

Rocket to Quality

Introduction:

Schools of Thought

There are traders from the New School here who use Delta, Gamma, Vega, Theta, Rho, Iota and other Greek sensitivities to monitor risk and aid in their trading decisions. They also pay strict attention to what the skew is doing and trade accordingly. The bulk of these traders seldom find it necessary to go through the exercises that the group of traders from the Old School do. These traders concentrate on monitoring the price action of individual spreads. Their sophistication allows them to do this with positions containing thousands of contracts spread over dozens of strikes in several months. Many of Old School traders have very little use for the Greeks outside of Delta and Theta. They are experts at conversions/reversals. Boxes, butterflies, time spreads, ratio spreads and back spreads. Both systems work as far as profitability is concerned. It is impossible to determine which method is better but I know that using a combination of the two strategies has synergistic results.

The Synergy of Combining the Two Schools Using Position Dissection

The beauty of Position Dissection is that it combines the two schools of thought. We start with the a New School approach, dissect the position into different sub categories (baskets), and view the Greeks as separate subsets which reconcile with the whole. This is advantageous because many spreads will not behave (profit or lose) as their models suggest. The other reason is that we can gain insights into where we have limited risk Greeks offset by unlimited risk Greeks. It can be kind of dangerous to hedge long Gamma (*Gramma*) generated primarily from short at-the-money butterflies by selling straddles (short Gamma) against it. Besides these benefits, as we shall see, is that Position Dissection makes it easy for traders to see what part of their positions they are comfortable with and those they are not so.

Have you ever lost on the day when you thought you had profited, have ever made less than you thought you had, or have ever lost more than you thought you had?

When this happens, how many of you actually spend any time trying to ascertain why? Some traders perhaps have no need to ascertain why because they are either not totally responsible for the account or they make or lose so much in a day that a few thousand dollars slipping through the cracks is immaterial.

Often there are times when we, as traders, blame these P&L misfortunes on bad settlement prices or marks. But the only bona fide marks are marks involved with Locks (Reversals/Conversions, boxes and Jelly Rolls) and WingSpreads (butterflies, condors,

pterodactyls, etc.). These can and should be accounted for. They are bona fide because it can be argued that their values belong at a certain price at any given time and volatility skew.

RIFO (Risky Inventory First Out)

This is a real life lesson about why it is useful to set up one's priorities when dealing with risk. By using the RIFO inventory method it becomes easy to keep risky inventory ready to be liquidated or hedged at a moment's notice. The idea is to, while trading, remain one or two trades away from a comfortable risk level.

Dissecting out limited risk spreads, such as butterflies and time spreads, help traders to sift through their positions to identify where they may need to put out fires. This document also covers Dissecting out Ratios.

Reclassification of Greeks for an Improved Perception of Risk

Dividing one's Greeks into sub-groupings, I believe, is a superior way to classify complex elements of a position. It helps when one is developing a game plan for 'managing the beast' and eventually unwinding a position.

Do you know when a trader leaves and someone else has to assume the position? I once assumed a nightmare, about a week before the crash of '87. It changed the bottom line of my whole position, thereby changing the nature of the risk. It changed the planned risk which normally goes into establishing every position.

I've always been comfortable with the sizes that I have traded and carried. If I became uncomfortable at any time I did what was necessary to feel comfortable. Size parameters have never been addressed by the entity. I have had positions that were larger and more risky in the past. However, never have specific criteria been laid out, i.e. number of contracts per strike, (per transaction or open interest) expansion risk in a one limit move, risk in a two limit move, etc.

Occasionally I would be told to not be short or long 20 bonds and more recently the equivalent of 10 bonds. A number of times I would be asked to come in to discuss with the principals and risk managers for instance, why I would be long or short, in excess of 30 bonds risk wise. In every case it was resolved as "OK" due to "Lying Deltas".

Here is an example of how that would come about:

Long 600*78p @ -.29 Delta

Short 300*80p @ -.43 Delta

(+2 @ -.29) minus -.43 = -.15 x 300 spreads (+1 by -2) is equivalent to short 45 bonds worth of risk.

However, based upon Risk-Reward, my P&L would be

a loss of \$10,000 if the market was up 1 1/2 points
a loss of \$5,000 if the market was stable and
a gain of \$80,000 if the market was down 1 1/2 points. That is a lot different than \$90,000 per bond point that 45 futures would make or lose.

Normal positions consist of several different categories of risk:

- a.) Locks (reversals, conversion or boxes). I've seen these things get way out of hand like the time a firm had to do 10,000 conversions paying up to 10 ticks when the at-the-money conversion was worth zero.
- b.) The Core Position ('at' and 'just-out-of-the-money' options)
- c.) The Dead meat options (those options which are close to worthless but are left in a ratio form so as to have proper protection in the event that the underlying moves 10% before you could say boo.

Every option has a home. Nothing is left unprotected.

On Friday October 16th, 1987 the Dow Jones Industrial Average lost over 100 points (almost 4% of its value). On the following "Black" Monday, it dropped more than 500 points (close to 20%) of its value. A large broker could not complete an order to sell thousands of 82 calls on the close for 6 ticks. That evening the credit markets came to life. The bonds which had closed under 78 at 2:00 were up limit for most of the evening session. I was lucky enough to buy 200*88 calls at 17 ticks. I don't know what happened to the customer with the 82 calls. He was probably very relieved to only get a partial fill, at the same time, aggravated to have gotten any at all? The following morning, bonds were trading 88.10 in London while Euros were 3.00 higher on the opening. It looked like curtains for a lot of us. A few minutes before we opened in Chicago, a friend of mine got filled, buying some London futures at 83.09. That was about 5 ticks off the low of the day as it turned out.

To properly align all of the variables, I have set MicroHedge™ to October 20th 1997 to emulate October 19th 1987. Each of the days in this next example are off by one day accordingly. I was fairly neutral with a positive Gamma, however, the position had a nasty ratio spread that had been dormant for weeks. It was going to be ugly:

BLACK MONDAY 10/19/87

I did not come in during the day on Monday. The bonds did not yet come to life until after the close. When I heard what the bonds were doing I called a guy who was pretty good at calling the bonds. He said bonds could rally 15 points from the bottom in a week. The bottom was 75 and change meaning it can go to 90 and change. That move would be good for the core of my position and the dead options would soon come to life.

The dead options consisted of +1475*88c/-2882*90c/-128*92c. To give you an idea of the risk, the 80c & 82c closed at 49 & 21 ticks respectively on Friday. Based on (+1 by -2) that spread was 7. The 88c & 90c were marked at .01 (1 tick) each making that (+1 by -2) = -1. In other words, on an eight point move, judging by the 80/82 spread, my (+1 by -2) spread was to move out 8 ticks in our favor 1475 times, or \$185,000 profit,

so all my partners thought it was safe. If there was anything about size and risk with the options which were dead meat, they all could have been bought on Friday and Monday at 1 tick. Another way to look at the dead option ratios would be thus: 90/92 (+1 by -2), (+64 by -128) and 88/90 at just under (+1 by -2) (+1475 by -2946). It is important to understand this method which I use to facilitate the understanding of how the position evolved through the week.

A			B		
<u>Consider some Ratios:</u>					
Actual Position			Considered as Two (+1 by -2) Spreads		
88c	+1475	=	+1475		
90c	-2886	=	-2950	&	+64
92c	-128	=			-128
Effective ratios:			(+1 by -2)	&	(+1 by -2)

This position seemed to be safe for at least two consecutive limit moves. Over half of this position had been on for a month and nothing had changed since October 7th. On that day, the change was the purchase of more 88 calls.

Note: The previous expiration I had a position which was approximately (+1800 by -7700), which scared the hell out of everyone, we got through it, but still no parameters were laid down. After that one I vowed to myself 'never go steeper than (+1 by -2)' with adjacent strikes.

On Monday night October 19th, on balance, I bought 143*88 calls, sold 20*90 calls and covered all short 128*92 calls. This was the part of the position that I referred to as the dead options. The executed prices were unbelievably high. On one trade, I bought 200*88 calls for 17 ticks. They were each worth 1 tick on my sheets.

Earlier I mentioned that the position was safe for an eight point spike. I must point out here that it is insufficient to just look at the movement of the underlying only. You must also allow for an increase in implied volatility. The reason that I look at a 10% move is because, even though you might only move 3% over night, the options can go as if there is a much greater move due to the cash market continuing, because implied volatility explodes or both. A ratio spread becomes dangerous when it cannot withstand the next possible move. It become necessary to flatten out the steepness of the ratios as the market continues, i.e. (+1 by -2) down to (+1 by -1.93 down to (+1 by -1.7) down to (+1 by -1.5) down to (+1 by -1.3) down to (+1 by -1.1) all the way to down to (+1 by -1), which can only make money on a continued move in what was considered the dangerous direction. When the market calms down one can consider re-steepening. I left for the day with:

+1618*88c by -2902*90c by zero 92c - a ratio less than +1 by -1.8

The other trades Monday night aided the core of the position which in the final analysis made a descent profit.

On Tuesday, Tuesday night, and Wednesday I traded over 12,000 contracts. Had the position been left alone we would have lost as much as \$400,000. Instead I was up by \$150,000. When I got a chance for a breather by mid Wednesday, I met with the principals and risk management.

By noontime Wednesday October 21st, all the positions starting at the 86 strike and above, I had considered part of my core position. All the real and synthetic puts at 84 and below, I considered to be dead options.

	19-Oct-87	21-Oct-87	Net Change
F		-12	-12
86c		-27	-27
88c	1475	2021	546
90c	-2882	-2470	412
92c	-128	-1006	-878
94c		-219	-219
96c		-330	-330
98c		97	97
100c		-203	-203
Net	-1535	-2149	-614

By this time the stock market had retraced over 1/2 of Monday's crash, risk management and I conferred with our guru who predicted that the market would gyrate between 84.00 and 89.00 with a maximum up side of about 91.00 allowing me to steepen the effective ratios of the position. We decided to sell calls. At the time, the bonds were trading about 85.00. In the afternoon I sold 465*92 calls, bought 222*94 calls and sold 314*100 calls.

On the following schedule I show the core of my position, the 86 strike through the 100 strike.

Though the calls closed higher than the prices that I sold them at, Wednesday night premium was killed and puts and calls were down big. I had not come in Wednesday night because the position was safe for a while. Implied volatility which had been trading at 15% two weeks before went up to 32% and backed off to 24% by Wednesday. The 88/90 position warranted being (+1 by -1.66) based upon the in-the-money spreads.

