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**Enrollment key:
0358**

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FN312 Investment Lecture 1

Introduction

Asset Classes and Financial Instruments

Winai Homsombat

Bachelor of Economics, International Program

Thammasat University

Introduction to Course

FN 312 Investments

Semester: 1/2019 (August 13 – December 1, 2019)
Number of credits: 3 credits (3-0-6)
Lecture Time: Friday 11.00 a.m. – 2.00 pm
Lecture Venue: Room 203, Faculty of Economics
Instructor: Asst. Prof. Dr. Anchada Charoenrook and

Email: anchada@tbs.tu.ac.th

Office hours: Friday 2:00pm-3:00pm or by appointment

Dr. Winai Homsombat

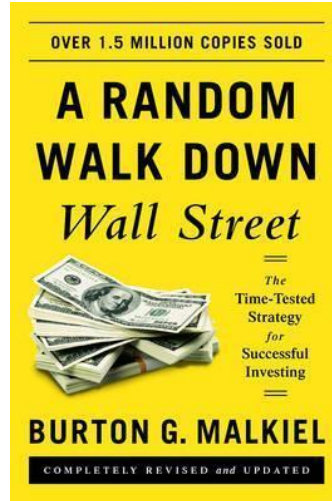
Email: winai.hom@mail.kmutt.ac.th

Office hours: By appointment

Prerequisites:

FN201 and MA216 and BA204

Have earned credits of FN 201 and MA 216 and BA 204



CFA Institute

THE WALL STREET
JOURNAL.



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SET EDUCATION

เริ่มต้นวางแผนการเงิน   เรียนรู้การลงทุน 

Tentative Teaching Schedule

Session	Topics	Reading (Main Text)
1	Introduction and Asset Classes and Financial Instruments	Chapters 1 and 2
2	How Securities are Traded	Chapter 3
3	Mutual funds and other investment companies	Chapter 4 and 25.3
4	Learning about Return and Risk from the Historical Record	Chapter 5
5	Risk Aversion and Capital Allocation to Risky Assets	Chapter 6
6	Optimal Risky Portfolios	Chapter 7
7	Optimal Risky Portfolios (<i>Continued</i>)	Chapter 7
8	MID-TERM EXAMINATION: FRIDAY, OCTOBER 4, 2019 (12.00 – 14.00 HRS.)	

Tentative Teaching Schedule

Session	Topics	Reading (Main Text)
9	The Capital Asset Pricing Model	Chapter 9
10	Bond Prices and Yields	Chapter 14
11	The term structure of interest rates	Chapter 15
12	Options Markets: Introduction	Chapter 20
13	Option pricing	Chapter 21
14	Option pricing (<i>Continued</i>)	Chapter 21
15	The Efficient Market Hypothesis	Chapter 11
16	Futures Markets (tentative)	Chapter 22
17	FINAL EXAMINATION: MONDAY, DECEMBER 2, 2019 (13.30 – 16.30 HRS.)	

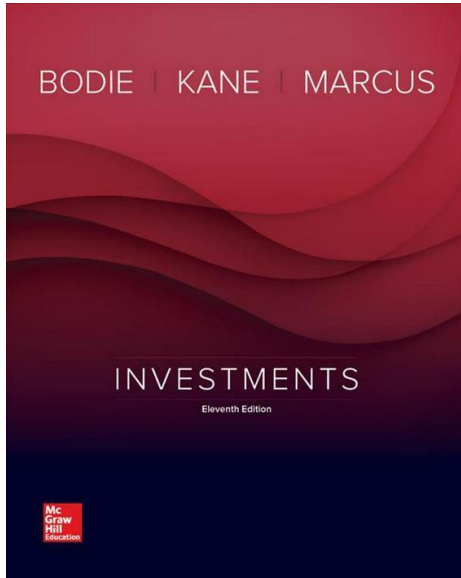
Assessment

Midterm exam	35%
Final exam	40%
Project and class participation	15%
Homework	10%

Class policies:

- Lectures will stress the most important issues addressed in the readings. You are responsible for all material covered in class and assigned readings. Lectures may go beyond the scope of the textbook. Therefore, it is important for you to attend and participate in class.
- There will assignments as deemed appropriate to accommodate effective learning. Each assignment will be graded based on the quality of the analysis and the ability to apply the principles of financial management for managerial decision. Lecture notes, exercises, and guided solution to each lecture, as well as other useful materials, could be accessible from class Moodle.
- You are responsible for all announcements and changes made in class. However, there will be no make-up quiz and final examination without prior consent from the instructor. If a student has a legitimate, verifiable reason (e.g., doctor's note), a separate comprehensive examination will be given.

The Investment Environment

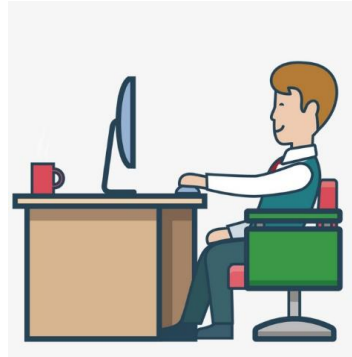
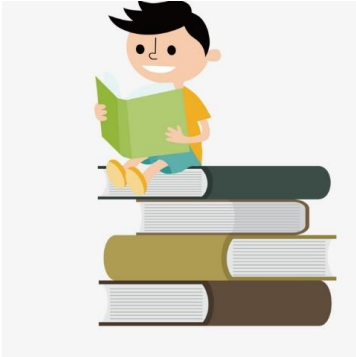


Outline

- The Investment Environment
 - Real Assets versus Financial Assets
 - Risk-return trade-off and efficient pricing
- Asset Classes and Financial Instruments

Reading:
Chapter 1 and 2

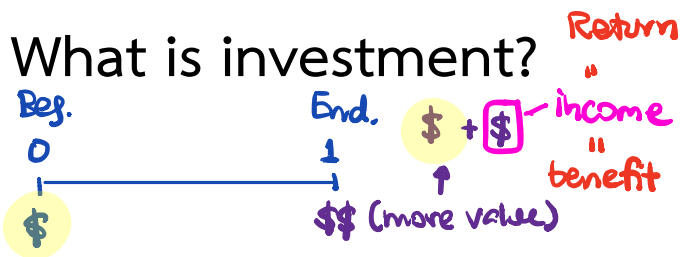
Have you invested in anything so far?



Why is this class useful?

- Satisfy degree requirement
- Prepare you for a career in finance as a money manager, financial analyst, investment professionals, CFO, etc.
- Prepare you for becoming a successful lifelong investor

After taking this class, students should be able (among other things) to discuss investment alternatives and perform optimal portfolio selection of equity securities, to value government bonds, to value simple derivatives securities, to understand the mechanisms of trading and the institutional framework in which investment takes place. This is a class that will get students thinking about systematic investment analysis. It will also cover some material required for the CFA (Certified Financial Analyst) exam.



Dictionary

Search for a word



in·vest·ment

/in'ves(t)ment/

noun

- the action or process of investing money for profit or material result.
"a debate over private investment in road-building"
synonyms: investing, speculation; More
- ARCHAIC**
the surrounding of a place by a hostile force in order to besiege or blockade it.

tions

Feedback

Investment - Investopedia

<https://www.investopedia.com> > Investing > Investing Essentials ▾

Jun 30, 2019 - An **investment** is an asset or item acquired with the goal of generating income or appreciation. In an economic sense, an **investment** is the purchase of goods that are not consumed today but are used in the future to create wealth.

Investment - Wikipedia

<https://en.wikipedia.org> > wiki > Investment ▾

To **invest** is to allocate money in the expectation of some benefit in the future. In finance, the benefit from an **investment** is called a return. The return may consist ...

[Terminology and risk](#) · [History](#) · [Investment strategies](#) · [Intermediaries and ...](#)

Assets and Investment : What are assets for investment ?

Real Assets

- Have Productive Capacity
 - Utilize
 - Use for production
 - use for work.
 - etc.

★ Purpose: to use it, NOT to invest in their values!

