EBS FINANCE

Salwa Dagher

The bond price is the present value of the bond's cash flows, discounted by the set of spot rates.

$$\text{Bond price} = \frac{cf1}{(1+i)} + \frac{cf2}{(1+i)^2} + \frac{cf3}{(1+i)^3} + \frac{cf4}{(1+i)^4} + \frac{cfn}{(1+i)^n}$$

Face value: also known as **'Par value'** **or** **'Nominal value'** **or** **'principle'.**
This is usually the issue price of the bond. In the UK this will be £100, in the US and Europe it will be $1000 or €1000.

Coupon:
This is the income return that the bondholder receives. The coupon is usually expressed as a percentage
The bondholder will receive this every year through until the maturity of the bond.
The level of the coupon depends on the creditworthiness of the company.
The more creditworthy the company is, the lower the coupon, because there is low risk of the bondholder not being repaid at the maturity of the bond.

Maturity:
This is when the bond is due for repayment (the company has to pay back the face value of the bond for all the bondholders).
The redemption value of the bond is the same as the face value of the bond (£100, $1000, or €1000).

Market price of bond:
The bond will be sold at face value (£100, $1000, or €1000), but once it is on the market, the bond price may move away from that face value.
The two major factors that affect the bond price are;

1. The term structure of interest rates

The cash flows of the bond will be discounted by the appropriate rates for each time period from the term structure.
So this means that the bond price is affected by the set of interest rates that dictate the direction of the economy.
If the economy is in recession, interest rates will be low and as a result, bond prices will be high

2. The creditworthiness of the borrower.

If this deteriorates, then the interest rates for the borrower will go up.
So the individual term structure for the borrower will see a widening spread over the risk free rate of interest

Types of bond:

1. Fixed rate bond:
   This is the most popular, it has a fixed coupon and the borrower pays that rate through to maturity.
2. Floating rate bond:
   This bond has a coupon that is reset every six months according to the level of LIBOR (London Inter-Bank Offer Rate).
   The return the bondholder receives is variable**.**
3. Zero coupon bond,

This is a bond that pays no income.
Why would anyone buy that Zero coupon bond?
This bondholder does not receive an annual return, rather a capital gain after the maturity, which is **taxed at a different rate from the income tax on a normal bond**.

The YTM

-Is simply the internal rate of return (IRR) of the bond, It is the same calculation as IRR.
-It represents the replacement cost of debt for the business.

Spot rates: exist from **today** until some point in the future.
Forward rates: exist from a point in the future to a further point in the future.
Forward interest rates are used by companies to lock in an interest rate today that will take effect at some point in the future.

$$(1 + 1f4)^3 = \frac{(1 + 0s4)^4}{(1 + 0s1)}$$

$$(1 + i3)^3 = (1 + 0f1)\ (1 + 1f2)\ (1 + 2f3)$$

4. Explain what is meant by the term 'duration' with regard to interest rates and how the measure would be used.(5 Marks) Dec 2011

Duration is a measure of the riskiness of the bond's cash flows.
It measures the interest rate sensitivity of the bond.
Duration will give an indication of the change in value of a bond for a 1% change in interest rates.
The measure duration is the number of periods into the future where a bond's value is generated.

- $\text{Duration (C)} = 1\{\frac{cf1}{(1+i1)} / pv\} + 2\{\frac{cf2}{(1+i2)2} / pv\} + 3\{\frac{cf3}{(1+i3)3} / pv\} + \ldots n\{\frac{cfn}{(1+in)n} / pv\}$

-Duration is a measure of the riskiness of the bond.
-The higher the duration the more risky the bond is.
-This means that its value will be more volatile than bonds with lower duration measures.
-The highest measure for duration is the term of the bond, eg, if you had a 5 year bond, the highest value for duration would be 5. This would be the case if it was a zero coupon bond. With the zero coupon bond all the cash flows are at the end of the bond's life. This makes it the riskiest bond to hold, because changes in interest rates will affect the distant cash flows most.

The **more a bond pays out during its life the lower its duration will be**. So, if you had two four year bonds; a 10% bond and a 3% bond, the 10% bond would have the lower duration measure, because it will have paid out more of its cash flows (the 10% coupon cash flows) during its life.

Duration is a good measure for the sensitivity of a bond to interest rate changes.
*Investors can use the measure to position themselves at different times in the interest rate cycle.
If rates are high and expected to fall, they would buy long dated high duration bonds.
These are the bonds whose price would raise most when interest rates start to fall.

