SOLUTIONS TO END-OF-CHAPTER QUESTIONS CHAPTER 9

RECALL AND REVIEW

Question 9.1

(a) Liquidity: Liquidity refers to the ability of an entity to generate sufficient cash with which to pay off its liabilities as they become due for payment.

(b) Cash flow cycle: The cash flow cycle is the time it takes a business to convert its inventory into a sale and to collect cash from its customers with which to pay suppliers and other claims.

(c) Acid test: The acid test ratio, also known as the quick ratio, compares current assets that are readily convertible into cash with current liabilities to measure an entity's short-term ability to pay its current liabilities.

(d) Working capital: Working capital is the difference between total current assets and total current liabilities.

(e) Cash conversion cycle: The cash conversion cycle, also known as the operating cycle or the working capital cycle, shows how quickly inventory is converted into trade receivables and how quickly trade receivables are converted into cash with which to pay trade payables.

(f) Solvency: Solvency refers to the ability of an entity to pay off its long-term liabilities.

(g) Gearing: Gearing divides an entity's total borrowings both long and short term by its total equity. The higher the gearing ratio, the riskier the entity is supposed to be.

Question 9.2

Maxim Limited has applied for a long-term loan. Therefore, the bank manager should assess the long-term solvency alongside the short-term liquidity of the company. Long-term solvency ratios measure the ability of a business to meet its long-term financial obligations. The bank manager should calculate and evaluate the following ratios:

- Gearing ratio (total current and non-current borrowings divided by total equity)
- Debt ratio (total liabilities divided by total assets)
- Interest cover (profit before interest and tax divided by interest expense)

These ratios should be calculated both before and after the loan is granted to the company to determine what effect the £500,000 loan will have on the ratios. A high gearing or high debt ratio might suggest that the company is risky as it seems to rely too heavily on its creditors for financial support. However, it is the ability of an organisation to service its borrowings that is the real indicator of whether that organisation is solvent or not. A high interest cover indicates that the company makes more than enough profit to cover the interest charged by lenders. The bank manager can compare the ratios for Maxim Limited to industry averages. However, the bank manager should not confine her assessment to ratio analysis alone. Factors such as credit rating, repayment timing, the ability of the company to generate operating cash flows and trends of product demand should also be taken into consideration when deciding whether to grant or reject the loan application.

»» DEVELOP YOUR UNDERSTANDING

»» Question 9.3

(a) Ratios for Samoco plc

	2021		2020	
	Calculation	**Ratio**	**Calculation**	**Ratio**
Current ratio	652/1,590	0.41:1	639/1,476	0.43:1
Quick ratio	(652 – 485)/1,590	0.11:1	(639 – 500)/1,476	0.09:1
Inventory days	(485/12,570) × 365	14.08 days	(500/11,330) × 365	16.11 days
Payables days	(830/12,570) × 365	24.10 days	(790/11,330) × 365	25.45 days
Cash conversion cycle	14.08 + 0 – 24.10	–10.02 days	16.11 + 0 – 25.45	–9.34 days
Gearing %	(240 + 2,230)/2,116 × 100%	116.73%	(216 + 2,024)/1,765 × 100%	126.91%
Debt ratio	4,576/6,692	0.68:1	4,024/5,789	0.70:1
Interest cover	732/104	7.04 times	586/84	6.98 times

As Samoco plc has no trade receivables, receivables days are zero.

(b) Evaluation of the liquidity, working capital and long-term solvency of Samoco plc at 31 May 2021:

- Current and quick ratios are very low.
- However, this is not a problem as Samoco plc sells its goods for cash while trading on credit with suppliers.
- Therefore, goods have been sold well in advance of when they have to be paid for.
- The quick ratio is irrelevant for Samoco plc as inventory is a highly liquid asset, with inventory turning over every 14 days in the 2020/2021 trading year.
- Trade payables are paid after 24 days, so the company is holding on to the cash from sales of inventory for an additional 10 days before this cash is used to pay off liabilities.
- The cash conversion cycle results in a negative figure. This means that the trade creditors are financing Samoco plc's working capital requirements.
- The company is paying dividends to the shareholders: this is not something that companies will do if they are short of cash. If Samoco plc were short of cash, the company would be conserving its money and not paying a dividend.

