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Commentary

Market Opinions and Topics of Interest

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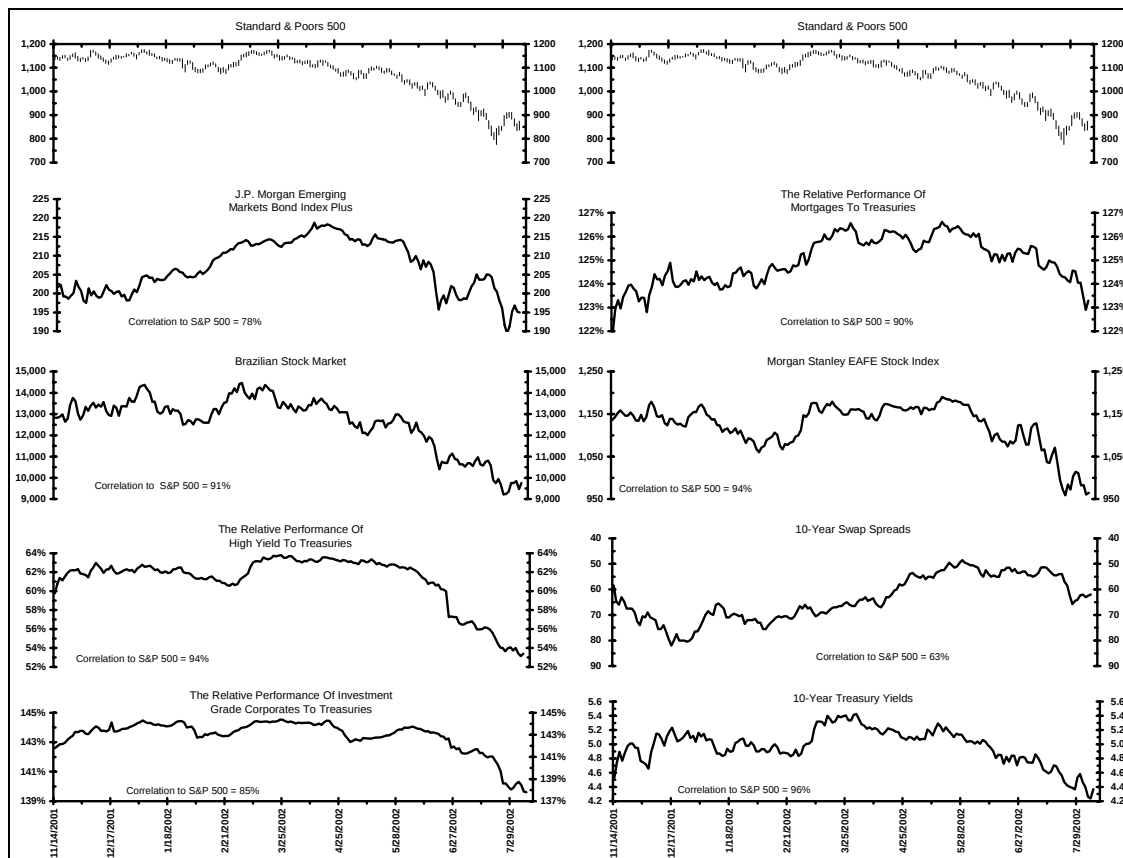
Part 2: Swaps Spreads: They Are More Important Than You Think Is the Market "Sensing" A Financial Crisis Is Coming?