Actual		Considered							
F	15	15 84c							-15*84p
86c	-27	-23	-4						
88c	2021		6	2015					
90c	-2470			-3385	915				
92c	-1471				-1593	122			
94c	3					-221	224		
96c	-330						-416	86	
98c	97							-165	262
100c	-517								-517
Ratio	+1 by:	-1.56	-1.62	-1.68	-1.74	-1.81	-1.86	-1.92	-1.97

All this transposed makes the 88c/90c spread (+2015 by -3385) or (+1 by -1.68)

Looking at it this way makes it easy to scramble for what you need. Again nothing steeper than (+1 by -2). A spread (+1 by -2) using the 88c/90c, for example, at expiration puts the break-even point at 92 because you have a long 88 call worth \$4,000 vs. short 2*90 calls worth \$2,000 each or \$4,000. 30 days to go until expiration is great for safe ratios considering one looks to initiate them with 65 days to go when there is high volatility.

The reason one puts them on at high volatilities is because when volatility drops it is synthetic to time speeding up. An 88c/90c spread that is (+2 by -3, the same as +1 by -1.5) has a break-even at 94.00 because the 2*88c's are worth \$6,000 each or \$12,000 and the 3*90c's are worth \$4,000 each or \$12,000. This example is to show how adjusting, or a flattening of the ratio, allows for the continuation of a market with manageable pain. Rolling the short options to the next strike also achieves similar results. Every time one flattens a ratio or rolls away shorts one is getting potentially very long so one must continue to buy inexpensive put spreads and look for places to safely steepen the ratio, for the 'pull-backs' and sideways markets. One must continue to massage the position until either it cannot go steeper than what the lower spreads dictate, i.e. the 82/84 spread, or the position is trading at such a value that it is too expensive to let it go worthless.

Break-even analysis is shown to provide the understanding that a ratio between (+1 by -2) and (+1 by -1.5) extends the break-even point beyond 92 toward 94, then greater, should the ratio become less than (+1 by -1.5). When I flatten, I like to buy vertical spreads (bull spreads with calls and bear spreads with puts). One reason is they are cheap due to the skew. Second, when the market calms down you can steepen the overall spread again, thus adding to your original play while decreasing, the cost to flatten.

Here is the position coming into Monday October 19th. The position does not include Monday night's trades. 2:00 Futures Settlement 77.25

10/19/87	86467		81177		Total		Synthetic	
Strike	Futures Calls	247 Puts	Futures Calls	324* Puts	Futures Calls	571 Puts	Calls	Puts
74		-649		348		-301		-301
76		358		433		791		791
78		-384	1	-563	1	-947		-946
80	-5	476	-394	578	-399	1054	89	488
82	14	80	-220	-45	-206	35	-171	
84	-39		155	-19	116	-19	175	
86	5	-10	-130		-125	-10	-135	
88	325		1150		1475		1475	
90	-505		-2377		-2882		-2882	
92			-128		-128		-128	

Here was my position Wednesday 10/21/87 Mid Day

10/21/07	86467		81177		Total		Synthetic	
Strike	Futures Calls	247 Puts	Futures Calls	99* Puts	Futures Calls	346 Puts	Calls	Puts
70				-22		-22		-22
72				-943		-943		-943
74		-649		-452		-1101		-1101
76		358		129		487		487
78		-384	2	-131	2	-515		-513
80	-5	476	-339	415	-344	891		547
82	14	80	-50	-45	-36	35		-1
84	-39		58	-19	19	-19		78
86	5	-10	-20	-2	-15	-12	-28	-77
88	325		1696		2021		2021	
90	-505		-1965		-2470		-2470	
92			-1006		-1006		-1006	
94			-219		-219		-219	
96			-330		-330		-330	
98			97		97		97	
100			-203		-203		-203	

Here is an example of flattening with verticals.

Have

To Flatten

Result

	Long 1000*88 calls	Buy 500*88c	Long 1500*88c
	Short 2000*90 calls	Sell 500*90c	Short 2500*90c
Ratio (+1 by -2)		(+1by -1)	(+1 by -1.66)
or	Have currently	Need to Flatten	Result
	Long 1000*88 calls		Long 1000*88c
	Short 2000*90 calls	Buy 700*90c	Short 1300*90c
		Sell 700*92c	Short 700*92c
Ratio (+1 by -2)		(+1by -1)	See Below:
	Long 1000*88 calls	Long 1000*88c	
	Short 1300*90 calls	Short 1650*90c	And Long 350*90c
	Short 700*92 calls		Short 700*92c
Effective Ratios		(+1 by -1.65)	(+1 by -2)

This is an example of a defensive play. First, (+1 by -2) was O.K. Now, in the 88/89, less than (+1 by -1.7) is preferred. But, the further out one (90/92) is OK. (+1 by -2), until the market moves further. As time passes or the market gyrates, it becomes safe to put out more shorts to steepen the ratio. The initial unadjusted spread would be a loser on a continued move up but as time passed and implied volatility declined, a subsequent move up to the same point, the (+1 by -2) would make money. Steepening is essentially a low risk sale. It is desirous to actually lose on those sales, because the longs will out produce the shorts. It is wise to play defense. The flattening of the ratio increases the open position but decreases the risk. This is why the size grows. That has always been better than taking a loss, because there is still a chance to make it back, where as that's it if the position is closed out. Most traders look at buying against the position, as "taking a loss". I see it as "adding to a winner" because if the market slows down before the initial break-even point is reached, the initial spread will profit and so will the (+1 by -1) adjustments - they widen out.

The bond market was up huge on Thursday. By the end of the day the position warranted an adjustment in the night session, based upon the calculation made between the two sessions. Here was the position with 2:00 Futures Settlement: 86.12:

10/22/97 Strike	86467		81177		Total		Synthetic	
	Futures Calls	247 Puts	Futures Calls	387* Puts	Futures Calls	634 Puts	Calls	Puts
70				-22		-22		-22
72				-1096		-1096		-1096
74		-649		-549		-1198		-1198
76		358	-75	-511	-75	-153		-228
78		-384	15	1133	15	749		764
80	-5	476	-314	300	-319	776		457
82	14	80	-200	155	-186	235		49
84	-39		-18	59	-57	59		2
86	5	-10	-20	-2	-15	-12		-27
88	325		1721		2046		2043	3
90	-505		-1968		-2473		-2473	
92			-1468		-1468		-1468	
94			171		171		171	
96			88		88		88	
98			-61		-61		-61	
100			-517		-517		-517	

Let us dissect the 88 through 100 strikes transposed into 6 separate spreads even though this is one huge spread 2046 times. The adjustment made on Wednesday: selling the calls caused a loss of about \$150,000, which when divided it by 2046 spreads comes out to less than 5 bond option ticks per spread. The \$150,000 is a lot of money but a spread, moved out 5 ticks on a spread that is (+1 by -1.66) is certainly manageable and not out of control. It definitely required an adjustment. Though Wednesday our furthest out ratio was (+1 by -2) and our second was (+1 by -1.93) or .7 change. Since the market moved 1.10 our new top spread should be reduced by .09 to (+1 by -1.91). (1.3 X .7) subtracted from 2.

88c	2043	2043					
90c	-2473	-3263	790				
92c	-1468		-1399	-69			
94c	171			128	43		
96c	88				-82	170	
98c	-61					-332	271
100c	-517						-517
Ratio +1 by:		-1.60	-1.63	-1.70	-1.77	-1.84	-1.91

After transposing to safe spreads the position is left with +2046 by -3330 (+1 by -1.63). It needs to be flattened to (+1 by -1.55) or so. If the position is +2046*88c (1.49) 113 ticks vs. -3330*90c (1.08) 72 ticks by purchasing 300*88c/90c call verticals (+1 by -1) the ratio flattens to +2346 by -3630 (+1 by -1.55). As it turns out it is a great

adjustment to make because what remains is a spread which, at the last prices, is desirable to initiate. Had the not been initiated, the spread cost is calculated:

PROCEEDS - sell 1.55*90 calls for 72 ticks --- Pay 113 ticks

PAYOUT - buy 1*88 call for 113 ticks --- Receive 111.6 ticks

Net Cost 1.4 ticks per/spread. That is an unbelievable price with only 30 days to go. The spread cost of less than \$25 can easily turn into \$200 (the maximum value for the spread being \$2000). Also this adjustment is a recapturable investment, therefore it is cheap insurance.

The cost of the spread (\$192,187), a bull spread, profits on the upside and on the downside, it could be "steepened against". For example, in the following week, a sale of 300*90 calls @41 recaptures all \$192,187 at a time when a (1 X 2) might be safe. It is not necessary to sell all 300 calls at once, and more realistically a trader would probably sell 100 @ 61 in a couple of days steepening everything to (1 X 1.59) then later 100 @ 52 steepening to (1 X 1.63) then maybe 78 @ 35. Again this is all predicated on what the lower spreads dictate, i.e.(84/86 spread). In this example the ratio is back to (1 X 1.66) (2346 X 3908). The \$192,187 spent has come back \$219,218. This is how it usually works. The same thing can be achieved by rolling the shorts away.

On the upside assuming no retracements, say for example, every 2 points or so. Up at 89.00 one would have to buy 300 more spreads (+1 by -1) for 1.00 each.

At 91.00 one would just buy the 92c/90p strangle. The 92 calls protect the upside outright and the 90 puts lock in some of the 88/90 call spread value. Imagine a cost of 2.00 for the strangle 1284 times.

Calls		Puts
+2646	88c	
-3930	90c	+1284
+1284	92c	

Between 86.5 & 87.5 buy 300*88c/90c spreads @ 41 ticks \$-192,000

At around 89.00 buy 300*88c/90c spreads @ \$1000 \$-300,000

At around 91.00 buy 1284*90p/92c strangles @ \$2000 \$-2,568,000
Total = \$-3,060,000

This 3 million of option premium is reduced by \$133,000, calculated as follows:

Buy 2046 @ 113 ticks and sell 3330 @ 72) ticks = credit of \$133,000

Net Cost = About \$2.9 Million

If we expire at 86	spread = \$5.1 Million
If we expire at 87	spread = \$3.9 Million
If we expire at 88	spread = \$2.6 Million
If we expire at 89	spread = \$3.9 Million
If we expire at 90	spread = \$5.3 Million
If we expire at 91	spread = \$4.0 Million
If we expire at 92	spread = \$2.7 Million
If we expire at 93	spread = \$2.7 Million

Above 93.00 the spread in terms of the transposed 88/90 call spread remains locked at \$2.7 Million. So after our adjustments we would risk \$200,000 working it up to have a potential to clean up. Granted, the market after moving 12 points in 4 days is likely not to continue in 2 or 3 point intervals. It will probably grind and gyrate which is what this spread likes. So these adjustments might not be necessary or if so at better prices. The spread was a gold mine, taking a little heat (5 ticks). It was manageable.

