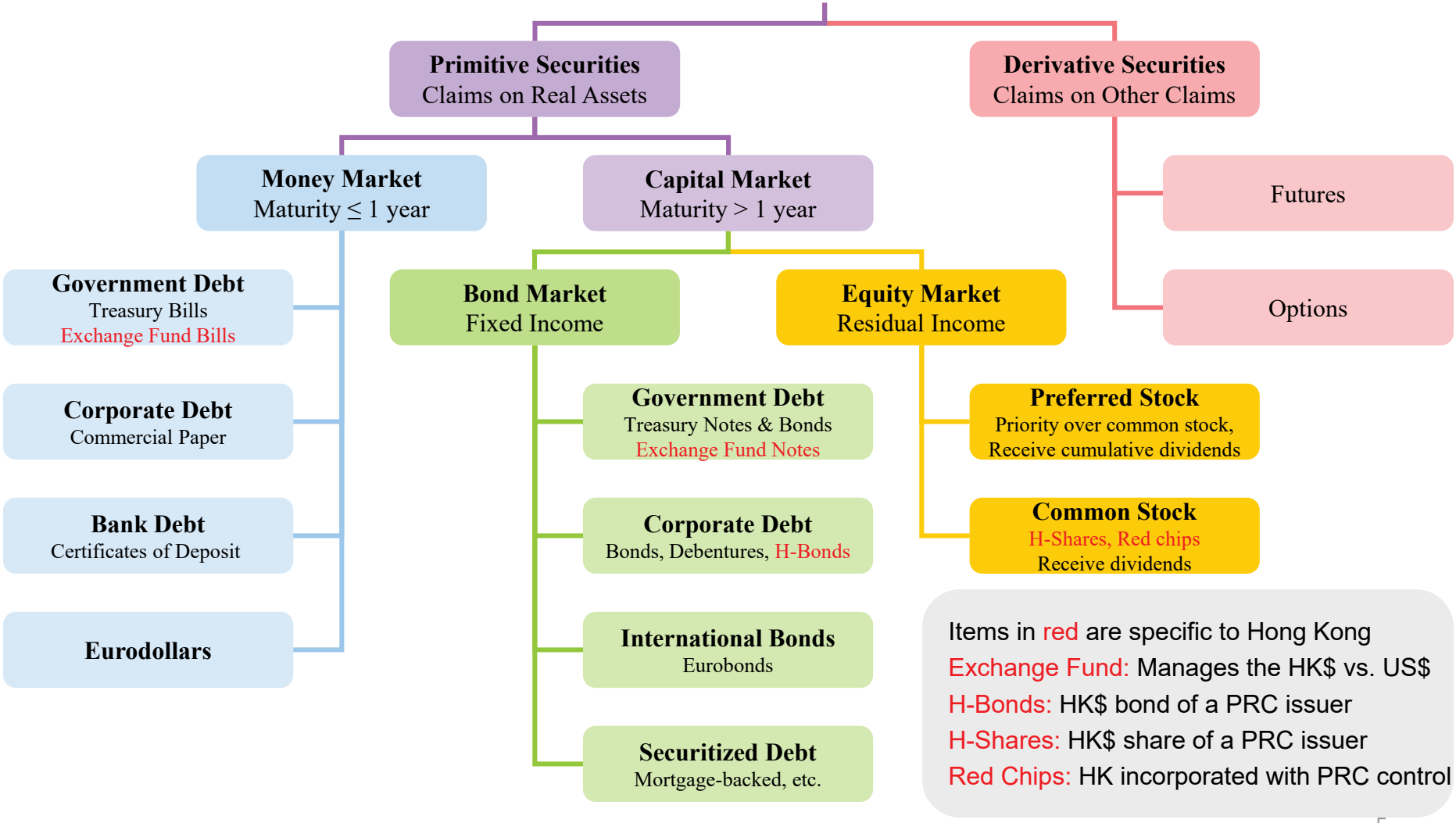
- **Securities**
- Indexes
- How Securities Are Traded
- Buying on Margin
- Short Selling

Classification Tree of Assets

Financial Assets



Classification Tree of Securities



Items in red are specific to Hong Kong
Exchange Fund: Manages the HK$ vs. US$
H-Bonds: HK$ bond of a PRC issuer
H-Shares: HK$ share of a PRC issuer
Red Chips: HK incorporated with PRC control