In part I (July 16), we detailed why swap spreads were the most important indicator in gauging the market's health. We concluded with:

Quite possibly, the health of the financial system may rest upon them. Should swap spreads start to widen and become correlated to the S&P 500, the financial system will be reduced to two bets – long or short the S&P 500. Since financial institutions typically own assets, it is very hard for them to be short the S&P 500. Furthermore, if they are short the S&P 500 and

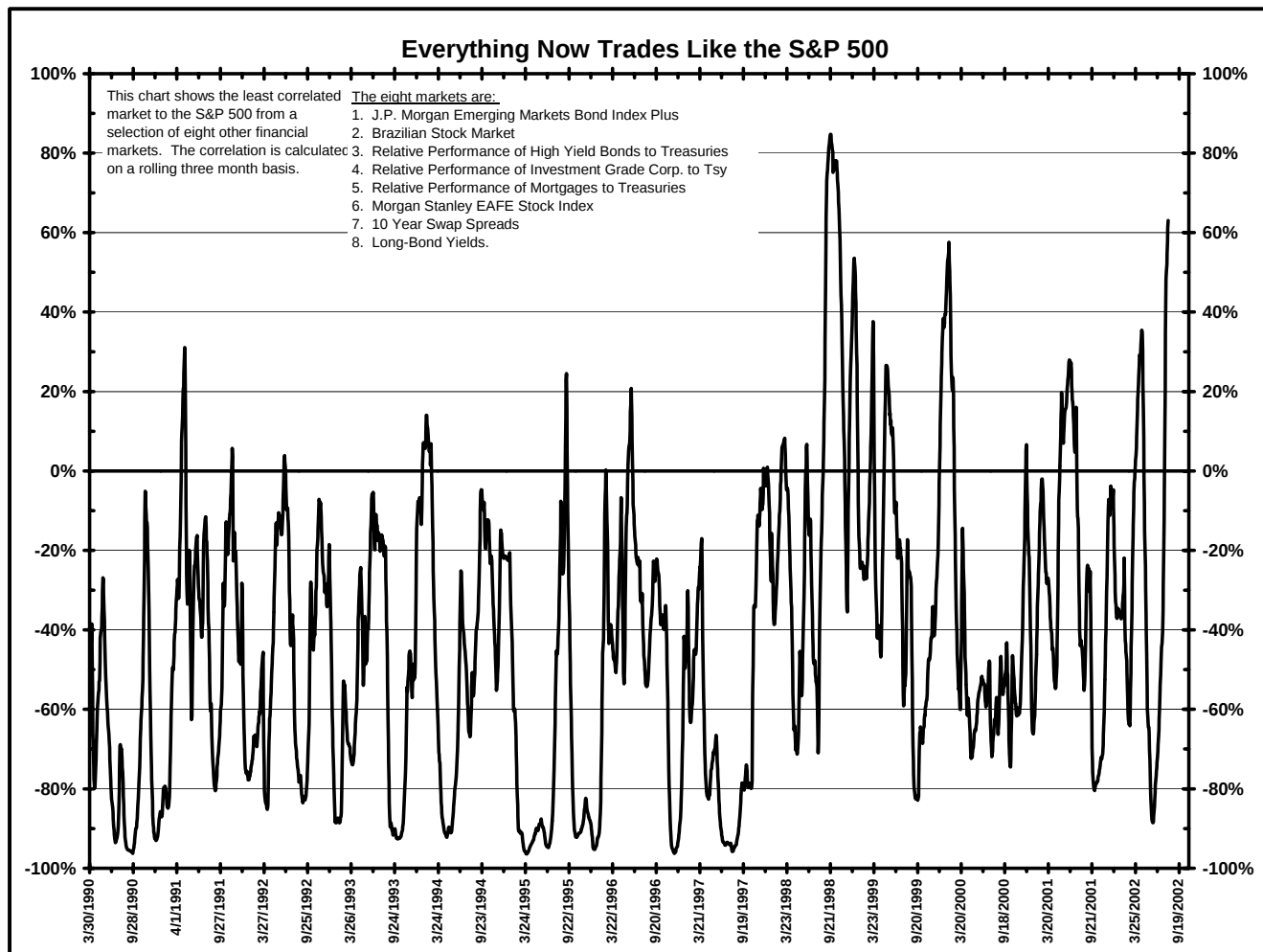
the market rebounds sharply, they cannot change their positions quickly. This is why a correlation amongst financial assets is a cause for concern for financial institutions.