- Examples: Land, buildings, machines, intellectual property

★ Financial Assets ★

- Claims on real assets' value
 - ↳ creditors → bonds
 - ↳ owners → common stock
- Do not contribute directly to productive capacity
 - expect future value become higher!
- Examples: Stocks, bonds

$$\Rightarrow \text{Assets} = \text{Liability} + \text{Equity}$$

Assets	\$ Billion	% Total	Liabilities and Net Worth	\$ Billion	% Total
Real assets			Liabilities		
Real estate	\$ 25,276	25.0%	Mortgages	\$ 9,711	9.6%
Consumer durables	5,241	5.2	Consumer credit	3,533	3.5
Other	<u>463</u>	<u>0.5</u>	Bank and other loans	975	1.0
<i>Total real assets</i>	\$ 30,979	30.6%	Other	<u>291</u>	<u>0.3</u>
			<i>Total liabilities</i>	\$ 14,510	14.3%
Financial assets					
Deposits	\$ 10,693	10.6%			
Life insurance reserves	1,331	1.3			
Pension reserves	20,972	20.7			
Corporate equity	13,311	13.1			
Equity in noncorporate business	10,739	10.6			
Mutual fund shares	8,119	8.0			
Debt securities	4,200	4.1			
Other	<u>962</u>	<u>0.9</u>			
<i>Total financial assets</i>	\$ 70,327	69.4	<i>Net worth</i>	<u>86,796</u>	<u>85.7</u>
<i>Total</i>	\$101,306	100.0%		\$101,306	100.0%

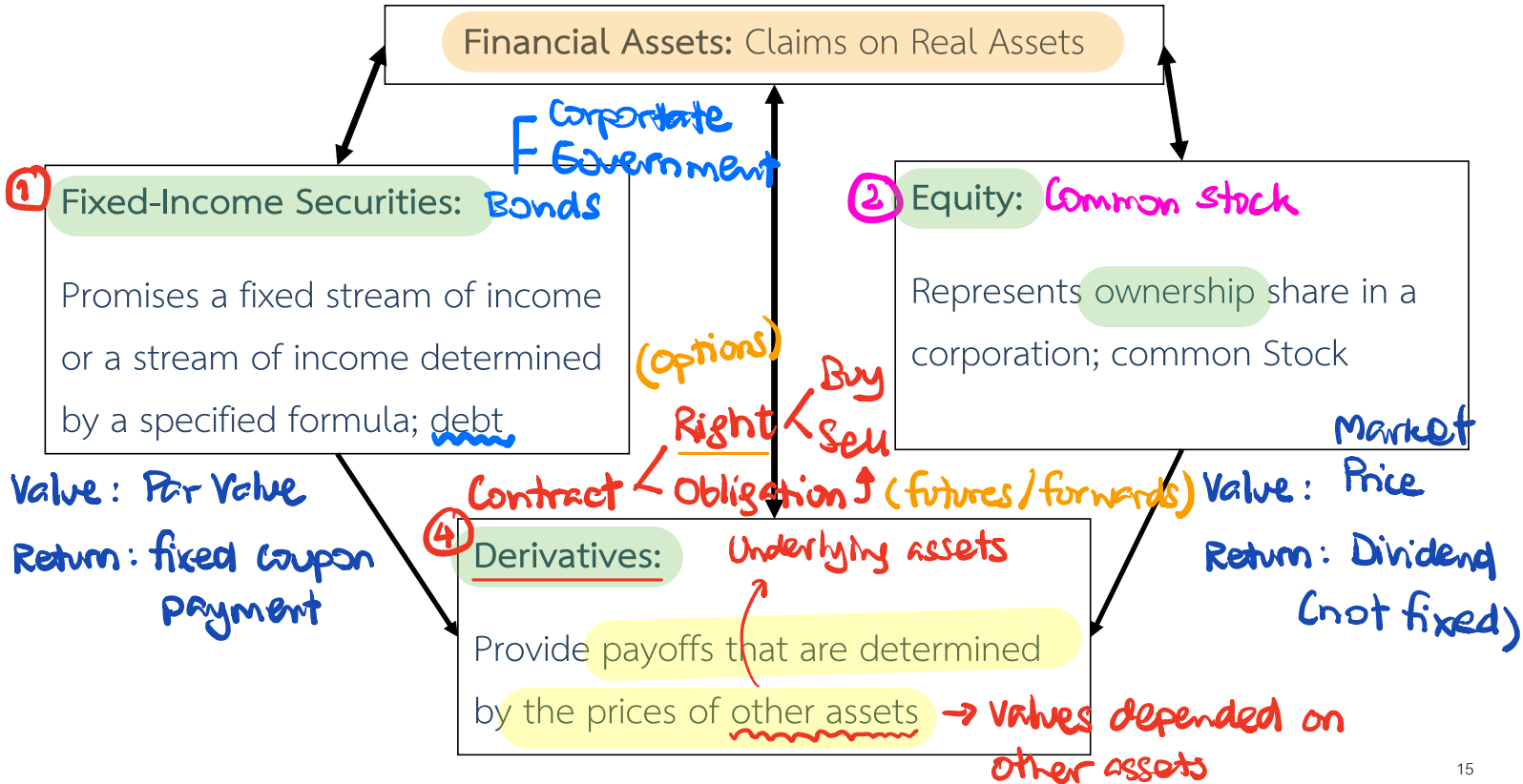
Table 1.1

Balance sheet of U.S. households

Note: Column sums may differ from total because of rounding error.

Source: *Flow of Funds Accounts of the United States*, Board of Governors of the Federal Reserve System, March 2016.

Financial Assets : How to classify financial assets?



SET Index
INDEXBKK: SET



+ Follow

1,638.24 +12.67 (0.78%) ↑

Aug 21, 17:07 GMT+7 · Disclaimer

1 day

5 days

1 month

6 months

YTD

1 year

5 years

Max



Open
High

1,628.55
1,642.07

Low

1,623.24

Market Data



Market Summary	Investor Types	Underlying	
Delayed 15 minutes 22 Aug 2019 As of 09:48:46			
		Volume	OI*
Total Market		30,882	3,131,046
Total Futures		30,502	3,054,531
SET50 Index		18,522	327,748
Sector Index		-	-
Single Stock		115	2,634,725
Precious Metal		11,660	65,344
- GF10		4,117	43,507
- GF50		125	2,535
- Gold Online		7,418	19,302
Deferred Precious Metal		205	224
- GOLD-D		205	224
Currency		-	26,418
Interest Rate		-	-
Agriculture		-	72
Total Options		380	76,515
	Call	267	45,983
	Put	113	30,532
	Put/Call	0.42	0.66
* Day Session: OI as of the Night Session of previous day. Night Session: OI as of the Afternoon Session of current day.			

Products Highlights

All Products

SET50
Futures

Gold
Futures

SET50
Options

Gold Online
Futures

Single Stock
Futures

Gold-D

USD
Futures

RSS3D
Futures

Yield Benchmark LB23DA (4.3 Yrs.)

1.44 %

0 bps.

1.44 %
21 AUG1.42 %
20 AUG1.40 %
19 AUG

Yield Benchmark LB28DA (9.3 Yrs.)

1.53 %

+2 bps.

1.51 %
21 AUG1.53 %
20 AUG1.49 %
19 AUG

August 22, 2019 09:57

From 16:00 - 24:00, data shown
remain as of 16:00

Non-resident Net Flows (THB Mln.)

-4,098

+299

ST Net
Trading

-27

Expired

-4,370

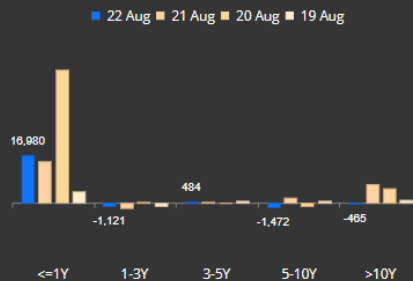
LT Net
Trading

Day	-7,473 21 AUG	-8,158 20 AUG	-2,368 19 AUG
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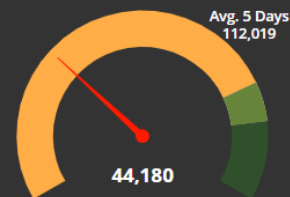
Month	-25,139 AUG (MTD)	-25,636 JUL	+53,049 JUN
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Year	-47,766 2019 (YTD)	+134,263 2018	+222,990 2017
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Investor Net Trading by TTM

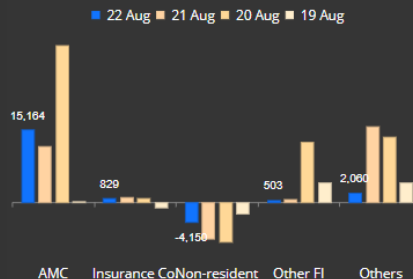


Total Trading Volume (THB Mln.)



