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# Financial Economics

## Session 5:

### A concise overview of Equities

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# Financial Markets



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# Financial Markets



- Financial markets act as the playing field that **facilitates the transfer of resources** from those wishing to save it, to those wishing to use it productively.
- A **financial system** comprises of ***borrowers*** and ***lenders*** (the latter hoping to get at least *something* in return for delaying consumption), ***intermediaries*** (that go between borrowers and lenders), the ***financial instruments*** used to trade (and they can take very many shapes and sizes) and the various ***markets*** on which the players trade.
  - We still assume that the subsequent process of price discovery, that is initiated in the public exchange of financial instruments, to be relatively efficient (remember EMH).



# Financial Market – why it exists

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- Primary function of financial system is to **match the needs** of the primary **issuers** of financial promises with the ultimate **holders** of financial promises.
- **Financial intermediary facilitates this process.** Effectively it interposes its balance sheet between the ultimate suppliers and users of financial resources, acting as the middle man.



# Financial Market – why it exists

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- Remember that the Savings pool feeds the Investment pool, which drives the development of the economy, which drives Savings, etc.
- An efficient Savings → Investment channel is therefore critical to the development of the economy.



# Assets that can be traded

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For an individual to part with his / her resources – a **credible promise of repayment is needed...** Thus there exists broadly four “promises” available to individuals in a Financial System:

- **Debt** – promise to pay fixed amount at future date, eg bank deposit or treasury bill (principal plus interest repaid at expiration of contract)
- **Equity** – claim over the residual earnings of a business – no amount- or time commitment communicated (i.e. principal is never repaid)
- **Contingent promise** – to make specified payment under specified circumstances (trigger events), eg warranties, insurance, life insurance, etc
- **Derivative promises** - to enter into transactions involving physical commodities, debt or equity promises at a future time and predetermined price set at inception (these can mostly be tailored to specific needs)



# Debt or Equity?



- The **main, overarching difference** between the choice of holding **debt** (bonds) or **equity** (shares), is the **potential for deviation** from expected return.
- While **DEBT** instruments, or rather fixed income instruments, can be regarded as **safe** – the potential **upside** gain for investors are **limited**. Investors therefore *pay a premium* to hold such safe instruments - in terms of lower **potential** returns – but know upfront **exactly** what they will receive in return for saving their assets.



# Debt or Equity?

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- **Equity**, on the other hand, can provide investors with **infinite upside** gains (and there are many stories of stock-pickers that picked right in the past) through capital gains (share value increases) & dividend pay-outs. The likelihood of losing money or even of default is still real (as we saw with African Bank recently), however, and this is paid for in terms of a (traditionally) high risk premium on holding equity.



# Difference: Shareholders & Debt Holders in sum

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- Gilbert (2014):
- It is important to understand the difference in the **rights** that shareholders have with respect to the company. Shareholders have a residual right to the **cash flows and assets of a company**.
- Debt holders, on the other hand, have a **preferential claim** on these – they get the first bite of the cherry.
- Shareholders are thus far more exposed to the risk of the business (and should thus be compensated more for holding additional risk).



# Capital market – why it exists

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- Basically: businesses require capital (in whichever form) to be able to fund their business ventures.

There are several means of obtaining capital to fund activities, with the most obvious being that of selling **shares** in the business (with the buyers *on the other hand* hoping such shares will become more valuable in time), or taking on **debt** (bonds) that must be repaid to the issuer.



# Capital market – why it exists



- Together **debt & equity** form the **basis** for the capital market – the lifeblood of any capitalist, market based system.
- Its stability, sustainability and growth is at the core of businesses' ability to grow – and the fruits thereof essential to the economy to survive (through employment creation, production, etc.).
- **Point to discuss: Should access to financial markets (credit facilities, broad and diversified equity holdings) be on par with other human rights? Are there specific aspects to consider? Are organic jobs created from a well functioning credit and equity market more sustainable than centrally assigned labour functions?**



# Capital market – why it exists

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- This is why, following the 2008 financial system disruption, the **impact** was **felt** in the **real sector** – as unemployment rates soared and production cut back... Largely as a result of dampened capital market activity, in the form of a dried up credit market – no lending – and fast falling share market (wealth effect curtailing consumption spending and thus dampening demand)
  - *Today we focus on the part of the capital market that is most well known: the **share** market, aka the **equity** market or the **stock** market*



# Capital market – Should all be in it?

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- There is then also the social equity issue of whether the poor should also be exposed to the equity markets?
- This follows as access to financial markets have provided the wealthy with a means to increase the value of their portfolios and thereby beat inflation.
  - All the while, however, the poor are exposed to inflation without an effective means of hedging against it...



# Capital market – Should all be in it?

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- This has led our government to try and facilitate access to financial markets (in particular equity markets) to the poor.
- \* tax rebates have since been implemented on capital gains up to a threshold amount, with access to low initial deposit UT and ETF funds to help the poor invest ...
  - \* Who are the main beneficiaries of this though?
  - \* What are the consequence ito disincentivizing the poor to save should markets correct? As government is not providing an implicit put option, this might well turn out to be an unintended consequence if similar financial literacy issues are not addressed simultaneously.



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# Shares / Equity / Stocks\*

## What's it all about?

\* Synonyms for owning a piece of a company



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# How shares are created: IPO

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- Suppose a company is founded by Jack. He sells Ice Cream and has one parlor on the beach.
- Jack invests **R1000** of his own money (**Private Equity**) in his idea. He buys equipment and starts to sell ice cream. Over time, he sells a lot.
- **After a year**, Joe's I-C Parlor (inc.) has earned **20% profit**, which Jack **reinvests** in his business (now having a capital base, consisting only of equity, of R1200).



# How shares are created: IPO



- Suppose Jack then decides to approach a bank and pitch his business idea to them in an attempt to secure a loan. Suppose he does so successfully – enabling Jack to buy **another parlor**.
- He thus intends to **borrow money in order to acquire assets** – hoping to earn a profit,  $P$ , that is greater than the interest owed,  $i$  ( $P > i$ ).
- Borrowing money to acquire assets in the business is known as **leverage**, and is a fantastic way to magnify earnings if you're expected profits are greater than the interest payments.



# How shares are created: IPO



- Suppose after 5 years, Jack's company has grown significantly and have amassed some well earned credibility –boasting 10 parlors.
- In an effort to expand further (and become a global brand) – Jack decides to conduct an **IPO** (Initial Public Offering), as such a form of obtaining capital is **far less stringent** and **less costly** to the **business** than incurring debt (shares that are extended have no maturity / repayment dates) – although it might be costly for Jack i.t.o. less control on his business → **Trade-off...**



# How shares are created: IPO

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- Suppose I-C Parlor (inc.) is valued at **R50 000** (consisting of various parlors, machines, a truck and a broom) and Jack decides to issue **10 000** shares at his businesses' IPO.
  - The IPO is then done as follows: Jack approaches an investment bank, whom he employs to value and **underwrite his IPO**. This implies the bank effectively buys the shares to be issued and then resells them to willing public investors in the IPO (thereby **ensuring** Jack gets the intended capital), hopefully at a higher price than they bought it at.



# How shares are created: IPO



Suppose Jack holds **5001** shares (i.e. 50% + 1 : in order to still have the majority vote), and sells the rest of the stock (4999 shares) for R5 per share.

- I-C Parlor (inc) now has acquired **R25 000** extra **equity** capital.
- Again note that this form of financing to the business does not require **repayment...** as the shares issued have **no maturity** (or end) date— and is therefore regarded as a cheaper and less stringent form of financing for companies



# How shares are created: IPO



- Suppose that after the IPO, Jack votes for the injected capital (R25000) to be invested in building more parlors. The parlors then churn another profit as Jack's new parlors are once again profitable.
- Suppose a year later I-C Parlor (inc)'s profit is R10 000. Jack (or the board of directors appointed by the shareholders & Jack) can now choose to either:
  - 1) **Reinvest** it into the business – especially if he regards his business idea as highly profitable...
  - 2) Pay out the R10 000 as **dividends** to shareholders (rewarding them for holding the shares) – of which Jack pockets R5000 in this example...



