Understanding Risk
To Help You Invest Soundly

Thomas Morris
thomas.morris@mac.com
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“I would not give a fig for the simplicity on this side of complexity, but I would give my right arm for the simplicity on the far side of complexity.”

Oliver Wendell Holmes Jr.
Goals

- Develop practical understanding of some of the more common investment vehicles and concepts in today’s financial world.
- Develop a practical understanding of the risks associated with each of these investment vehicles.
- Learn a few techniques to manage investment risk.
- Discuss active versus passive management.

Schedule

- Section 1 - Understanding Global Capital Markets
- Section 2 - Risks With Investing in Capital Markets
- Section 3 - Measuring Investment Risk
- Section 4 - Managing Investment Risk
- Section 5 - Active versus Passive Management
Section 1 - Global Capital Markets

- Capital Markets
- Bonds (domestic, international, TIPS)
- Stocks (domestic, international)
- Currencies
- Economic Sectors
- Indexes
- ETFs
- Investment Companies
- REITs

Household Needs

<table>
<thead>
<tr>
<th>2008</th>
<th>2028</th>
</tr>
</thead>
<tbody>
<tr>
<td>X buying power</td>
<td>Y buying power</td>
</tr>
</tbody>
</table>

Global Capital Markets provide a vehicle for households to shift their spending to some point in the future and to potentially increase their spending power.
Inflation

1971 to 2007 Average - 4.68%
1983 to 2007 Average - 3.11%

Household Needs

Since inflation is at play capital appreciation is required to grow our assets to maintain spending power.

I. If we only want to maintain spending power then we just need to keep pace with inflation. This can be done very safely for example, through U.S. government backed instruments called TIPS.

II. However, if we would like to increase our spending power then we need to grow our capital at a higher rate than inflation. The only investments that provide a probability of outpacing inflation are risky.

= nobody gets a free lunch
Financial Cycle

- **Business Sector**
  Primary Need: Raise funds

- **Government Sector**
  Primary Need: Raise funds

- **Household Sector**
  Primary Need: Invest funds

Financial Markets

- **Money Markets**
  Short term, very liquid, low risk debt
  - T-Bills, CDs, Commercial Paper

- **FOREX Markets**
  Facilitate trading of foreign exchange

- **Capital Markets**
  Long term, risky securities
  - Long Term Fixed Income Markets
    - T-Bonds and Notes
    - Corporate Bonds
    - Municipal Bonds
    - Mortgage Backed Securities
  - Equity Markets
    - Common Stock
    - Preferred Stock

- **Derivatives Markets**
  Instruments for management of financial risk
  - Options
  - Swaps
Bonds - First instrument in Capital Markets

Why cover bonds?

- Bonds are used extensively in engineering retirement plans.
- They can provide a risk buffer in portfolios.
- Play bigger role when portfolio morphs to an income generator from a growth model.
- Sovereign debt provides safety!

Bonds - low correlation to stocks

Market Insight Series
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Investor acts as a bank to the government, municipality, or corporation.

**Example**

- **Face Value (par value):** amount repaid when the bond matures.
- **Maturity Date:** date when the final coupon payment is made and the face value is returned to lender.
- **Coupon Rate:** annual interest rate paid by the bond issuer to the investor.
- **Coupon:** \( = (\text{Coupon Rate} \times \text{Face Value}) \)

**Bonds - Main Attributes**
Government Treasuries
- **T-Notes**: 2 to 10 year maturity.
- **T-Bonds**: 10+ years maturity.
- Tax exempt: State & Local
- **NOTE**: T-Bills not included because they are short term and not subject to interest rate risks.

Municipal
- Tax exempt: Federal & *State

Corporate
- Tax exempt: None

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You are a creditor to the bond issuer.

You are not an equity owner so you do not have any voting rights.

You stand in front of shareholders in bankruptcy.
Common Stock - Purpose

Why issue stock to the public?
- Corporations issue to raise capital.
- Owners take their companies public to diversify their holdings.

Advantages over Bonds (from corp perspective)
- No interest payments like bonds.
- Doesn’t have to pay a dividend.

Disadvantages over Bonds (from corp perspective)
- Need to compound share value at a higher rate than bonds
- Disclosure and accountability to public

Common Stock

Investor becomes equity owner in company.
- Entitles owner of stock to one vote per share in voting matters*.
- Entitles owner of stock to share in financial benefits. (dividends)
Preferred Stock

- Pays a dividend into perpetuity. *(bond like)*
- No voting rights. *(bond like)*
- Not contractually obligated to pay dividend *(stock like)*
- Investors stand in front of common stock holders and behind bond holders in bankruptcy.
- Corporations that buy preferreds of other companies only pay taxes on 30% of dividend income. *(nice advantage for corporate investors. Not for individuals!)*

**Example**

International Stock - Overview

- ADRs - American Depositary Receipts

- Give U.S. investors vehicle for owning equity in foreign companies.