On Thursday afternoon one of the senior partners looked at the position. He viewed each short option as if it were a potential future. When the market was at about 75.00, the spread was more dangerous than at the current time. Why didn't management require me to cover the 88's or 90's @ 1 tick? The principal's recommendation was to buy 800 or 900 calls. Even though I had survived this like a dream, all he could see was the bonds rallying another 13 points by Sunday to 100.00. I thought we should buy 300 call spreads and keep doing what I had been doing for the last four days. The market had to give. Where was this particular partner, Monday, Tuesday and Wednesday? Responsibility was shifting back. What should you do in a situation like this. Call in qualified experts...Oh, that's me... "No". Just buy 800 calls. I bought 88c through 98c, anything offered about 800. By Friday morning we were out \$280,000 more. Dollars which the Thursday night calls lost.

On Friday, all the partners assembled. All were in agreement. On Sunday the bonds will be at 101.00, close to 15 points higher. I was asked, "Charlie - if we're at 101.00 on Sunday, is it true that you'll be short 1200 futures?" My answer, "yes". The expiration before, on a 6 point move we would have been short 6000 bonds we did not touch that position. It had gotten to the point where they wouldn't listen to me because in their minds it was just a potential nightmare that they wanted to alter. My ideas were not welcome because the size of the position had discredited me completely. It was their position now and they wanted to turn it into what made them comfortable while the bonds rallied to 101.00. They wanted to offset; the 1250 or so 92 calls were to be covered. I told them they ought to be concerned about the down side if they buy all those calls. They agreed that puts ought to be bought against them which would be buying even more premium. I convinced them that selling 300 futures against the calls was better. This new position was equivalent to being long 500 straddles. I've never even been long more than 50 straddles over a weekend.

10/23/97	86467		81177		Total		Synthetic	
At Close	Futures	247	Futures	96	Futures	343		
Strike	Calls	Puts	Calls	Puts	Calls	Puts	Calls	Puts
70				-22		-22		-22
72				-1096		-1096		-1096
74		-649		-629		-1278		-1278
76		358	-75	-792	-75	-434		-509
78		-384	-165	758	-165	374		209
80	-5	476	-314	864	-319	1340		1021
82	14	80		305	14	385		399
84	-39		-396	-341	-435	-341		-776
86	-5	-10	224	198	219	188		407
88	325		2046	1	2371	1	1953	419
90	-505		-1749		-2254		-2254	
92			-64		-64		-64	
94			249		249		249	
96			547		547		547	
98			-266		-266		-266	
100			-442		-442		-442	

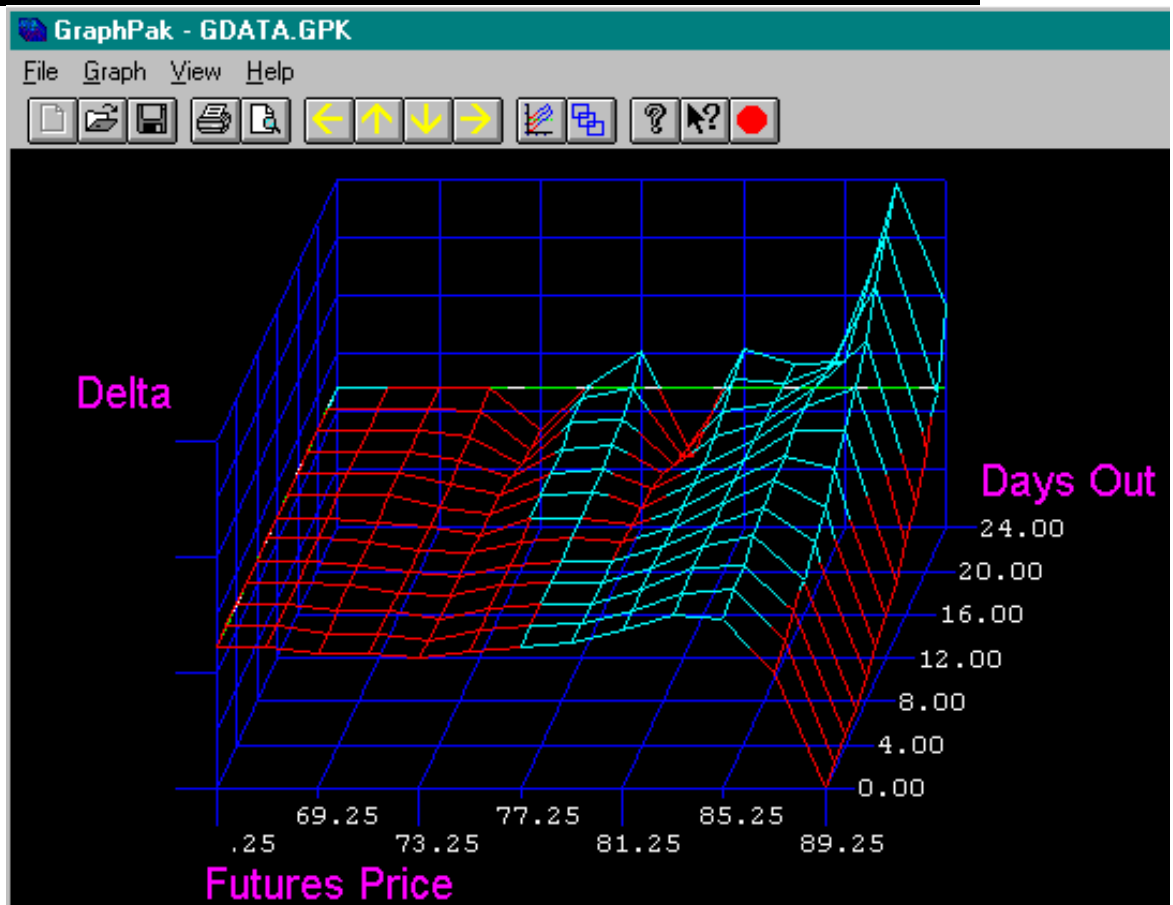
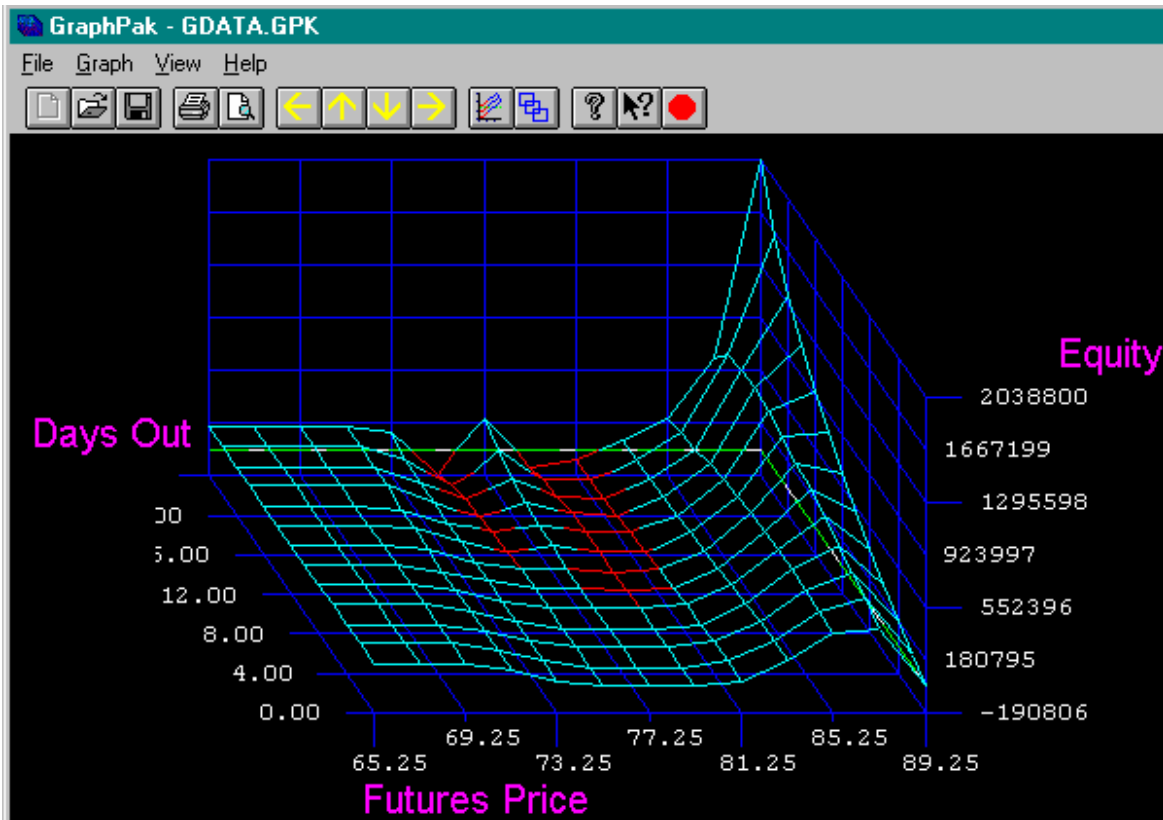
(equivalent to long 500 straddles)

If the market trades sideways over the weekend our risk was \$50,000 per day in erosion plus \$150,000 for each 1% implied volatility drop. The accounts lost in addition to the Thursday \$280,000 roughly \$800,000. My badge was taken from me on Monday. I did not follow the account after that, but I've learned that it lost some more. If we just liquidated the position at the market it would have cost us \$200,000 which they did not want to do. If size was the problem, then the position should have been cut in half for \$100,000 or to 25% for \$150,000.

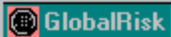
In conclusion, all I can say is that during this week I was trading well and feeling in control of my position at all times. Between 10/16/87 and 10/22/87 when responsibility shifted and capricious efforts took hold, no money had been lost. Also in my opinion we had the optimal position which proved to be manageable during the past 3 days of vicious markets it could have been managed if it continued.

