9

Complex Group Structures

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9

Learning Outcome

After studying this chapter students should be able to:

- prepare a consolidated income statement and statement of financial position for a group of entities.

9.1 Introduction

Our study of consolidated accounts to date has confined itself to situations where the investments in group entities (whether they be subsidiaries, associates or joint ventures) have been made by the parent entity. Groups where this is the case have a relatively simple structure. In this chapter, we will consider groups where investments in a particular entity are made in whole or in part by an entity other than the parent entity.

The chapter proceeds as follows: Section 9.2 covers complex groups that include sub-subsidiary interests. Section 9.3 looks at mixed groups of entities, that is those in which a parent holds both a direct and indirect investment in a particular entity. Section 9.4 examines a further complexity which arises where a parent has an indirect investment in an associate or joint venture.

9.2 Accounting for sub-subsidiaries

9.2.1 The basics of preparation of the consolidated accounts

The term 'sub-subsidiary' refers to a situation where the ultimate parent P has a subsidiary H and H itself has a subsidiary S. S is regarded as a subsidiary of P as well as a subsidiary of H and must therefore be line-by-line consolidated in P's consolidated financial statements. For accounting purposes, we refer to S as a *sub-subsidiary* of P.

The fact that S is a sub-subsidiary does *not* affect the manner in which it is consolidated. However, certain matters do need to be treated with particular care:

- the computation of the non-controlling interest in the sub-subsidiary;
- the effective date of acquisition of the sub-subsidiary;

- the computation of the goodwill on consolidation of the sub-subsidiary;
- the elimination of intra-group investments and investment income when computing the non-controlling in the *subsidiary*.

Example 9.A

- P made a 75% investment of $20 million in H on 31.12.W6 when the net assets of H were $24 million (issued capital $12 million plus retained earnings $12 million).
- On 31.12.W7 H made a 60% investment of $10 million in S when the net assets of S were $15 million (issued capital $10 million plus retained earnings $5 million).
- None of the entities has issued new shares since 31.12.W6.
- There has been no impairment of goodwill since the acquisitions.
- The group policy is to value non-controlling interest at the proportionate share of net assets of the subsidiary.
- The summarised statement of financial position of the three entities at 31.12.X0 (the latest statement of financial position date) were as shown below:

	P	*H*	*S*
	$m	$m	$m
Investments in subsidiaries	20	10	–
Non-current assets	30	20	20
Net current assets	10	6	5
	60	36	25
Issued capital	30	12	10
Retained earnings	30	24	15
	60	36	25

Solution

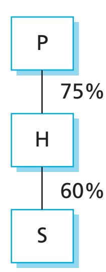
The summarised consolidated statement of financial position of the P group at 31.12.X0, together with appropriate workings, is:

	$'000	*Comment*
Goodwill on consolidation	2,750	W2
Non-current assets	70,000	Simple aggregation of P, H and S
Net current assets	21,000	Simple aggregation of P, H and S
	93,750	
Issued capital	30,000	P only
Retained earnings	43,500	W3
	73,500	
Non-controlling interests	20,250	W1
	93,750	

Workings

1. *Non-controlling interests*

The overall group structure is shown in the diagram below:



Therefore the effective interest of P in S is (75% × 60% =) 45%. The non-controlling interest is 55%. The non-controlling interest in S should be based on this effective interest of 55%.

The non-controlling interest calculation for H will *not* attribute any of the investment in S to the non-controlling interest. This is because the investment in S does not appear in the consolidated statement of financial position and the purpose of the non-controlling interest calculation is to compute their interest in the net assets that *do* appear there. The cost of the investment in the subsidiary is therefore deducted from the NCI calculation. Therefore the non-controlling interest calculation is:

- In H: 25% × ($36m − $10m) = $6.5m.
- In S: 55% × $25m = $13.75m.

So the total non-controlling interest is $20.25 million ($6.5m + $13.75m).

2. *Goodwill on consolidation*

	P in H	*H in S*
	$'000	$'000
Cost of investment	20,000	10,000
Investing entity share (75%/60%) of net assets at date of investment	(18,000)	(9,000)
Goodwill	2,000	1,000
Amount attributable to P – the ultimate parent (see below)	2,000	750

The total for goodwill is $2m + $750,000 = $2,750,000. Notice the two-stage approach to the calculation of goodwill relating to S in P's consolidated accounts. First we calculate the goodwill relating to H's investment in S (of 60%). Then we relate the goodwill we have calculated to the *effective* interest of P in S: (75% × 60% =) 45%. P's share of the goodwill being 75% × 1,000,000.