- Big bank e.g. JP Morgan, holds actual stock in custody account in the home market. Bank issues ADRs in U.S. against custody account.

- Dividends are subject to exchange rate risk.

- [www.adr.com](http://www.adr.com)
Currencies

- Kind of like stock ownership in a country.
- If economy is running well then investors move capital to country and demand drives up exchange rate.
- On the flip side - if inflation is rising fast investors are running for the exits and supply drives down exchange rate.
- Long protracted cycles.

http://markets.ft.com/ft/markets/currencies.asp

Currencies - $ vs. €

[Graph showing U.S. / Euro Exchange Rate (EXUSEU) from 1998 to 2010 with shaded areas indicating US recessions as determined by the NBER. Source: Board of Governors of the Federal Reserve System.]

http://research.stlouisfed.org/fred2/series/EXUSEU?cid=95
Terminology - Economic Sectors

- **Consumer Discretionary** - automotive, household durables
- **Consumer Staples** - food, beverages, tobacco
- **Utilities** - electric, gas, water, independents
- **Telecommunication Services** - fixed line, cellular, wireless
- **Materials** - commodity related manufacturing
- **Information Technology** - software & services
- **Industrials** - heavy machinery, aerospace
- **Health Care** - manufacture healthcare equip, services
- **Financials** - banks, insurance
- **Energy** - exploration, production, energy services


http://personal.fidelity.com/products/funds/content/sector/cycle.shtml
Terminology - Asset Classes

- Stocks
- Bonds
- Real Estate
- Private Equity
- Hedge Funds
- Commodities
- Currencies

Indexes

Composites created to track a subject matter.

U.S. Broad

DOW Industrials - 30 blue chip stocks, price weighted, since 1928.
S&P 500 - 500 U.S. large cap companies, since 1957.
NASDAQ - Composite of 3000+ U.S. and Intl. companies listed on Nasdaq.

International

U.K. - FTSE 250 - between 101st and 350th largest companies on LSE.
Germany - DAX - 30 largest German companies traded on Deutsche Boerse.
France - CACI - 40 most significant values among 100 largest on Euronext.
Russia - RTS - 50 most liquid Russian stocks traded on RTS.

http://markets.ft.com/markets/overview.asp
http://www.quintec.de/index.php?id=103
**Indexes**

MSCI (Morgan Stanley Capital International)

- Producing indices since 1969.
- Most widely used global benchmarks.

**MSCI EAFE** - Europe, Australasia, Far East - 21 Developed Markets - Australia, Austria, Belgium, Denmark, Finland, France, Germany, Greece, …

**MSCI EM** - 25 Emerging Markets - Argentina, Brazil, Chile, China, Egypt, India, Jordan, Korea, Morocco, Pakistan, Poland, Russia, …

<table>
<thead>
<tr>
<th>MSCI Austria</th>
<th>MSCI Belgium</th>
<th>MSCI Germany</th>
<th>MSCI Japan</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSCI Singapore</td>
<td>MSCI Switzerland</td>
<td>MSCI Spain</td>
<td>MSCI Italy</td>
</tr>
</tbody>
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**Exchange Traded Funds**

ETFs - Market traded index tracking portfolios.

- Available in U.S. since 1993
- Stated objective - e.g. track energy sector
- Passively managed - employ no selection skill
- Trade just like stocks - daily bid/ask spread
- Very different from open end mutual funds
- Tax efficient
- Low management fees - range .1% to .8%
Exchange Traded Funds

Created by…
- Standard & Poors - StateStreet Global Advisors
- Barclays - iShares
- PowerShares
- Vanguard
- WisdomTree
- Rydex
- ProFunds

Exchange Traded Funds

Use of ETFs
- Used to participate in growth of a country, sector, broad asset class e.g. commodities, real estate.
  - You believe consumer discretionary sector in general will continue to grow but consumers might get tired of McDonalds in favor of Panera Bread.
- Reduce exposure to risks of single shares.
- Asset allocation construction.
Exchange Traded Funds

