
Answers

Section C

31 Dusty Co

(a) (i) Annual holding and ordering costs of the current inventory management system

Each current order is $1,500,000/12 = 125,000$ units per order

Average inventory = $125,000/2 = 62,500$ units

Current holding cost = $62,500 \times 0.21 = \$13,125$ per year

Current ordering cost = $12 \times 252 = \$3,024$ per year

Current total inventory management cost = $\$13,125 + \$3,024 = \$16,149$ per year

(ii) Financial effect of adopting EOQ model

$EOQ = (2 \times 252 \times 1,500,000/0.21)^{0.5} = 60,000$ units/order

Number of orders = $1,500,000/60,000 = 25$ orders per year

Average inventory = $60,000/2 = 30,000$ units

Holding cost = $30,000 \times 0.21 = \$6,300$ per year

Ordering cost = $25 \times 252 = \$6,300$ per year

EOQ total inventory management cost = $\$6,300 + \$6,300 = \$12,600$ per year

Reduction in total inventory management cost = $\$16,149 - \$12,600 = \$3,549$ per year

Reduction in average inventory = $(62,500 - 30,000) \times 14 = \$455,000$

The overdraft will decrease by the same amount.

Finance cost saving = $455,000 \times 0.03 = \$13,650$ per year

Overall saving = $\$3,549 + \$13,650 = \$17,199$

(iii) Financial effect of accepting the bulk order discount

Number of orders = $1,500,000/250,000 = 6$ orders per year

Average inventory = $250,000/2 = 125,000$ units

Holding cost = $125,000 \times 0.21 = \$26,250$ per year

Ordering cost = $6 \times 252 = \$1,512$ per year

Total inventory management cost = $\$26,250 + \$1,512 = \$27,762$ per year

Increase in total inventory management cost = $\$27,762 - \$16,149 = \$11,613$ per year

Increase in value of average inventory = $(125,000 \times 13.93) - (62,500 \times 14) = \$866,250$

The overdraft will increase by the same amount.

Finance cost increase = $866,250 \times 0.03 = \$25,988$ per year

Bulk order discount = $1,500,000 \times 14 \times 0.005 = \$105,000$ per year

Overall saving = $\$105,000 - \$11,613 - \$25,988 = \$67,399$

(iv) The bulk order discount saves \$67,399 compared to the current position, while the EOQ approach saves \$17,199. The bulk order discount is recommended as it leads to the greater cost saving.

Tutorial note: It would also have been acceptable to revise the holding costs in (ii) and (iii) to reflect the finance cost of holding inventory (e.g. \$0.63 in (ii)) and this approach could be awarded full credit if correct.

(b) Key factors in determining working capital funding strategies**Permanent and fluctuating current assets**

One key factor when discussing working capital funding strategies is to distinguish between permanent and fluctuating current assets. Permanent current assets represent the core level of current assets needed to support normal levels of business activity, for example, the level of trade receivables associated with the normal level of credit sales and existing terms of trade. Business activity will be subject to unexpected variations, however, such as some customers being late in settling their accounts, leading to unexpected variations in current assets. These can be termed fluctuating current assets.

Relative cost and risk of short-term and long-term finance

A second key factor is the relative cost of short-term and long-term finance. The normal yield curve suggests that long-term debt finance is more expensive than short-term debt finance, for example, because of investor liquidity preference or default

risk. Provided the terms of loan agreements are adhered to and interest is paid when due, however, long-term debt finance is a secure form of finance and hence low risk.

While short-term debt finance is lower cost than long-term debt finance, it is higher risk. For example, an overdraft is technically repayable on demand, while a short-term loan is subject to the risk that it may be renewed on less favourable terms than those currently enjoyed.

Matching principle

A third key factor is the matching principle, which states that the maturity of assets should be reflected in the maturity of the finance used to support them. Short-term finance should be used for fluctuating current assets, while long-term finance should be used for permanent current assets and non-current assets.

Relative costs and benefits of different funding policies

A fourth key factor is the relative costs and benefits of different funding policies.

A matching funding policy would use long-term finance for permanent current assets and non-current assets, and short-term finance for fluctuating current assets. A conservative funding policy would use long-term finance for permanent current assets, non-current assets and some of the fluctuating current assets, with short-term finance being used for the remaining fluctuating current assets. An aggressive funding policy would use long-term finance for the non-current assets and part of the permanent current assets, and short-term finance for fluctuating current assets and the balance of the permanent current assets.

