Hymas | Investment Management Inc.

# Fixed Income and Preferred Shares

October 15, 2009
Toronto

This seminar is being filmed for later distribution

# What is Fixed Income?

# Well Defined Return

- Can take several forms:
  - Constant rate for life of instrument
  - Floating rate based on short-term index
  - Rate reset after a given term
    - To known rate
    - To index-based rate

# First-Loss Protection

- Equity (and lower-ranked debt) must take the first hit if things go wrong
- Is not a guarantee of timely payment
- More first-loss protection is better
- Examples:
  - Mortgage downpayment
  - CIBC equity raise of $3-billion, January ‘08

# Types of Fixed Income

- Bank deposits and GICs
  - Exclude ‘market linked notes’ due to “Well defined return
- Bonds
  - Strictly speaking, must be secured
- Debentures
  - Unsecured
- Securitizations
  - Tranching explains how subprime became AAA
- Subordinated Debt
- Innovative Tier 1 Capital
- Preferred Shares

# Why Should an Investor Hold Fixed Income?

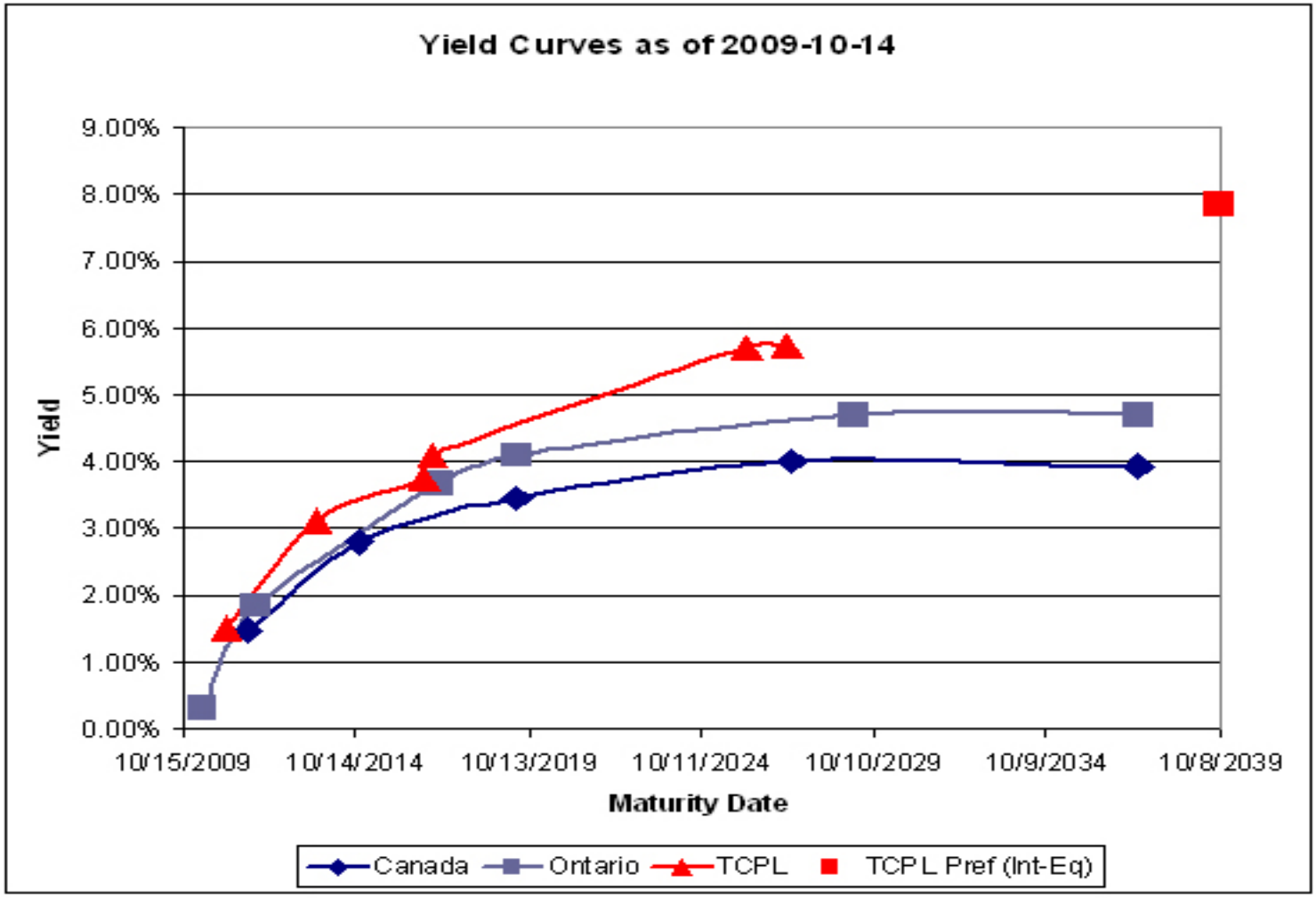
# Security of Principal

- Investor wishes to be able to convert portfolio in known amount of cash at any time
- Implies Short-Term holdings
- Income can be put at risk by interest rate decreases
- Individual issues may have their term extended

# Security of Income

- Investor wishes to receive known amount of income for future period
- Implies Long-Term holdings
- Principal can be put at risk by interest rate increases
- Individual issues may be called

# What Influences Yields?




Transcanada Pipelines is rated A and Pfd-2(low) by DBRS

# Yield Curve

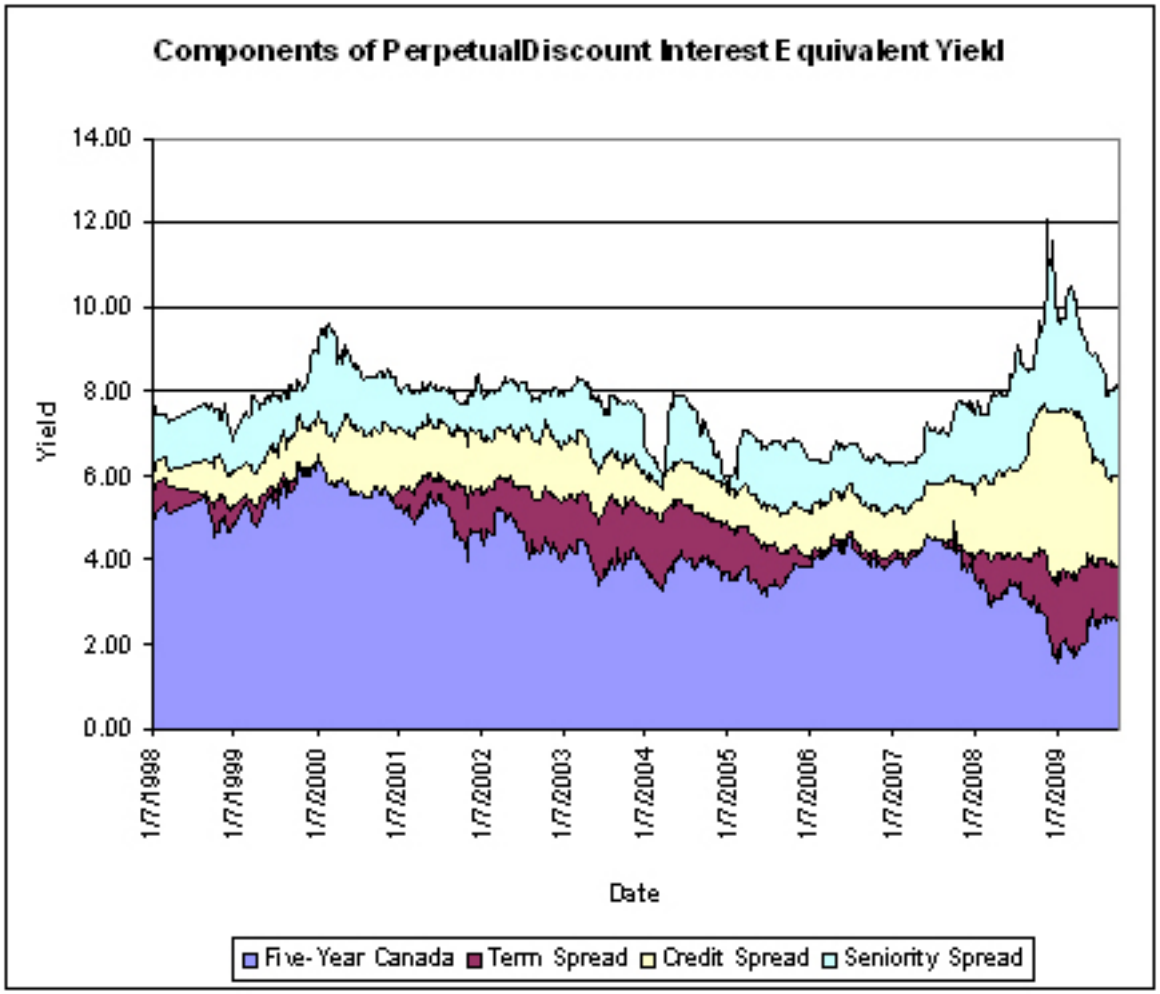
- Normal yield curve is upward-sloping
  - Higher yields for longer term
- Higher yields are payment for
  - Inflation risk
  - Credit risk
  - Market volatility risk
  - Liquidity