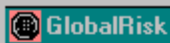
GlobalRisk - Tuesday, September 30, 1997 - 4:25:18 pm						
Edit Trades						
Portfolio: CRASH.POR - 1019						
Instrument: US - 30 Year Treasury Bond						
Next Trade	Bought/Sold	Quantity	Contract	Strike	Contract Type	Trade Price
Save						
Analyze	Bought	605	Z97		Futures	77.25
Cancel	Sold	301	Z97	74	Puts	0.09
Sort	Bought	791	Z97	76	Puts	0.30
Position	Sold	6	Z97	78	Calls	1.04
Merge	Sold	947	Z97	78	Puts	1.18
Print	Sold	399	Z97	80	Calls	0.26
Export	Bought	1054	Z97	80	Puts	2.40
	Bought	35	Z97	82	Puts	4.21
	Sold	206	Z97	82	Calls	0.08
	Sold	19	Z97	84	Puts	6.15
	Bought	116	Z97	84	Calls	0.02
	Sold	8	Z97	86	Puts	8.14
	Sold	125	Z97	86	Calls	
	Bought	1475	Z97	88	Calls	
	Sold	2886	Z97	90	Calls	
	Sold	128	Z97	92	Calls	

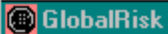
Scenario Results							
Strategy: CRASH.STR		1019		GlobalRisk			
Portfolio: CRASH.POR		1019					
Instrument: US - 30 Year Treasury Bond				Currency: US Dollars			
Price Change	Price	Delta	Gamma (P)	Vega	Theta	Equity	
10.00	87.25	-67.73	-118.11	-97689	27008	432302	
8.00	85.25	81.88	-32.30	-24638	6573	388764	
6.00	83.25	89.77	16.05	11630	-3511	201025	
4.00	81.25	45.96	22.61	15578	-4451	63254	
2.00	79.25	11.83	10.47	6723	-1745	9647	
0.00	77.25	0.08	3.82	1638	12	0	
-2.00	75.25	-12.71	9.75	3835	-209	10459	
-4.00	73.25	-33.38	9.04	1796	628	56892	
-6.00	71.25	-22.91	-12.98	-3485	2255	121912	
-8.00	69.25	-17.16	0.04	-3506	2449	158153	
-10.00	67.25	-1.13	-5.80	-1177	2045	175877	

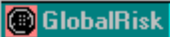


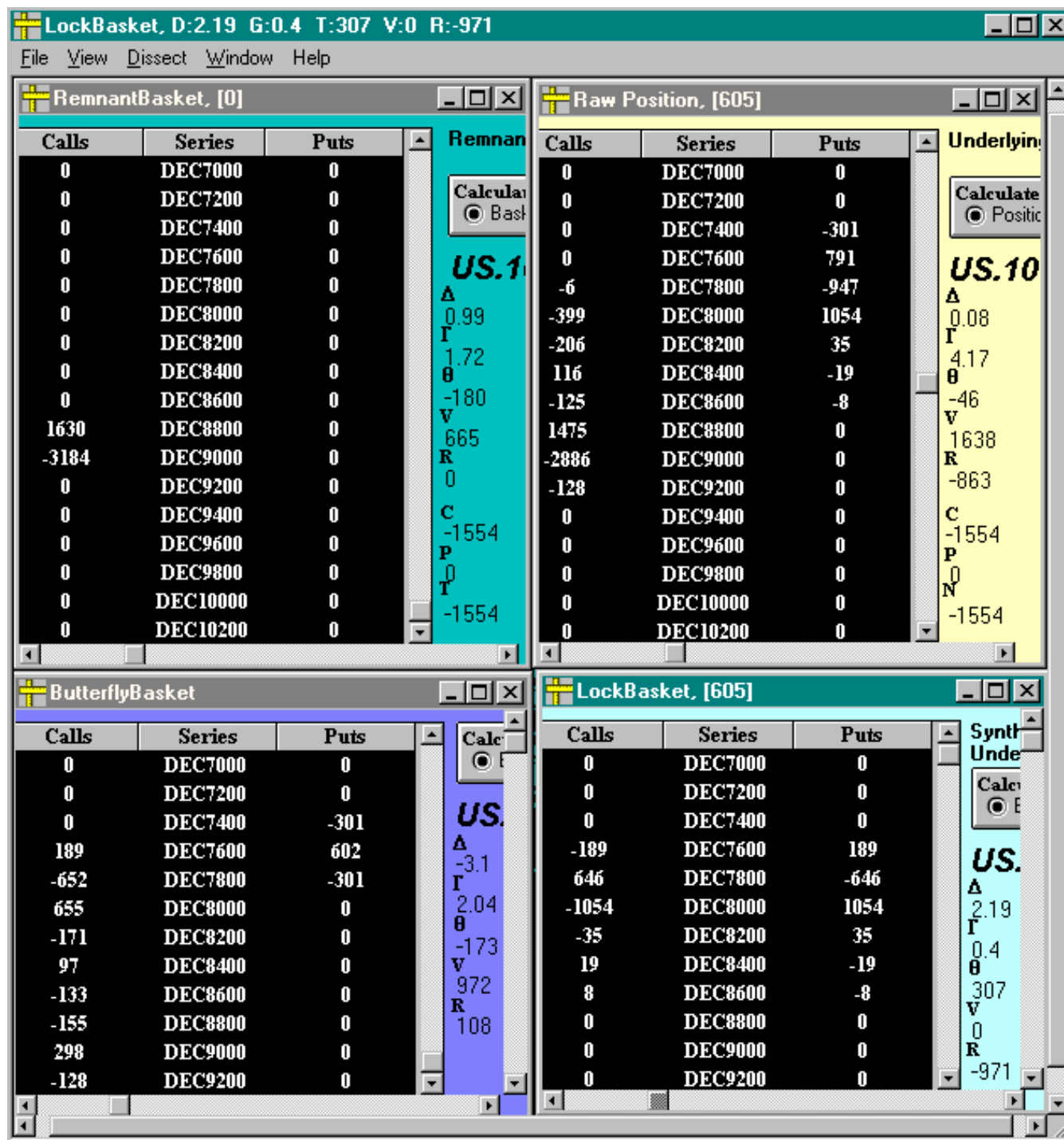
Scenario Results						
Strategy:	CRASH.STR	1019	 GlobalRisk			
Portfolio:	CRASH.POR	1019				
Instrument:	US - 30 Year Treasury Bond					
			Currency: US Dollars			
Price Change	Price	Equity -2.00 Vols	Equity -1.00 Vols	Equity +0.00 Vols	Equity +1.00 Vols	Equity +2.00 Vols
10.00	87.25	610346	524937	432302	333748	229629
8.00	85.25	415917	407598	388764	360112	322369
6.00	83.25	168552	186782	201025	210005	212902
4.00	81.25	30609	47202	63254	78189	91343
2.00	79.25	-1432	3504	9647	16958	25186
0.00	77.25	391	-775	0	2354	6016
-2.00	75.25	3099	7073	10459	13567	16620
-4.00	73.25	59666	58234	56892	56113	55636
-6.00	71.25	126146	123592	121912	119243	115344
-8.00	69.25	169136	164109	158153	153167	149565
-10.00	67.25	176025	176025	175877	174913	172998

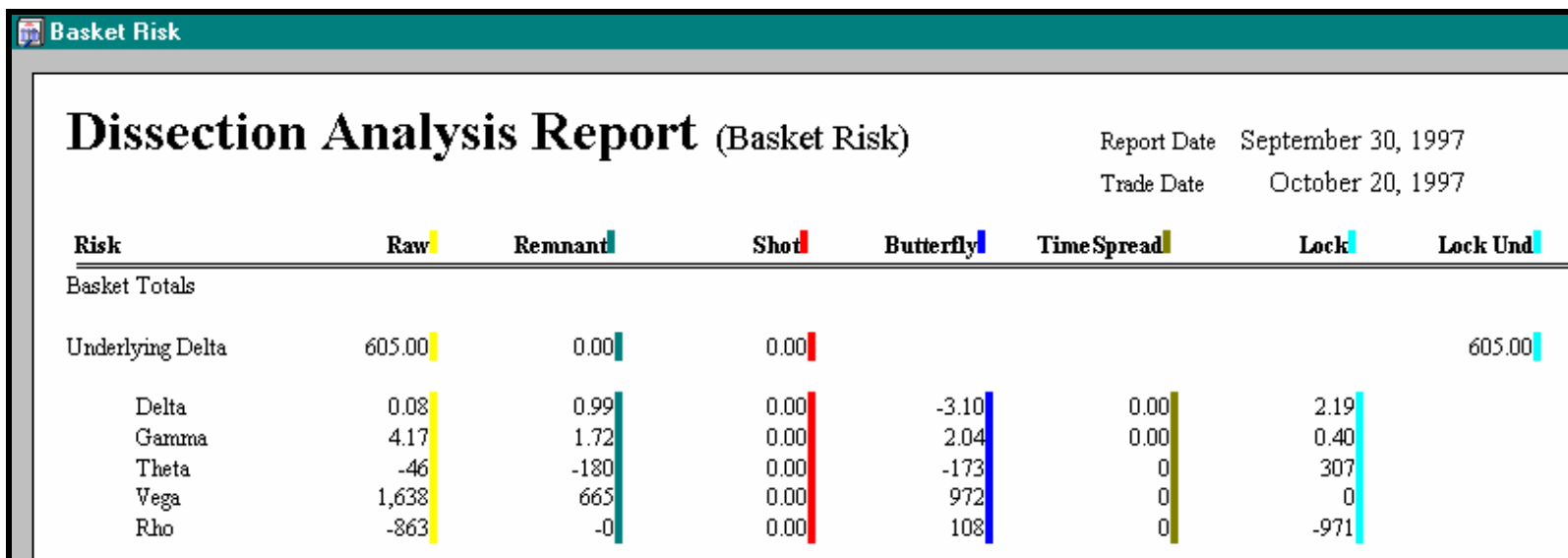
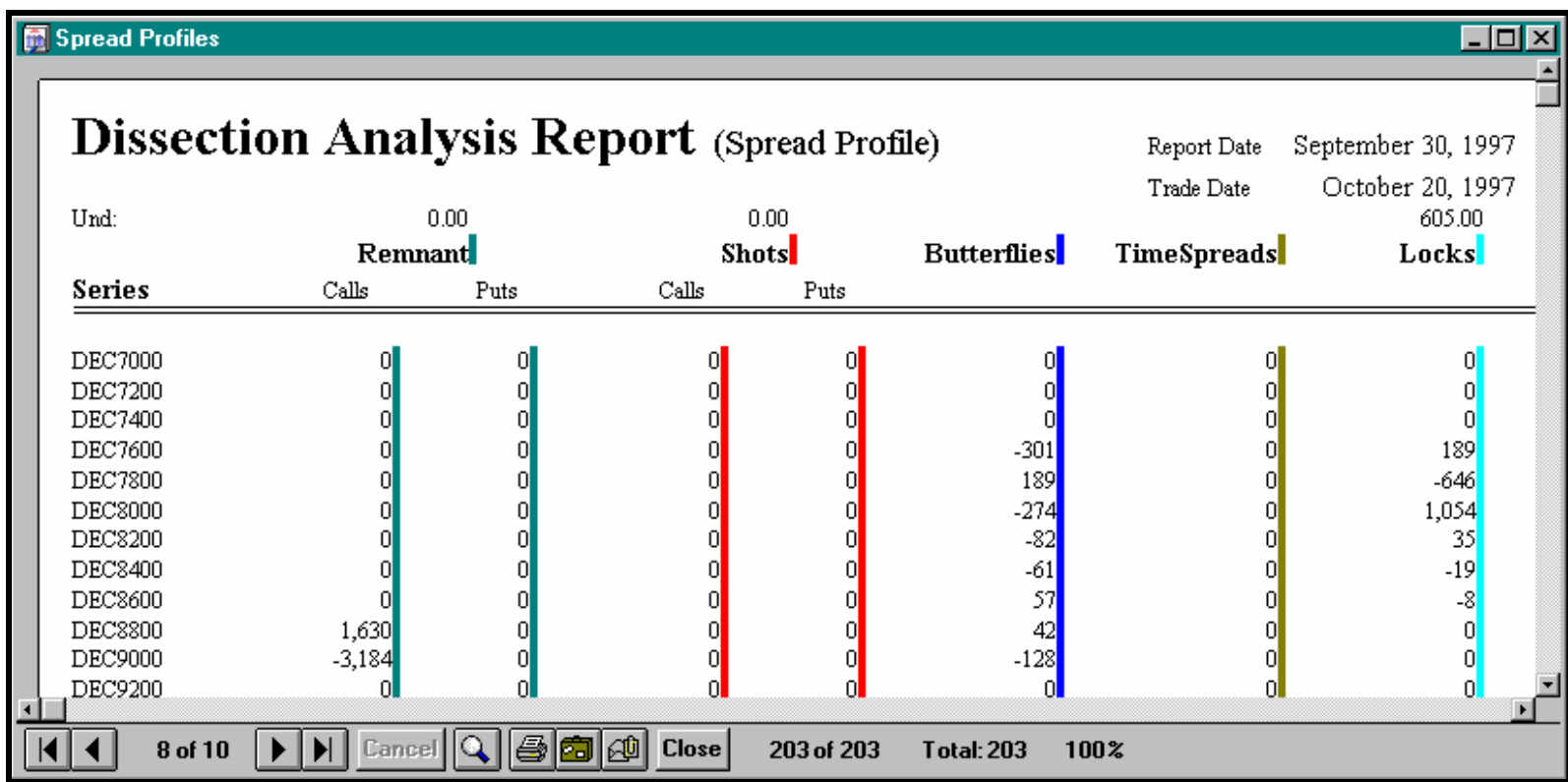
Scenario Results						
Strategy:	CRASH.STR	1019				
Portfolio:	CRASH.POR	1019				
Instrument:	US - 30 Year Treasury Bond			Currency: US Dollars		
Price Change	Price	Delta -2.00 Vols	Delta -1.00 Vols	Delta +0.00 Vols	Delta +1.00 Vols	Delta +2.00 Vols
10.00	87.25	23.71	-23.96	-67.73	-106.81	-141.41
8.00	85.25	134.41	109.26	81.88	53.50	25.00
6.00	83.25	100.52	96.67	89.77	80.17	68.26
4.00	81.25	38.35	42.53	45.96	47.96	48.17
2.00	79.25	0.60	6.76	11.83	16.01	19.33
0.00	77.25	1.33	0.28	0.08	0.55	1.50
-2.00	75.25	-10.65	-12.08	-12.71	-12.72	-12.22
-4.00	73.25	-40.84	-38.93	-33.38	-29.33	-26.24
-6.00	71.25	-26.57	-21.42	-22.91	-24.93	-27.29
-8.00	69.25	-11.56	-15.75	-17.16	-15.10	-12.87
-10.00	67.25	-0.00	-0.00	-1.13	-3.55	-6.06