A conservative funding policy, using relatively more long-term finance, would be lower in risk but lower in profitability. An aggressive funding policy, using relatively more short-term finance, would be higher in risk but higher in profitability. A matching funding policy would balance risk and profitability, avoiding the extremes of a conservative or an aggressive funding policy.

Other key factors

Other key factors in working capital funding strategies include managerial attitudes to risk, previous funding decisions and organisation size. Managerial attitudes to risk can lead to a company preferring one working capital funding policy over another, for example, a risk-averse managerial team might prefer a conservative working capital funding policy. Previous funding decisions dictate the current short-term/long-term financing mix of a company. Organisational size can be an important factor in relation to, for example, access to different forms of finance in support of a favoured working capital funding policy.

32 Dink Co

(a) (i) After-tax cost of borrowing = $8.6 \times (1 - 0.3) = 8.6 \times 0.7 = 6\%$

Calculating PV of cost of borrowing to buy:

| Year | 0 | 1 | 2 | 3 | 4 | 5 |
|---------------------------|------------------|-----------------|---------------|---------------|---------------|---------------|
| | \$ | \$ | \$ | \$ | \$ | \$ |
| Purchase | (750,000) | | | | | |
| Residual value | | | | | 50,000 | |
| Service costs | | (23,000) | (23,000) | (23,000) | (23,000) | |
| TAD benefit | | | 56,250 | 42,188 | 31,641 | 79,922 |
| Service cost tax benefits | | | 6,900 | 6,900 | 6,900 | 6,900 |
| Net cash flow | (750,000) | (23,000) | 40,150 | 26,088 | 65,541 | 86,822 |
| Discount at 6% | 1.000 | 0.943 | 0.890 | 0.840 | 0.792 | 0.747 |
| | <u>(750,000)</u> | <u>(21,689)</u> | <u>35,734</u> | <u>21,914</u> | <u>51,908</u> | <u>64,856</u> |

PV of cost of borrowing to buy is \$597,277.

Using the spreadsheet NPV function and spreadsheet-calculated discount factors, PV of cost of borrowing to buy is \$597,268.

Working: TAD benefit

| Year | 0 | 1 | 2 | 3 | 4 | 5 |
|-----------------|---------|---------|---------|---------|----------|--------|
| | \$ | \$ | \$ | \$ | \$ | \$ |
| Purchase | 750,000 | | | | | |
| TAD | | 187,500 | 140,625 | 105,469 | 266,406* | |
| 30% TAD benefit | | | 56,250 | 42,188 | 31,641 | 79,922 |

*750,000 – 187,500 – 140,625 – 105,469 – 50,000 = \$266,406

(ii) Calculating PV of cost of leasing:

| Year | 0 | 1 | 2 | 3 | 4 | 5 |
|----------------|------------------|------------------|------------------|------------------|---------------|---------------|
| | \$ | \$ | \$ | \$ | \$ | \$ |
| Lease rentals | (200,000) | (200,000) | (200,000) | (200,000) | | |
| Tax benefits | | | 60,000 | 60,000 | 60,000 | 60,000 |
| Net cash flow | (200,000) | (200,000) | (140,000) | (140,000) | 60,000 | 60,000 |
| Discount at 6% | 1.000 | 0.943 | 0.890 | 0.840 | 0.792 | 0.747 |
| | <u>(200,000)</u> | <u>(188,600)</u> | <u>(124,600)</u> | <u>(117,600)</u> | <u>47,520</u> | <u>44,820</u> |

PV of cost of leasing is \$538,460.

Using the spreadsheet NPV function and spreadsheet-calculated discount factors, PV of cost of leasing is \$538,464.

(iii) Financial benefit of leasing = \$597,277 – \$538,460 = \$58,817

Using the spreadsheet NPV function and spreadsheet-calculated discount factors, financial benefit of leasing = \$597,268 – \$538,464 = \$58,804.

Leasing the new machine is recommended as the option which is more attractive in financial terms to Dink Co.