# Yield Curves: Slope & Spreads

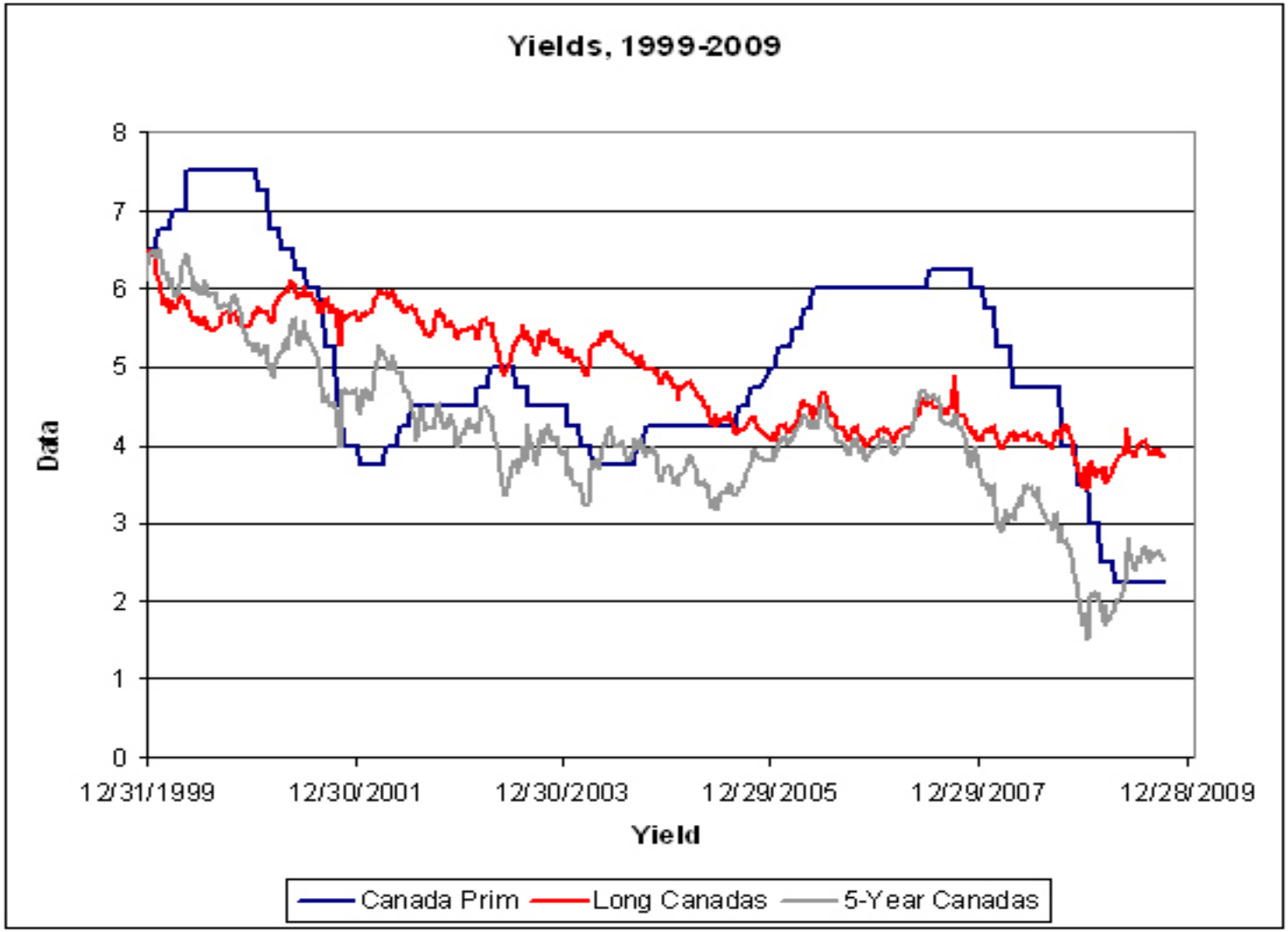
- Government yield curve
  - Short end dominated by monetary policy
  - Long end dominated by inflation concerns
- Corporate yield curve
  - Spreads to governments based on
    - Credit Risk
    - Liquidity
  - Expect increasing spread with increasing term