Broad U.S. Equity Mrkts

<table>
<thead>
<tr>
<th>Fund</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPY</td>
<td>S&amp;P 500</td>
</tr>
<tr>
<td>DIA</td>
<td>Dow Jones Industrials</td>
</tr>
<tr>
<td>QQQQ PowerShares</td>
<td>Nasdaq 100</td>
</tr>
<tr>
<td>IVW iShares</td>
<td>S&amp;P 500 Growth</td>
</tr>
<tr>
<td>IVE iShares</td>
<td>S&amp;P 500 Value</td>
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</table>

International

<table>
<thead>
<tr>
<th>Fund</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFA iShares</td>
<td>Tracks MSCI EAFE - Australia, Austria, ...</td>
</tr>
<tr>
<td>EEM iShares</td>
<td>Tracks MSCI EM - Argentina, Brazil, Chile, Russia, ...</td>
</tr>
</tbody>
</table>

Countries Equity Mrkts

<table>
<thead>
<tr>
<th>Fund</th>
<th>Country</th>
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</thead>
<tbody>
<tr>
<td>EWG PowerShares</td>
<td>Germany Tracks MSCI Germany Index</td>
</tr>
<tr>
<td>EWO iShares</td>
<td>France Tracks MSCI France Index</td>
</tr>
<tr>
<td>EWI iShares</td>
<td>Italy Tracks MSCI Italy Index</td>
</tr>
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</table>

Commodities

<table>
<thead>
<tr>
<th>Fund</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>DBC PowerShares</td>
<td>Tracks Deutsche Bank Commodities index</td>
</tr>
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</table>

Exchange Traded Funds

S&P 500 Index Economic Sectors

<table>
<thead>
<tr>
<th>Sector</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>13%</td>
</tr>
<tr>
<td>Industrials</td>
<td>12%</td>
</tr>
<tr>
<td>Information Tech</td>
<td>17%</td>
</tr>
<tr>
<td>Materials</td>
<td>3%</td>
</tr>
<tr>
<td>Telecom Services</td>
<td>4%</td>
</tr>
<tr>
<td>Utilities</td>
<td>4%</td>
</tr>
<tr>
<td>Consumer Disc</td>
<td>10%</td>
</tr>
<tr>
<td>Consumer Staples</td>
<td>12%</td>
</tr>
<tr>
<td>Financials</td>
<td>17%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sector</th>
<th>Ticker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer Disc</td>
<td>XLY</td>
</tr>
<tr>
<td>Consumer Staples</td>
<td>XLP</td>
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<tr>
<td>Energy</td>
<td>XLE</td>
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<tr>
<td>Financials</td>
<td>XLF</td>
</tr>
<tr>
<td>Health Care</td>
<td>XLV</td>
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<tr>
<td>Industrials</td>
<td>XLI</td>
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<tr>
<td>Info Tech</td>
<td>XLK</td>
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<tr>
<td>Materials</td>
<td>XLB</td>
</tr>
<tr>
<td>Telecom Services</td>
<td>VOX</td>
</tr>
<tr>
<td>Utilities</td>
<td>VPU</td>
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Registered Investment Companies

Offer open-end mutual funds, closed-end funds, and unit investment trusts (UITs) that are regulated by the Investment Company Act of 1940.

- Act mainly requires disclosure of financial health to the public.
- Act also regulates conflicts of interest between investment companies and exchanges as well as brokers.
- Monitored by SEC.

www.ici.org

Mutual Funds

- Managed by investment advisor or committee.
- Have investment policy defined in prospectus.
- Not traded on exchanges.
- Shares are purchased and redeemed with investment company at the close of each day at NAV.
- Investors own a share of fund not the underlying securities.
- $NAV$ - Net Asset Value

\[
NAV = \frac{(total \ value \ of \ securities) - (liabilities)}{number \ of \ fund \ shares \ outstanding}
\]
Mutual Funds

- Money Market Funds
- Equity Funds
- Bond Funds
- International Funds
- Balanced Funds
- Income Funds
- Index Funds

Closed End Funds

- Have IPOs.
- Trade on exchanges.
- No expense associated with creating or redeeming shares.
- No loads.
- Must hold stockholder meetings.
- File quarterly with SEC.
Real Estate Investment Trusts

- REITS - similar to closed-end funds. Tax status for a company that invests in real estate that can eliminate corporate taxation.
- Must distribute 90% or more of income to investors.
- Income passes through entity to investors.
- Public and Private. More private than public.
- 2005 - 200 public, 800 private.
- International REITs - Available in Germany, Bulgaria, Japan, U.K., Singapore, ...
- Exchange traded - available through mutual funds, closed-end, ETFs

www.nareit.com
www.ncreif.com