# How shares are created: IPO

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- Holders of the shares, on the other hand, can now either vote for the company to reinvest the profits and grow further – thereby seeing their share in the business become more valuable as the business itself becomes more valuable (allowing them the potential to sell shares in the future at  $P > R5$  → which we call **capital gains**...)
- **Or** they can vote for some of the profits to be paid out in the form of **dividends** – monetizing some of the earnings acquired by holding the shares, which they can reinvest into I-C (buying more shares in I-C), consume or invest elsewhere.



# Primary and Secondary market for shares

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- The **Primary market** is where firms' new shares / financial instruments are introduced.
- Thereafter shares are traded on a **Secondary market** – where shares are freely bought and sold by public investors.
  - The platform can be either **OTC** (Over-The-Counter) or **Exchange-traded** (e.g. on the JSE)
- In addition to an **IPO**, companies can have a **Secondary Public Offering (SPO)**, as a means of obtaining new equity - this follows as companies **only profit from** the **initial** sale of shares and not from its secondary trading on the market.



# Primary and Secondary market for shares



- The buying and selling of shares on the JSE does not translate into **changes in profits or losses** for the firm, but rather changes in the potential profit for the holders of the shares (if they choose to sell - thereby locking in profits / losses).
  - Share-prices do, however, affect the **external value** of the firm through its market capitalization (explained later). Thus if a rival wants to take over the firm or the firm wants to incur more debt – its value is determined by its (*share price*) × (# *Shares*).
- The share-price is also important for many other reasons, especially considering that **shareholders vote in management**, who are **mandated to protect** the value of the stake that shareholders have in the company





# Two types of shares:

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- Ordinary shares:

- Regarded as the owners of the company, **ordinary shareholders** control its business ventures by exercising **voting rights** on business decisions – including the appointment of the CEO, the board of directors, the company goals, etc.
  - It is then no surprise that board-members care about smoothing share-price movements, even though the company is not directly losing or profiting... As their jobs depend on it!
- Ordinary Shares are issued with **perpetual claims**, implying they are never refunded / repaid (in contrast to debt).
- Liquidating an investment in a company's shares therefore entail selling it.



## Two types of shares:

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- **Pre-emptive rights to purchase:** In the event of an SPO, shareholders have the first right (but not obligation) to purchase new shares – so as to not let their share portion be diluted without them choosing so.
- Such SPO's typically are well communicated (as to why it is required) and sold at a discount (to incentivise buying of additional stock / keeping stock ratios).
- ABIL e.g. said it needed R8.5bn capital and sought to raise it from shareholders at R5 p.s. (then the market price was still about R8– when the share price started plummeting following the CEO's resignation, this became infeasible and the CB had to step in and save the day)



# Ordinary shareholders summary

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- Ordinary shareholders have the right to vote at annual general meetings.
- Ordinary shareholders have the ability to elect the board of directors of a company.
- Ordinary shareholders' dividends **can** (in theory) be higher than Preference shareholders' dividends, as dividends for Ordinary Shares are not fixed.
- N-Ordinary Shares offer all the benefits of Share investing, including the potential for both capital and income growth.
- Like all Share investing, investing in Ordinary Shares carries risk, including the risk of losing your initial investment and the risk of receiving a lower-than-expected return.
- These Shares do not have **preferential rights**, unlike Preference Shares.
- Share prices can rise and fall and investors must accept the fact that the value of their Shares may fluctuate during the year.



# Two types of shares

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- Preference shareholders:
- They are essentially somewhere between bondholders (debt) and ordinary shareholders
- Holders are **entitled** to a **fixed amount** of **dividends** per year
- This is almost then like interest payments on a perpetuity - with it also often having a cumulative function too (as non-payment of dividends in one period carries over to the next).
- Ordinary shareholders are **Last in line** – when a firm goes bankrupt, ordinary shareholders are last in line to be compensated for their loss (Order: creditors, bondholders and **preference shareholders** and then ordinary shareholders).



# Two types of shares

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- Preference shareholders:
- Special benefits to preference shares above bond holders:
  - Some forms allow such investors to share in upside gains as well, seeing dividends rise above that which were initially agreed upon.
  - Can often be converted into ordinary shares in time (convertible pref shares).
  - Dividend rates are generally higher than the coupons earned from bonds
- Downside relative to bonds:
  - Bondholders have superior claim on assets as compensation in event of default.
  - Riskier (default risk, and risk of repayment not made – as it is a **less stringent** repayment)



# Pref Share summary

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- Are second in line to receive capital repayments after debt holders if the company is wound up.
- Receive a higher level of income than debt holders because of the higher risk involved, because Preference shareholders are not guaranteed dividend payments in the way that debt holders are guaranteed interest payments.
- Have a better chance of receiving dividends than Ordinary shareholders, although Preference shareholders are not guaranteed dividend payments.
- Preference shareholders are guaranteed specified percentage dividends if the company makes a profit.
- Preference shareholders do not have right to vote at annual general meetings.
- Preference shares carry a higher risk than debt instruments, but lower risk than Ordinary Shares.



## Other types

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- **N-Ordinary Shares** are the same as Ordinary Shares, except that they give shareholders minimal or zero voting rights. N-Ordinary Shares often trade at a discount to Ordinary Shares. Although they are likely to cost less, they pay out the same dividends as Ordinary Shares (appealing to those not concerned with voting rights).
- **B-Ordinary Shares** are a different class of Ordinary Share and are subject to the Articles of Association of the company concerned. They often pay higher dividends than Preference Shares. Holders of B-Ordinary Shares have fewer or no voting rights than Ordinary shareholders and may not have a right to any repayment of capital should the company be dissolved. B-Ordinary Shares are suitable for investors looking for a long-term investment. They are also suitable for investors who are willing to take higher risk to achieve a higher return.



## Other types

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- **Real Estate Investment Trusts (REITs)**
- Real Estate Investment Trusts (REITs) offer investors exposure to real estate properties and mortgages through a JSE-listed instrument. Property loan stock companies and property unit trusts, listed on the JSE have been converting into REIT structures since **April 2013**.
- This includes e.g. in SA: Hyprop, Investec Property Fund, Growth-Point & Fortress
- This is great for investors who want exposure to the property market without the large initial capital outlay or personal leverage stress.
- **Features**
- Must pay at least 75% of their taxable earnings available for distribution out to investors as dividends, giving investors **certainty that net income will be paid out**.
- Also, REITs are traded on the JSE and are thus considered much more liquid than the physical properties.



# Other types

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## Real Estate Investment Trusts (REITs)

- Earn income from property leases, which means that they usually have a relatively stable income stream, which is adjusted upwards annually to keep pace with inflation.
- Earn their income from commercial properties with long lease periods, which means that they usually have a relatively stable income stream, which is adjusted upwards annually to keep pace with inflation.
- Investors may face some degree of risk because economic and social situations are unpredictable and may positively or negatively impact rental income and the price of REITs.
  - Foreign shareholders of SA REITs have been levied a dividend withholding tax since 1 January 2014. The current rate is 15%; or the applicable double tax agreement rate could apply.
- Else, as tax is payable by the end investor – which gives the property company enhanced tax efficiency.



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# Dividends



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# Share attributes: paying-out dividends?