The charts below show a wide-ranging list of markets. With the exception of swap spreads, they are **at least** 78% correlated to the S&P 500 over the last 90 days. Swap spreads, the least correlated market shown, is now +63%. Three weeks ago they were -42% correlated to the S&P 500.



To detail the significance of the increasing correlation of swap spreads to the S&P 500, see the chart below. Every day we calculate the 90-day correlation for eight seemingly unrelated markets to the S&P 500 (a list of these markets is shown on the

chart below and detailed on the previous page). We then plot the **least** correlated market to the S&P 500. Currently, the least correlated market is swap spreads at 63%.



The current level of the least correlated market at 63% is the highest since late October 1998 – just after the zenith of the Long-Term Capital Management (LTCM) crisis. This chart starts in 1990 and no other period has shown as high a “least correlated market” other than late 1998.

What Does This Mean?

There is an old saying in the financial markets that “in a time of crisis, the correlation of all markets goes to one.” This means that when a financial crisis hits, all markets trade like one another.

This occurs because traders and investors assume the worst – all many financial firms are teetering on insolvency. When this happens, they assume that all financial assets held by these firms (which is often substantial amounts of all financial assets

everywhere) will trade as if they all have a large desperate seller. This means that all many financial markets plunge simultaneously regardless of their unique fundamental characteristics.

As the chart above shows, it is a rare occurrence to have all markets this highly correlated. It has happened only one other time in the last 12 years. However, when this does happen, its results can be catastrophic.

Financial institutions rely on a “diversification effect” to reduce risk among different asset classes. They assume that big bets in unrelated markets will remain uncorrelated to each other and thus offset risk. After all, what does the American mortgage market have to do with the Brazilian stock market? Therefore, “bets” in both of these markets should be independent of each other since they have few

"common fundamentals" that would move prices together.

In our July 16 commentary, we detailed how the assumption of a "diversification effect" is critical for J.P. Morgan Chase when calculating their institution's "value-at-risk" (VAR). They assume that having large leveraged bets in far-flung markets will offset each other. The assumption is that, when one market goes down, another will go up given the same "fundamentals." For this reason, J.P. Morgan Chase calculates the VAR of their "aggregate portfolio" at \$174.6 billion. However, they assume a "diversification effect" reduces their VAR by 26% to \$129.2 because of the seemingly unrelated markets in which they operate.

If, however, differing financial markets were to become highly correlated for prolonged periods, it suggests the marketplace believes "systemic risk" is a problem among financial institutions. This means the aggregate portfolio of large firms like J.P. Morgan Chase will not have the characteristics of many unrelated markets but rather look like one giant "bet" on rising prices.

This is what sank LTCM in 1998. The Nobel Laureates had factored almost every conceivable probability into their models except one – what happens if seemingly unrelated markets trade with a high correlation to each other? When this indeed happened in the fall of 1998, they realized that they did not have thousands of differing bets. Instead they had the equivalent of one giant bet on rising S&P 500 prices in a falling market.

Our fear is the markets appear to be **on the verge** of again becoming correlated like they did in late 1998 (even the American mortgages are 88% correlated to Brazilian stocks). If this happens again, we believe it means the marketplace again fears a "systemic risk" event is a real possibility. Many financial firms could be at risk as their well-managed diversified bets could be reduced to one bet on the direction of the S&P 500.

Final Note – the sharp-eyed reader will note a similar occurrence in late-January 2000. Back then, all these markets were similarly correlated to the S&P 500. There was one big difference back then – they were correlated to the S&P 500 while it was in a parabolic **rise**. Since most financial institutions are

owners of financial assets, they benefit when everything is correlated to a rising market (and no one complains if that rise is parabolic). Furthermore, the correlation was short lived; the peak was a little over one week. It remains to be seen how long the current correlation to the S&P 500 lasts.