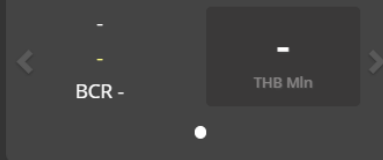
Volume/Trans: 178 | Avg. 5 Days: 147

Net Trading by Group of Investor



Auction Result (Available after 10:00)

BOT218A

Bond Expired
(Total Market)103,167 (THB
Mln)

Other Types of Investment

- Investment in currency

FOREX Trading

- Commodity futures

- Corporations invest in the commodity futures to hedge the risk

Really want to have commodity - gold/fuel/USD, etc. in the future

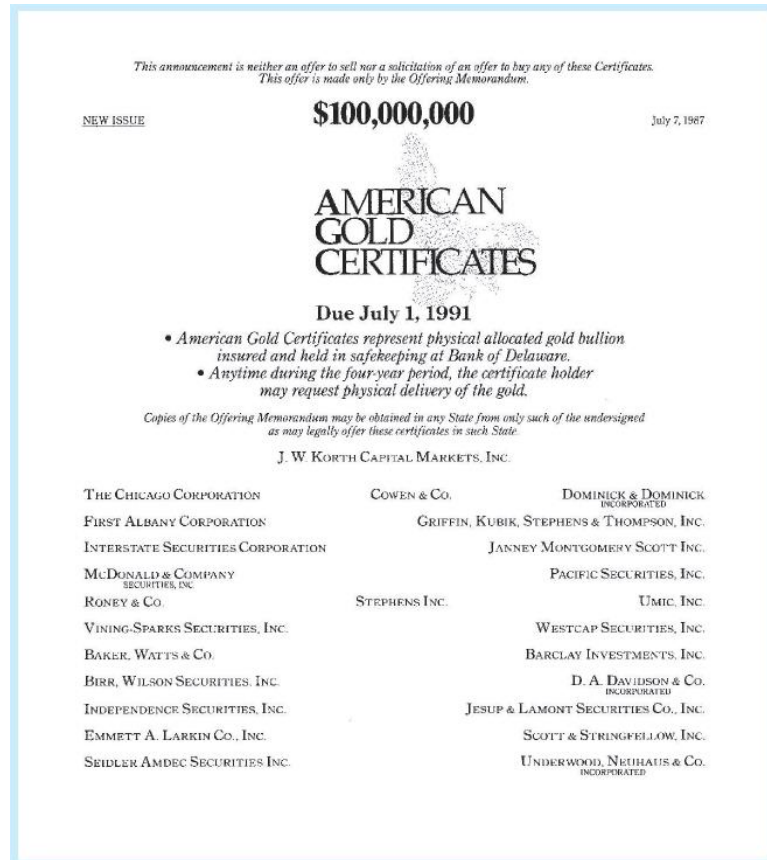


Figure 1A A gold-backed security

Financial Markets and the Economy

Growth
↑
Efficient market
↑

- ★ • The Informational Role: combination of many investors → share ideas/information
- Consumption Timing: instead of consuming today → choose to consume in future
- Allocation of Risk: choose to invest in several assets or company → lower risk level
- Separation of Ownership and Management

investment plan
for retirement
↓
monitor profit
maximization from
managers
↑

• Agency Problems: arising from conflicts between goals of managers and owners

↓
max. payoff /
personal benefits

↓
max. profit

★ In financial markets, there are over thousands of owners
→ sharing information to monitor managers' behavior/management

Financial Markets and the Economy

- Mechanisms to mitigate Agency Problems:

- Tie managers' income to the success of the firm

↳ Salary + commission*

- Monitoring from the board of directors

- Monitoring by large investors and security analysts

- Takeover threat / **Fire**

} public company
limited

Financial Markets and the Economy

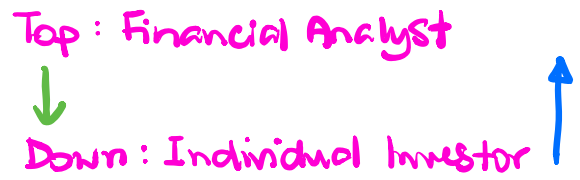
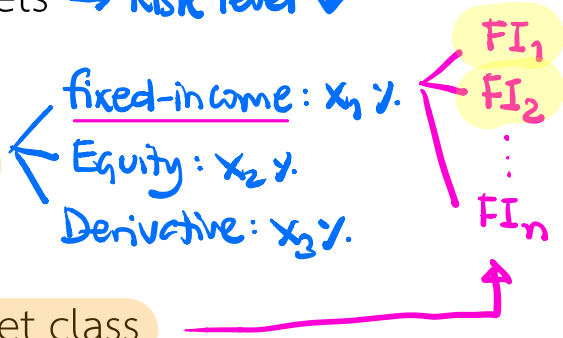
- Corporate Governance and Corporate Ethics
 - Accounting Scandals
 - Enron, Rite Aid, HealthSouth
 - Auditors: Watchdogs
 - Analyst Scandals
 - Arthur Andersen
- ✧ • Sarbanes-Oxley Act ✧
 - Corporate governance rules



ARTHUR
ANDERSEN

The Investment Process

- **Portfolio**: Collection of investment assets → Risk level ↓
- Asset allocation
 - Choice among broad asset classes
- Security selection
 - Choice of securities within each asset class
- Investment strategy
 - “Top-down” approach: Asset allocation followed by security analysis
 - “Bottom-up” approach: Investment based solely on the price-attractiveness

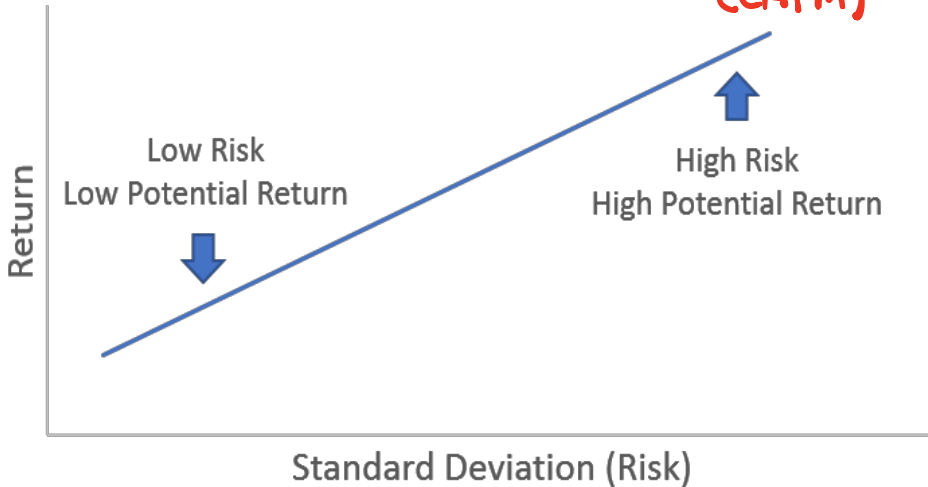


Markets Are Competitive : Security Market Line (SML)

vs. Portfolio Optimization

↓
Capital Asset
Pricing Model
(CAPM)

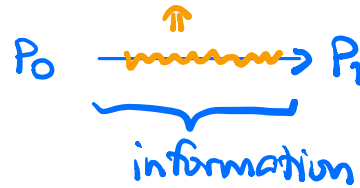
Risk-Return Trade-off



- Higher-risk assets are priced to offer higher expected returns than lower-risk assets
- Risk and expected return are positively correlated