Deciding whether to pay-out **dividends** or to retain profits and reinvest in the business:

- ***In theory, reinvesting profits*** should be a superior strategy to paying-out as: **Reinvesting profits should lead to more capital gains** in the form of price increases, which should be beneficial to shareholders due to:
  - **Tax benefits** (Capital gains income being taxed less than dividend income)
  - **Costs involved:** issuing dividends is expensive → the cost of issuing dividends and also the cost to shareholders for reinvesting such issued dividends is relatively high. Higher level of equity if reinvested – better credit rating and ability to borrow cheaper



# Paying out dividends?



- There is a large body of literature on the dividend anomaly, with many suggesting it has certain benefits to investors that cannot be ignored.
  - The most obvious, the ability for longer-term shareholders to **make part of their investment liquid**.
  - Behavioural finance theory also suggest that people **enjoy** the pay-out of dividends, as it is easier to process such pay-outs as income, as opposed to the less liquid and less tangible (and perhaps even less enjoyable) share value increase.
  - Whereas markets may be slow to price in an increase in a business' value following profit realization – dividends allow shareholders to **profit immediately** through its issuance.



# Paying out dividends?

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- There is, however, also the issue of **signals!**
  - **Positive**: The firm is in a stable position so that it can afford to pay out some of its returns in dividends.
  - **Negative**: The firm has no profitable investment opportunities and is therefore willing to give away some of its hard-earned profits.

## Holding High Dividend stocks?

- An argument against paying out dividends is also that investors seeking stable returns would rather hold debt instruments as opposed to high dividend stocks... as the latter is more stable and must pay its scheduled coupons.



# Literature

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- Theoretical literature on corporate dividend policy centered around two classic works; the first is the Lintner Dividend Stability Model by Linter (1956) and second is that by **M&M *Dividend Irrelevant Theory*** by Miller and Modigliani (1961).
- The latter suggests choice of debt / equity funding for businesses are irrelevant...
- M&M's proposition was strongly supported by Friend and Phuket (1964) and Black and Scholes (1974).



# Literature

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- M&M made certain stringent assumptions, including: no personal or corporate taxes; no stock flotation or transaction costs; financial leverage has no effect on the cost of capital; investors and managers have asymmetry information about the firm's future prospect; and distribution of income between dividends and retained earnings has no effect on the firm's cost of equity (Foong, Zakaria and Tan, 2007).



# Literature

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- For more on the Dividend literature and how it evolved, see this short and concise overview:
- <http://www.ukessays.com/dissertation/literature-review/the-effects-of-dividend-policy.php>



# Dividend measurements



- **Dividend amount:** This measure can be expressed as a value relative to the total value of ordinary share capital or as the amount per share; or it can be measured as a **yield**.
- Thus in I-C Parlor (inc)'s case - paying out the earlier proposed R1 000 in dividends would amount to a dividend pay-out of (supposing that the share price is now still R5 p/s):
- $(R1\ 000 / R5 \times 10\ 000) \rightarrow$  which is a **2% dividend pay-out**.
- Or as  $(R1\ 000) / (10\ 000\ \text{shares}) \rightarrow$  which is **R0.1 dividend per share (DPS)**



# Dividend measurements



- **Dividend Yield:** Dividends are normally expressed relative to the share-price.
- This gives an indication of the cash-flow received for each Rand currently invested in the share. Thus the **Dividend yield** for I-C parlour would be:

$$\text{Dividend Yield} = \frac{\text{DPS}}{\text{Stock Price}} = \frac{R1}{R5} = \mathbf{20\%}$$

**Remember:** The **dividend yield** measure should be used carefully, and definitely not on its own!



# Dividend yield simply a proxy for value?



- While it has been shown in the literature that DY is a good predictor of returns in some environments, this is arguably largely attributable to it being a *value proxy*.
- To understand why, consider this is the case, consider that we can rewrite DY as:

$$DY = \frac{EPS}{PRICE} \times PayoutRatio$$

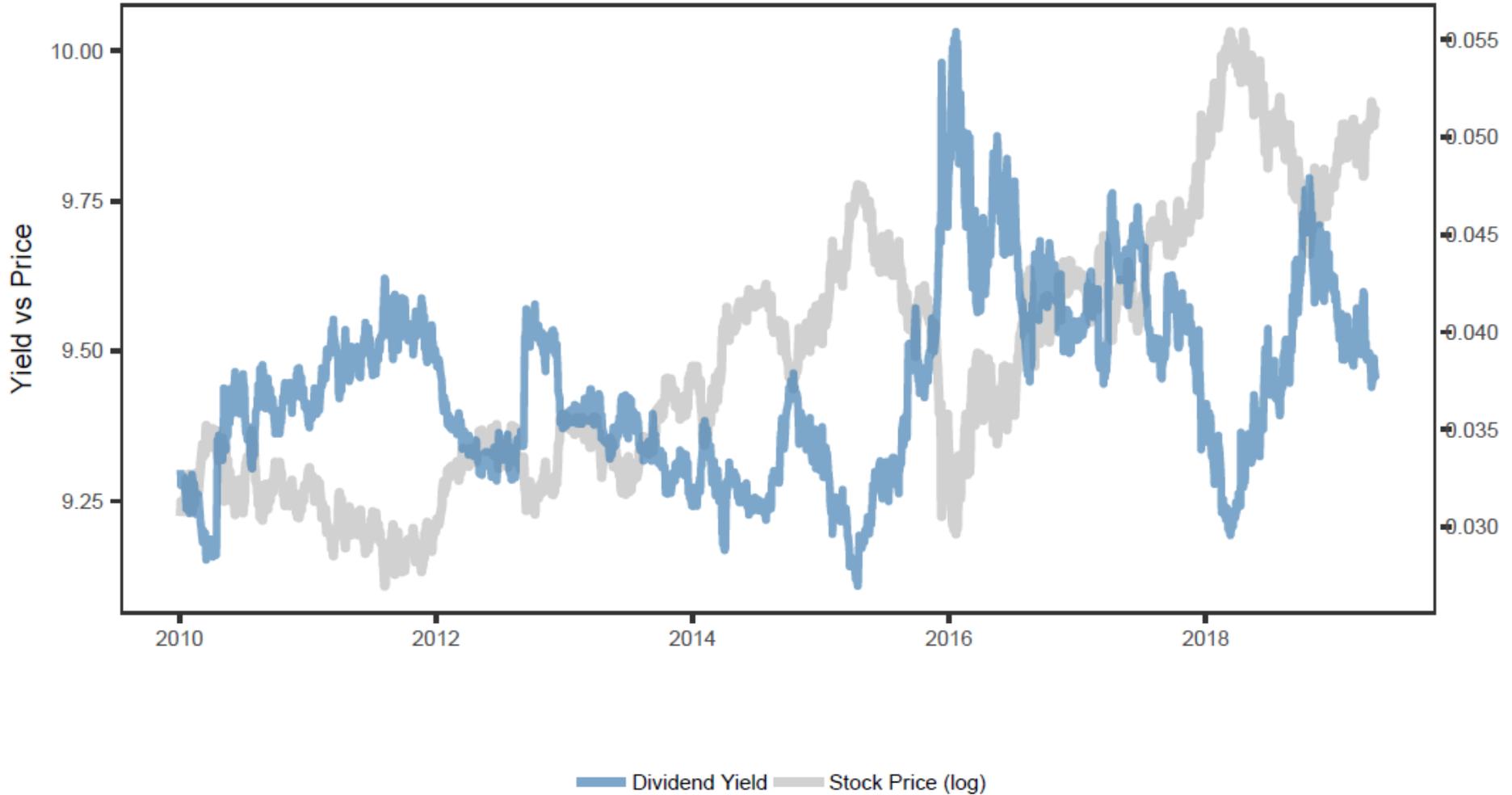
- (EPS: Earnings per share; Payout Ratio – Total Divs / Total earnings)
- As companies often have quite stable payout ratios...

$$DY \sim 1/PE$$

- With *PE* (Price earnings) a classic value measure.