(b) (i) Reasons why investment capital may be rationed

Theoretically, the objective of maximising shareholder wealth can be achieved in a perfect capital market by investing in all projects with a positive NPV. In practice, companies experience capital rationing and are limited in the amount of investment finance available, so shareholder wealth is not maximised.

Hard capital rationing is due to external factors, while soft capital rationing is due to internal factors or management decisions.

General reasons for hard capital rationing affect many companies, for example, the availability of new finance may be limited because share prices are depressed on the stock market or because of government-imposed restrictions on bank lending.

If a company only requires a small amount of finance, issue costs may be so high that using external sources of finance is not practical.

Reasons for hard capital rationing may be company-specific, for example, a company may not be able to raise new debt finance if banks or investors see the company as being too risky to lend to. The company may have high gearing or low interest cover, or a poor track record, or if recently incorporated, no track record at all. Companies in the service sector may not be able to offer assets as security for new loans.

Reasons for soft capital rationing include managerial aversion to issuing new equity, for example, a company may want to avoid potential dilution of its EPS or avoid the possibility of becoming a takeover target. Managers might alternatively be averse to issuing new debt and taking on a commitment to increased fixed interest payments, for example, if the economic outlook for its markets is poor.

Soft capital rationing might also arise because managers wish to finance new investment from retained earnings, for example, as part of a policy of controlled organisational growth, rather than a sudden increase in size which might result from undertaking all investments with a positive net present value.

One reason for soft capital rationing may be that managers want investment projects to compete for funds, in the belief that this will result in the acceptance of stronger, more robust investment projects.

(ii) Ways in which Dink Co's external capital rationing might be overcome

Dink Co is a small company and the hard capital rationing it is experiencing is a common problem for SMEs, referred to as the funding gap. A first step towards overcoming its capital rationing could be for Dink Co to obtain information about available sources of finance, since SMEs may lack understanding in this area.

One way of overcoming the company's capital rationing might be business angel financing. This informal source of finance is from wealthy individuals or groups of investors who invest directly in the company and who are prepared to take higher risks in the hope of higher returns. Information requirements for this form of finance may be less demanding than those associated with more common sources of finance.

Dink Co could consider crowdfunding, whereby many investors provide finance for a business venture, for example, via an internet-based platform, although this form of finance is usually associated with entrepreneurial ventures.

Dink Co might be entitled to grant aid from a government, national or regional source which could be linked to a specific business area or to economic regeneration in a specified geographical area.

On a more general basis, Dink Co could consider a joint venture as a way of decreasing the need for additional finance, depending on the nature of its business and its business plans, and whether the directors of Dink Co are prepared to sacrifice some control to the joint venture partner.

Rather than conventional sources of finance, Dink Co could evaluate whether Islamic finance, for example, an ijara contract, might be available, again depending on the nature of its business and its business plans.

Applied Skills, FM
Financial Management (FM)

September/December 2019 Sample Marking Scheme

| | <i>Marks</i> | <i>Marks</i> |
|---|--------------|------------------|
| Section C | | |
| 31 (a) (i) Holding cost current | 0.5 | |
| Ordering cost current | <u>0.5</u> | 1 |
| (ii) EOQ comp | 1 | |
| Holding cost EOQ | 0.5 | |
| Ordering cost EOQ | 0.5 | |
| Finance costs | 1 | |
| EOQ saving overall | <u>1</u> | 4 |
| (iii) Holding cost bulk order discount | 0.5 | |
| Ordering cost bulk order discount | 0.5 | |
| Finance costs | 1 | |
| Bulk order discount value | 1 | |
| Bulk order discount saving overall | <u>1</u> | 4 |
| (iv) Advice | | 1 |
| (b) Current asset types | 2 | |
| Finance cost/risk | 2 | |
| Matching principle | 2 | |
| Funding policies | 2 | |
| Other points | <u>2</u> | 10 |
| | | <u>20</u> |
| 32 (a) (i) Kd after tax | 1 | |
| TAD | 1 | |
| TAD benefits | 1 | |
| Service tax benefit | 1 | |
| Tax timing | 1 | |
| PV buying | <u>1</u> | 6 |
| (ii) Lease tax benefits | 1 | |
| Lease timing | 1 | |
| PV leasing | <u>1</u> | 3 |
| (iii) Recommendation | | 1 |
| (b) (i) Hard reasons | 3 | |
| Soft reasons | <u>3</u> | 6 |
| (ii) Ways to overcome | | 4 |
| | | <u>20</u> |



Financial Management

Examiner's commentary on September/December 2019 sample questions

This commentary has been written to accompany the published sample questions and answers and is written based on the observations of markers. The aim is to provide constructive guidance for future candidates and their tutors, giving insight into what the marking team is looking for, and flagging pitfalls encountered by candidates who sat these questions.