Securities: Money Market

- Treasury Bills: Short-term debt issued by the US Treasury
- Exchange Fund Bills: Short-term debt issued by the Hong Kong Monetary Authority (HKMA)
- Commercial Paper: Short-term unsecured (i.e., not backed by any collateral) debt issued by large companies
- Certificates of Deposit (CDs): Time deposit with a bank
- Eurodollars: US Dollar deposits at banks outside the US

Securities: Capital Market (Bond)

- Treasury Notes and Bonds: Debt issued by the US Treasury (Notes: <= 10 years, Bonds: 10 – 30 years)
- Exchange Fund Notes: Debt issued by the Hong Kong Monetary Authority (HKMA) (2 – 15 years)
- Corporate Bonds and Debentures: Debt issued by companies (Bonds: Secured, Debentures: Unsecured)
- Eurobonds: Bonds denominated in a currency other than that of the country in which they are issued
- Mortgage-Backed Securitized Debt: Debt secured by a pool of mortgages

Securities: Capital Market (Equity)

- Preferred Stock: Receive cumulative dividends

  (unpaid dividends cumulate and must be paid before common stock holders receive dividends)

- Common Stock: Receive dividends and have capital gains and losses (price increases and decreases)

Securities: Derivative Securities

- Futures: **Obligate** the holder to buy something at a preset price on a certain date

- Options: Give the holder the **right** to buy or sell an asset at a preset price on or before a certain date

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Securities Indexes (or Indices)

- Why? To track how securities are doing on average
  To compare performance of managers
  To use as base of derivatives
- Several kinds:
  - Stocks (DJI, HSI) vs. Bonds (Barclays Capital, Merrill)
  - Narrow (DJI, HSI) vs. Broad (S&P500, HSCI)
  - Large cap (DJI, HSI) vs. Small cap (S&P600)
  - General (DJI, HSI) vs. Sectorial (HSI-Finance)
  - Country (DJI, HSI) vs. Regional (MSCI)
- Weights: Price (DJI), Value (HSI)

Price-Weighted Indexes

- Average price of index stocks, adjusted for splits
- Example: Dow Jones Industrials: 30 “blue chips”

Formula: $$I_t^P = \frac{\sum_{i=1}^{N} P_{it}}{D_t}$$

Where: $\sum$ is the summation operator.
N is the number of stocks in the index.
P_{it} is the price of stock *i* at time *t*.
D_t is the divisor at time *t* (for splits).

- Like buying one share of each stock in the index
- Arbitrary weights, must be adjusted for stock splits

Value-Weighted Indexes

- Average return of index stocks, weighted by value
- Example 1: Hang Seng Index: 50 Large HK stocks
- Example 2: Standard & Poor's S&P 500

☞ Compares today's market cap to the initial level

Formula: $I_t^V = \frac{\sum_{i=1}^{N} (Q_{it} \times P_{it})}{\sum_{i=1}^{N} (Q_{i0} \times P_{i0})} \text{x}100$