# Rates will …

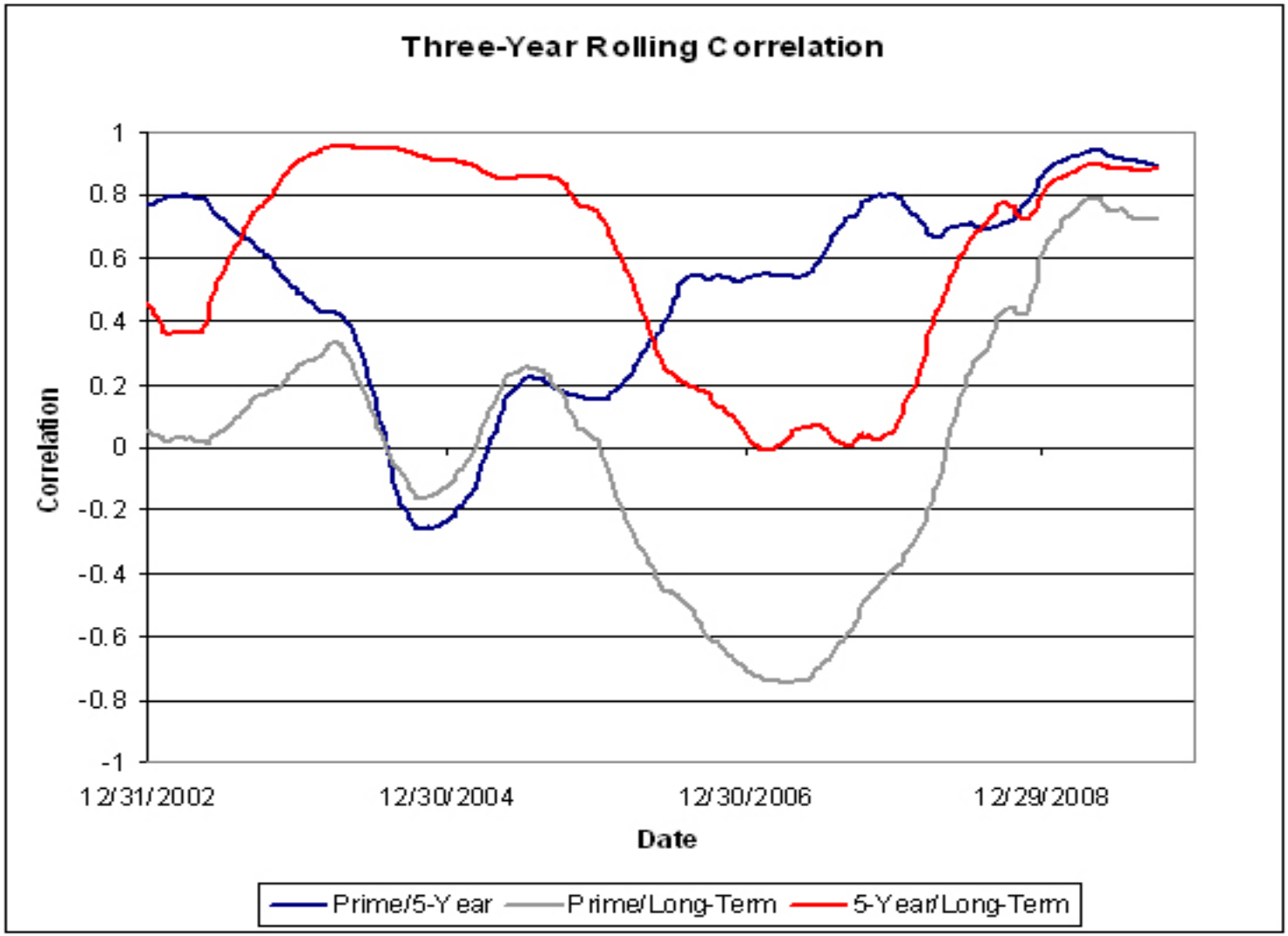
- Most important rate for most people is the 5-year mortgage rate
- Relatively highly correlated with BoC Policy rate
  - Efficient transmission of monetary policy
  - Funding risk is borne by consumers
  - In US, mortgages are best correlated with 10-year bonds
- More than one rate!




Preferred Share Crash was due to Credit Spread – Not Term or Seniority




Prime/5-Year, 2001-04 …. Prime/Long-Term 2004-07




Changing Correlation implies change in significant influences

# High Coupons are Bad!

- If bond has 10% coupon and 5% yield, this implies a 5% annual capital loss on the position
- Trades at premium price
- Bad effect on taxes (non-taxable accounts don’t care)
- Bad effect during reorganization and bankruptcy

# Yield Calculation

- Investors must calculate yield for themselves
- May have embedded calls
  - Brokerages do not always calculate rationally
- Bid Yield can be very different from Offer Yield
- Compounding effects can be important
- MS-Excel function Yield() for bonds
- On-line calculators for Preferreds
  - No accrued interest
  - Call dates
  - Potential resets

# What is Liquidity?

# Composition of bond spread

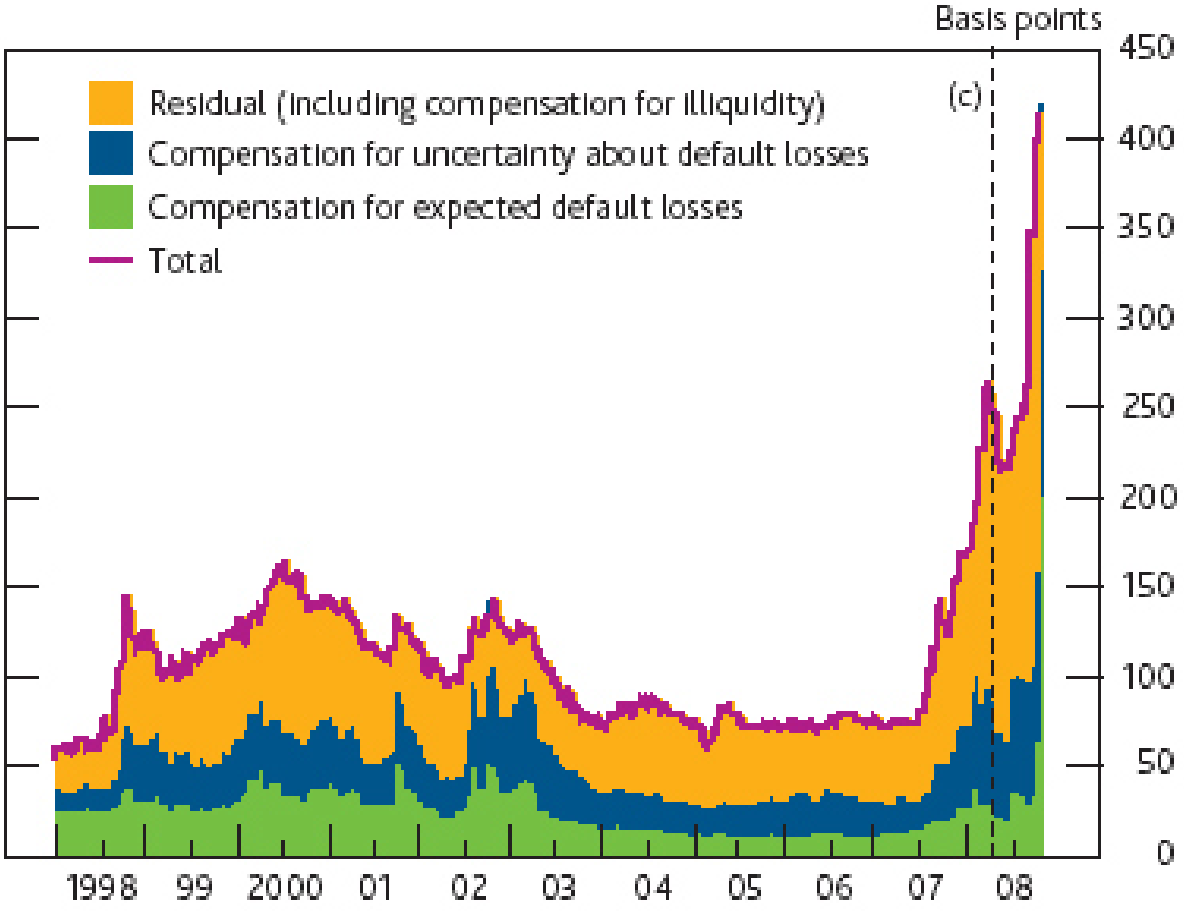
- Long-Term & Short Term investors risk:
  - Expected default losses
  - Unexpected default risk, such as default and recovery rate risk
- Short-Term investors also risk:
  - Mark-to-market risk, such as the risk of a fall in the market price of the bond *[Note: Pension Fund Effects]*
  - Liquidity risk, such as the risk of not finding a ready buyer at the theoretical market price.

http://www.the-actuary.org.uk/834588

# Measures of Liquidity

- Bid / Offer Spreads
- Trading Volume
- Difference in yield between similar issues
  - E.g., on-the-run vs. off-the-run governments
- Mathematical decomposition of yield spreads

