

# RSM230 NOTES – FINAL EXAM

## LECTURE #1 – EQUITIES

### Stock Markets are Volatile

- Another work for equities is stocks – traded on the stock market
- Volatile – means that it moves around a lot
- Huge drop between 2011-2012 → markets were ignoring problems in the euro market and as the year progressed, there was more and more talk about Greece needing a bailout → important because they are "first in line"/indicators

### Investment Performance

- Historically stocks have the highest historic return and the greatest risk
- Excess return = equities (stocks) – treasury (bonds)
- Volatility – standard deviation in returns (measure of riskiness) → stocks more volatile than bonds

### What's the outlook for the stock market?

- Stock prices rise when corporate earnings are expected to increase
- Earnings expectations rise when the economy is getting stronger so investors watch all new economic data
- US stocks are rising now because investors believe that the US economy is strengthening
- European market uncertainty (Greece, Spain, and euro zone generally have introduced a lot of volatility in the market)

### What are stocks (shares)?

- Stocks – claim on the residual income produced by a company after all expenses and taxes are paid
- Represent part ownership of the firm and are (generally) accompanied by voting rights which afford the owner some measure of control over the organization
- Companies will sell claims on their future income (stocks) in order to raise capital for large investments; Initial and Seasoned Equity offerings (IPOs & SEOs)
- "equity" means ownership
  - Net income – have two choices: either to (a) retain all of it to reinvest in the firm; or (b) pay dividends to shareholders

### Features of Common Equity

- Limited liability
  - Most traded companies are corporations: Inc, Ltd, PLC
  - Shareholder is only at risk for the initial shareholder's capital (i.e. stops at corporate level)
- Separate legal existence
  - Can sue and be sued (signing authority; officers of the company)
  - Corporation taxes
- Companies can be:
  - Public – ease of exchanging ownership (private: limited transfer rights)
  - Listed – on an exchange to make exchange of ownership (trading) easier
  - Accessing public markets brings in securities legislation whether the stock is listed or not

### Shareholder Rights

- Canadian Business Corporations Act 24-3 defines the rights of shareholders when there is one class of shares as:
  - A) the right to vote at any meeting of the shareholders of the corporation
    - The right to vote confers the right to choose the board of directors which in turn chooses management and determines control of the company
  - B) to receive any dividend declared by the corporation
    - Dividends have to be declared by the Board of Directors and shareholders cannot force payment
    - When a company pays a dividend, this is a negative signal to investors because it indicates that the company no longer needs to reinvest in their own firms (i.e. stagnant or decreasing growth)
  - C) to receive the remaining property of the corporation on dissolution (bankruptcy)
    - When bankrupt, creditors (bondholders) and banks get paid first; common shareholders are last to get paid (residual right)

## Multiple Classes of Shares

- These three rights can be assigned to different classes of shares:
  - Preference (preferred) shares – limited voting rights when dividends are not paid
    - Preferential right to a dividend (rank above common shareholders)
    - Cumulative or non-cumulative
    - Limited voting rights when dividends are in arrears
    - Have par value of \$25
    - Only created by banks and utilities
    - EXAMPLE: preferred shares (class C)
      - No voting rights unless dividends in arrears for two years, after which each share gets one vote
      - A dividend of \$0.30/share every quarter when declared by the board of directors
      - Payment of \$25 par value before any payments to class A and B shares on wind up of company
  - Non-voting or limited voting common shares
    - EXAMPLE: non-voting shares (class A)
      - No voting rights as long as dividend payments are made
      - A \$0.05 dividend in addition to any dividend paid to class B shares
      - Equal share with class B shares in residual receipts on wind up of the company
  - Regular common shares
    - EXAMPLE: regular shares (class B)
      - Full voting rights
      - No dividends if dividends on class C shares are in arrears
      - Equal share with class A shares in residual receipts on wind up on the company
- Summary of examples:
  - Full assignment of voting rights (B votes as long as dividends paid, then gradually A and then C shares get voting rights)
  - Full assignment of dividend rights (C has preference to the dividends, then A gets a premium over B due to the lack of voting rights)
  - Full assignment of wind up rights (C has first claim to its par value, then A&B share equally in residual)
    - Note A&C have no par value to the shares as they get the residual
- The rights of any class of shareholders depend on the articles of incorporation and the terms under which the shares are issued (stated on the prospectus)

## Tax Treatment of Cash Flows from Firms

- Interest
  - Tax deductible as a business expense by payer
  - Fully taxed as ordinary income for recipient
  - Income Tax Act (CRA) treats interest as an expense for corporations and income for individuals
- Dividends
  - Paid out of after tax income: bears the corporate income tax rate
  - Not taxable for corporate recipients
  - Personal recipient receives a dividend tax credit as partial compensation for corporate income tax already paid
- Capital gains
  - 50% fully taxable
  - Losses can be carried back against previous gains or carried forward indefinitely

