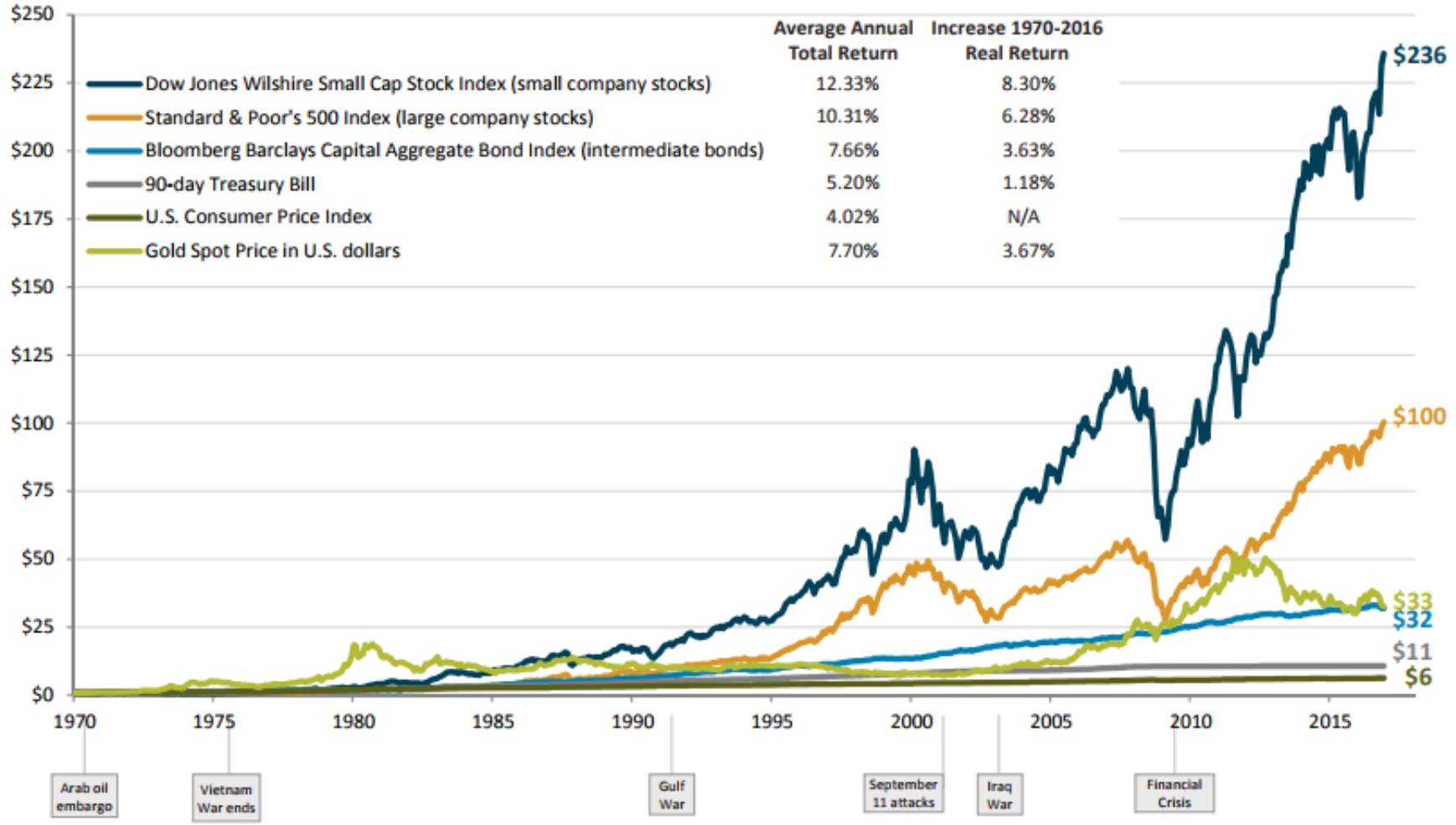
Security Analysis and Investment

Guanghua School of Management
Peking University
Spring 2019

Stocks, Bonds, Gold and Inflation: 1970-2016



Note: This chart indicates the growth of a $1 investment.

Source: Wilshire Compass, Bloomberg. Assumes reinvestment of income and no transaction costs or taxes. This is for illustrative purposes only. This chart provides a look at long-term investment performance over a more recent period of time.

over ››

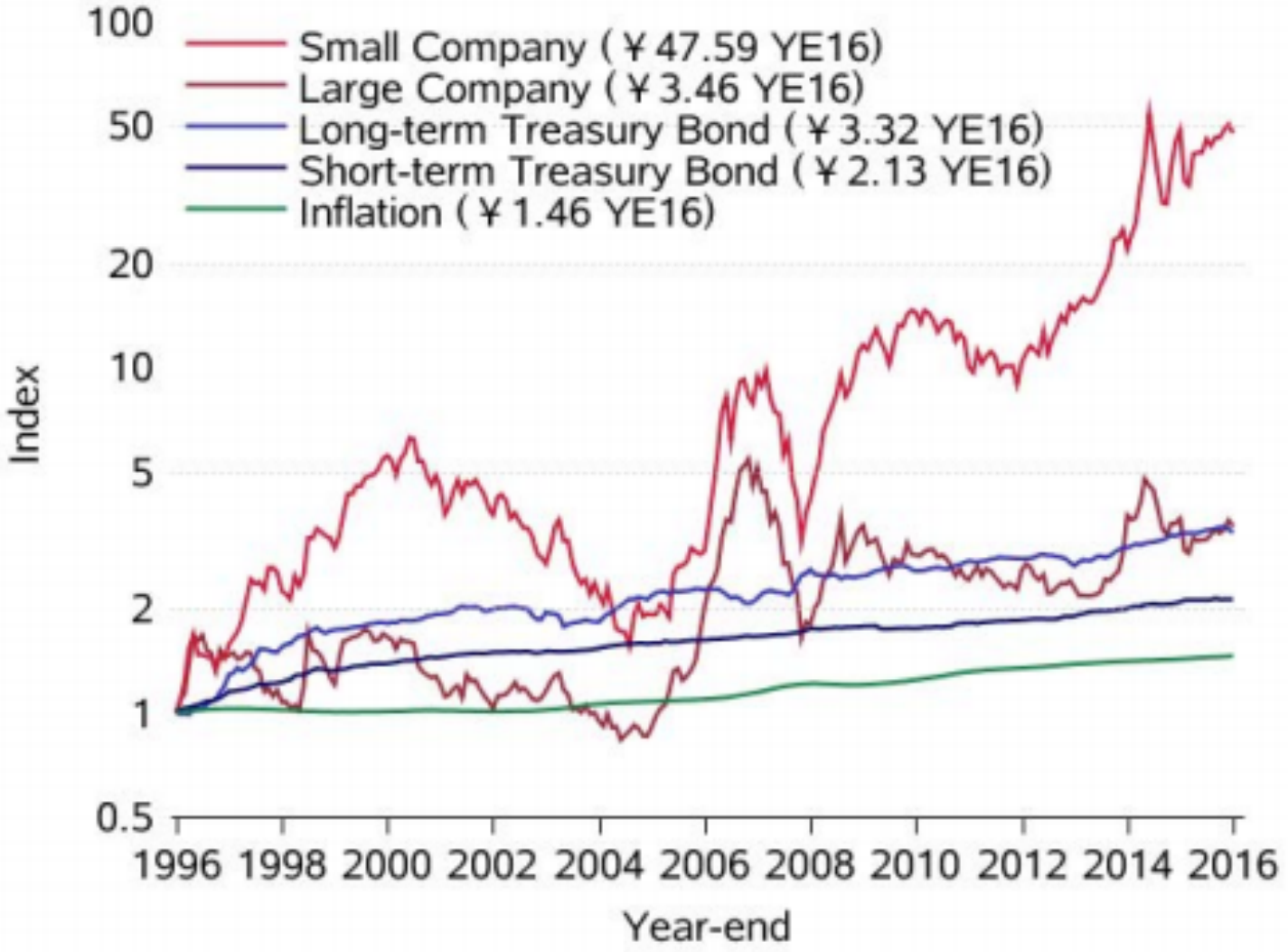


Figure 2.2: Wealth indexes of Investments in the Chinese Capital Market (Year-End 1996 = CNY 1.00)

What this course actually does

- Make you an informed practitioner of finance, especially in the activity of investment

- Investment: the commitment of current resources in expectation of future benefits

Who Participates in the Investment Process?