Dusty Co

(a)

This question required candidates to evaluate whether the adoption of either of two alternative inventory management policies would be beneficial to Dusty Co.

The calculations in part (i) were usually performed well. The most common error here was not 'halving' Dusty's current order size of 125,000 units in order to obtain the average inventory level required, 62,500 units, for the holding cost calculation.

In part (ii), the Economic Order Quantity (EOQ) calculation was usually performed well, but candidates making use of spreadsheet functionality, as they should, must be careful to formulate their cells correctly, especially in respect of computing a square root by raising the figure to 0.5. For example, the correct formulation is:

$$=(2*252*1500000/0.21)^{0.5}$$

By contrast if the brackets are not included, then it is the final variable only, 0.21 in this case, which is raised to the power of 0.5, yielding an incorrectly computed EOQ.

Sometimes a lack of care and precision was seen elsewhere in the computation, such as not using the full demand figure in the EOQ formula, e.g. using 1,500 instead of 1,500,000.

The most common omission in candidates' responses to this question was the lack of recognition that a change in average inventory levels, and hence average inventory values, would change the cost of financing working capital. This is the reason for the inclusion of the cost of the overdraft facility of 3% per year.

Many candidates arrived at the point where they recognised that the EOQ policy would save \$3,549 in total inventory management costs compared to the current inventory management



system, but then either did no more in part (ii) or, in some cases, included the overdraft interest under both policies, based upon the current overdraft level of \$550,000.

This was also seen often in part (iii), except that under the bulk purchase policy, candidates were required to recognise that there would be an increase in average inventory levels leading to an increase in finance cost.

Most candidates were able to compute the benefit of the bulk order discount but, as stated above, care needs to be taken in performing the computation. Using insufficient decimal places can result in, for example, a 0.5% bulk purchase discount being treated incorrectly as a 5% discount.

Candidates needed to be clear about what was asked of them in part (a). Part (ii) asks for the financial effect of adopting the EOQ as the basis for ordering inventory. Whilst a 'totals' approach is acceptable, where the purchase cost of inventory is included under each policy, it is expected that the overall saving of adopting the new policy would be shown.

Furthermore, in part (iii), the financial effect of accepting the bulk order discount is the overall net saving compared to the current inventory management system, and not as compared to the proposed EOQ basis for ordering inventory.

Therefore, the recommendation in (iv) should have been based upon which option, if any, is better than the current inventory management system. This should have been a relatively straightforward mark for candidates to gain. This recommendation should not have become unclear by discussing anything other than the financial effects of the respective options.

(b)

This part of the question required candidates to discuss the key factors in determining working capital funding strategies.

First, a discussion is required. Second, the required discussion is worth ten marks. The key point being that it is in this section of the examination where Financial Management concepts can be tested in depth. Therefore, candidates need to devote the appropriate amount of time to prepare and present a coherent answer, using full sentences and making good use of Financial Management terminology. A series of short 'bullet points' or short phrases is not going to be sufficient to attract a high level of marks.

It is worth commenting that answers to this question were disappointing overall. Where good responses were seen, they focused on the areas listed in the Financial Management syllabus, namely:

- the distinction between permanent and fluctuating current assets;
- the relative cost and risk of short-term and long-term finance;



- the matching principle;
- the relative costs and benefits of aggressive, conservative and matching funding policies;
- management attitudes to risk.

Despite the requirement being taken almost directly from the Financial Management syllabus, many answers did not appear to reflect this. Too many responses did not consider, or explain, the analysis of current assets into fluctuating and permanent current assets, thereby leading to points far too general to gain marks such as 'use long-term finance for non-current assets and short-term finance for current assets'.

Other responses did not, or only briefly attempted to, consider the relative risk and cost of short-term and long-term finance, and/or did not consider a matching or moderate policy.