## Notes on Preferred Shares

- Part of shareholder's equity
- Dividends declared by BoD and paid out of after tax income
- Have many of the same features as debt contracts
- Key features: preferred shares may have:
  - Cumulative dividends (if company doesn't pay dividend in one quarter, pays both quarters' dividends next time)
  - A fixed or floating dividend
  - Voting rights if dividends in arrears

- Ability to convert into common shares
- A purchase fund (to redeem shares)
- A maturity date similar to bonds (term preferreds)
- A retraction feature that allows you to sell them at par on specific dates to get cash (hard) or common shares (soft retraction)

### Canadian Equities

- Shares in Canada are traded on the TSX, located downtown
- Now it is a completely electronic exchange with approximately 4000 companies traded

### TSX Minimum Listing Requirements

- Initial listing
  - 300 shareholders
  - 1,000,000 shares
  - \$4,000,000 market value (\$10 million for technology)
  - Sponsorship (investment dealer)
  - Industry specific criteria (net tangible assets; working capital; profits)
- Weaker subsequent requirements:
  - Annual filing (financial statements within 140 days of year end/prior notification of material change)
- TSX Venture and Senior Market

### Market Structure

- Historically, stock markets were "private clubs" to which a membership "seats" were needed to participate in trading
  - TSX was "demutualized" in 2003 and became a listed company on the TSX
- Stock exchanges now compete with each other for listings and order flow
- To trade stocks, the public must access the market either via a market intermediary (broker) or directly through a discount brokerage service

### Market Makers

- Markets makers were required to trade (buy and sell) shares in specific stocks to create liquidity
- Held an inventory of shares which they adjusted by changing the prices they were willing to buy (bid) and sell (offer or ask) at (just like any retailer)
- Difference is called the bid-ask spread and represents how expensive it is to trade
  - Cost is frequently over-looked by investors
  - Spread enables them to capture profits which offsets risks they face by agreeing to be everyone's counter-party
  - Spread is in addition to brokerage charges

### Basic Types of Stock Market Orders

- Market order – an order to buy or sell at the market price
  - There may not be enough available so price may be volatile
- Limit order – order to buy or sell at a particular price
  - Order is entered into the limit order book and ends up as a bid or offer
- Day order – good only for the day
- All or none – the entire order must be executed or none at all
- Stop loss/buy – an order to sell (from long) or buy (from short) if the price drops below a certain amount

### Types of Accounts

- Cash accounts – only hold positions that are long, i.e. holdings purchased with cash
  - Full payment required by settlement date, usually 1-4 days depending on the security
  - Interest paid on free credit balances, i.e. excess cash
- Margin accounts – securities firm lends you part of the money used to buy the securities
  - Margin – the amount of your own cash that you are required to put up to buy the shares
  - Minimum margin:  $> \$2$  (50%);  $\$1.75 < P < \$2$  (60%);  $\$1.50 < P < \$1.75$  (80%);  $P < \$1.50$  (100%)

## Short Selling

- Taking a "negative" position
- Sale of securities not owned
  - Shares are borrowed from the investment dealer or other owner
  - Investor hopes to buy them back at a lower price
- Minimum credit for short sales:
  - $\$2 < P$  150% of market value
  - Increasing amounts for lower valued shares
  - You must deposit extra cash with the investment dealer to provide assurance that you can afford to buy stock back
- Ontario Teachers refuses to lend its stock for short sales

## Securities Legislation

- Basic problem: asymmetric information – buyers and sellers disagree as they do not have the same information
  - Provincial responsibility
- Lemons problem: applies to all securities not just shares
- Ponzi or Pyramid scheme – paid off notes with incoming cash

## Basic Features of Securities Laws

- Ontario Securities Commission (OSC) is largest regulator
  - Takes lead in national policies
  - Maintain the integrity of financial markets
  - Otherwise markets fail: lemons problems
- Three main methods of enforcing legislation: registration; disclosure; enforcement

## Registration

- Every securities firm and all investment advisors (IAs) must be registered
- Investment Industry Regulatory Organization of Canada (IIROC) was created June 1, 2008 to oversee all investment dealers and trading activity in Canada
- All employees of a stock exchange and IIROC who deal with the investing public (IAs) must be registered
  - Minimum completion of Canadian Securities Course and a conduct and practice course
  - New IAs must also have a 90 day training period and be supervised for their first 6 months of employment
  - Investment Representatives (IRs) do not give advice and have slightly lower requirements
  - National Registration data base to keep membership up to date
- IA responsibility:
  - Know your client (KYC) rule
    - Lean essential facts about every client
    - Ensure every order is within the bounds of good business practice
    - Ensure recommendations are appropriate for the client
    - This is not relevant for discount brokers, who provide research but not advice (low cost transactions)