3. *Retained earnings*
   The consolidated retained earnings figure is:

	$'000
From P	30,000
From H [75% × ($24m − 12m)]	9,000
From S [45% × ($15m − $5m)]	4,500
	43,500

The key factor to bear in mind when preparing the consolidated income statement is to use the correct percentage when computing the non-controlling interest in the sub-subsidiary. It is also necessary to eliminate any intra-group investment income when computing the non-controlling interest in the *subsidiary*.

The income statements of P, H and S for the year ended 31 December 20X0 are as follows:

	P	*H*	*S*
	$m	$m	$m
Revenue	100	80	60
Cost of sales	(50)	(40)	(30)
Gross profit	50	40	30
Other operating expenses	(25)	(20)	(15)
Investment income (intra-group)	6	3	–
Profit before tax	31	23	15
Income tax expense	(9)	(6)	(5)
Profit for the period	22	17	10

Solution

Consolidated income statement for the year ended 31 December 20X0

	$m
Revenue (P + H + S)	240
Cost of sales (P + H + S)	(120)
Gross profit	120
Other operating expenses (P + H + S)	(60)
Profit before tax	60
Income tax expense (P + H + S)	(20)
Profit for the peiod	40
Attributable to:	
Equity holders of the parent	31
Non-controlling interest (W1)	9
	40

Workings
1. *Non-controlling interest*

	$m
Non-controlling interest in H is 25% ($17m 2 intra-group investment income of $3m)	3.5
Non-controlling interest in S is 55% (effective interest) 3 $10m	5.5
Total	9.0

The consolidated statement of changes in equity does not cause any particular additional problems. The principle for all subsidiaries (including sub-subsidiaries) is that only the *group* share of any *post*-acquisition changes should be included.

Summarised statements of changes in equity for the three entities for the year ended 31 December 20X0

	P	*H*	*S*
	$m	$m	$m
Balance at start of the period	48	27	20
Net profit for the period	22	17	10
Dividends	(10)	(8)	(5)
Balance at end of the period	60	36	25

Solution

Consolidated statement of changes in equity

	Attributable to equity holders of the parent	Non-controlling interest	Total equity
	$m	$m	$m
Balance at the start of the period (W1)	52.5	15.25	67.75
Profit for the period	31.0	9.0	40.0
Dividends (W2)	(10.0)	(4.0)	(14.0)
Balance at the end of the year	73.5	20.25	93.75

Workings
1. *Balance at the start of the period*

Attributable to equity shareholders of the parent

	$m
P	48.0
H [75% × ($27m − $24m)]	2.25
S [45% × ($20m − $15m)]	2.25
	52.55

Attributable to non-controlling interest

	$m
H [25% × ($27 − $10m)]	4.25
S (55% × $20m)	11.25
	15.25

2. *Dividends paid to the non-controlling interest*

	$m
H (25% × 8)	2
S (40% × 5)	2
	4

9.2.2 Date of acquisition of sub-subsidiary

In the above example, the date P 'acquired' S was 31.12.X7. This was because on that date H bought shares in S and H was at that time a subsidiary of P.

However, if H had bought the shares in S before it became a subsidiary of P (say on 31.12.X5) then this date could not be the date that P 'acquired' S, because on 31.12.X5 H and S were nothing to do with P.

In these circumstances, S would effectively become a subsidiary of P on the same date that H became a subsidiary of P – 31.12.X6 in the above example.

9.3 Mixed groups

A mixed group is one in which a parent has both a direct and an indirect investment in a particular subsidiary. In such situations, both the non-controlling interest and the goodwill must be worked out in two stages.