How Big is the Derivatives Market?

At this point we believe a discussion of the size and characteristics of the swaps market is in order. This way we can understand what swaps spreads mean to the financial markets.

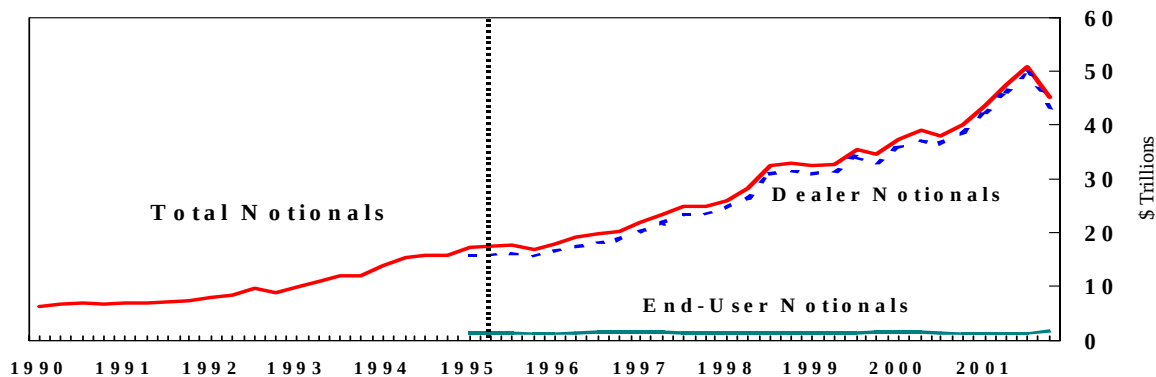
Why are the swap markets such a big deal? Simply, if all markets are correlated to the S&P 500 except swap spreads, the swaps market is big enough to hedge all other markets combined. It alone can serve as a "diversification effect" for the entire financial arena.

Before we discuss the size of the swaps market, remember that swaps are derivative instruments. This means they can be "opened" and "closed" at will. They are not like asset markets where the amount is fixed and it gets traded back and forth. Therefore, the size of the swaps market is very "amorphous."

So how big is the derivatives market? In order to address this question, we looked at the primary sources of data on derivatives. For the most part these sources can be narrowed to the Bank of International Settlements (BIS), The British Bankers' Association (BBA), the International Swaps and Derivatives Association (ISDA), the U.S. Office of the Comptroller of the Currency (OCC) and a few trade publications, such as *Risk Magazine*. However, much of the data from these sources cannot be directly compared due to significant differences in collection methodologies, coverage and frequency. In order to give insight into the domestic derivatives market and place it into context with the international derivative market, we focus on the comparable data of the OCC and the BIS.

We start by looking at the OCC data on the next page and include a graph detailing the size of the domestic derivative market, the users by group, and its rapid growth.

Derivatives, Notionals By Type of User Insured Commercial Banks



Note: Dotted line indicates that beginning in 1Q 95, spot foreign exchange was not included in the definition of total derivatives.
 Note: Categories do not include credit derivatives.
 Note: Numbers may not add due to rounding.

	1993				1994				1995				1996				1997				1998				1999				2000				2001			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
TotalNotional	9.8	10.9	12.0	11.9	13.9	15.3	15.8	15.8	17.3	17.4	17.6	16.9	17.8	19.0	19.8	20.0	21.9	23.3	25.0	25.0	26.0	28.0	32.9	32.9	32.9	32.8	35.4	34.5	37.3	39.0	37.9	40.1	43.6	47.4	50.9	45.0
DealerNotional									15.9	15.9	16.2	15.6	16.9	17.9	18.2	18.9	20.3	21.8	23.5	23.5	24.9	26.6	31.0	31.4	31.0	31.3	33.9	33.0	35.7	37.3	36.8	38.9	42.4	46.2	49.6	43.2
End-user Notional									1.4	1.5	1.4	1.3	1.3	1.5	1.6	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.5	1.4	1.4	1.5	1.5	1.6	1.6	1.7	1.5	1.2	1.2	1.2	1.3	1.8

As shown on the table and graph above, the total notional amount of derivatives held domestically is in the neighborhood of \$45 trillion. This market has nearly tripled in size since the beginning of 1997.