Scenario Results						
Strategy:	CRASH.STR	1019				
Portfolio:	CRASH.POR	1019				
Instrument:	US - 30 Year Treasury Bond					
			Currency: US Dollars			
Price Change	Price	Gamma (P) -2.00 Vols	Gamma (P) -1.00 Vols	Gamma (P) +0.00 Vols	Gamma (P) +1.00 Vols	Gamma (P) +2.00 Vols
10.00	87.25	-116.46	-118.46	-118.11	-121.37	-118.96
8.00	85.25	-7.72	-21.19	-32.30	-41.39	-48.60
6.00	83.25	30.54	23.91	16.05	7.82	-0.20
4.00	81.25	28.01	25.48	22.61	19.27	15.49
2.00	79.25	7.69	9.12	10.47	11.42	11.78
0.00	77.25	-2.90	1.10	3.82	5.72	6.92
-2.00	75.25	15.44	12.16	9.75	8.28	7.15
-4.00	73.25	-3.93	11.85	9.04	7.00	5.54
-6.00	71.25	-2.20	2.10	-12.98	-11.95	-12.03
-8.00	69.25	-12.28	-13.79	0.04	0.23	1.05
-10.00	67.25	-0.00	-0.00	-5.80	-6.31	-7.01

Scenario Results						
Strategy:	CRASH.STR	1019	 GlobalRisk			
Portfolio:	CRASH.POR	1019				
Instrument:	US - 30 Year Treasury Bond					
			Currency: US Dollars			
Price Change	Price	Vega -2.00 Vols	Vega -1.00 Vols	Vega +0.00 Vols	Vega +1.00 Vols	Vega +2.00 Vols
10.00	87.25	-82303	-90756	-97689	-103417	-108196
8.00	85.25	-4331	-14741	-24638	-33906	-42493
6.00	83.25	19391	16283	11630	5928	-407
4.00	81.25	16669	16376	15578	14143	12030
2.00	79.25	4330	5485	6723	7805	8544
0.00	77.25	-2237	-82	1638	3055	4231
-2.00	75.25	5622	4499	3835	3497	3392
-4.00	73.25	2395	2124	1796	1500	1281
-6.00	71.25	-5153	-4240	-3485	-2893	-2435
-8.00	69.25	-3189	-3438	-3506	-3445	-3303
-10.00	67.25	-574	-872	-1177	-1455	-1684

Scenario Results						
Strategy:	CRASH.STR	1019	 GlobalRisk			
Portfolio:	CRASH.POR	1019				
Instrument:	US - 30 Year Treasury Bond					
			Currency: US Dollars			
Price Change	Price	Theta -2.00 Vols	Theta -1.00 Vols	Theta +0.00 Vols	Theta +1.00 Vols	Theta +2.00 Vols
10.00	87.25	19523	23318	27008	30598	34104
8.00	85.25	643	3483	6573	9850	13261
6.00	83.25	-4994	-4529	-3511	-2000	-69
4.00	81.25	-4128	-4369	-4451	-4305	-3884
2.00	79.25	-948	-1313	-1745	-2177	-2540
0.00	77.25	961	469	12	-425	-842
-2.00	75.25	-478	-303	-209	-185	-221
-4.00	73.25	552	577	628	680	719
-6.00	71.25	2489	2369	2255	2158	2079
-8.00	69.25	2223	2356	2449	2508	2539
-10.00	67.25	1853	1942	2045	2153	2257





88c	2143	2143						
90c	-2473	-3322	849					
92c	-1468		-1366	-102				
94c	171			171	0			
96c	188				0	188		
98c	-61					-341	280	
100c	-517						-517	
Ratio +1 by:		-1.55	-1.61	-1.68	-1.74	-1.81	-1.85	

MicroHedge-(TREASURY BONDS-U.S. - EOD) @US.1022												
File Edit Format Parameters Regalc! Trade Log! Risk Help LogOn!												
US72.B 87:00+0:07 o115:10 h115:27 l115:06 s115:09 00:00												
Date: 10/23/97 Model: Whaley Type: Future Exercise: American												
Basis: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00												
Vol: Using Volatility Skew Int: 8.00 8.00 8.00 8.00 8.00 8.00 8.00 8.00												
Net Und:634 Delta:-48.49 Gma:-66.88 Tht:37960 Vga:-67450 Rho:1050 ThEdg:-1117283												
OpenPosMark/Mkt:-18000112 DayTrades/Mkt:1950000 NetMark/Mkt:-16050112												
clx2	cBfly	cDlt	cThv	cPos	Series	pPos	pThv	pDlt	pBfly	plx2	Days	cpVol
-13*00		1.000	17*000	0	DEC7000	-22	0*003	-0.002		0*00	23	31.00
-11*01	0*00	1.000	15*000	0	DEC7200	-1096	0*007	-0.005	0*01	0*00	23	30.00
-9*04	0*01	0.993	13*003	0	DEC7400	-1198	0*017	-0.012	0*01	0*00	23	29.00
-7*11	0*03	0.977	11*020	-75	DEC7600	-153	0*038	-0.025	0*02	0*00	23	28.00
-5*23	0*04	0.950	9*063	115	DEC7800	749	0*081	-0.050	0*04	0*00	23	27.00
-3*45	0*07	0.904	7*147	-319	DEC8000	776	0*163	-0.093	0*07	-0*01	23	26.00
-2*18	0*11	0.833	5*301	-186	DEC8200	235	0*313	-0.164	0*11	-0*06	23	25.00
-1*11	0*15	0.727	3*562	-57	DEC8400	59	0*569	-0.269	0*15	-0*16	23	24.00
-0*26	0*19	0.588	2*334	-15	DEC8600	-12	1*336	-0.408	0*19	-0*38	23	23.00
-0*19	0*30	0.427	1*296	2046	DEC8800	0	2*293	-0.569	0*30	-1*03	23	22.00
-0*10	0*14	0.287	0*561	-2473	DEC9000	0	3*553	-0.709	0*14	-2*15	23	23.00
-0*05	0*09	0.184	0*328	-1468	DEC9200	0	5*316	-0.813	0*10	-3*46	23	24.00
-0*03	0*06	0.114	0*189	171	DEC9400	0	7*173	-0.883	0*06	-5*26	23	25.00
-0*02	0*03	0.070	0*109	188	DEC9600	0	9*090	-0.929	0*04	-7*14	23	26.00
-0*01	0*02	0.042	0*063	-61	DEC9800	0	11*043	-0.958	0*02	-9*07	23	27.00
-0*01	0*01	0.026	0*037	-517	DEC10000	0	13*017	-0.977	0*01	-11*03	23	28.00
-0*00	0*01	0.016	0*022	0	DEC10200	0	15*005	-0.990	0*01	-13*01	23	29.00
-0*00	0*00	0.010	0*014	0	DEC10400	0	17*000	-0.999	0*00	-15*00	23	30.00
-0*01	0*00	0.000	0*000	0	DEC10600	0	19*000	-1.000	0*00	-17*00	23	31.00