# SBK trailing DY vs Price since 2010





# Share attributes: Pursuit of Capital Gains?



- One important distinction between CG and Divs are that of **taxation**:
- The **capital gains tax** (i.e. tax on the increase of value in any asset) has a **33.3%** inclusion rate for any asset gains, then being taxed at the marginal rate for individuals [vs 66.6% inclusion rate for companies and trusts].
- Thus for people in the **top tax** bracket, it implies:  
$$[CG] \times 0.33 \times 40\% = [CG] \times 13.2\%$$
- **Dividends tax** on individuals are currently taxed at **15%** (SA company to an individual), while domestic company dividends are exempt: SA company to another SA company – no div tax.
  - ***The dividend income policy are amended quite frequently in order to incentivise the reinvestment of company profits in order to expand their business... This makes sense from an oversight perspective.***



# Share Repurchases?



- An at times cheaper means of transferring funds to investors are through what is known as share buy-backs, or repurchases.

- This implies the company buys back shares from existing shareholders (typically at a premium to the market price).

- Benefits include:

- Redistributing profits to shareholders while keeping dividend ratios the same.
- Implicit tax benefits (depending on jurisdictions) – as no income or capital gains taxes are triggered.
- Potential signalling benefits (company knows, e.g., the share is undervalued and seeks to buy now, and potentially sell back onto the market at a higher price).
- It could support a falling stock price by adding to the demand for the stock.
- As an added benefit – it improves certain financial ratios, such as ROE and EPS... Measured i.t.o. number of outstanding shares (if company retires shares so purchased)



# Share attributes: Pursuit of Capital Gains?

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- A key first step in determining which direction the share-price is heading is by understanding a company's fundamental value and past and expected future performance ratios.
- The value of a share can be approximated using:
  - **Relative valuations** (derived from expressing the current share price to some relevant valuation criteria)
  - **Discounted cash-flow valuations** (with the value implied by the discounted value of all future earnings through capital gains and dividends)



# Share attributes: Pursuit of Capital Gains?

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- As was implied when deriving the MPT theoretic CAPM framework earlier – determining the value of a share is largely a subjective exercise, proven by the fact that **sellers do find willing buyers.**
  - The very fact that there is no clear consensus on the true value of a share or its forecasted price movement, imply that we have higher liquidity in financial markets
- In addition to determining a fair price (there are many other models that can be used, including DDM, WACC, etc. not done in this course), investors consider certain key statistics and **ratios** before buying shares. Let's look at some...



# Relevant (relative) Statistics and Ratios



## Lets' first define Outstanding Shares:

- This is the total amount of shares that a company has issued to public investors (in the IPO), company members and certain insiders. This measure also includes restricted shares (i.e. that of insiders whose shares may not be traded before a certain date, as was notoriously the case with FB shares after IPO).
- Companies can reduce its number of outstanding shares by buying back some of the publically traded shares at a later stage. They can also keep some back at the IPO, in order to sell it later (and hopefully at a higher price). Such information **needs to be made public at the IPO**, however.
- The Outstanding Shares total is used in many ratio calculations.



# Relevant (relative) Statistics and Ratios



## Market Capitalization:

- This is the total monetary value of all the outstanding shares issued.
- This is used as a simple measure of a company's size (e.g. Large Cap comp.)
- For I-C Parlor, this totals  $10\,000 \times R5 = R50\,000$  (with shares at R5)
  - This is used as a crude measure of a company's size or market value (e.g. Large Cap, Mid Cap or Small Cap companies).
  - In the US, **Large Cap** companies are typically associated with market caps of **\$10b** plus.
  - This is an important measure as increased size is often associated with less risk, and less growth potential (Blue Chip)
  - This is NOT always the case though – consider the volatility of large tech companies in the last few years (Apple, Google, etc.)



# Relevant (relative) Statistics and Ratios



- **EPS:**

- **Earnings Per Share** is a measurement of the company's **retained** profits:

$$\text{EPS} = \frac{\text{Profit (normally over the last 12 months)} - \text{Dividends}}{\text{Number of outstanding shares}}$$

- The EPS measure is mostly used in calculating **other** ratios that are better at providing a relative valuation of a share's value. Such as the next...

- **P/E Ratio:**

- Calculated as: 
$$\text{P/E} = \frac{\text{Price per Share}}{\text{Earnings per Share}} = \frac{\text{P}}{\text{EPS}}$$

- This is a widely used ratio, approximating the **amount investors are willing to pay for a share of the company's earnings.**



# Relevant (relative) Statistics and Ratios



## P/E Ratio (contd):

- **Apple** currently has P/E ratio of 30,8 (last year this time: 27, 7)
- This implies that **investors are willing to pay \$30.8 for every \$1 of Apple earnings** -compare this to Google's P/E of 40,4 (last year this time: 32,5)... Thus, an investor can argue that he / she is paying less for earnings by buying Apple stock and thus choose it on that basis.
  - **But the P/E ratio, alas, is not a perfect indication of relative value...**
- Also, P/E ratios are typically based on the last four quarter's earning – thus it may not be a good indication of future earnings...
  - Also, if a company made negative earnings (a loss) – it will not have a P/E ratio...



# Apple Stock-Split

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- A few years ago Apple's share price of little over \$100 p/s was lauded as its highest yet – but it can initially seem confusing to those remembering it had a few years ago reached almost \$700 p/s... Its simply because they had a **stock split**.
- Stock split implies the company chooses to increase the number of outstanding shares – lowering the price per share at the same time... thereby making it more accessible,
- As Apple said in a statement:
- “[We want] Apple stock to be more accessible to a larger number of investors.” (the price dipped from \$645 to \$95).



## P/E Ratio (contd):



- A high P/E ratio may be an indication that investors are expecting **high future earnings** growth, or that the shareprice is overvalued relative to the earnings.
  - P/E ratios should at best be compared between firms in the **same industry**, as certain industries may have traditionally low turnover rates, but can still be regarded as **valuable** despite a low P/E.
  - Thus a share priced at **R5 p/s** may be regarded as **expensive** if it has a P/E of **35**, compared to a share with a price of **R100**, but a P/E of **10** in the same ind.
- P/E's could be also be expressed as a **forward P/E ratio**, which uses projected earnings (forward earnings estimates)



# Relevant (relative) Statistics and Ratios



- **PEG Ratio:**
  - The obvious problem with the P/E ratio is that it does not account for a company's future **growth potential**.
  - The **PEG** (Price: Earnings: Growth) ratio seeks to address this.

$$\text{PEG} = \frac{\text{P/E Ratio}}{\text{EPS Growth (anticipated value)}}$$

- **A lower PEG ratio indicates better value i.t.o. :**

Share-price, past- and expected growth potential.

The PEG ratio provides investors with a **fuller picture** of a company's share price relative to its growth. Thus the P/E ratio should ideally be used in conjunction with the PEG, although projected growth is possibly contentious



# Relevant (relative) Statistics and Ratios



- **Price / Book Value:**

- Investors might also be eager to see how the **price of a share** (market value) relates to the total (accounting) **value of the company** (book value, or Assets - Liabilities)
- Thus, P/B compares the price per share to the value of all the company assets if it was sold (liquidated).
- Suppose Jim's Bagels has a **book value** of R6m, 200 000 shares outstanding and the **current share price is R90 p/s**.
- It then has a book value p / share of : R6mil / 200 000 = R30 p/s
- **The P/B value would then be:**

$$PB = \frac{\text{Price per share}}{\text{Book Value per share}} = \frac{90}{30} = 3$$



# Relevant (relative) Statistics and Ratios



- **P/B (cont)**
  - Notice that the P/B ratio of 3 implies that the outstanding shares are worth three times what the assets of the company can be sold for now
  - **Madness?** Not quite – with a highly solvent company (and a very low probability of default), this might be an indication that investors believe the company to be **worth far more than its current book value**, as it should expand and grow in the future.
  - Growth stocks tend to have high P/B ratios, but this could also at times be an indication of an over-inflated stock price...
  - Of course, some companies have less tangible assets, and more assets i.t.o. the non-accounting type – like Intellectual Capital... E.g.:
  - **NASPER's P/B value is currently 3.7 (8.5 last year)**



# What about profitability?



- **RoE (Return on Equity) ratio:**
  - Investors might also want to have an indication of just how efficient a company is at **generating profit (profitability)**
  - **Equity** can be regarded as the **shareholder's capital** – i.e. the initial (start-up) investments and subsequent amounts received by shareholders from the IPO (excluding preference shares). Then:

$$ROE = \frac{\text{Net income (annual)}}{\text{Equity}} \longrightarrow \text{*Before dividends to ordinary, shares but after dividends for preference shares}$$

ROE is then used in % terms: thus if  $ROE = 0.3$  we call it an ROE of 30%

Thus if two companies have the **same annual Net income**, the company with the highest ROE can be considered more efficient at producing profit from its equity base

58 (or how well it used the funds provided for by investors).



