DECEMBER 2016 AND JUNE 2017
SUPPLEMENT

Qualification Programme

Module B
Corporate Financing

CPA
Hong Kong Institute of
Certified Public Accountants
香港會計師公會

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Changes at a glance

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Introduction

This Supplement is to be used in conjunction with the fifth edition of the Learning Pack, and it will bring you fully up to date for developments that have occurred in the period since publication of the Learning Pack and 31 May 2016, the cut-off date for examinable standards and legislation for the December 2016 and June 2017 examinations.

The Supplement comprises a technical update on developments that will be examinable in December 2016 and June 2017 examination sessions that are not currently covered in the Learning Pack. The topics covered are listed on the contents page, and again are covered in chapter order.

In each case the text in the Supplement explains how the Learning Pack is affected by the change, for example whether the new material should be read in addition to the current material in the Learning Pack, or whether the new material should be regarded as a replacement.

Good luck with your studies!

Chapter 3	Financial analysis and strategy

Section 6

Page 107 - 110

Correction to Example: Forecast profits, statement of financial position and free cash flow

World Holdings Ltd (WHL)

The board of directors of WHL has requested the production of a four-year financial plan. The key assumptions behind the plan are as follows:

(a) Historically, sales growth has been 9% per year. Uncertainty about future economic prospects over the next four years from 20X1–20X4 however implies that this growth rate will reduce by 1% per year after the financial year 20X1 (e.g. to 8% in 20X2). After 20X4, growth is expected to remain constant at a rate of 6% each year.

(b) Cash operating costs are estimated to be approximately 68% of sales.

(c) Tax allowable depreciation for the past few years has always been charged at 15% of the net book value of plant and machinery at year end, and this is expected to continue. Each year, annual investment in plant and machinery is expected to be equal to the annual depreciation charge.

(d) In addition to its trading activities, the company has invested in land for many years. Land is not depreciated. The head of the property investment division of WHL has forecast the following land purchases:

20X1: $148m	20X3: $195m
20X2: $170m	20X4: $219m

(e) Inventories, receivables and 'other payables' are assumed to increase in line with the increase in sales.

(f) WHL currently pays 7% per annum interest on its short-term borrowing and 8% on its long term borrowings.

(g) Corporation tax is expected to continue at its present rate of 30% over the next four years.

Summarised financial accounts of WHL

INCOME STATEMENT FOR THE YEAR ENDED MARCH 20X0

	$m
Revenue	1,639
Operating costs before depreciation	(1,225)
EBITDA	414
Tax allowable depreciation	(152)
Operating profit	262
Net interest payable	(57)
Profit on ordinary activities before tax	205
Tax on ordinary activities (30%)	(62)
Profit after taxation (Amount transferred to reserves)	143

STATEMENT OF FINANCIAL POSITION AS AT 31 MARCH 20X0

	$m
Non-current assets	
Land	310
Plant and machinery (net)	1,012
Investments	32
	1,354

Current assets	
Inventories	448
Receivables	564
Cash	20
	1,032
Current liabilities	
Short term loans	230
Other payables	472
	(702)
Non-current liabilities	
Borrowings (8% fixed rate until 20X8)	(580)
	1,104
Capital and reserves	
Share capital	240
Reserves	864
	1,104

The investments yield negligible interest.

The company's current share price is $9.40, and its weighted average cost of capital (WACC) is 9%. The company has issued 240 million shares.

Required

(1) Produce pro forma statements of financial position and income statements for each of the next four years, using the assumptions set out above. Critically discuss any problems or implications of these assumptions.

(2) Using free cash flow analysis, evaluate and discuss whether or not the managing director's claims for the future share price are likely to be achievable. The operating cash flow element of free cash flow may be estimated by: (Operating profit (1 – t) + depreciation).

Solution

(1) PRO FORMA INCOME STATEMENTS FOR THE YEARS ENDED MARCH 20X1 – X4

	20X1 $m	*20X2* $m	*20X3* $m	*20X4* $m
Revenue	1,787	1,930	2,065	2,189
Operating costs before depreciation	(1,215)	(1,312)	(1,404)	(1,489)
EBITDA	572	618	661	700
Tax allowable depreciation	(152)	(152)	(152)	(152)
Operating profit	420	466	509	548
Interest payable (W3)	(62)	(62)	(62)	(62)
Profit on ordinary activities before tax	358	404	447	486
Tax on ordinary activities (30%)	(107)	(121)	(134)	(146)
Profit after tax (transferred to reserves)	251	283	313	340

PRO FORMA STATEMENTS OF FINANCIAL POSITION 20X1 – X4

	20X1 $m	*20X2* $m	*20X3* $m	*20X4* $m
Non-current assets				
Land	458	628	823	1,042
Plant and machinery (net) (W1)	1,012	1,012	1,012	1,012
Investments	32	32	32	32
	1,502	1,672	1,867	2,086
Current assets				
Inventories (W2)	488	527	564	598
Receivables (W2)	615	664	710	753
Cash (balancing figure)	74	140	214	294
	1,177	1,331	1,488	1,645
Current liabilities				
Short-term loans	230	230	230	230
Other payables (W2)	514	555	594	630
	(744)	(785)	(824)	(860)
Non-current liabilities				
Borrowings	(580)	(580)	(580)	(580)
	1,355	1,638	1,951	2,291
Capital and reserves				
Share capital	240	240	240	240
Reserves	1,115	1,398	1,711	2,051
	1,355	1,638	1,951	2,291

Working 1	*20X1* $m
Plant and machinery bf	1,012
Depreciation at 15%	(152)
Expenditure	152
Net value at year end (and going forward)	1,012

Working 2	*20X1* 9%	*20X2* 8%	*20X3* 7%	*20X4* 6%
Inventories	448 × 1.09 = 488	488 × 1.08 = 527	527 × 1.07 = 564	564 × 1.06 = 598
Receivables	564 × 1.09 = 615	615 × 1.08 = 664	664 × 1.07 = 710	710 × 1.06 = 753
Other payables	472 × 1.09 = 514	514 × 1.08 = 555	555 × 1.07 = 594	594 × 1.06 = 630

Working 3

Annual interest charge:	$m
Short term loans (7% of $230m)	16
Borrowings (8% of $580m)	46
	62

The pro forma accounts are based primarily upon the percentage of sales method of forecasting. This provides a simple approach to forecasting, but is based upon assumptions of existing or planned relationships between variables remaining constant, which are highly unlikely. It also does not allow for improvements in efficiency over time.

- Accurate forecasts of sales growth are very difficult. Sensitivity analysis is recommended to investigate the implications of sales differing from the forecast levels. A constant growth rate of 6% forever after four years is perhaps unlikely.
- Cash operating costs are unlikely to increase in direct proportion with sales. The variable elements (wages, materials, distribution costs etc.) could all move at a higher or lower rate than sales, while the fixed elements will not change with the value of sales at all in the short run. If the company becomes more efficient then costs as a proportion of sales should reduce.
- Tax allowable depreciation from new asset purchases might not exactly offset the expenditure on new assets. Furthermore, the government might change the rates of tax allowable depreciation in the future.
- Assuming a direct relationship between inventories, receivables and other payables to sales could promote inefficiency. Although a strong correlation between such variables exists, there should be no need to increase inventory, receivables and payables in direct proportion to sales.

(2) For the purpose of this example, it is assumed that the value of the company is the present value of its future expected free cash flows. Free cash flow will be estimated by Operating profit (1 – t) plus depreciation less adjustments for expenditure on non-current assets and changes in working capital. (**Note.** Other definitions of free cash flow exist.)

