Managing Currency Risk

Derivatives and Financial Markets

Risk Management Project

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Business Problem: Jaguar

- We are an American importer of Jaguars, expecting to receive the next shipment of cars in March 1998
- Payment of £1,000,000 is due at that time

Market View: British Economy

- Britain has strongest economy among major West European countries.
- Interest rates will continue to rise to ward off fears of inflation (1 year rate = 7.78% versus U.S.= 5.83% and Germany = 4%).
- British pound is high-yield currency, ranking first with the U.S. dollar second.

Market View: Pound versus Dollar

- Strong pound sterling has risen 16% against the dollar since January 1997
- Implied pound volatility is 4.62% quarterly, slightly below historic average of 5%
- Our view of volatility is consistent with the historical average at 5%
- The volatility implies a trading range of $1.5607 to $1.7249

Business Risk: Currency Movements

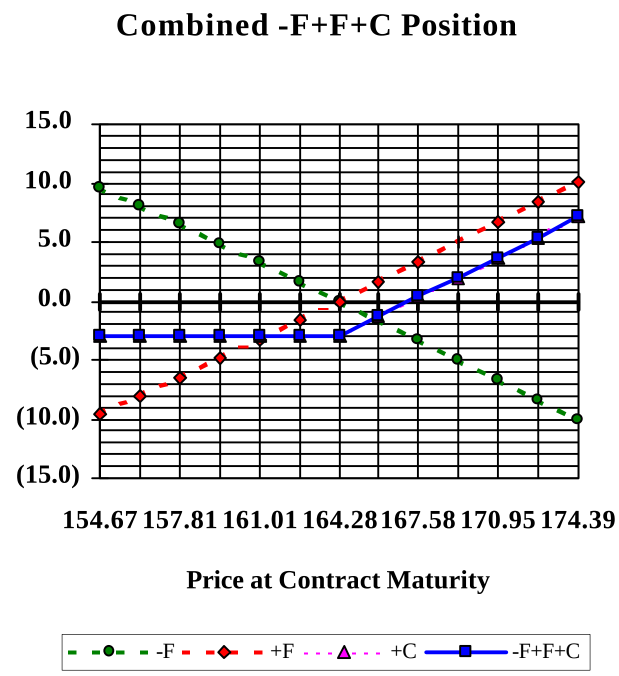
- Position: Short British Pounds (-F)
- In March 1998, we owe £1,000,000
- We anticipate that the pound will rise against the dollar over the next three months
- Given our view, this payable will become more costly in U.S. dollar terms
- Since we are risk averse, we want to fully hedge this exposure using options

Hedging Short Exposure

- Our hedging scenarios will build on our short position and will attempt to profit on our expectation that the pound will rise
- Call and put premiums are priced for 62,500 pound contracts
- 16 contracts will fully hedge position
- Forward/strike prices are in cents (US¢) and are based on one cent movements in value of pound (atm strike = 164.28¢/pound)

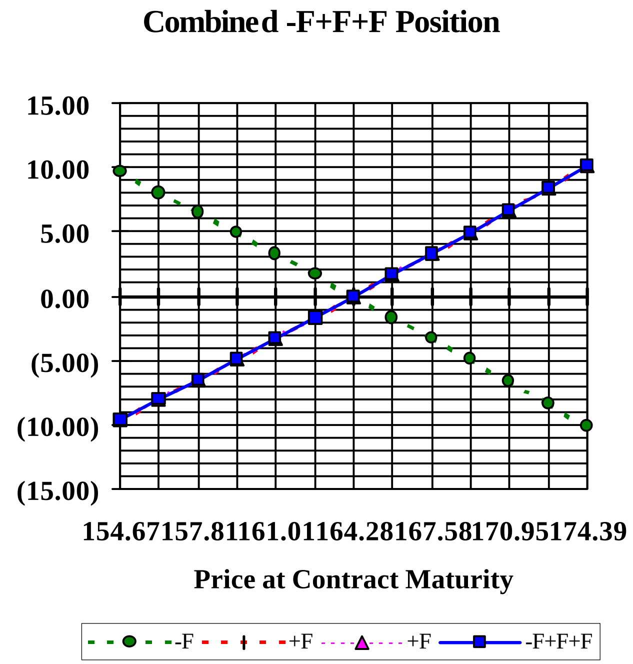
Strategy #1: Synthetic Long Call

- Position: -F+F+C
- View: Up, unsure
- Payoff:
  - Breakeven price: $1.6732
  - Loss at $1.5607: -$30,400
  - Gain at $1.7249: $51,700
- Pros:
  - Limited loss
  - Unlimited gain
- Con:
  - Loss more likely than gain in range of volatility