- The borrowings are repayable by equal instalments over the next 10 years, so the business has plenty of time in which to save up the money to repay these borrowings as they come up for payment.
- The company trades in essential goods (food), so demand for its products will never fall away.
- This will mean that sales, profits and cash flows will be generated from which to repay the long-term borrowings as they fall due.
- Gearing might look high at 116.73%, but the interest cover ratio shows that the cost of servicing the interest on the borrowings is easily affordable from the operating profits.

Question 9.4

Amounts due for repayment the day after the year end:

	Calculation	1 June 2021 £m	1 June 2020 £m
Borrowings	240/12: 216/12	(20)	(18)
Trade payables	830/24.10: 790/25.45	(34)	(31)
Other payables	150 × 20%: 140 × 20%	(30)	(28)
Dividends	Not payable until August 2021/2020	(–)	(–)
Current tax	First payment three months after year end	(–)	(–)
	Total liabilities due for payment on 1 June	(84)	(77)
	Cash and cash equivalents at year end	122	99
	Add: one day's sales on 1 June: 13,663/360: 12,249/360	38	34
	Estimated cash balance at end of 1 June	**76**	**56**

Samoco thus has more than enough cash in hand to cover any liabilities due on 1 June in each year.

Problems with relying solely on the current and quick ratios

- Current and quick ratios make the unrealistic assumption that all liabilities will be called in on the day after the statement of financial position date.
- In reality, unless the entity is in liquidation, payment of current liabilities occurs over 12 months, not all at once: individuals do not have to consider paying all their debts due over the next 12 months on the first day of the year, so why is this assumption made about business entities?
- Samoco plc is a very large company, so suppliers can be kept waiting for payment until the cash is readily available.
- Contracts govern bank loans, so, unless the company has breached the contractual terms of the loans, lenders cannot demand all their cash back until repayments are overdue.
- Other payables have been assumed to require 20% payment immediately: this is probably a serious overestimate of what is due on the day after the year end, so more cash than estimated is probably available at the end of the first day of the new financial year.
- Similarly, the current portion of long-term borrowings is more likely to be payable at the end of June not at the beginning of the month, so cash outflows on 1 June are, again, probably overestimated.

- Suppliers are happy to trade with such a large organisation and will not want to jeopardise their future trading relationships by demanding immediate payments of amounts due. They know they will be paid eventually and are willing to sacrifice cash now for the longer-term certainty of continuing trade with their very large customer.
- When assessing short-term liquidity, timing of payments is everything and liabilities are paid, not immediately, but from cash left over at the end of the previous year and from subsequent cash inflows from daily trading.
- Current and quick ratios are a static measure of liquidity: in reality, the cash keeps flowing in each and every day while amounts due are paid each and every day as current trading pays off past liabilities.

»Question 9.5

(a) and (b)

	2021		2020	
	Calculation	**Ratio**	**Calculation**	**Ratio**
Inventory days	(799 ÷ 6,326) × 365	46.10	(846 ÷ 6,438) × 365	47.96
Receivables days	(128 ÷ 10,312) × 365	4.53	(130 ÷ 10,310) × 365	4.60
Payables days	(967 ÷ 6,326) × 365	55.79	(915 ÷ 6,438) × 365	51.88
Cash conversion cycle	+ 46.10 + 4.53 – 55.79	(5.16)	+ 47.96 + 4.60 – 51.88	0.68

The cash conversion cycle has decreased by almost 6 days from 1 day to negative 5 days. In general, the shorter the cash conversion cycle the better, provided that the company is able to keep both its customers and suppliers satisfied. This favourable change is firstly due to the company paying its suppliers almost 4 days later on average compared to last year and secondly selling its inventory almost 2 days quicker. This means that cash from sales is realised more quickly while cash received from customers and due to suppliers is staying in the business for a longer period of time.