## Disclosure

- Cover distribution of securities to the public
- What is a security? – strict legal definition
  - Raises money to earn a profit
  - Is the "investor" at risk?
  - Does the investor have any control?
- Every distribution of securities must have a prospectus unless it is exempt
  - Major exemptions give rise to the exempt market:
    - Government financing
    - Accredited investor: exempt purchasers are large sophisticated investors
    - Private issues of securities

- Prospectus – "full, true, and plan disclosure"
  - Contents:
    - The securities being issued and who can buy them
    - The price of the securities, fees to investment dealer involved with the distribution, and the net proceeds
    - The market for the securities, that is, whether they will be traded and listed
    - Business of the issuer and its subsidiaries, with a discussion of the past three-year history
    - Risk factors involved with buying the securities
    - Summary financial information
    - Management's discussion and analysis
  - Investors can sue signatories if disclosure is not adequate, but investors' best defence is due diligence
- Subsequent requirements:
  - Continuous disclosure
    - Financial statements
    - Material change: must disclose anything that can be expected to materially impact the stock price such as:
      - Change in BoD
      - Change in business of the company
      - Change in ownership of the company
      - Change in acquisition or disposition of assets

### Enforcement

- IIROC enforces registration and trading practices
- Market surveillance
  - Real time monitoring of trading activity
  - Ensuring timely compliance with disclosure rules
- Unethical trading practices – any action which has the effect of deceiving the public
  - Wash sales – trading amongst a group to give the appearance of trading volume
  - Pump and dump – selling and repurchasing stock to manipulate prices
  - Window dressing – deliberately pumping up the last sale price
  - Bucketing – confirming a trade when none has been done
  - Front running – trading ahead of a client and reselling at a higher price

### Two Ways of Forecasting Stock Prices

- Fundamental analysis
  - Believe that stock prices move in response to financial results and economic conditions
  - Forecast stock prices, based on anticipated future earnings
  - Use standard valuation ratios
- Technical analysis
  - Believe that the stock prices move in repeating "patterns"
  - Search for bullish (positive) and bearish (negative) signals based on historical price and volume behaviour of stock
- Everyone looks at charts (including fundamental analysts) because it is an efficient way to organize data, not necessarily because they believe there are patterns that can be discerned
  - Fundamentalists sometimes use technical indicators to determine the timing of their sales and purchases

### Fundamental Analysis

- Present value relationship
- Replace the interest from a bond with the dividend from a stock
  - $V_0 = \frac{D_1}{(k-g)}$ ; where  $D_1$ =the dividend per share expected next year;  $k$ =actual discount rate of stock;  $g$ =growth rate
- Trading signals:
  - $V$ =what stock is worth today (intrinsic value)  $V > \text{Price} \rightarrow \text{buy}$ ;  $V < \text{Price} \rightarrow \text{sell}$ ;  $V = \text{Price} \rightarrow \text{hold}$  (fairly priced)
- Ratio analysis – we need to compare a firm's ratios either to its own historical data, a similar firm's data, or industry averages for comparison

## Technical Analysis

- Support (resistance) level – a price or level below (above) which a stock or the overall market is unlikely to fall (rise)
- Both are psychological barriers (self-fulfilling prophecies)
  - Bargain hunters – buy around the support level because they believe the stock is oversold
  - Profit takers – sell at the resistance level, believing the stock is overbought
  - "Breakouts" – occur when a stock (or the market) moves through a support a resistance level
- To determine support and resistance levels, look at moving averages of stock prices (smoothing daily fluctuations)
  - If the 50-day MA crosses the 200-day MA from above, it's a bearish signal
    - Happens because the price in recent observations have been lower than the larger sample's average
  - If the 50-day MA crosses the 200-day MA from below, it's a bullish signal
    - This happens because the price in recent observations have been higher than the larger sample's average
- Other indicators:
  - Prices and trading volumes supposedly reflect all the relevant information needed to make investment decisions
  - E.g. Relative Strength Index (RSI); fast and slow stochastics; on balance volume; moving average convergence-divergence (MACD); candlestick analysis; Elliott Waves; Gann Angels