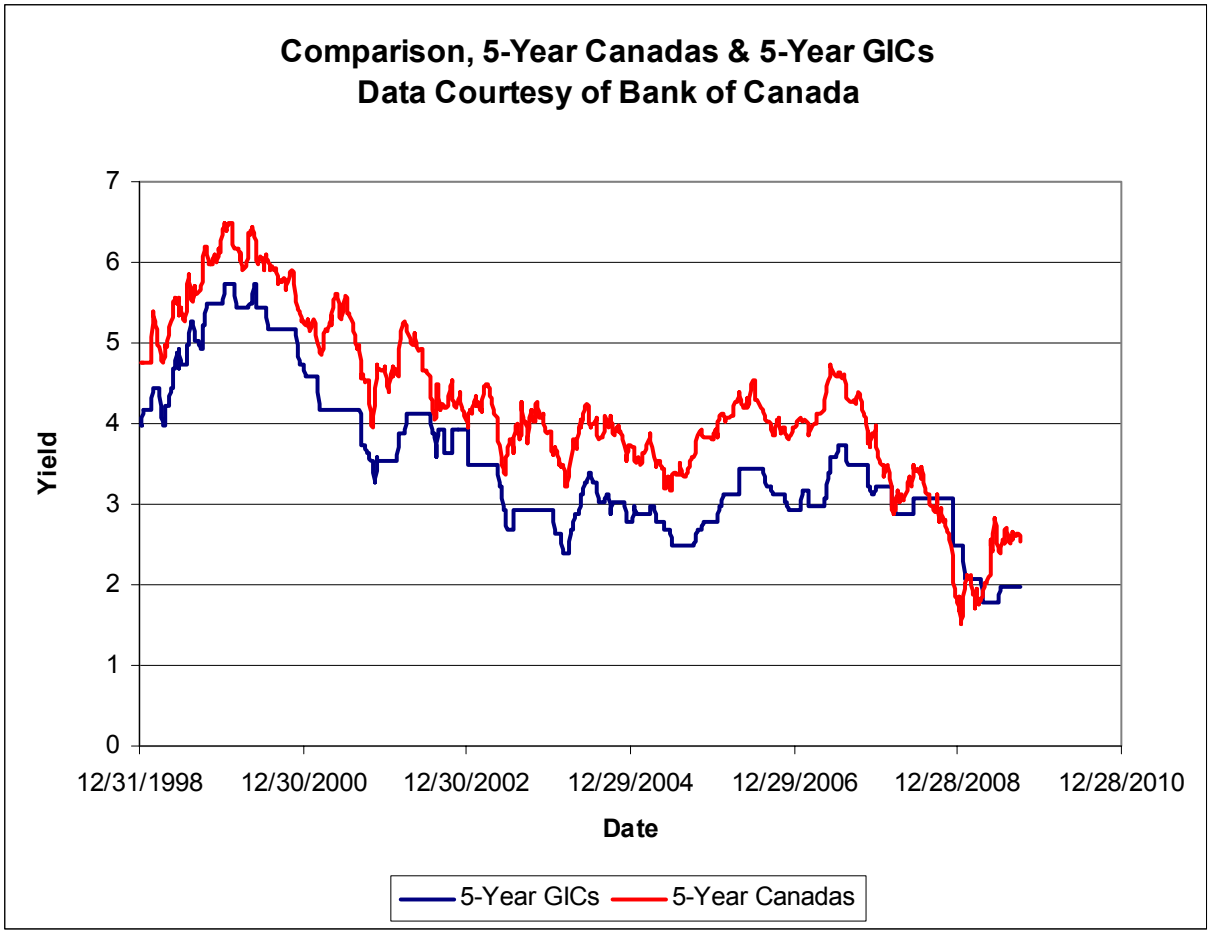
## Chart 2.6 Decomposition of sterling-denominated investment-grade corporate bond spreads(a)(b)




Sources: Bloomberg, Merrill Lynch, Thomson Datastream and Bank calculations.

(a) Webber, L and Churm, R (2007), 'Decomposing corporate bond spreads', *Bank of England Quarterly Bulletin*, Vol. 47, No. 4, pages 533–41.
(b) Option-adjusted spreads over government bond yields.
(c) April 2008 *Report*.

# Liquidity & GICs




Canada bonds are more liquid AND usually yield more than GICs.

… but GICs offer convenience, familiarity and “no price changes”.

# Currently Quoted Yields

- RBC 5-Year GIC, 2.00%
- TD 5-Year GIC, 2.10%
- Non-bank 5-Year GIC, 3.10%
- On-line brokerage 5-Year Canadas (retail quantities), 2.86-62%
  - Spread is appalling, but still better than GIC!
- Institutional quantities, 5-Year Canadas: 2.75%

# What Influences Credit Quality?

# How Much First-Loss Protection?

- Three Ratios for banks:
  - Tangible Common Equity Ratio
  - Tier 1 Capital Ratio
  - Total Capital Ratio
- Most other companies:
  - Debt / Equity Ratio … but check “recourse”!
- Securitization:
  - Subordination

# Company Profitability

- If company goes under, assets may be sold by receiver at fire-sale prices
- Lawyers & accountants feast
- BoE speculated that part of the Credit Crunch was equity investors changing models from “going concern” to “break-up value”

# What do the Equity Markets Say?

- Price/Book Ratios often used in equity analysis
  - Sometimes reflects low book values (e.g., real-estate)
  - More often reflects “goodwill”; company has established relationships, trained staff, etc.

# Merton Model

- Equity Holders have a Call Option on Companies assets
- They cannot lose more than they invest
- Temptation is to lever up company; play with bond-holders' money
- Bond investors should keep an eye on equity prices, but not obsess since bonds are not "junior stocks"
  - TRP shares in 2000-01

