UNIVERSITY OF CALGARY

MGST 451

Corporate Governance and Ethical Decision-Making

Lecture 7 – Winter 2019 L01-L03

By Dr. René Wells, CFA

Haskayne School of Business

Lecture 7 Agenda

1. Why study options?
2. Securities returns, S&P500 and Securities valuation
3. A Long Position and An example of a long position
4. A Short Position and The mechanics of a short sale
5. An example of short selling
6. Complications of short selling
7. Economic purposes of short selling
8. Gains and Losses of Long and Short Positions
9. Bulls and Bears summary

Why study options?

A basic review of options is required in this course because:

- The compensation of executives of listed firms almost always comprises a ‘stock option plan’ which has a large influence over the behavior and decision-making of executives.
- The concept of ‘optionality’ and ‘options’ is often encountered in business and across functional areas.
- Options is a topic not introduced in FNCE 317.

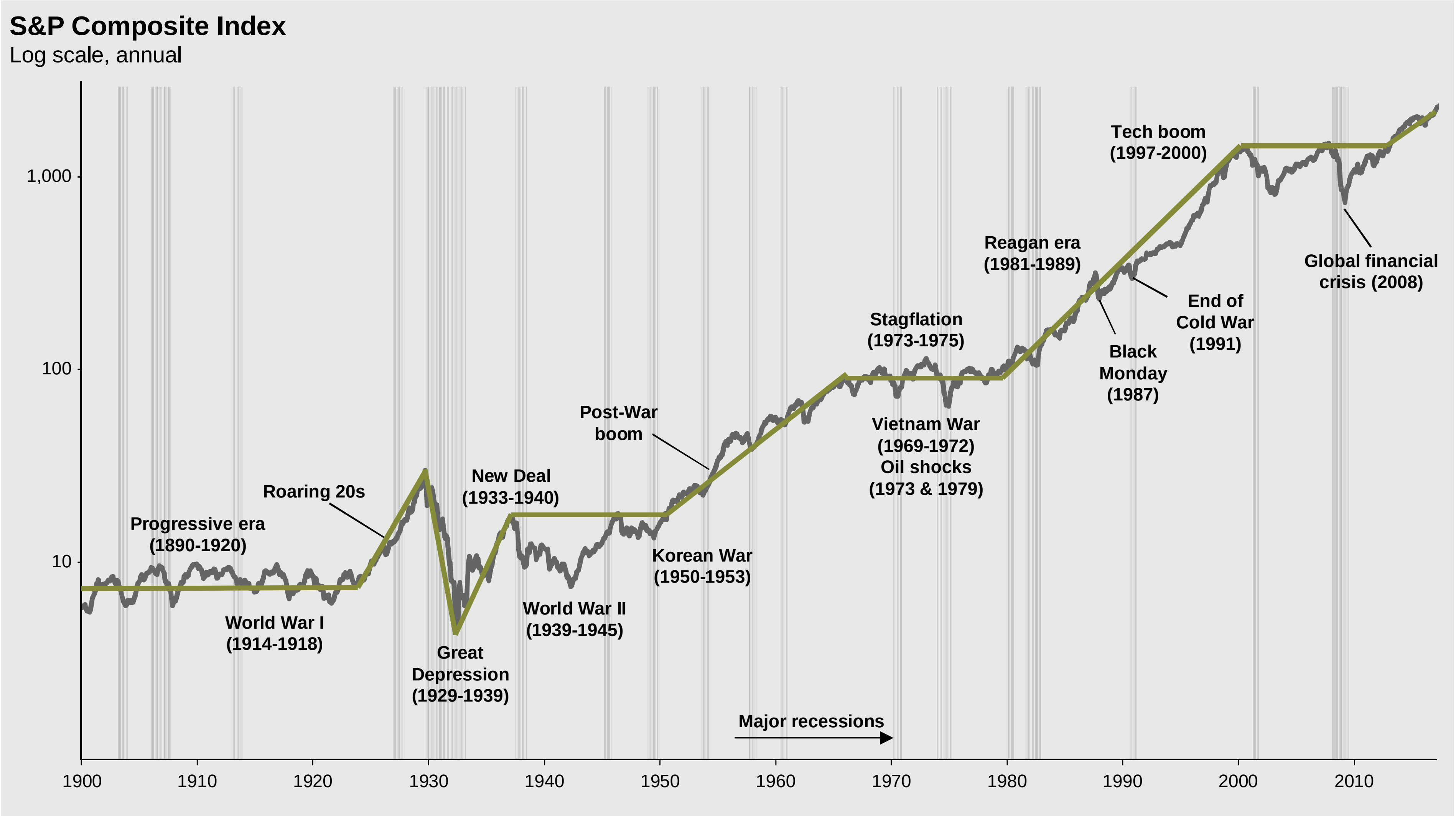
The examples provided in this course ignore transaction costs.