	20X1	*20X2*	*20X3*	*20X4*
	$m	$m	$m	$m
Operating profit (1 – t)	294	326	356	384
Depreciation	152	152	152	152
Expenditure on land	(148)	(170)	(195)	(219)
Expenditure on plant and machinery	(152)	(152)	(152)	(152)
Change in working capital (W4)	(49)	(47)	(44)	(41)
Free cash flow	**97**	**109**	**117**	**124**

Working 4

	$m	$m	$m	$m
Opening inventory	(448)	(488)	(527)	(564)
Closing inventory	488	527	564	598
Opening receivables	(564)	(615)	(664)	(710)
Closing receivables	615	664	710	753
Opening payables	472	514	555	594
Closing payables	(514)	(555)	(594)	(630)
Increase in working capital	**49**	**47**	**44**	**41**

The present value of free cash flow for the company after 20X4 may be estimated by a formula:

$$\frac{FCF20X4(1+g)}{WACC-g}, \text{ or } \frac{124(1.06)}{0.09-0.06} = 4{,}381$$

Note. This valuation formula is similar to the dividend growth valuation formula, which is explained in Chapter 13.

The estimated value of the company at the end of 20X4 is $4,381 million. From this the value of any loans must be deducted in order to find the value accruing to shareholders. From the pro forma accounts, loans are expected to total $810 million, leaving a net value of $3,571 million. If the number of issued shares has not changed, the estimated market value per share is:

$$\frac{3{,}571}{240} = \$14.88 \text{ per share, an increase of 58\% on the current share price.}$$

This data suggests that the managing director's claim that the share price will double in four years is not likely to occur. However, the impact of the performance of the economy, and unforeseen significant changes affecting WHL mean that such estimates are subject to a considerable margin of error.

Section 7
Page 111 – 113

Correction to Example: Cash flow statement using direct method

This example uses the summarised financial accounts from the World Holdings Ltd (WHL) example in section 6 of this chapter. Only the data for the years 20X0 and 20X1 are used.

INCOME STATEMENT FOR YEAR ENDED 31 MARCH

	Actual 20X0 $m	*Projected 20X1* $m
Revenue	1,639	1,787
Operating costs before depreciation	(1,225)	(1,215)
EBITDA	414	572
Tax allowable depreciation (all plant and machinery)	(152)	(152)
Operating profit	262	420
Net interest payable	(57)	(62)
Profit on ordinary activities before tax	205	358
Tax on ordinary activities (30%)	(62)	(107)
Amount transferred to reserves	143	251

STATEMENT OF FINANCIAL POSITION AS AT 31 MARCH

	Actual 20X0 $m	*Projected 20X1* $m
Non-current assets		
Land and buildings	310	458
Plant and machinery (net of depreciation)	1,012	1,012
Investments	32	32
	1,354	1,502
Current assets		
Inventories	448	488
Receivables	564	615
Cash in hand and short-term deposits	20	74
	1,032	1,177
Current liabilities		
Short-term loans and overdrafts	230	230
Other payables	472	514
	(702)	(744)
Non-current liabilities		
Borrowings (8% fixed rate)	(580)	(580)
Total	**1,104**	**1,355**
Capital and reserves		
Share capital	240	240
Reserves	864	1,115
Total	**1,104**	**1,355**

Background calculations for operating cash flows direct method

In order to calculate the operating cash flows using the direct method it is necessary to convert some accrual accounting numbers to cash flow numbers. The necessary calculations are shown below.

Cash receipts from customers:	$m
Accrual accounting revenue	1,787
Less increase in receivables	(51)
Cash receipts from customers	1,736

Cash payments for operating costs:

First, calculate purchases figure:

Accrual accounting operating costs	1,215
Add increase in inventory	40
Purchases of operating costs	1,255

Second, calculate cash payments for purchases:

Purchases of operating costs	1,255
Less increase in payables	(42)
Cash payments for purchases	1,213

WORLD HOLDINGS LTD (WHL)
PRO FORMA CASH FLOW STATEMENT FOR THE YEAR ENDED 31 MARCH 20X1

	$m	$m
Cash flows from operating activities		
Receipts from customers	1,736	
Payments for operating costs	(1,213)	
Payments for interest	(62)	
Tax on ordinary activities	(107)	
Net cash inflow from operating activities		354
Cash flows from investing activities		
Purchase of land	(148)	
Purchase of plant and machinery	(152)	(300)
Net cash outflows from investing activities		
Net increase in cash		54
Add cash balance 31 March 20X0		20
Equals pro-forma cash balance 31 March 20X1		74

(**Note.** This pro forma cash flow statement is prepared using the direct method and differs from the 'free cash flow' calculation used in estimating the value of the company.)

Chapter 10	Dividend policy

Answer to exam practice question – Chapter 10

Page 723-724

Correction to Answer: Dividend policy

(a) **Advantages of share repurchase**

- It has the effect of reducing the number of shares outstanding. Since this action does not affect earnings, therefore, earnings per share (EPS) will increase. This improves the profitability performance and will cause the share price to move up.
- It reduces equity and therefore results in an increase in financial leverage (i.e. D/E ratio) without having to incur additional debt. This change will improve the return on equity (ROE) ratio and project a positive impact on profitability performance.
- It is not a commitment and unlike a dividend does not create future expectations from the shareholder. This flexibility to future cash flow can be very beneficial to XYZ due to uncertainty in future profitability.
- The action passes a signal to the market that the repurchase price is an attractive valuation of the company's shares. As such, it will provide support to share prices which have been adversely affected by the recent financial crisis.

Disadvantages of share repurchase

- It will only benefit shareholders who are willing to sell their shares. The longer term investors will receive nothing compared to a cash dividend. Also, the repurchase price is usually low and, therefore, those shareholders who sell may lose the opportunity for capital gain when the price rebounds.
- The action can be interpreted by the market that the company is running out of growth opportunities and therefore can affect its valuation.
- The support of the share price may be temporary, particularly during a period when market sentiment is weak.

(b) **1. Expect permanent increase in profits**

Best policy: option (i) - increase dividends over the last dividend payment.

Advantage: communicates future prospects to shareholders via this policy.

Risk: as this increase is considered by shareholders as permanent, if the increase in profit does not materialise, the higher dividend may pose future cash flow problems. Shareholders will also be disappointed if the dividend increase is not sustainable.

2. Unstable future profit:

Best policy: option (ii) – declare a one time special dividend.

Advantage: return of extra cash to shareholders without creating an expectation that this increase will be repeated.

Risk: Little risk but share price may not benefit much.

(c) The company should either pay a special dividend or share repurchase. The reason for this is that increasing the dividend will pass a signal to the market that future profits will be better, which is contrary to the decision of the Director.

Given the share price has declined substantially due to the financial crisis and the Directors believe the prices are undervalued, share repurchase is recommended.

(d) As paying dividend or share repurchase will reduce equity, if no debt is repaid, it is necessary to check if the D/E ratio will exceed the 37% threshold.

Check new D/E ratio if no debt is repaid:

$350M /$ (1000-100)M = 38.89%

Therefore, the new D/E ratio exceeds the 37% threshold. XYZ has to pay part of the debt first.

Assume D is the amount of debt repayment to maintain the 37% D/E ratio.

$(350-D) /$(1000-(100-D) = 0.37

Solving D=$12.41M.

