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## Redeemable Debt

- If the amount the investor buys the bond for is different from the amount that will be repaid by the company when the bond is repaid (redeemed), this difference will also form part of the investor's return. The investor will earn a return from:
- the interest paid and
- the difference between the price paid for the bond and the amount the company repays
- To calculate return to the investor, need to calculate the overall rate of return on the bond

Example:

| BOND |  |
| :--- | :---: |
| Term: | 3 years |
| Nominal (Par) amount: | $£ 100$ |
| Coupon rate: | $5 \%$ |
| Redemption: | at $p a r$ |


| Action | Year | $\mathbf{£}$ |
| :--- | :---: | :---: |
| Bond purchased by investor | 0 | $(£ 90)$ |
| Interest paid by company | 1 | $£ 5$ |
| Interest paid by company | 2 | $£ 5$ |
| Interest paid \& bond redeemed | 3 | $£ 105$ |
| Return (RATE/IRR function) |  | $\mathbf{8 . 9 \%}$ |

- The return to the investor of $8.9 \%$ is made up of:
- $£ 5$ interest payments and
- $\quad £ 10$ difference between price paid for the bond and amount company repays
- Cost to the company = Return to investor (minus tax saving)
- The cost to the company $(\mathrm{Kd})$ is $6.7 \%(8.9 \% \times 0.75)$ because the company can treat the payments made to the investor as a tax-deductible expense to reduce tax payments ( $25 \%$ tax rate assumed)


## EXAM TECHNIQUE GUIDANCE

If asked to advise on best source of finance in an exam question:

- always ensure that you consider the specific scenario in the question
- calculate cost of each alternative (IRR/RATE function for debt)
- calculate number of bonds/shares to be issued in order to raise required amount of finance
- compare price to be paid per bond/share by investor
- consider cash flow (regular interest payments v premium on redemption / variable v fixed interest)
- consider period of each alternative with life of asset/project which it is financing
- FX risk
- foreign currency loans/interest expense will hedge foreign currency assets/income
- an FX loss on assets/income will be offset by an FX gain on loans/interest (and vice versa)
- Interest rate risk
- variable debt: cash flow risk if rates increase
- fixed rate debt: fair value risk if rates decrease
- calculate company's gearing to see if gearing is high or low compared to industry averages
- calculate company's interest cover to see if it is high or low compared to industry averages
- calculate company's EPS to see impact of additional interest payments
- only mention theories if specifically asked

Points to make if applicable to the scenario:
Debt issue:

- Introducing debt when gearing is nil or low will reduce WACC and increase share price
- Adding more debt when gearing is high will increase WACC and therefore reduce share price
- Tax savings on interest will only apply if company has sufficient profits
- Debt will require interest payments so will reduce shareholder profits (EPS)
- Debt finance may require security - check SFP to see if sufficient PPE is available
- Existing debt may have restrictive covenants preventing more debt
- Check SFP to see if there are other ways to raise finance e.g. sell unused assets

Share issue:

- A new share issue is not appropriate if company only requires a small amount of finance
- A new issue will cause an initial decline EPS (same earnings, more shares)
- A new share issue may be underwritten by investment bank to ensure all shares are bought
- Check SFP to see if retained earnings (and cash) available as this is cheapest source of equity as has no issue costs
- An unlisted company will find it harder to raise new equity
- Existing shareholders will have their ownership/control diluted
- Unlike interest payments, dividends do not have to be paid so equity more suitable for uncertain projects

| TOPIC | VIDEO CLASSES | QUESTIONS | ICAEW <br> Workbook |
| :---: | :---: | :---: | :---: |
| Investment Appraisal | FM: Investment Appraisal <br> SBM: Investment Appraisal <br> SBM: Statistics <br> SBM: July 2022 <br> SBM: 2022 Live <br> Class Recording | J14 Q2(1) Landex <br> J15 Q1 (1) Commex Cables - Video Course <br> J16 Q1 (Exhibit 4) (1) Kiera Healy - Video Course <br> N16 Q1 (1) Wooster <br> N18 Q1 (2) Ketch - Video Course <br> N19 Q1 (Exhibit 4) SSS <br> A20 Q1 (2) Bristol Batteries - Video Course <br> A20 Q2 (2) International Leisure Attractions - Video Course <br> N21 Q1 (1a,1b) Demm <br> N21 Q1 (2) Demm - Video Course (Statistics) <br> J22 Q1 (1a) Xavi - Video Course (J22) <br> J22 Q2 (4-Proposal 2) LVL - Video Course (J22) | Ch17 |
| Key <br> Small to <br> Medium <br> Large to |  |  |  |

## Futures

- Standardised contracts to buy or sell a notional amount of foreign currency
- Futures contract priced at foreign currency to $£$ rate e.g. $\$ 1.35 / £ 1$
- Futures market will move in line with actual (spot) market:
- $\$$ strengthens ( $\$ 1.35$ to $\$ 1.21$ ): futures price will also strengthen ( $\$ 1.35$ to $\$ 1.21$ )
- Note that futures price may not be the same as spot price