Example 9.B

Statement of financial position of P, Q and R at 31 December 20X0

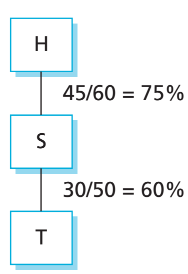
	P	*Q*	*R*
	$'000	$'000	$'000
Investment in Q	25,200		
Investment in R	10,000	10,600	
Property, plant and equipment	53,800	53,400	49,000
Current assets	24,000	21,000	15,000
	113,000	85,000	64,000
Issued capital ($) shares)	30,000	20,000	16,000
Share premium account	20,000	10,000	8,000
Retained earnings	35,000	30,000	20,000
	85,000	60,000	44,000
Loans	20,000	18,000	15,000
Current liabilities	8,000	7,000	5,000
	113,000	85,000	64,000

Details regarding intra-group investments are as follows:

Entities	*No. of shares acquired* £'000	*Date shares acquired*	*Accumulated profits at acquisition date* $'000
P in Q	12,000	1.1.X6	10,000
P in R	4,000	1.1.X8	12,000
Q in R	4,800	1.1.X7	8,000

- All share premium accounts arose prior to 1.1.X6.
- There has been no impairment of goodwill on consolidation in respect of any of the acquisitions.
- NCI is valued at the proportionate share of the FV of the net assets of the subsidiary.

Before we prepare the consolidated statement of financial position, note the group structure:



Notice that P *controls* 55% of the voting shares of R so R is a subsidiary. The effective interest of P in R is 25% + [60% × 30%] = 43%. The non-controlling interest percentage is *57*.

Solution

The consolidated statement of financial position of the P group at 31 December 20X0 is shown below. Unless otherwise indicated, all the figures on the net assets side are aggregations:

	$'000
ASSETS	
Goodwill on consolidation (W2)	2,800
Property, plant and equipment	156,200
Current assets	60,000
	219,000
EQUITY & LIABILITIES	
Issued capital (P only)	30,000
Share premium account (P only)	20,000
Retained earnings (W3)	51,160
	101,160
Non-controlling interests (W1)	44,840
	146,000
Loans	53,000
Current liabilities	20,000
	219,000

Workings

1. *Non-controlling interest*

	$'000
In Q – 40% ($60,000,000 − $10,600,000)	19,760
In R – 57% × $44,000,000	25,080
Total	44,840

2. *Goodwill on consolidation*

	P in Q		*P in R*		*Q in R*	
	$'000	$'000	$'000	$'000	$'000	$'000
Cost of investment		25,200		10,000		10,600
Net assets at acquisition:						
Issued capital	20,000		16,000		16,000	
Share premium	10,000		8,000		8,000	
Retained earnings	10,000		12,000		8,000	
	40,000		36,000		32,000	
Investor's share		(24,000)		(9,000)		(9,600)
Goodwill		1,200		1,000		1,000
Amount relating to P		1,200		1,000		600

Total goodwill on consolidation = $1,200 + 1,000 + 600 = $2,800 (all figures in $'000s)

3. *Consolidated retained earnings*

	$'000
Reserves of P	35,000
Share of post-acquisition retained earnings of:	
Q [60% ($30m − $10m)]	12,000
R – direct [25% ($20m − $12m)]	2,000
R – indirect [18% ($20m − $8m)]	2,160
	51,160

9.4 Indirect investment in associates or joint ventures

Where there is an indirect investment in an associated undertaking then the question arises as to what proportion of the net assets and profits of the associate should be initially included in the consolidated financial statements of the parent. Where the investor is a group the relevant share is the aggregate of the holdings of the parent and the subsidiaries in the entity. Any holdings of the group's other associates or joint ventures should be ignored for this purpose.

Example 9.C

Summarised statements of financial of H, S and A as at 31 December 20X0

	H	*S*	*A*
	$'000	$'000	$'000
Investments	23,500	10,000	
Property, plant and equipment	20,000	22,000	25,000
Net current assets	8,000	6,000	5,000
	51,500	38,000	30,000
Issued capital ($1 shares)	20,000	15,000	10,000
Retained earnings	31,500	23,000	20,000
	51,500	38,000	30,000

Notes

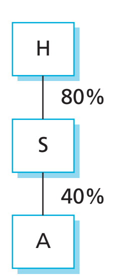
1. On 31 December 20X5, when the retained earnings of S showed a balance of $11 million, H purchased 12 million shares in S for $23.5 million.
2. On 31 December 20X6, when the retained earnings of A showed a balance of $12 million, S purchased 4 million shares in A for $10 million.
3. There has been no impairment of goodwill on consolidation since the acquisitions took place. Prepare the consolidated balance sheet of H at 31 December 20X0.
4. It is group policy to value non-controlling interest at acquisition at the proportionate share of the fair value of the subsidiary's identifiable net assets.

Requirement

Prepare the summarised consolidated statement of financial position of H at 31 December 20X0.

