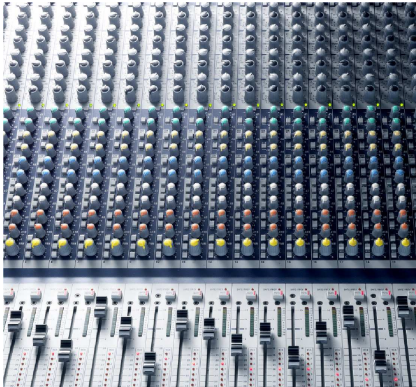


Tail Risk Protection against Multiple Stress Scenarios using FX 3 Month “Any-Digital” Option

Trade Idea – 1st November, 2011



In recent months we have been seeing significant interest from clients in protecting portfolios from tail-risk events through FX options (using currency pairs with high correlation to equities as a proxy hedge).

The product to the right is designed to greatly reduce any idiosyncratic risks that arise when only using options on single currency pairs as a proxy hedge. Its payout structure aims to give clients comprehensive tail-risk protection from various stress scenarios (i.e. Eurozone financing stress, an economic slowdown in China & a broad-based EM sell off).

With implied USD correlations trading at such elevated levels, this structure benefits from significant savings when compared to purchasing all three individual digital options.

Triple “Any-Digital” Option

Trade Type:	Triple “Any-Digital” Option
Tenor:	3 Months
Notional	USD []
Payout:	100% of Notional if ANY of the three conditions are satisfied; 0% of Notional otherwise
At Expiry:	AUD/USD below Strike EUR/USD below Strike USD/KRW above Strike
Strikes:	AUD/USD: $82.5\% \times \text{Initial AUD/USD Spot Level (0.8539)}$ EUR/USD: $85.0\% \times \text{Initial EUR/USD Spot Level (1.1688)}$ USD/KRW: $120.0\% \times \text{Initial USD/KRW Spot Level (1,332)}$
Spot references:	AUD/USD: 1.0350 EUR/USD: 1.3750 USD/KRW: 1,110
Premium:	15.5% of USD Notional

Positioning

Spot :	Bullish: USD vs. AUD, EUR, KRW
Volatility:	Long AUD/USD, EUR/USD, USD/KRW volatility
Correlation:	Long AUD, EUR, KRW vs. USD correlation

Profitability Analysis

Breakeven:	If at expiry, AUD/USD is below its Strike OR EUR/USD is below its Strike OR USD/KRW is above its Strike, the trade results in a digital payout to the option buyer.
Downside:	Loss is limited to premium paid.
Upside:	Payout ratio is 6.45x (net: 5.45x)

Trade Rationale

Advantages of using “Any-Digital options”?

- Reduces idiosyncratic risk by offering tail-risk protection against a variety of stress scenarios.
- Takes advantage of the elevated USD correlations (see *Exhibit 2*) to give significant savings for this structure when compared to purchasing all three individual digital options.

Why not use USD vanilla calls instead?

- USD vanilla calls are a simple way of protecting against market stress.
- However, despite the rallies in most currencies vs. the USD in the first three week of October, skew pricing is still significantly skewed to USD calls (see *Exhibit 1*) making USD vanilla calls expensive.
- Elevated skew levels mean that USD digital call options are offered at much less of a premium to its ‘theoretical value’ than comparable USD vanilla call options would be.

For example indicatively:-

- 3m AUD/USD 0.8539 digital put (TV: 1.8075%, Offer: 8.75% USD)
- 3m AUD/USD 0.8539 vanilla put (TV: 0.0542%, Offer: 0.59% USD)
- Offer to TV ratio is 484% for the digital put, and 1089% for the Vanilla Put.

Why not use DXY instead?

- DXY and other USD baskets are useful for eliminating the idiosyncratic risk that arises when only using a single currency pair as a tail-risk proxy hedge.
- However, with USD implied correlations currently trading at such elevated levels (See *Exhibit 2*) any potential correlation savings from using a basket structure over the individual vanillas are much reduced.