Breaking these numbers down further is worthwhile to note that the growth in notional amounts has come at the hands of the "dealer group." During this same time period, the amount of derivatives held for "end-user" purposes (risk management purposes) has stayed nearly the same. In essence, since 1995 the derivative universe has grown from a \$17 trillion market to a \$45 to \$50 trillion universe, yet end-user activity only moved from \$1.4 trillion to \$1.8 trillion.

This means that most of the growth in derivatives has come from "dealer-to-dealer" activity and not "dealer-to-end-user" activity. In other words, the financial community and not corporate treasurers are driving the expansion of derivatives.

Derivatives: The U.S. versus The World

In the table below, we compare the derivatives positions reported by the OCC to the positions reported by the Bank of International Settlements. In short, U.S. Banks account for nearly 41% of all derivatives contracts reported internationally.

U.S. Banks Activity In All Derivatives

OCC vs BIS Derivative Statistics*
as of 12/31/2001

Category	BIS Total (Notional) in Trillions	OCC Total (Notional) in Trillions	OCC Totals as a percentage of BIS Totals
Total (Notional) Derivative Contracts	111.150	45.385	40.83%
Total (Notional) Interest Rate Derivatives	77.513	38.505	49.68%
Total (Notional) Interest Rate Swaps	58.897	25.645	43.54%
Total (Notional) End User			

* OCC = U.S. Office of the Controller of the Currency, BIS = Bank of International Settlements

Notional amounts include futures, total exchange traded options, total over the counter options, total forwards, and total swaps.

Note that data after 1994 do not include spot fx in the total notional amount of derivatives.

Credit derivatives were reported for the first time in the first quarter of 1997. Currently, the Call Report does not differentiate credit derivatives by product and thus they have been added as a Note: numbers may not add due to rounding

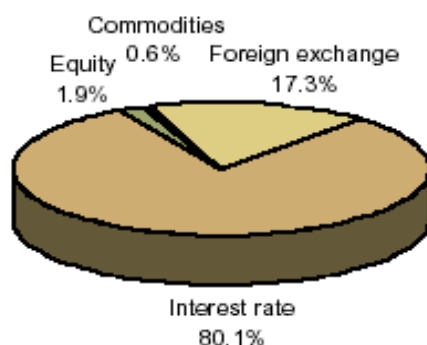
Source: OCC Bank Derivatives Report, Fourth Quarter 2001 <http://www.occ.treas.gov/ftp/deriv/dq401.pdf>

The International Derivatives Market

The BIS data shows the international aggregate levels of outstanding derivatives contracts to be around \$111 trillion. This number is only 38% higher than it was three years ago and, as noted by the BIS, interest rate instruments have driven this growth. While interest rate products have grown by 58%, the second largest group (foreign exchange instruments) has **contracted** by 7% (most likely due to the consolidation of the major European currencies into the Euro). The same trend exists in the domestic data from the OCC.

Knowing that U.S. Banks account for nearly 41% of the international derivatives market, it seems logical to detail the type of contracts making up the international derivatives numbers. The chart below shows the types of derivatives contracts held by international banks.