RiskFixer Position Dissector -

File View Dissect Window Help

ButterflyBasket

Calls	Series	Puts
0	DEC7400	-1198
0	DEC7600	-228
0	DEC7800	864
0	DEC8000	457
0	DEC8200	49
0	DEC8400	2
0	DEC8600	-27
2143	DEC8800	-97
-4490	DEC9000	0
549	DEC9200	0
2188	DEC9400	0
188	DEC9600	0
-61	DEC9800	0
0	DEC10000	0
-517	DEC10200	0
0	DEC10400	0

Calculate

Baske

US.10

Δ -23.3

Γ -17.91

Θ 4680

V -12322

R -15

RemnantBasket, [0]

Calls	Series	Puts
0	DEC7400	0
0	DEC7600	0
0	DEC7800	0
0	DEC8000	0
0	DEC8200	0
0	DEC8400	0
0	DEC8600	0
0	DEC8800	0
0	DEC9000	0
0	DEC9200	0
0	DEC9400	0
0	DEC9600	0
0	DEC9800	0
-517	DEC10000	0
517	DEC10200	0
0	DEC10400	0

Calculate

Baske

US.10

Δ -4.55

Γ -2.37

Θ 1746

V -2923

R 0

C 0

P -1296

T -1296

ShotBasket, [0]

Calls	Series	Puts
0	DEC7000	0
0	DEC7200	0
0	DEC7400	0
0	DEC7600	0
0	DEC7800	0
0	DEC8000	0
0	DEC8200	0
0	DEC8400	0
0	DEC8600	0
0	DEC8800	0
2017	DEC9000	0
-2017	DEC9200	0
-2017	DEC9400	0
0	DEC9600	0
0	DEC9800	0
0	DEC10000	0

Calculate

Baske

US.10

Δ -22.42

Γ -46.27

Θ 32047

V -52206

R -108

C -2017

P 0

T -2017

Raw Position, [634]

Calls	Series	Puts
0	DEC7000	-22
0	DEC7200	-1096
0	DEC7400	-1198
-75	DEC7600	-153
115	DEC7800	749
-319	DEC8000	776
-186	DEC8200	235
-57	DEC8400	59
-15	DEC8600	-12
2046	DEC8800	0
-2473	DEC9000	0
-1468	DEC9200	0
171	DEC9400	0
188	DEC9600	0
-61	DEC9800	0
-517	DEC10000	0

Calculate

Positic

US.10

Δ -48.49

Γ -66.88

Θ 37960

V -67450

R 1050

C -2017

P -1296

N -3313

Spread Profiles

Dissection Analysis Report (Spread Profile)

Report Date September 21, 1997

Trade Date October 23, 1997

Und: 0.00 0.00 634.00

Series	Remnant		Shots		Butterflies	TimeSpreads	Locks
	Calls	Puts	Calls	Puts			
DEC7000	0	-2,080	0	0	0	0	0
DEC7200	0	784	0	0	2,058	0	0
DEC7400	0	0	0	0	2,236	0	0
DEC7600	0	0	0	0	1,216	0	75
DEC7800	0	0	0	0	-32	0	-115
DEC8000	0	0	0	0	-416	0	319
DEC8200	0	0	0	0	-343	0	186
DEC8400	0	0	0	0	-221	0	57
DEC8600	0	0	0	0	-97	0	15
DEC8800	0	0	0	0	0	0	97
DEC9000	0	0	2,017	0	2,143	0	0
DEC9200	0	0	-2,017	0	-204	0	0
DEC9400	0	0	-2,017	0	-2,002	0	0
DEC9600	0	0	0	0	-1,612	0	0
DEC9800	0	0	0	0	-1,034	0	0
DEC10000	-517	0	0	0	-517	0	0
DEC10200	517	0	0	0	0	0	0

Basket Risk

Dissection Analysis Report (Basket Risk)

Report Date September 21, 1997

Trade Date October 23, 1997

Risk	Raw	Remnant	Shot	Butterfly	Time Spread	Lock	Lock Und
Basket Totals							
Underlying Delta	634.00	0.00	0.00				634.00
Delta	-48.49	-4.55	-22.42	-23.30	0.00	1.79	
Gamma	-66.88	-2.37	-46.27	-17.91	0.00	-0.33	
Theta	37,960	1,746	32,046.89	4,680	0	-513	
Vega	-67,450	-2,923	-52,206.11	-12,322	0	0	
Rho	1,050	0	-108.14	-15	0	1,173	

Raw Position

Price:	75.00	77.00	79.00	81.00	83.00	85.00	87.00	89.00	91.00	93.00	95.00	97.00	99.00
P&L	833185	665815	375776	124504	-6266	-21364	0	39024	-508808	-1855793	-3927617	-6545512	-9519453
Delta	-1178	-12777	-14577	-10162	-3937	-173	81	-15956	-50504	-82903	-115542	-137524	-154371
Gamma	-8709	-3457	695	2667	2294	-227	-4499	-12110	-15683	-15813	-13430	-10561	-8206
Theta	63997	36997	11908	-2417	-2199	12362	38103	65685	87855	98095	96601	88519	76848
Vega	-96471	-51563	-11378	10376	7547	-20493	-70387	-133073	-179908	-196288	-187136	-165623	-141307
Rho	-2160	-1914	-1318	-614	51	615	1068	1415	1947	2899	3748	4761	6042

ShotBasket

Price:	75.00	77.00	79.00	81.00	83.00	85.00	87.00	89.00	91.00	93.00	95.00	97.00	99.00
P&L	-133890	-128823	-118413	-99103	-67919	-27831	0	-105422	-446270	-1123955	-2621304	-4867568	-7864376
Delta	178	376	719	1209	1660	1432	-972	-13033	-25871	-56027	-96147	-130698	-156309
Gamma	75	130	182	156	-141	-1072	-3152	-7875	-12449	-16580	-16776	-14418	-10619
Theta	-119	-37	486	2210	6592	15846	32315	59768	89744	107969	112925	103157	88624
Vega	291	254	-455	-3120	-10344	-26383	-56381	-106694	-164905	-208567	-221151	-203638	-170692
Rho	-10	-15	-24	-40	-64	-93	-111	-43	192	670	1621	2956	4604

Butterfly Basket

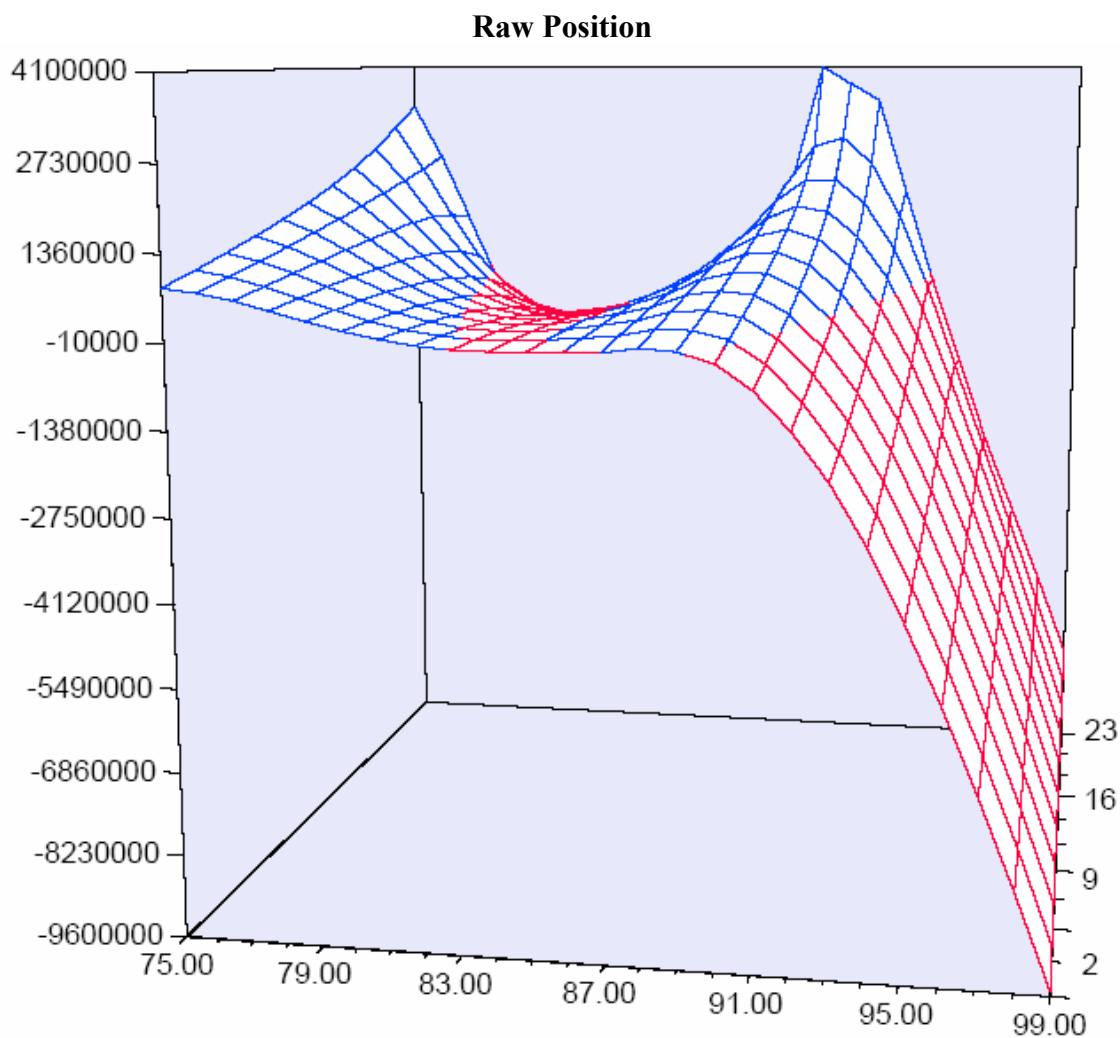
Price:	75.00	77.00	79.00	81.00	83.00	85.00	87.00	89.00	91.00	93.00	95.00	97.00	99.00
P&L	1306511	949669	560005	248570	68603	6430	0	154043	-30180	-660167	-1174255	-1461502	-1333905
Delta	-14330	-19658	-18345	-12733	-6166	-1742	1278	-2089	-23080	-24360	-15681	-1980	7654
Gamma	-4452	-1127	1773	3117	2740	1054	-1117	-3889	-2805	1319	4002	4344	2695
Theta	31015	16338	-275	-10727	-11852	-5155	4529	4345	-4005	-12429	-18541	-15866	-11334
Vega	-45949	-19855	7409	23381	23272	9357	-10895	-22454	-9943	18222	39774	42008	30751
Rho	-1005	-785	-503	-265	-116	-47	-12	-41	125	508	794	923	803

