

Understanding Risk  
To Help You Invest Soundly  
Part II



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September 2008

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Don't forget disclosure!

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Section 2 - Risk With Investing In Capital Markets

- ❖ Risks with Bonds
- ❖ Risks with Stocks
- ❖ Risks with Investment Companies
- ❖ Investment Risk

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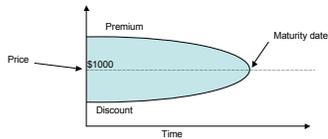
## Risks with Bonds

### Buying and Holding (income generating)

- ❖ If bonds are bought and held until maturity you know exactly what your ROI will be.

### Trading Bonds (speculative)

- ❖ The market value of a bond is affected by changes in interest rates. As the maturity date approaches the market value will approach the face value of the bond.



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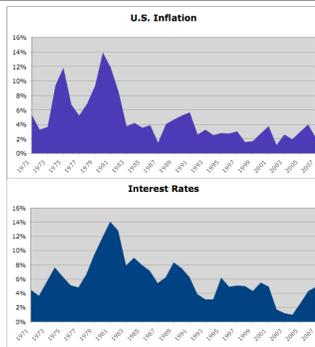
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## Taming Inflation and Interest Rates



<http://research.stlouisfed.org/fred2/>

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## Risks with Bonds

- ❖ **Default Risk** - risk of the company becoming insolvent i.e. unable to pay debts.

**Note: only corporate issued debt**

- ❖ **Interest Rate Risk** - comes from interest rates moving up rendering your bond less valuable.
- ❖ **Reinvestment Rate Risk** - When bonds pay coupons those coupon payments might need to be reinvested. If rates have dropped then they will be reinvested at a lower rate than the coupon rate.
- ❖ **Options** - Callable options give the issuing company the right to pay you back your principal and call the bond.

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## Default Risk

**Q:** If a company defaults where are we in line?

**Ans:** Behind bankers, ahead of preferred and common share holders.

**Q:** In case of default what of my principal would I get back?

**Ans:** Depends on many factors. Assets the company has. Will they rise out of bankruptcy? Will someone with deep pockets step in and rescue the company?

**Q:** How can we gauge Default Risk?

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## Rating Agencies

**Moodys.com** STANDARD & POORS

|   |     |     |  |
|---|-----|-----|--|
| Investment Grade<br>Junk<br>Increasing Risk | Aaa | AAA | The obligor's capacity to meet its financial commitment on the obligation is extremely strong.   |
|   | Aa  | AA  | The obligor's capacity to meet its financial commitment on the obligation is very strong.  |
|   | A   | A   | An obligation rated 'A' is somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than obligations in higher-rated categories. However, the obligor's capacity to meet its financial commitment on the obligation is still strong. |
|   | Baa | BBB | An obligation rated 'BBB' exhibits adequate protection parameters. However, adverse economic conditions or changing circumstances are more likely to lead to a weakened capacity of the obligor to meet its financial commitment on the obligation.                              |
|   | Ba  | BB  | Predominantly considered speculative with regards to paying interest and capacity to repay principal. Considered junk bonds.   |
|   | B   | B   |  |
|   | Caa | CCC |  |
|   | Ca  | CC  |  |

**Q:** What's the risk worth?

<http://personal.fidelity.com/myfidelity/email.html?http://myfidelity.members.fidelity.com/investors/Weekly/cms/FFA070504highyield.dyn.m?SessionId=FZ1VAJPWNDE4COBFEPCCFO?keyword=honds&source=FEA>

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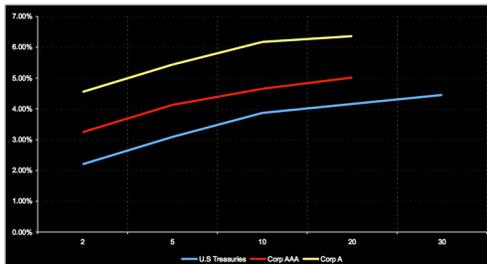
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## Price of Default Risk

U.S. Treasuries v. Corporate Yields September 22, 2008



<https://personal.vanguard.com/us/funds/bonds/bondyields>

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## Interest Rate Risk or Price Risk

### Today

You buy this bond...

**Value:** \$1000  
**Rating:** AAA  
**Maturity:** 2 Years  
**Coupon:** 5%

### Next Day

Treasury rates increase...

Corporations have to pay higher returns on their new bonds to attract buyers...

So this bond is not available in the market...