Furthermore, some candidates talked about working capital management in general terms, working capital investment policies, the working capital cycle or about sources of funds (including a debt versus equity discussion) rather than working capital funding policies, thereby not directly addressing the requirement. Instead, candidates seem to answer the question they would have preferred rather than the one which was actually asked.

Dink Co

(a)

This question asked candidates to evaluate whether Dink Co should use (i) borrowing to buy or (ii) leasing, as a source of finance, and to (iii) recommend which was more attractive in financial terms.

There were some very good answers here, which recognised the need to apply the tax rate to the before-tax interest rate on the loan of 8.6%, in order to arrive at an after-tax interest rate of 6%, which is appropriate for the after-tax cash flows present in this question, although some candidates did not do this.

In terms of the borrowing to buy option (a)(i), it is important to remember that it is a fundamental error to include interest payments within the computation of net cash flow, although it is somewhat comforting to report that this error was seen less frequently than when previously tested. As noted above, the cost of capital which should be used to discount the net cash flows here is the after-tax cost of the debt finance being used, and hence the inclusion of interest payments in the cash flow schedule means that such interest payments are effectively being double counted.

Some of the more common errors included the omission of the service costs of \$23,000 or treating them as an inflow. Even where the service costs were correctly included, sometimes



their associated tax benefits of \$6,900 were omitted or, alternatively, incorrectly treated, such as including them as an outflow or mistiming them. The question is clear in stating that Dink Co pays corporation tax one year in arrears, and therefore this timing effect is applicable to all tax related cash flows.

Furthermore, some candidates incorrectly applied the corporation tax rate directly to the purchase cost and/or ignored the need to compute tax-allowable depreciation on a 25% reducing balance basis, whilst others did not recognise the need for a balancing allowance in the tax-allowable depreciation computation.

The three marks available for the present value of the cost of leasing (a)(ii) were not gained as often as may be imagined. Errors here mainly occurred where the lease rental payments of \$200,000 were mistimed (treated as year-end cash flows and not, as the question stated, cash flows in advance), or where there was no (or mistimed) tax relief on the lease rental payments of \$60,000.

Somewhat unusually for a question where the calculation of present values was required, some candidates did not discount the cash flows at all, thereby ignoring the fundamental principle of the time value of money. Some candidates also erroneously included the same cash flows, such as service costs, in both options.

Lastly in (a)(iii), the requirement asked candidates to recommend which option is more attractive in financial terms to Dink Co. This is a clear financial decision based upon the relative PVs, in that the lowest cost option should be chosen (leasing in Dink's case). Some candidates incorrectly chose the highest figure, thereby not recognising that it was a cost figure which they were dealing with, whilst some candidates made rather more of this decision than was necessary by referring to non-financial factors, such as the obsolescence issue, which sometimes made their choice unclear.

(b)(i)

The requirement here was for a discussion of the general reasons why investment capital may be rationed.

Whilst marks in discussion requirements are awarded based upon the quality of a candidate's response, and not the quantity, there were too many cases here where insufficient detail was being offered in responses, such that few marks out of the six on offer could be gained. Short, undeveloped bullet points do not comprise a discussion.

Nonetheless, there were some very good answers with responses structured around the two categories of reasons, namely both hard and soft capital rationing, with good discussions being well-balanced between the two. Other candidates need to develop their points further. For example, stating that capital is (hard) rationed because banks will not lend needs to be



supported by reasons why that may be the case, as in the suggested solution. Similarly, stating that companies do not want to go grow too quickly (soft) should be supported by an explanation of this policy, also as in the suggested solution.

(b)(ii)

Here candidates were asked to discuss ways in which the external capital rationing experienced by Dink Co might be overcome. The reference to the company is important, as Dink Co is a small company, as stated in the first line of the scenario. With requirements such as this, better responses are focused on the circumstances of the company in question.

Dink Co is experiencing a common problem for small and medium sized entities (SMEs), known as the funding gap, and therefore better responses discussed finance for SMEs, rather than more general sources of finance. In other words, answers discussing, rather than just listing, business angel financing, government assistance, supply chain financing and crowdfunding or peer-to-peer funding were likely to gain good marks. Answers which simply stated sources of finance which are not relevant in the circumstances of Dink Co, such as a rights' issue, were inappropriate and not awarded any marks.