## Behavioural Finance: Market Psychology

- Sentiment/confidence indices
  - Short positions; odd-lot trading; small investors; put/call ratio; mutual fund cash positions
- A large number of factors influence future stock prices. Some of these provide "leading indicators" of what will happen:
  - Baltic Shipping Index – if goods aren't moving, demand must be low
  - Counting train cars – if stores ordering (in anticipation of sales), goods often reach them by train (also with trucks)
  - Bond credit spreads – increasing spreads indicate markets expect defaults to rise due to hard economic times ahead

## LECTURE #2 – STOCK MARKETS, MUTUAL FUNDS & INSURANCE PRODUCTS

### S&P/TSX Composite Index

- TSX is a float, market value weighted index
  - Float – number of publicly available shares
  - Market values – as weights (# of shares x market price)
- Total return – change in price plus reinvested dividends
- Divided into industry groups (also called "sub indices" or "sectors") → defined according to the Global Industry classification standard (GICS)
- Compared to the global economy, Canada's economy is dominated by financials and resources companies
- We also divide stocks into "size based" groups or indices based on their market capitalization ("market cap")
  - S&P/TSX60 – consists of the 60 largest "cap" stocks in the S&P/TSX Composite Index
  - Relative performance of "large cap, mid cap and small cap" stocks varies over a market cycle

### Types of Investment Funds

- Investment funds
  - Closed-end – new shares are rarely issued once the fund has launched
  - Open-end – mutual funds (can issue and redeem shares at any time)
  - Funds may be load/no load
- Exchange Traded Funds (ETFs)
- Hedge Funds
- Real estate funds (i.e. real estate limited partnerships; mortgage funds)
- Segregated funds (an insurance product)

## Mutual Fund Benefits

- Denomination intermediation – investors can participate in offerings that require more capital than they possess
- Diversification – investors immediately realize the benefits of diversification for small investments
- Liquidity intermediation – investors can quickly convert investments into cash
- Cost advantages – mutual fund can negotiate lower transaction fees than would be available to the individual investor
- Managerial expertise – many investors prefer to rely on professional money managers → enforcement of claims and investment expertise

## Structure of Mutual Funds

- Legal structure:
  - Mutual funds are usually trusts (closed funds are usually "investment" companies)
  - Investors hold "units" of the fund
  - All income flows pass through to the investor on a pre-tax basis, based on units owned
    - Investor pays tax on interest income, dividends and net capital gains earned
  - Have a BoD (usually oversees a Fund Family, i.e. TD mutual funds)
- Pricing
  - Net Asset Value (NAV) – "price" at which investors buy/sell units of the funds
  - Calculated at the end of each business day, based on the market price of securities held
  - $NAV = \frac{\text{market value of assets} - \text{liabilities}}{\text{units}}$

## Costs of Investing in Mutual Funds

- Fee structure
  - Front-end load – commission or sales charge applied at the time of initial purchase for an investment
  - Back-end load – fee that investors pay when selling mutual fund shares within a specified number of years
- Operating expenses
  - Management fees → MER – Management Expense Ratio
  - There may be trading fees in addition to MER
- Other charges
  - Distribution costs paid by the fund
  - Audit and legal fees paid by the fund

## Restrictions on Canadian Mutual Funds

- Can't borrow
- Can't go short
- Can't hold more than 10% of any company
- Can't buy commodities
- Can't exceed limits on illiquid securities
- Can't use derivatives except to hedge underlying risk and to create synthetic securities (foreign)
- Restrictions are designed to protect small investors from excessive risk-taking by the managers of the fund

## Regulation of Mutual Funds

- Prospectus issuers (financial statements; performance; usually single document for fund family)
- Continuous disclosure as investors are constantly issuing and redeeming units
- Mutual Fund Dealers Association (MFDA)
  - Self-regulatory organization (SRO) that monitors fund issues and supports policy initiatives

## Mutual Fund Styles

- Actively managed funds, including:
  - Value funds – investing (low P/E stocks)
  - Growth funds – investing (high P/E stocks)
  - Size based funds – small vs. Large cap stocks
  - Sector funds – invest in stocks of specific industry sectors

- Index funds – special class of mutual funds that passively mimics an index
  - Low MER, relative to actively managed funds

### Exchange Traded Funds (ETFs)

- Allow investors to trade index portfolios like shares of stock
- Offer leverage – don't have to mimic one-for-one what happens in the underlying asset class
- Potential advantages:
  - Trade continuously on a stock exchange
  - Lower taxes
  - Lower costs

### Hedge Funds

- Special type of mutual fund that received considerable attention following the collapse of Long Term Capital Management
- Different from typical mutual funds:
  - Hedge fund managers have much greater freedom to follow aggressive investment strategies
  - High leverage (borrowing) enhances potential returns, and risk
  - Little or no regulation
  - High minimum investment, average around \$1 million → stomps out retail investors and unsophisticated investors
  - High fees, typically 1% to 2% of assets plus 20% of profits
  - Not generally open to the public