Therefore, the maximum amount that XZY can pay as dividend or share repurchase is $(100-12.41)M = $87.59M

Chapter 14	Capital structure

Section 2.4
Page 530-531

Correction to Example: Gearing

A summarised statement of financial position of Rufus is as follows:

	$m
Assets less current liabilities	150
Debt capital	(70)
	80
Share capital (10 million shares)	20
Reserves	60
	80

The company's profits in the year just ended are as follows:

	$m
Profit from operations	21.00
Interest	6.00
Profit before tax	15.00
Taxation at 16.5%	2.48
Profit after tax (earnings)	12.52
Dividends	6.50
Retained profits	6.02

The company is now considering an investment of $25 million. This will add $5 million each year to profits before interest and tax.

(a) There are two ways of financing this investment. One would be to borrow $25 million at a cost of 8% per annum in interest. The other would be to raise the money by means of a 1-for-4 rights issue.

(b) Whichever financing method is used, the company will increase dividends per share next year from 65c to 70c.

(c) The company does not intend to allow its gearing level, measured as debt finance as a proportion of equity capital plus debt finance, to exceed 55% as at the end of any financial year. In addition, the company will not accept any dilution in earnings per share.

Assume that the rate of taxation will remain at 16.5% and that debt interest costs will be $6 million plus the interest cost of any new debt capital.

Required

(a) Produce a profit forecast for next year, assuming that the new project is undertaken and is financed (i) by debt capital or (ii) by a rights issue.

(b) Calculate the earnings per share next year, with each financing method.

(c) Calculate the effect on gearing as at the end of next year, with each financing method.

(d) Explain whether either or both methods of funding would be acceptable.

Solution

Current earnings per share are $\frac{\$12.52 \text{ million}}{10 \text{ million shares}} = \$1.252$

If the project is financed by $25 million of debt at 8%, interest charges will rise by $2 million. If the project is financed by a 1-for-4 rights issue, there will be 12.5 million shares in issue.

	Finance with debt	*Finance with rights issue*
	$m	$m
Profit before interest and tax (+ 5.0)	26.00	26.00
Interest	8.00	6.00
	18.00	20.00
Taxation (16.5%)	2.97	3.30
Profit after tax	15.03	16.70
Dividends (70c per share)	7.00	8.75
Retained profits	8.03	7.95
Earnings (profits after tax)	$15.03m	$16.70m
Number of shares	10 million	12.5 million
Earnings per share	$1.503	$1.336

The projected statement of financial position as at the end of the year will be:

	Finance with debt	*Finance with rights issue*
	$m	$m
Assets less current liabilities	183.03	182.95
(150 + new capital 25 + retained profits)		
Debt capital	(95.00)	(70.00)
	88.03	112.95
Share capital	20.00	45.00
Reserves	68.03	67.95
	88.03	112.95

	Finance with debt	*Finance with rights issue*
Debt capital	95.0	70.0
Debt capital plus equity finance	(95.0 + 88.03)	(70.0 + 112.95)
Gearing	51.9%	38.3%

Either financing method would be acceptable, since the company's requirements for no dilution in EPS would be met with a rights issue as well as by borrowing, and the company's requirement for the gearing level to remain below 55% is met even if the company were to borrow the money.

Chapter 1	Ethics in business
Section 7.6	**Latest developments in ESG reporting**
Page 29	Globally, there has been a marked increase in the amount of policy and regulation calling for ESG reporting. Most countries with policies in this area adopt a combination of laws, listing rules, 'comply or explain' and/or voluntary guidelines to regulate the disclosure of ESG information. HKEx believes that the long term benefits that ESG reporting can bring to issuers, as well as to the quality, sustainability and reputation of the Hong Kong market, outweigh any cost or other disadvantages. It is also seen as important for Hong Kong to align itself with international best practice in this area. To this end, on 21 December 2015, Hong Kong Exchanges and Clearing Ltd (HKEx) published its new requirements for ESG reporting in the 'Consultation Conclusions on Review of the Environmental, Social and Governance (ESG) Reporting Guide'. All companies listed on the HKEx are affected, and the new requirements apply to financial years commencing on or after January 2016. The main changes to the ESG Guide include: Issuers are now required to state in their annual reports or ESG reports whether they have complied with the 'comply or explain' requirement, and if not, to give reasons. The Guide has been re-arranged into two subject areas – (A) Environmental and (B) Social. The current subject areas 'Workplace Quality', 'Operating Practices' and 'Community Involvement', with some modifications, now come under Subject Area B. *Environmental* • Emissions • Use of resources • The environment and natural resources *Social* • Employment • Labour standards • Supply chain management • Anti-corruption • Health and safety • Development and training • Product responsibility • Community investment The original Guide was intended to be the first step in an evolutionary process, with the longer term goal of achieving better and more comprehensive ESG reporting by issuers. The emphasis of the new requirements is to raise the level of general obligation in ESG reporting, given that there was evidence that many issuers were waiting for the recommended disclosures of the ESG Guide to be upgraded to 'comply or explain' before they began to report. The previous version of the Guide recommended in general terms what the report disclosures should cover, and presented a list of suggested KPIs. These recommended General Disclosures have now been upgraded to 'comply or

explain' (in terms of compliance with relevant laws and regulations that have a significant impact on the issuer) with effect from 1 January 2016. It is intended that the requirement for companies to disclose information on their policies in respect of ESG issues, as well as their compliance records with relevant laws and regulations on a 'comply or explain' basis should enhance transparency and raise the overall level of communication.

The KPIs in the Environmental subject area have also been upgraded to 'comply or explain' and this will be effective for financial years commencing on or after 1 January 2017. The aim of this is to prompt companies to consider how their performance in respect of emissions, waste production and disposal, and use of resources impacts the environment, and how to minimise these impacts and communicate this information to stakeholders.

Whilst many issuers publish their ESG information as a part of the annual report, some opt for publishing this information on their websites or in standalone reports. A substantial number of issuers publish ESG information in more than one format. HKEx proposes to continue to allow multiple formats of ESG reporting so as to give issuers the flexibility to issue ESG reports in the form that best suits their circumstances.

Chapter 7	Treasury management
Section 4	**Promotion of Hong Kong as a regional hub of corporate treasury centres**
Page 262	A centralised corporate treasury centre carries out intra-group financing business and provides corporate treasury services and transactions. The corporate treasury function plays an important role in supporting the cash management and funding of international business activity, but the attractiveness of Hong Kong as a regional hub for corporate treasury centres has been undermined in recent years by the existing tax rules. However, as announced in the 2015-16 Budget, Hong Kong's Inland Revenue Ordinance has been amended in order to attract multinational and mainland corporations to centralise their treasury functions in Hong Kong, enhancing Hong Kong's development as an international financial centre, and making it more competitive with other regional hubs such as Singapore. Under the amended Ordinance, interest expenses related to intercompany borrowings will become tax deductible, provided that the corresponding interest income is taxed outside Hong Kong at the same or a higher rate. Corporations that make intercompany transfers within the same group through Hong Kong will not suffer a tax penalty for doing so. Additionally, profits tax for specified treasury activities undertaken by corporate treasury centres will be halved, from the regular Hong Kong corporate tax rate of 16.5% down to 8.25%. Companies will need to have set up a separate legal entity housing all their treasury activities in order to benefit from this new 8.25% tax rate, but unlike in Singapore there is no need to apply to get approval for corporate treasury centre status. The 8.25% tax rate will apply automatically when the tax return is submitted. Qualifying corporate treasury services include the following: • Managing cash and liquidity • Processing payments to vendors or suppliers • Managing relationships with financial institutions • Providing corporate finance advisory services • Advising on the investment of funds • Managing investor relations • Providing guarantees, performance bonds and other credit risk instruments • Providing advice on the management of interest rate risk • Providing assistance in mergers and acquisitions • Providing advice in regard to accounting policies, treasury policies and regulatory requirements • Providing operational advice on the treasury management system • Undertaking economic or investment research and analysis