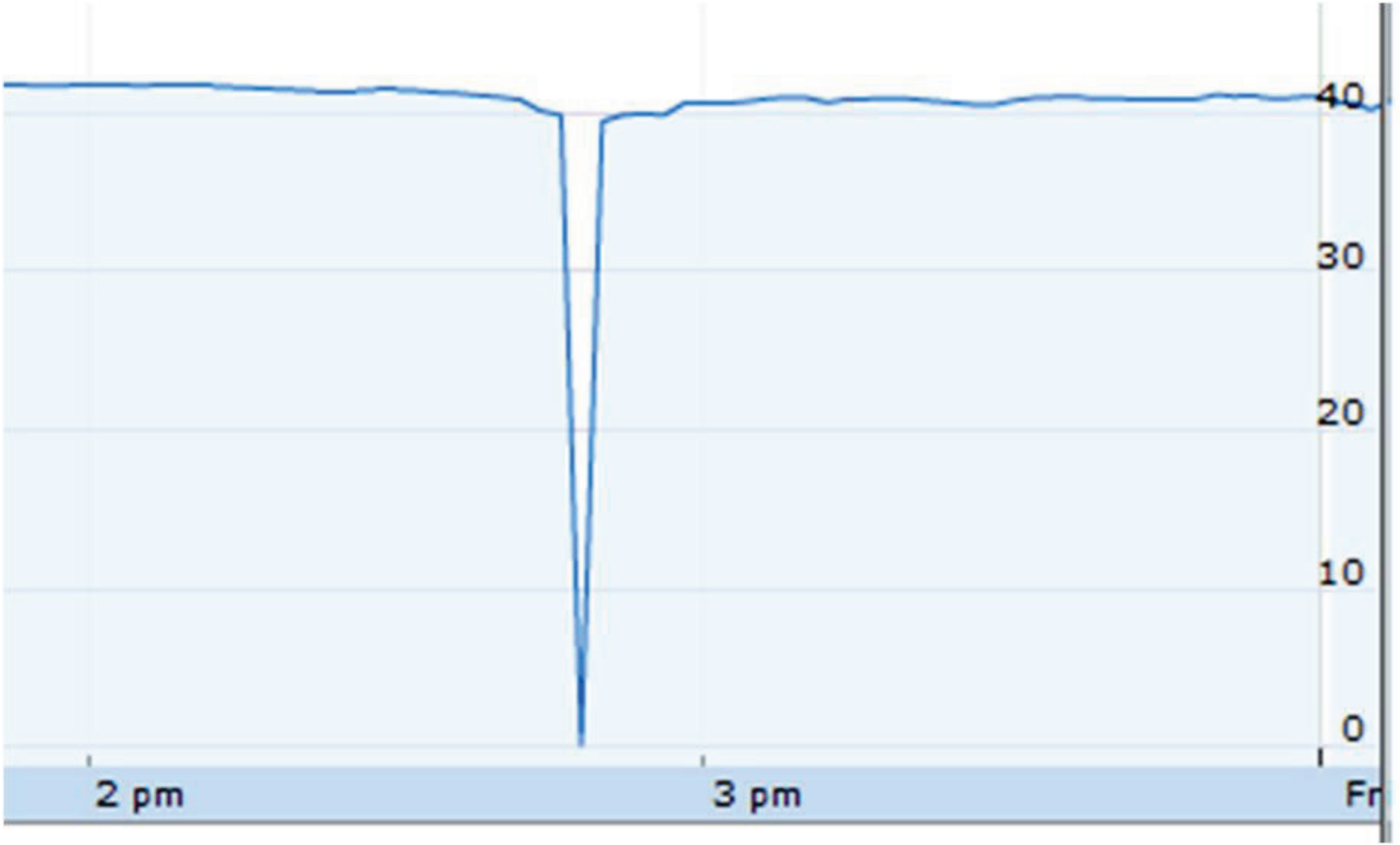
Where: $\sum$ is the summation operator.
Q_{it} is the # of stock *i* outstanding at time *t*.
P_{it} is the price of stock *i* at time *t*.

- Like buying shares in relation to their market capitalization
- Reflects a buy & hold strategy, unaffected by stock splits

Weighted by market cap

DJI on May 6, 2010

Accenture (ACN) on May 6, 2010



DJI vs. S&P 500

- DJI – Include Apple or Not?
- June 2014 7-for-1 stock split: Apple stock price went from $700 to $100
- Included in DJI in March 2015
- S&P 500: (about) 500 large cap