Breakdown by broad risk category at end-2001



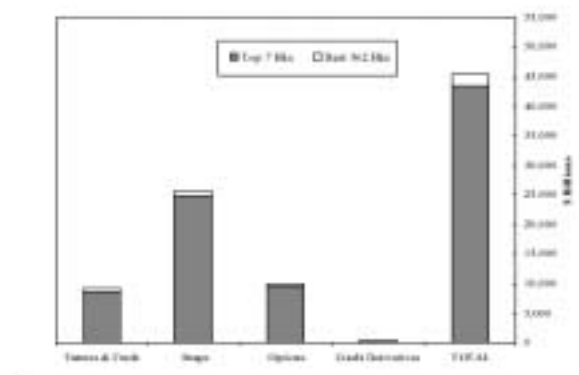
Interest rate contracts account for 80% of all derivative contracts held (\$78 trillion). Of this total, swaps, at \$59 trillion, are the largest category (76.3% of all interest rate derivatives or 53% of all derivatives contracts). **In effect, the derivatives market is the interest rate swap market.**

Who Dominates the Swap Market?

Since the derivatives market is so large, it would stand to reason that many players are involved in this market. Who is holding all of these derivatives contracts?

The table and graph below show that **seven banks hold over 95% of all domestic derivatives contracts**. To state this slightly differently, about 2% of all reporting banks hold nearly the entire derivatives market (or more accurately, the interest rate derivatives market). Suddenly, the derivatives universe doesn't seem so vast anymore.

Seven Banks With Most Derivatives Dominate
All Commercial Banks, Fourth Quarter 2001



NOTIONAL AMOUNT OF DERIVATIVES CONTRACTS BY CONTRACT TYPE & MATURITY FOR THE 7
COMMERCIAL BANKS AND TRUST COMPANIES WITH THE MOST DERIVATIVE CONTRACTS
DECEMBER 31, 2001, \$ MILLIONS
NOTE: DATA ARE PRELIMINARY

RANK	BANK NAME	STATE	TOTAL ASSETS	TOTAL DERIVATIVES	INT RATE MATURITY < 1 YR	INT RATE MATURITY 1 - 5 YRS	INT RATE MATURITY > 5 YRS	INT RATE ALL MATURITIES	FOREIGN EXCH MATURITY < 1 YR	FOREIGN EXCH MATURITY 1 - 5 YRS	FOREIGN EXCH MATURITY > 5 YRS	FOREIGN EXCH ALL MATURITIES
1	JPMORGAN CHASE BANK	NY	537,826	23,258,581	5,252,468	7,091,183	4,164,549	16,508,200	1,444,610	343,172	341,762	2,129,544
2	BANK OF AMERICA NA	NC	551,691	9,274,050	2,028,310	2,154,387	1,709,427	5,892,124	625,989	91,852	55,313	773,154
3	CITIBANK NATIONAL ASSN	NY	452,343	6,487,515	1,402,949	1,336,832	940,534	3,680,315	1,354,260	154,451	80,183	1,588,894
4	FIRST UNION NATIONAL BANK NC	NC	232,785	2,066,298	746,418	269,223	235,810	1,251,459	12,636	7,893	2,529	23,058
5	WELLS FARGO BANK NA	CA	140,675	813,342	423,375	57,437	37,555	518,367	6,662	2,227	0	8,889
6	BANK ONE NATIONAL ASSN	IL	161,023	799,151	178,433	257,520	152,026	587,978	47,694	7,150	1,779	56,624
7	BANK OF NEW YORK	NY	78,019	376,755	42,451	91,862	42,742	177,055	1,012	1,266	23	2,301
TOP 7 COMMERCIAL BANKS & TCs WITH DERIVATIVES					\$10,074,403	\$11,258,444	\$7,282,650	\$28,615,498	\$3,492,863	\$608,012	\$481,589	\$4,582,464
OTHER 362 COMMERCIAL BANKS & TCs WITH DERIVATIVES					\$283,045	\$550,769	\$240,428	\$1,074,242	\$292,462	\$52,666	\$10,485	\$355,613
TOTAL AMOUNTS FOR ALL 369 BKS & TCs WITH DERIVATIVES					\$10,357,448	\$11,809,213	\$7,523,079	\$29,689,739	\$3,785,325	\$660,677	\$492,074	\$4,938,076

Note: Currently, the Call Report does not include maturity breakdowns for credit derivatives. Credit derivatives have been excluded from the sum of total derivatives here.