- In reality, transactions costs have to be paid each time you buy or sell securities.
- However, for liquid securities these transactions costs are usually small nowadays.

Security Returns

- When investing in a security, investors **expect** a financial return made-up of current income received (e.g. dividends) and capital appreciation (e.g. increase in share price).
- For most asset classes (and especially for equity), if an investor buys a security at too high a price, a negative return (a loss) might be **realized** made-of of current income received less capital depreciation (decrease in market price).
- For some asset classes, the decrease in market price revert eventually (e.g. the market value of bonds converge toward par as they get closer to maturity, unless a default did occur).
- For other asset classes, the decrease in market price is either permanent (e.g. price equals zero in case of bankruptcy), might revert eventually (how far in the future?) or not at all.

S&P500 Index



Source: FactSet, NBER, Robert Shiller, J.P. Morgan Asset Management.

S&P500 Index

S&P 500 Price Index

Characteristic	Mar. 2000		Oct. 2007		Dec. 2017
Index level	1,527	➔	1,565	➔	2,674
P/E ratio (fwd.)	27.2x	➔	15.7x	➔	18.2x
Dividend yield	1.1%	➔	1.8%	➔	2.0%
10-yr. Treasury	6.2%	➔	4.7%	➔	2.4%

Source: Compustat, FactSet, Thomson Reuters, Federal Reserve, Standard & Poor's, J.P. Morgan Asset Management.

Securities Valuation

- If you invest 'at the top of the market' (i.e. paid too much), it might then take you a long time to recover your capital
  - For example: 6, 7 years or even longer (and even if you have invested in a well diversified portfolio like the S&P500, i.e. the 500 largest companies in the US).
- Therefore, before investing, you need to ask yourself:
  - Is the market (or the stock) '**overvalued**' (too pricey);
  - Is the market (or the stock) '**fairly priced**';
  - Is the market (or the stock) '**undervalued**' (underpriced).
- But it is close to impossible to be 100% certain if the market (or a given stock) is overvalued, fairly priced, or undervalued.

A Long Position

- If in your opinion the market (or a given stock) is either fairly priced or undervalued, it might make sense to invest since you have concluded that the price will more likely remain the same or increase rather than decrease, making capital gains more likely than capital losses. You are ‘**bullish**’.
- Once you have invested (i.e. ‘bought’), you own the security, and by doing so you have established a ‘**long position**’.
  - N.B. you can only buy securities once you have opened and funded an account with a ‘broker’ (e.g. on-line).
- Your **potential gain is unlimited** since there is no ‘limit’ on how much a stock price can appreciate (‘sky is the limit’).
- Your **potential loss is limited to 100% of you investment** (all is lost, e.g. the firm went bankrupt).

An example of a long position

	Cash in account	Stock price	Position	Unrealized gain/loss
Start of day #1	$2,500	$50	-	
Buy 50 shares	$2,500-$2,500=$0	$50	50 shares	-
Start of day #2	$0	$60	50 shares	($60-$50)x50=$500
Start of day #3	$0	$40	50 shares	($40-$50)x50 =-$500
Start of day #4	$0	$70	50 shares	($70-$50)x50= $1,000
Sell 50 shares	$0+$70x50=$3,500	$70	-	-
Profit of $1,000 ($70-$50)x50				