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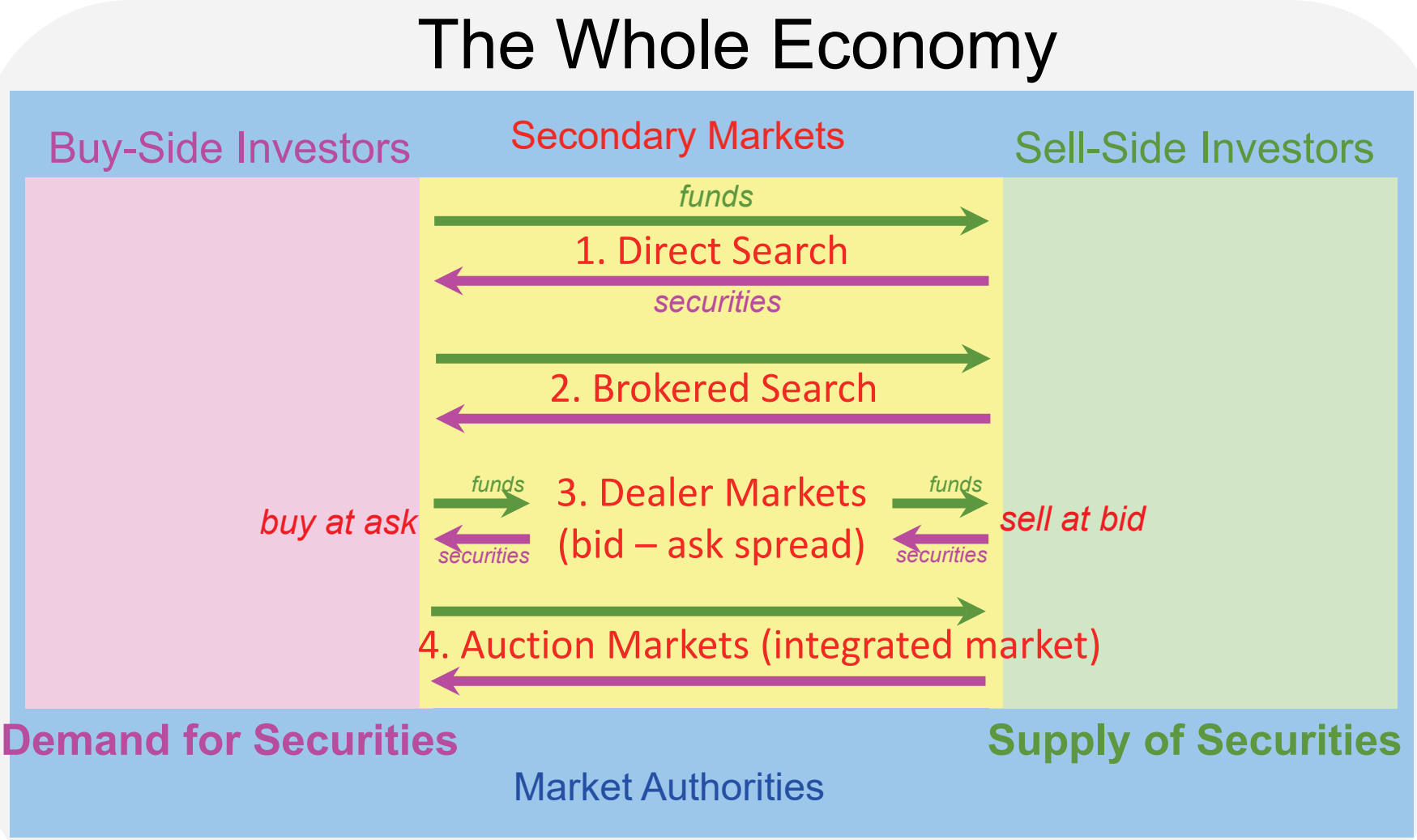
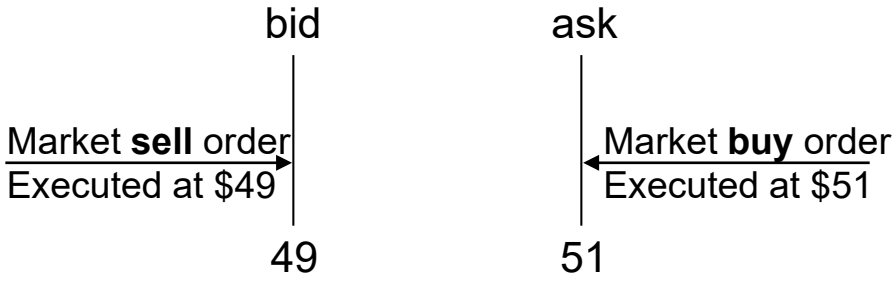
Secondary Markets



Stock Order Types

1. Market Orders: Buy or Sell at prevailing prices immediately



2. Price-contingent Orders: Buy or Sell only if conditions are met

Not executed

Executed

An Interesting Case

- Sun Hung Kai Financial (a large financial institution in Hong Kong, under Sun Hung Kai & Co. Ltd)
  - “Experienced an isolated system glitch” on Sept 8, 2011
  - Placed a buy limit order of 2.3 Billion Shares on China Life at $18.82! (Dollar Value: HK$43 Billion!)
  - Total Market Cap of China Life is around HK$140 Billion
  - News reports said the original order should have been 2.3 Million Shares instead (oops!)
  - They canceled the order in 8 minutes, but already received 800 Million Shares
  - 14% of market cap of Sun Hung Kai!