Households

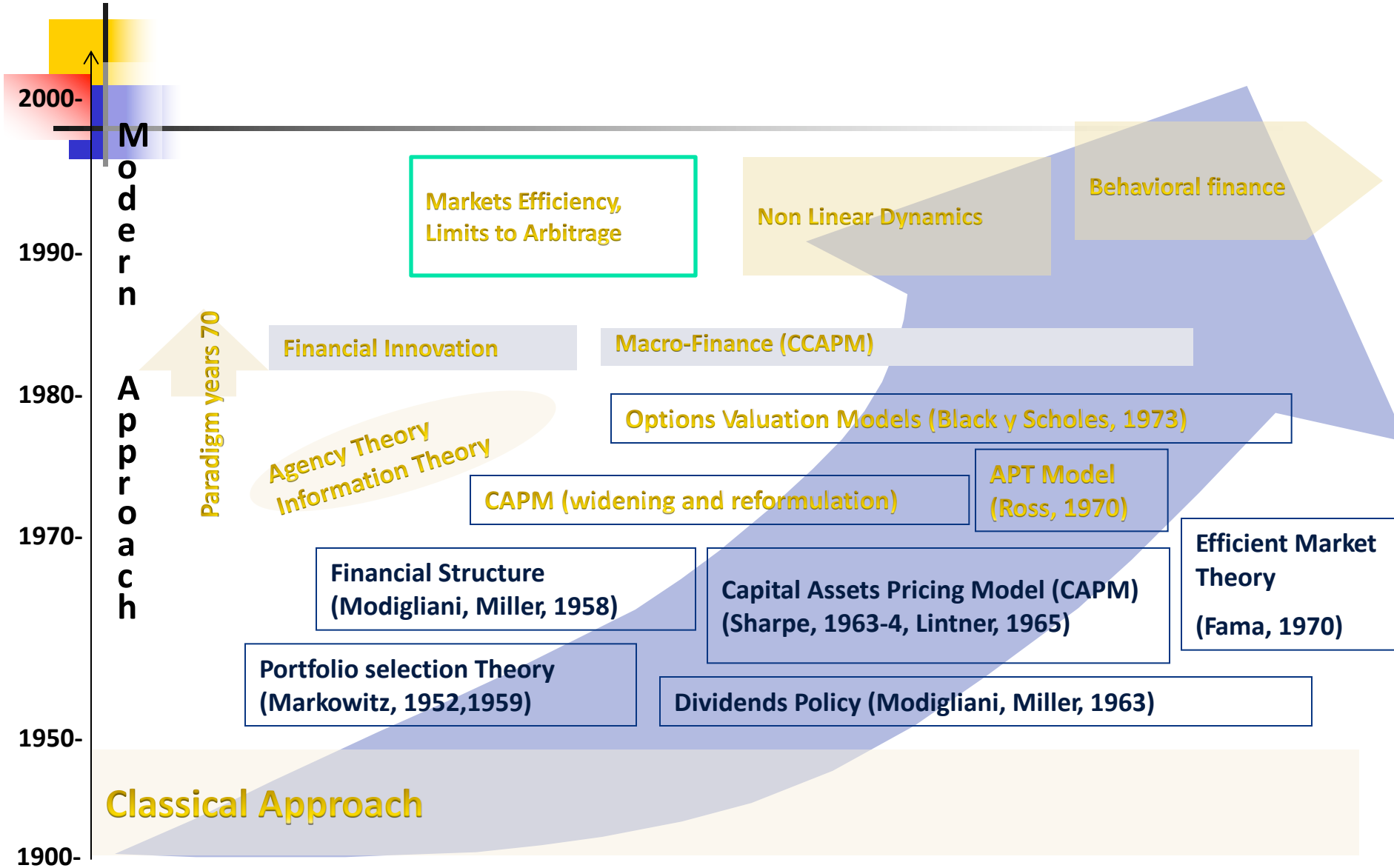
Corporations

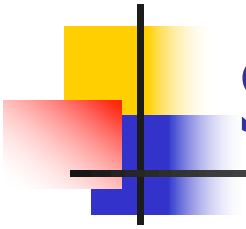
Intermediaries

Governments

What Are The Tools in the Investment Process?

- Real Assets
  - Land, buildings, machines, knowledge…
- Financial Assets
  - Fixed income (Debt)
  - Equity
  - Derivatives
- Knowledge on selecting the appropriate tools!
  (hopefully this course will give you a good start)


2000-
1990-
1980-
1970-
1950-
1900-
Modern Approach
Markets Efficiency, Limits to Arbitrage
Non Linear Dynamics
Behavioral finance
Paradigm years 70
Financial Innovation
Macro-Finance (CCAPM)
Agency Theory
Information Theory
Options Valuation Models (Black y Scholes, 1973)
CAPM (widening and reformulation)
APT Model (Ross, 1970)
Financial Structure (Modigliani, Miller, 1958)
Capital Assets Pricing Model (CAPM) (Sharpe, 1963-4, Lintner, 1965)
Efficient Market Theory
(Fama, 1970)
Portfolio selection Theory (Markowitz, 1952,1959)
Dividends Policy (Modigliani, Miller, 1963)
Classical Approach

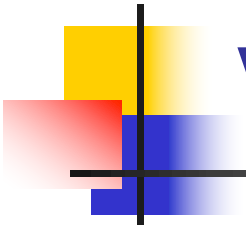


Security Analysis and Investment

- Topics
  - Security markets
  - Valuation of riskless securities
  - Portfolio analysis
  - CAPM and APT
  - Derivatives

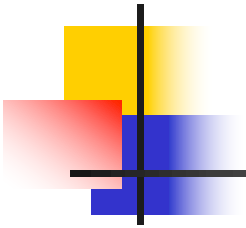
Security Markets Overview

- The Investment Objective
- Markets and Instruments
- How Securities are Traded
- Mutual Funds and the Institutional Environment



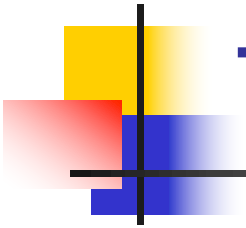
Valuation of Riskless Securities

- Yield-to-maturity
- Spot rates and forward rates
- Term structure



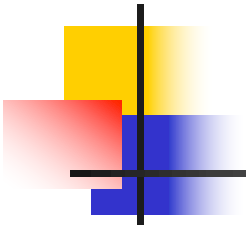
Portfolio Analysis

- Utility and the risk-return tradeoff
- Mean-variance analysis
  - Efficient portfolios
  - Diversification
- Leverage and its implications for efficient portfolios.



The CAPM and APT

- The Capital Market Line
- The Security Market Line
- Factor Models
- Arbitrage and implications for pricing
- Properties of returns



Derivatives

- Forward and futures contracts
- Options

Administrative issues

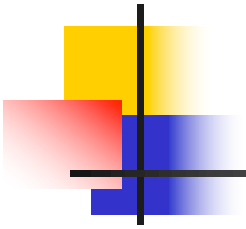
- Name: ZHANG Yu
- Office: GH 360
- Tel: 10-62751856
- Email: yuzhang@gsm.pku.edu.cn
- Office hours: By appointment
- TA: ZHANG Xinghua
- Email: 1701110963@pku.edu.cn

Reading materials

- Investments by Bodie, Kane, and Marcus, Xth Edition, McGraw-Hill. 机械工业出版社有影印版
- Others:
- Newspaper, magazines
  - (with a critical eye sometimes…)

Other reading assignments

- 《摩根财团》
- 《大空头》
- 《非理性繁荣》
- 《宽客人生》
- 《史上最伟大的交易》
- 《门口的野蛮人》
- 《说谎者的扑克》
- 《伟大的博弈:华尔街金融帝国的崛起(1653～2011)》
- 《贼巢》
- 《大而不倒》
- 《拯救华尔街》
- 《漫步华尔街》
- 《与天为敌:风险探索传奇》
- 《高盛帝国》
- 《投资新革命》
- 《对冲基金风云录》
- 《最后的大佬》
- 《众魔在人间》
- 《资本之王》
- 《金融之王》
- 《点球成金》
- 《华尔街狂人》
- 《Flashboys》
- 《私募帝国》
- 《"错误"的行为》
- 《动物精神》



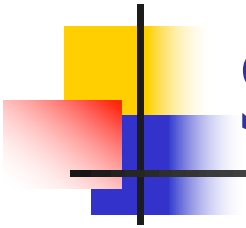
Requirements

- Evaluation:
  - Quiz: 5%
  - Homework: 15%
  - Midterm Exam: 40%
  - Final Exam: 40%

Attitude

Everything can be taken from a man but one thing: the last of the human freedoms – to choose one's attitude in any given set of circumstances, to choose one's own way

Viktor Frankl



Security Markets Overview

- The Investment Objective
- Markets and Instruments
- How Securities are Traded
- Mutual Funds and the Institutional Environment

Role of Financial Assets and Markets

- Consumption Timing
- Allocation of Risk
- Separation of Ownership

The Investment Objective

- Forming an Investment Objective
  - What is your (client's) investment goal?
  - How long is the planning horizon?
  - How large is your risk appetite?
- Executing the Investment Objective
  - Asset Allocation (Broad)
  - Security Selection (Narrow)
  - Top-down v.s. Bottom-up

Security Markets Overview

- The Investment Objective
- Markets and Instruments
- How Securities are Traded
- Mutual Funds and the Institutional Environment

Markets and Instruments

- Major classes of financial assets or securities:
  - Debt
    - Money market instruments
    - Bonds
  - Common stock
  - Preferred stock
  - Derivative securities

Money Market Instruments

- Treasury bills
- Certificates of Deposit and Bearer Deposit Notes (BDNs)
- Commercial Paper
- Bankers' Acceptances
- Repurchase Agreements (REPOs) and Reverse REPOs

Money Market Instruments

- Subsector of the fixed-income market
- Very short-term securities that are usually traded by institutional investors in very large denominations
- MMMF (货币基金) :
  - Mutual funds that invest in money market instruments on behalf of retail investors