### Insurance Industry Structure and Products

- Life and health insurers
  - Most have now demutualized so that they can grow through acquisition and the industry has now consolidated
- P&C insurers
  - Smaller and more fragmented firms

### Life Insurance Policies

- About 17.5 million Canadians own life insurance
  - Provides future financial security for dependants
  - Average amount of coverage owned by insured individuals is \$142,000
- Group Plans – \$1.166 billion (Dec. 2003)
  - Almost 50% of all policies through firms or cooperatives
  - Included in many employee benefit plans
  - Group rates often covered by employers
- Individual plans – \$1.318 billion (Dec. 2003)
  - Sold through independent brokers (CLU)
  - Increasingly operating as financial planners (CFP)

### Term Life

- Term life insurance – purchased for a "term" (usually ten years); no savings component, thus no cash value
- Amount of insurance needed:
  - Mortgage balance; credit card balance; terminal expenses (funeral); children's education
  - Income support until fixed date: children leave home, retirement, etc.
  - Subtract financial investments and other policies
  - Residual is insurance needs
- Important for people with young families (i.e. need support)

### Whole & Universal Life

- Provides a death benefit that lasts for a person's entire life as long as premiums are paid
- Has a cash value that accumulates tax free and can be used for a loan or to pay future premiums
- Often used for estate planning where proceeds are used to pay capital gains tax on a cottage, for example
- Many different options available

- Universal Life combines insurance and savings in a single plan
  - Monthly deposits cover insurance costs with excess invested in a savings account
  - Options include segregated funds and guaranteed vehicles

### Segregated Funds

- Money is pooled and invested in securities with the goal of enhancing wealth (similar to mutual funds)
- Only available from insurance companies and structured as insurance contracts
  - No ownership of the underlying assets: contract is with the insurance company
  - Exempt from securities laws and subject to insurance laws
- Separation of annuitant and beneficiary
  - Annuitant – person being insured
  - Beneficiary – the person receiving the benefit (there are restrictions on who can be a beneficiary)

### Critical Features of Segregated Funds

- Segregation of assets
  - Funds are "segregated" from the general assets of the insurance company: protection from firm's bankruptcy
- Guarantees:
  - By law have to guarantee at least 75% (usually 100%) of net contributions when contract matures or on death
- Potential creditor protection
  - Generally protected against seizure by creditors
  - Useful for business owners and professionals in case of unexpected lawsuit or bankruptcy
- Cost-effective estate planning
  - Generally not subject to probate fees (charged by provincial governments at death based on % of asset value)
  - Proceeds pass directly to beneficiary
- Costs:
  - Insurance company charges for service and guarantees over and above MER charged on the mutual fund
  - MER's incorporate the cost of the guaranteed benefit

### Segregated Funds vs. Mutual Funds

Feature	Segregated Funds	Mutual Funds
<b>Legal Status</b>	Insurance contract	Security
<b>Asset Ownership</b>	Insurance company (but segregated from company assets)	The Fund (trust or corporation)
<b>Regulation</b>	Insurance regulation	Provincial securities
<b>Guarantees</b>	Minimum 75% after 10 years	Regulators and SRO's
<b>Creditor Protection</b>	Yes	None
<b>Estate Planning – Probate bypass</b>	Yes	No
<b>Death benefits</b>	Yes	No

- Probate fee – if you die and your children receive your money, they are taxed on it

### "Guarantees", Index-Linked GIC's and Principal Protected Notes (PPN's)

- Invest without the risk of losing money: worst-case scenario is return of principal after 5 or more years
- Limited upside potential:
  - If markets perform well, performance is capped < market return
  - Use zero coupon bonds and derivatives to alter the performance profile of the underlying asset
- Downside protection:
  - Opportunity cost – if markets perform badly, funds are locked in for the remaining term to maturity with repayment of principal (no inflation or interest adjustment)
  - Credit risk – principal protection is underwritten by issuing bank and/or insurance company. Guarantee is only as strong as the financial company providing it (AIG)

## LECTURE #3 – PORTFOLIO MANAGEMENT

### Building Investment Portfolios – First Steps

- Define investment objectives in terms of:
  - Required return
  - Risk tolerance
  - Time horizon
  - Liquidity requirements
  - Taxation issues
- Identify constraints
  - Minimum income requirements
  - Legal/regulatory
  - Ethical
  - Other issues (i.e. estate planning and succession)
- Develop an investment policy statement (objectives, constraints, and allowable investments)