Remnant Position

Price:	75.00	77.00	79.00	81.00	83.00	85.00	87.00	89.00	91.00	93.00	95.00	97.00	99.00
P&L	-315524	-133311	-47779	-11429	1788	4120	0	-12829	-37753	-77912	-137847	-219451	-321044
Delta	12929	6357	2841	1128	329	-84	-405	-963	-1606	-2514	-3579	-4648	-5521
Gamma	-4409	-2504	-1284	-614	-302	-195	-202	-307	-414	-511	-549	-492	-331
Theta	32293	20130	11353	5971	3148	1972	1776	2314	3089	3661	3670	2798	979
Vega	-50263	-31709	-18227	-9848	-5386	-3523	-3288	-4288	-5707	-6868	-7172	-6068	-3385
Rho	149	54	12	-3	-6	-4	0	8	22	45	77	119	169

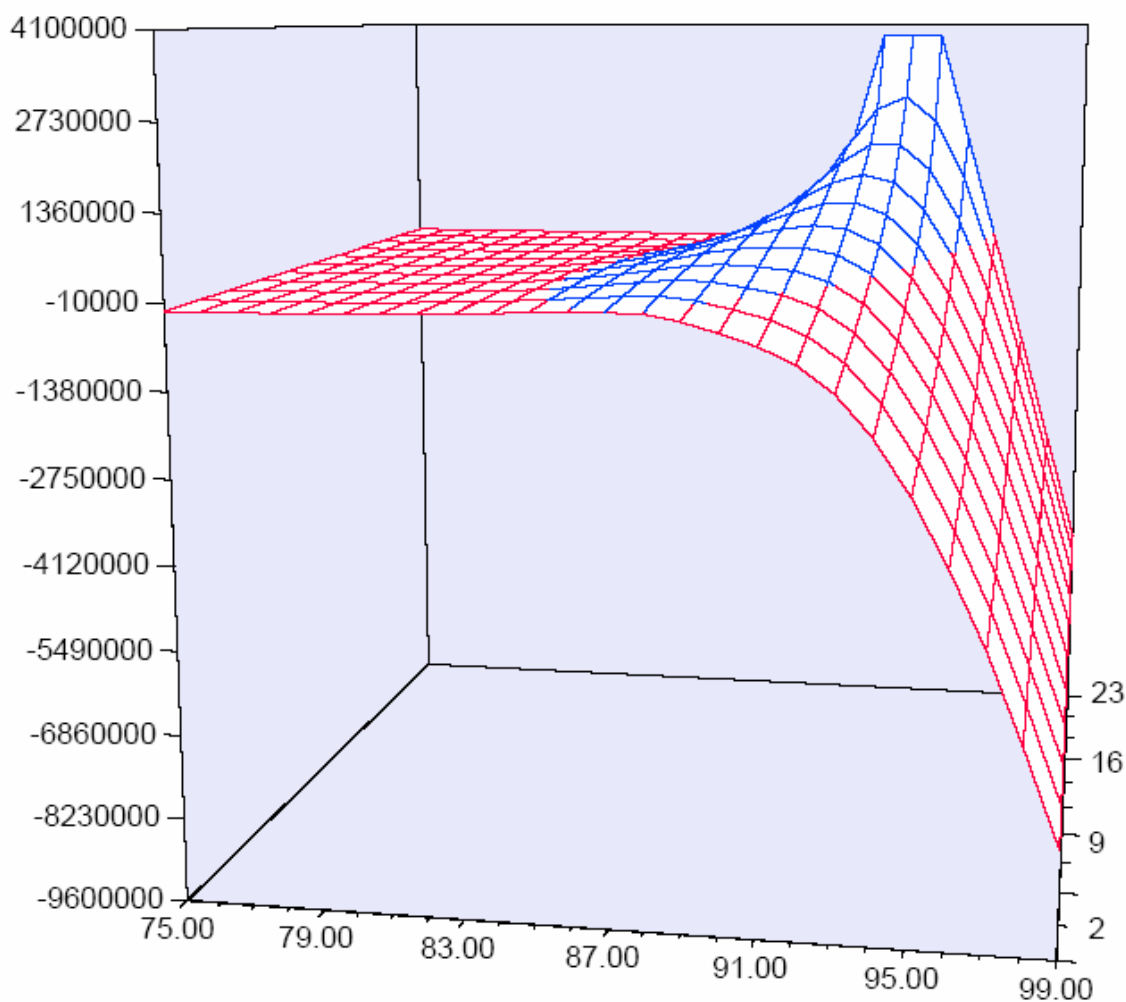
LockBasket

Price:	75.00	77.00	79.00	81.00	83.00	85.00	87.00	89.00	91.00	93.00	95.00	97.00	99.00
P&L	-22778	-20793	-17300	-12982	-8371	-3898	0	3083	4949	5915	5073	2168	-849
Delta	32	137	198	226	230	213	171	121	48	-5	-153	-190	-175
Gamma	78	45	23	9	-3	-15	-29	-39	-21	-43	-109	-	41
Theta	817	570	346	129	-87	-302	-520	-743	-964	-1082	-1485	-1518	-1320
Vega	-558	-256	-106	-32	12	68	179	309	692	831	1430	1938	1877
Rho	-1216	-1113	-770	-294	228	729	1142	866	1548	-546	-97	328	341



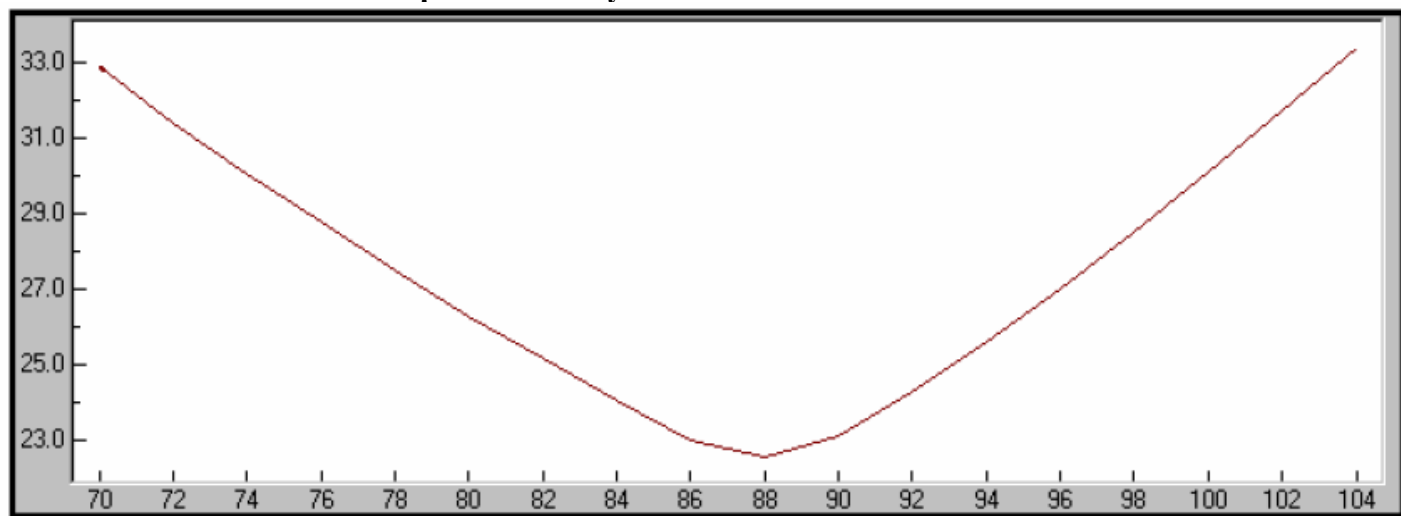
Price:	75.00	77.00	79.00	81.00	83.00	85.00	87.00	89.00	91.00	93.00	95.00	97.00	99.00
P&L	833185	665815	375776	124504	-6266	-21364	0	39024	-508808	-1855793	-3927617	-6545512	-9519453
Delta	-1178	-12777	-14577	-10162	-3937	-173	81	-15956	-50504	-82903	-115542	-137524	-154371
Gamma	-8709	-3457	695	2667	2294	-227	-4499	-12110	-15683	-15813	-13430	-10561	-8206
Theta	63997	36997	11908	-2417	-2199	12362	38103	65685	87855	98095	96601	88519	76848
Vega	-96471	-51563	-11378	10376	7547	-20493	-70387	-133073	-179908	-196288	-187136	-165623	-141307
Rho	-2160	-1914	-1318	-614	51	615	1068	1415	1947	2899	3748	4761	6042

Shot Basket



Price:	75.00	77.00	79.00	81.00	83.00	85.00	87.00	89.00	91.00	93.00	95.00	97.00	99.00
P&L	-133890	-128823	-118413	-99103	-67919	-27831	0	-105422	-446270	-1123955	-2621304	-4867568	-7864376
Delta	178	376	719	1209	1660	1432	-972	-13033	-25871	-56027	-96147	-130693	-156309
Gamma	75	130	182	156	-141	-1072	-3152	-7875	-12449	-16580	-16776	-14418	-10619
Theta	-119	-37	486	2210	6592	15846	32315	59768	89744	107969	112925	103157	88624
Vega	291	254	-455	-3120	-10344	-26383	-56381	-106694	-164905	-208567	-221151	-203638	-170692
Rho	-10	-15	-24	-40	-64	-93	-111	-43	192	670	1621	2956	4604