Note: Before the first quarter of 1995 total derivatives included spot foreign exchange. Beginning in the first quarter, 1995, spot foreign exchange was reported separately.

Note: Figures above exclude foreign exchange contracts with an original maturity of 14 days or less, futures contracts, written options, basis swaps, and any contracts not subject to risk-based capital requirements.

Therefore, the total notional amount of derivatives by maturity will not add to the total derivatives figure in this table.

Note: Numbers may not add due to rounding.

Data source: Call Report, schedule RC-R

Counter-Party Risk – Is This a Safe Bet?

Since seven banks are the counter-party to nearly all the domestic derivatives market, the question of counter-party risk becomes an issue.

What is counter-party risk? In its basic elements, a swap is a contract between two parties; one party makes fixed interest rate payments (calculated on a notational amount), while the other party makes floating-rate interest payments. Conceptually, the fixed-rate payer in a swap is long a floating-rate bond and short a fixed rate coupon bond, while the opposite is true for the floating-rate player.

There are two major factors affecting swap spreads; the movement and direction of interest rates and the fear of “systemic” or credit risk that calls into question the counter-party’s ability to pay. For the majority of the 1990’s, swap spreads and interest rates were highly correlated to each other. Swap spreads and interest rates moved in the same direction and roughly to the same degree as each other. Recently, however, swap spreads have been widening as interest rates have been falling. Why is it happening?

What Moves Swap Spreads?

We believe the answer to this question involves piecing the entire derivatives puzzle together. Seven banks dominate the derivatives market (shown on the previous page). These banks transact a large portion of their business among themselves and their two largest customers -- Fannie Mae and Freddie Mac. If the marketplace senses that any of these institutions are/might be having problems, a premium will be built into swap spreads. Since swap spreads are fungible, the market cannot differentiate the credit risk among all these players. For this reason, financial institutions usually do not see different swap spreads based on their individual credit rating. Rather, the swap markets prices in the same credit or “systemic risk” for all institutions. When this happens, swap spreads widen and interest rates fall.

So what really moves swap spreads? The answer is the perceived health of the seven largest dealer banks and their largest customers. This has become more evident as rumors of the emergency

Fed meeting with Citibank and JP Morgan to discuss their derivatives exposure sent each respective stock tumbling and widened swap spreads in a manner not seen in some time. We believe it was these rumors/fears that changed the trading of swap spreads, causing them to become more correlated to the S&P 500. Since everything else was already correlated to the S&P 500, this change in trading of swap spreads is potentially a big deal.

Conclusion

It is very rare for all markets to trade with a high degree of correlation to a slumping S&P 500. When it happens, it puts the financial system under stress as the assumption that diversification decreases risk no longer applies. If it continues long enough, it could lead to a financial crisis like we saw in 1998.

This is not easily apparent or understood. In the summer/fall of 1998 when the markets were sinking and becoming correlated to the S&P 500, no one understood its significance until after the fact. At the time, the collective wisdom of the marketplace was that Clinton’s impeachment, Ralph Acampora’s bearish call and a perceived slowdown in the economy were the main culprits. Only afterwards did we learn that a large systemic risk event was taking place - LTCM was struggling with a trillion dollar derivatives position that turned out to be a giant bet on a rising S&P 500.

Now we have a slumping stock market and many markets are becoming correlated to the S&P 500 to a degree not seen since 1998. Again the market’s perceived wisdom is that this has to do with the well-known stories of a weakening economy and corporate credibility. If the high correlation to a slumping stock market continues, we believe it could be signaling the market’s fear of a coming “systemic event” -- or at least a real possibility of one occurring.

We don’t believe the correlation to the S&P 500 are high enough, or have lasted long enough, for a crisis to emerge. But we are moving in that direction – and should the stock market slump again and these high correlations stay, a “systemic event” might not be far off.

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