

Confidential Presentation to:

Board of Directors

Risk Update

July 18, 2006

LEHMAN BROTHERS

Agenda

Agenda

Agenda

- ◆ Risk Governance
 - Risk Philosophy
 - Committee Structures
- ◆ Risk Management
 - Risk Management Function
 - Risk Management Organization
 - External Constituents
- ◆ Risk Analysis and Quantification
 - Risk Management Integrated Framework
 - Risk Appetite
 - Risk Equity
 - Risk Appetite Usage
- ◆ Review of Results
 - Risk Appetite Usage
 - Counterparty Credit Exposure
 - Trading Revenues
 - Stress Tests
- ◆ Conclusion
- ◆ Appendix

Risk Governance

Risk Philosophy

- ◆ Risk Management is one of our core competencies
- ◆ An essential part of Lehman Brothers' approach to Risk Management, is a strong internal control environment with multiple overlapping and reinforcing elements
 - Many parts of the Firm - Risk Management, Finance, Operations, Compliance, Audit, Trading Management, Capital Markets Senior Management – are involved in managing risk
- ◆ Risk Management is more than measuring and reporting risk
- ◆ Our approach applies analytical rigor overlaid with sound practical judgment
- ◆ One key feature which differentiates us from our peers is our integration of Market and Credit Risk Management
 - Allows us to leverage people, analytics, systems, data and information flows
- ◆ Risk Management works proactively with the risk-taking areas of the Firm before transactions occur
 - To ensure the least risky deal structure is executed
 - To ensure risk mitigants are in place, including getting appropriate levels of collateral
- ◆ The Risk Management Division
 - Develops risk policies and procedures
 - Develops risk measurement methodologies
 - Sets limits
 - Tracks actual usage against limits
 - Evaluates valuation models
- ◆ Our focus is balancing risk vs. return
 - We want to help ensure Lehman Brothers' risk appetite is deployed in the most efficient way
- ◆ At the end of the day nothing is fool-proof. While there is no guarantee against loss, we can minimize the probability of loss
 - We minimize market and credit risk through our client-driven franchise where we facilitate customers
 - We proactively manage risk both before and after trades are done by mitigating risk via management of the terms, outright sales or syndication, or hedging the remaining risk
 - We actively manage collateral assessment and collection where applicable
 - Risk is minimized through geographic, industry, asset class and customer diversification

Committee Structures

- ◆ Lehman has established numerous committees to oversee risk taking activities and to ensure that controls are appropriately administered and reviewed
- ◆ The key operating committees at the Firm include:

1. Executive Committee
2. Management Committee
3. Operating Exposures Committee
4. Finance Committee
5. Capital Markets Committee
6. Risk Committee
7. Commitment Committee
8. Bridge Loan Committee
9. Investment Committee
10. Fairness Opinion Committee
11. New Products Committee
12. Complex Structured Finance Transaction Committee
13. Strategic Acquisition Review Committee
14. High Grade Credit Committee
15. High Yield Credit Committee
16. Loan Participation Committee
17. Structured Finance Committee
18. Equity Commitment Committee
19. IMD Product Review Committee
20. Executive Oversight Committee

Management Oversight Committees

Firmwide Transaction Approval Committees

Business Level Transaction Approval Committees

Risk Management

Risk Management Function

Risk Management is Independent from Trading

- ◆ The Global Risk Management Division is independent of the trading areas
- ◆ The Chief Risk Officer, Madelyn Antoncic, reports directly to Dave Goldfarb
- ◆ The Chief Risk Officer has put in place Global Heads for each department within the Global Risk Management Division
 - Global Head of Market Risk Management
 - Global Head of Counterparty Credit Risk Management
 - Global Head of Quantitative Risk Management
 - Global Head of Sovereign Risk Management
 - Global Head of IMD Risk Management
 - Global Head of Operational Risk Management
- ◆ Outside the U.S., Risk Management is “matrixed” reporting both to global risk management heads and to regional managers consistent with the trading businesses organization structure

