



UNIVERSITY OF WALES TRINITY SAINT DAVID

FINANCIAL MANAGEMENT

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Introduction

Modern business world is more competitive than ever before due to this reason organisation needs to more focus on their financial management because it assists every organisation to get their financial picture as well as helps in organisational decision making process. Purpose of the financial management is to meet the legal requirements and to get the detail information about the company's current financial condition because it helps their financial directors to make their strategic decision for upcoming future.

Financial analysis cannot give all the information about the company's financial performance that directors can make their final decision but it helps them to interpret their future. From the financial analysis anyone can get an idea about the organisation financial condition that how organisation is performing in the current market scenario for example: how economically healthy, stability of the organisation, is it growing or declining etc. Every organisation publish their financial statements in every year in their annual report and to see that any individual can predict how they are performing, are they using their financial resources wisely or not what is the upcoming future etc. Legal authority and financial regulatory bodies also check organisations financial statements that to verify company's fiscal decisions and to assure that specific company are maintaining the correct accounting method (**Atril, P. and McLaney, E. 2011**).

Government and the tax regulatory body also check organisations financial statements to find out their organisations tax amount and are they are giving the right tax.

At last the government and different organisations such as tax authorities also need organisational financial statements to determine the organisations tax issues.

In this module I have been asked to choose a UK company and analyse their financial performance for last five years and make a recommendation. I have chosen Tesco so in the following part of this study I will analyse Tesco's last five year financial performance and also compare their financial performance with their rival Sainsbury's financial performance.

In other part of this assignment task, I discussed the investment appraisal technique to make the right investment decision among the two projects.

Part A

Organisational overview:

Tesco:

Tesco is the largest supermarket in UK retail industry which operating in different country including USA and China. In UK retail market they captured 28.4% market share, Tesco hold 3rd position in global retail market (**Tesco annual report, 2018**).

It is established by Jack Cohen in 1919 and their current headquarter is in Welwyn Garden City, Hertfordshire. In 1931 Tesco 1st opened their shop in Burnt Oak, Barnet after that Tesco expand their business very quickly and by 1938 they already opened 100 stores across the UK (**Tesco annual report, 2018**).

From 1990 they started expand their business in different countries and 2013 they started their operation in USA. Tesco is very successful in UK and Asian market compare to USA market. They sell all kinds of grocery, household, electronic products, clothing, and furniture in their shop. Tesco also has their own petrol station and they have Tesco Bank and own mobile network known as Tesco mobile (**Sarah, R. 2013**).

In 1990 they become the market leader in UK market by offering low cost products to UK customers and after that still now they are market leader in UK retail industry due to their cost leadership strategy.

Tesco is listed on the London Stock Exchange and is a constituent of the FTSE 100 Index. It had a market capitalization of approximately £18.1 billion as of 22 April 2015, the 28th-largest of any company with a primary listing on the London Stock Exchange.

Format	Number	Total area (m ²)	Total area (sq ft)	Mean area (m ²)	Mean area (sq ft)	Percentage of space	+/- Shops 2016
Tesco Extra	252	1,648,842	17,748,000	6,543	70,429	44.53%	
Tesco Superstore	479	1,307,610	14,075,000	2,730	29,384	35.32%	▲ 1
Tesco Express	1,740	376,629	4,054,000	216	2,330	10.17%	▲ 8
Tesco Metro	176	185,156	1,993,000	1,052	11,324	5.00%	▼ 1
One Stop	780	117,894	1,269,000	151	1,627	3.18%	▲ 1
Tesco Dotcom only	6	66,519	716,000	11,086	119,333	1.80%	
Dobbies	0	0	0	0	0	0.00%	▼ 36
Total	3,433	3,702,649	39,855,000	1,079	11,609	100.00%	▼ 27

Figure Tesco shop portfolio (Tesco preliminary results, 2017)

Part B

Critical review of the Tesco's financial performance

Profitability ratio

Gross profit margin = Gross profit/Revenue*100%

Tesco

Year	Calculation	Results
2018	3350/57491*100	5.83%
2017	2902/55917*100	5.19%
2016	2854/54433*100	5.24%
2015	-2203/56925*100	(3.87)
2014	4010/63557*100	6.31%

Sainsbury

Year	Calculation	Results
2018	1882/28456*100	6.61%
2017	1634/26224*100	6.23%
2016	1456/23506*100	6.19%
2015	1208/23775*100	5.08%
2014	1387/23949*100	5.79%

Interpretation

The gross profit margin of Tesco is higher than 5% in last five year. In 2014 Tesco makes high gross profit which is 6.31% but they face loss in terms of GP in 2015 which is (3.87%).