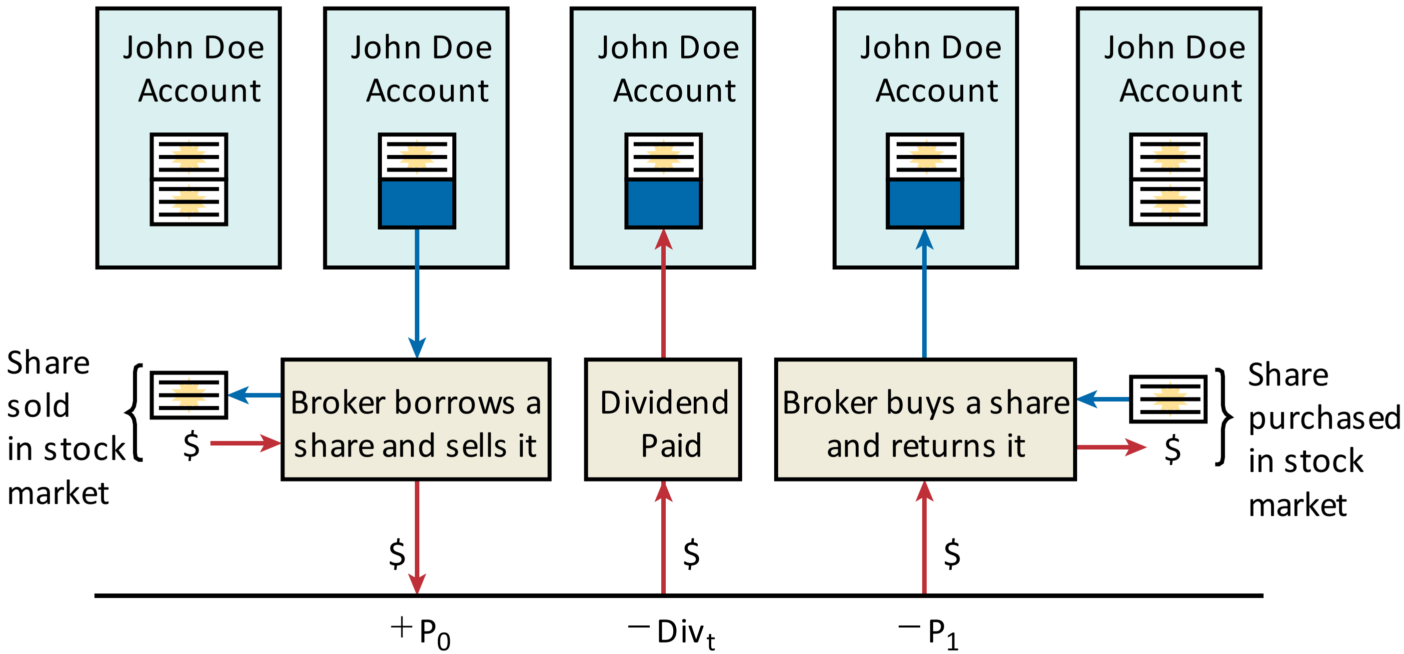
A Short Position

- If in your opinion the market (or a given stock) is overvalued, you shall not invest since you have concluded that the price will more likely decrease than remain the same or increase, making capital losses more likely than gains. You are ‘**bearish**’.
- But, it is possible to establish a ‘**short position**’, and to profit accordingly if your bearish forecast materializes as expected.
  - Your broker finds someone willing to lend you the security;
  - You sell the borrowed security at the prevailing market price;
  - Later you buy it at a lower price and pay back your stock loan.
- Your **potential gain is limited to 100%** of your short position (the security price goes to zero, e.g. the firm went bankrupt).
- Your **potential loss is unlimited** (since there is no ‘limit’ on how much a stock price can appreciate).

The mechanics of a short sale (Berk p.378)

The Cash Flows Associated with a Short Sale

P_0 is the initial price of the stock, P_1 is the price of the stock when the short sale is closed, and Div_t are dividends paid by the stock at any date t between 0 and 1.



An example of a short selling

	Cash in account	Stock price	Position	Margin required
Start of day #1	$2,500	$50	-	
Sell short 100 shares	$2,500+$5,000=$7,500	$50	-100 shares	$5,000 x 1.5=$7,500
Start of day #2	$7,500	$60	-100 shares	$6,000 x 1.5=$9,000
Margin call of $1,500	$7,500+$1,500=$9,000	$60	-100 shares	$6,000 x 1.5=$9,000
Start of day #3	$9,000	$40	-100 shares	$4,000 x 1.5=$6,000
Buy 100 shares and close short position	$9,000-$4,000=$5,000	$40	-	-
Profit of $1,000 100 x ($50-$40)				

Complications of short selling

Dividends

- If dividends are declared, the short position has to pay such dividends to the stock lender.

Close Out

- The stock lender has the right to get 'reimbursed' (i.e. get the shares back) at any time, requiring finding a new stock lender or having to buy the shares at the prevailing market price…

Margin requirements

- Given the potential for large losses, short positions are required to be covered by an appropriate margin at all times.
- E.g. 150% of the market value of the short position has to be provided at all times with collateral (in cash or otherwise).