**Value:** \$1000  
**Rating:** AAA  
**Maturity:** 2 Years  
**Coupon:** 6%

**Q:** How much can we sell our bond for?

**Ans:** We have to sell it for less so that it has an equivalent value to the new bond.

If rates ↑  
 Resell value ↓

**Q:** How can we measure Interest Rate Risk?

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## Bond Duration

A bond's **Duration** - tells us the percentage change in the price of the bond, that we could expect, if interest rates rise or fall by 1% or 100 basis points.

### Example

| Issuer                        | Ratings<br>Moody's/S&P | Coupon Maturity              | Dur         | Price   | YTW          |
|-------------------------------|------------------------|------------------------------|-------------|---------|--------------|
| CAPITAL ONE BANK              | FDIC/EDIC              | 3.250 1/30/2009              | 0.97        | 100.000 | 3.25%        |
| FORD MOTOR CREDIT             | B1/B                   | 7.375 10/28/2009             | 1.56        | 97.000  | 9.26%        |
| INVESTORS COMMUNITY BANK      | FDIC/EDIC              | 3.250 2/8/2011               | 2.86        | 100.000 | 3.25%        |
| GOODYEAR TIRE & RUBBER        | B2/B                   | 7.857 8/15/2011              | 2.96        | 102.750 | 6.97%        |
| SBC COMMUNICATIONS (AT&T INC) | A2/A                   | 5.100 9/15/2014              | 5.55        | 103.310 | 4.52%        |
| COMCAST CORP                  | Baa2/BBB+              | 6.500 1/15/2015              | 5.66        | 107.647 | 5.18%        |
| LEHMAN BROS HLDGS             | A2/A                   | 6.750 12/28/2017             | 7.36        | 106.818 | 5.83%        |
| CITIGROUP (C-Z) (PFD)         | A1/A                   | 6.950 9/15/2031 - 9/15/2006  | 8.54        | 24.250  | 7.29%        |
| WACHOVIA CORP (WB-S)          | A2/A                   | 8.000 PERPETUAL - 12/15/2017 | 10.20       | 26.550  | 7.24%        |
| PUBLIC STORAGE (PSA-K)        | Baa1/BBB+              | 7.250 PERPETUAL - 8/8/2011   | 10.58       | 24.600  | 7.41%        |
| <b>Total Bonds</b>            | <b>A3</b>              | <b>6.228%</b>                | <b>5.59</b> |         | <b>6.01%</b> |

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## Laddering and Diversifying Bonds

Client Risk Tolerance<sup>1</sup>: Moderate

TFI Calculated Credit Rating<sup>2</sup>: A3

Yield to Worst (YTW)<sup>3</sup>: 6.01%

Effective Duration<sup>4</sup>: 5.59

Average Income Per Year: \$6,228

Total Cost: \$102,752

All price and yield calculations are as of 1/25/2008 and are subject to change.

| Ant Issuer                        | Ratings<br>Moody's/S&P | Coupon Maturity              | Dur         | Price   | YTW          |
|-----------------------------------|------------------------|------------------------------|-------------|---------|--------------|
| 10M CAPITAL ONE BANK              | FDIC/EDIC              | 3.250 1/30/2009              | 0.97        | 100.000 | 3.25%        |
| 10M FORD MOTOR CREDIT             | B1/B                   | 7.375 10/28/2009             | 1.56        | 97.000  | 9.26%        |
| 10M INVESTORS COMMUNITY BANK      | FDIC/EDIC              | 3.250 2/8/2011               | 2.86        | 100.000 | 3.25%        |
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| 10M LEHMAN BROS HLDGS             | A2/A                   | 6.750 12/28/2017             | 7.36        | 106.818 | 5.83%        |
| 400 CITIGROUP (C-Z) (PFD)         | A1/A                   | 6.950 9/15/2031 - 9/15/2006  | 8.54        | 24.250  | 7.29%        |
| 400 WACHOVIA CORP (WB-S)          | A2/A                   | 8.000 PERPETUAL - 12/15/2017 | 10.20       | 26.550  | 7.24%        |
| 400 PUBLIC STORAGE (PSA-K)        | Baa1/BBB+              | 7.250 PERPETUAL - 8/8/2011   | 10.58       | 24.600  | 7.41%        |
| 70M <b>Total Bonds</b>            | <b>A3</b>              | <b>6.228%</b>                | <b>5.59</b> |         | <b>6.01%</b> |

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The Economist (April 5th - 11th) 2008  
Letters to the Editor

**A new economic dictionary**

SIR - The present economic situation requires a new terminology, borrowed from physical science. For example, sublimation: the process by which assets considered solid evaporate without first passing through a liquid phase, as in, "Oh, no. My stock in Bear Sterns just sublimated."