Sainsbury performs better in terms of gross profit margin from 2016 to 2018 their GP is more than 6% and even in 2015 they made 5.08% whereas Tesco face loss in that year.

Both of the company performing well in terms of GP but their profit margin is less because of high competition in UK retail industry. The main reason Tesco GP is less than Sainsbury because their costs is more financial people of Tesco should find out a better way to minimise their costs to maximise their gross profit margin ratio. The Gross profit margin of Tesco is increasing compare to 2017 which indicates that their business is growing.

Operating profit margin = Operating profit/Revenue*100%

Tesco

Year	Calculation	Results
2018	1837/57491*100	3.20%
2017	1017/55917*100	1.82%
2016	1046/54433*100	1.92%
2015	5750/56925*100	-10.10%
2014	2631/63557*100	4.14%

Sainsbury

Year	Calculation	Results
2018	518/28456*100	1.82%
2017	642/26224*100	2.45%
2016	707/23506*100	3.01%
2015	81/23775*100	0.34%
2014	1009/23949*100	4.21%

Interpretation

Tesco operation profit margin was very good in 2014 which was 4.14% and 2015 they face loss but again they started to regain their operating profit which is 1.92%, 1.82% and in 2018 their operating profit margin is 3.20%.

Sainsbury operating profit margin was better in 2014 but their operating profit is decreasing with a time in 2018 their operating profit margin is only 1.82%. In terms of operating profit margin Tesco is making double profit compare to Sainsbury because Tesco management are quite efficient and their operating expenses is lower than their competitors. Because of higher operating profit investors will be more interested to invest their money in Tesco.

Net profit margin = Net profit/Revenue*100%

Tesco

Year	Calculation	Results
2018	1208 / 57491*100	2.10%
2017	54 / 55917 *100	-0.10%
2016	129 / 54433 *100	0.24%
2015	5766 / 56925 *100	-10.13%
2014	970 / 63557 *100	1.53%

Sainsbury

Year	Calculation	Results
2018	309 /28456 *100	1.09%
2017	377/ 26224 *100	1.44%
2016	471 / 23506 *100	2.00%
2015	166 / 23775 *100	-0.70%
2014	716 / 23949 *100	2.99%

Interpretation

Net profit means profit after all the expenses. Higher net profit margin indicates organisations are making more profit and it also shows that organisation can give more dividends to their shareholders. Compare to Sainsbury and other retailers in UK Tesco is making more profit in 2018 Tesco's operating profit margin ratio is 2.10% whereas Sainsbury's profit margin is 1.09%. From 2014 to 2017 Tesco is making less profit compare to Sainsbury and last year also Tesco faced loss so Tesco did really well and achieve 2% net profit. In 2018 Tesco is performing better than any other competitors operating in UK retail industry.

Return on capital employed (ROCE) = Profit before interest and taxation/Total assets less current liabilities*100%

Tesco

Year	Calculation	Results
2018	$(1298+631) / (31136+13726-19238) *100$	7.53%
2017	$(145+874) / (30436+15417-19234-171) *100$	3.85%
2016	$(162+892) / (29076+14828-19714) *100$	4.36%
2015	$(-6334+651) / (32256+11958-19805-5) *100$	-23.29%
2014	$(2259+564) / (34592+15572-20206-1193) *100$	9.81%

Sainsbury

Year	Calculation	Results
2018	$(409+140) / (22001-10302) *100$	4.69%
2017	$(503+136) / (19798-8556) *100$	5.70%
2016	$(548+167) / (16973-6724) *100$	6.98%
2015	$(-72+180) / (16537-6923) *100$	1.12%
2014	$(898+159) / (16540-6765) *100$	10.81%

Interpretation

Business analyst uses the return on capital employed ratio to identify the connection between the organisations operating profit and the long term investment capital. ROCE is very significant for the financial manager of the organisation because it helps to make the capital investment decision in the organisation. Higher ROCE represents that organisation is performing well. In this study researcher did the ROCE calculation of Tesco and its rival to understand the average of the UK retail industry. Sainsbury ROCE is decreasing day by day in 2014 their ROCE was 10.81% but in 2018 it was only 4.69%. In 2014 Tesco's ROCE was 9.81% but 2015 was a very bad year for Tesco but again they regain their ROCE which 4.36% in 2016 and 3.85% in 2017. Tesco management took the right action to increase their ROCE and they are successful and in 2018 they make 7.53% which is more than last 4 years and more than their competitors.