Economic purposes of short selling

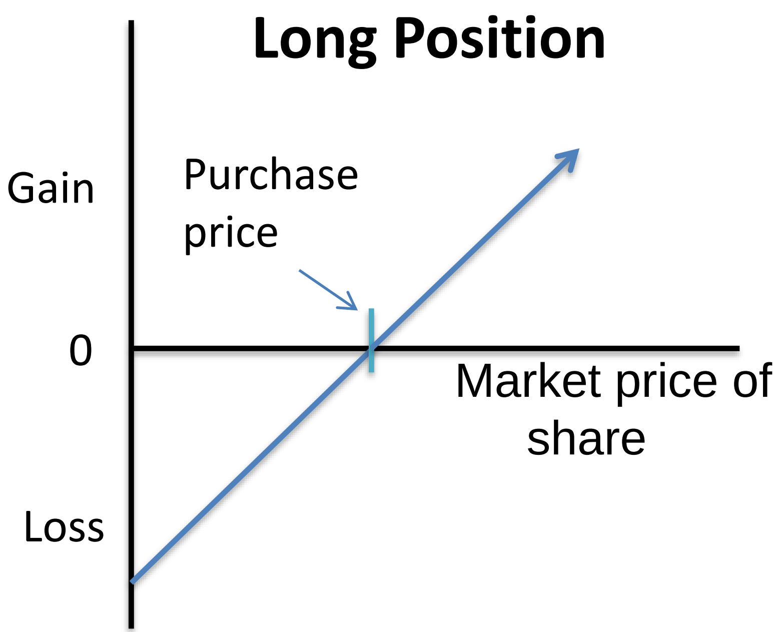
Economic rationale

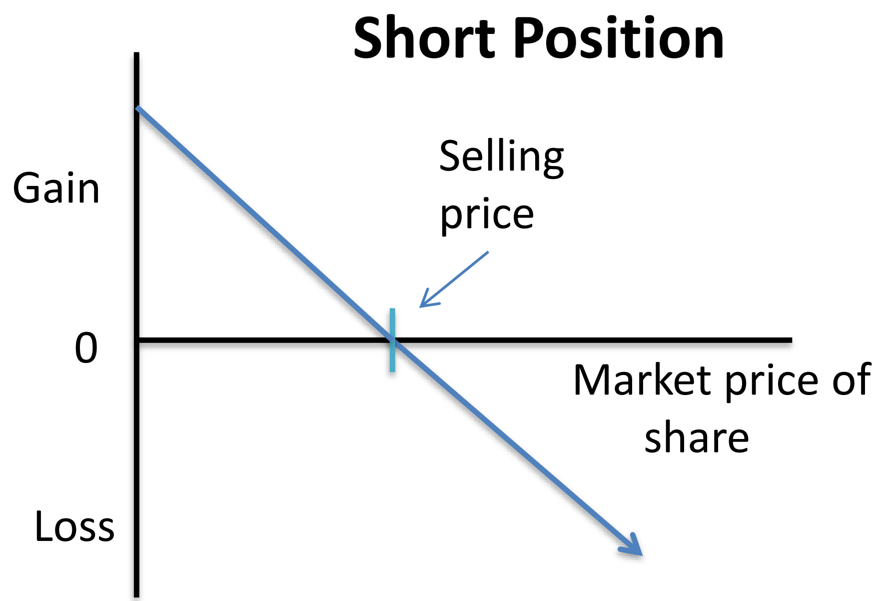
- Short selling allows investors with a bearish outlook to have an economic incentive to participate in capital markets by taking short positions.
- The mere fact of selling influences the price of a security downward and contributes to 'price discovery' (i.e. market prices being an efficient indicator of fundamental values).
- Aggregate statistics of all short positions on each stock (e.g. as a % of total shares) are published periodically for all stocks and provides a 'bearish indicator' for a given stock.

Controversies

- In turbulent times, regulators and management blame short sellers and sometimes short sellers behave very aggressively.

Gains and Losses of Long and Short Positions





- Buy low then sell high
- Sell high then buy low

Bulls and Bears summary

	Bulls	**Bears**
Forecast or opinion	Market (or stock price) will **remain the same or go up**	Market (or stock price) will **go down**
Investment strategy	Buy low then sell high	Sell high then buy low
Potential for gains	Unlimited	Limited to 100%
Potential for losses	Limited to 100%	Unlimited
Investment horizon	Unlimited	Unlimited or limited (depending of wealth versus margin requirements…)