Qualifying corporate treasury transactions include the following:

- Transactions related to the provision of guarantees, performance bonds, standby letters of credit or other credit risk instruments
- Transactions investing the funds of the corporation in deposits, certificates of deposit, bonds, notes, debentures, money market funds and other financial instruments
- Transactions entered into for the purpose of hedging interest rate risk, foreign exchange risk, liquidity risk, credit risk and commodity risk – including foreign exchange contracts, forward or futures contracts, swaps and options
- Transactions involving factoring or forfaiting activities

Chapter 11	Identifying, measuring and managing financial risks
Section 1.4.5 **Page 382**	**Measuring counterparty credit risk exposure** In April 2014 the Basel Committee on Banking Supervision (BCBS) issued an updated 'Supervisory framework for measuring and controlling large exposures', including the formulation for its Standardised Approach for measuring Counterparty Credit Risk (SA-CCR). Only contracts that are privately negotiated between counterparties, i.e. over-the-counter (OTC) derivatives, are subject to counterparty credit risk. Contracts that are traded on an exchange are not affected by counterparty risk, because the exchange guarantees the cash flows promised by the derivative to the counterparties. In formulating the SA-CCR, the Basel Committee's main objectives were to devise an approach that: • Is suitable for application to a wide variety of derivatives transactions (margined and unmargined) • Is capable of being implemented easily • Addresses deficiencies of existing methods • Draws on the prudential approaches of the Basel framework • Minimises the discretion available to national authorities and banks • Improves risk sensitivity This new framework is applicable to all internationally active banks, and is designed to provide guidance on the enhanced measurement of exposure, which will better reflect a bank's economic loss when a counterparty defaults. It also provides detailed guidance on the calculation of exposure measures for specific instruments. The Hong Kong Monetary Authority (HKMA) proposes to implement the new framework locally from 1 January 2018, after the appropriate consultation has been completed. Under the SA-CCR, an authorised institution (AI) will be required to calculate the amount of its CCR exposure in respect of its portfolio of derivative contracts with a counterparty as follows: CCR exposure amount = 1.4 * (RC + PFE) Where: • RC is the replacement cost • PFE is the potential future exposure Replacement cost is the cost facing the bank when a counterparty is unable to meet the terms of a contract, creating the need for a replacement contract. Potential future exposure is the bank's credit exposure on a future date, modelled with a specified confidence level. For example, a bank may have a 99% confident, 18-month PFE of HK$ 10 million. Another way of saying this is that 18 months into the future the bank is 99% confident that its gain on a particular contract will be HK$10 million or less, so that any default by the counterparty will expose it to a credit loss of HK$10 million or less.

Section 8.1

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Convention for quoting of exchange rates

The quoting of currency rates will follow international practice in the Module B examination as follows:

The base currency is the first currency quoted, and the counter currency is the second currency quoted.

So, a quotation £/HK$11.25 means that one pound is exchanged for 11.25 Hong Kong dollars. Here, £ is the base currency and HK$ is the counter currency. Major currencies, such as the euro and US dollar, are more likely to be the base currency in a currency pair.

Chapter 11 of the 2015 Learning Pack has been revised in order to be consistent with this approach, as detailed below.

Section 8.1.1

Page 393

Foreign exchange demand

If an importer has to pay a foreign supplier in a foreign currency, he might ask his bank to sell him the required amount of the currency. For example, suppose that a bank's customer, a Hong Kong trading company, has imported goods from a UK supplier for which it must now pay £100,000.

- The company will ask the bank to sell it £100,000 (if the company is buying currency, the bank is selling it)
- When the bank agrees to sell £100,000 to the company, it will tell the company what the spot rate of exchange will be for the transaction. If the bank's selling rate (called the '**offer**', or '**ask**' price) is, say £/HK$10.7935, the bank will charge the company:

  £100,000 × $10.7935 = $1,079,350

Similarly, if an exporter is paid £100,000 by a foreign customer in the UK, he may wish to exchange the sterling to obtain HK dollars. He will therefore ask his bank to buy the sterling from him. Since the exporter is selling currency to the bank, the bank is buying the currency.

If the bank quotes a buying rate (known as the **bid** price) of, say £/HK$10.6075, for the currency the bank will pay the exporter:

£100,000 × 10.6075 = $1,060,750

A bank expects to make a profit from selling and buying currency, and it does so by offering a rate for selling a currency that is different from the rate for buying the currency.

The figures used for illustration in the previous paragraphs show a bank selling some sterling for $1,079,350 and buying the same quantity of sterling for $1,060,750, at selling and buying rates that might be in use at the same time. The bank would make a profit of $18,600.

Section 8.2.1

Page 395

Onshore (CNY) and offshore (CNH) renminbi exchange rates

The People's Republic of China sets a daily reference rate for the CNY against the US dollar and investors are allowed to push the currency up or down by only 2% from that point. The onshore CNY market is highly regulated in mainland China and access to it is restricted.

The PRC has been pursuing the internationalisation of the Chinese yuan or renminbi (CNY) since July 2010, when the People's Bank of China (PBoC) and the HKMA announced the creation of the offshore market for renminbi, dubbed the 'CNH' market. CNH trades outside China, chiefly in Hong Kong, and is not

subject to a trading band. It can be accessed by any offshore entities or individual investor for any purpose such as trade settlement, investment and hedging. The exchange rate is determined by market forces and free from intervention by the PBoC or the HKMA. In settling trades in renminbi, many overseas companies will accept CNY payments from Chinese importers and change them into dollars by selling their renminbi in Hong Kong at the CNH rate.

The pricing difference between the onshore and offshore rate reflects restrictions on onshore foreign exchange trading, and barriers to cross-border renminbi movements. The PBoC and the State Administration of Foreign Exchange regulate renminbi flows between onshore and offshore accounts and are able to affect the supply and liquidity of CNH, as well as the alignment between the CNH and CNY rates.

In theory, any pricing differential can be used to create arbitrage opportunities. If as an example the US$/CNH exchange rate is lower than US$/CNY, arbitrage opportunities between CNY and CNH will arise if traders can bring CNY to an offshore centre. It works like this:

1. In mainland China, a trader borrows US$1.0 million and converts to CNY at exchange rate 6.20, receiving CNY6.2 million.
2. He then imports goods from a business partner in Hong Kong and settles those imports with the borrowed CNY6.2 million. In this way, CNY6.2 million flows to Hong Kong and becomes CNH.
3. The business partner then converts that CNY6.2 million to US$ in Hong Kong. Assuming US$/CNH 6.15, the subsidiary will get US$1,008,130.
4. Finally the trader exports the same goods to Hong Kong, which are settled in US$. In this way, US$1,008,130 flows into mainland China and the trader completes the whole deal with a profit at US$8,130.

In practice the gap between the CNY and CNH, while historically volatile, has been shrinking recently.

Section 8.2.2 **Example: Interest rate parity**

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The spot exchange rate between two currencies, the Southland dollar (S$) and the Northland florin (NF), is listed in the financial press as follows:

S$/NF4.725

That is, 1 Southland dollar is worth 4.725 Northland florins (and conversely, 1 Northland florin is worth 0.21164 Southland dollars).

The money market interest rate for 90-day deposits in Northland florins is 7.5% annualised and for the Southland dollar it is 5.3%. Assume a 365-day year. (In practice, foreign currency interest rates are often calculated on an alternative 360-day basis, one month being treated as 30 days.)

What will be the 90-day forward exchange rate between the two currencies?

What is implied about interest rates in Southland?

Today S$1,000 buys NF4,725.