How long for price adjustment

Markets Are Competitive



Efficient Markets

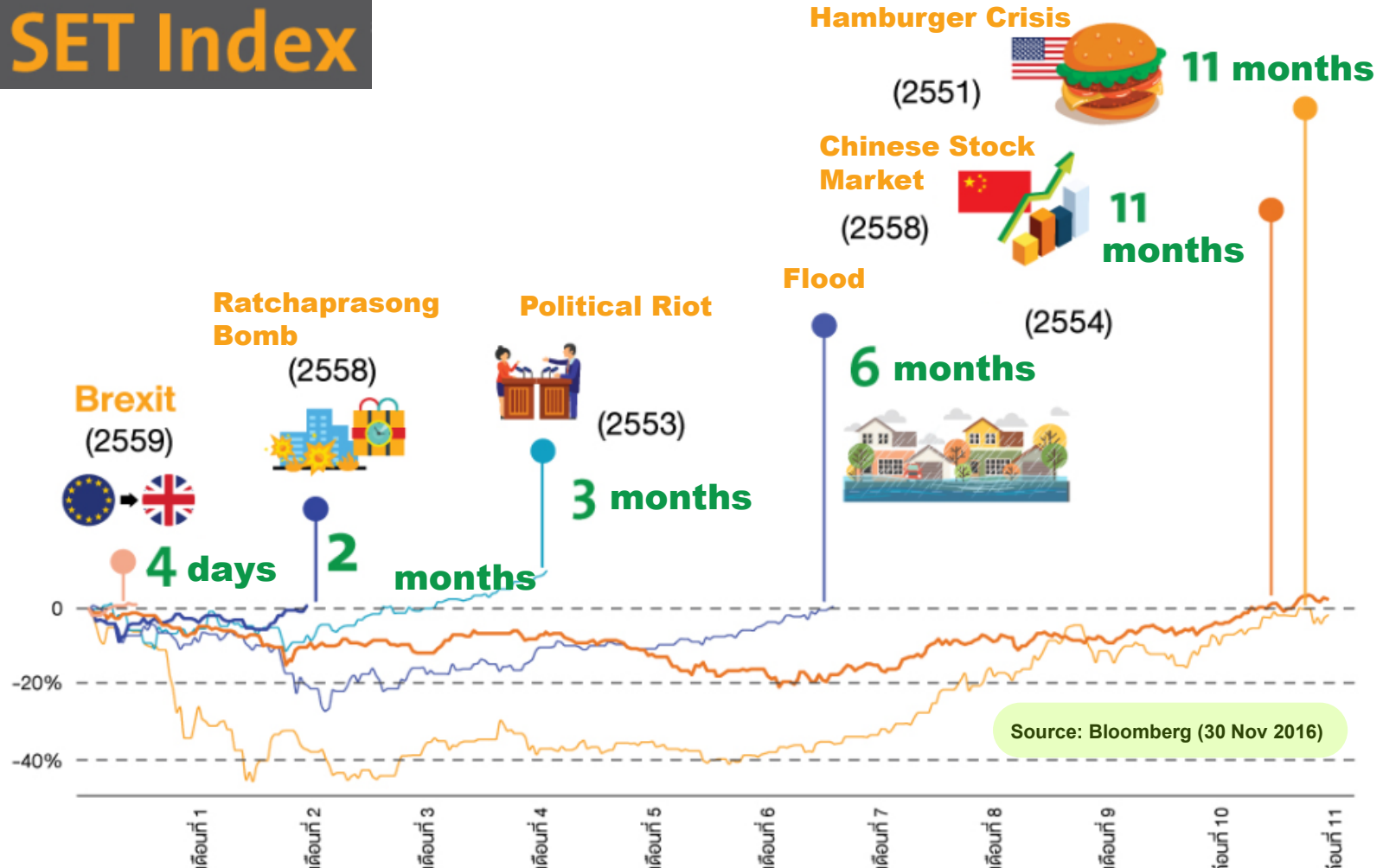
- Efficient markets: ^{HOW} prices quickly adjust to all relevant information

↳ measured in term of TIME / duration

- ★ • There should be neither underpriced nor overpriced securities

Investment Strategy
(Arbitrage Strategy)

SET Index



Markets Are Competitive

• Passive Management ⇒ invest and hold for long-term [value investing]

- Holding a highly diversified portfolio
- No attempt to find undervalued securities
- No attempt to time the market

} ⇒ Portfolio Optimization

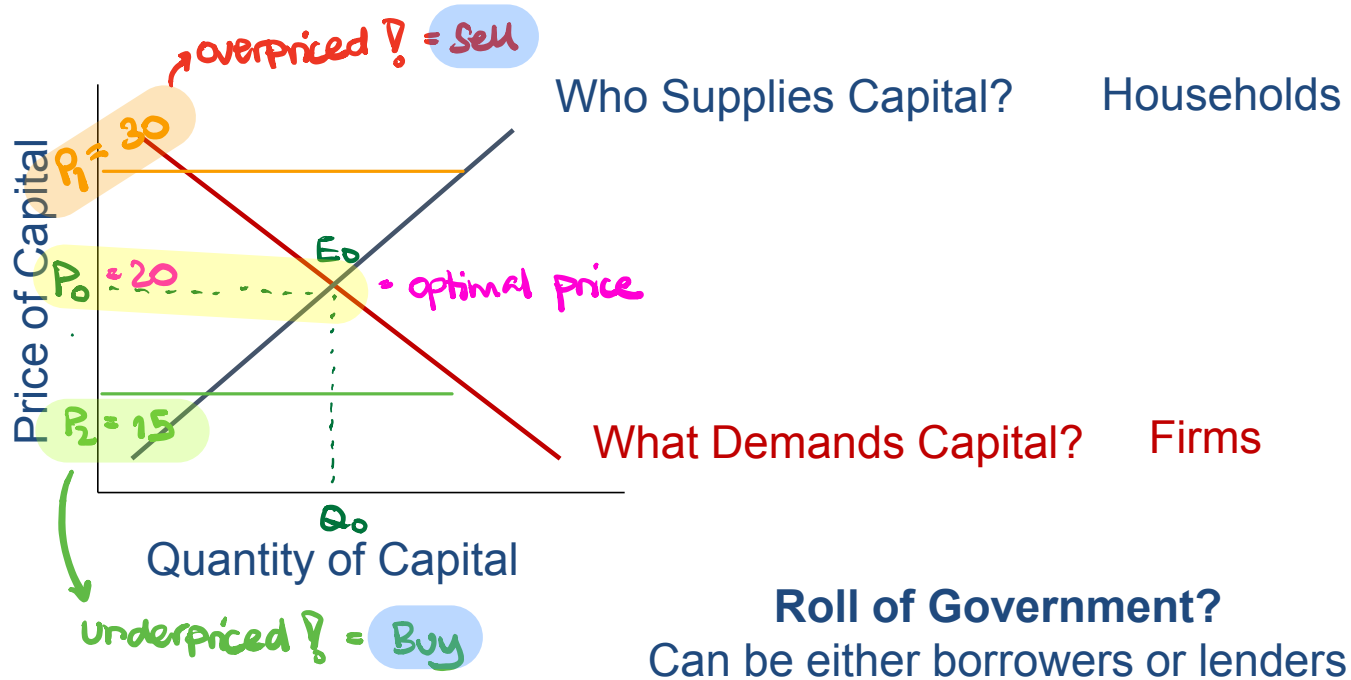
★ • Active Management ⇒ short-term investors

- Finding mispriced securities
- Timing the market

} Technical Analysis
↳ monitor price behavior of securities

↓
short-term trading ← Buy
Sell

The Players ** When? How long for price adjustment?*



The Players

- Financial Intermediaries: Pool and invest funds
 - Investment Companies
 - Banks
 - Insurance companies
 - Credit unions

Universal Bank Activities

Investment Banking

- Underwrite new securities issues

- Sell newly issued securities to public in the primary market

⇒ secondary market

Consultant for company who wants to issue new securities!