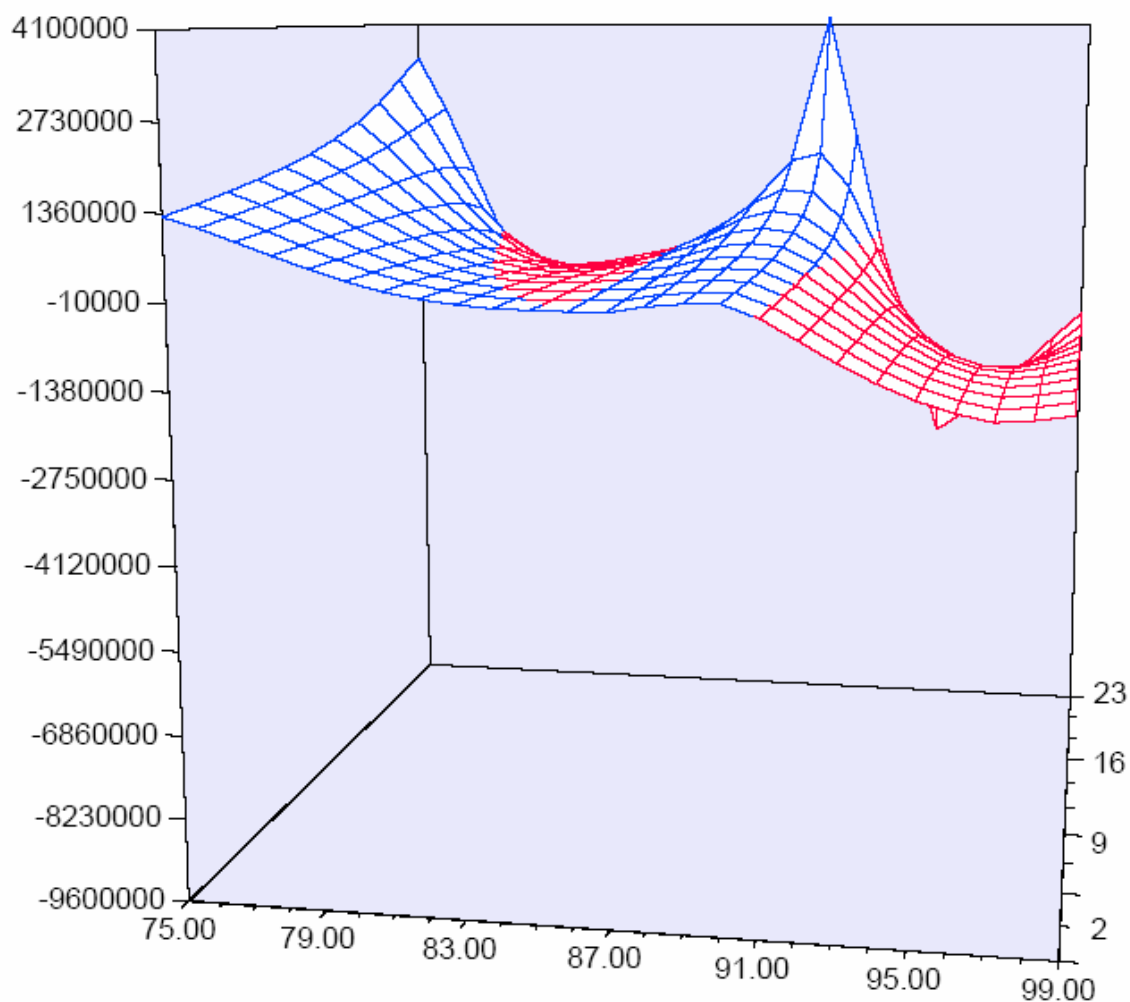
Implied Volatility Skew for October '87 Position



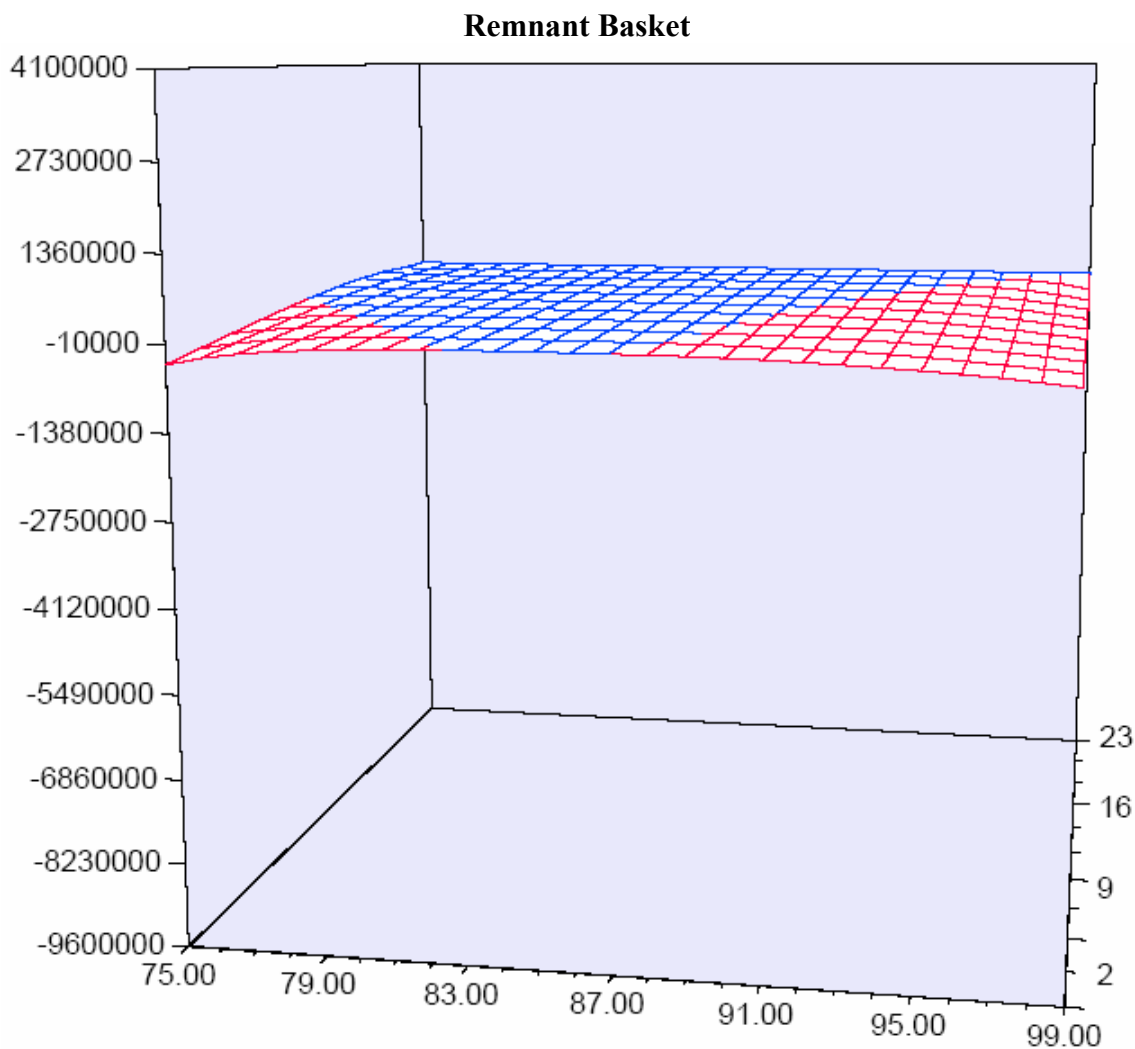
Theoretical Values

	G(100)/T/V	87.00	G(100)/T/V	87.00	
	Futr	87.00		87.00	
		100		100	
	70C	17.00		70P	0.00 32.85
	0.00 /0.00/0.00	100	0.10 /0.00/0.00	0	
	72C	15.00		72P	0.01 31.45
	0.00 /0.00/0.00	100	0.23 /0.00/0.00	-1	
	74C	13.00		74P	0.02 30.10
	0.68 /0.00/0.00	99	0.47 /0.00/0.01	-1	
	76C	11.02		76P	0.04 28.80
	1.07 /0.01/0.01	98	0.93 /0.01/0.01	-2	
	78C	9.06		78P	0.08 27.55
	1.80 /0.01/0.02	95	1.70 /0.01/0.02	-5	
	80C	7.15		80P	0.16 26.35
	2.94 /0.02/0.04	91	2.88 /0.02/0.04	-9	
	82C	5.30		82P	0.31 25.20
	4.51 /0.03/0.05	84	4.47 /0.03/0.06	-16	
	84C	3.56		84P	0.57 24.10
	6.26 /0.04/0.07	73	6.24 /0.04/0.07	-26	
	86C	2.33		86P	1.34 23.05
	7.70 /0.04/0.08	59	7.69 /0.04/0.08	-40	
	88C	1.29		88P	2.29 22.60
	8.11 /0.04/0.09	42	8.12 /0.04/0.09	-58	
90C	90C	0.56		90P	3.55 23.10
+ 2017	6.56 /0.04/0.07	27	6.58 /0.04/0.07	-73	
92C	92C	0.33		92P	5.31 24.20
- 2017	4.82 /0.03/0.06	17	4.86 /0.03/0.06	-83	
94C	94C	0.19		94P	7.17 25.40
- 2017	3.30 /0.02/0.04	10	3.37 /0.02/0.04	-89	
	96C	0.11		96P	9.09 26.70
	2.17 /0.02/0.03	6	2.26 /0.01/0.03	-94	
	98C	0.06		98P	11.04 28.10
	1.38 /0.01/0.02	4	1.51 /0.01/0.02	-96	
	100C	0.04		100P	13.02 29.60
	0.87 /0.01/0.01	2	1.04 /0.01/0.01	-98	
	102C	0.02		102P	15.00 31.20
	0.55 /0.01/0.01	1	0.76 /0.00/0.01	-99	
	104C	0.01		104P	17.00 32.90
	0.35 /0.00/0.01	1	0.61 /0.00/0.00	-100	

Butterfly Basket



Price:	75.00	77.00	79.00	81.00	83.00	85.00	87.00	89.00	91.00	93.00	95.00	97.00	99.00
P&L	1306511	949669	560005	248570	68603	6430	0	154043	-30180	-660167	-1174255	-1461502	-1333905
Delta	-14330	-19658	-18345	-12733	-6166	-1742	1278	-2089	-23080	-24360	-15681	-1980	7654
Gamma	-4452	-1127	1773	3117	2740	1054	-1117	-3889	-2805	1319	4002	4344	2695
Theta	31015	16338	-275	-10727	-11852	-5155	4529	4345	-4005	-12429	-18541	-15866	-11334
Vega	-45949	-19855	7409	23381	23272	9357	-10895	-22454	-9943	18222	39774	42008	30751
Rho	-1005	-785	-503	-265	-116	-47	-12	-41	125	508	794	923	803



Price:	75.00	77.00	79.00	81.00	83.00	85.00	87.00	89.00	91.00	93.00	95.00	97.00	99.00
P&L	-315524	-133311	-47779	-11429	1788	4120	0	-12829	-37753	-77912	-137847	-219451	-321044
Delta	12929	6357	2841	1128	329	-84	-405	-963	-1606	-2514	-3579	-4648	-5521
Gamma	-4409	-2504	-1284	-614	-302	-195	-202	-307	-414	-511	-549	-492	-331
Theta	32293	20130	11353	5971	3148	1972	1776	2314	3089	3661	3670	2798	979
Vega	-50263	-31709	-18227	-9848	-5386	-3523	-3288	-4288	-5707	-6868	-7172	-6068	-3385
Rho	149	54	12	-3	-6	-4	0	8	22	45	77	119	169