## Example:

- Company that needs to buy \$ will sell $£$ futures (selling $£$ futures is the same as buying \$)


## Scenario 1:

- Spot exchange rates and futures rates move to $\$ 1.21$ so company will pay more $£$ when buying the $\$$ to pay the supplier
- They will make a gain of $\$ 0.14$ on the futures (sold at $\$ 1.35$, bought at $\$ 1.21$ )
- The futures gain will offset their increased cost of buying \$ to pay the supplier

Scenario 2:

- Spot exchange rates and futures rates move to $\$ 1.51$ so they will pay less $£$ when buying the $\$$ to pay the supplier
- They will make a loss of $\$ 0.16$ on the futures (sold at $\$ 1.35$, bought at $\$ 1.51$ )
- The futures loss will offset their reduced cost of buying $\$$ to pay the supplier


## Step 1. What is our exchange rate risk so should we buy or sell futures?

- Company that needs to buy \$ will sell $£$ futures now (selling $£$ futures = buying \$)
- Company that needs to sell $\$$ will buy $£$ futures now (buying $£$ futures = selling $\$$ )


## Step 2. Calculate number of contracts needed to offset actual payment

$$
\text { Number of futures contracts }=\frac{\text { Foreign currency payment }(\text { e.g. } \$ 1 \mathrm{~m})}{\text { Futures rate (e.g. } \$ 1.35)}=£ \text { equivalent } \frac{£ \text { equivalent }}{\text { Contract size }(\text { e.g. } £ 62.5 \mathrm{k})}
$$

## Step 3. Calculate gain/loss on futures

Gain/loss per \$ movement x number of contracts x contract size

- The gain /loss is calculated in $\$$ so needs to be converted in $£$ at spot rate

Step 4. Calculate actual $£$ payment/receipt in the spot market

## Step 5. Calculate net amount

- The gain/loss on the futures will offset the actual payment/receipt

| Advantages | Disadvantages |
| :---: | :---: |
| Secondary market for futures | Can't benefit from upside risk |
| Low transactions costs | Not available in every currency |
| Don't need to know exact date <br> of payment or receipt | Standardised futures contracts so <br> can't hedge exact amount |
| Futures movement may not be the same as <br> actual market (basis risk) |  |

## Fair Value Hedge

- A hedge to reduce exposure from changes in Fair Value (FV) of a recognised asset/liability or unrecognised firm commitment (binding agreement)

| Hedged Item | Hedging Instrument |
| :--- | :--- |
| FV of inventory owned <br> (or to be purchased under firm commitment) | Commodity future |
| FV of equity held as an investment | Option to sell shares (put option*) |
| FV of loan/bond asset (FV=discounted CFs) | Interest rate swap (fixed to variable) |
| FV of loan/bond liability (FV=discounted CFs) | Interest rate swap (fixed to variable) |

*intrinsic value of option is hedging instrument; time value of option recorded in OCl

- Hedged item remeasured to FV to offset FV movement on derivative

|  | Hedged Item | Hedging Instrument | Net P\&L Impact |
| :---: | :--- | :---: | :---: |
| Without <br> Hedge Accounting | Inventory: remeasured only if NRV < Cost <br> Firm commitment: not recognised <br> Equity: FVPL or FVOCI <br> Loan/Bond asset: FVPL/OCI or Amortised cost <br> Loan/Bond liability: Amortised cost | Gain/loss on <br> derivative if item <br> not FVPL |  |
| With <br> Hedge Accounting | Firm commitment recognised as asset/liability) | FVOCl if hedging equity <br> (Flassified as FVOCI) | Ineffective element <br> of hedge |

Cash Flow (CF) Hedge


†Ineffective element of hedge: movement in hedging instrument > movement in hedged item

| REVENUE |  |  |  |
| :---: | :---: | :---: | :---: |
| NUMBER |  | REASON | TREND/FURTHER ANALYSIS |
| Total Revenue <br> Revenue by Stream <br> Revenue Mix by Stream | v PY* <br> v Budget* <br> v Other streams <br> v Competitor <br> v Market | All streams growing/declining <br> Commercial reason from exam scenario (market growth/decline/ new product/advertising/competitors) <br> Price change and/or volume change (demand (in)elastic to price change) | Best performing stream <br> Growth rate accelerating/slowing <br> Decline accelerating/slowing/stabilising <br> Specific customer/product causing change: <br> Revenue per Customer/Product/Employee <br> Expected to continue / Strategic position |
| Net Asset Turnover: Revenue Equity + Net Debt <br> Revenue generated from resources | v PY <br> v Budget <br> v Other streams <br> v Competitor <br> v Market <br> v Other industry | Share issue <br> Debt issue <br> Asset revaluation | Growth rate accelerating/slowing <br> Decline accelerating/slowing/stabilising <br> Specific customer/product causing change <br> Expected to continue / Strategic position |

†Revenue Streams: Region/Division/Store/Product/Service
*Consider changing basis of comparison to ensure like-for-like comparison (volume/period)

## REVENUE

Overall revenue has increased (decreased) impressively (disappointingly) by $£ x(x \%)$ to $£ 2023$ due to growth in all revenue streams $\dagger$. Stream $A$ is the best performing stream. This is a strong performance compared to market growth of $\mathrm{x} \%$.