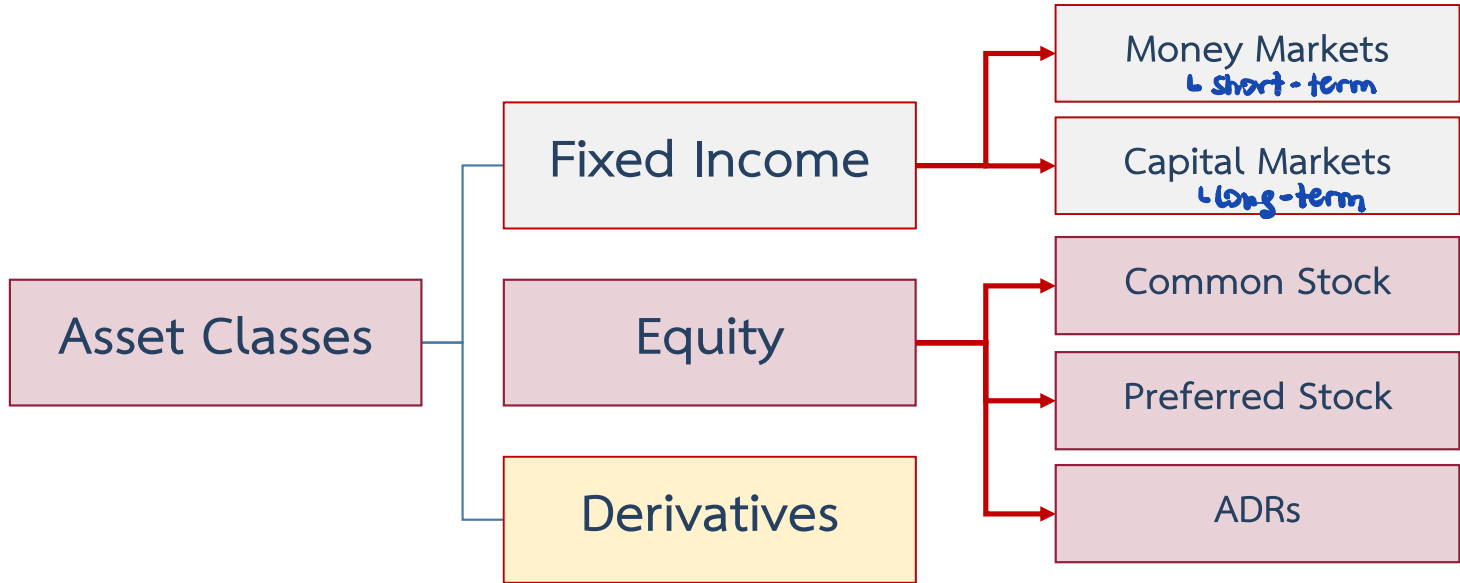
★ How securities are traded ★

Commercial Banking

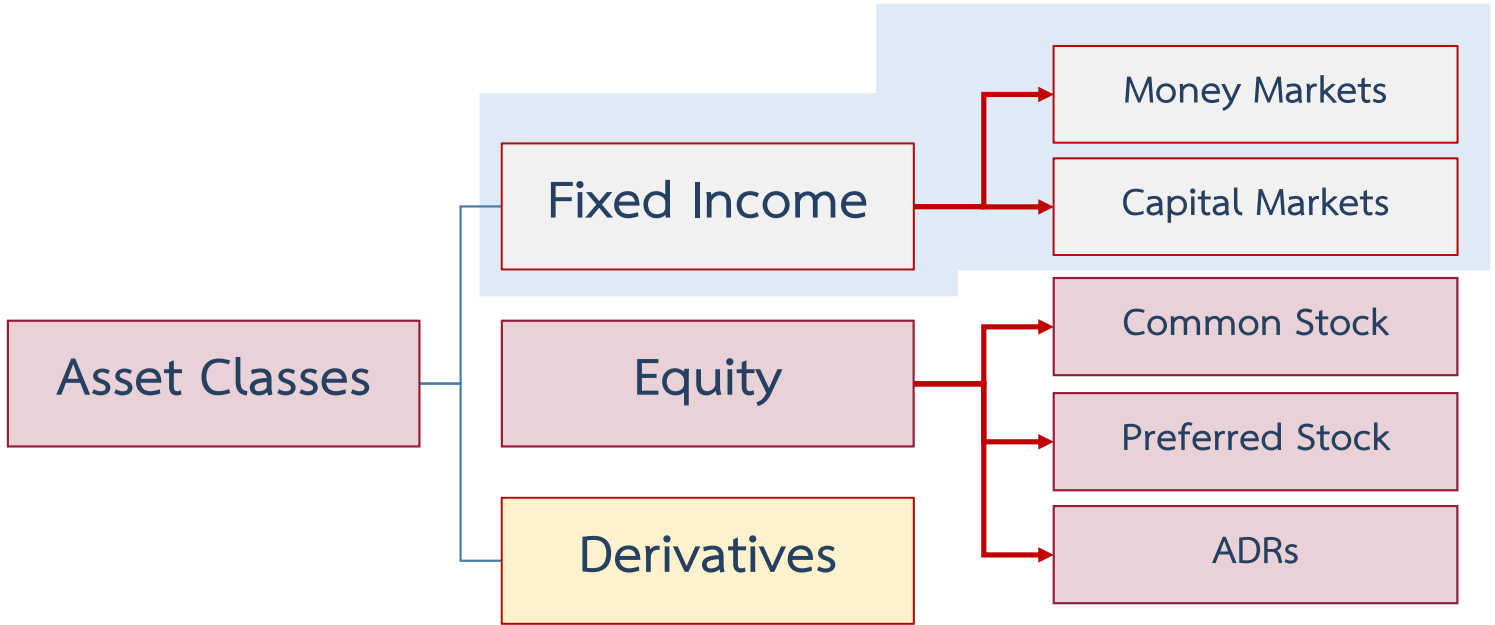
- Take deposits and make loans

Asset Classes and Financial Instruments

Financial Assets



Fixed Income



Fixed Income: The Money Market

- Subsector of the fixed-income market

- Short-term

more • Liquid : maturity < 1 year

- Low risk
- Often have large denominations

• fixed payment for certain period

generate risk to investors if they can find a better way to invest

Table 2.1

Major components of the money market

	\$ Billion
Federal funds and repurchase agreements	\$3,748
Small-denomination time deposits and savings deposits*	8,991
Large-denomination time deposits†	1,865
Treasury bills	1,527
Commercial paper	1,120
Money market mutual funds	2,716

*Small-denomination time deposits are less than \$100,000.

†Large-denomination time deposits are greater than \$100,000.

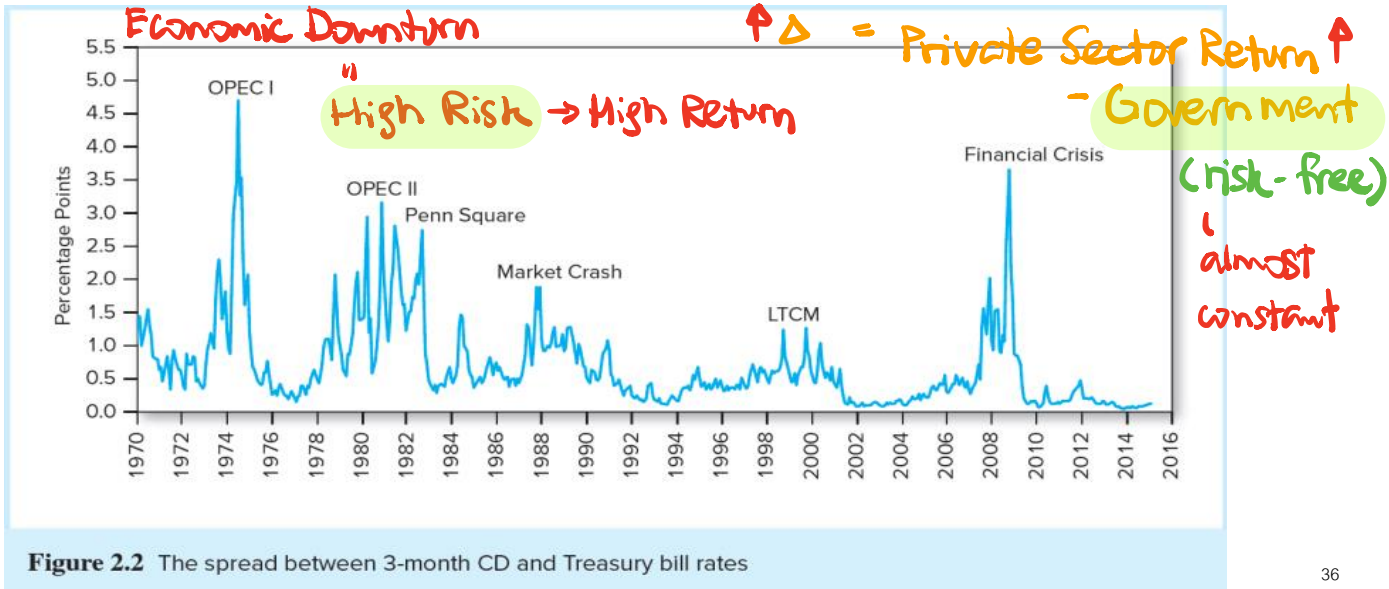
Sources: *Flow of Funds Accounts of the United States*, Board of Governors of the Federal Reserve System, March 2016.