Solution

Before we prepare the consolidated statement of financial position it is worth identifying the group structure:



When we calculate share of net assets and share of profits of A in a situation like this, we take the aggregate group share *before* allowing for non-controlling interests. Therefore in this example the group share is 40%. This treatment means that the non-controlling interest in S will need to be credited with their share of the net assets of A at the statement of financial position date.

Summarised consolidated statement of financial position of H as at 31 December 20X0

	$'000
Goodwill on consolidation of S (W2)	2,700
Investment in associate (W3)	12,960
Property, plant and equipment (H + S)	42,000
Net current assets (H + S)	14,000
	71,660
Issued capital (H only)	20,000
Retained earnings (W4)	43,660
	63,660
Non-controlling interest (W1)	8,000
	71,660

Workings

1. *Non-controlling interest*

	$'000
Net assets of S as shown in S's balance sheet	38,000
Deduct cost of investment in A	(10,000)
Add share (40%) of net assets of A at 31.12.X0	12,000
	40,000
Non-controlling interest (20%)	8,000

Notice that the non-controlling interest are credited with an interest in the net assets of A in the same manner that those net assets are reported in the consolidated statement of financial position.

2. *Goodwill on acquisition*

		H in S
	$'000	$'000
Cost of investment		23,500
Net assets at date of investment:		
Share capital	15,000	
Retained earnings	11,000	
	26,000	
Investing entity's share (80%)		(20,800)
Goodwill		2,700

3. *Investment in A*

As a first step we need to calculate the goodwill on acquisition of the associate, and then to calculate the element of it that relates to the 20% non-controlling holders of S's equity.

	$'000	$'000
Cost of investment		10,000
Net assets at date of investment		
Share capital	10,000	
Retained earnings	12,000	
	22,000	
40% of net assets (40% × 22,000)		(8,800)
Goodwill on acquisition		1,200

Of this 20% relates to the non-controlling interest: $1,200 × 20% = $240. This is deducted in calculating the investment in associate, as follows:

Investment at cost	10,000
Less: amount of goodwill relating to non-controlling interest	(240)
Add: group share of post-acquisition profits (8,000 × 40%)	3,200
Investment in associate	12,960

It should be noted, however, that IAS 28 is not prescriptive in respect of the treatment of an associate entity over which a subsidiary exerts significant influence. There are other potentially valid approaches that might be taken, and these would be given appropriate credit in an examination.

4. *Retained earnings*

	$'000
H	31,500
S [80% ($23m − $11m)]	9,600
A [32% ($20m − $12m)]	2,560
	43,660

Notice that, having attributed the minority shareholders their share of the net assets of A, the final share of retained earnings that is taken to consolidated retained earnings is the effective interest of H in A: (80% × 40% =) 32%.

9.5 Summary

This chapter has examined some relatively complex areas of group accounting. Students should ensure that they understand the principles underlying accounting for complex group structures.

Examination questions can be expected that incorporate various aspects of the material covered in this chapter.

Revision Questions 9

Question 1

Statement of financial positions as at 31.12.X0

	H	*S*	*T*
	$	$	$
45,000 shares in S	65,000		
30,000 shares in T		55,000	
Net assets	80,000	33,000	75,000
	145,000	88,000	75,000
Issued capital ($1 shares)	100,000	60,000	50,000
Retained earnings	45,000	28,000	25,000
	145,000	88,000	75,000

The intra-group shareholdings were acquired on 1.1.X3 when S retained earnings were $10,000 and T retained earnings were $8,000. Goodwill on consolidation has remained unimpaired since acquisition.

Requirement

Prepare the consolidated statement of financial position as at 31 December 20X0.

(10 marks)

Question 2

Consider the following scenarios regarding disposals:

(a) F owns 70% of the equity shares of G and G owns 30% of the equity shares of H. G is a subsidiary of F and H is an associate of G. All entities prepare financial statements to 31 March. F has no other investments. Ignore goodwill on consolidation.

Just before 31 March 20X5, G sold some goods to F and made a profit of $250,000 on the sale. These goods were in the inventory of F at 31 March 20X5. This is the only trading between the entities during the year ended 31 March 20X5. None of the entities has paid or proposed any dividends in the year. The profit after tax of the three entities in the year ended 31 March 20X5 is:

- F $8 million
- G $4 million
- H $3.2 million

What is the non-controlling interest that will be shown in the consolidated income statement of F for the year ended 31 March 20X5?