Return on equity (ROE) = Profit after tax and preference dividend / Equity shareholders' funds*100%

Tesco

Year	Calculation	Results
2018	1208 / 10458 *100	11.55%
2017	54 / 6414 *100	-0.84%
2016	129 / 8616 *100	1.50%
2015	5766 / 7071 *100	-81.54%
2014	970 / 14722 *100	6.59%

Sainsbury

Year	Calculation	Results
2018	309 / 7411 *100	4.17%
2017	377/ 6872 *100	5.49%
2016	471/ 6365 *100	7.40%
2015	-166/ 5539 *100	-3.00%
2014	716/ 6005 *100	11.92%

Interpretation

Return on equity ratio is used by the shareholders and investors to make their investment decision higher ROE attracts investors to make their investment in a particular company. Tesco ROE is 11.55% in 2018 which is better than any other retailer in UK because their nearest competitors Sainsbury's ROE is only 4.17% so Tesco return 7% more return to their investors compare to their rivals.

Liquidity ratio

Liquidity ratio indicates the organisations capability to repay their creditors from their total cash. From lenders point of view liquidity ratio is the most important ratio because it shows that company's financial position to pay for their short term loan. Most of the manager or investors use this liquidity ratio to measure organisations ability to deal with the short term borrowings. Financial manager can easily calculate the current ratio of the organisation by dividing their current asset with current liabilities. Standard expected result of this liquidity ratio is 1 if the result is 1 or more that represent organisation is fully able to meet their short term borrowings. If the liquidity ratio is 1 or more it also tells that this organisation is economically solvent and they have economic stability (Atril, P and McLaney, E. 2011).

Current ratio = Current asset / Current liabilities

Tesco

Year	Calculation	Results
2018	13726/ 19238	0.71
2017	15417 / 19234+71	0.79
2016	14828 / 19714	0.75
2015	11958 / 19810	0.60
2014	15572 / (20206+1193)	0.73

Sainsbury

Year	Calculation	Results
2018	7866 /10302	0.76
2017	6322 /8586	0.74
2016	4444 / 6724	0.66
2015	4505/ 6923	0.65
2014	4369 / 6765	0.65

Interpretation

Current ratio represents the number of times organisational current asset cover their current liabilities and from the above result Tesco's current ratio is less than 1 that means their current liability is more than their current asset. From the results we can see that Tesco current ratio is quite similar in every year except 2015 which was 0.60 but after 2015 they develop their position and now in 2018 their current ratio is 0.71.

In this assignment researcher also analyse their rivals Sainsbury financial position Sainsbury's current ratio was less in year 2014 to 2016 but they develop their position in last 2 year and 2018 their ability to meet their short term obligation is better than Tesco.

After analysing two big retail industry of UK, researcher can say that Tesco and Sainsbury both are operating their business perfectly and currently they are capable to meet their short term liability and their financial condition is quite healthy and quite stable.

Quick Ratio= Current asset – inventory/ current liabilities

Tesco

Year	Calculation	Results
2018	(13726-2263) / 19238	0.60
2017	(15417-2301) / (19234+171)	0.68
2016	(14828-2430) / 19714	0.63
2015	(11958-2957) / 19810	0.45
2014	(15572-3576) / (20206+1193)	0.56

Sainsbury

Year	Calculation	Results
2018	(7866-1810) / 10302	0.59
2017	(6322-1775) / 8586	0.53
2016	(4444-968) / 6724	0.52
2015	(4505-997) / 6923	0.51
2014	(4369- 1005) / 6765	0.50

Interpretation

In the above writer analyse the quick ratio of Tesco and Sainsbury from year 2014 to 2018. Almost every year quick ratio of Tesco is higher than Sainsbury except 2015. Tesco quite ratio in 2018 is 0.60 and Sainsbury is 0.59 which means both the rivals are performing similarly in terms of quick ratio. The main purpose writer analyse the quick ratio of Tesco and Sainsbury because it helps writers to find out the company's liquidity position. Creditors of Tesco and Sainsbury can rely on their financial position because both of the firm has enough liquid assets to pay their short term liabilities on right time.