Money Market Securities

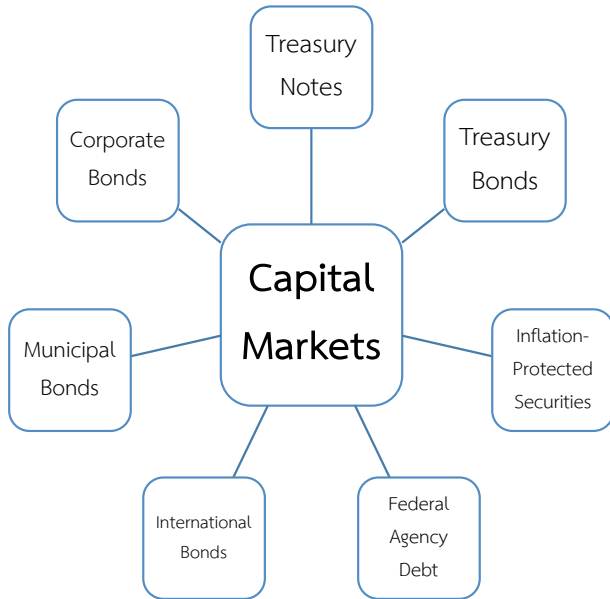
- **Treasury bills:** Short-term debt of U.S. government
 - Bid and asked price
 - Bank discount method
- **Certificates of deposit (CD):** Time deposit with a bank
- **Commercial paper:** Short-term, unsecured debt of a company
- **Bankers' Acceptances:** An order to a bank by a bank's customer to pay a sum of money on a future date
- **Eurodollars:** Dollar-denominated time deposits in banks outside the U.S.
- **Repos and reverses:** Short-term loan backed by government securities.
- **Federal funds:** Very short-term loans between banks

Yields on Money Market Instruments

- Money market securities are not free of default risk → do not get some or full part of principal back
- The premium on bank CDs and the TED spread have often become greater during periods of financial crisis ↳ $\Delta = \text{Bank CD} - \text{TED}$



Fixed Income: The Capital Market



- Subsector of the fixed-income market

- Long-Term
- Liquid
- Low risk (but not as low as the Money Market)

if maturity is 20 years!

3%

Capital Market Securities: Treasury Notes and Bonds

- Treasury Notes and Bonds

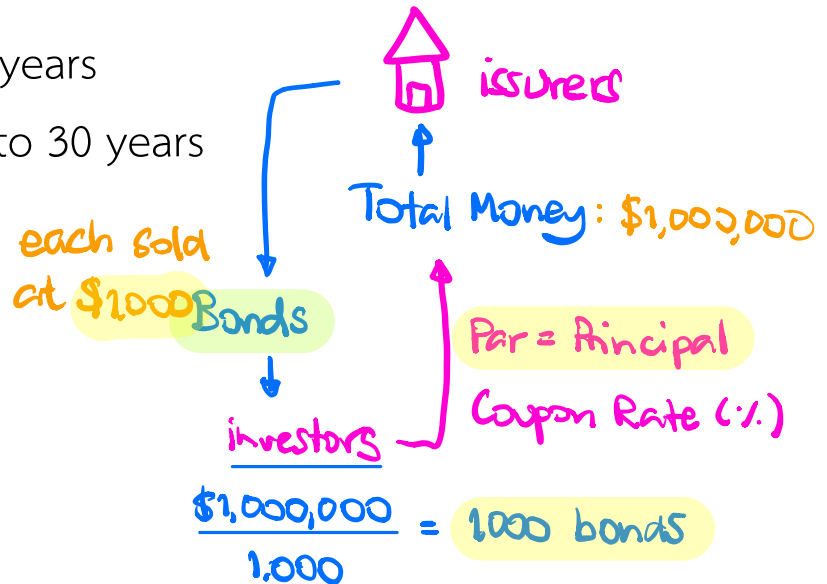
- Maturities

- Notes – Maturities up to 10 years
- Bonds – Maturities from 10 to 30 years

- Par Value — \$1,000

- Interest paid semiannually

- Quotes — Percentage of par



Capital Market Securities

- Inflation-Protected Treasury Bonds
 - TIPS (Treasury Inflation Protected Securities) - In the U.S., inflation-protected Treasury bonds are called TIPS
- Federal Agency Debt
 - Fannie Mae
 - Freddie Mac
 - Others
- International Bonds
 - Eurobonds and Yankee bonds

Capital Market Securities: Municipal Bonds

- Municipal Bonds : Benefits
 - Issued by state and local governments
 - Interest is exempt from federal income tax and sometimes from state and local tax
 - Types
 - General use of money
 - General obligation bonds: backed by taxing power of issuer
 - Revenue bonds: backed by project's revenues or by the municipal agency operating the project
 - to invest in any projects
- Low risk : collateral = underlying assets used to back up bond issuing
- revenue stream from tax collection

Tax-Exempt Debt Outstanding

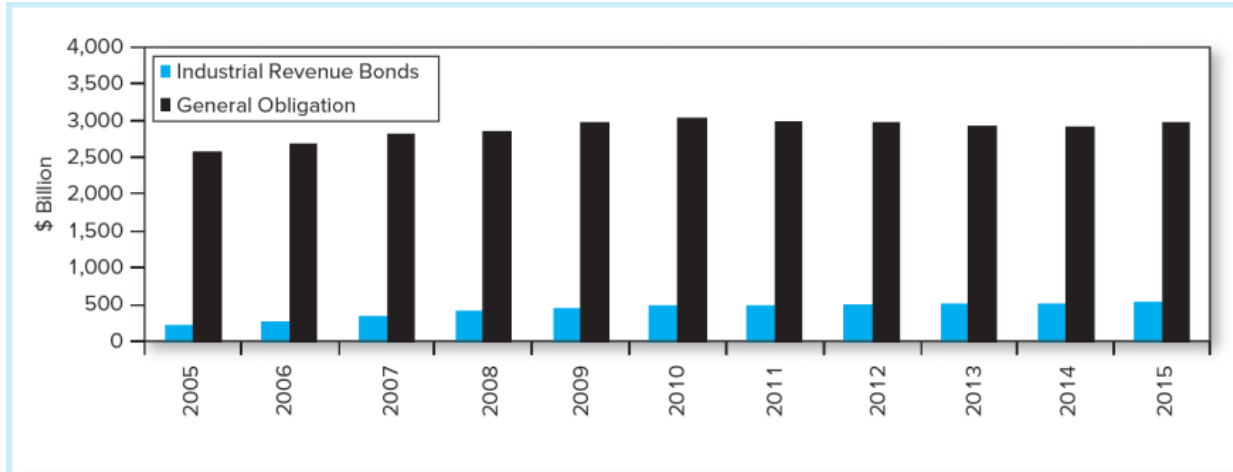


Figure 2.4 Tax-exempt debt outstanding

Source: *Flow of Funds Accounts of the United States*, Board of Governors of the Federal Reserve System, March, 2016.

Municipal Bond Yields: ^① Taxable vs. ^② Tax-Exempt Bonds

- Compare after-tax returns on each bond
 - Let t = investor's marginal tax bracket
 - Let r = the before-tax return on the taxable bond
 - Let r_m = the municipal bond rate

private sector bond Tax rate Government bond

$$\underbrace{r \times (1 - t)}_{\text{After-tax Return}} > r_m$$

then the taxable bond gives a higher return; otherwise, the municipal bond is preferred

Marginal Tax Rate	Tax-Exempt Yield				
	1%	2%	3%	4%	5%
20%	1.25%	2.50%	3.75%	5.00%	6.25%
30	1.43	2.86	4.29	5.71	7.14
40	1.67	3.33	5.00	6.67	8.33
50	2.00	4.00	6.00	8.00	10.00

Table 2.2

Equivalent taxable yields corresponding to various tax-exempt yields

→ Before-tax return

Capital Market Securities: Corporate Bonds

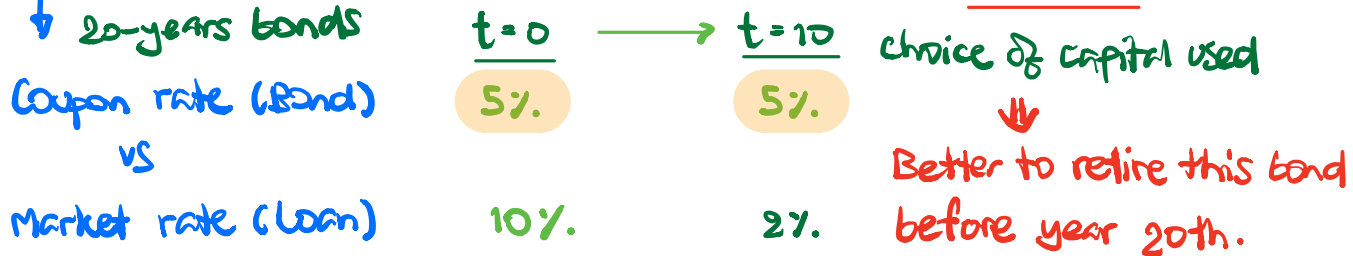
- Corporate Bonds

- Issued by private firms
- Semi-annual interest payments
- Larger default risk than government securities
- Options in corporate bonds