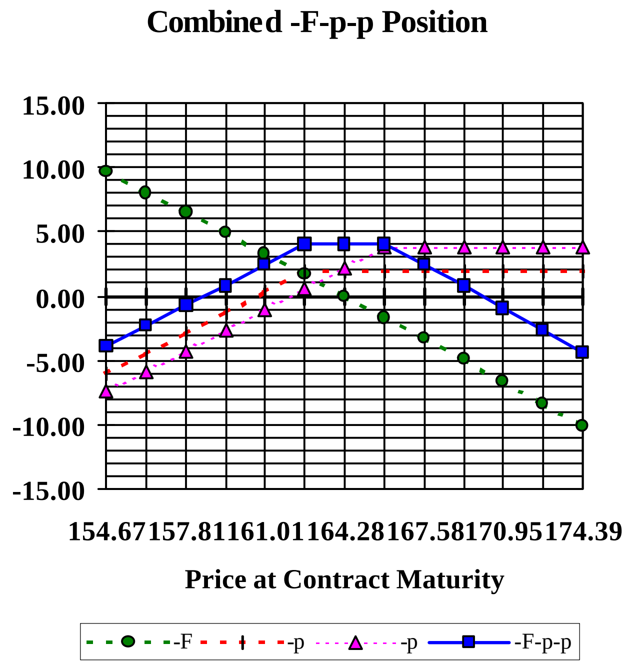
Strategy #2: Synthetic Long

- Position: -F+F+F
- View: Up, bullish
- Payoff:
  - Breakeven price: $1.6428
  - Loss at $1.5607: -$82,100
  - Gain at $1.7249: $82,100
- Pro:
  - Unlimited gain
- Con:
  - Unlimited loss



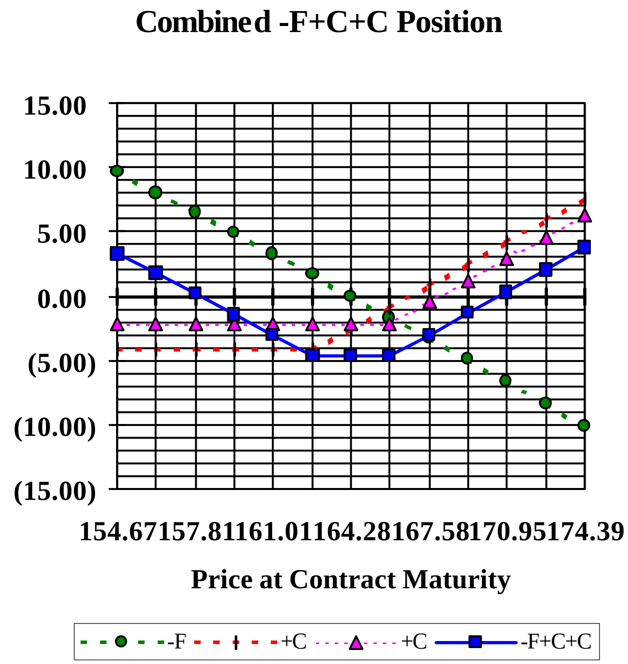
Strategy #3: Short Strangle

- Position: -F-Pitm-Potm or -Cotm-Potm
- View: Stable, neutral direction
- Payoff:
  - Breakeven prices: $1.5854 and $1.7002
  - Loss at $1.5607: -$24,700
  - Loss at $1.7249: -$24,700
- Pros:
  - Maximum gain ($41,000) well within expected range of volatility
  - All profitable positions within range of volatility
- Cons:
  - Limited gain
  - Unlimited loss