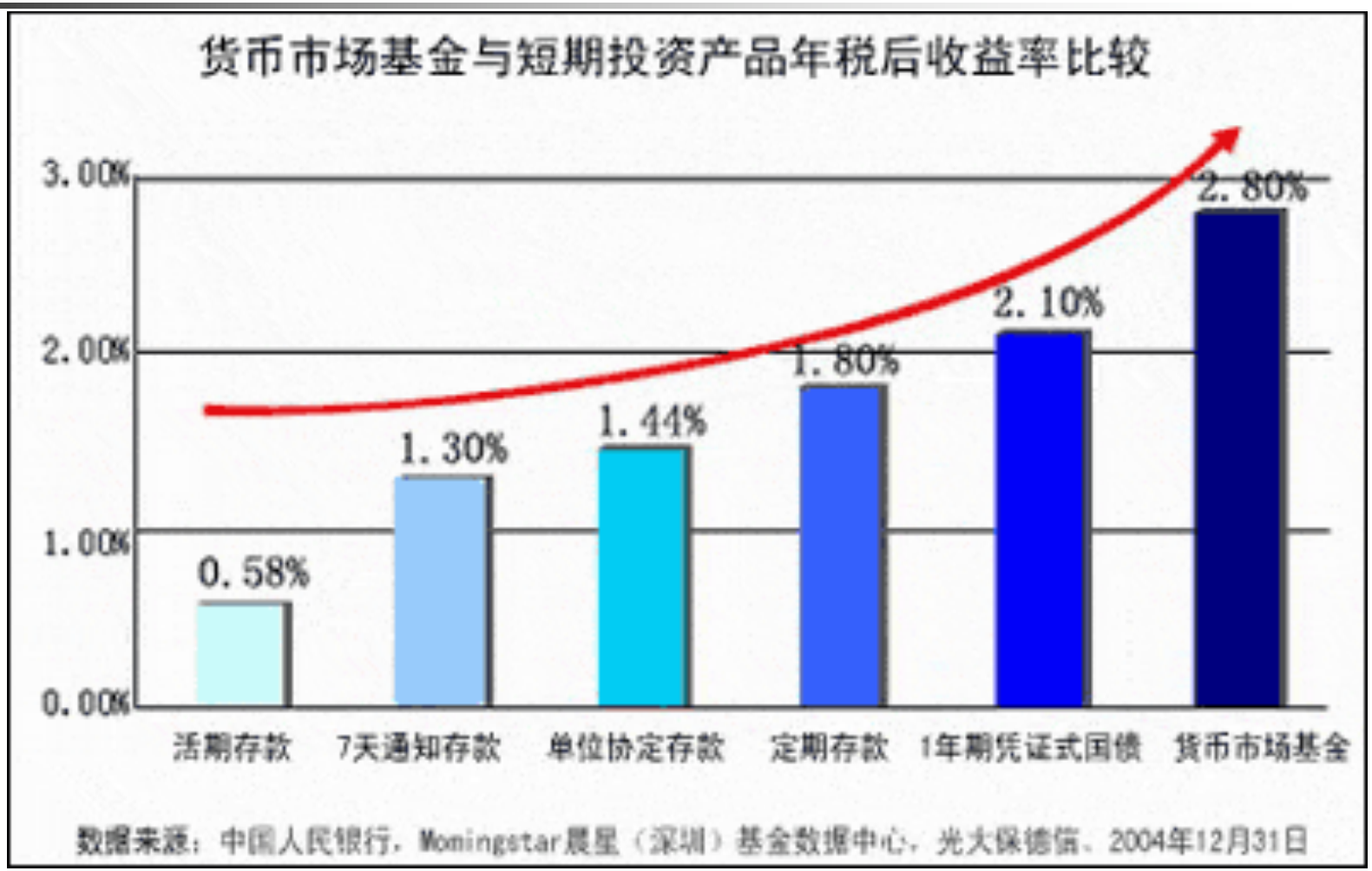
Chinese Market

货币市场基金与其他短期投资品种的比较

品种		流动性	年化收益率
货币市场基金		仅次于活期存款	2.80%（无税收） (04年4季度市场简单平均水平)
活期存款		随存随取	0.72%（储蓄税后0.576%）
定期存款	3个月	提前支取只能获得活期利息	1.71%（储蓄税后1.368%）
	6个月		2.07%（储蓄税后1.656%）
	1年		2.25%（储蓄税后1.80%）
通知存款		提前1天预约	1.08%（储蓄税后0.864%）
		提前7天预约	1.62%（储蓄税后1.296%）
单位协定存款		通常有附加定期存款的条件，仅限于机构	1.44%（无税收）
一年期凭证式国债		流动性较好，类似于银行定活两便存款，存在利率波动风险	2.10%（无税收） (04年4季度市场简单平均水平)

以上数据由光大保德信基金公司特别提供，未经授权请勿转载。　　制表：新浪财经 2005-05-31

Rates of Returns



银行、基金收益率对比

谁牛金融数据提供

银行	活期利率	基金名称	近一年收益	今年以来收益
工商银行	0.35%	中欧滚钱宝货币	--	1.09%
农业银行	0.35%	易方达现金增利货币B	3.33%	1.09%
中国银行	0.35%	嘉实活期宝货币	3.86%	1.04%
建设银行	0.35%	鹏华安盈宝货币	4.15%	1.02%
交通银行	0.35%	易方达现金增利货币A	3.09%	1.01%
招商银行	0.35%	平安大华财富宝货币	3.96%	0.95%
中信银行	0.42%	华安日日鑫货币B	3.47%	0.94%
民生银行	0.38%	易方达增利宝货币	3.73%	0.94%
平安银行	0.42%	信达澳银慧管家货币C	3.81%	0.93%
兴业银行	0.42%	易方达天天增利货币B	3.66%	0.93%
光大银行	0.38%			
浦发银行	0.42%			

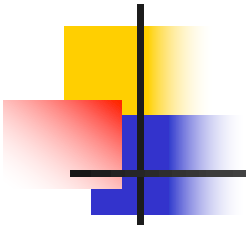
谁牛金融
我的私人理财顾问

我国货币基金投资范围

- 现金
- 一年以内(含一年)的银行定期存款、大额存单
- 剩余期限在三百九十七天以内(含三百九十七天)的债券
- 期限在一年以内(含一年)的债券回购
- 期限在一年以内(含一年)的中央银行票据
- 中国证监会、中国人民银行认可的其他具有良好流动性的货币市场工具。

Fixed Income Instruments

- Publicly Issued Instruments
  - Treasury Bonds
  - Provincial Government Bonds
  - Municipal Bonds
- Privately Issued Instruments
  - Corporate Bonds
  - Mortgage-Backed Securities



Equity

- Common stock
  - Residual claim
  - Limited liability
  - Corporate governance and restricted shares
- Preferred stock
  - Fixed dividends - limited
  - Payment priority over common
  - Tax treatment (in the U.S.)

Stock Indexes

- Uses
  - Track average returns
  - Comparing performance of managers
  - Base of derivatives
- Factors in constructing or using an Index
  - Representative?
  - Broad or narrow?
  - How is it constructed?

Examples of Indexes

- US
  - Dow Jones Industrial Average (30 Stocks)
  - Standard & Poor's 500 Composite
  - NASDAQ Composite
  - NYSE Composite
  - Russell 1000/2000
- China
  - Shanghai composite index (shenzhen)
  - 沪深300

Russell 2000 Index

ADD TO WATCHLIST | CREATE RUT ALERT

CLOSED

1,536.47

▼ -22.86 -1.47%

Last Updated: Feb 27, 2018 6:43 p.m. EST
- Delayed quote

PREVIOUS CLOSE

1,559.33

CHART RANGE: 1D | 5D | 10D | 1M | 3M | 6M | YTD | 1Y | 2Y | 3Y | 5Y | 10Y | ALL

FREQUENCY: Daily

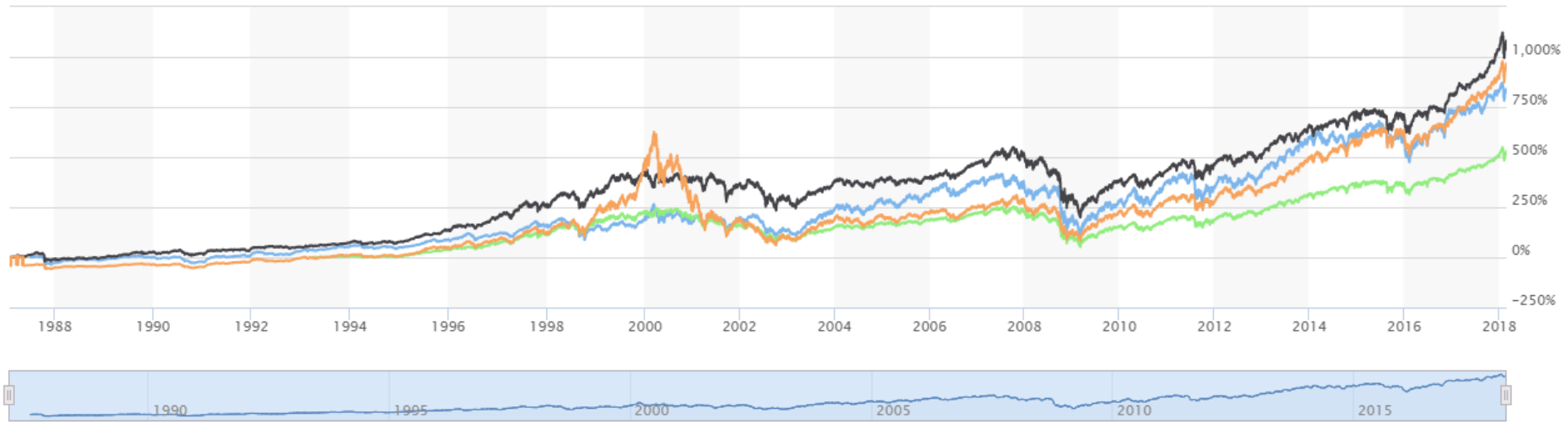
DISPLAY: Line

INDICATORS: Chart Overlays | Lower Charts | Events | News

COMPARE: COMPARE SYMBOL | US:DJIA × | US:SPX × | US:COMP ×

RESTORE DEFAULTS | STORE SETTINGS

● US:RUT



Construction of Indexes

- How are stocks weighted?
  - Price weighted (DJIA)
  - Market-value weighted (S&P500, NASDAQ, Russell)
  - Equally weighted (Value Line Index)
- How returns are averaged?
  - Arithmetic (DJIA and S&P500)
  - Geometric (Value Line Index)