(a) If S$1,000 is placed on deposit for 90 days at 5.3%, the value of the deposit after 90 days would be: S$1,000 + ($1,000 \times 0.053 \times {}^{90}/_{365}$) = $1,013.07.

(b) If NF4,725 is placed on deposit for 90 days at 7.5%, the value of the deposit after 90 days would be: NF4,725 + ($4,725 \times 0.075 \times {}^{90}/_{365}$) = NF4,725 + NF87.38 = NF4,812.38.

The foreign exchange markets would ensure that these values are equivalent, which means that the 90-day forward exchange rate must be:

(a) 4,812.38/1,013.07 = S$1/NF4.7503
(b) 1,013.07/4,812.4 = NF1/S$0.2105

Alternative method of calculation:

90-day interest rate for the NF = 7.5% $\times$ $^{90}/_{365}$ = 1.85% = 0.018493

90-day interest rate for the S$ = 5.3% $\times$ $^{90}/_{365}$ = 1.31% = 0.0130685

Forward exchange rate =

$$\frac{1+0.018493}{1+0.0130685} \times 4.725 = \text{NF4.7503 to S\$1}$$

Or:

$$\frac{1+0.0130685}{1+0.018493} \times 0.21164 = \text{S\$0.2105 to NF1}$$

Section 8.3.5

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Illustration: Netting

A and B are respectively Hong Kong and US based subsidiaries of a Swiss holding company. At 31 March, A owed B CHF300,000 and B owed A CHF220,000. Netting can reduce the value of the inter-company debts as the two inter-company balances are set against each other, leaving a net debt owed by A to B of CHF80,000 (i.e. CHF300,000 – CHF220,000).

Section 8.4.1

Page 402

Forward exchange rates

A forward exchange rate may be higher or lower than the spot rate. If it is higher, the quoted currency will be cheaper forward than spot. For example, if in the case of £ sterling/Swiss francs (GBP/CHF):

- The spot rate is: 2.1560 – 2.1660
- The three months forward rate is: 2.2070 – 2.2220
- A bank would sell CHF2,000 at the spot rate, now, for CHF2,000/2.1560 = GBP927.64 or in three months' time, under a forward contract, for CHF2,000/2.2070 = GBP906.21
- A bank would buy CHF2,000 at the spot rate, now, for CHF2,000/2.1660 = GBP923.36 or in three months' time, under a forward contract, for CHF2,000/2.2220 = GBP900.09

In both cases, the quoted currency (Swiss franc) would be worth less against pound sterling in a forward contract than at the current spot rate. This is because it is quoted forward 'at a discount', against pound sterling. Therefore, if the forward rate is higher than the spot rate, then it is trading 'at a discount' to the spot rate.

Section 8.4.2 **Illustration: Forward exchange contracts**

Page 402

A Hong Kong importer knows on 1 April that he must pay a foreign seller 2.65 million dinars in one month's time, on 1 May. He can arrange a forward exchange contract with his bank on 1 April, whereby the bank undertakes to sell 2.65 million dinars to the importer on 1 May, at a fixed rate of (say) HK$1/dinars 2.64.

The Hong Kong importer can be certain that whatever the spot rate is between HK$ and dinars on 1 May, he will have to pay on that date, at this forward rate:

$$\frac{\text{Dinars } 2.65\text{m}}{2.64} = \text{HK\$1,003,788}$$

- If the spot rate is lower than HK$1/dinars 2.64, the importer would have successfully protected himself against a weakening of the dollar, and would have avoided paying more $ to obtain the dinars.
- If the spot rate is higher than HK$1/dinars 2.64, the value of the dollar against the dinar would mean that the importer would pay more under the forward exchange contract than he would have had to pay if he had obtained the dinars at the spot rate on 1 May. He cannot avoid this extra cost, because a forward contract is a binding contract.

Section 8.5.1 **Illustration: Money market hedge (Hong Kong importer)**

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A Hong Kong company owes a French supplier (i.e. creditor) €1 million in three months' time. Relevant data are:

Spot rate: € / HK$ 11.60 – 11.80

Interest rates	*Deposit* %	*Borrow* %
Hong Kong	2	3
France (euro)	4	5

The process will be:

- Today: borrow dollars, exchange into euros and deposit euros
- For period until settlement of transaction: pay interest on dollar borrowing, receive interest on euros deposit
- On settlement date: use deposit of euros to pay supplier
- Effective exchange rate is the dollars borrowing/euros deposit

The interest rates for three months are 0.75% to borrow in dollars (i.e. 3%/4) and 1% to deposit in euros (i.e. 4%/4). The company needs to deposit enough euros now so that the total including interest will be €1 million in three months' time. This means depositing €1m/(1 + 0.01) = €990,099.

These euros will cost $11,683,168 (spot rate 11.80). The company must borrow this amount and, with three months' interest of 0.75%, will have to repay $11,683,168 × (1 + 0.0075) = $11,770,792.

Therefore, in three months, the French creditor will be paid out of the French bank account and the company will effectively be paying $11,770,792 to satisfy this debt. The effective forward rate which the company has 'manufactured' is $11,770,792/€1m = € / HK$ 11.7708. This effective forward rate shows the euros at a discount to the dollar because the euro interest rate is higher than the dollar rate. The foreign currency asset hedges the foreign currency liability.

Diagrammatically this could be shown as:

		Exchanged @ 11.80		
	$		€	
Today	11,683,168		990,099	Today
Borrowed at 3% for 3 months (i.e. 3% × $^{3}/_{12}$)	↓↓		↓↓	Deposited at 4% for 3 months (i.e. 4% × $^{3}/_{12}$)
3 months	11,770,792		1,000,000	3 months
		Effective rate = 11.7708		Paid to supplier

Section 8.5.2

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Illustration: Money market hedge (Hong Kong exporter)

A Hong Kong company is due to receive €1 million from a French customer (i.e. debtor) in three months' time. Relevant data are the same as the previous example:

Spot rate: € / HK$ 11.60 – 11.80

Interest rates	*Deposit* %	*Borrow* %
Hong Kong	2	3
France (euro)	4	5

The process will be:

- Today: borrow euros, exchange into dollars and deposit dollars
- For period until settlement of transaction: pay interest on euros borrowing, receive interest on dollars deposit
- On settlement date: payment from customer used to pay off euros borrowing
- Effective exchange rate is the dollars deposit/euros borrowing.

The interest rates for three months are 0.5% to deposit in dollars (i.e. 2%/4) and 1.25% to borrow in euros (i.e. 5%/4). The company needs to borrow €1m/1.0125 = €987,654 today. These euros will be converted to $11,456,790 (i.e. €987,654 × $11.60). The company must deposit this amount and, with three months' interest of 2.00%, will have earned $11,456,790 × (1 + 0.005) = $11,514,074.

Therefore, in three months, the loan will be paid out of the proceeds from the French debtor and the company will receive $11,514,074. The effective forward rate which the company has 'manufactured' is $11,514,074 / €1m = € / HK$ 11.5141. This effective forward rate shows the euro at a discount to the dollar because the euro interest rate is higher than the dollar rate.
Diagrammatically this could be shown as:

		Exchanged @ 11.60		
	$		€	
Today	11,456,790		987,654	Today
Deposited at 2% for 3 months (i.e. 2% × $^{3}/_{12}$)	↓↓		↓↓	Borrowed at 5% for 3 months (i.e. 5% × $^{3}/_{12}$)
3 months	11,514,074		1,000,000	3 months
		Effective rate = 11.5141		Received from customer

Section 8.6

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Example: Currency futures contract

A US company buys goods worth €720,000 from a German company payable in 30 days. The US company wants to hedge against the euro strengthening against the US dollar. Relevant data are:

- The current spot rate is €1/ US$ 1.3215 – 1.3221. The € futures price is €1/US$ 1.3245.
- The standard size of a three-month euro futures contract is €125,000 (in exchange for US dollars)
- In 30 days' time the spot rate is €1/US$ 1.3345 – 1.3351
- Assume that the futures price after 30 days is €1/US$ 1.3367.

