

Managing FX Exposure

Transaction Exposure – FX Options

Managing TE – Hedging with FX Options

•Review: Reading Newspaper Quotes

PHILADELPHIA OPTIONS (PHLX is the exchange)

Wednesday, March 21, 2007 (Trading Date)

		Calls		Puts		
		Vol.	Last	Vol.	Last	
						⇒ (Contracts traded)
						⇒ (Vol=Volume, Last=Premium)
Australian Dollar				79.92		⇒ ($S_t = .7992$ USD/AUD)
50,000 Australian Dollars-cents per unit.						⇒ (AUD 50,000=Size, prices in USD cents)
78	June	9	3.37	20	1.49	
79	April	20	1.79	16	0.88	
80	May	15	1.96	8	2.05	
80	June	11	2.29	9	2.52	
82	June	1	1.38	2	3.61	
↑	↑	↑		↑		
X=Strike	T=Maturity	Call Premium		Put Premium		
Price						

• **Receivables in FC**

Example : Receivables AUD 20M

OTM: $X_{\text{put-June}} = 0.78 \text{ USD/AUD}$

Cost = Total premium = AUD 20M * USD .0149/AUD = **USD 298K**

Floor = $0.78 \text{ USD/AUD} \times \text{AUD } 20\text{M} = \text{USD } 15.6\text{M}$ (Net: **USD 15.302M**)

ITM: $X_{\text{put-June}} = 0.82 \text{ USD/AUD}$, (or $X_{\text{put-June}} = .80 \text{ USD/AUD} - \text{ATM}$)

• $X_{\text{put-June}} = 0.82 \text{ USD/AUD}$

Cost = Total premium = AUD 20M * USD .0361/AUD = **USD 722K**

Floor = $0.82 \text{ USD/AUD} * \text{AUD } 20\text{M} = \text{USD } 16.4\text{M}$ (Net: **USD 15.678M**)

• $X_{\text{put-June}} = 0.80 \text{ USD/AUD}$ (ATM option)

Cost = Total premium = **USD 504K**

Floor = USD 16M (Net: **USD 15.496M**)

Note: The higher the cost, the higher the floor for the AUD 20M. ¶

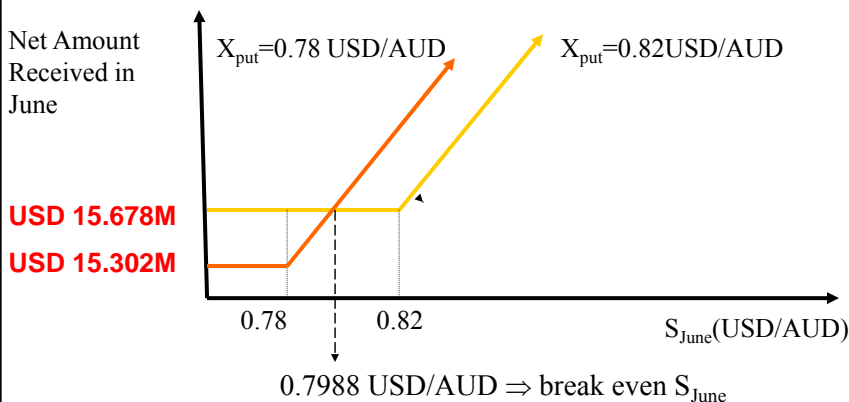
• All the FX options limit FX risk:

- $X_{\text{put-June}} = 0.78 \text{ USD/AUD} \Rightarrow$ Net floor: **USD 15.302M**

- $X_{\text{put-June}} = 0.80 \text{ USD/AUD} \Rightarrow$ Net floor: **USD 15.496M**

- $X_{\text{put-June}} = 0.82 \text{ USD/AUD} \Rightarrow$ Net floor: **USD 15.678M**

Q: Which one is better? It depends on your preferences and expectations.



• **Payables in FC**

Example: Payable AUD 100M in Mid-June

$$S_t = .7992 \text{ USD/AUD}$$

$$X_{\text{call-June}} = .78 \text{ USD/AUD, P} = \text{USD } .0337$$

$$X_{\text{put-June}} = .78 \text{ USD/AUD, P} = \text{USD } .0149$$

$$X_{\text{call-June}} = .80 \text{ USD/AUD, P} = \text{USD } .0229$$

$$X_{\text{put-June}} = .80 \text{ USD/AUD, P} = \text{USD } .0252$$

$$X_{\text{call-June}} = .82 \text{ USD/AUD, P} = \text{USD } .0138$$

$$X_{\text{put-June}} = .82 \text{ USD/AUD, P} = \text{USD } .0361$$

OTM: $X_{\text{call-June}} = 0.82 \text{ USD/AUD}$ (or $X_{\text{call-June}} = .80 \text{ USD/AUD}$, $\approx \text{ATM}$)

• $X_{\text{call-June}} = 0.82 \text{ USD/AUD}$, Premium = USD .0138

Cost = Total premium = AUD 100M * USD .0138/AUD = **USD 1.38M**

Cap = AUD 100M x 0.82 USD/AUD = USD 82M (Net: **USD 83.38M**)

• $X_{\text{call-June}} = 0.80 \text{ USD/AUD}$, Premium = USD .0229 (almost ATM)

Cost = Total premium = AUD 100M * USD .0229/AUD = **USD 2.29M**

Cap = AUD 100M x 0.82 USD/AUD = USD 80M (Net: **USD 82.29M**)

ITM: $X_{\text{call-June}} = 0.78 \text{ USD/AUD}$, Premium = USD .0337

Cost = Total premium = **USD 3.37M**

Cap = USD 78M (Net cap = **USD 81.37M**)

Note: The higher the cost, the lower the cap established for the AUD 100M payable. ¶

Lesson from these 2 examples:

1) Options offer the typical insurance trade-off: Better coverage (lower cap, higher floor) \Rightarrow Higher cost (higher premium)

2) Insurance is expensive. For the $X_{\text{put-June}} = 0.80$ USD/AUD case, it costs **USD .504M** to insure **USD 15.496M** (a 3.2% premium).

Q: Is it possible to lower the cost of insurance lower?

A: With a Collar (buy put, sell call/buy call, sell put).

Example: Buy $X_{\text{put-June}} = 0.78$ USD/AUD (P = USD .0149)

Sell $X_{\text{call-June}} = .82$ USD/AUD (P = USD .0138)

Cost = USD .0149 x (20M) – USD .0138 x (20M) = **22K** (very low!)

Floor = USD 15.6M (Net Floor = **USD 15.578M**)

Cap = USD 16.4M (Net Cap = Best case scenario = **USD 16.378M**)

A collar is cheaper, but it limits the upside of the option. ¶