Averaging Methods

Component Return

$r_A = 10\%$ $r_B = (-5\%)$ $r_C = 20\%$

Arithmetic Average:

$$ra = \frac{r_A + r_B + r_C}{3} = \frac{.10 + (-.05) + .2}{3} = 8.33\%$$

Geometric Average:

$$rg = \sqrt[3]{(1 + r_A)(1 + r_B)(1 + r_C)} - 1 =$$

$$= \sqrt[3]{(1.1)(.95)(1.2)} - 1 = 7.84\%$$

Bond Indexes

- Lehman Brothers
- Merrill Lynch
- Salomon Brothers
- Scotia Capital (Canada)
- Specialized Indexes
  - Merrill Lynch Mortgage

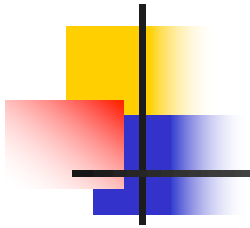
Derivatives Securities

Options

- Basic Positions
  - Call (Buy)
  - Put (Sell)
- Terms
  - Exercise Price
  - Expiration Date
  - Underlying Assets

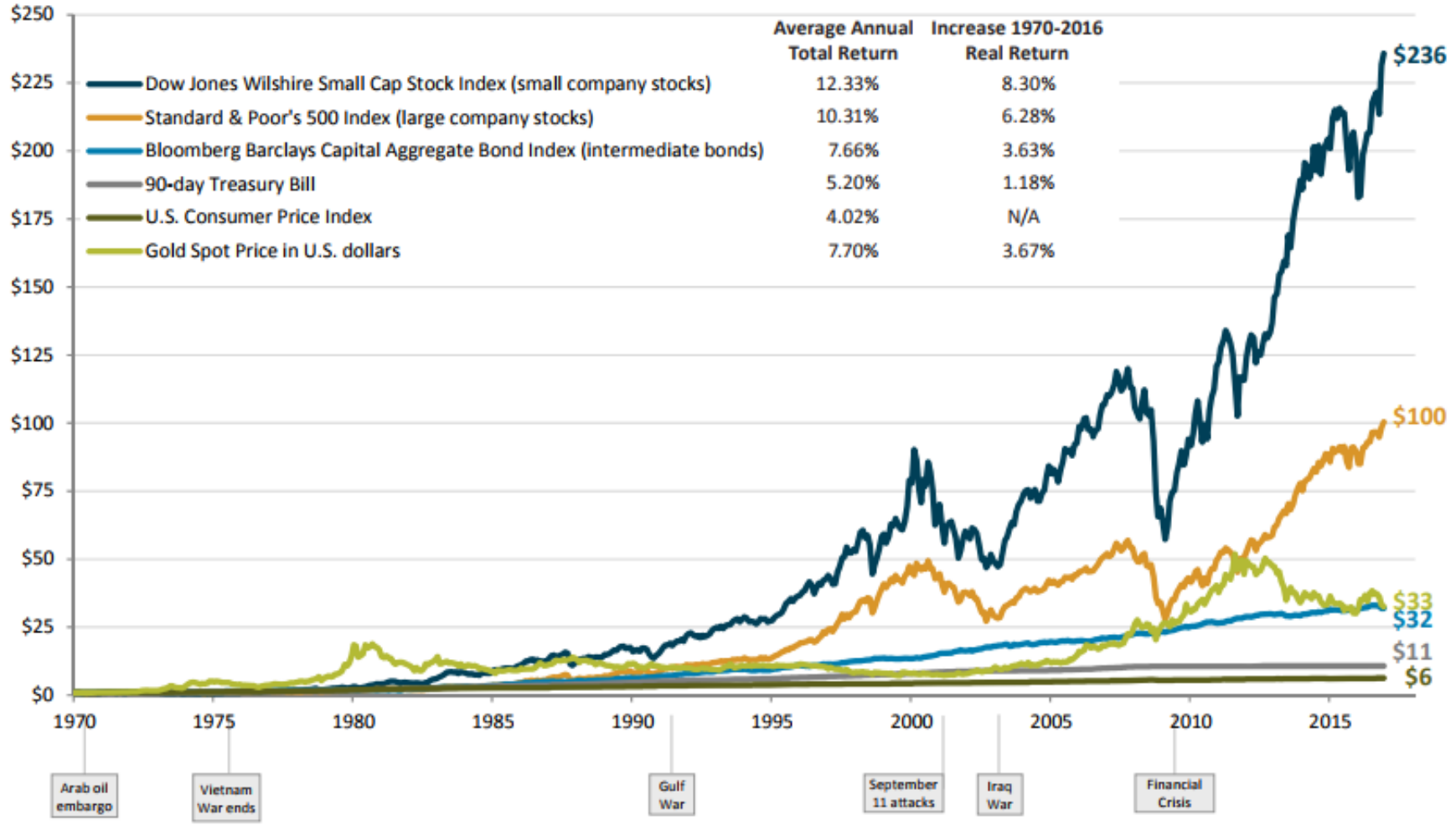
Futures

- Basic Positions
  - Long (Buy)
  - Short (Sell)
- Terms
  - Delivery Date
  - Underlying Assets



	Average Return	Standard Deviation
Treasury Bills	3.8	3.2
Treasury Bonds	5.5	9.3
Common Stock (Large Stocks)	13.3	20.1
Inflation	3.2	4.5
Corporate Bonds	5.9	8.7
Small Stocks	17.6	33.6

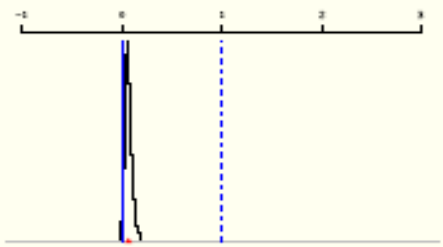
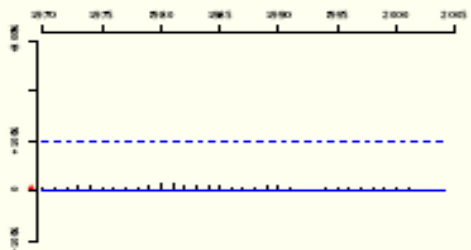
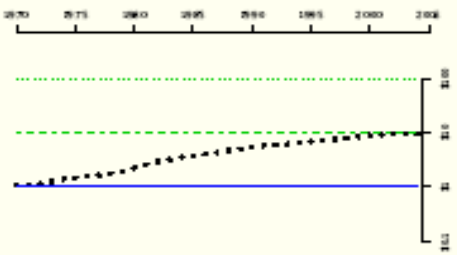
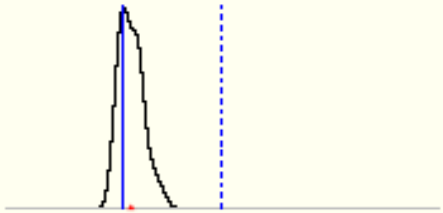
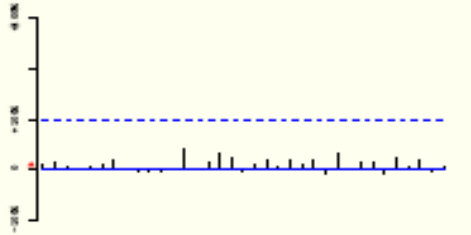
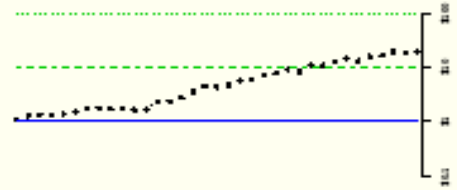
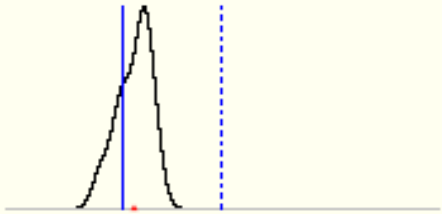
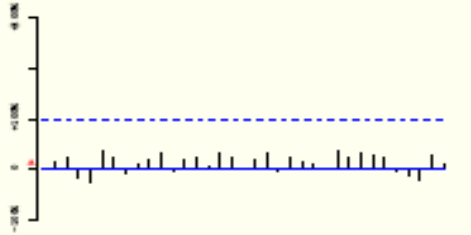
Stocks, Bonds, Gold and Inflation: 1970-2016



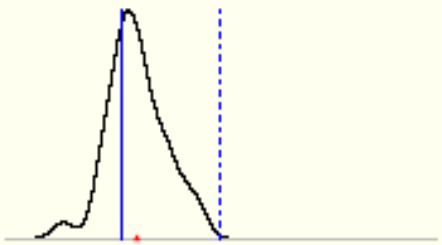
Note: This chart indicates the growth of a $1 investment.

Source: Wilshire Compass, Bloomberg. Assumes reinvestment of income and no transaction costs or taxes. This is for illustrative purposes only. This chart provides a look at long-term investment performance over a more recent period of time.