# Loss Frequency Curve

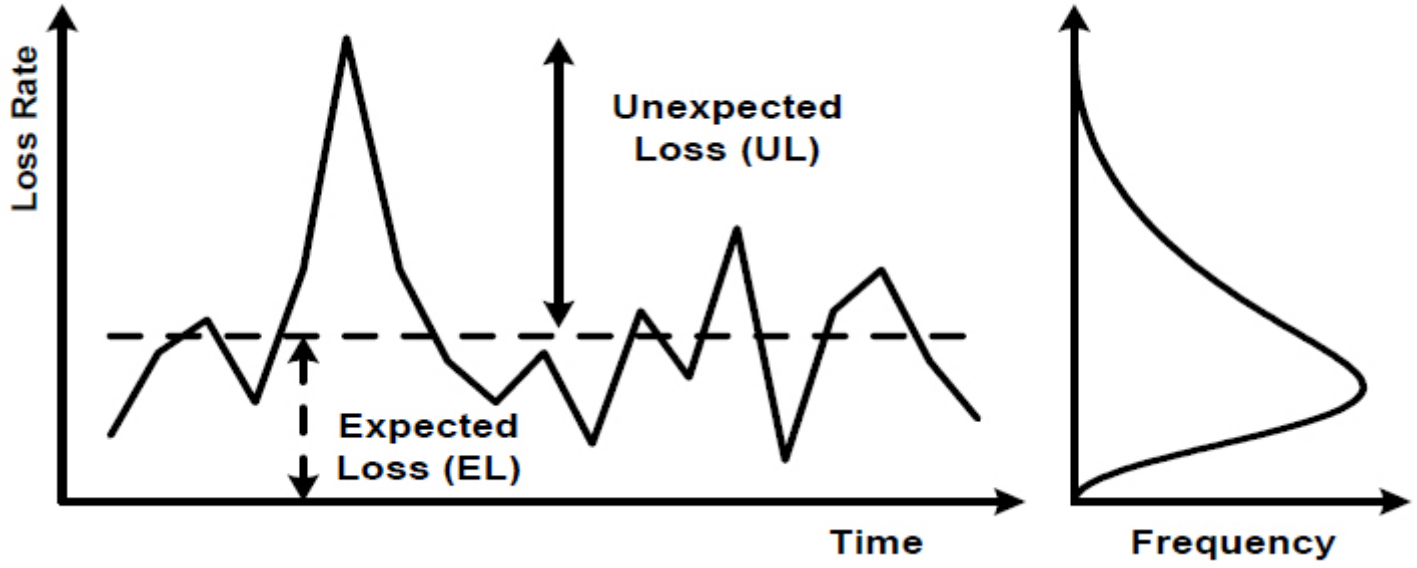



Chart prepared by Bank for International Settlements

# Bank Capital Requirements

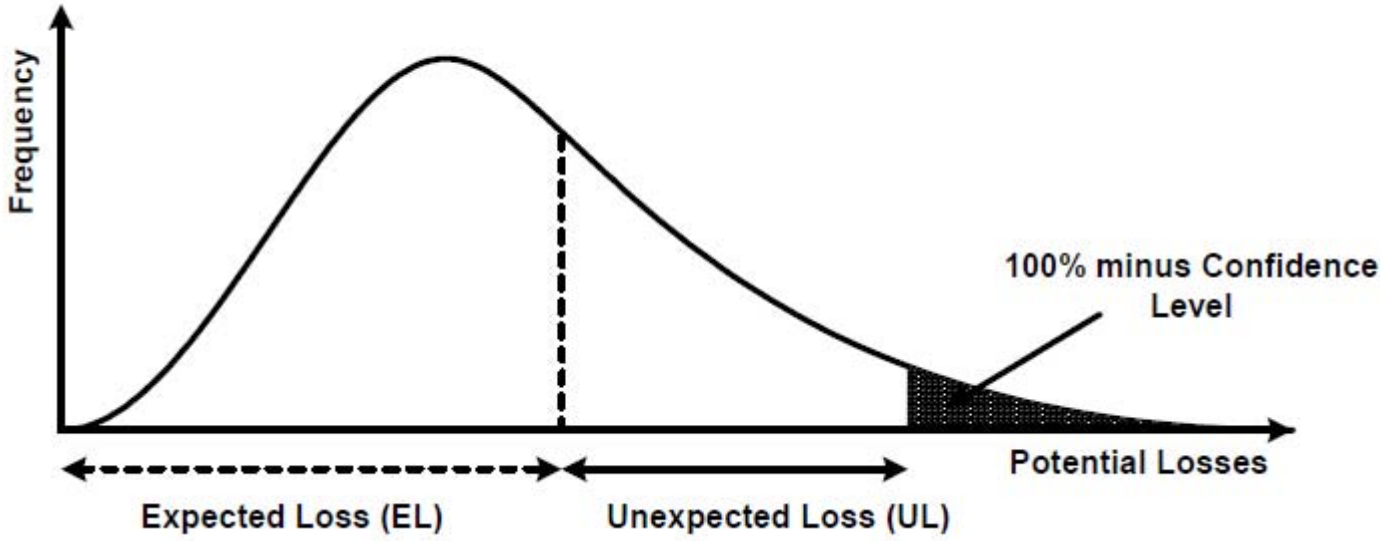



Chart prepared by Bank for International Settlements

# Credit Rating Agencies

- Unjustly maligned for credit crunch
- Their job is to forecast – and forecasting is hard
- DBRS is very good about publishing press releases with highlights from credit reports
- Default Rate on “A” rated paper is ~0.1% p.a. (probably less … not enough data for proper statistics)
- IMPORTANT: High leverage and high dependence on market price implies high rating volatility

# Do Not Be Simplistic

- Being well-known is not the same as being a good credit
  - General Motors (bond portfolios were stuffed with this paper)
  - Loblaws & Cooperators (OK credits … but not great)
- Most headlines are just noise
- Sectoral shifts in bond market with changing economy are exaggerated.

# Are All Bank Bonds the Same?

# Bank Issues Have Differing First-Loss Protection

- Tangible Common Equity
  - Common shares traded on exchange
- Tier 1 Capital
  - Above, plus:
  - Preferred Shares
  - Innovative Tier 1 Capital
- Tier 2 Capital
  - Above, plus:
  - Subordinated Debt
- Senior Debt and Deposits

- Investors must always check prospectus to find out what they're buying!

# Tier 1 Capital

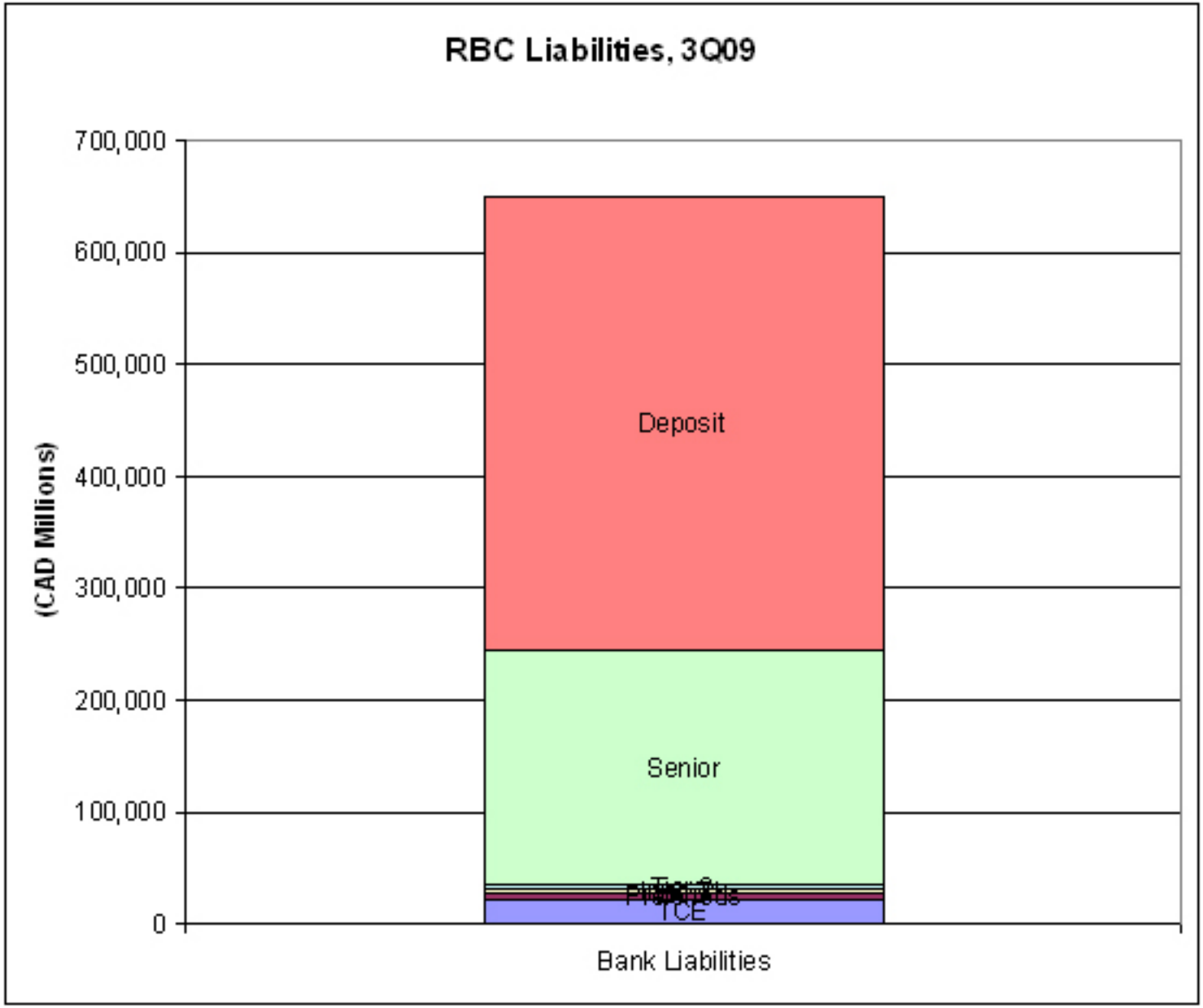
- For capital calculation purposes are considered to be equivalent to common stock
- Failure to pay interest or dividends is not an instance of default
  - Only real protection is dividends on common shares
  - Company profitability important to credit quality!
- Coercive exchanges may occur
  - Citigroup
  - CIT
  - Thornburg Mortgage