Required

Evaluate the hedge.

Approach

(1) Importing or exporting?

Importing

(2) What is the exposure to currency risk?

The US company has an exposure of €0.72 million

(3) What is the risk?

If the euro appreciates in value (spot rate) against US$ in the next 30 days, the payment in euros will cost more in US dollars, unless the exposure to currency risk is hedged.

(4) Buy or sell futures?

If the euro appreciates in value against the US dollar, the US company will make a loss on the exchange rate movement. The hedge with futures should therefore ensure that if the euro appreciates in value against the US dollar the company will make a profit on its futures position. The profit made on the futures should offset the loss on the underlying trading position and the risk is hedged. As an importer in this example, the contract currency is euros, so the company will buy euros futures at a price of €1/US$ 1.3245

Note. Another way of looking at this is that in order to pay for the goods the US company will need to **buy** euros, hence it needs to **buy** euros futures.

(5) Which futures contract?

The company should buy futures with the first settlement date after the date for the payment of the €0.72 million. (This may be March, June, September or December futures.)

(6) How many contracts and tick value?

Divide the foreign currency exposure by the contract size. This gives the number of contracts, but remember futures can only be bought or sold as whole numbers of contracts.

$$\frac{€0.72m}{€125,000} = 5.76, \text{ rounded up to 6 contracts}$$

The value of one tick is the change in the value of a futures contract from a movement in the price by one tick (= US$0.0001). Price in US$, tick value = US$12.50 (= US$0.0001 × €125,000) per contract.

(7) In 30 days' time when the supplier payment must be made, the company should 'close out' its futures position by selling six futures contracts (for the same settlement date as the futures that were originally bought). When a position is closed there is a net gain or loss on the futures transaction.

Hedge outcome

Outcome in futures market:

Opening futures price	€1/US$ 1.3245	Buy at lower price
Closing futures price	€1/US$ 1.3367	Sell at higher price
Movement in ticks	122 ticks	Profit

Futures profit = 122 × $12.50 × 6 contracts = $9,150

(8) Calculate the final position.

In 30 days' time, the company buys the required € at the spot rate in order to pay the supplier.

If the euro has appreciated against US dollar, as feared, the euros payment will be more expensive, however this will be offset by any profit on the futures contracts. (Conversely, if the euro has depreciated against the US dollar, the cheaper cost of buying the currency would be offset by a loss on the futures contracts.)

Net outcome

	US$
Spot market payment (€720,000 at €1/US$1.3351)	961,272
Futures market profit	(9,150)
	952,122

This is close to the target exchange rate that was the spot rate on the day the original transaction took place (i.e. €1/US$1.3221) and which would have cost US$951,912.

Section 8.7.2

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Illustration: Currency option

Caldwell Ltd is a Hong Kong based company that exports goods to the Middle East. The company is tendering for a contract to supply specialist electronic equipment to the Government of Saudi Arabia. The tender is to be submitted in the near future, with the tender price quoted in Saudi Arabian riyals. The Government's decision will be made after two months and the time period for delivery of the equipment will be a further two months after the contract is signed. The contract price will be paid on delivery.

Caldwell's management would like to put in a competitive tender price, giving the company a 25% mark-up on incremental costs of $14.75 million. All Caldwell's costs will be incurred in $. The company wishes to minimise its exposure to short-term exchange rate movements. The order for the Saudi Arabian Government has been priced using a comparatively low profit mark-up because of the extremely competitive nature of the business. As a result the management is particularly concerned that unexpected movements in the exchange rate could eliminate the company's profit on the order.

The current spot exchange rate is riyal/HK$2.1246, but the company is concerned that the riyal may weaken. The company's bankers are prepared to sell Caldwell an option to sell riyal at riyal/HK$2.0798 to be exercised at any time over a 14-day period starting in four months' time. The cost of this option is

4.92 Hong Kong cents per riyal covered and payable in advance.

How could Caldwell use the currency option to hedge its exposure, and illustrate by considering the financial outcome if the riyal/HK$ exchange rate moves in four months' time to HK$1.93 or HK$2.22. (Consider both that Caldwell is awarded the contract and that Caldwell is not awarded the contract.)

Note. Since the Hong Kong dollar is pegged against the US dollar, Caldwell could have hedged its exposure by dealing in US dollar options.

As an exporter due to receive a large sum in a foreign currency in four months' time Caldwell does not want the riyal to weaken (i.e. does not want the dollar to strengthen) so the company can take up a position such that if the dollar does strengthen it will make a profit on the options deal. To do this Caldwell should buy a dollar call option. (An alternative strategy would be to buy a riyal put option. Buying a dollar call and selling a riyal put are effectively the same thing.)

Since an option is the right but not the obligation to buy or sell Caldwell does not have to exercise its option if it is not awarded the contract. Given the company's contingent exposure an option may be the preferred hedging strategy.

Approach

(1) Importing or exporting?

Exporting

(2) What is the value of currency that is exposed?

Riyals 8,865,035 (**)

(**) Caldwell's incremental costs are $14.75 million. A 25% mark-up gives a target sales price of $14.75m × 1.25 = $18.4375 million. This gives a target profit on the contract of $18.4375m – $14.75m = $3.6875 million. At the option price offered (riyal/HK$2.0798) the tender price should be $18.4375m/2.0798 = riyals 8,865,035.

(3) What is the risk?

Caldwell will receive income from this contract in riyals, but its costs are in dollar. If the riyal depreciates against the dollar, the profit margin (which is not very large) could be eroded or lost.

(4) Buy a call or a put option?

The risk is that the riyal will fall in value against the dollar. The company will be selling its receipts in riyals in exchange for dollars. It should therefore buy a put option on riyals (or buy a call option on dollars) at a price of riyal/HK$2.0798.

(5) Expiry date for the option?

The option is an over-the-counter option, so the company should select as the exercise date a date by which time it will know whether or not it has won the contract. This will be in about four months' time.

Caldwell should therefore purchase an option to sell 8,865,035 riyals at riyal/HK$2.0798 for $18.4375 million. (If the contract is won, then in four months' time Caldwell will receive 8,865,035 riyals from the customer which it will want to exchange into dollars.)

(6) What premium is payable?

Premium = 4.92 cents × 8,865,035 = $436,160

Outcome

If the company wins the contract and receives 8,865,035 riyals, it has a choice between:

(a) Letting the option lapse at expiry and selling the riyals at the current spot exchange rate, and

(b) Exercising the option to sell 8,865,035 riyals at the option exercise price of HK$2.0798.

	Scenario 1	*Scenario 2*
Exchange rate – date of receipt	1.93	2.22
Exercise HK$2.0798 option?	Yes	No
	$	$
Cash receipt	18,437,500	19,680,378
Contract costs	(14,750,000)	(14,750,000)
Option premium cost	(436,160)	(436,160)
Profit	3,251,340	4,494,218

If the option is exercised, the contract net profit (after payment of the option premium) is fixed at a minimum of $3,251,340.

Without the option or any other form of cover if the exchange rate moved to HK$1.93, the net contract profit would have been only $(17.109518m – 14.75m – 0.43616m) = $1,923,358.