Currency choices

- Using a single currency pair as a proxy for tail-risk protection gives rise to idiosyncratic risk, which is not ideal for many portfolio managers. For this reason, clients may find this structure appealing as it provides protection against a variety of stress scenarios.
- **AUD:** (see *Exhibit 3*) The Australian Dollar has been well supported by high commodity prices in recent years – much of this due to strong growth in commodity intensive emerging markets and China in particular. As a high-yielding currency geared to global growth, AUD has also shown high correlation to euro area risk and policy developments in recent weeks.
- **EUR:** (see *Exhibit 4*) The EUR is a purer play on Euro area financing stress. Although the EUR will continue to benefit from reserve managers' need to diversify away from USD, a loss of systemic confidence in the currency should cause the EUR to trade much weaker.
- **KRW:** (see *Exhibit 5*) The Korean Won is particularly vulnerable to capital outflows in times of turmoil, with foreign investors tending to pull money out of Emerging Markets due to liquidity pressure elsewhere. For this reason, KRW is heavily dependent on global risk appetite.
- **USD:** In times of stress, the USD has historically acted as a safe haven due to its superior liquidity and repatriation-related flows as investors pull money out of riskier long carry/EM trades. With JPY and CHF no longer seen as credible safe haven currencies due to government intervention to stem their appreciation, the USD is one of the few remaining safe havens.
- The three selected currency pairs have shown high degrees of correlation to equities (see *Exhibit 6*)

What are the individual digitals?

For comparison purposes:

- 3m AUD/USD 0.8539 Digital Put is offered at 8.75% USD
- 3m EUR/USD 1.1688 Digital Put is offered at 7.50% USD
- 3m USD/KRW 1,332 Digital Call is offered at 11.00% USD
- The sum of the individual digital offers is 27.25% USD of the individual notional. The "Any-Digital" is therefore offered at a 43.1% to the sum of the individuals.

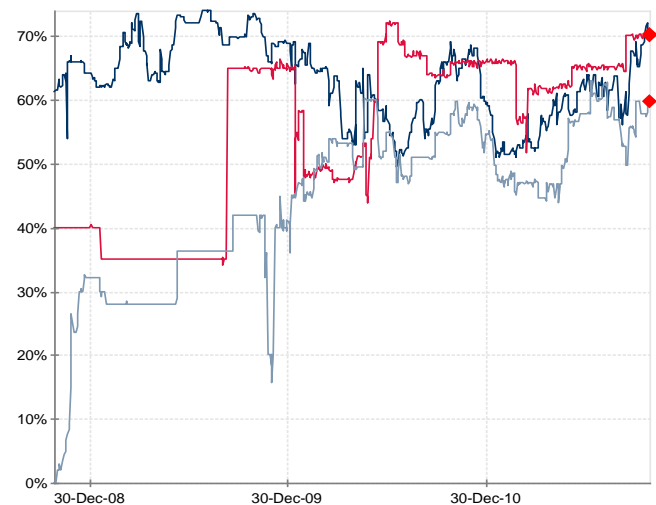
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Exhibit 1 – USD vanilla calls still at a high premium



Source: Credit Suisse Locus

Exhibit 2 – Implied Correlation



Source: Credit Suisse Locus

Exhibit 3 – AUD/USD Spot



Source: Credit Suisse Locus

Exhibit 4 – EUR/USD Spot



Source: Credit Suisse Locus

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Exhibit 5 – USD/KRW Spot



Source: Credit Suisse Locus

Exhibit 6 – FX vs. Equity Correlations

	FTSE 100	HANG SENG	S&P 500
FX AUD/USD	0.86	0.92	0.82
FX EUR/USD	0.58	0.62	0.56
FX KRW/USD	0.48	0.67	0.49

Cross Asset Risk Monitor; 3M Correlation; LOGNORMAL RETURNS; WEEKLY Frequency (TUE) Cheap Risk (2)
Source: Credit Suisse Locus

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