The Quantum Fund

RISK BASED INVESTING FOR THE NEW BEAR MARKETS

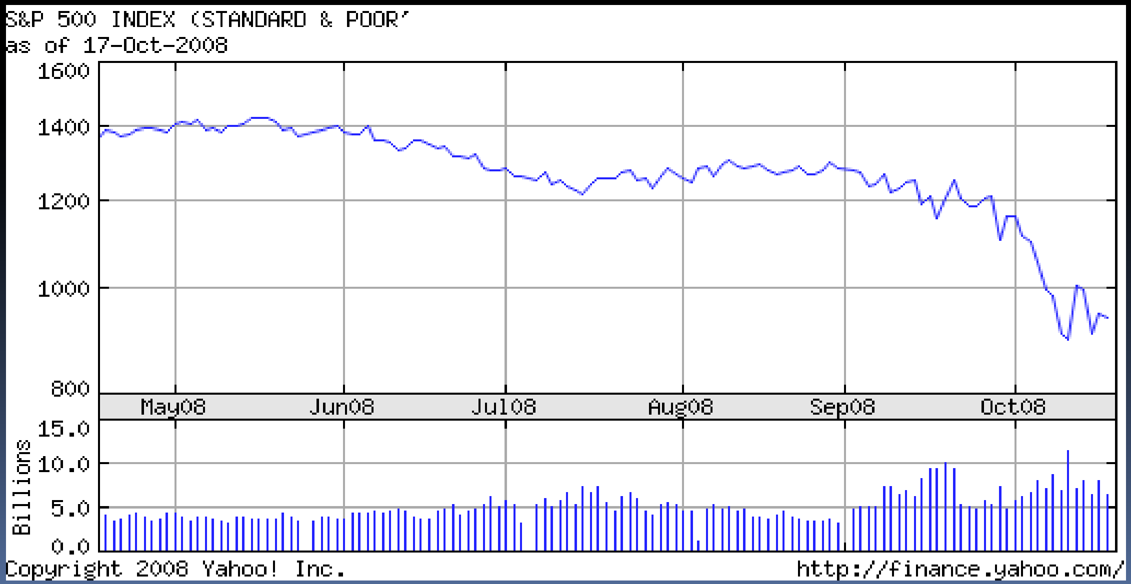
BY BRIAN QUINTENZ

Overall Strategy – Short S&P

- $200 million fund
- Short S&P 500 until fundamentals substantially reverse
- Risk tolerance – 20% ($40 million) loss allowed
  - High Risk Tolerance due to high volatility
- Tolerance probability - 16% of the time (1 Standard Deviation)

Performance History & Analysis

- Down 31% over the last 6 months, significantly down in last one month
- Near 5 year low
- Government intervention could push back against some built-in negativity, create less certain price movements and increase volatility



The Quantum Fund

Futures Contracts Data

- S&P 500 Future (March 09) = $940.75
- Contract package = 250
- Total cost = (250 * 940.75) = $235,187
- Total fundable short Contracts = 851

  ($200 million/$235,187)

Market View

- Prices = Down, fairly sure
- Volatility stable from current levels (which is already very high).

Hedging Strategy - Dataset

- Risk Premium = 5% (assumed)
- R = 1.12% (6 month Treasury Note yield)
- t = .422 (154 days until March 20th 2009 / 365)
- Monthly vol = 18.87% (from Riskmetrics)
- Annualized Sigma = 65.37% (= 18.87% * sqrt 12)
- Standard Deviation Risk Tolerance = 1 (16% one – sided)
- March 09 Futures (SPH9) = 940.75
- Expected Spot Market = 960.50
  - March 09 Futures * (1 + (R+RP)t)/(1 + (R*t))
  - 940.75 * (1 + ((.05 + .0112)*.422)) / (1 + (.0112 * .422))