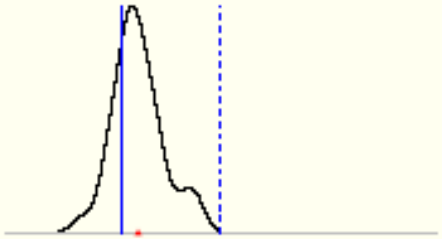
over ››

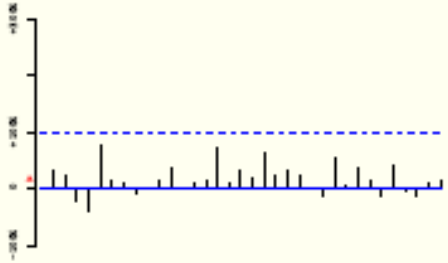
Description	Density Function	Rates of Return	Compound Return
"Cash" (Federal Funds Rate) Mean (Reward): 6.8%/yr Std.Dev. (Risk): 3.4%/yr $1 in Jan 1970 would have become $9.69 in 2004 Correl w/ S&P500: −2.8% Beta w/ S&P500: −0.0			
"Bonds" (20-Year Treasury) Mean (Reward): 9.4%/yr Std.Dev. (Risk): 11.8%/yr $1 in Jan 1970 would have become $19.29 in 2004 Correl w/ S&P500: +25% Beta w/ S&P500: +0.2			
"Stock Market" (S&P500) Mean (Reward): 12.4%/yr Std.Dev. (Risk): 16.7%/yr $1 in Jan 1970 would have become $39.45 in 2004 Correl w/ S&P500: +100% Beta w/ S&P500: +1.0			

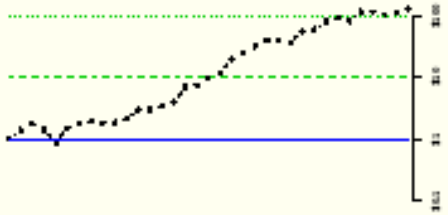
CocaCola (KO)
Mean (Reward): 16.3%/yr
Std.Dev. (Risk): 28.5%/yr
$1 in Jan 1970 would have
become $63.71 in 2004
Correl w/ S&P500: +63%
Beta w/ S&P500: +1.0



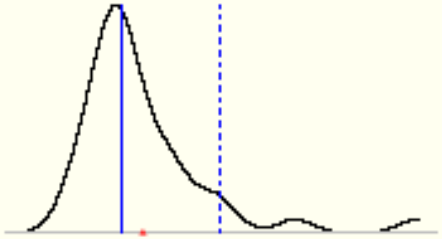
PepsiCo (PEP)
Mean (Reward): 17.6%/yr
Std.Dev. (Risk): 25.5%/yr
$1 in Jan 1970 would have
become $128.78 in 2004
Correl w/ S&P500: +59%
Beta w/ S&P500: +0.9







Sony (SNE)
Mean (Reward): 22.3%/yr
Std.Dev. (Risk): 66.9%/yr
$1 in Jan 1970 would have
become $29.94 in 2004
Correl w/ S&P500: +37%
Beta w/ S&P500: +1.5



Security Markets Overview

- The Investment Objective
- Markets and Instruments
- How Securities are Traded
- Mutual Funds and the Institutional Environment

How Securities are Traded

- Primary
  - New issue
  - Key factor: issuer receives the proceeds from the sale
- Secondary
  - Existing owner sells to another party
  - Issuing firm doesn't receive proceeds and is not directly involved

Investment Banking Arrangements

- Underwritten vs. "Best Efforts"
  - Underwritten: firm commitment on proceeds to the issuing firm ("bought deal")
  - Best Efforts: no firm commitment
- Negotiated vs. Competitive Bid
  - Negotiated: issuing firm negotiates terms with investment banker
  - Competitive bid: multiple IBs compete via sealed bids for the same issuance deal

Public Offerings

- Public offerings: registered with the SEC in USA and sale is made to the investing public
  - Red herring
  - Prompt offering prospectus
- Initial Public Offerings (IPOs)
  - Evidence of underpricing
  - Performance

Private Placements

- Private placement: sale to a limited number of sophisticated investors not requiring the protection of registration
- Dominated by institutions
- Very active market for debt securities
- Not active for stock offerings

Types of Markets

- Direct search markets
- Brokered markets
  - Block (large) transactions
- Dealer markets
  - OTC market
- Auction markets
  - Major exchanges

Organized Exchanges

- Auction markets with centralized order flow
- Dealers might still exists
  - Dealership function: can be competitive or assigned by the exchange (specialists or registered traders)
- Securities: stock, futures contracts, options, and to a lesser extent, bonds
- Examples: NYSE, NASDAQ, LSE, 上交所, 深交所

OTC Market

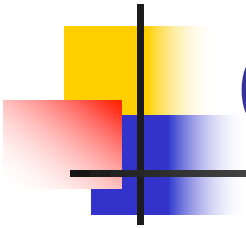
- Dealer market without centralized order flow
- NASDAQ: largest organized stock market for OTC trading; information system for individuals, brokers and dealers
- Levels of interaction: *users, market-makers*
- Securities: stocks, bonds and derivatives
  - Most secondary bonds transactions

The execution of trades

- Market maker functions
  - Maintaining a “book”
  - Maintain a “fair and orderly market”
  - Execute “stabilizing” trades
- Market makers possess valuable inside information about the future direction of the market

Buying and Selling Securities

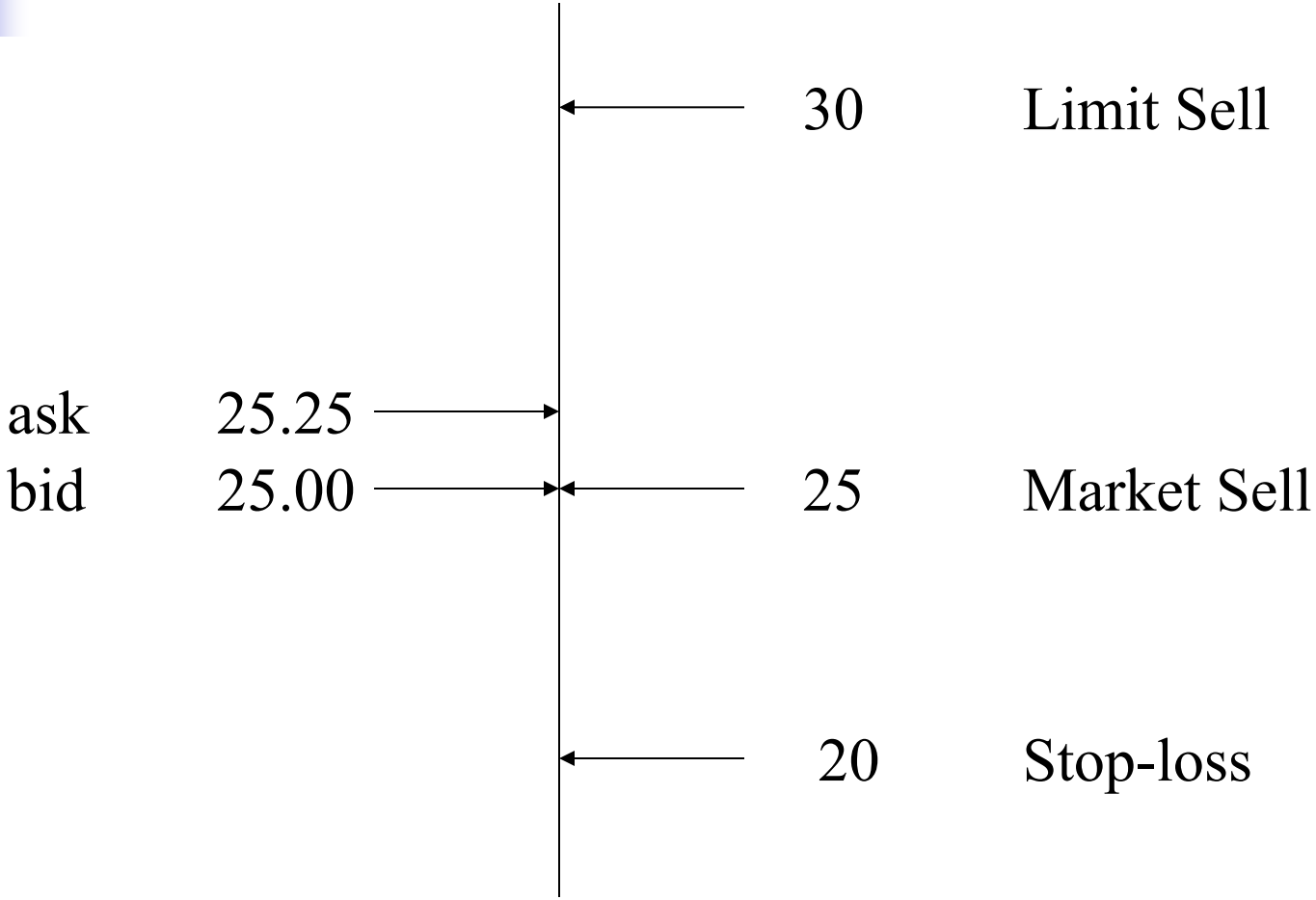
- Investors purchase securities through brokers for a commission
- Investor must specify
  - Obvious things:
    - Name of firm
    - Buy or sell order
    - Size of order
  - Other characteristics:
    - Type of order
    - How long order is to be outstanding



Order Specification

- Order type
  - Market order
    - Buy or sell immediately
  - Limit order
    - Limit price specifies lowest selling price (or highest purchase price)
    - “Buy 500 share of Moutai but only if <=￥500”
  - Stop order
    - Stop price specifies highest selling price (or lowest purchase price)
    - “Sell all my LETV shares if it drop below ￥2.00”

Sell Orders



Example of a Limit Order Book

- Last trade: $50
- If a market buy for 100 shares comes in, what price will it get?
- At what price will the next market buy be filled?
- If you were the specialist, would you want to  or  your inventory?