### Building Investment Portfolios

- Individuals: retail or "private client"
  - Basic considerations in financial planning include age; wealth; job type; attitude towards risk; goals (i.e. retirement)
- Institutional investors – depends on their liabilities
  - Life insurers – long term fixed payouts
  - Property and Casualty insurers – long term payouts, often inflation indexed
  - Pension Funds – income needs, capital preservation, growth
  - Mutual Funds – variable, depending on the fund's objectives

### Know Your Client Rule (KYC)

- Ontario Securities Act requires each Member to ensure that each trade order accepted or recommendation made for any account of a client is suitable for that client and in keeping with the client's investment objectives
- Life-cycle investing – based on an individual's age
  - Early years < 35 → liquidity, growth investing
  - Mid-earning years < 55 → declining expenses, savings increase → growth and tax minimization
  - Peak earnings 55 < ? < retirement → risk reduction
  - Retirement → capital preservation and income
- "your age in bonds rule" (i.e. 20 year old investor: 80% stocks and 20% bonds)

### Investment Objectives

- Three primary investment objectives:
  - Income
  - Preservation of capital (i.e. safety of principal)
  - Capital gains (i.e. growth)
- Several variations
  - Balanced (income, safety and some capital gain)
  - Income with strict capital preservation
  - Income with moderate growth
- Higher expected returns imply higher risk
  - Risk return tradeoff: bank loans → MTNs → mortgage debt → long-term unsecured debt → convertible bonds → convertible preferred shares → straight preferred shares → common equity

### Asset Characteristics

	<b>Safety of Principal</b>	<b>Income</b>	<b>Growth</b>
<b>Money Market</b>	High	Low	None
<b>Bonds</b>	Good	Better	Limited
<b>Preferred Shares</b>	OK	Best	Variable
<b>Common Shares</b>	Weak	OK	Best

- Next step: develop an asset allocation strategy to meet client objectives
- Bonds/preferred shares may have growth due to interest rate declines and conversion features (if any) into common shares
- Dividends received from common and preferred shares provide good after-tax income

### Types of Risk

- Inflation risk – need to protect the purchasing power of the future wealth
- Interest rate risk – Is the investment value sensitive to interest rate increases?
- Default risk – What is the possibility of default or bankruptcy?
- Foreign Exchange (FX) risk – Is investment value affected by FX changes?
- Business risk – How uncertain are the firm's future prospects and earnings?
- Political risk – How could government policy changes affect future investment value?
- Liquidity risk – Will I be able to find a buyer for the investment at a fair price or at any price?

### Inflation Risk

- How much will those fixed Canadian dollars buy in the future
- Real return bond – has its principal indexed to CPI inflation, eliminating purchasing power risk

### Interest Rate Risk

- Treasury bills have interest rate risk because future T Bill yields are unknown
  - Re-investment rate risk when funds are "rolled over" (reinvested) at some future rate
    - Rollover risk – you may not be able to receive the same returns as you had the previous term
- Long-term bonds have interest rate risk – if interest rates increase, the price of the bonds will fall
  - Bonds with longer terms to maturity have greater interest rate risk because their price is more sensitive to a change to interest rates
  - Over long periods of time long term bonds earn about 1.25% more than rolling over T-bills
- The maturity of your debt investment is a bet on future interest rates

### Default Risk

- If default occurs, you will lose all or part of your investment

### Political Risk

- Governments can change their policies at any time
- Risk due to changes in government, tax legislation, etc.
- Halloween massacre – October 31, 2006 → Federal government announced they were imposing a distribution tax on income trusts in Canada → cost investors millions of dollars

### Liquidity Risk

- Inability to sell securities you own at intrinsic value, or at all
- \$32 billion ABCP frozen from August 2007 until February 2009; ABCP was tainted by exposure to US sub prime assets

### Handling Risk: Diversification

- Diversification – adding more securities to your portfolio decreases risk
- The more stocks (from different sectors) that you add into your portfolio, your risk will decrease; however, your portfolios will more and more start to mimic market returns (i.e. index)

### Tactical Asset Allocation (Market Timing)

- Expansionary
  - Increase common stock exposure
  - More from defensive to growth stocks
- Peak
  - BoC increasing short term rates
  - Reduce equity exposure and increase money market

- Contraction
  - Lengthen maturity of bonds
  - Reduce equity exposure
  - Buy defensive stocks (utilities and banks)
- Trough
  - Sell long term bonds
  - Increase equity exposure particularly to cyclical stocks
- Problem with this is that it is difficult to determine beginnings and endings of stages in the cycle

#### Conclusions

- Strategic asset allocation – set long-run targets to achieve your investment objectives
- Tactical asset allocation – use market timing to increase your returns
- Investment returns are derived from:
  - Asset mix (allocation)
  - Market timing
  - Security selection within the asset class
- Asset allocation is more important in the long run than security selection because it has a bigger impact on returns