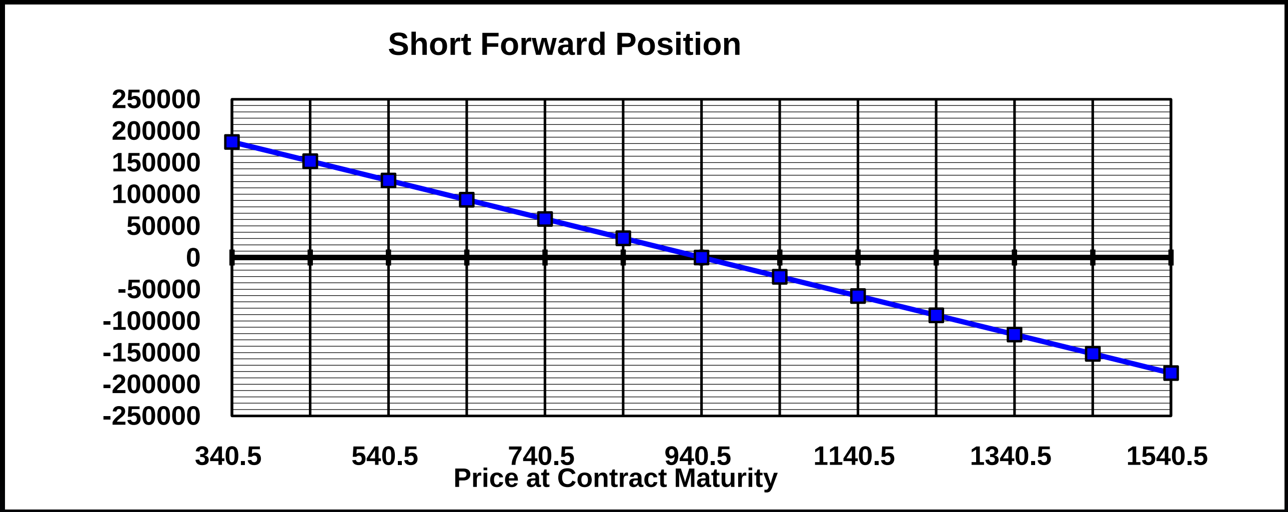
Hedging Strategy - Critical Price Calculation

- Short position - worried about positive gains.
- $960.50 + e^(sigma * vol * sqrt t)
- CP = $960.50 * e^(1 * 65.37% * sqrt .422)
- CP = $960.50 * 1.528 = $1466

Hedging Strategy – Hedge

- Actual Loss: ($1466 - $940.75)/$940.75 = 56 %
- Target loss = 20%
- Hedge: (56% – 20%)/56% = 36/56 = 64% hedge required
- 64% x 851 short contracts = 547 contracts purchased to hedge for risk tolerance.
- NET -304 F

Payoff for Forecast View
Down (probably), Vol stable

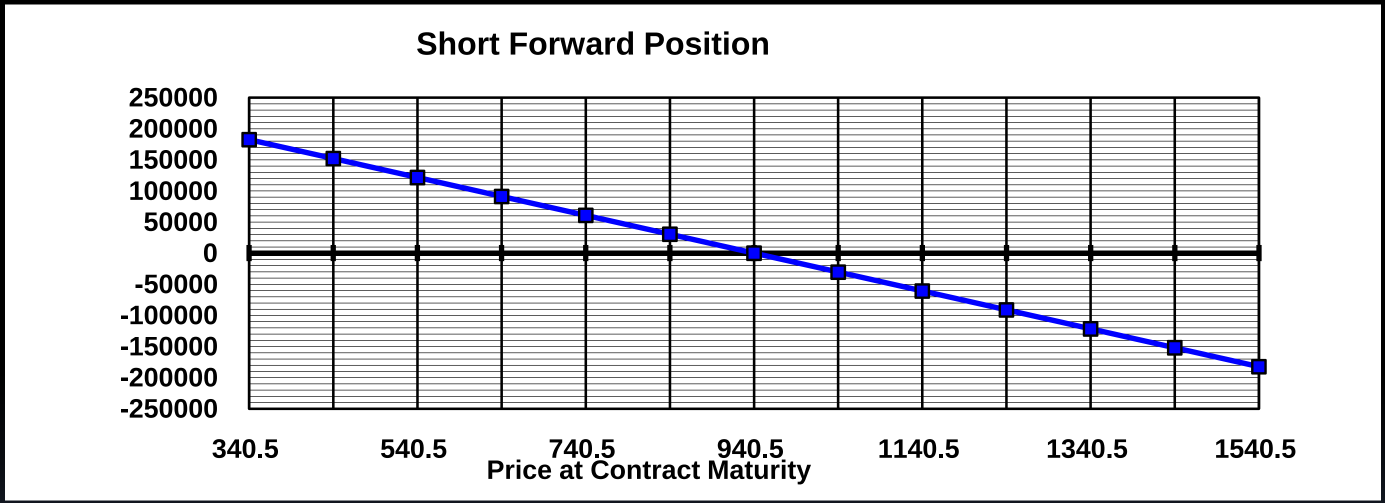


Critical Prices	S&P	-F	X 851F contracts	Risk ok?
Lower bound	628.82	265241	66,310,291.63	Yes
Upper Bound	1465.97	-447177	-111,794,154.57	NO
Forward Price	940.5	0	0.00	Yes