Gearing ratio

Debt ratio = Total debts/Total assets*100%

Tesco

Year	Calculation	Results
2018	$(19238+15166) / (31136+13726) * 100$	76.69%
2017	$(19234+171+20034) / (30436+15417) * 100$	86.01%
2016	$(19714+15574) / (29076+14828) * 100$	80.38%
2015	$(19810+17333) / (32256+11958) * 100$	84.01%
2014	$(20206+1193+14043) / (34592+15572) * 100$	70.65%

Sainsbury

Year	Calculation	Results
2018	$(10302+4288) / 22001 * 100$	66.32%
2017	$(8586+4340) / 19798 * 100$	65.29%
2016	$(6724+3884) / 16973 * 100$	62.50%
2015	$(6923+4075) / 16537 * 100$	66.51%
2014	$(6765+3770) / 16540 * 100$	63.69%

Interpretation

Organisations are using debt ratio to identify the firm's financial solvency. It helps to measure the organisations total liabilities as a percentage of its total assets. Debt ratio also represents organisations capability to repay their liabilities with their total assets. In a different way it also said what percentage of total asset organisation need to sell to repay their total liabilities. Lower debt ratio is more preferable to the owners Sainsbury debt ratio is better than Tesco. By comparing last 5 years of debt ratio writer identified that Tesco did well in 2018 compared to last 4 years.

Gearing/ leverage = Interest bearing debt / (Shareholders' equity plus interest bearing debt)*100%

Tesco

Year	Calculation	Results
2018	15166/ (15166+10458) *100	59.19%
2017	20034 / (20034+6414) *100	75.75%
2016	15574 / (15574 + 8616) *100	64.38%
2015	17333 / (17333 +7071) *100	71.03%
2014	14043 / (14043+14722) *100	48.82%

Sainsbury

Year	Calculation	Results
2018	4288 / (4288+7411) *100	36.65%
2017	4340/ (4340+6872) *100	38.71%
2016	3884 / (3884+6365) *100	37.90%
2015	4075 / (4075+5539) *100	42.39%
2014	3770 / (3770+6005) *100	38.57%

Interpretation

Lower gearing is preferred by the organisation because if the gearing is higher it represents that organisations loan is higher than their shareholders fund. Tesco's gearing is higher which is 59.19 % compare to better than last 4 years. Comparing to Tesco, Sainsbury is performing well because their loan is less compare to their shareholders fund. Tesco need to pay more to repay their loans.

Interest cover = Profit before interest and tax / Interest charges

Tesco

Year	Calculation	Results
2018	$(1298+631) / 631$	3.06
2017	$(145+874) / 874$	1.17
2016	$(162+892) / 892$	1.18
2015	$(-6334+651) / 651$	-8.73
2014	$(2259 +564) / 564$	5.01

Sainsbury

Year	Calculation	Results
2018	$(409+140) / 140$	3.92
2017	$(503+136) / 136$	4.70
2016	$(548+167) / 167$	4.28
2015	$(-72+180) / 180$	0.60
2014	$(898+159) / 159$	6.65

Interpretation

Interest cover ratio helps an organisation to measure their capability to make their interest payment on time. Shareholders and investors use the interest cover ratio to see that their company can pay their interest payment on time. To analyse the two big retailer of UK supermarket such as Tesco and Sainsbury writer want to say that Tesco is performing well in 2018 compared to previous 3 years.