## LECTURE #4 – DERIVATIVES

### Derivatives

- Derivatives derive their value from the price of another underlying asset such as stocks, commodities, etc.
- Contingent claims
  - Security's payoff is determined by or is contingent on that of another securities'
  - Derivative means "not original"

### Two Basic Contracts

- Forward or futures contract
  - Contract that obligates two parties to exchange a predetermined quantity of something at a fixed price sometime in the future
  - Oldest contract is FX forward contracts
- Option contract
  - Contract that gives the buyer the right but not the obligation to buy and sell a fixed quantity at a predetermined price sometime in the future; seller is obligated to fulfill the contract if called on
  - Call options on stocks are the oldest traded contract
- Markets are:
  - OTC largely between banks and big institutions
  - Exchange traded more retail oriented

### FX Quotes

- Spot rate – immediate delivery; the rate at which the stock is trading at in the market right now
- Futures price – driven off of the spot rate today and the interest rates in two different countries (interest rate parody)
  - You can lock in the price at which to buy in the future

### Payoffs

- Naked position – you do not own the underlying security: you are exposed to FX risk (such a naked position is that of a speculator)
- E.g. if a speculator is short (you don't own it) \$US and long (you own it) \$CDN, they want the \$CDN to appreciate

### Critical Points

- Speculators – use derivatives to get exposure for profit
- Hedgers – use derivatives to remove exposure
- Derivatives by themselves are not risk – it depends whether you have the underlying security

- Derivative losses have come from:
  - Outright speculation
    - Trader starts to lose and covers up losses by more trades
    - Bad internal controls do not pick it up
  - People not knowing what they are doing
    - Sophisticated investors are often unsophisticated

### OTC Contracts

- Forwards are largely a bank instrument
  - Flexible return
  - Flexible amounts
  - Contracts closed out with offsetting contract if funds don't materialize or come earlier
  - Settlement at maturity
  - Bank fees come in spreads charged to buy and sell forward (bid and ask prices)
  - Client (exporter) has to have a banking relationship – in order to have a line of credit to draw on upon default
  - Banks allow forward sales for business purposes
- Counterparty risk
  - Banks can enforce contracts
  - Usually the bank is a better risk and be worry about the business defaulting instead of the bank

### Futures Contract

- Exchanged traded forwards
- Standardized contracts
  - Standard settlement dates (March-June-September-November)
  - Standard amounts
  - Standard commodity
  - Guaranteed by the clearing corporation (CDCC) so no need to worry about counterparty risk
- Daily marked to market to reduce risk of non-fulfillment
  - Initial margin
  - Maintenance margin
- Normally closed out by offsetting transaction; the open interest is important
- Fees to buy futures contract

### Example

#### Daily Marking to Market: Long Position

An investor enters into a long position in 50,000 futures contracts that requires a \$50,000 initial margin and has a maintenance margin that is 75 percent of this amount. The futures price associated with this contract is \$20. Assume the spot price of the underlying asset closes at the following prices for the next five days: \$20.50, \$20.75, \$21.00, \$19.75, and \$19.25. Estimate the daily profit (loss) for this investor, as well as the equity position, assuming no cash deposits or withdrawals are made from the account.

#### Solution

Day	Spot Price	Daily Profit	Equity Position (Margin Balance)
0	\$20	–	\$50,000
1	\$20.50	$\$0.50 \times 50,000 = \$25,000$	$\$50,000 + \$25,000 = \$75,000$
2	\$20.75	$\$0.25 \times 50,000 = \$12,500$	$\$75,000 + \$12,500 = \$87,500$
3	\$21.00	$\$0.25 \times 50,000 = \$12,500$	$\$87,500 + \$12,500 = \$100,000$
4	\$19.75	$-\$1.25 \times 50,000 = -\$62,500$	$\$100,000 - \$62,500 = \$37,500$
5	\$19.25	$-\$0.50 \times 50,000 = -\$25,000$	$\$37,500 - \$25,000 = \$12,500$

Notice that the investor would have received a margin call on day 5, when the equity position fell below the maintenance margin requirement of \$37,500.