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- ✓ Indexes
- ✓ How Securities Are Traded
- **Buying on Margin**
- Short Selling

Buying on Margin

- What? Borrow funds from broker to buy a security
- Why? To leverage a bet that a security price will **rise**
- Margin: % funded by investor

  (rest loaned by broker)

  = Account Equity ÷ Account Market Value

- Initial margin: Investor funding needed at beginning
- Maintenance Margin: Minimum margin thereafter
- Margin call: When Maintenance Margin is not met. Fund the account or broker sells margined security.

Buying on Margin Example

$70	Initial Stock Price for X Corp
1000	Number of Shares Bought (N)
50%	Initial Margin
40%	Maintenance Margin (M)

Initial Position

Stock	$70,000	Loan	$35,000
		Equity	$35,000

Maintenance Margin

$60 New Stock Price for X Corp

% Margin = Equity ÷ Market Value

= (Market Value – Loan) ÷ Market Value

= ($60,000 – $35,000) ÷ $60,000

≈ 41.67% > 40% → No Margin Call

New Position

Stock	$60,000	Loan	$35,000
		Equity	$25,000

Margin Call

$?? Stock Price (P) → Margin Call

Solve for P in (NP – Loan) ÷ NP = M

P = [Loan ÷ (1 – M)] ÷ N

= [$35,000 ÷ (1 – 0.4)] ÷ 1000

≈ $58.33*

New Position

Stock	$58,333	Loan	$35,000
		Equity	$23,333

(% Margin = $23,333 ÷ $58,333 ≈ 40%)

**Ignores effect of interest and dividend on account assets.*

Effect on Returns

Start Equity	$ 35,000	$ 35,000
Margin	100%	50%
Shares	500	1000
Start Price	70	70
Start Value	$ 35,000	$ 70,000
End Price	60	60
End Equity	$ 30,000	$ 25,000
End Value	$ 30,000	$ 60,000
ROE	**-14%**	**-29%**

- Margin buying magnifies returns, up or down

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- **Short Selling**

Short Selling

- What? Borrow security from broker and then **sell** it
- Why? To bet that a security price will fall
- Logic: sell now (at high price), buy later (at low price)
- Reverses the usual "long" logic (buy now, sell later)
- Covering a short position: buying the security shorted
- Rules: Post collaterals (usually liquid assets like bills)

  Proceeds must be held within the account

  Margin requirement (subject to margin calls)

Short Selling Example

$100	Initial Stock Price for Y
1000	Number of Shares Shorted (N)
50%	Initial Margin (= Equity/Short Value)
30%	Maintenance Margin (M)

Initial Position

Cash	$100,000	Short	$100,000
Bills	$50,000	Equity	$50,000

(Collateral) (Your own capital)

Short Selling Gain/Loss

$70 Stock Price for Y

Close short position by **buying** 1000 shares @ $70

- Thus netting a profit of $30,000

  ($100,000 received on short sale minus $70,000 spent to buy shares)

Ending Position

Cash	$100,000	Short	$70,000
Bills	$50,000	Equity	$80,000

Short Position Margin Call

$?? Stock Price (P) $\rightarrow$ Margin Call

Solve for P in (Assets – NP) ÷ NP = M

P = Assets ÷ [(1 + M) × N]

= $150,000 ÷ [(1 + 0.3) × 1000]

≈ $115.38*

New Position

Cash	$100,000	Short	$115,385
Bills	$50,000	Equity	$34,615

(% Margin = $34,615 ÷ $115,385 ≈ 30%)

**Ignores effect of interest and dividend on account assets.*

Buy on Margin vs. Short Sell

- Buying on Margin
- Borrow money to buy stocks, Magnify returns
- Use your equity to buy M% of stocks, borrow (1 – M%)
- Face margin calls when stock price goes down a lot

- Short Selling
- Borrow stocks and sell, Returns are opposite to long position
- Use your equity as collateral (let the lender keep it)
- Face margin calls when stock price goes up a lot

Reference

- Investments book
  - Chapters 1-3