(c) The working capital ratios and the cash conversion cycle both suggest that Albert plc is a retailer selling mostly for cash with a small number of sales transactions on credit terms. This conclusion is based on the reasonably short time it takes for the company to sell its inventory and the very short period of time it takes to receive money from its customers.

»Question 9.6

(a) Suppliers like to receive cash owed to them as soon as possible. Their focus will thus be on the payables days ratio. Based on this ratio, Company B has the shortest payables days, then Company A and finally Company C.

(b) Credit customers like the longest time possible in which to pay their suppliers. Based on this criterion, Company A has the longest receivables days, then Company B and finally Company C.

(c) Lenders like borrowers with the lowest risk profile. This group will focus on the company with the lowest gearing ratio and the highest interest cover. Based on these criteria, Company C has the highest interest cover and lowest gearing ratio, followed by Company B and finally Company A.

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Question 9.7

Alton plc's current ratio is 0.96:1 (£1,230/£1,280) and its quick ratio is 0.59:1 ((£1,230 – £470) ÷ £1,280). This looks very worrying as it seems as though the company has insufficient funds with which to meet all its liabilities. However, if the additional information is considered, the picture changes considerably. It is clear from the additional information that not all current liabilities are payable immediately on 1 July 2021. The following table shows an estimate of the current liabilities payable on 1 July 2021:

	£000
Current portion of long-term borrowings (£570 ÷ 12 months)	47.5
Trade payables	70.0
Dividend payable	190.0
Tax payable (first instalment due 30 September 2021)	0.0
Total current liabilities payable on 1 July 2021	307.5
Cash available at 1 July 2021	450.0
Surplus cash at 1 July 2021	**142.5**

Although the ratios suggest that the company has insufficient cash with which to pay its current liabilities, in reality, the company has plenty of cash with which to pay its debts when the timing of payments is taken into account. The calculations above ignore cash receipts from trade receivables on 1 July, which will increase the cash available to pay suppliers and other claims.

TAKE IT FURTHER

Question 9.8

(a)

	Banchory plc		Ballater plc	
	Calculation	Ratio	Calculation	Ratio
Current ratio	4,100 ÷ 2,050	2.00:1	5,500 ÷ 3,700	1.49:1
Quick ratio	(4,100 – 1,400) ÷ 2,050	1.32:1	(5,500 – 2,400) ÷ 3,700	0.84:1
Inventory days	(1,400 ÷ 10,500) × 365	48.67	(2,400 ÷ 11,300) × 365	77.52
Receivables days	(1,800 ÷ 15,400) × 365	42.66	(2,900 ÷ 17,100) × 365	61.90
Payables days	(1,200 ÷ 10,500) × 365	41.71	(3,100 ÷ 11,300) × 365	100.13
Gearing percentage	(1,300 + 850) ÷ 13,150	16.35%	(9,300 + 600) ÷ 9,700	102.06%
Debt ratio	3,350 ÷ 16,500	0.20:1	13,000 ÷ 22,700	0.57:1
Interest cover	2,950 ÷ 140	21.07	3,050 ÷ 950	3.21

(b) In terms of liquidity, as the calculated current and quick ratios indicate, Banchory plc is in a better position as their ratios are higher than those of Ballater plc. However, it must be remembered that current liabilities are due over the next 12 months, not on the day immediately after the year-end date, so careful analysis of the timing of payments to current liabilities is required in order to make a full assessment of the liquidity of the two companies. In terms of working capital management, Banchory plc sells its inventory, collects from its customers and pays its suppliers more quickly, when compared to Ballater plc. Thus, it seems from the ratios that Banchory plc enjoys better working capital management. In terms of long-term solvency, there is a big difference between the two companies. Ballater plc has a great deal of debt, reflected in a gearing ratio of 102%, a higher debt ratio and a much lower interest cover ratio compared to Banchory plc. The ratios indicate that Ballater plc is currently in a much riskier position in terms of long-term solvency.

(c) Lending to a company that already has substantial levels of borrowings is risky. Ballater plc's borrowings already exceed its equity, so a lender may refuse its loan application or charge any future borrowings at a higher interest rate to reflect the increased risk in lending to this company. In addition, the interest cover of Ballater plc is much lower in comparison to that of Banchory plc. Therefore, a lender would be more likely to lend to Banchory plc as it has much lower gearing and debt ratios as well as a much higher interest cover.