# Relevant (relative) Statistics and Ratios



- **RoA (Return on Assets) ratio:**

- ROA provides investors with an indication of how efficient a company is at using its **assets** to generate returns.

$$\text{ROA} = \frac{\text{Net income (annual)}}{\text{Total Assets (debt and equity)}}$$

\*Before dividends to ordinary, shares but after dividends for preference shares

Thus if company A has a ROA of 20% and B has a ROA of 40%, we assume that B would be able to use future investments in assets more effectively than A.

This measure should, however, only be compared within similar industries (consider the ROA differences of a manufacturing company to that of a financial service company)– and even then should consider various other factors before an investment decision is made.



# EBITDA / Earnings / Revenue



- Charlie Munger once said that EBITDA are bullsh\*t earnings.
  - Look for companies that can translate Revenue into Net Income.

## 1 Revenue

Revenue, also known as "sales" or "total sales," is the total amount of money generated by a business from its primary operations.

It represents the income a company receives from selling its products or services to customers before deducting any expenses, taxes, or other costs.

Revenue is a key indicator of a company's top-line financial performance.

## 2 Adjusted EBITDA (Earnings Before Interest, Taxes, Depreciation, and Amortization)

Adjusted EBITDA is a financial metric used to assess a company's operating performance by excluding certain non-operating expenses and income.

It starts with EBITDA (defined below) and then further adjusts for items such as one-time expenses, non-cash items, and other extraordinary or non-operational factors.

Adjusted EBITDA provides a clearer picture of a company's core operating profitability.



# EBITDA / Earnings / Revenue



- Charlie Munger once said that EBITDA are bullsh\*t earnings.
  - Look for companies that can translate Revenue into Net Income.

## 3 EBITDA (Earnings Before Interest, Taxes, Depreciation, and Amortization)

EBITDA is a measure of a company's operating performance. It represents the earnings or profits generated by a company before accounting for interest expenses, taxes, depreciation, and amortization.

EBITDA is often used as an indicator of a company's cash flow from its core business operations, as it eliminates non-operating factors that can vary from one company to another.

## 4 Net Income

Net income, also known as "profit" or "net profit," is the bottom-line profit of a company after deducting all expenses, including operating costs, interest, taxes, depreciation, and amortization, from its total revenue.

It represents the actual profit a company earns, which can be distributed to shareholders or reinvested in the business.

Net income is a critical measure of a company's overall financial performance.

It's important to note that these financial metrics provide different perspectives on a company's financial health and performance.



# Relevant (relative) Statistics and Ratios



- In addition to considering the size, relative value (i.t.o. share price) and the profitability of a company, potential investors (especially debt holders) are also concerned about a **company's ability to cover its liabilities** and avoid default.

Let's first consider the term **Leverage**:

- **Leverage** is the ability of firms to borrow money in order to acquire assets to invest into the business
- For a profitable business, this can be considered good practice – as borrowing at a cost of (say) 4% and earning (say) 10% on an asset, implies a 6% profit is made on the borrowed funds.
- This can be thought of as profits generated “from nothing” (well, almost - the something is of course the risk involved...), as the company did not need to sell part of its share – using instead borrowed cash



# Relevant (relative) Statistics and Ratios



- Using **leverage** has the advantage of making the business **seem more profitable** (i.t.o. turning equity into profits, e.g.) and can magnify the returns of a profitable business venture. But you can always have too much of a good thing. The downside being that **losses** are **similarly magnified**...
- **The ratio used as an indication of the leverage → Debt / Equity Ratio**
  - This ratio gives investors a good idea of the amount of **leverage** a firm employs.

$$\text{Debt/Equity} = \frac{\text{Total Debt}}{\text{Equity}}$$

If a company is **very highly leveraged**, it might impact their ability to borrow in the future and also create solvency problems down the line.

If a company has **extremely low leverage**, it might also raise questions as to whether their business ventures are more profitable than borrowing rates...



# Financial Leverage



- Financial leverage estimates the percentage change in [net income](#) for a one-percent change in operating income.

$$\text{Financial leverage} = \frac{\text{ROE}}{\text{ROA}}$$

- Financial leverage refers to the use of debt to acquire additional assets. This ratio may decrease or increase ROE in different conditions. Financial over-leveraging means incurring large debt by borrowing funds at a lower rate of interest and using the excess funds in high risk investments in order to maximize returns...



# Other fundamentals

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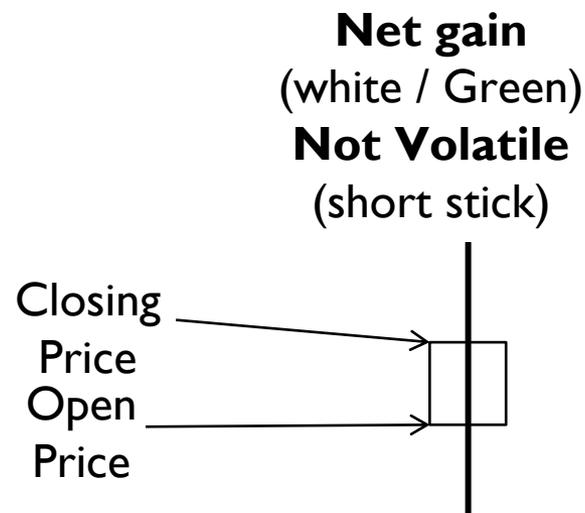
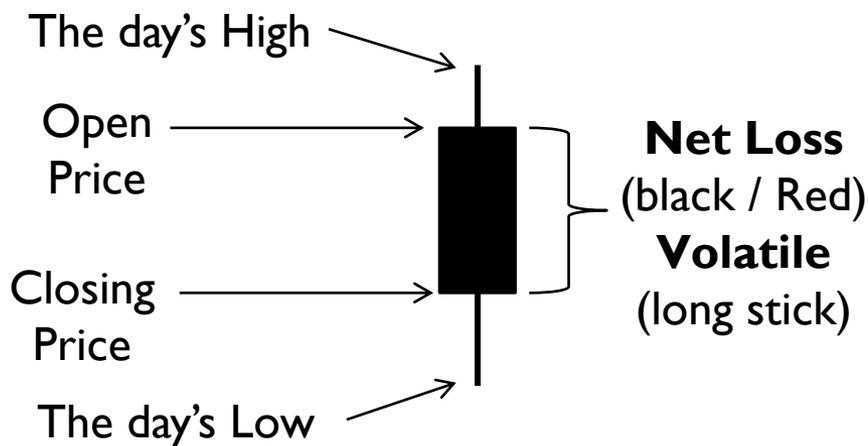
- There are a host of other fundamentals that investors consider and use to motivate their decision to hold / or not to hold the firm's equity.
- Some other fundamental considerations include:
  - Cash Flow situation, sales, soundness of capital management, expertise of management, pending legal battles, potential for take-over bids. etc.
- Of course, investors also need to consider the fact that prices do not always follow the fundamental path...
  - Also important are macroeconomic fundamentals and forecasts, PMI data, general market sentiment, inflationary expectations, policy expectations
- **Naturally, investors might want to use technical (trend) analyses too...**



# Analysing past returns: Technical Analysis



- After an analyst has viewed the above ratios and considered the size, price and solvency status of a company – a next step might be to look at some recent share price behaviour (chartist analysis)
- A few charts and spreads often used include:
- **Candle Stick charts:**
  - These charts provide an efficient summary of recent investor sentiment regarding a particular stock.