What is WACC? Weighted average cost of capital

- Is **discount rate** that companies contain capital cost of all various type of capital claim that company issue.
- Include: cost of equity, cost of debt capital, and other capital claim outstanding.
- **reflect** the operation risk of the project
- **reflect** to project proportion of equity & debt financing with financial risk
- **reflect** the interest deductibility debt financing portion of the project

What is a convertible bond and what are the advantages and disadvantages of it?

It is a bond (usually with a lower coupon than a straight bond would have) which is convertible into shares at some point in the future.
It is a means of raising finance for companies, at the current time companies are raising cash by this way because they don't want to sell shares at low current valuations.
If the convertible goes well the shares will rise above the conversion price, and the bondholders will convert into equity.
This will save the company having to find the cash to redeem the bond.
The downside is that there are now more shareholders – the original shareholders have been diluted.
The convertible is a way of resolving some of the agency problems.
If the managers enter a risky project and it pays off, the shareholders would get all the benefits – with the convertible the project is still undertaken, but part of the upside will be shared with the bondholders.

35. what justification is there for shareholder wealth maximisation being the main corporate aim, why not any of the other common goals?

***It is the shareholders who own the company**, they have put the money in, the customers haven't, the community hasn't, and the government hasn't.
***The shareholders are risking their capital** in the company and the company has to operate on the basis that they aim to maximise the shareholder's return.
If the managers don't do it – get someone who will or the company may be taken over.

That doesn't mean the company puts shareholder wealth absolutely above everything else.
Companies can suffer if they get a bad reputation in the wider marketplace.
Consumers are quick to castigate companies for behaviour that is lacking in any thought for the wider community. So, in recent years, Nike have been lambasted for having no factories in the US, but continuing to charge huge price for their products.
BP is accused of cutting back on safety standards.
Other companies are caught up in bribery and corruption scandals.

Companies want to be perceived as good corporate citizens and will work to try and maintain that image. If this means that some extra costs are incurred then so be it, this is a price the companies are willing to pay, not to suffer in the court of public opinion. So this means that shareholder wealth maximisation will be followed but with a softer face.

36. How would you describe the key differences between shareholders in a company and bondholders in a company?

Shareholders can only lose what they put in; they can't be pursued for the debts of the company.

- They have a vote in the running of the company.
- They are last in line to receive cash from the company and will usually get nothing if the bondholders put the company into liquidation.
- The shareholder's return will be in the form of a dividend (not guaranteed) and a capital gain (risky – they have to realise the gain).

The bondholders do not have any say in the running of the company

– They have no vote.
– They receive a fixed annual return and their capital back at the end of the bond's life.

37. What is the usual order of preference for financing a company and why this is the case?

1ST retained earnings, then debt finance, then equity finance.
Retained earnings: is top because the finance is available for use without the scrutiny of the financial markets. It is 'internal' finance.
Debt and equity finance: is 'external' financing as it has to be raised on the capital markets and the company will face scrutiny because they have to publish a prospectus detailing the use of the cash.
Debt is preferred to equity because there is a tax break on the interest payments – debt is cheaper. The markets will usually look at a company that is selling equity as having problems with the debt markets and this is something of a last resort (the equity market).

38. How far do listed company responsibilities go? Any further than the shareholders?

How ethical does a company need to be? Nike used to manufacture all their shoes outside the US in very cheap labour factories. Consumer pressure (rather than shareholder pressure) forced the company to shift some production to the US. Does the company owe the extended community anything?

– **No**, why should shareholders cash be spent in this way if it doesn't have to.
– **Yes**, it is an investment by the company in being recognised as a 'good corporate citizen' which will be rewarded by loyalty and good feelings from customers and other stakeholders.

- Tesco is a giant corporation making £2 billion in profits but it is still in touch with its customers (and a larger supporter of schools and local charities) and is valued and respected. [The big banks in the UK are perceived as not making a similar effort and don't instil the same trust in their customers.]

39. How should chief executives be rewarded? Is Larry Ellison worth $700m a year? Should Stan O'Neal have been given $160m for what he did at Merrill Lynch? Should the average remuneration package of a top S&P 500 or FTSE 100 CEO run into the tens of millions of dollars per year? What risks are they taking?

- BP in January 2005 announced that it was stopping rewarding its staff with share options; instead shares would form part of their compensation.
- Shares give an ownership in the company, options do not.

- Executives can simply exercise the options and sell at the same time, pocketing any gain.
- If options are 'under the water' ie, the share price is well below the option exercise price, then they may not be much use in motivating the executives.
- Shares will have a value, even if there has been a fall.

