Section B – TWO questions ONLY to be attempted

2 The Armstrong Group is a multinational group of companies. Today is 1 September. The treasury manager at Massie Co, one of Armstrong Group's subsidiaries based in Europe, has just received notification from the group's head office that it intends to introduce a system of netting to settle balances owed within the group every six months. Previously inter-group indebtedness was settled between the two companies concerned.

The predicted balances owing to, and owed by, the group companies at the end of February are as follows:

Owed by	Owed to	Local currency million (m)
Armstrong (USA)	Horan (South Africa)	US $12·17
Horan (South Africa)	Massie (Europe)	SA R42·65
Giffen (Denmark)	Armstrong (USA)	D Kr21·29
Massie (Europe)	Armstrong (USA)	US $19·78
Armstrong (USA)	Massie (Europe)	€1·57
Horan (South Africa)	Giffen (Denmark)	D Kr16·35
Giffen (Denmark)	Massie (Europe)	€1·55

The predicted exchange rates, used in the calculations of the balances to be settled, are as follows:

	D Kr	US$	SA R	€
1 D Kr =	1·0000	0·1823	1·9554	0·1341
1 US $ =	5·4855	1·0000	10·7296	0·7358
1 SA R =	0·5114	0·0932	1·0000	0·0686
1 € =	7·4571	1·3591	14·5773	1·0000

Settlement will be made in dollars, the currency of Armstrong Group, the parent company. Settlement will be made in the order that the company owing the largest net amount in dollars will first settle with the company owed the smallest net amount in dollars.

Note: D Kr is Danish Krone, SA R is South African Rand, US $ is United States dollar and € is Euro.

Required:

(a) (i) Calculate the inter-group transfers which are forecast to occur for the next period. (8 marks)

(ii) Discuss the problems which may arise with the new arrangement. (3 marks)

The most significant transaction which Massie Co is due to undertake with a company outside the Armstrong Group in the next six months is that it is due to receive €25 million from Bardsley Co on 30 November. Massie Co's treasury manager intends to invest this money for the six months until 31 May, when it will be used to fund some major capital expenditure. However, the treasury manager is concerned about changes in interest rates. Predictions in the media range from a 0·5% rise in interest rates to a 0·5% fall.

Because of the uncertainty, the treasury manager has decided to protect Massie Co by using derivatives. The treasury manager wishes to take advantage of favourable interest rate movements. Therefore she is considering options on interest rate futures or interest rate collars as possible methods of hedging, but not interest rate futures. Massie Co can invest at LIBOR minus 40 basis points and LIBOR is currently 3·6%.

The treasury manager has obtained the following information on Euro futures and options. She is ignoring margin requirements.

Three-month Euro futures, €1,000,000 contract, tick size 0·01% and tick value €25.

September	95·94
December	95·76
March	95·44

Options on three-month Euro futures, €1,000,000 contract, tick size 0·01% and tick value €25. Option premiums are in annual %.

Calls			Strike	Puts		
September	December	March		September	December	March
0·113	0·182	0·245	96·50	0·002	0·123	0·198
0·017	0·032	0·141	97·00	0·139	0·347	0·481

It can be assumed that settlement for the contracts is at the end of the month. It can also be assumed that basis diminishes to zero at contract maturity at a constant rate and that time intervals can be counted in months.

Required:

(b) **Based on the choice of options on futures or collars which Massie Co is considering and assuming the company does not face any basis risk, recommend a hedging strategy for the €25 million receipt. Support your recommendations with appropriate comments and relevant calculations.** (14 marks)

(25 marks)