Payoff for Forecast View

Down (probably), Vol stable

Risk Adjusted: -304F



Critical Prices	S&P	-F	X 304F contracts	Risk ok?
Lower bound	628.82	94751	23,687,812.76	Yes
Upper Bound	1465.97	-159743	-39,935,867.20	Yes
Forward Price	940.5	0	0.00	Yes

Current Market/Vol View

	Level of Confidence			
Vol vs. market	Unsure-Vol	=Market	Sure-Stable	Vol vs. market
Direction vs.	View = Vol up	View = Vol **stable**	View = Vol down	Direction vs.
market view				market view
Up-Unsure	forward & options cheap	forward cheap & options fair	forward cheap & options expensive	Up-Sure
No direction - ?	options cheap	forward & options fair	options expensive	No direction - Sure
Down-Unsure	forward expensive & options cheap	**forward expensive & options fair**	forward & options expensive	Down-Sure

Trading Scenarios with –851F

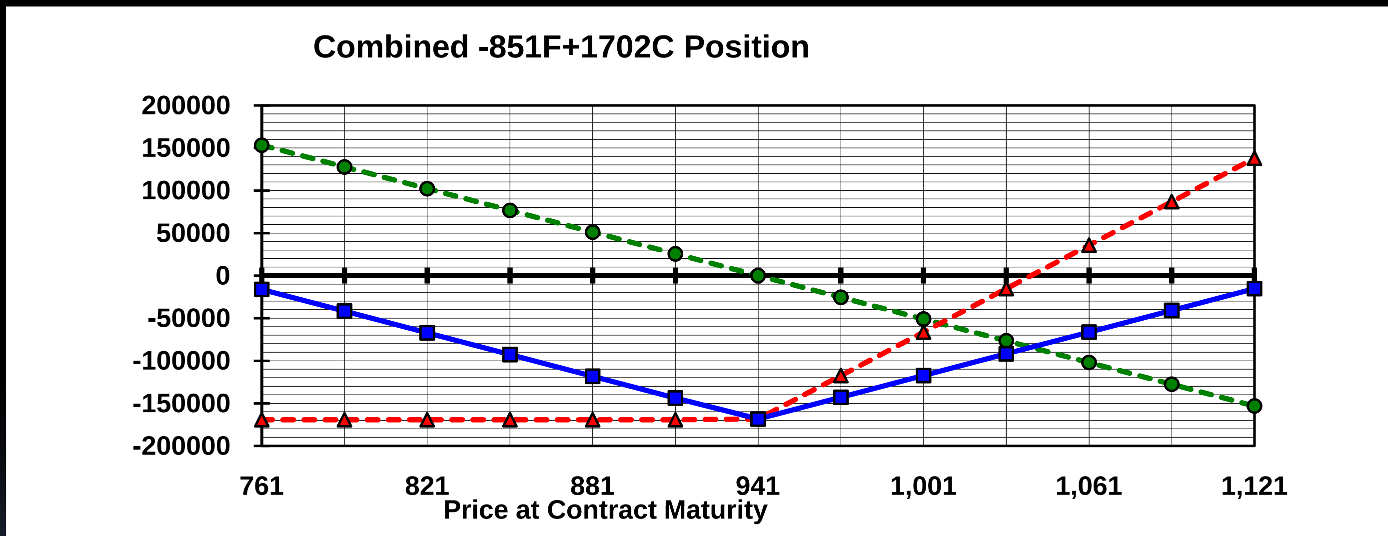
	Level of Confidence			
Vol vs. market	Unsure-Vol	=Market	Sure-Stable	Vol vs. market
Direction vs.	View = Vol up	View = Vol **stable**	View = Vol down	Direction vs.
market view				market view
Prices Up-Unsure	forward & options cheap	forward cheap & options fair	forward cheap & options expensive	Up-Sure
No direction - ?	1) Options Cheap *Synthetic Long Straddle => Add +2C for every 1F, buy +43F for Risk (-808F, +1616C)*	2) Forward & options Fair *-P for every –F (income), but add +451F for Risk, (-400P, -400F)*	options expensive	No direction - Sure
Prices Down-Unsure	3) Forward expensive & options cheap *Add +3/2C to increase gains from higher Vol => +1277C to –851F*	**forward expensive & options fair** ***Add +547F for Risk to Net -304F***	forward & options Expensive	Down-Sure