Chance not to get principal (par) back - partly or fully

- Callable = right to retire bonds at any year before maturity

- Convertible = right to convert bonds to common stock → have no benefit from

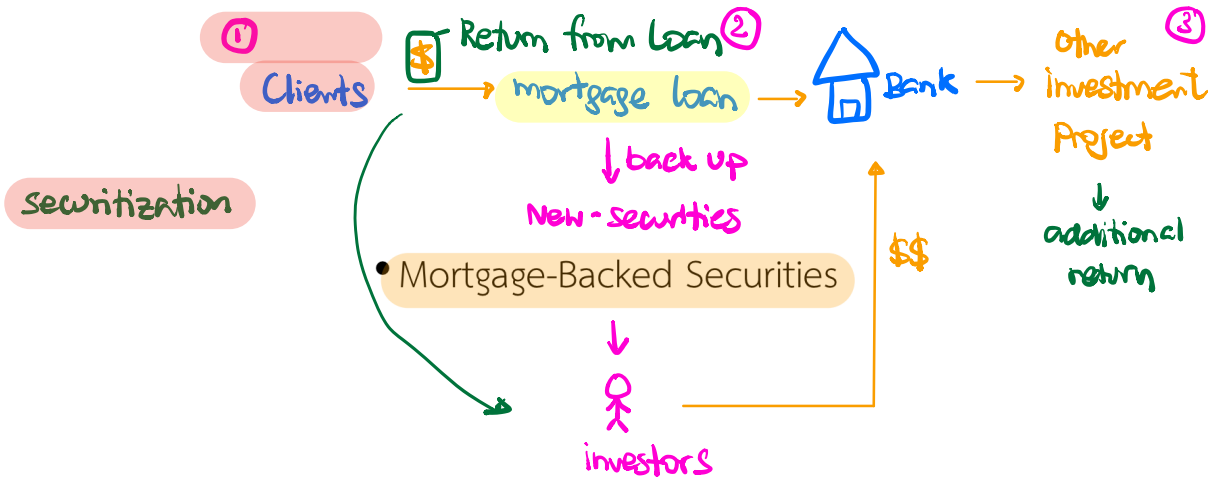


Capital Market Securities: Mortgage Backed Securities

- Mortgage-Backed Securities

- Proportional ownership of a mortgage pool or a specified obligation secured by a pool
- Produced by securitizing mortgages
- Most were issued by Fannie Mae and Freddie Mac

Note: Mortgage-backed securities are called *pass-throughs* because the cash flows produced by homeowners paying off their mortgages are passed through to investors.



Bond Market Securities

- Mortgage-Backed Securities
 - Traditionally *conforming mortgages*
 - Later, “private-label” issuers securitized large amounts of *subprime mortgages*
 - Fannie and Freddie were allowed and even encouraged to buy subprime mortgage securities

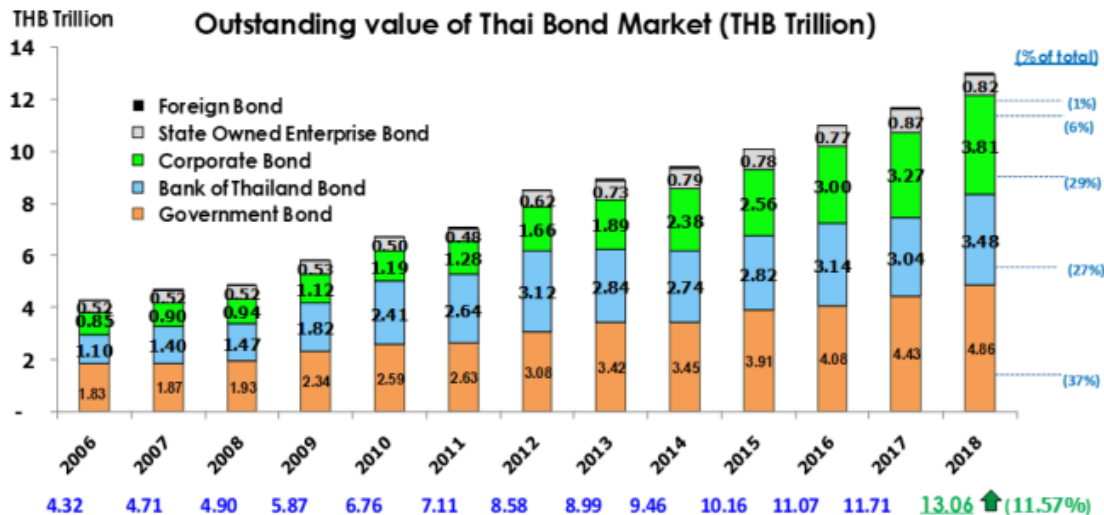


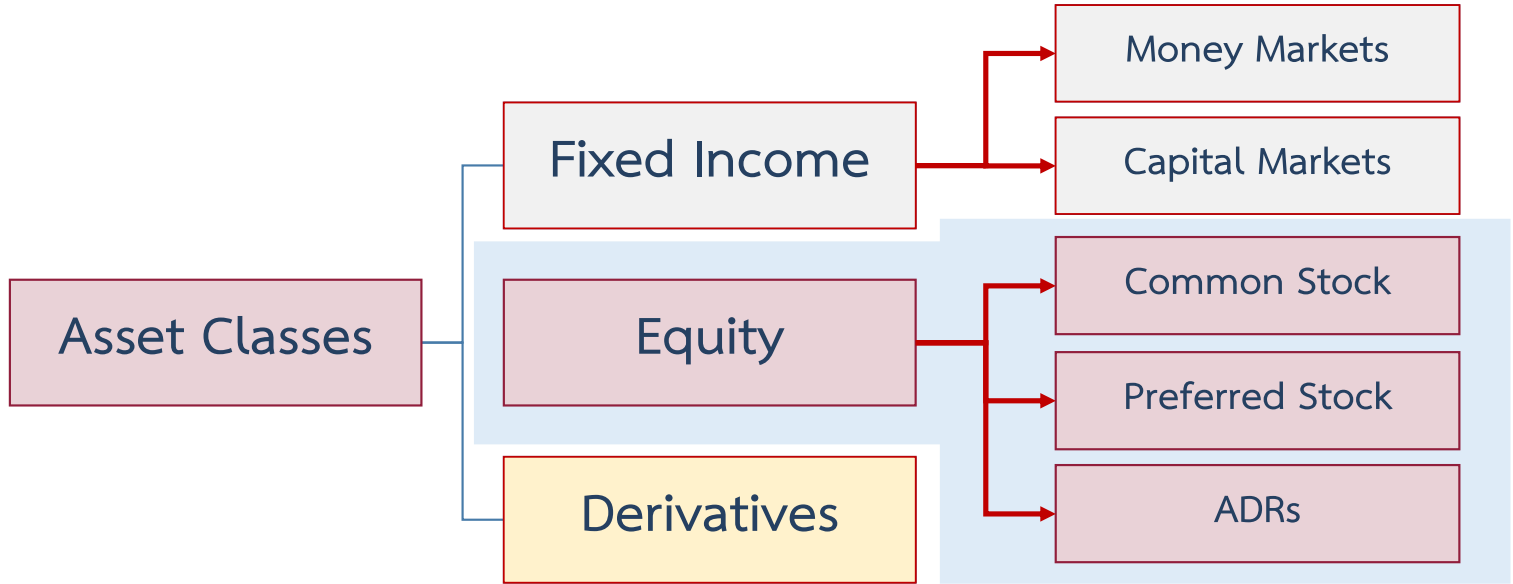
Figure 2: Thai Bond Outstanding Value

Unit: THB Min

Type	2017	2018	Growth(%)
Government Bond	4,298,872	4,737,808	↑ 10.21%
Treasury Bill	133,232	120,732	↓ -9.38%
State Owned Enterprise Bond	869,549	821,165	↓ -5.56%
Bank of Thailand Bond	3,041,769	3,476,686	↑ 14.30%
Long term Corporate Bond	2,531,905	3,450,314	↑ 36.27%
Commercial Paper	737,465	359,790	↓ -51.21%
Foreign Bond	94,177	94,771	↑ 0.63%
Total	11,706,969	13,061,267	↑ 11.57%

Source: ThaiBMA

Equity



Equity Securities

Common stock

- Ownership
- Residual claim
- Limited liability

- ① Status: Owner
- ② Maturities: forever
- ③ Asset (right to claim): Last one
- ④ return: Flexible Dividend