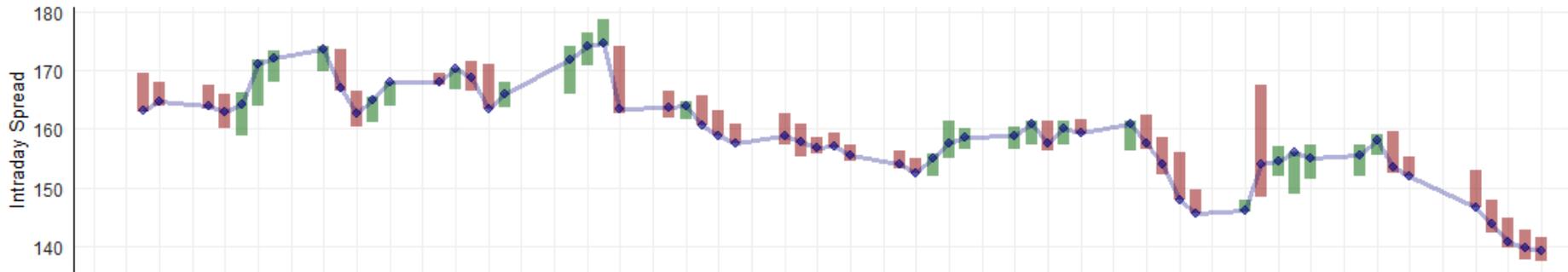




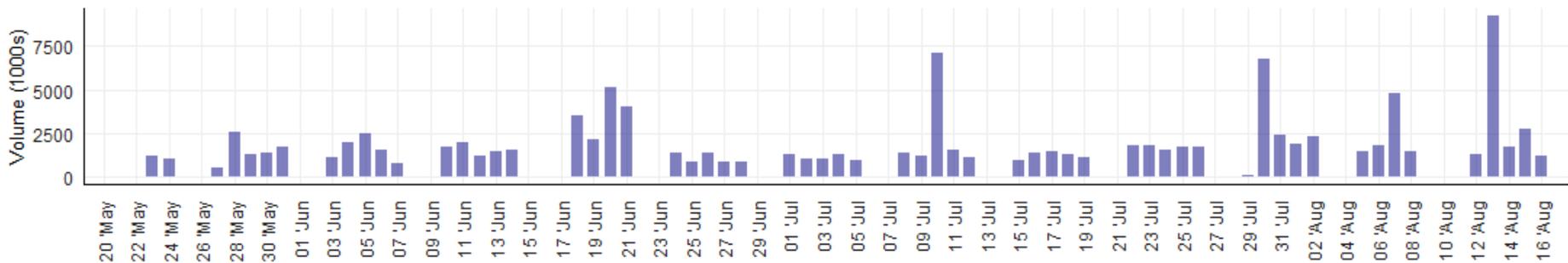
# Candles of SHP



SHP: Candle Bars Intraday (Blue line: closing prices)



Volume Traded





# Analysing past returns: Technical Analysis



- Another measure useful to investors is the
- **Bid / Ask spreads:**
  - Essentially this is a measure of the difference between what a seller is asking for a share, and what the buyer is was willing to pay or bid for the share (with the market price being the mutually agreed upon level).
  - The **bid/ask** spread of a share is the difference between the highest bid value and the lowest for the day.
  - By looking at recent data, the B/A spread can be used as a **proxy for a share's liquidity / volatility in price movement** – with a typically low B/A spread implying less negotiation was needed, and therefore the share was traded easily → thus higher liquidity & also lower volatility in price movement



# Analysing past returns: Technical Analysis



- A particularly intuitive charting technique was proposed by John Bollinger, called **Bollinger Bands**:
  - This technique basically allows investors to easily check whether a share has experienced **extreme** movements & volatility, compared to its past.
  - The Moving Average (this could be 50-day, 100-day, etc. MA's) of the share-price is plotted, with a **top and bottom band** drawn – and being typically one standard deviation ( $\sigma$ ) from the MA line (although it can be  $k \cdot \sigma$ )
  - Prices close to or above the upper band of the historical MA line, indicate to investors that the share-price may well be highly overvalued (and vice versa).
  - In addition to that, ***Bollinger Bands*** provide a good quick visual indication of shifts in volatility of share prices relative to the past movements (as seen by the **width** of the bands – wide bands = greater volatility).



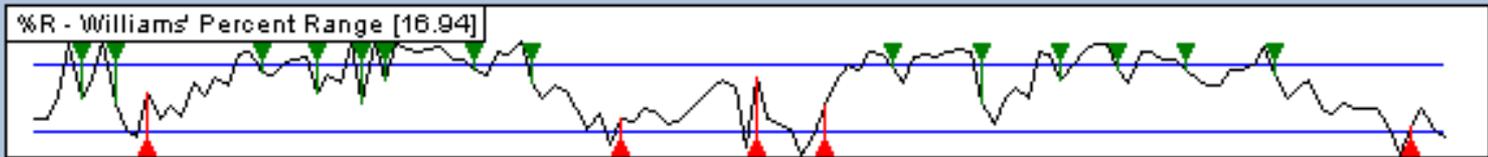
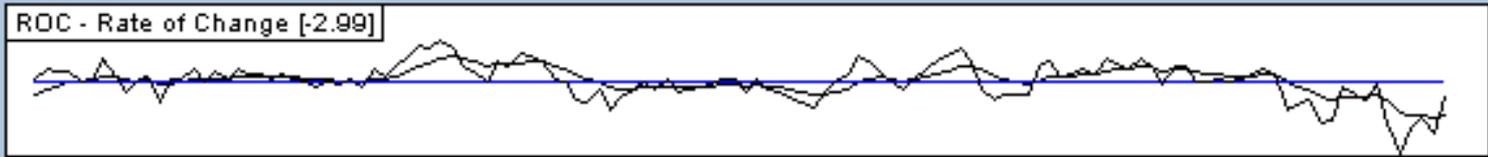
# Analysing past returns: Technical Analysis



- Other technical tools (which rely on past trends to predict future movements) include:
- **ROC measures:**
  - This measures the price **Rate of Change** (ROC) for the Closing price of a share today vs N-periods into the past.
  - $$\text{ROC} = \frac{\text{Closing price today} - \text{Closing price N periods ago}}{\text{Closing price N-periods ago}}$$
  - ROC is used as an indicator of **market momentum**.
  - Successive positive ROC's can indicate strong positive momentum (and vice versa).
    - Other technical tools include (but are by no means limited to):
      - McClellan Oscillator, Head-and-Shoulder movements, On-Balance volumes, Pivot-point, Chande momentum oscillator, etc.



# Bollinger Band example: CIPLA



ROC

Anticipation of reversals



# Contrarian Strategies

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- **Contrarian strategies** are often used as an example of a strategy that pays off if one can stomach / ride out the risk.
- The strategy entails an investor being bullish when the market is generally bearish, and vice versa. Thus they employ strategies that go against current widespread market consensus.
- Instead of buying and holding shares (in the hope that the price goes up)... investors can profit off price declines (through short-selling) and also from betting on market volatility (any direction) or market tranquillity. We will discuss these techniques in the derivative session...