Options Pricing Data – SPH9

ITM/OTM	Calls – Strike	Calls – Price	Puts – Strike	Puts - Price
More OTM	$1020	$61.00	$850	$71.20
OTM	$980	$79.00	$900	$89.40
ATM	$940	$99.50	$940	$106.10
ITM	$900	$122.40	$980	$125.30
More ITM	$850	$153.80	$1020	$147.00

Trading Scenario Payouts

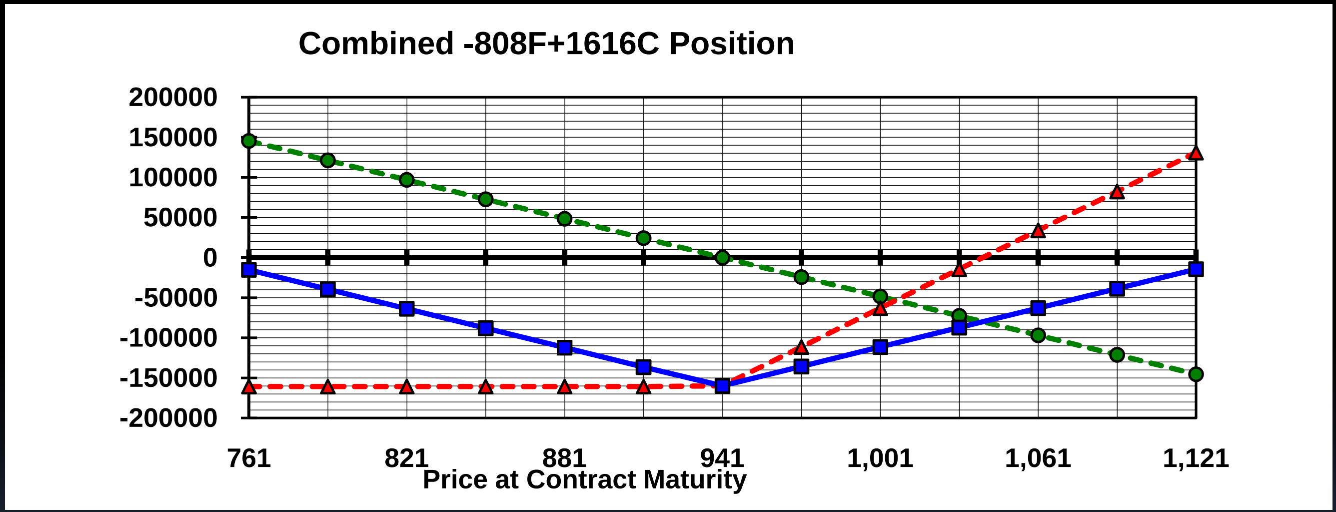
1) Vol Up, Direction Unsure: Keep -851F, Add +1702C



Critical Prices	S&P	-F	+2C	Profit	X 851F contracts	Risk ok?
Lower bound	628.82	265241	-169349	95892	23,973,042	Yes
Upper Bound	1465.97	-447177	725855	278679	69,669,655	Yes
Forward Price	940.5	0	-168498	-168498	-42,124,500	**NO**