Buy Orders		Sell Orders	
Price	Shares	Price	Shares
49.75	500	50.25	100
49.50	800	51.50	100
49.25	500	54.75	300
49.00	200	58.25	100
48.50	600		

Order Specification

Time limit

- Day orders
  - If order is not filled by end of day, order expires.
- Good through orders
  - Valid for a specified number of days and automatically expires if it has not been executed by expiry date
- Open orders (good-till-cancelled)
  - Valid until either filled or cancelled by investor.
- All or none orders
  - Must be fully executed or not accepted (as opposed to **any part order**)
- Discretionary order
  - Broker decides on specifications

Margin Purchases

- A brokerage firm may allow customers to purchase securities *on margin.*
- You put up the *margin* in cash and borrow the remainder (the *debit balance)* from the broker.

Margin Purchases

- $\text{Margin} = \dfrac{\text{Equity in account}}{\text{Value of Stock}}$

- Margin is *marked to market* daily

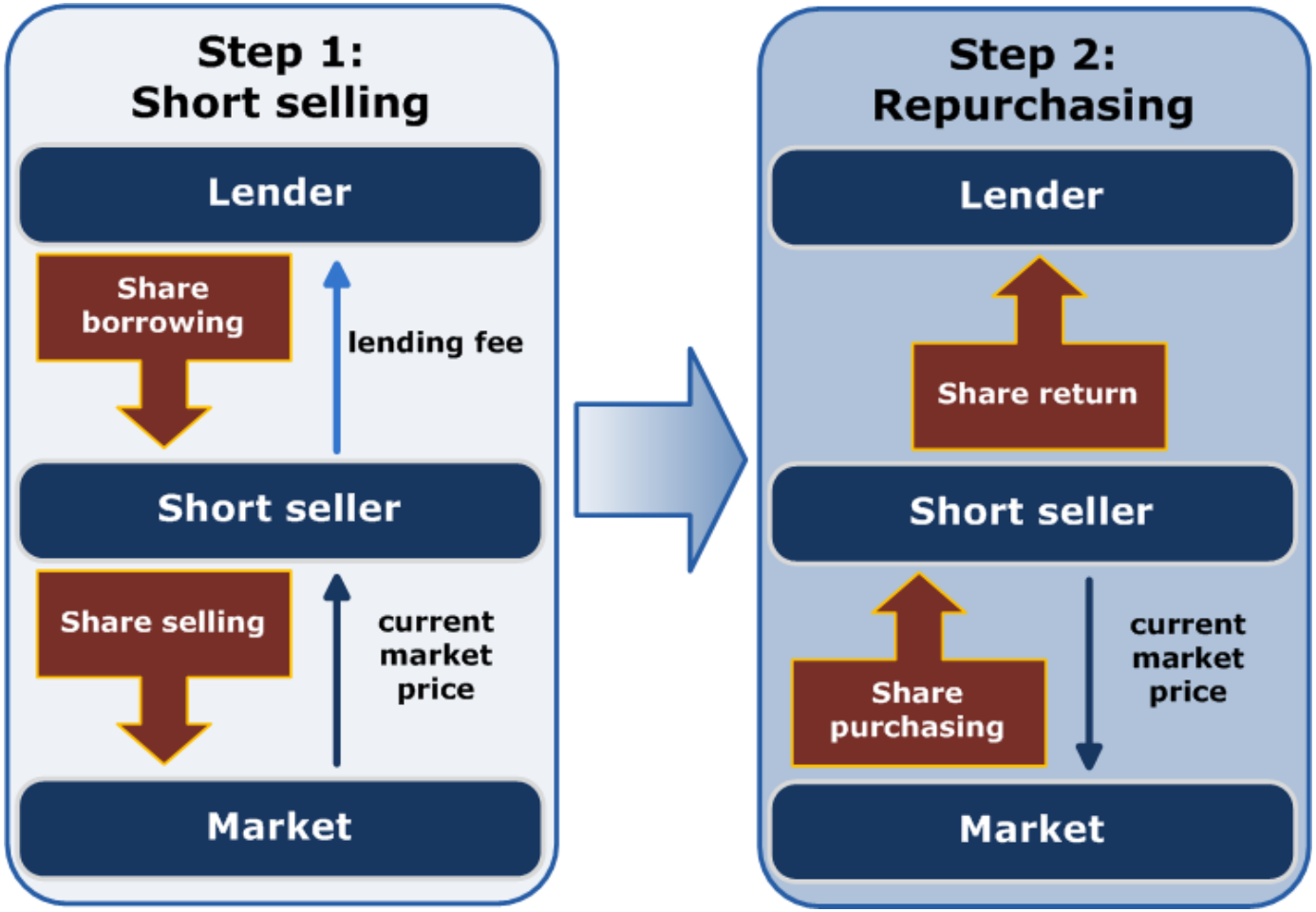
Margin Purchases

- Margin is *marked to market* daily
- Margin shortfalls result in *margin calls*.
- Purchasing on margin *levers up* returns:
  - e.g. purchase 100 shares for $50/share and sell in one year for $65
  - Return is 30%
  - With 60% margin purchase and an 8% borrowing rate the return is 44.7% ((15x100-.08x$2000)/$3000)

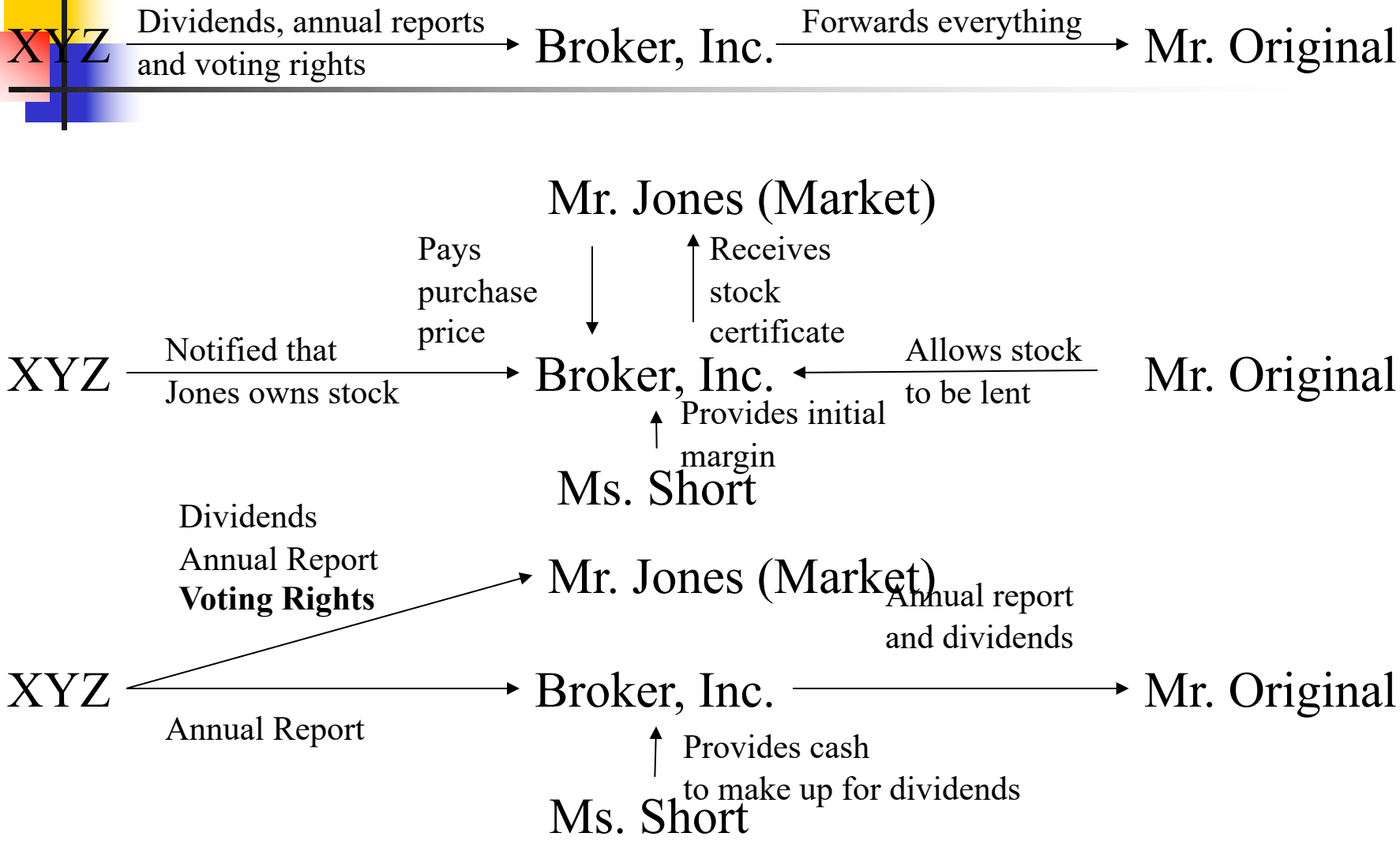
Short Sales

- Can use a short sale to sell a stock you don't own.
- Broker effectively arranges to borrow the shares you want to sell from another investor.
- Some details
  - Must put up some margin that depends on stock price.
  - $\text{Margin} = \dfrac{\text{Equity}}{\text{Value of Stock Owed}}$

Short Sale Example



Short Sale Example



Idealized Shorting Example

Your Wealth: \$200.