»» Question 9.9

Ratio calculations Ibstock plc

Ibstock plc	Calculation	Ratio
Current ratio	161.9/102.2	1.58:1
Quick ratio	(161.9 – 84.3)/102.2	0.76:1
Inventory days	84.3/250.0 × 365	123.08 days
Receivables days	53.9/409.3 × 365	48.07 days
Payables days	56.0/250.0 × 365	81.76 days
Cash conversion cycle	+ 123.08 + 48.07 – 81.76	89.39 days
Gearing %	134.7/464.3 × 100%	29.01%
Debt ratio	306.8/771.1	0.40:1
Interest cover	84.0/4.2	20.00 times

Ratio calculations Nichols plc

Nichols plc	Calculation	Ratio
Current ratio	87.7/25.9	3.39:1
Quick ratio	(87.7 – 8.4)/25.9	3.06:1
Inventory days/inventory turnover	8.4/77.0 × 365	39.82 days
Receivables days	35.0/147.0 × 365	86.90 days
Payables days	7.6/77.0 × 365	36.02 days
Cash conversion cycle	+ 39.82 + 86.90 – 36.02	+ 90.70 days
Gearing %	3.6/125.3 × 100%	2.87%
Debt ratio	31.0/156.3	0.20:1
Interest cover	32.4/0.2	162.00 times

Ratio calculations Weir Group plc

Weir Group plc	Calculation	Ratio
Current ratio	1,528.7/1,213.3	1.26:1
Quick ratio	(1,528.7 – 642.9)/1,213.3	0.73:1
Inventory days/inventory turnover	642.9/1,787.7 × 365	131.26 days
Receivables days	440.2/2,661.9 × 365	60.36 days
Payables days	306.7/1,787.7 × 365	62.62 days
Cash conversion cycle	+ 131.26 + 60.36 – 62.62	+ 129.00 days
Gearing %	1,430.3/1,513.4 × 100%	94.51%
Debt ratio	2,338.8/3,852.2	0. 61:1
Interest cover	352.1/45.0	7.82 times

Ratio calculations National Express plc

National Express plc	Calculation	Ratio
Current ratio	1,052.0/1,813.3	0.58:1
Quick ratio	(1,052.0 – 29.4)/1,813.3	0.56:1
Inventory days/inventory turnover	29.4/1,765.0 × 365	6.08 days
Receivables days	314.6/2,744.4 × 365	41.84 days
Payables days	342.6/1,765.0 × 365	70.85 days
Cash conversion cycle	+ 6.08 + 41.84 – 70.85	–22.93 days
Gearing %	1,744.9/1,112.5 × 100%	156.84%
Debt ratio	3,295.8/4,408.3	0.75:1
Interest cover	242.3/58.4	4.15 times

Question 9.10

Assessment of the cash generating ability, liquidity and solvency of each company.

Ibstock plc

- The current ratio is high due to the high levels of inventory maintained by the business.
- High inventories are needed as no stock means no sale – there are other brick and concrete product manufacturing companies from which customers could source materials required.
- Building sites do not have the capacity to store bricks and concrete products until they are required, so Ibstock takes on this role for construction companies and retains stock at its production facilities ready for delivery to sites when required.
- There is zero risk that bricks and concrete products will deteriorate in the short or long term, so maintaining high levels of stock does not create an obsolescence risk.
- Although the quick ratio is below 1:1, cash from trade receivables is in the bank over 30 days ahead of when it will be required to pay trade payables.

- Customers will have to pay for the bricks and concrete products already delivered before further deliveries with which to maintain on-going construction work will be made, so receipt of cash is guaranteed and irrecoverable debts are minimised.
- The cash conversion cycle is long, but this is as a result of maintaining stocks of finished goods of bricks and concrete products with which to satisfy ongoing demand.
- The gearing % is low and indicates that Ibstock is a low risk business.
- Construction is a strong business sector due to the failure of successive governments to build sufficient numbers of houses and there is little risk that demand for bricks and concrete products will dry up thereby causing going concern problems.
- Similarly, there is a backlog of infrastructure updating and the need for new hospitals, schools, roads and other long-term construction projects is acute.
- Once the coronavirus pandemic has been overcome, construction activity should bounce back strongly with construction companies looking to make up the backlog of work delayed by the lockdown in the UK.
- Interest cover is low and indicates that borrowings are easily affordable.