# Stock Exchanges

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- Let's assume now that an investor has done his homework on the fundamental values of a share, studied its past returns using chartist techniques and decided on his / her strategy... How to then go about buying shares?
- The prospective investor now has the **choice** of either **buying** stock **directly**, or buying into a collective investment scheme or an ETF.
- Firstly, buying stocks normally imply buying on a stock exchange: Africa's largest is the Johannesburg Stock Exchange (JSE)



- The JSE main board is one of the 20 largest exchanges in the world in terms of market cap – boasting over 400 companies (main board: minimum market cap = R25m. That of AltX is R2m).
- Its newly **upgraded system** (the **Millennium Exchange**... How original) saw it move the trading engine from London (where it was for more than 10 years) to Jhb – citing several incidents and glitches that affected trading in the past as a result of the oft problematic **transatlantic internet cable connection**.  
(remember, on modern exchanges even the milliseconds matter...)
- Companies listed on the exchange has to adhere to certain strict eligibility criteria to ensure the credibility of the bourse. Investors and companies are protected by strict regulatory oversight and clearing house facilities – all of which ensure a world class exchange that is the basis for a liquid and efficient domestic financial system.



# Buying stocks on the JSE



- Investors require the help of a broker in order to invest on the JSE (not just the man on the street, but even large institutional investors must invest through brokers).
- Brokers are regulated by the JSE in order to ensure the integrity of trades.
- A stockbroker could be execution-only (only enabling your transactions - without making suggestions on what to buy or sell) or could also offer advice or even manage your portfolio (advisory brokers)
- Investors can assign certain tasks to the brokers, which include **stop-loss** orders (a minimum price at which to sell the stock to minimize the downside), buying / selling orders, limit orders, etc.
- Brokers can also be given certain mandates, such as the level of discretion they can use and which stocks they may invest in with your capital.



# Index Investing

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- For most investors, trading on the JSE directly might seem a bit daunting, although they might be eager to expose at least some part of their portfolio to higher yielding (and riskier) equities, but find the information and trading costs a bit high.
- A common and popular alternative is to buy into an Index fund (often wrapped in an Exchange Traded Fund (**ETF**)).
  - An Index traded ETF is essentially an investment product that is **listed** on the JSE, **traded** as any other share, **but** represents a basket of shares, bonds and / or commodities.
  - Index funds then **track** the shares in their portfolio which they are designed to follow.
  - The Net Asset Value then is the value of a share / unit in the tracker fund.



# Index Tracker funds

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- **Basically how it works:**
- Say a firm wants to create an **index** that **tracks** the **financial industry** in SA. It then assembles a pool of (what it believes to be) representative shares and instruments, by carefully choosing the appropriate inclusion-weighting to accurately mimic the movement of the industry.
- It then delivers this basket of assets to a custodial bank (who holds it) and the company then sells shares of this basket to investors, who then effectively hold a proportional / representative piece of the industry the investor wishes to track.



# Why hold an index tracker fund?

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Some of the **benefits** to holding an ITF include:

- **Diversification:** ITFs are funds consisting of many securities and thus provide holders more diversification than holding single shares – doing so without the hassle of doing market research or paying someone else to.
- **Liquidity:** ITFs are traded like other shares on the JSE and therefore keep the individual share benefit of easy tradability.
- ITFs are also well **regulated**, and have far **lower administrative costs** than managed funds, which employ managers and staff to oversee the investments.



An obvious question then arises as to whether such an ITF share can have a value different from the underlying shares it represents?

- Yes, but such discrepancies are normally arbitrated out rather quickly, as holders of e.g. index trackers can in theory exchange their holdings for the underlying shares (at the custodial bank) and sell that on the market... eliminating arbitrage.
- Index trackers can be very specific or very broad – tailored to specific investment needs. Some even track **international equity markets**, such as the **core shares** funds) – providing domestic investors with easy exposure to markets in the US, EU, Japan, UK, Developed World.



# ETF vs UT



- Index tracker funds could be wrapped into both a unit trust or an ETF structure.
- There are benefits and costs to both, which we will return to in a later session.
- But in principle both are similar in that the investor holds a proportionate share of the underlying investments held by the fund.
  - UT: investor holds a participatory unit (priced end of day)
  - ETF: investor holds a share of the underlying that is traded on the JSE (priced continuously as share is trade on JSE).



# Growth or Value?



- In addition to simple index funds, investors could choose to hold trackers with systematic or thematic tilts.
- **Growth funds:** are defined as a collection of stocks that are expected to yield above-average capital gain returns in the near future – and whose business ventures are typically based on high R&D spending and innovation.
- Typically have a track record of solid growth and / or high expectation of continued growth.
- These often include tech companies (Google, Apple, FB, Naspers, etc).
- They typically have large P/E and ROE ratios and high forward revenue expectations, investors tend to be more accommodating of dividends not being paid out, but instead reinvested in the profitable growth stock they are invested in.
- **Although their growth potential is large, there is a chance that such companies fail to develop the next “big thing” or just fail to be as innovative as expected. (Nokia? RIM?)**



# Growth or Value?



- **Value stocks:**
  - These are typically shares that investors believe trade at a price lower than what its fundamentals suggest. These stocks are often considered to be **undervalued**, and investors hope to benefit from the price correction that **should** ensue...
  - They are typically stocks that have low P/E ratios, high PEG ratios, high dividend yields and low P/B values.
    - Notice that such investors do not subscribe to the Efficient Market Hypothesis, else he / she would believe the price to be correct!
  - Blue Chip shares are also often referred to (technically wrongly) as Value stocks, for their predictably continued upward meander of share value (although strictly should not be considered **value** in this regard!!!)



# How to make money investing



In conclusion, let's consider **how** investors **make money** by investing in shares.

- Most will agree that the serious money made from investment is not by investing in broad indexes, blue chip stocks **or** where the market hype is at.
- Early investors, or private investors in growing companies are often the ones that turn modest investment capital into big money.
- Correctly spotting such investments **and acting upon it** (there are always hundreds of “*I told you so’s*”) is a difficult task requiring investment savvy not taught in textbooks.
- Let's take the example of Facebook – and ask why investors seeking to cash in on its fortunes might have been far too late for the party when they arrived at the May 17, 2012 IPO.



# Facebook



- As mentioned, the investors that did make good money on Facebook were the early investors – the *visionary* secretaries and staff that accepted stock options as salaries when FB was small and cash-strapped (worth millions now), the now famous graffiti artist David Chloe, who painted the FB home-office, accepting shares in return for payment... now worth nearly \$200mn.
- The ones that made money off Facebook's success was not the buyers of IPOs... Rather those that acquired interest in the company before it went public, like:
  - **Pieter Thiel**, the Angel investor that provided the first investment in the 2004 cash-strapped start-up company. He now owns 2.5% (valued at over \$2bn!)
  - **Jim Breyer**: Buying 1% in 2005, now worth truck loads



# Facebook IPO disaster. (2012 data)



- 17 May 2012: FB IPO was announced in which shares were priced at **\$38**.
- Millions waited in anticipation and pounced on the stock when it was made available – hoping to also get in on the action. The first day closing price was up at \$38.23, but after that it went downhill, dipping to a low last year of \$17.55.
- Aren't investors overreacting and should we see FB as a must-buy item? Let's look at the fundamentals as of **6 September 2012**:

