

APPENDIX

Comparison Calculation of Hedging in Forward Market and Money Market

Case Example: In April year 1, a US company has a subsidiary in the United Kingdom which is expected to have a net asset exposure of PDS 500,00 by April year 2.

Exposure of PDS 500,000 at April rate of \$2.50	\$1,250,000
Expected value of pound to decline to \$2.40	
Exposed assets of PDS500,000 at \$2.40	1,200,000
Loss in exposed assets in parent's book	50,000

Refer to Table 7 for the case scenario.

Case	Hedging in Forward Markets		Hedging in Money Market	
1	<i>April Year 1</i> Sell PDS500,000 for 1-year delivery at \$2.50/PDS <i>April Year 2</i> Buy PDS500,000 on spot market at \$2.40/PDS Deliver PDS500,000 on forward contract at \$2.50/PDS Gain in foreign exchange market	\$1,250,000 (\$1,200,000) \$1,250,000 \$50,000	Assume interest rates are 7% both in US and UK <i>April Year 1</i> Borrow PDS500,000 at 7%. Convert the proceeds into dollars at \$2.50./PDS. Invest proceed of loan in one-year security at 7% <i>April Year 2</i> Sell dollar denominated security (\$1,250,000) + (\$1,250,000 X 0.07)	\$1,337,500 \$1,337,500

	Loss in exposed assets Net effect	(50,000) 0	Convert dollar proceed into pounds \$1,337,500 ÷ \$2.40 Pay loan in pounds (PDS500,000) + (PDS500,00 X 0.07) Gain in money transaction in pounds Gain in money transaction in dollars PDS22,292 X \$2.40 Loss in exposed assets PDS500,000 X \$0.10 Net effect	PDS557,292 (PDS535,000) PDS22,292 \$53,500 (50,000) \$3,500
1A	Buy PDS500,000 on spot market at \$2.35/PDS Deliver PDS500,000 on forward contract at \$2.50/PDS Gain in foreign exchange market Loss in exposed assets PDS500,000 X \$0.15 (depreciation) Net effect	(\$1,175,000) \$1,250,000 \$75,000 (75,000) 0	Sell dollar denominated security (\$1,250,000) + (\$1,250,000 X 0.07) Convert dollar proceed into pounds \$1,337,500 ÷ \$2.35 Pay loan in pounds (PDS500,000) + (PDS500,00 X 0.07) Gain in money transaction in pounds Gain in money transaction in dollars PDS34,148 X \$2.35 Loss in exposed assets PDS500,000 X \$0.15 Net effect	\$1,337,500 PDS569,148 (PDS535,000) PDS34,148 \$80,250 (75,000) \$5,250

1B	<p>Buy PDS500,000 on spot market at \$2.60/PDS</p> <p>Deliver PDS500,000 on forward contract at \$2.50/PDS</p> <p>Loss in foreign exchange market</p> <p>Gain in exposed assets PDS500,000 X \$0.10 (appreciation)</p> <p>Net effect</p>	<p>(\$1,300,000)</p> <p>\$1,250,000</p> <p>(\$50,000)</p> <p>50,000</p> <p>0</p>	<p>Sell dollar denominated security (\$1,250,000) + (\$1,250,000 X 0.07)</p> <p>Convert dollar proceed into pounds \$1,337,500 ÷ \$2.60</p> <p>Pay loan in pounds (PDS500,000) + (PDS500,00 X 0.07)</p> <p>Loss in money transaction in pounds Loss in money transaction in dollars PDS20,557 X \$2.60</p> <p>Gain in exposed assets PDS500,000 X \$0.10</p> <p>Net effect</p>	<p>\$1,337,500</p> <p>PDS514,423</p> <p>(PDS535,000)</p> <p>(PDS20,557)</p> <p>(\$53,500)</p> <p>50,000</p> <p>(\$3,500)</p>
2	<p>Overhedge = Expected Profit/(forward contract – expected spot rate) = 50,000/(2.45-2.40) = PDS1,000,000</p> <p><i>April Year 1</i></p> <p>Sell PDS1,000,000 for 1-year delivery at \$2.45/PDS</p> <p><i>April Year 2</i></p> <p>Buy PDS1,000,000 on spot market at \$2.40/PDS</p> <p>Deliver PDS1,000,000 on forward contract at \$2.45/PDS</p>	<p>\$2,450,000</p> <p>(\$2,400,000)</p> <p>2,450,000</p>	<p>Assume interest rates are 7% in US and 9% in UK. Overhedge at PDS847,456</p> <p><i>April Year 1</i></p> <p>Borrow PDS847,456 at 9%. Convert the proceeds into dollars at \$2.50./PDS. Invest proceed of loan in one-year security at 7%</p> <p><i>April Year 2</i></p> <p>Sell dollar denominated security (\$2,118,640) + (\$2,118,640 X 0.07)</p> <p>Convert dollar proceed into pounds \$2,266,949 ÷ \$2.40</p> <p>Pay loan in pounds</p>	<p>\$2,118,640</p> <p>\$2,266,949</p> <p>PDS944,562</p>