If the contract is not won, it would still be worthwhile exercising the option if the spot rate is HK$1.93. The option would enable the company to make 'windfall' exchange gains of $18.4375m – (8,865,035 × 1.93) = $1,327,982. From this the cost of the option, the option premium of $436,160, must be deducted to give a net exchange gain of $891,822. However, a loss equal to the premium of $436,160 is payable if the exchange rate is HK$2.22. This would have been avoided if no cover had been taken out.

Section 8.8

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Currency swaps

Consider a UK company 'X' with a subsidiary 'Y' in France that owns vineyards. Assume a spot rate of £1/€1.6. Suppose the parent company 'X' wishes to raise a loan of €1.6 million for the purpose of buying another French wine company. At the same time, the French subsidiary 'Y' wishes to raise £1 million to pay for new up-to-date capital equipment imported from the UK. The UK parent company 'X' could borrow the £1 million and the French subsidiary 'Y' could borrow the €1.6 million, each effectively borrowing on the other's behalf. They would then swap currencies.

Section 8.8.1

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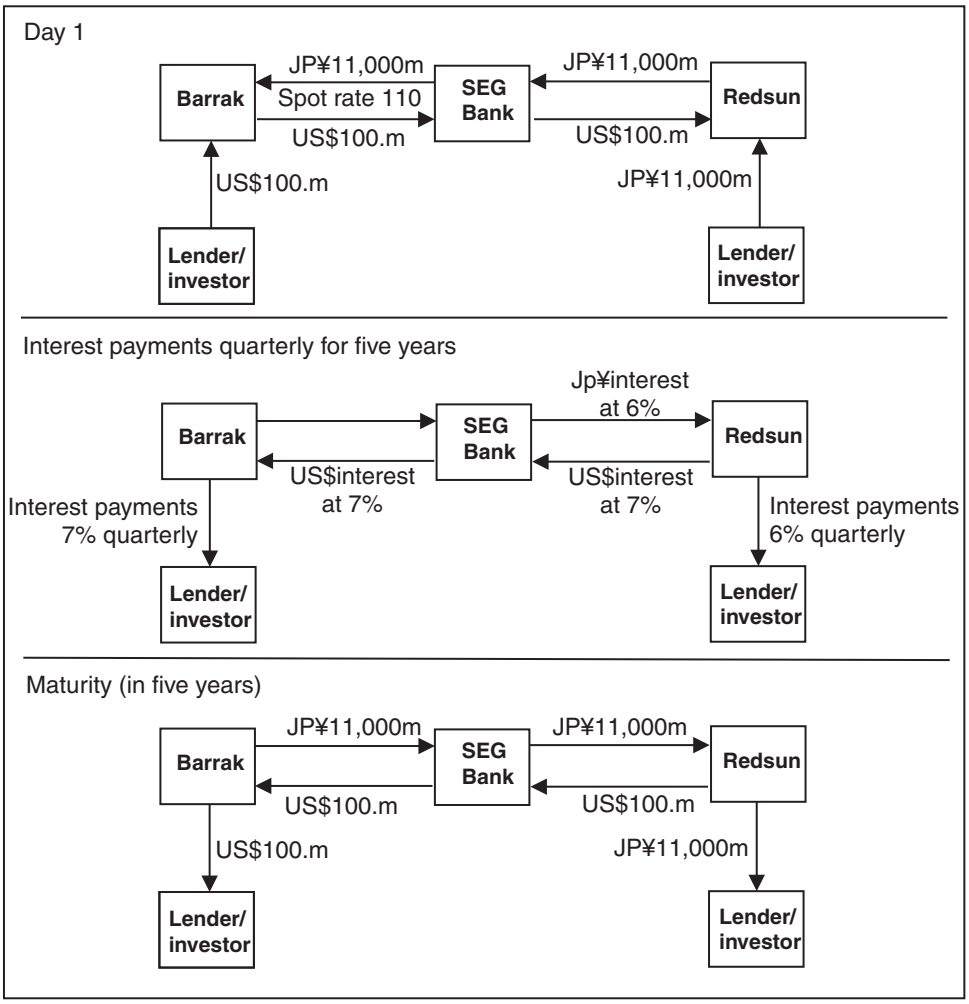
Illustration: Currency swap using a bank as counterparty

A Japanese company Redsun Ltd wants to borrow US$100 million for five years and a US company Barrak Corp. wants to borrow JP¥ 11,000 million, also for five years. SEG Bank is aware of the borrowing requirements of the two companies, and is also aware that Redsun could borrow in yen at a lower interest rate than Barrak, and Barrak could borrow at a lower interest rate than Redsun in US dollars. The current exchange rate is US$1/JP¥110.

SEG Bank therefore sees an opportunity for a currency swap. Under the swap agreement, the bank would match the needs of the two companies, acting as an intermediary. There would be an agreement on:

- the amount of the principal to swap and the exchange rate. Barrak Corp. will borrow US$100 million and Redsun will borrow JP¥ 11,000 million, and they will exchange these amounts on day 1 of the swap. It is assumed that Barrak will pay interest at 7% on the dollar loan and Redsun will pay interest at 6% on the yen loan.
- the period of the agreement. The swap will be for five years.
- the swap interest rates payable. Here it is assumed for simplicity that Barrak will pay 6% on the JP¥ 11,000 million received and Redsun will pay 7% interest on the dollars received in the swap.
- the frequency of the exchange of interest. Here it is assumed that interest payments will be exchanged under the swap agreement every three months.

A swap transaction would be completed as shown in the following diagram (ignoring the profit margin for SEG Bank on the transaction):



Ignore bank's profit

Day 1: Barrak borrows US$100 million and Redsun borrows JP¥ 11,000 million and they swap these amounts.

Every quarter, Redsun pays interest to Barrak at 7% on US$100 million, and Barrak uses this payment to make the interest payments on its US dollar loan. Barrak pays Redsun interest at 6% on JP¥ 11,000 million and Redsun uses this income to make the interest payments on its yen loan.

At the end of year 5 (end of the swap): The two companies re-exchange the capital amounts. Barrak pays JP¥ 11,000 million to Redsun and Redsun uses this to pay back the yen loan. Redsun pays US$100 million to Barrak, and Barrak uses this to pay back its dollar loan.

The effect of the swap has been that in effect, Barrak has borrowed for five years in yen, and Redsun has borrowed for five years in US dollars, although the actual loans were in dollars for Barrak and yen for Redsun.

Exam practice question – DEF

Page 430

DEF is a UK company that regularly trades with companies in the United States. It has a number of transactions listed below, the cash settlement of which will be due in six months:

Receipts from US	US$6 million
Payment to US	US$10 million

The CEO of the company would like to hedge its US$ exposure by either a forward contract or money market hedge. Relevant information is provided below:

(i) Spot: £/US$1.558
(ii) 6 month forward rate: £/US$1.500
(iii) 6 month interest rates to DEF:

	Borrow (%)	Investing (%)
£	6.5	5
US$	6.0	4

Required

Assume you are the CFO of DEF:

(a) Advise the CEO which alternative should be used. Show all relevant calculations. **(10 marks)**

(b) The company is also considering using options to hedge its exposure going forward. Discuss the advantages and disadvantages of currency options as a hedging tool compared with forward contracts. **(5 marks)**

(Total = 15 marks)

HKICPA June 2012

Exam practice question – Tin Tin Trading

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Tin Tin Trading (TTT) Limited is expecting to receive 20 million Foreign Currency (FC$) in three months' time. The current spot rate is HK$/FC$ 23.2060 – 23.2298 (bank sell/bank buy).