## Facebook: Share price: \$18.58

Source: Bloomberg

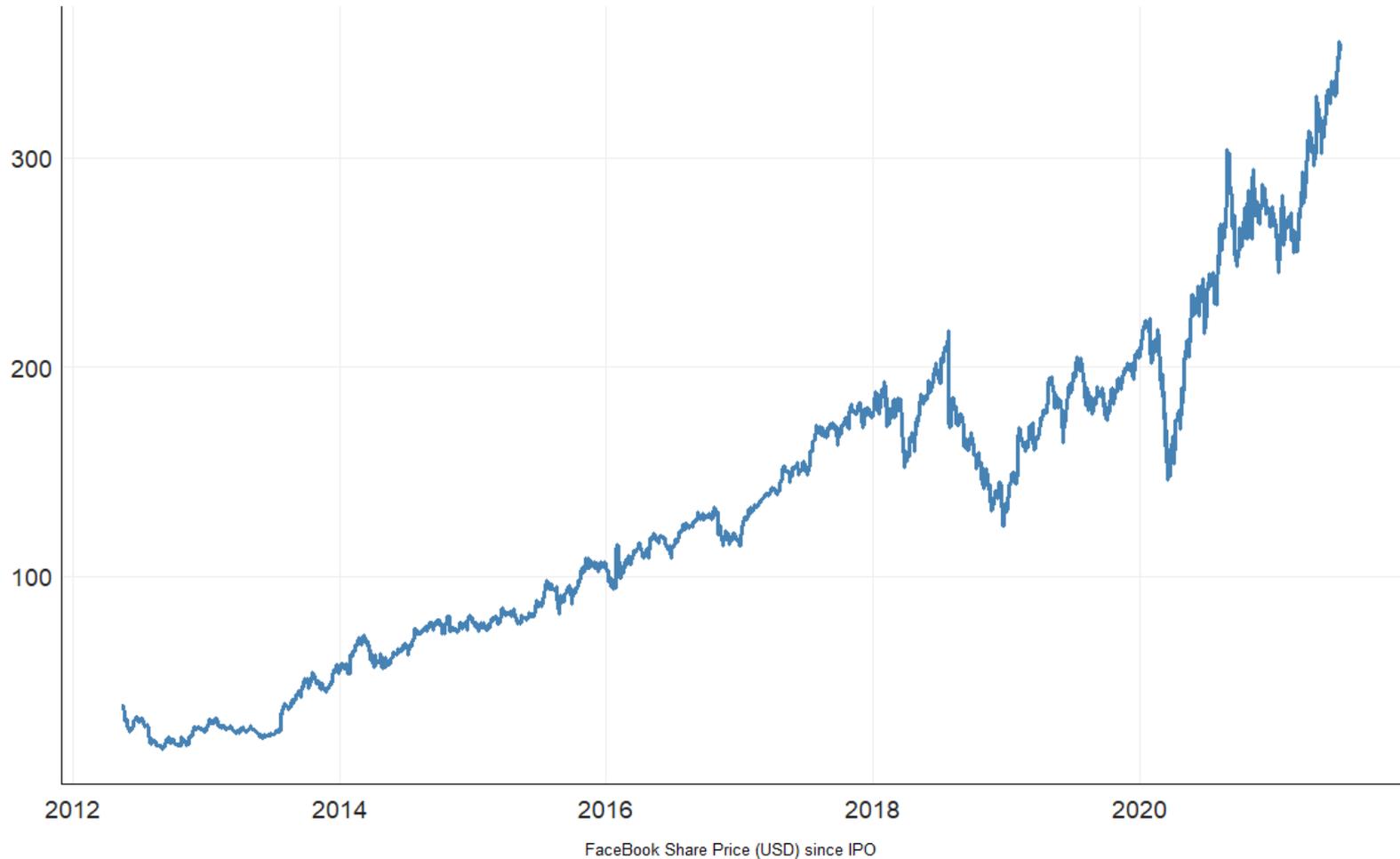
Market Cap (Mn USD)	44,877.53mn
Shares Outstanding (mn)	937.41
Price/Book (mrq)	5.7683
Price/Sales (ttm)	6.4787
PEG Ratio (3 year expected)	1.2084
Estimated PEG Ratio	1.5352
Earnings Per Share (USD) (ttm)	0.4600
Quarter Estimated EPS (USD) (mrq)	0.1130
P/E Ratio (ttm)	40.3913
Estimated P/E (12/2012)	38.0738

\*mrq:  
most  
recent  
quote

\*ttm:  
Trailing  
twelve  
month



# FB Share Price since IPO (USD)...





# The END

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In the words of Mark Twain:

- “October is a particularly dangerous month to speculate with stocks...

The others are June, July, January, September, April, November, May, March, July, December, August & February”



# Some closing thoughts: Limited Liability



- In addition to earning capital gains (which are only earned when the stock is sold!!) and dividends (which are only earned when the board members decide on it and should only be funded from retained profits) – shares have a very **unique attribute**: It implies **limited liability**.
- This may, at first, not seem like a problematic attribute – but consider that investors have **infinite upside** potential (no limit to share price increases) and **limited downside** potential (they can only lose their initial invested amount in the case of business default – with its value being zero then).
- Many market commentators have, especially following the 2008 US SPM crisis, hinted at this uneven liability contributing to the risky behaviour of firms in bull markets as shareholders do not have enough incentive to demand greater prudence.



# Some closing thoughts: Limited Liability

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- Some have proposed that shareholders should be **held responsible** for losses incurred by the business (to a fair degree) – thereby discouraging risky behaviour and encouraging votes of management prudence from shareholders.
- How do you feel about this? Although it may discourage mismanagement and risky behaviour to a large extent – it may discourage investment in smaller firms, thereby potentially hurting the economy even more! The jury is still out on this one... and is not expected back soon!



# ABIL Example

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- African Bank's demise has shown that both shareholders and debt holders have taken a loss.
- The former taking a near full loss (estimated that in due time share holders might get a few cents p/s back) while the latter took a 10% haircut.
- But should the SARB have intervened? Were they indeed too-big-to-fail or too-interconnected-to-fail?
- Jac Laubscher does not think so... (see his column at the time on this matter:
- <http://www.fin24.com/Companies/Financial-Services/African-Bank-too-inclusive-to-fail-20140815>



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# Cost of Equity: Capitec and Standard Bank

Using the Bloomberg terminal and:

Ticker-name WACC <GO>

e.g.: cpi sj equity wacc <GO>



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# SBK: Cost of Equity (CAPM eq)



1) Cost of Equity	2) Cost of Debt	13) Cost of Preferred Equity
<b>Cost of Equity</b>		9.38%
Risk Free Rate		9.00%
+ Equity Risk Premium		0.39%
Beta		1.24
x Country Premium		0.31%
Expected Market Return		9.31%
- Risk Free Rate		9.00%
<b>Market Capitalization</b>		203921.13

## Capital Structure (Millions of ZAR)



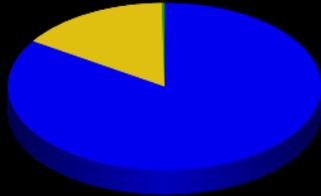
Market Cap	203,921.1	48.8%
ST Debt	180,077.0	43.1%
LT Debt	28,438.0	6.8%
Pref. Eqty	5,503.0	1.3%
<b>Total</b>	<b>417,939.1</b>	<b>100.0%</b>



# Capitec: Cost of Equity (CAPM eq)



1) Cost of Equity	2) Cost of Debt	13) Cost of Preferred Equity
<b>Cost of Equity</b>		9.34%
Risk Free Rate		9.00%
+ Equity Risk Premium		0.34%
Beta		1.09
x Country Premium		0.31%
Expected Market Return		9.31%
- Risk Free Rate		9.00%
<b>Market Capitalization</b>		54807.19

Capital Structure (Millions of ZAR)		
	Market Cap	54,807.2 84.1%
	ST Debt	0.0 0.0%
	LT Debt	10,153.3 15.6%
	Pref. Eqty	173.9 0.3%
	Total	65,134.4 100.0%



# Cost of Equity



- Note that the top equation is calculated using the CAPM cost of equity equation.
- Notice, Cost of Equity at the top (11.35) =  $R_{CAPM}$
- Country premium =  $(R_M - R_{RF})$  ;  $\beta = \text{beta using OLS}$
- Equity Risk premium =  $R_{CAPM} - R_{RF}$
- Another cost of equity calculation is done using dividends as:

$$CoE = \frac{\text{Dividend in Next period}}{\text{Market P}} + \text{Dividend growth rate}$$



# Go and compare bank balance-sheets:

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- Type:
- XLTP XBCS and then press I) OPEN
  
- Also Check out XLTP XIDA <GO>
  - After downloading the excel file, input a Ticker and now you can compare its fundamentals to any other ticker's