	Gain in foreign exchange market Loss in exposed assets Net effect	50,000 (50,000) 0	(PDS847,456) + (PDS847,456 X 0.09) Gain in money transaction in pounds Gain in money transaction in dollars PDS20,835 X \$2.40 Loss in exposed assets PDS500,000 X \$0.10 Net effect	(PDS923,727) PDS20,835 \$50,004 (50,000) ~ 0
2A	Buy PDS1,000,000 on spot market at \$2.35/PDS Deliver PDS1,000,000 on forward contract at \$2.45/PDS Gain in foreign exchange market Loss in exposed assets PDS500,000 X \$0.15 (depreciation) Net effect	(\$2,350,000) \$2,450,000 \$100,000 (75,000) \$25,000	Sell dollar denominated security (\$2,118,640) + (\$2,118,640 X 0.07) Convert dollar proceed into pounds \$2,266,949 ÷ \$2.35 Pay loan in pounds (PDS847,456) + (PDS847,456 X 0.09) Gain in money transaction in pounds Gain in money transaction in dollars PDS40,932 X \$2.35 Loss in exposed assets PDS500,000 X \$0.10 Net effect	\$2,266,949 PDS964,659 (PDS923,727) PDS40,932 \$96,190 (75,000) \$21,190
2B	Buy PDS1,000,000 on spot market at \$2.60/PDS Deliver PDS1,000,000 on forward contract at	(\$2,600,000)	Sell dollar denominated security (\$2,118,640) + (\$2,118,640 X 0.07) Convert dollar proceed into pounds	\$2,266,949

	<p>\$2.45/PDS</p> <p>Loss in foreign exchange market</p> <p>Gain in exposed assets PDS500,000 X \$0.10 (appreciation)</p> <p>Net effect</p>	<p>\$2,450,000</p> <p>(\$150,000)</p> <p>50,000</p> <p>(\$100,000)</p>	<p>\$2,266,949 ÷ \$2.60</p> <p>Pay loan in pounds (PDS847,456) + (PDS847,456 X 0.09)</p> <p>Loss in money transaction in pounds PDS51,824 X \$2.60</p> <p>Loss in money transaction in dollars PDS51,824 X \$2.60</p> <p>Gain in exposed assets PDS500,000 X \$0.10</p> <p>Net effect</p>	<p>PDS514,423</p> <p>(PDS923,727)</p> <p>(PDS51,824)</p> <p>(\$134,742)</p> <p>50,000</p> <p>(\$84,742)</p>
2'	<p>Hedge only PDS500,000</p> <p><i>April Year 1</i></p> <p>Sell PDS500,000 for 1-year delivery at \$2.45/PDS</p> <p><i>April Year 2</i></p> <p>Buy PDS500,000 on spot market at \$2.40/PDS</p> <p>Deliver PDS500,000 on forward contract at \$2.45/PDS</p> <p>Gain in foreign exchange market</p> <p>Loss in exposed assets</p> <p>Net effect</p>	<p>1,225,000</p> <p>(\$1,200,000)</p> <p>\$1,225,000</p> <p>25,000</p> <p>(50,000)</p> <p>(\$25,000)</p>	<p>Assume interest rates are 7% in US and 9% in UK</p> <p><i>April Year 1</i></p> <p>Borrow PDS500,000 at 9%. Convert the proceeds into dollars at \$2.50./PDS. Invest proceed of loan in one-year security at 7%</p> <p><i>April Year 2</i></p> <p>Sell dollar denominated security (\$1,250,000) + (\$1,250,000 X 0.07)</p> <p>Convert dollar proceed into pounds \$1,337,500 ÷ \$2.40</p> <p>Pay loan in pounds (PDS500,000) + (PDS500,00 X 0.09)</p> <p>Gain in money transaction in pounds</p> <p>Gain in money transaction in dollars</p>	<p>\$1,337,500</p> <p>PDS557,292</p> <p>(PDS545,000)</p> <p>PDS12,292</p>

			PDS12,292 X \$2.40 Loss in exposed assets PDS500,000 X \$0.10 Net effect	\$29,500 (50,000) (\$20,500)
2A'	Buy PDS5000,000 on spot market at \$2.35/PDS Deliver PDS500,000 on forward contract at \$2.45/PDS Gain in foreign exchange market Loss in exposed assets PDS500,000 X \$0.15 (depreciation) Net effect	(\$1,175,000) \$1,225,000 \$50,000 (75,000) (\$25,000)	Sell dollar denominated security (\$1,250,000) + (\$1,250,000 X 0.07) Convert dollar proceed into pounds \$1,337,500 ÷ \$2.35 Pay loan in pounds (PDS500,000) + (PDS500,00 X 0.09) Gain in money transaction in pounds Gain in money transaction in dollars PDS23,649 X \$2.35 Loss in exposed assets PDS500,000 X \$0.15 Net effect	\$1,337,500 PDS569,149 (PDS545,500) PDS23,649 \$55,575 (75,000) (19,425)
2B'	Buy PDS5000,000 on spot market at \$2.60/PDS Deliver PDS500,000 on forward contract at \$2.45/PDS Loss in foreign exchange market Gain in exposed assets PDS500,000 X \$0.10 (appreciation)	(\$1,300,000) \$1,225,000 (\$75,000) (50,000)	Sell dollar denominated security (\$1,250,000) + (\$1,250,000 X 0.07) Convert dollar proceed into pounds \$1,337,500 ÷ \$2.60 Pay loan in pounds (PDS500,000) + (PDS500,00 X 0.09)	\$1,337,500 PDS514,423 (PDS545,500)

	Net effect			
		(\$25,000)	Loss in money transaction in pounds	(PDS31,077)
			Loss in money transaction in dollars	
			PDS31,077 X \$2.60	(\$80,800)
			Gain in exposed assets	
			PDS500,000 X \$0.10	50,000
			Net effect	(30,800)