## Forwards vs. Futures

	<b>Forwards</b>	<b>Futures</b>
<b>Contracts</b>	Customized	Standardized
<b>Trading</b>	Dealer or OTC markets	Exchanges
<b>Default (credit) risk</b>	Important	Unimportant – guaranteed by clearinghouse
<b>Initial deposit</b>	Not required	Initial margin and maintenance margin required
<b>Settlement</b>	On maturity date	Marked to market daily

## Basics of Forward Pricing

- Suppose forward price is \$20 and spot price is \$15. Can you make a profit by generating delivery in the future?
- Buy spot and store
  - Spot cost: \$15 (+)
  - Interest on purchase say 10%: \$1.50 (+)
  - Storage of commodity: \$2.50 (+)
  - Cost (buying spot-delivering forward): \$19
  - Profit sell forward at \$20 and buy spot: \$1
- For stored commodities spot and forward are linked
- Speculation in forward or futures prices moves the spot price

## Options

- Basic definitions:
  - Exercise (strike) price – price at which the option can be converted
  - Expiry date – end of period during which you can exercise the option
  - Intrinsic value – value of option if it is immediately exercised
  - European (versus American) options – can only be exercised at maturity
  - Premium – amount paid for the option

## Google Call Options

View By Expiration: [Jun 11](#) | [Jul 11](#) | [Aug 11](#) | [Sep 11](#) | [Dec 11](#) | [Jan 12](#) | [Jan 13](#)

<b>Call Options</b>		Expire at close Thursday, June 23, 2011					
Strike	Symbol	Last	Chg	Bid	Ask	Vol	Open Int
<b>470.00</b>	<a href="#">GOOG110624C00470000</a>	<b>23.66</b>	<b>↑ 8.26</b>	23.00	23.80	67	216
<b>475.00</b>	<a href="#">GOOG110624C00475000</a>	<b>18.40</b>	<b>↑ 6.80</b>	18.30	19.00	201	178
<b>480.00</b>	<a href="#">GOOG110624C00480000</a>	<b>14.30</b>	<b>↑ 6.61</b>	13.60	14.40	262	408
<b>485.00</b>	<a href="#">GOOG110624C00485000</a>	<b>9.70</b>	<b>↑ 4.95</b>	9.50	10.10	1,150	930
<b>490.00</b>	<a href="#">GOOG110624C00490000</a>	<b>6.20</b>	<b>↑ 3.60</b>	6.00	6.20	1,869	1,599
<b>495.00</b>	<a href="#">GOOG110624C00495000</a>	<b>3.30</b>	<b>↑ 2.02</b>	3.20	3.50	2,610	1,520

- Open interest – tells you how many investors are doing the same thing (i.e. how many contracts have been sold)
- Last – gives you the price that the option was last traded at
- Intrinsic value = market price – strike price
- If you bought the \$495, your intrinsic value would be \$0 and the \$3.30 would be your time value
  - Time value – possibility that stock will move even further in the direction that you want it to
- 1 option represents 100 shares
- Standard order size in the options market is 10 options

## Stock Call Option

- If the actual price at maturity is less than what your option right is, you can let the option expire and do nothing
- With a long position in the stock an investor can gain or lose
  - Owning the call option provides downside protection if the stock goes down – limited to the premium paid for the option

## Long Position

- Long means positive exposure to the asset; make profits if the stock price rises

## Long Naked Call

- Means that you own the option and don't own the stock

## Short Position

- Shares are mainly held in street name
  - Canadian Depository for Securities (CDS)
  - Brokerage firm accounts
  - Individuals are book entries in brokerage accounts
- Short sale
  - Borrow the shares from a broke and buy them back at a lower price

## Writing Puts

- Selling a put is like buying a call
- Put writer will be forced to buy if the stock price falls
- Selling (writing) a put is the opposite of buying a put

## Long Stock plus Long Put

- Buy the stock and a protective put
- Put acts like insurance – it removes downside risk by offsetting your loss on the stock if the stock price falls

## NOTES FROM ASSIGNMENT #2

### Return on Equity

- Net income as a percentage of common shareholder's equity
- Measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested
- $return\ on\ equity = \frac{earnings\ from\ continuing\ operations}{shareholder's\ equity}$

### Market to Book Ratio

- Ratio of the current share price to the book value per share
- It measures how much a company is worth at present, in comparison with its accounting value
- Low market to book ratio suggests that the stock is cheap
- $market\ to\ book\ ratio = \frac{closing\ market\ price}{book\ value\ of\ a\ share}$

### Price Earnings Ratio (P/E Ratio)

- Measure of the price paid for a share relative to the annual net income or profit earned by the firm per share
- A higher P/E ratio means that investors are paying more for each unit of net income, so the stock is more expensive compared to one with lower P/E ratio
- $Price\ earnings\ ratio = \frac{closing\ market\ price}{earnings\ per\ share\ (EPS)}$

### Dividend Yield

- Annual dividend per share divided by market price per share
- It shows how much a company pays out in dividends each year relative to its share price
- A measure of the income generated for investors who hold the common shares
- $dividend\ yield = \frac{annual\ dividend\ per\ share}{closing\ market\ price}$