Required

Estimate the net benefit/costs if the receipts are hedged by using an over-the-counter option from the bank, exercise price HK$/FC$23.16, premium cost 14.4 HK cents per 100 FC$ and the spot rate in the three months moves to:

(a) HK$/FC$25.2000 **(5 marks)**

(b) HK$/FC$21.1200 **(5 marks)**

(c) In addition to over-the-counter options, certain currency options are traded in the market. What are the advantages and disadvantages of hedging using a 'traded' currency option over a forward contract? **(8 marks)**

HKICPA December 2012

Answer to exam practice question – DEF

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(a) Net US$ exposure = $10,000,000 – $6,000,000 = $4,000,000

Forward contract

Cost (£) = US$ 4,000,000 / 1.5 = £2,666,667

Money market hedge

1. Borrow £ now at 6.5%: US$4,000,000/1.04/1.558 = £2,468,648
2. Convert to US$ at spot = 2,468,648 × 1.558 = US$3,846,154
3. At the end of 6 months, US$ available = US$ 3,846,154 × 1.04 = US$4,000,000
4. At the end of 6 months, total £ cost =£2,468,648 × 1.065 = £2,629,110

The cost of a money market hedge is lower by (2,666,667 – 2,629,110) = £37,557.

So use a money market hedge.

(b) **Merits of currency options**

- Opportunity to capture profits when currency moves in favourable direction.
- It is a right, not an obligation, therefore offers flexibility.
- Can close out position before expiry date.
- OTC option can provide a fully hedged arrangement.

Disadvantages

- Option premium is expensive.
- Premium must be paid up front.
- Due to contract size, not all currency exposure can be fully hedged.
- Only options for major currencies are available.

Answer to exam practice question – Tin Tin Trading

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	(a)	(b)
HK$/FC$ spot rate	25.2	21.12
Foreign currency receipts	FC$20m	FC$20m
Premium (HK$ per 100 FC$)	0.144	0.144
Option exercise price (HK$/FC$)	23.16	23.16
When there is no hedging		
Actual receipts		
	HK$793,651	HK$946,970
When option is purchased as hedge:		
Premium paid (FC$20m/100 × 14.4c)	HK$28,800	HK$28,800
Actual receipts * / +	HK$863,558	HK$946,970
Net receipts	HK$834,758	HK$918,170
Net benefit/(cost) over no hedging	HK$41,107	(HK$28,800)

* Since the option is in the money, it is exercised

+ Since the option is out of the money, it is not exercised

Chapter 16	Financial markets

Section 10

Page 600

Obligation to centrally clear certain classes of over-the-counter (OTC) derivatives contracts

OTC markets facilitate the hedging of risk, but OTC derivatives contracts often have bespoke terms. This gives rise to the risk that a counterparty will fail to meet its obligations under the contract, and the non-defaulting party is exposed to losses due to adverse price movements in the value of the contract until it is able to find a new counterparty. This risk is particularly significant in OTC derivatives contracts, because they may have a term of many years.

This risk can be mitigated by using a central counterparty (CCP) to centrally clear the transaction. Central counterparties already exist for exchange traded derivatives such as futures, and so the same type of arrangement can be extended to standardised OTC transactions. The CCP acts as buyer to every seller, and seller to every buyer, simplifying the network of exposures within the system. Each market participant has an aggregate counterparty exposure to the CCP. This can be preferable to multiple exposures across a range of other, possibly less creditworthy, counterparties.

Central clearing is therefore recognised as a key way to manage risk. Following the financial crisis of 2007-09, G20 leaders agreed to reform the structure of OTC derivatives markets, requiring that contracts which are sufficiently standardised be centrally cleared.

In Europe, the framework for this obligation is established by the European Market Infrastructure Regulation, commonly known as EMIR.

The rules introduce new requirements to improve transparency and reduce the risks associated with the derivatives market by including the obligation to centrally clear certain classes of OTC derivative contracts through CCPs, or apply risk mitigation techniques when they are not.

It requires entities that enter into any form of derivative contract, including interest rate, foreign exchange, equity, credit and commodity derivatives, to:

- Report every derivative contract that they enter into to a trade repository;
- Use a CCP to clear those OTC derivatives that are subject to a mandatory clearing obligation; and
- Implement new risk management standards, including operational processes and exchange of margins, for all bilateral OTC derivatives that are not cleared by a CCP.

A CCP manages the counterparty credit risk that it faces in a number of ways.

- Application of strict membership criteria to would-be participants
- Clearing members provide 'margin' (collateral) in the form of cash or other liquid assets to offset the risks related to their exposures
- Clearing members collect margin from clients to manage their own counterparty exposure
- Clearing members contribute to a mutual default fund, which protects the CCP in the event that the margin it holds is insufficient to cover losses

Margin is provided in two forms: 'initial margin' is posted at the beginning of a transaction to cover potential future adverse changes in the value of the contract, and is recalculated on a regular basis. Additional 'variation margin' is posted to cover actual adverse changes in the market value of the contract during its life.

Although not a member of the G20, Hong Kong has closely followed the proposals. On 30 September 2015, the HKMA and SFC published their proposed steps in the regulation of OTC derivative transactions, being:

Phase 1: mandatory clearing of certain derivative trades, and

Phase 2: a broader mandatory reporting requirement.

As a result of these rules, clearing is required for OTC products in Hong Kong for the first time. Specified OTC derivative transactions must be cleared, and are initially proposed to cover interest rate swaps. Prescribed persons (being authorised financial institutions, licensed corporations and approved money brokers) must clear any specified OTC derivative transactions with a designated CCP within one business day.

Chapter 20	Business failure and insolvency

Section 3 **HKMA document on recovery planning**

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In 2014, the Hong Kong Monetary Authority issued a supervisory policy providing guidance to authorised institutions on the key elements of effective recovery planning for banks, and setting out the HKMA's approach to reviewing such recovery plans, which must be submitted to the HKMA on a regular basis.

The policy sets out the following key elements in recovery planning:

Governance structure and oversight

Recovery plans need to include clear details of governance over all stages of the plan, with assigned responsibilities and decision making processes. The plan should form part of a bank's overall risk management framework.

Identification of core businesses, material entities, critical functions and critical shared services

This is a key step, as it forms the basis for establishing recovery priorities. Qualitative and quantitative assessment criteria should be established for the identification of core business functions. A significant amount of management judgement is likely to be required.

Stress scenarios

These should be built in order to assess the effectiveness of the recovery plan. Scenarios are likely to be severe in nature, and should encompass those that would be specific to the bank, as well as those that are market-wide.

Recovery triggers

A 'trigger framework' should be developed within the existing risk management framework that can help to identify risks before a severe crisis occurs, comprising qualitative and quantitative indicators that are appropriate for the bank's own business and range of operations.

Recovery options

Banks should identify and develop a full set of options that can help to restore liquidity, capital levels and, ultimately, going concern viability. Recovery options should not take more than six months to take effect. Banks need to take a long term view of their business viability, and not focus purely upon short term stresses.

Disposal options

Disposal of a part or the whole of a bank or its business or assets needs to be included as an option, including unfavourable 'fire sales'. The plan should include sufficient details of the actions required should disposal be necessary.

Eligibility for central banking facilities

Banks should not assume any public support for the purposes of their recovery planning, and should not regard 'lender of last resort' support from the HKMA as their prime option. However, 'lender of last resort' support may be available in some circumstances, and banks need to give consideration to the circumstances in which such support may be required. They should include information that can help with an assessment of their eligibility.

Communication plan

A communication plan should be drawn up for each recovery option. The communications strategy should include identification of key stakeholders, the approach to communications and the staff who will be involved. The bank should also consider the impact that any implementation of a recovery plan, and its communication, will have upon the reputation of the bank.