JOHN BAUMEISTER  
*Edmonds, Washington*

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**Bonds**

**Yield to Worst** - Lower of yield to maturity and yield to call. Yield to call is calculated based on the bond being called. Call options are stated in the bond indenture.

**Effective Duration** - Average percentage change in a bond's value (price + accrued interest) under Treasury curve shifts of +/- 100 basis points. It incorporates the effect of embedded options.

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**Risks with Stocks**

We buy a stock for - capital appreciation i.e. in hopes that the company will be able to grow the economic value of the company at a compounded rate.

Stocks are risky - because of the risks associated with stocks we seem to require this compounded rate to be around 11% or better. Approximately 5 to 6 percentage points premium over Treasuries.

Stock prices rise on expectation - what analysts and investors expect to happen based on forecasting financial data, potential product rollouts, competitive edges, barriers to entry, etc.

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## Risks with Stocks

Idiosyncratic or Unique Risk - specific events that affect a single company. Firm specific risk. **Can be diversified away.**

- ❖ Legal suits
- ❖ CEO leaves
- ❖ Rogue trader gets busted
- ❖ Unsuccessful marketing campaign
- ❖ Product recall
- ❖ Accounting scandal

Market Risk or Systematic Risk - risks that affect the whole market. **Can't be diversified away. Can possibly be reduced.**

- ❖ Interest Rates
- ❖ Recession

Currency Risk - When purchasing international stocks currency exchange rates can increase or decrease the effective return. Currency exchange rates tend to be long protracted cycles not necessarily in sync with other markets.

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## Risks with Investment Companies

### Mutual Funds

- ❖ Individual stock risk - may or may not be diversified away.
- ❖ Investment officer takes another job.
- ❖ Key analyst quits.
- ❖ Internal expenses grow.
- ❖ Taxes - may be handed a capital gain without realizing a ROI.

### LPs

- ❖ Illiquid - no market for LPs and in many cases there are lockup periods.
- ❖ Opaque - can't really see what is going on under the covers and the risks that are being taken.
- ❖ Idiosyncratic Risk with Managers - even more so than with mutual funds.

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## Investment Risk

❖ Conceptually - when an end is known then volatility does not introduce risk. When an end is uncertain then volatility can fuel uncertainty.

❖ Typically, investment returns are not known with certainty.

❖ Investment risk is related to the chance or probability of earning less than expected.

❖ That is, the greater the chance of earning far less than the mean the greater the risk.

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## Risk / Return

No Risk ~~5%~~ No Return!

Remember - U.S. Treasuries are considered our **risk free** investment and they yield on average 5% or at least can track CPI.



"We've considered every potential risk, except the risks of avoiding all risks."

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## Return for S&P from 1997 to 2008

$$\text{Return} = \frac{\text{Ending Amount} - \text{Beginning Amount}}{\text{Beginning Amount}} * 100$$

| Date            | Adjusted Close | return  | Growth    |
|-----------------|----------------|---------|-----------|
| 1/2/08          | 1378.55        | -4.15%  | \$ 175.35 |
| 1/3/07          | 1438.24        | 12.36%  | \$ 182.94 |
| 1/3/06          | 1280.08        | 8.36%   | \$ 162.83 |
| 1/3/05          | 1181.27        | 4.43%   | \$ 150.26 |
| 1/2/04          | 1131.13        | 32.19%  | \$ 143.88 |
| 1/2/03          | 855.7          | -24.29% | \$ 108.85 |
| 1/2/02          | 1130.2         | -17.26% | \$ 143.76 |
| 1/2/01          | 1366.01        | -2.04%  | \$ 173.76 |
| 1/3/00          | 1394.46        | 8.97%   | \$ 177.38 |
| 1/4/99          | 1279.64        | 30.54%  | \$ 162.77 |
| 1/2/98          | 980.28         | 24.69%  | \$ 124.69 |
| 1/2/97          | 786.16         |         | \$ 100.00 |
| <b>Average</b>  |                | 6.71%   |           |
| <b>Std. Dev</b> |                | 18.21%  |           |
| <b>APR</b>      |                | 5.24%   |           |

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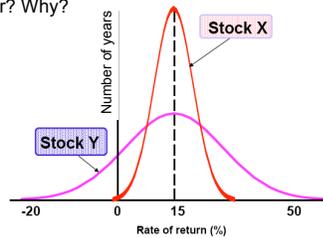
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## Volatility of Returns

Which stock is riskier? Why?



Key Points:

If stock price is volatile then return is volatile.

Stock prices are volatile when future earnings are uncertain.

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