As far as the level of remuneration is concerned that is up to the shareholders.
But they should devise a system that rewards good performance with increases in remuneration and poor performance with reductions in remuneration.
Too many bosses remuneration goes up whether the company does well or does poorly.
Poor performance should not be rewarded as it has been at a number of banks in the past year. There is a mismatch between risk and reward for the executives, they have all the rewards and the shareholders have all the risks.

7. How useful is the price-earnings ratio as a measure of value? List the advantages and disadvantages of its use.
The p/e ratio is of limited use.
It should only be used to compare similar companies, ie, companies from the same sector or business.
The companies should have the same accounting conventions, so that the measures of earnings are based on the same calculations. For the measure to be useful there would need to be adjustments made to deliver a measure of earnings that is close to cash earnings rather than accounting earnings.
P/e ratios should not be used across sectors, the comparison is meaningless, you are not comparing like with like. The accounting figures, despite continual changes to the accounting regulations are still subject to manipulation.

8. What are the problems with the dividend growth model as a means of valuing shares?
The DGM can be manipulated to give different valuations if you use different spreads of years to calculate the growth rate of dividends.
In seeking to place a high valuation on the company the best pairing of dividends might be used (eg, dividend growth from 05-10 was 6%, but div growth from 07-10 was only 4.5% - use 05-10 to maximise the valuation of the company). You need to be aware of this. You need to use the dividend growth period that most accurately reflects the company as it currently is, ie, if it has divested a large subsidiary two years ago, using the last five years as the growth period will not reflect the company accurately.

There is the problem when g is equal or greater than r. In this case the DGM does not work. To overcome this we use the multi-stage valuation model.

If the company does not pay any dividend – how do you value it?

- The company will have a valuation because there will be an expectation that the company will pay dividends at some time in the future.
- Microsoft only started paying dividends in 2003, yet by that time it was the most valuable company in the world.
- Microsoft may have only started paying dividends in 2003, but it was hugely cash generative, and the cash flows could be valued as what could potentially be paid out as dividends.

- Microsoft in the period before it started paying dividends regularly spent $billions on share repurchases (share repurchases are effectively dividends – they are cash that ends up in the shareholders hands).
- Apple does not pay any dividends, its earnings are ploughed back into the business, and the company has a stock market value of $240bn.
- It is better off using its earnings as a source of finance to grow the business, rather than paying out dividends to shareholders.

Why is cash flow used instead of accounting earnings in capital budgeting analysis?
Cash flows pays for capital expenditure, it pays the capital suppliers, accounting earnings are not cash, they are open to manipulation.

Agency problems

What features can a bond have that may help overcome the agency problems that bondholders have with managers and shareholders?

Bondholders will have covenants in the bond contract; these can be positive or negative covenants.
Positive covenants will be eg, the maintenance of certain financial ratios, there would have to be a certain level of operating profits divided by interest charges (fixed charge coverage) that would need to be at least met. Failure to do so would put the company in breach of the covenants and trigger action from bondholders.
Negative covenants would be, eg restrictions on the amount that can be paid out as dividends or used to repurchase shares, restrictions on the amount and seniority of new debt that can be issued, or restrictions on disposal of assets.

*Put provisions can be built into the bond contract. This would enable the bondholder to demand repayment of the bond if the bondholders felt that the cash that had been lent to the company was in danger of not being repaid.
-The put can also be used to capture higher interest rates in the market (ie, the company bond coupon is much lower than the current rate of interest, so the bondholder puts the bond back on to the company, and the bondholder can reinvest the proceeds at the higher rate in the market).

*If a company is in trouble in the markets and would face high borrowing costs from the debt markets and its shares have fallen sharply, so they don't want to sell shares, a possible financing route is **the convertible bond**.
-This is a bond where the holder can convert into shares if the underlying shares rise in value passing a pre-set conversion price.
-The convertible bond helps solve agency problems in that bondholders would not normally lend to the company, but if the prospects are reasonable they could go down the route of a convertible.
-If the shares don't recover, they get their coupon and principal back.
-If the shares recover, they can convert into equity and capture the upside.
-Because the convertibility option is attractive, the bonds can be sold with a much lower coupon than would normally be the case.
-From the equity point of view, the company is selling shares at a premium to the current value (about 50% higher and the sale will be in the future, conversion would not usually happen for a couple of years). The problem for equity is that there will be dilution of their holding when the bondholders convert.
-On conversion the bond liability disappears – the bondholders give up their bonds for equity.