(b) The FG group of entities comprises FG and its subsidiaries, HI and JK.

FG acquired 80% of HI's ordinary shares on 31 December 20X3, when the retained earnings of HI stood at $10,000,000, and the retained earnings of JK stood at $7,600,000.

HI acquired 75% of JK's ordinary shares on 31 December 20X2, when the retained earnings of JK stood at $7,000,000.

At 31 December 20X6, HI's retained earnings stood at $12,200,000, and JK's retained earnings stood at $10,600,000.

There have been no other acquisitions and disposals in the group, and no impairments of goodwill or intra-group trading adjustments have been recorded.

How much profit has been added to consolidated retained earnings in the FG group **in respect of the investments in HI and JK** between acquisition and 31 December 20X6?

(c) CXP owns 75% of the ordinary share capital of its subsidiary, DYQ. The shares were acquired on 1 November 20X7 when DYQ's retained earnings stood at $152,000. DYQ acquired a 65% investment in its subsidiary, EZR, on 1 May 20X7. EZR's retained earnings were $189,000 on 1 May 20X7, and $202,000 on 1 November 20X7.

Retained earnings for the three entities at 31 October 20X6, the entities' year end, were as follows:

	$
CXP	266,000
DYQ	178,000
EZR	214,000

There had been no impairment of goodwill in respect of either investment since acquisition.

Calculate the balance of consolidated retained earnings for inclusion in the consolidated statement of financial position of the group at 31 October 20X8. **(10 marks)**

? Question 3

On 1 April 20X1 Machinery bought 80% of the issued capital of Components and on 1 April 20X3 Machinery was itself taken over by Sales, which purchased 75% of the ordinary shares in Machinery.

Machinery and Components are unquoted entities. The investments made by Sales are held as Available for Sale investments and since no reliable measure of their fair value is possible, they are subsequently measured at cost.

The statement of financial positions of the three entities as at 31 October 20X5 showed the following position:

	Sales $	*Machinery* $	*Components* $
ASSETS			
Property, plant and equipment			
Freehold land	89,000	30,000	65,000
Buildings	64,000	80,000	23,600
Plant	33,000	84,000	43,800
	186,000	194,000	132,400
Investments			
Investment in Machinery at cost	135,000		
Investment in Components at cost		130,000	
Current assets			
Inventories	108,500	75,500	68,400
Trade receivables	196,700	124,800	83,500
Cash at bank	25,200		25,400
	651,400	524,300	309,700
EQUITY + LIABILITIES			
Equity			
Ordinary shares of $1 each	200,000	120,000	100,000
Retained earnings	154,000	119,000	74,000
	354,000	239,000	174,000
Non-current liabilities			
5% preference shares of $1	–	–	40,000
Current liabilities			
Bank overdraft		37,400	
Trade payables	240,000	200,700	71,200
Income tax	57,400	47,200	24,500
	651,400	524,300	309,700

Additional information

(a) Items purchased by Machinery from Components and remaining in inventory at 31 October 20X5 amounted to $25,000. The profit element is 20% of the selling price for Components.

(b) Included in the plant and equipment of Components is a machine purchased from the manufacturers, Machinery, on 1 January 20X4 for $10,000. Machinery recorded a profit of $2,000 on the sale of the machine.

The group charges depreciation on plant and equipment at the rate of 10% on cost each year, including a full provision in the year of acquisition.

(c) Intra-group balances are included in receivables and payables respectively and are as follows:

		$
Sales	Payables to Machinery	45,600
	Payables to Components	28,900
Machinery	Receivables from Sales	56,900
Components	Receivables from Sales	28,900

(d) A cheque drawn by Sales for $11,300 on 28 October 20X5 was received by Machinery on 3 November 20X5.
(e) At 1 April 20X1, retained earnings in Machinery were $28,000 and in Components were $20,000. At 1 April 20X3 the figures were $40,000 and $60,000 respectively.
(f) Goodwill was completely written off some year ago following an impairment review.