# Subordinated Debt

- May be included in Tier 2 Capital for regulatory ratios
- When 5-years or less remain, proportion includable declines
- Therefore,usually have call and step-up at 5-year mark
- Failure to pay interest is an instance of default
- Brokerages will calculate yield to the Call Date

# Senior Debt

- Senior Debt and Deposits are the same thing (?) to the bank
- Only Deposits are insured
- Bank Act allows banks to specify seniority differences between instruments
  - Does not require disclosure or statement of these differences


RBC Liabilities, 3Q09
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
(CAD Millions)
Deposit
Senior
TCE
Bank Liabilities

# Insurers

- Governed by rules similar to banks
- Can be held by holding companies
- All majors (GWO, SLF, MFC) have holding company / Operating Subsidiary structure
- Companies report MCCSR for subsidiaries when touting investments in holding company.

# What Influences Portfolio Strategy?

# Purpose of Portfolio: Rewards

- Preservation of Capital
  - What are the chances cash will be unexpectedly required?
  - Use worst-case “reasonable” scenario
- Preservation of Income
  - How dependent is the investor on portfolio income?
- Immunization
  - What is the best estimate of cash requirements?

# Purpose of Portfolio: Risks

- Short term holdings
  - Risk of lower reinvestment rate
    - Offset reinvestment risk with longer term holdings
- Long term holdings
  - Risk of capital impairment due to inflation
  - Greater uncertainty regarding credit risk
- Equities
  - Can maintain real value with inflation, but
  - Even more sensitive to credit risk than long bonds
  - Greater returns offset by greater uncertainty

# No Single Investment is a Panacea

- Must fit all pieces of jigsaw together
- Address inflation risk with equities
- Address Preservation of Income with longer term fixed incom
- Address Preservation of Capital with shorter term bonds
- Address medium-term cash requirements with immunization

# Sector Allocation

- Capital Preservation emphasis implies greater emphasis on governments, as well as shorter term
- Government issues have high liquidity premium – are paying for ability to transact at will
- With corporate issues, holder is being paid for taking liquidity risk, as well as payment for credit risk
  - Smaller portfolio implies fewer bonds requires higher quality

# How May the Risks of Fixed Income be Offset?

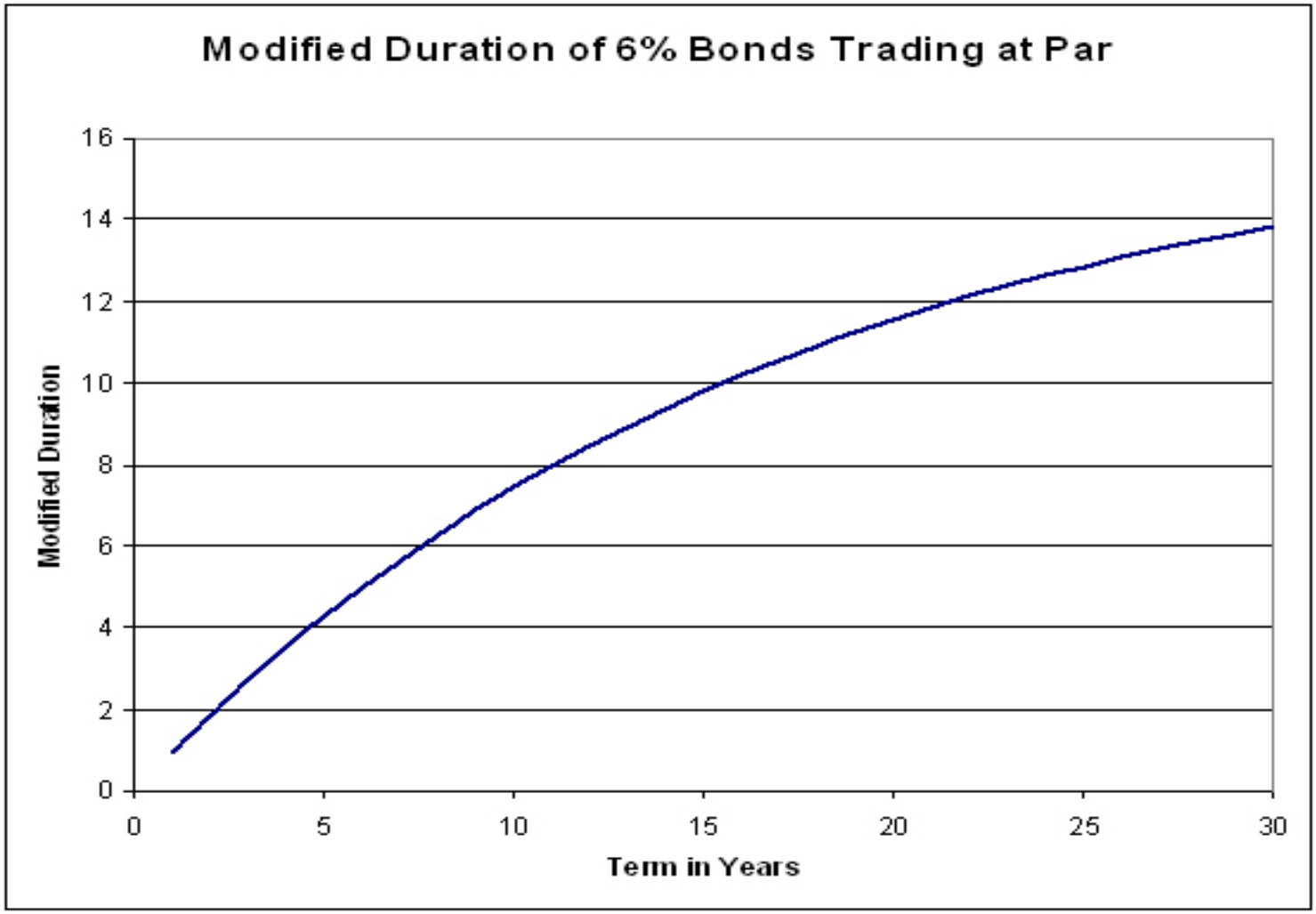
# Duration

- A measure of the weighted average term to maturity of all a bond's cash flows
  - At 6%, money doubles in 12 years
  - Therefore, value of 24-year, 6% bond is
    - 25% Return of Principal
    - 75% Income Stream
  - Value of Principal dependent on 24-year rate
  - Value of next coupon dependent on Money Market rate