Stream† A revenue has increased (decreased) impressively (disappointingly) by $£ x(x \%)$ to $£ 2023$ due to reason (reason from exam scenario / price change and/or volume change).
Comment on the trend (growth rate accelerating) / further analysis of numbers (specific customer or product causing increase or decrease) / significant movements / future impact.

Stream ${ }^{\dagger}$ B revenue has increased (decreased) impressively (disappointingly) by $£ x$ ( $x \%$ ) to $£ 2023$ due to reason (reason from exam scenario / price change and/or volume change).
Comment on the trend (growth rate accelerating) / further analysis of numbers (specific customer or product causing increase or decrease) / significant movements / future impact.

Stream A now accounts for the largest share of revenue (2023\% v 2022\%) whereas Stream B now has the smallest share (2023\% v 2022\%).

STATISTICS

| Data Bias |  |
| :---: | :--- |
| Selection bias | Not representative of whole population |
| Self-selection bias | Participant chooses to be part of the sample |
| Observer bias | Researcher is bias |
| Omitted variable bias | Key variables (potential causes) are not included in data |
| Cognitive bias | Data is presented in a bias way |
| Confirmation bias | Focusing on data which supports the user's view |
| Survivorship bias | Some data already removed |

- Mean: average (AVERAGE function)
- Expected value (EV): probability x outcome

| Advantages | Disadvantages |
| :---: | :---: |
| Easy to understand and apply | Assumes situation is repeated indefinitely <br> so that average is obtained |
| EV might not be one of the possible outcomes$\quad$ Probabilities may be bias |  |
|  | Ignores risk |

- Decision Trees: impact of different decisions/variables

| Advantages | Disadvantages |
| :---: | :---: |
| Simple to understand | Hard to incorporate lots of different decisions |
| Considers multiple outcomes/decisions |  |

- Standard deviation (SD): measure of the amount of variation in a data set (STDEV function)
- standard deviation = how far possible outcomes are from the mean/EV on average
- higher standard deviation = higher risk
- lower standard deviation = less risk
- Co-efficient of variation (CoV): standard deviation divided by the mean/expected value
- adjusts standard deviation for the size of the data values to enable relative comparison
- shows how significant the variations are (will be less significant for larger data values/projects)
- higher co-efficient $\%=$ higher risk
- lower co-efficient \% = less risk
- Cannot be used where data can be negative (e.g. NPV), interval scale (e.g. questionnaires) or where a result of 0 is not meaningful
- Probability distributions: possible values and associated probabilities



## Model Answer: November 2020

This answer demonstrates what you could realistically produce within the time limit under exam conditions. The ICAEW answers are too detailed and are not what students are expected to produce.

## 1.1

## Revenue

Farm Vehicles (FV), which account for 50\% of EA revenue and only $25 \%$ of America (A) revenue, are declining significantly. Need breakdown to see if declining in both EA and A. If this decline continues then it will have bigger impact on EA.

FE, which accounts for $30 \%$ in EA and $55 \%$ in $A$, is declining slightly which is also disappointing. Continued decline will have bigger impact on $A$.

SE, which accounts for $20 \%$ in each market, is increasing slightly. If trends continue then this stream will become increasingly important. However, because SE is used for FV and FE, sales could decline if FV and FE continue to decline.

Overall, A accounts for $55 \%$ and EA $45 \%$ of revenue. This mix will change if trends continue because FV is declining at fastest rate and is EA's main market.

GP
FV GPM is $50 \%$ which is the highest of all products. However, GPM is declining. If trend continues this will cause overall GPM to fall and will have a bigger impact on EA because FV accounts for largest share of revenue.

FE GPM is $20 \%$ which is lowest of all products. It appears GPM is stable. As FE accounts for largest share AM revenue mix then this is reason why AM GPM overall is lower than EA.

SC GPM is $20 \%$. This is lower than the average GPM for both EA and A so overall GPM will decline if revenue mix continues to shift towards SC.

## Conclusion

There is a different revenue mix for each country with A weighted towards FE and EA weighted towards FV.

FV has highest GPM which is why EA has higher GPM overall because revenue/activity focussed there.

However, FV is declining at fastest rate so this will have bigger impact on EA.