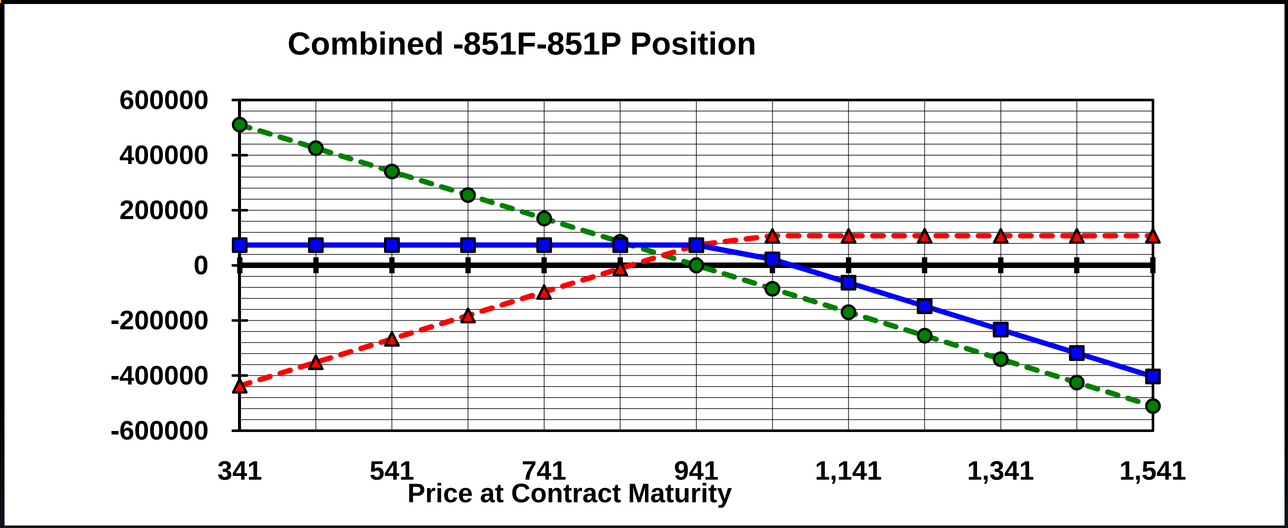
Trading Scenario Payouts

1) Vol Up, Direction Unsure: Buy +43F (-808F), Buy +1616C



Critical Prices	S&P	-F	+2C	Profit	X 808F contracts	Risk ok?
Lower bound	628.82	251839	-160792	91047	22,761,713	Yes
Upper Bound	1465.97	-424581	689179	264597	66,149,331	Yes
Forward Price	940.5	0	-159984	-159984	-39,996,000	YES

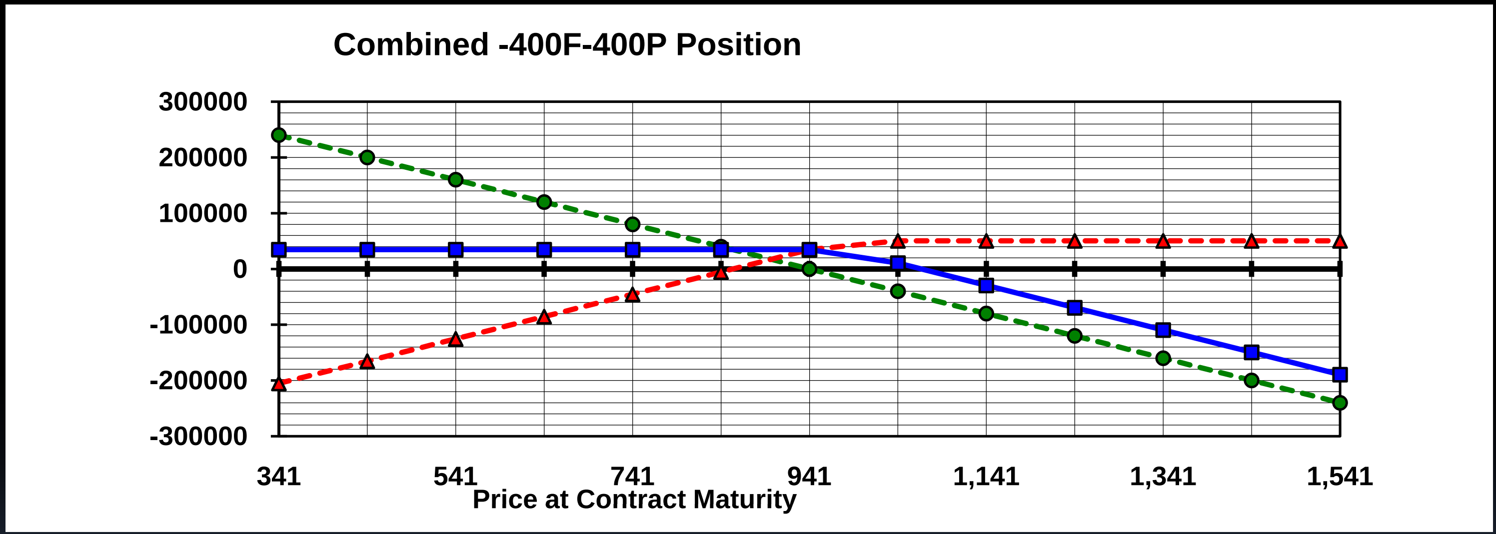
Trading Scenario Payouts
2) Vol stbl, Direction unsure: Keep -851F, Sell -851P