> You can sell \$100 worth of KO shares (or an equivalent promise) to another investor, who wants to hold KO shares. This gives you \$200 + \$100 = \$300 of cash, which you can invest into Pepsico.

Portfolio $\mathcal{P}$: $w_{\text{KO}} = -\$100,\ w_{\text{PEP}} = \$300, \quad \Longrightarrow w_{\text{KO}} = -50\%,\ w_{\text{PEP}} = 150\%.$

Hypothetical Rates of Return: KO $= -10\%$, PEP $= +15\%$.

$\Longrightarrow$ Portfolio Rate of Return: $r_{\mathcal{P}} = -50\% \cdot (-10\%) + 150\% \cdot (+15\%) = +27.5\%.$

\$100 KO shares borrowed became a liability of \$90, for a gain of \$10;

\$300 PEP shares invested became an asset of \$345, for a gain of \$45.

$\Longrightarrow$ Your net portfolio gain is \$55 on an original investment of assets worth \$200, which comes to a +27.5% rate of return.

Here there is essentially no margin required for the short sale

Real World Retail Investor Shorting Example

Your Wealth: \$200.

> The broker finds another investor to borrow shares from and sells the shares (on your behalf) for \$100 to another investor, who wants to hold KO shares. The broker keeps \$100, because in our example, the retail investor is assumed to receive absolutely no shorting proceeds. (Institutional investors can typically receive some, but not all of the shorting proceeds.) You still have \$200 in cash (\$100 less than in the idealized case), which you can invest into Pepsico.

Portfolio $\mathcal{P}$: $w_{\text{KO}} = -\$100,\ w_{\text{PEP}} = \$200, \quad \Longrightarrow w_{\text{KO}} = -50\%,\ w_{\text{PEP}} = 100\%.$

Hypothetical Rates of Return: KO $= -10\%$, PEP $= +15\%$.

$\Longrightarrow$ Portfolio Rate of Return: $r_{\mathcal{P}} = -50\% \cdot (-10\%) + 100\% \cdot (+15\%) = +20.0\%.$

\$100 KO shares borrowed became a liability of \$90, for a gain of \$10;

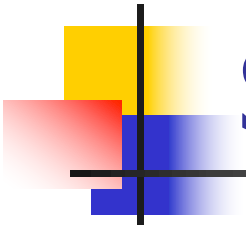
\$200 PEP shares invested became an asset of \$230, for a gain of \$30.

$\Longrightarrow$ The net portfolio gain is \$40 on an original investment of assets worth \$200, which comes to a +20% rate of return.

Here there is a 100% initial margin requirement for the short sale

Homework 1

- Since the beginning of the Chinese stock market, we have experienced different processes of IPO. Briefly describe them. (quote your source)
- Please draw the cumulative rate of return of the Shanghai Composite index from 1997 to 2018 and the density function of the rate of return. (I want very nice graphics! Monthly return)
- Please describe the way in which orders are executed in each of the following exchanges: NYSE and NASDAQ in the U.S., and Shanghai Stock Exchange and the New Third Board in China. Discuss briefly the most likely reason in your opinion why each exchange adopts this execution mechanism.



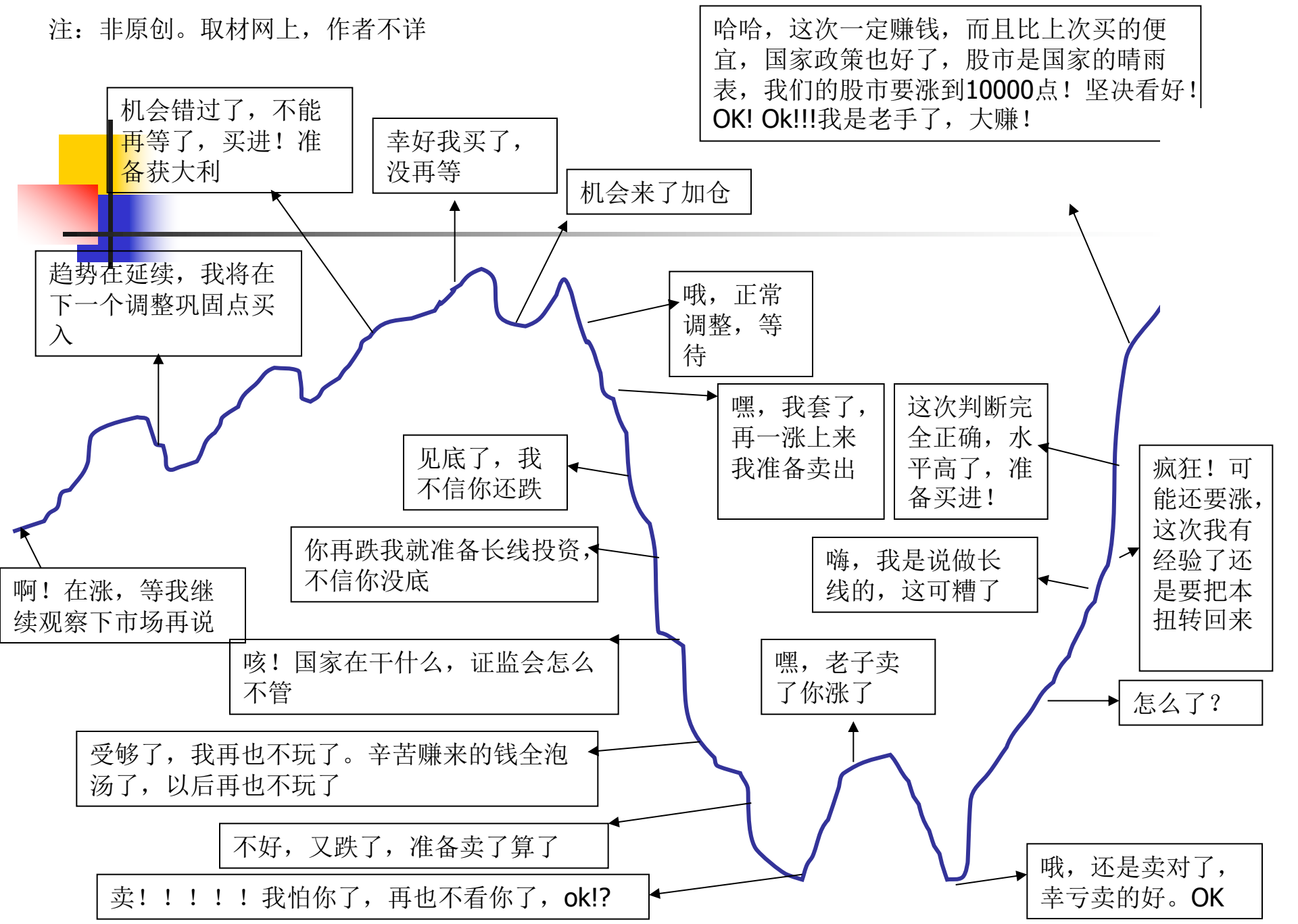
Security Markets Overview

- The Investment Objective
- Markets and Instruments
- How Securities are Traded
- Mutual Funds and the Institutional Environment

Institutional Investors

Type of Investor	Risk Tolerance
Individual and personal trusts	Life cycle
Mutual funds	Variable
Pension funds	Depends on proximity of payouts
Endowment funds	Generally conservative
Insurance companies	Conservative
Banks	Variable

注：非原创。取材网上，作者不详



Constraints in Portfolio Management

- Liquidity
- Investment horizon
- Regulatory constraints (institutional investors)
  - The prudent person law
  - Limits on foreign holdings
  - Limits on individual firm holdings

Services of Investment Companies

- Administration & record keeping
- Diversification & divisibility
- Professional management
- Reduced transaction costs
- Increased investment opportunities

Key Players

- Investors:
  - Ordinary individuals
  - Pension plans: corporate, state, labor unions
  - Endowments
  - Very rich individuals
- Money managers:
  - Mutual fund managers
  - Institutional money managers (index vs. active)
  - Hedge fund managers
- At end of 1990's, $ 7.1 trillion held by institutions (47%)
- 55% of U.S. equities held by institutions

Pension Fund

- First one established in the U.K. 300 years ago.
- Today, more than $ 7 trillion worth of pension fund assets (approximately 25% of worldwide GDP).
- They are non-insured funds created to provide retirement benefits to members of the pension plan, both in the private and public sector.
- All pension systems use some combination of defined-benefit and defined-contribution plans.

Defined Benefit Fund

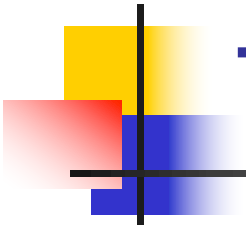
- Defined benefit: pension members are guaranteed a pre-specified payment amount over time upon retirement (usually based on ending salary).
  - Funding level: = MV of total assets/PV of total liabilities
  - if > 100% then overfunded and if <100% then underfunded.

Defined Contribution Fund

- Defined contribution: employer and/or employees contribute specified amounts, and, upon retirement, receive a payment amount over time that depends on the investment performance of the funds.

Differences

- Defined contribution plan members have more discretion over how the money is invested.
- Defined benefit plans generally allocate more funds to outside equity (i.e., other than own company stock).
- Defined contribution plans typically invest in guaranteed investment contracts (GICs) that lock in a return.
- More active management in defined benefit plans.