Efficiency ratio

Accounts receivable collection period = Trade receivables / Sales*365 days

Tesco

Year	Calculation	Results
2018	1482/ 57491*365	9.41 days
2017	1475/55917 *365	9.63 days
2016	1607/ 54433*365	10.78 days
2015	2121/ 56925 *365	13.60 days
2014	2190/ 63557*365	12.58 days

Sainsbury

Year	Calculation	Results
2018	744/ 28456 *365	9.54 days
2017	574/ 26224 *365	7.99 days
2016	508/ 23506* 365	7.89 days
2015	471/ 23775*365	7.23 days
2014	433/ 23949*365	6.60 days

Interpretation

From the accounts receivable turnover ratio helps organisation to identify the organisational effectiveness to collect their receivable money. This also tells the period that organisation able to get their money back. If the turnover ratio is high it indicates that organisations are quite efficient in terms of their collecting receivable money. If the ratio is high it also indicates that organisation deals most of their transaction by cash. Tesco is very good in terms of accounts receivable turnover compare to Sainsbury. From 2014, 2015 and 2016 their turnover ratio is higher it indicates Tesco was more efficient before.

Inventory turnover period = Inventory/Cost of sales*365 days

Tesco

Year	Calculation	Results
2018	2263/ 54141*365	15.26 days
2017	2301/53015* 365	15.84 days
2016	2430/51579 *365	17.20 days
2015	2957 / 59128 *365	18.25 days
2014	3576/ 59547*365	21.92 days

Sainsbury

Year	Calculation	Results
2018	1810/ 26574 *365	24.86 days
2017	1775 / 24590*365	26.35 days
2016	968/ 22050 *365	16.02 days
2015	997/ 22567 *365	16.13 days
2014	1005 / 22562 *365	16.26 days

Interpretation

Inventory turnover ratio is very important ratio because it helps organisation to find out how organisation effectively manage their inventory compare to their cost of goods sold. This also uses to measure how many times company sold its total average inventory during a particular period of time. In the above table writer did five years of inventory turnover ratio of Tesco and Sainsbury and compare Sainsbury Tesco perform well they take less time to sold their purchased inventory on an average Tesco used 15 to 16 days to sell their inventory but Sainsbury take more than 24 to 26 days to clear their purchasing inventory which tells that

Tesco selling more and generating more revenue compare to any retail company operating in UK supermarket industry.

Accounts payable payment period = Trade payables / Purchases or cost of sales*365 days

Tesco

Year	Calculation	Results
2018	8996/ 54141 *365	60.65
2017	8875 / 53015 *365	61.10
2016	8568 / 51579 *365	60.63
2015	9922 / 59128* 365	61.25
2014	10595/ 59547* 365	64.94

Sainsbury

Year	Calculation	Results
2018	4322/26574 *365	59.36 days
2017	3741 / 24590 *365	55.33 days
2016	3077 / 22050 *365	50.93 days
2015	2961 / 22567 *365	47.89 days
2014	2692 / 22562 *365	43.55 days

Interpretation

Accounts payable ratio shows the organisational ability to pay off their lenders money. If company takes less time to pay off their payables money it attracts them and they want to maintain a good relationship with that company. Compare to Tesco Sainsbury use slightly less time to pay off their lenders money. But it does not matter because Tesco is the largest supermarket and they have great buying bargaining power so everyone wants to build a good relationship with Tesco.

Cash cycle = Accounts receivable collection period + Inventory turnover period - Accounts payable payment period

Year	Tesco	Sainsbury
2018	-35.98	-24.96
2017	-35.63	-21.19
2016	-32.66	-27.02
2015	-29.40	-24.53
2014	-30.45	-20.69

Recommendations to develop the financial management of the company

In the above study writer discuss the last five years ratio analysis of Tesco and to find out their actual performance writer also did Sainsbury's ratio analysis and compare both of their performance in UK retail market. Financial managers and finance directors are used ratio analysis method to make their investment decision. Ratio analysis helps financial people to see the trend of the organisations financial performance because it shows the past and current performance and from that manager can predict the future. By conducting ratio analysis writer identify some of the areas that Tesco can develop and retain their market leadership in UK super market industry which are –