Nichols plc

- Current and quick ratios are very high at 3.39:1 and 3.06:1 indicating that this is a very solid company indeed.
- As a manufacturer of soft drinks, the company trades on credit with customers, hence the receivable days of 86.90.
- Payables are paid within 36 days.
- However, the very high cash balance of £40.9million means that the company has plenty of spare money with which to finance its working capital.
- With total cash of £40.9 million and total liabilities of £31.0 million, Nichols could pay off all its liabilities at the year end and still have £9.9 million left over, so this is a company that has no financial problems.
- Soft drinks are a regular purchase for most households, so there is no danger that the business will lose its market.
- The company has minimal borrowings, a very high interest cover ratio and is pretty much risk free from a financial viewpoint.

Weir Group plc

- A manufacturer of technical equipment that is sold to other companies for use in their processes.
- Therefore, the company will trade on credit with their customers and allow these customers a suitably long period of time in which to pay.
- The manufacturing cycle for technical equipment is lengthy and the inventory days indicate that this is well over four months.
- With receivables days of around two months, this suggests that the group has to allow around 192 days (132 inventory days + 60 receivables days) from the start of an order to the receipt of the cash.

- Therefore, given the long working capital cycle, current and quick ratios are higher as this working capital has to be financed by the group.
- The cash conversion cycle is positive, indicating that suppliers have to be paid before inventories are turned into finished goods and before cash is received from customers.
- Customers are paying in around 60 days, while suppliers are paid after 63 days, so cash is being received from customers before it has to be paid out to suppliers.
- While there might be a risk of obsolete stock, the expectation would be that finished goods would be produced for the most part to order for specific customers.
- Gearing is manageable at 94.51 per cent, a debt ratio of 0.61:1 is reasonable and interest cover of 7.82 times indicates that all borrowings are affordable.

National Express plc

- As National Express is a transport operator, cash flows in daily as customers pay for their journeys as they are taken.
- This accounts for the very low current and quick ratios as the company has money flowing in up front from which to pay liabilities and the costs of running the business as they become due.
- The biggest costs in the transport sector are fuel and the wages of employees: fuel is bought on credit from suppliers (though failure to meet the payment terms might result in further supplies of fuel being cut off, bringing operations to a halt) while staff work for a month before they are paid, so the cash is received well in advance of payments being made to suppliers and employees.
- Inventory days are very low as the only inventory at the end of the year will be a few days of fuel in the vehicles and in the bus and train depots and some spares in the vehicle workshops: as long as fuel supplies are guaranteed, this is the only inventory that is required for trading in the transport sector.
- Receivables days at 41.84 days might seem high, but these trade receivables will represent money due from local and national governments for grants that are paid as subsidies to operators of bus and train services.
- These receivables are thus guaranteed and there is no risk of irrecoverable debts arising.
- The cash conversion cycle is negative, so suppliers are financing the working capital requirements of the group rather than reliance being placed on short-term bank borrowings.
- Gearing at 156.84% might seem high, but the transport sector finances the purchase of buses and trains by borrowings and by leasing. Transport is a capital intensive sector that pays for long-term assets (buses and trains) with long-term borrowings and long-term leases. The costs of these borrowings (interest and loan and lease repayments) are met from day-to-day cash inflows from customers, so the assets are financed by daily income from passengers.
- Interest cover at over 4.15 times indicates that borrowings are affordable.
- Transport is an essential sector and one that is likely to grow in importance as governments seek to reduce congestion in city centres and as the need to reduce reliance on other forms of transport to reduce greenhouse gases and global warming increases, so large mass transit operators should be safe companies in which to invest and with which to trade for the foreseeable future.