Trend

- There has been a switch from defined-benefit to defined-contribution pension plans
- Increase in indexed (vs. actively managed) funds

Mutual Fund

- Main difference between mutual fund and pension fund industry:
  - Investment in mutual funds are decided by individuals, who allocate their own wealth.
  - Investment in pension funds are guided by corporate treasurers to provide benefits for its employees.

Mutual fund types

- money market,
- fixed-income,
- equity (growth, value, income, aggressive growth, etc.),
- balanced,
- asset allocation,
- index,
- sector or
- specialized.

Net Asset Value

- Used as a basis for valuation of investment company shares
  - Selling new shares
  - Redeeming existing shares
- Calculation:

$$\text{NAV} = \frac{\text{Market Value of Assets} - \text{Liabilities}}{\text{Shares Outstanding}}$$

Open-End and Closed-End Funds: Key Differences

Shares Outstanding

- Closed-end: no change unless new stock is offered
- Open-end: changes when new shares are sold or old shares are redeemed

Pricing

- Open-end: Net Asset Value(NAV)
- Closed-end: Premium or discount to NAV

Costs of Investing in Mutual Funds

- Operating expenses (routine, annual)
- Front-end load (when you enter)
- Back-end load (when you exit)
- Fees and performance

A First Look at Fund Performance

- Benchmark: SP500
- Results
  - Most funds underperform
  - Not fair comparison because of costs
- Adjusted Benchmark: SP500 with passive management costs considered
  - The majority of funds still underperform

Consistency of Fund Performance

- Do some mutual funds consistently outperform?
- Evidence suggests that some funds show consistent stronger performance
  - Depends on measurement interval
  - Depends on time period
- Evidence shows consistent poor performance

Sources of Information on Mutual Funds

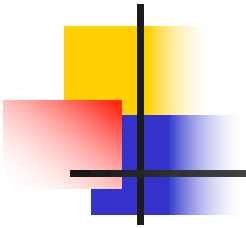
- Morningstar
- Investment Company Institute
- Popular press
- Investment services

Exchange-Traded Funds

- Passive vs Active investing
- Low fees
- Exchange index funds
- Specialized ETFs (bonds, sub-indices and sectors, inverse, levered)
- International index funds

Hedge fund

- Employ aggressive investment strategies:
  - Highly levered
  - Seek arbitrage opportunities (relative value)
  - Strategies often involve complex derivatives
- Limited to under 100 investors
  - Individuals must have net worth at least $1m
- Few disclosure requirements
- Evaluated on an absolute basis
  - not relative to market (“hedge” = market-neutral)
- Fees are % of assets (125+ bp) and % of upside



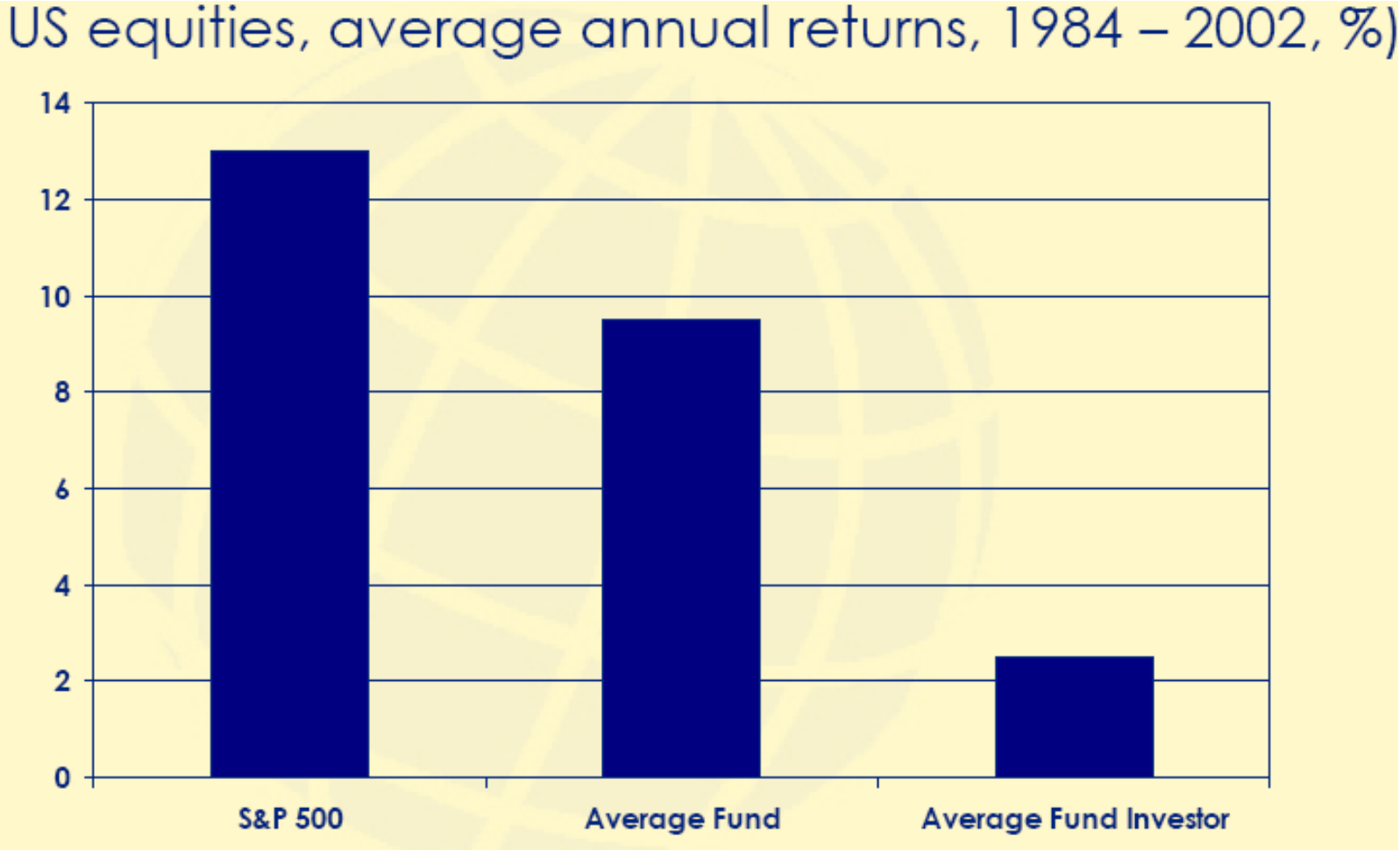
Performance

- Not very impressive
- One study based on 91 pension funds from 1974-1983 found underperformance relative to the S&P of 110 bp
- Another, based on 769 pension funds from 1983-1990 found underperformance of 50 bp/year
- And all of this is before fees (typically 50 bp/year).
- Active pension management subtracted rather than added value.

Performance: Pension funds

Year	Average Fund Return EW	VW	SP500 Ret	% Funds below SP500
1983	17.8%	18.1%	22.5%	59%
1984	3.8%	3.2%	6.3%	63%
1985	33.3%	30.5%	32.2%	38%
1986	18.1%	16.8%	18.5%	50%
1987	4.0%	4.4%	5.2%	61%
1988	17.9%	15.7%	16.8%	47%
1989	29.2%	25.9%	31.5%	61%
Average	17.7%	16.4%	19.0%	54%

Performance: Mutual funds



Performance: Hedge funds

- Using monthly returns data for 1,610 hedge funds in the TASS database from 1986 to 2005, we estimate linear factor models for individual hedge funds using six common factors, and measure the proportion of the funds' expected returns and volatility that are attributable to such factors. For certain hedge-fund style categories, we find that a significant fraction of both can be captured by common factors corresponding to liquid exchange-traded instruments. While the performance of linear clones is often inferior to their hedge-fund counterparts, they perform well enough to warrant serious consideration as passive, transparent, scalable, and lower-cost alternatives to hedge funds.

Managed Money

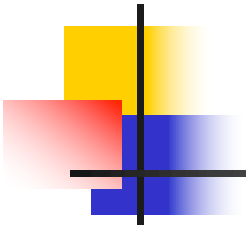
- Same essentially as active mutual funds,
  - Hire someone to manage your money via stock-picking
  - Except money is in your account (as opposed to in the mutual fund)
  - Performance evaluated against benchmarks
  - Success depends a lot on schmoozing ability, not just money management ability
    - need to have a good story/concept
    - be good at explaining (poor) performance
    - entertain your clients

Rough idea of how active managers pick stocks

1. Generate universe of eligible stocks
   - Start with a database of stocks, do initial screening on: market capitalization, trading volume, past earnings growth, forecasted growth, P/E and P/B ratios, leverage
   - Get ideas from Wall Street analyst reports, regional brokerages, industry contacts, IPO's, general reading
   - End up with eligible set of about 200 stocks

Rough idea of how active managers pick stocks

2. Do fundamental analysis to find undervalued stocks
   - Equity analysts study company and industry and generate earnings forecasts
   - Use Present Value formula to find “true" value and compare to market price
   - “Buy-side Analyst”
3. Hold portfolio of about 50-100 stocks



REITs

- Real Estate Investment Trusts
  - Like mutual funds, but focus on real estate
  - Also, much lower (sometimes close to no) turnover of portfolio (real estate) assets
  - Substantially increase marketability/liquidity of real estate investments

Homework 2

- List two close-end funds in China (or focused on China) and draw a graph of their historical performances
- List two open-end funds in China (or focused on China) and describe their asset allocation