Critical Prices	S&P	-F profits	-P profits	Total Profit	X 851F contracts	Risk ok?
Lower bound	628.82	265241	-191725	73516	18,379,102	Yes
Upper Bound	1465.97	-447177	107131	-340046	-85,011,428	NO
Forward Price	940.5	0	73516	73516	18,379,102	Yes

Trading Scenario Payouts

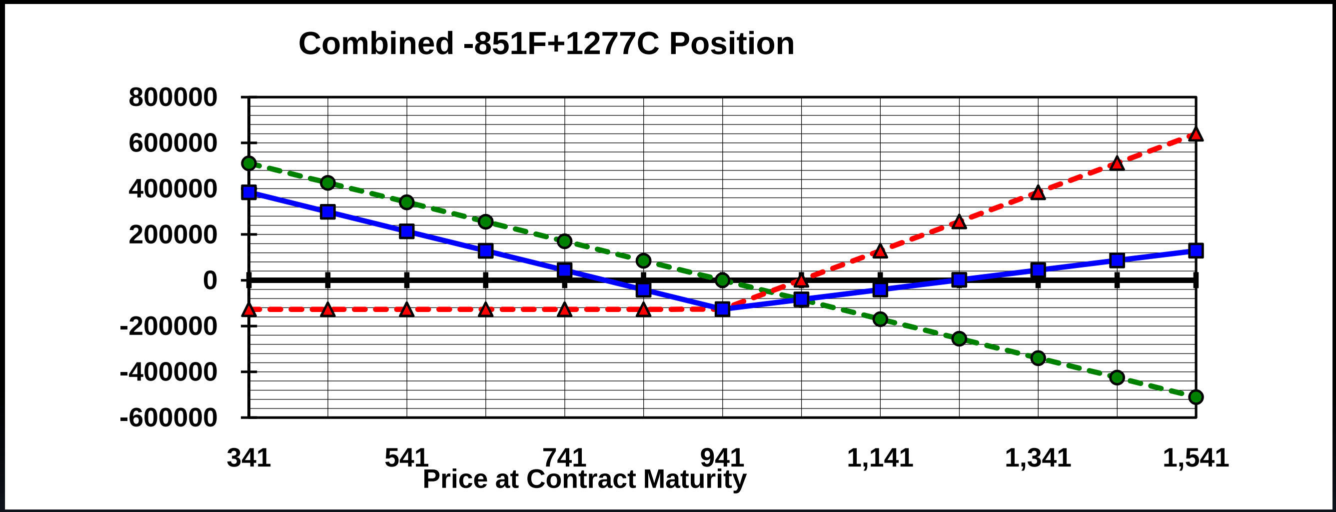
2) Vol stbl, Direction unsure: Buy +451F (-400F), Sell -400P



Critical Prices	S&P	-F	-P	Profit	X 400F contracts	Risk ok?
Lower bound	628.82	124673	-90117	34555	8,638,826	Yes
Upper Bound	1465.97	-210189	50355	-159833	-39,958,368	YES
Forward Price	940.5	0	34555	34555	8,638,826	Yes

Trading Scenario Payouts

3) Vol up, Dir. Down/unsure: Keep -851F, Add +1277C



Critical Prices	S&P	-F	+3/2C	Profit	X 851F contracts	Risk ok?
Lower bound	628.82	265241	-127012	138229	34,557,354	Yes
Upper Bound	1465.97	-447177	544391	97215	24,303,702	Yes
Forward Price	940.5	0	-126374	-126374	-31,593,375	Yes

Recommendation

- Due to Government intervention into the banking sector to support the financial system and the economy, price downside appears to be limited.
- However, extent of crisis is still undetermined, meaning Volatility may still increase.
- ***Conclusions: Add +3/2C to -851F for a bear straddle – insurance on upside with positive exposure down.***