- ✓ Gross profit margin of Tesco is less than their rivals it means their Tesco is spending more on cost of goods sold the management of Tesco should reduce their costs of goods price by searching an alternative suppliers or use advance technology.
- ✓ In terms of operating profit margin Tesco is better than any of their rival especially Sainsbury. Tesco's operating profit margin is double than Sainsbury it is because Tesco use less stuff to operating their store operation. By using less operating expense Tesco is compromising with their customer service standards which helps them to gain more profit in short term but in a long term they can lose their competitive edge in the UK retail market;
- ✓ In terms of return on capital employed and return on equity Tesco is better than Sainsbury. If the ROCE and ROE is higher it attracts shareholders and investors to invest more money on Tesco. Tesco should retain their position and develop their ROCE they should do more analysis to make their investment decision. Tesco is quite successful in UK but they invest huge amount of their resources in USA and return is not satisfactory so they should minimize their operation in USA and focus more on UK and Chinese market to enhance their market share in world retail industry.
- ✓ Finally writer wants to say that Tesco should adopt both cost leadership and differentiation strategy to stay competitive in UK retail industry.

Part C

Investment appraisal technique to evaluate project

(1)

Payback period:

Payback period helps organisation to identify the period of time it takes to recover the cost of an investment. In a different way we can say that it is the duration of time an investment reaches its breakeven point. Organisation should adopt that project where payback period is less.

Payback Period (PBP)

Project A

Year	C a s h Flows (£m)	Cumulative Cash Flows (£m)
0	-85	-85
1	10	-75
2	20	-55
3	40	-15
4	55	40

P a y b a c k
Period (in
Years) = 3 +
= 3.27 Years

Project B

Year	C a s h Flows (£m)	Cumulative Cash Flows (£m)
0	-90	-90
1	25	-65
2	30	-35
3	35	0
4	40	40

P a y b a c k
Period (in
Years) = 3 Years
= 3 Years

Recommendation

When deciding between two or more mutually exclusive projects using payback period method, the usual decision is to accept the one with the shortest payback period. In this case, project B should be accepted as it paybacks within three years only whereas project A takes 3.27 years to payback the investment.

Accounting Rate of Return (ARR)

The accounting rate of return (ARR) is the percentage rate of return expected on an investment or asset as compared to the initial investment cost.

$$\begin{aligned} \text{Depreciation per year} &= \frac{\text{Depreciation}}{\text{year}} \\ &= \frac{\text{£21.25m}}{1} = \text{£21.25m} \end{aligned}$$

Project A

Year	C a s h F l o w s (£m)	D e p r e c i a t i o n (£m)	P r o f i t a f t e r d e p r e c i a t i o n (£m)
0	-85		
1	10	21.25	-11.25
2	20	21.25	-1.25
3	40	21.25	18.75
4	55	21.25	33.75
Total Profit			40
Average Profit			() 10
A v e r a g e Investment			() 42.5
ARR			() 23.53%

Project B

Year	C a s h F l o w s (£m)	D e p r e c i a t i o n (£m)	P r o f i t a f t e r d e p r e c i a t i o n (£m)
0	-90		
1	25	22.50	2.5
2	30	22.50	7.5
3	35	22.50	12.5
4	40	22.50	17.5
Total Profit			40
Average Profit			() 10
A v e r a g e Investment			() 45
ARR			() 22.22%

Recommendation

In case of appraising mutually exclusive projects with ARR method, the project with the highest ARR should be selected, provided that the expected ARR is higher than the company's target ARR. In this case, project A should be selected as ARR of project A (23.53%) exceeds ARR of project B (22.22%).

Net Present Value (NPV)

The difference between the current cash inflows and outflows over a particular period of time is called Net present value. Most of the cases organisation uses NPV in capital budgeting and investment plans to analyse the profitability of a projected investment or project.

Project A

Year	Cash Flows (£m)	Discounting Factor @ 10.5%	Discounted Cash Flows (£m)
0	-85	1	-85.00
1	10	0.9050	9.05
2	20	0.8190	16.38
3	40	0.7412	29.65
4	55	0.6707	36.89
NPV			6.97

Project B

Year	Cash Flows (£m)	Discounting Factor @ 10.5%	Discounted Cash Flows (£m)
0	-90	1	-90.00
1	25	0.9050	22.62
2	30	0.8190	24.57
3	35	0.7412	25.94
4	40	0.6707	26.83
NPV			9.96

Recommendation

The decision rule using NPV method of project appraisal is to accept all the projects with positive NPV as project with a positive NPV should add to the overall value to the organization and increase shareholders' wealth. In case of mutually exclusive projects, project with highest NPV should be selected. Hence, project B should be selected as project B would add additional £2.99m (£9.96m-£6.97m) value to the organization than project A.