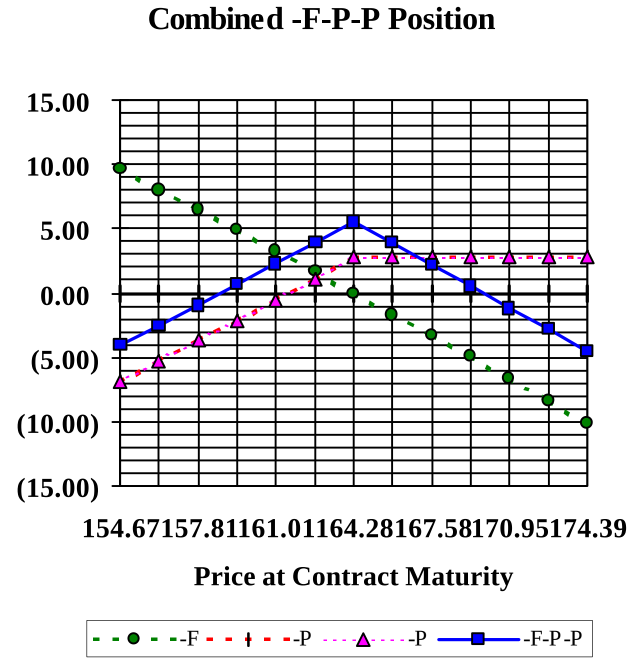
Strategy #4: Long Strangle

- Position: -F+Citm+Cotm (+Potm+Cotm)
- View: Volatile, neutral direction
- Payoff:
  - Breakeven prices: $1.5798 and $1.7058
  - Gain at $1.5607: $19,100
  - Gain at $1.7249: $19,100
- Pros:
  - Unlimited gain
  - Limited loss
- Cons:
  - Maximum loss ($46,600) well within expected range of volatility
  - All losing positions within range of volatility



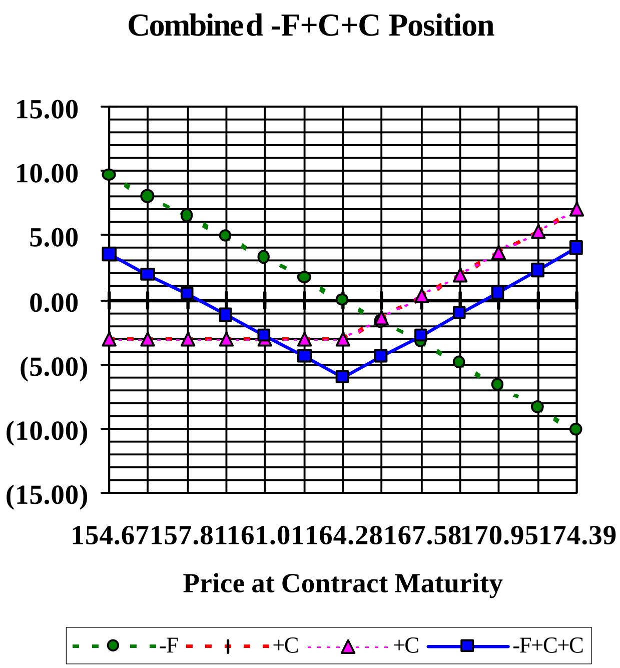
Strategy #5: Short Straddle

- Position: -F-2P (-C-P)
- View: Stable, neutral direction
- Payoff:
  - Breakeven prices: $1.5876 and $1.6980
  - Loss at $1.5607: -$26,900
  - Loss at $1.7249: -$26,900
- Pros:
  - Maximum gain ($55,200) well within expected range of volatility
  - All profitable positions within range of volatility
- Cons:
  - Limited gain
  - Unlimited loss



Strategy #6: Long Straddle

- Position: -F+2C (+C+P)
- View: Volatile, neutral direction
- Payoff:
  - Breakeven prices: $1.5820 and $1.7036
  - Gain at $1.5607: $21,300
  - Gain at $1.7249: $21,300
- Pros:
  - Unlimited gain
  - Limited loss: -$60,800
- Cons:
  - Losing positions all within expected range of volatility
  - Maximum loss well within range of volatility



Considering the Strategies . . .

- We initially thought the short strangle was our best strategy since the position is profitable if the market behaves according to our view and we are protected even if it does not

- However, if the pound appreciates substantially, which is quite feasible according to our view, the short strangle position will produce heavy losses

Recommended Strategy

- We believe that the pound will appreciate against the dollar; thus, our best strategy is to construct a long synthetic call position

- Not only are there unlimited profits, but if our view proves wrong we are protected against unlimited losses