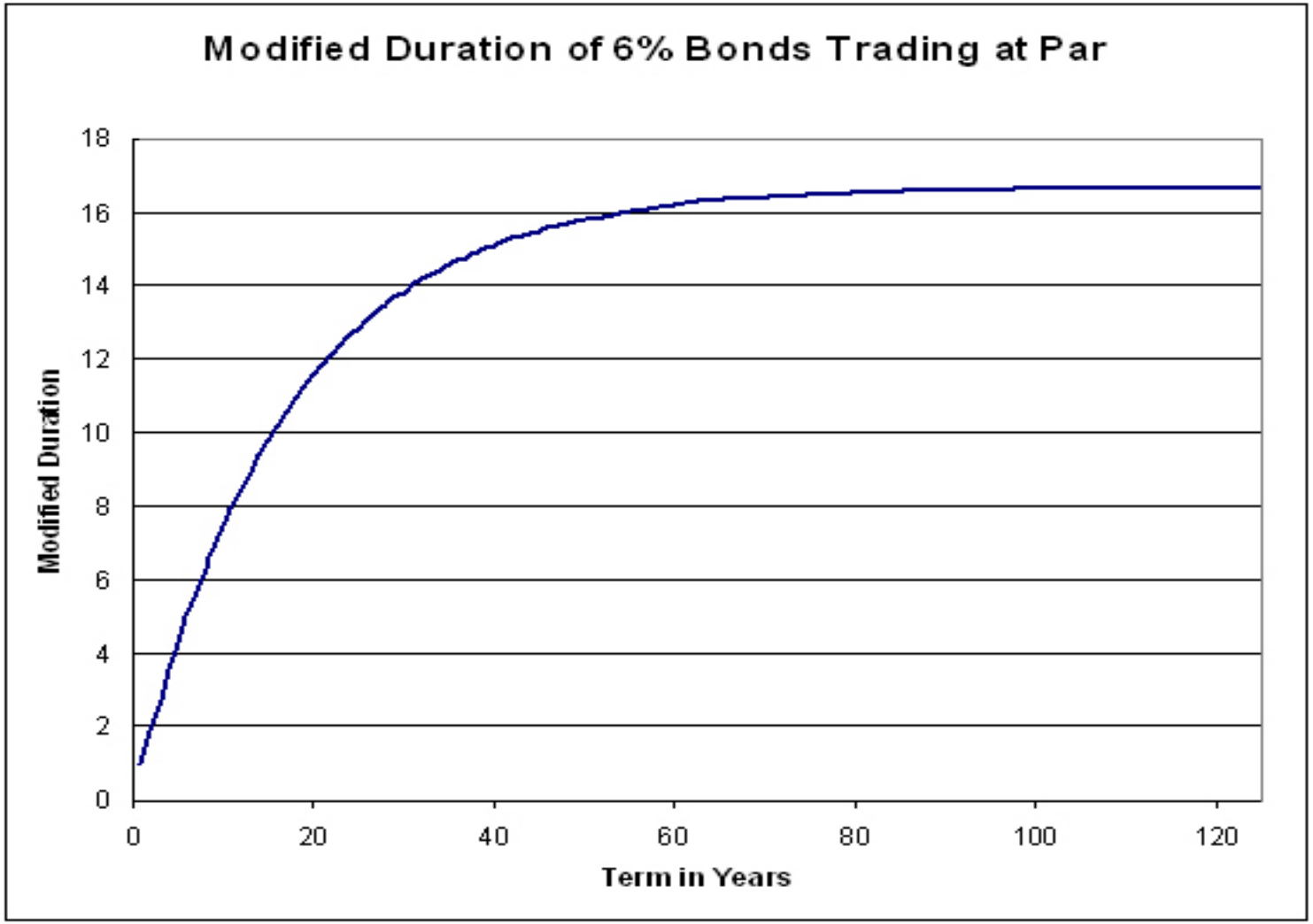
# Fundamental Fixed Income Equation

$$\Delta P = - D_{Mod} \cdot \Delta i$$

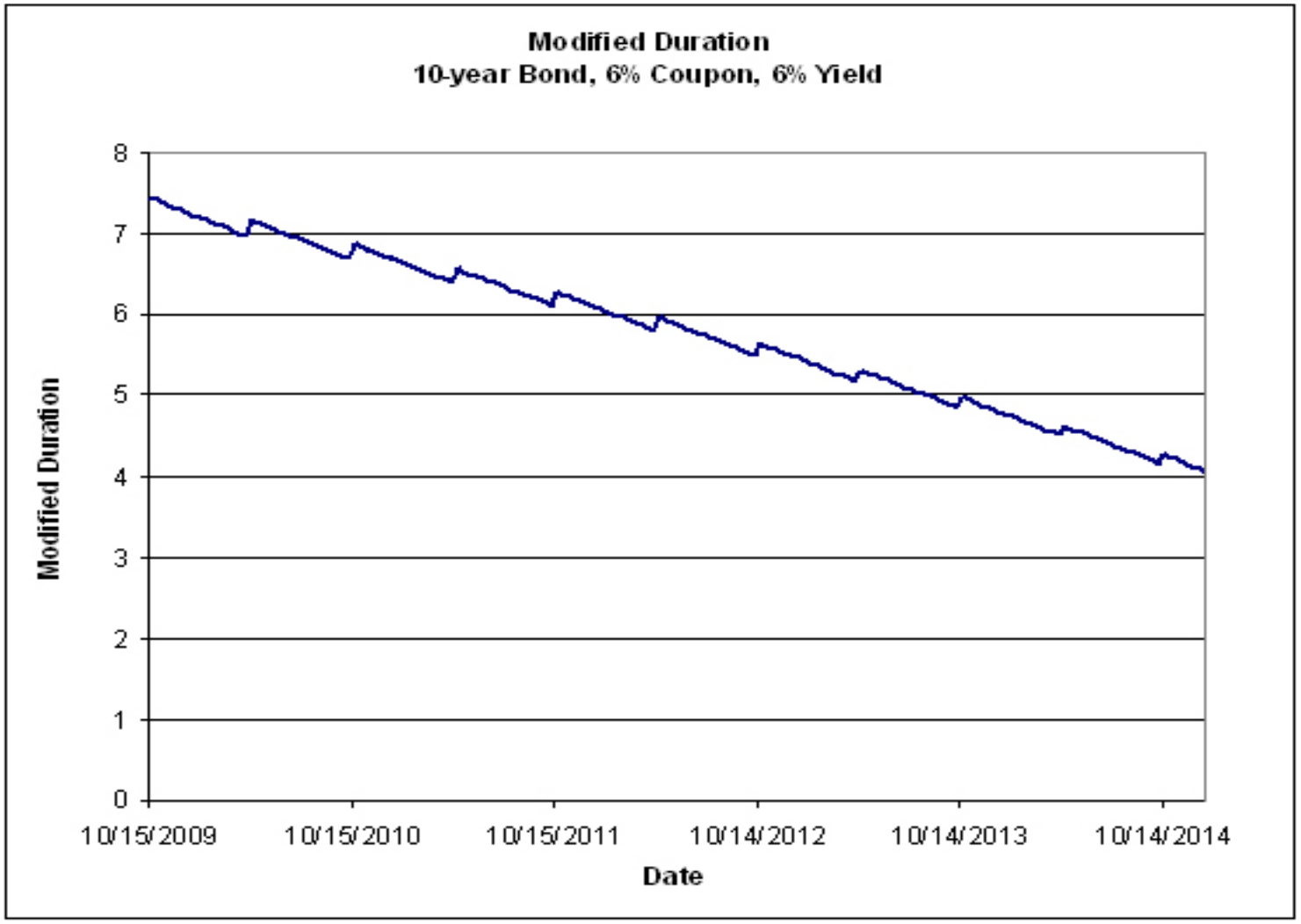
- $\Delta P$ is the percentage change in price
- $\Delta i$ is the change in percentage yield
- $D_{Mod}$ is the Modified Duration




Note: Rate of increase slows with term as Principal PV decreases




Note: Approaches maximum MD of 1/r as term increases




Note “Sawtooth” Pattern and Slope of Curve: MD declines by 3 in 5 years

# Calculation of Modified Duration

- $D_{Mod} = D_{Mac} / (1 + (y/f))$
  - Where : $D_{Mod}$ is the Modified Duration
  - $D_{Mac}$ is the Macaulay Duration
  - y is the yield-to-maturity of the instrument
  - f is the number of payments per year.
- $D_{Mac} = ( \sum PV_i \cdot T_i ) / ( \sum PV_i )$
  - Where : $PV_i$ is the Present Value of the i'th cash flow
- MS-Excel Function "MDuration()"

# Immunization

- Recall:
  - Emphasizing short-term holdings to preserve capital has risk of lower rates on rollover
  - Emphasizing long-term holdings to preserve income has risk of higher rates if sale required
- A portfolio is immunized when the Modified Durations of Assets (bond holdings) and Liabilities (projected cash requirements) are equal
- Risks of higher and lower rates are offset.