Internal Rate of Return (IRR)

NPV is positive using a discount rate of 10%. Let's try 15%.

NPV is positive using a discount rate of 10%. Let's try 16%.

Project A

Year	C a s h F l o w s (£m)	Discount i n g Factor @ 15%	Discount e d C a s h F l o w s (£m)
0	-85	1	-85.00
1	10	0.8696	8.70
2	20	0.7561	15.12
3	40	0.6575	26.30
4	55	0.5718	31.45
NPV			-3.43

$$\begin{aligned}\text{IRR} &= 10.5\% + *(15-10.5)\% \\ &= 13.43\%\end{aligned}$$

Project B

Year	C a s h F l o w s (£m)	Discount i n g Factor @ 16%	Discount e d C a s h F l o w s (£m)
0	-90	1	-90.00
1	25	0.8621	21.55
2	30	0.7432	22.29
3	35	0.6407	22.42
4	40	0.5523	22.09
NPV			-1.64

$$\begin{aligned}\text{IRR} &= 10.5\% + *(16-10.5)\% \\ &= 15.16\%\end{aligned}$$

Recommendation:

For mutually exclusive projects, the IRR decision rule specifies to select project with the highest IRR as long as the IRR is greater than the cost of capital. Thus, project B should be selected.

Overall, the company should ADOPT Project B.

(2)

Payback period: Disadvantages

- Ignores the time value of money.
- Requires an arbitrary cut-off point.
- Ignores cash flows beyond the cut-off date.
- Ignores the timing of the cash flows.
- Biased against long-term projects, such as research and development, and new projects.
- It is unable to distinguish between projects with the same payback period.
- It may lead to excessive investment in short-term projects.

Atril, P. and McLaney, E. 2011

Payback period: Advantages

- Easy to understand.
- Simple to calculate.
- Can be used as a first screening method.
- Adjusts for uncertainty of later cash flows.
- Biased towards liquidity.

Atril, P. and McLaney, E. 2011

Advantages of IRR method

The main advantage of the IRR method is that the information it provides is more easily understood by managers, especially non-financial managers. For example, it is fairly easy to understand the meaning of the following statement.

The project will be expected to have an initial capital outlay of £100,000 to earn a yield of 25%. This is in excess of the target yield of 15%.

Disadvantages of IRR method

- Managers may confuse IRR with ARR, ROCE and/ or ROI.
- The IRR method ignores the relative size of the investment.

Strengths of the NPV method

The NPV method is the most valid of all the capital project appraisal methods.

- It recognises the time value of money, and evaluates cash flows, not accounting profits.
- When the cost of capital used in the appraisal is the organisation's cost of finance, a project with a positive NPV should add to the overall value of the organisation, and (in the case of a company) increase shareholder wealth (**Atril, P. and McLaney, E. 2011**).

The connection between NPV and creating shareholder wealth is very important. Although it is the most appropriate method of project appraisal, the NPV method does have a drawback.

Weaknesses of the NPV method

The net present value of a project is a money value. This is often difficult to understand. For example, it is easier to understand the comment: *'Project A will earn a return of 15% per annum'* than it is to understand the comment *'Project A has an NPV of + \$60,000 at a cost of capital of 10%'*.

Non-financial factors need to consider in a capital investment decision

- **Legal issues:** There may be a risk of legal action against the company as a result of its investment.
- **Ethical issues:** Unethical investments or actions by a company could be damaging to its public reputation.
- **Government regulation:** Investment decisions might be affected by the risk of government regulation.
- **Political issues:** A future change of government in the country concerned could affect the future returns from an investment. Political uncertainty often has a deterrent effect on investment decisions, persuading companies to defer their spending decisions until the future is more certain.
- **Quality implications:** Although financial objectives are important for commercial investments, other strategic objectives may also be relevant. In particular, the perceived quality of output produced by the company could be important for its relations with customers. A profitable investment might therefore be turned down if there are quality implications.
- **Personnel issues:** Employees might be affected significantly by a capital investment decision, and the impact on employee relations, motivation and working culture might need to be considered.

(Atril, P. and McLaney, E. 2011)

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