Preferred stock

- Perpetuity
- Fixed dividends
- Priority over common
- Tax treatment

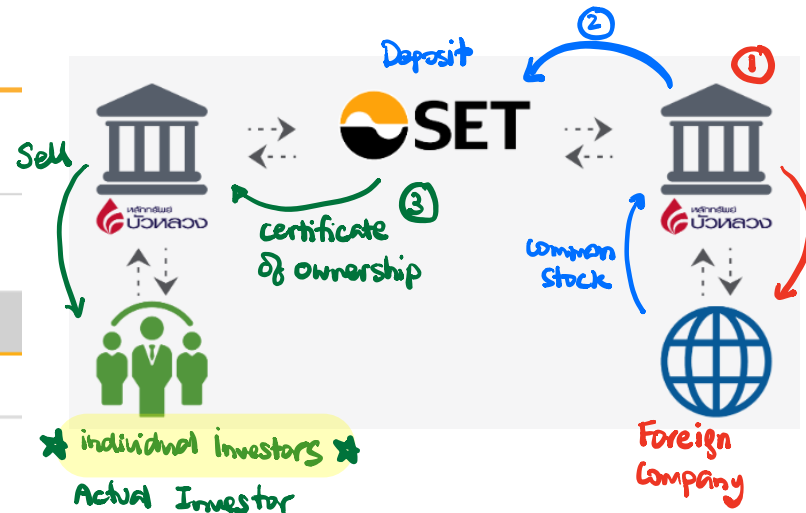
- Preferred stock holders
- forever
- 2nd right to claim (1st = creditor)
- Fixed Dividend

Equity Securities: ADR

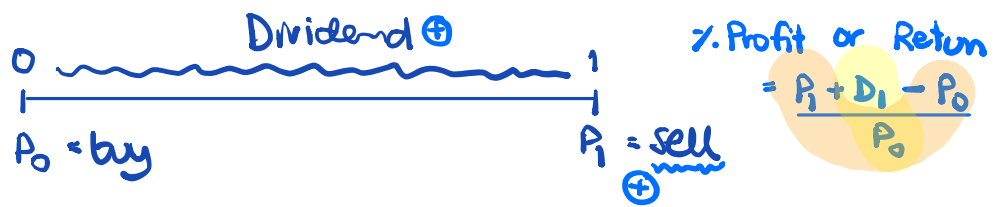
- American **Depository Receipts** (ADR)
 - **Certificates** traded in U.S. markets that **represent ownership** in shares of a foreign company

Depository Receipt (DR)

DR Price	DR Information	DR Issuer
> DR Issuer		
Symbol	Issuers Company	
BLS	BUALUANG SECURITIES PUBLIC COMPANY LIMITED	



Equity Securities



Stock Basics

Stock Market Indices

Stock Return

- Dividend Yield: $= \frac{D_1}{P_0}$
- Capital Gains: $= \frac{P_1 - P_0}{P_0}$

Market Return

- Dow Jones Industrial Average
 - Includes 30 large blue-chip corporations
 - Computed since 1896
 - Price-Weighted Index
- S&P 500
 - Broad based index of 500 firms
 - Market-Value-Weighted Index

- P/E Ratio: $= \frac{\text{Market Price}}{\text{Earnings per share}}$

- ① New Investor: High = expensive
- ② Current (holding) investor \rightarrow : High = good = wealth \uparrow

Equity Securities: Stock Market Indexes

- Investors can base their portfolios on an index
- Buy an index mutual fund
- Buy exchange-traded funds (ETFs) = Fund

portfolio = combination of stocks
is similar with market
Allow individual investor to invest.

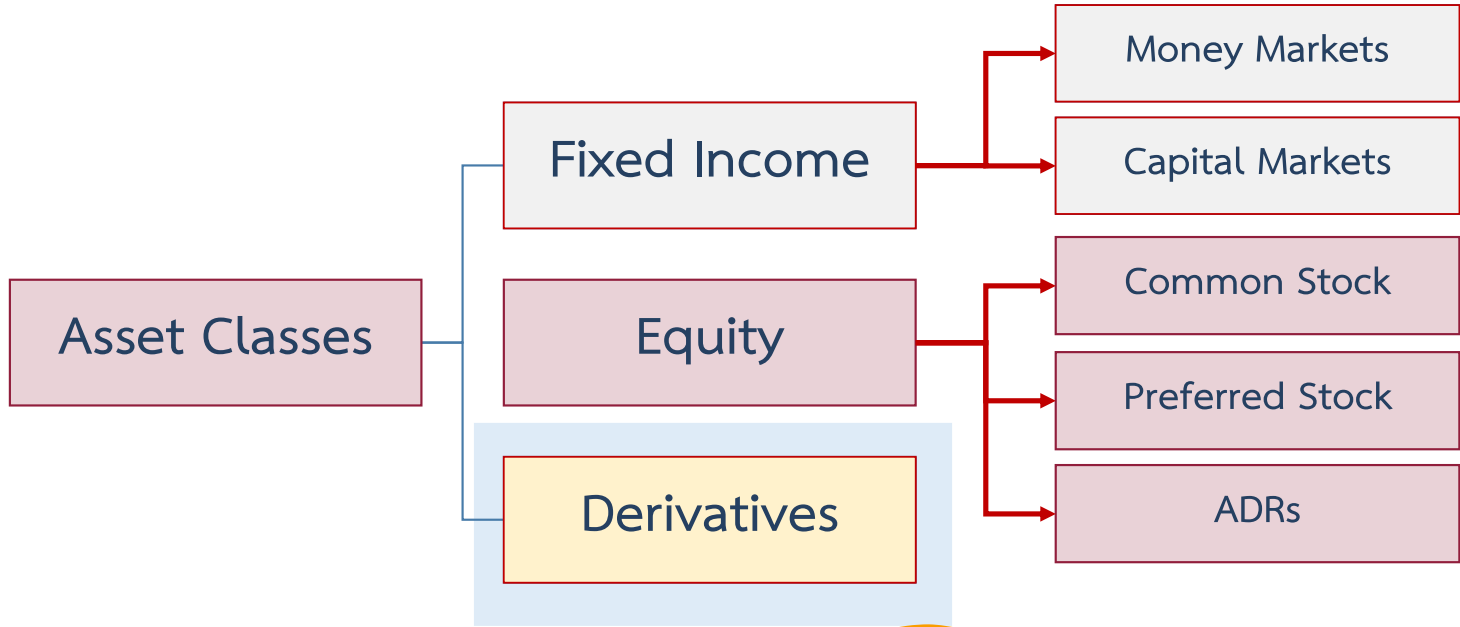
ETF Statistics

No. of ETFs	Underlying Index	Total Trading Value (M.Baht)	AUM (M.Baht)	No. of Issuer
17	15	13.40	18,735.03	6

Top 5 Gainers	Close Price	%Change
1. BSET100	10.54	0.96%
2. EICT	5.42	0.93%
3. BMSCITH	11.94	0.84%
4. TDEX	10.72	0.75%
5. BMSCG	8.28	0.61%

Top 5 Losers	Close Price	%Change
1. EBANK	5.08	-2.12%
2. 1DIV	10.68	-0.65%
3. ENY	7.07	-0.42%
4. ESET50	5.67	-0.18%

Derivatives



- A derivative is a security that gets its value from the value of another asset, such as commodity prices, bond and stock prices, or market index values

Derivatives Markets: Options

$$\uparrow \text{Value} = \text{Market Price} \uparrow - \text{Strike Price}$$

↪ Note: Buy at cheaper price than Market Price

• **Call Option:** Right to buy underlying asset at the strike or exercise price.

- Right to buy underlying asset at the strike price
- Value of calls decreases as strike price increases

↪ used to measure
Option value
vs Market Value

• **Put Option:** Right to sell underlying asset at the strike or exercise price.

- Right to sell underlying asset at the strike price
- Value of puts increase with strike price
- Both calls and puts increases with time until expiration

↪ Note: Sell at higher price than Market Price

∴

Derivatives Markets: Futures

- **Futures Contract:** An agreement made today regarding the delivery of an asset (or in some cases, its cash value) at a specified delivery or maturity date for an agreed-upon price, called the futures price, to be paid at contract maturity
 - *Long position:* Take delivery at maturity
 - *Short position:* Make delivery at maturity

Comparison

Option

- Right, but not obligation, to buy or sell
- Option is exercised only when it is profitable (options must be purchased before)
- The premium is the price of the option itself

Future Contract

- Obligated to make or take delivery
- Long (short) position **must** buy (sell) at the futures price
- Futures contracts are entered into without cost

Question?