Requirement

Prepare the consolidated statement of financial position as at 31 October 20X5 for Sales and its subsidiaries. **(25 marks)**

Solutions to Revision Questions

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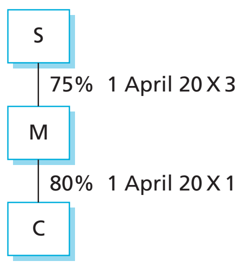
Solution 1

Group structure:



Consolidation %

S	Group share	75%
	Non-controlling interest share	25%
T	Group share 75% × 60%	45%
	Non-controlling interest share	55%

Consolidated statement of financial position at 31 December 20X0

	$	
Net assets	188,000	
Goodwill on consolidation	27,650	(W3)
	215,650	
Capital and reserves		
Issued capital	100,000	
Retained earnings	66,150	(W2)
Non-controlling interest	49,500	(W1)
	215,650	

Workings

1. *Non-controlling interest*

	$
Share of net assets	
S: 25% × 88,000	22,000
T: 55% × 75,000	41,250
Non-controlling share of cost of investment in T	
25% × 55,000	(13,750)
	49,500

2. *Consolidated reserves*

	$
Reserves of H	45,000
Group share of post-acquisition profits	
S: 75% × (28,000 − 10,000)	13,500
T: 45% × (25,000 − 8,000)	7,650
	66,150

3. *Goodwill*

	S $	*T* $
Consideration	65,000	55,000
Net assets acquired		
S: 75% × (60,000 + 10,000)	52,500	
T: 60% × (50,000 + 8,000)		34,800
	12,500	20,200
H's share (100%/75%)	12,500	15,150
Total	27,650	

Solution 2

(a) The non-controlling interest is 30% [($4,000,000 − $250,000) + (30% × $3,200,000)] = $1,413,000.

(b) Since the group was formed on 31 December 2001 the following amounts of profit have been added to consolidated retained earnings in respect of the investments in HI and JK:*Consolidation %*

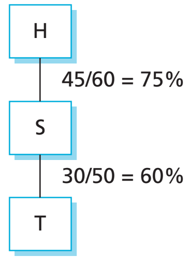
	$
HI: 80% × ($12.2 m − $10 m) =	1,760,000
JK: 60% × ($10.6 m − $7.6 m) =	1,800,000
	3,560,000

(c) CXP: Consolidated retained earnings

	$
CXP's own retained earnings	266,000
DYQ: ($178,000 − $152,000) × 75%	19,500
EZR: ($214,000 − $202,000) × 75% × 65%	5,850
	291,350

Solution 3

Group structure:



The effective interest is S in C is (75% × 80% =) 60 per cent. The MI is 40 per cent.

Consolidated statement of financial at 31 October 20X5

ASSETS	$	$
Property, plant and equipment		
Land		184,000
Buildings		167,600
Plant (160,800 − PUP 1,600)		159,200
		510,800
Current assets		
Inventory (252,400 − PUP 5,000)	247,400	
Receivables		
(405,000 − intra-group 56,900 − 28,900)	319,200	
Cash in hand	50,600	
		617,200
		1,128,000
EQUITY + LIABILITIES		
Equity		
Issued capital		200,000
Retained earnings		200,950
Non-controlling interest		94,450
		495,400
Non-current liabilities		40,000
Current liabilities		
Overdraft (37,400 − cash in transit 11,300)	26,100	
Payables (511,900 − intra-group 45,600 − 28,900)	437,400	
Income tax	129,100	
		592,600
		1,128,000

Workings

1. *Provision for unrealised profit on inventory*

   20% × 25,000 = 5,000

   Adjust reserves of Components – entity that made the sale.

2. *Provision for unrealised profit on plant*

	$
Profit originally recorded	2,000
Realised via extra depreciation charges 2/10 × 2,000	(400)
Provision now required	1,600

Adjust reserves of Machinery – entity that made the sale.

3. *Non-controlling interest*

	$
Machinery 25% × (239,000 − PUP 1,600)	59,350
Components	
Ordinary 40% × (214,000 − 40,000 − PUP 5,000)	67,600
Cost of investment in C made by M	
25% × 130,000	(32,500)
	94,450

4. *Retained earnings*

	$
Sales	154,000
Machinery 75% × (119,000 − 40,000 − PUP 1,600)	58,050
Components 60% × (74,000 − 60,000 − PUP 5,000)	5,400
Less: goodwill written off (W5)	(16,500)
	200,950

5. *Goodwill*

	M $	*C* $
Consideration	135,000	130,000
Net assets acquired		
75% of (120,000 + 40,000)	120,000	
80% of (100,000 + 60,000)		128,000
	15,000	2,000
Amount relating to Sales (100%/75%) (all written off following impairment review)	15,000	1,500