# What are Calls?

# Regular Call

- Company has right to buy back the bond during a certain period at a certain price
- Good for company, bad for bond holder

# Canada Call

- Company has right to buy back bonds during certain period at certain spread to Canadas
- Much better for investors, since call spread is relatively low
- Means bondholders cannot hold company hostage on reorganization
- Bondholders participate in overall rate moves

# Problems with Calls

- Rarely disclosed on brokerage quotes
- Calculated yields will assume 100% certainty of future scenario – not necessarily the best or most likely
- Must check www.sedar.com for every bond purchased
  - Prospectus
  - Pricing Supplement

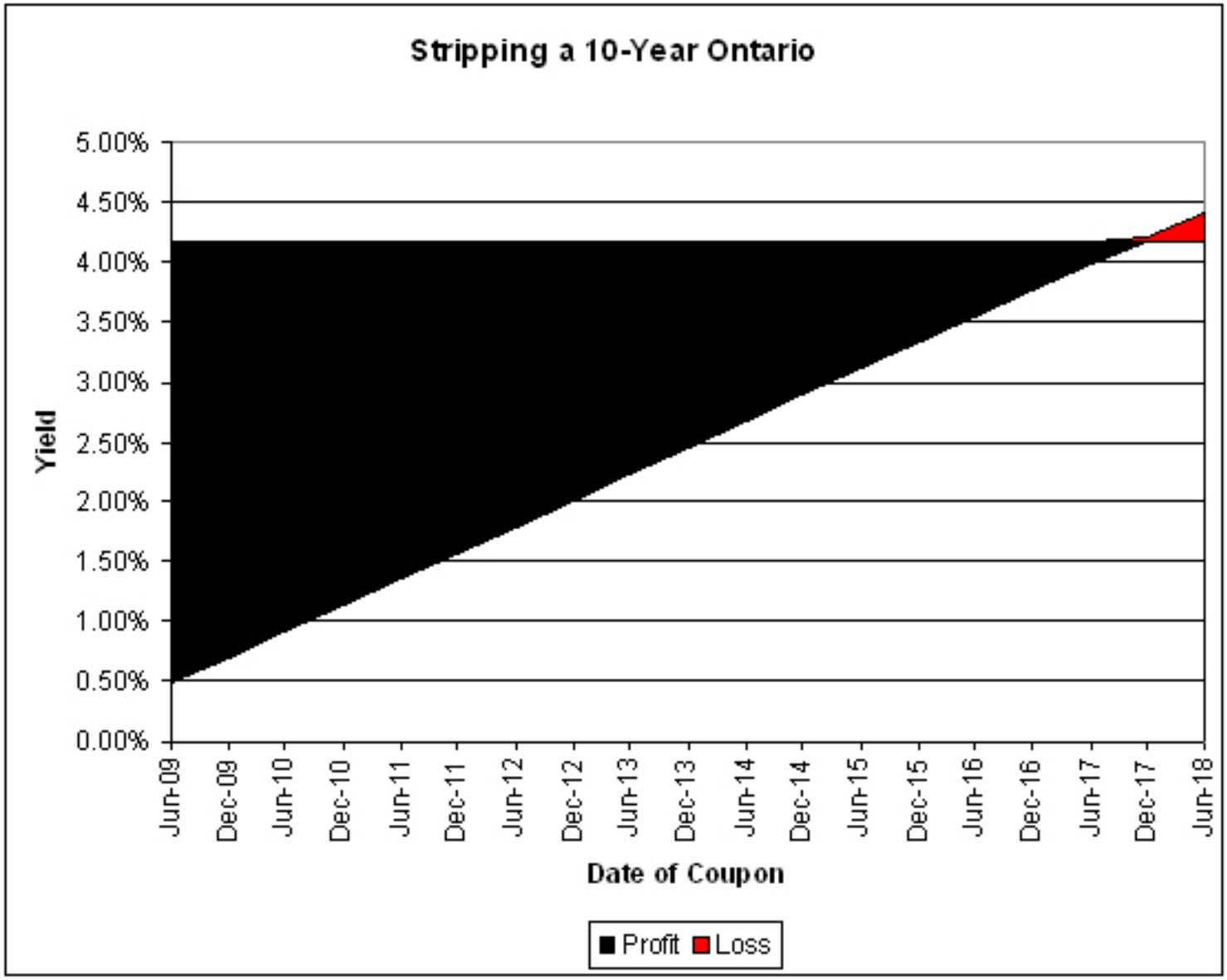
# Strips

# Immensely Profitable for Dealers

- Yields on bonds assume that the same rate is paid for all coupons
- But when bonds are stripped in normal curve, earlier coupons may be sold at market yield for that maturity

# Example: Stripping a 10-Year

- Buy bond yielding 4.17%
- Sell first coupon to yield 0.48%
- Sell second coupon to yield 0.70%
- …
- Coupons are sold at yield of bond of same term, +25bp
- Buy bond for 111.95, Sell strips for 112.53


Stripping a 10-Year Ontario
5.00%
4.50%
4.00%
3.50%
3.00%
2.50%
2.00%
1.50%
1.00%
0.50%
0.00%
Yield
Jun-09
Dec-09
Jun-10
Dec-10
Jun-11
Dec-11
Jun-12
Dec-12
Jun-13
Dec-13
Jun-14
Dec-14
Jun-15
Dec-15
Jun-16
Dec-16
Jun-17
Dec-17
Jun-18
Date of Coupon
Profit
Loss

# Relative Slope of Curves

- Strip Curve will always be steeper than nominal curve (under normal yield-curve conditions)
- Steepness of strip curve increases faster than steepness of nominal curve
- This simply drops out of the math; it has nothing to do with relative market conditions

# Example:

# Middle-Aged Professional

# Situation

- In forties
- Married with children
- Mortgage & usual consumer debt
- Good income, but still in accumulation phase

# Portfolio Considerations

- Many years to go before withdrawal phase
  - Should be emphasizing equities
- Major risk is unemployment
  - Fixed Income should emphasize Capital Preservation
- Fixed Income portfolio should be:
  - Relatively small (equities have lots of time to gain value)
  - Short term (will need liquidity on sudden need)
  - High quality (unemployment highly correlated with bad economy)

# Example:

# Retired Couple

# Situation

- Retired
- Have comfortable income
- In good health; should reasonably plan for 25-years of retirement
- Not concerned with estate

# Portfolio Considerations

- Major risks are:
  - Inflation
  - Decline in real interest rates
- Inflation concern best addressed by equities
- Fixed Income portfolio should emphasize Preservation of Income
- Suggest:
  - Next 12 years cash requirements are held in immunized fixed income portfolio
  - Remainder is held in Equities

# Portfolio: Retired Couple

| **Fixed Income Portion** | Proportion | Yield | Duration |
|---|---|---|---|
| Canadas | 10% | 1.17% | 2.1 |
| CBO (Short Corp. ETF) | 24% | 2.36% | 3 |
| Medium Term Corporates | 43% | 3.99% | 5.6 |
| Straight Preferreds | 17% | 8.48%* | 16.5 |
| FixedReset Preferred | 6% | 4.00%* | 4.1 |
| | **100%** | **4.39%*** | **6.4** |

* Interest-Equivalent Yields are shown for preferred shares


Hymas
Investment Management Inc.