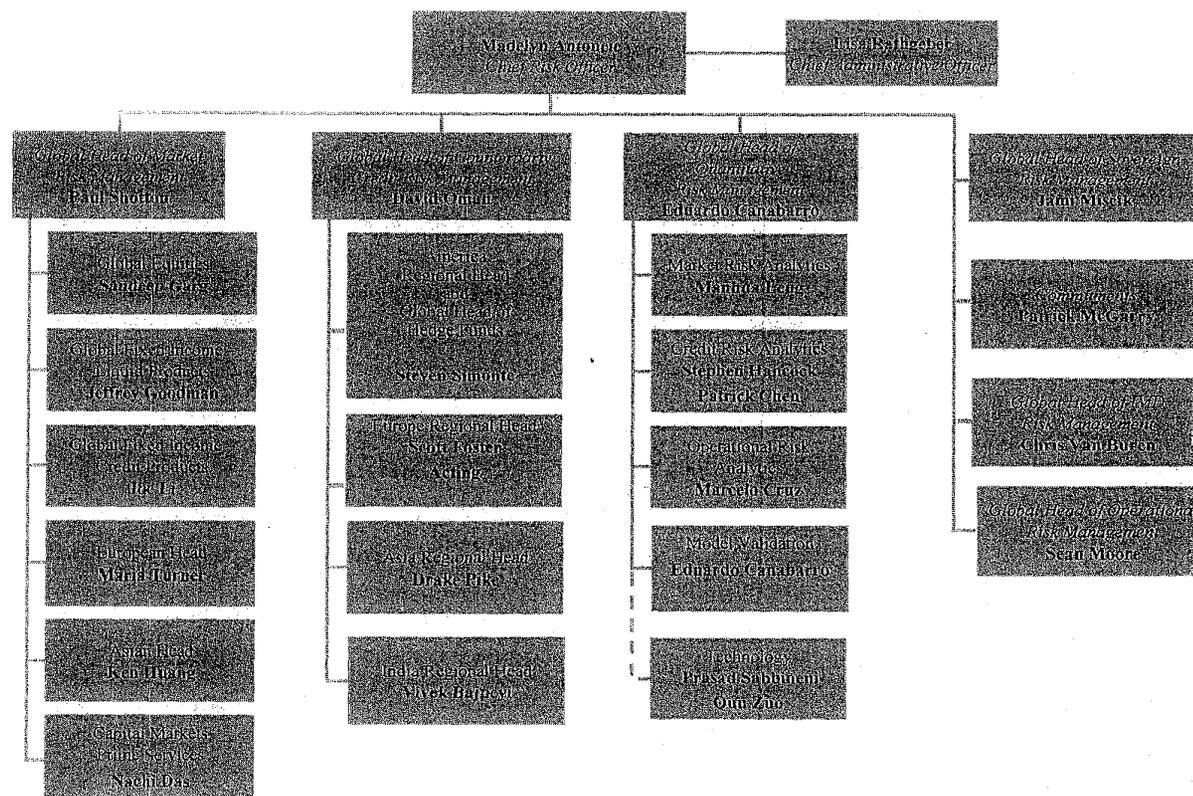
Risk Management Function

Risk Management

- ◆ Market Risk Management is responsible for ensuring all market risks are identified, understood, measured, monitored and captured by an appropriate metric. Risk managers work very closely with the trading desks in assessing risk and sit on trading floors with the desks they support
- ◆ Credit Risk Management is responsible for counterparty credit analysis and due diligence; assigning and maintaining internal risk ratings; credit limits for each counterparty; establishing country risk limits; preparing credit reviews; monitoring counterparty credit exposures on a current (CCE) and potential basis (MPE) including usage of credit limits
- ◆ Quantitative Risk Management is responsible for developing, implementing and maintaining the risk methodologies and systems used to measure market, credit and operational risks, as well as validating the pricing and valuation models used by the business units of the Firm
- ◆ Sovereign Risk Management is responsible for establishing a framework to assess political, economic, and social conditions and events in a foreign country that might adversely affect the Firm's interests or reputation
- ◆ Operational Risk Management is responsible for ensuring all operational risks are identified, understood, measured and monitored

Risk Management Organization

- ◆ Risk Management is a global, integrated function under the leadership of the Chief Risk Officer, Madelyn Antonic. The Global Risk Management Department consists of 300 professionals, with 193 risk managers and 107 technologists



Organization of the Global Risk Management Division

Risk Management

Risk Management Qualifications

- ◆ The Global Risk Management Division ("GRMD") consists of 300 professionals with staff in each of the Firm's three trading centers, as well as credit risk personnel in key sales regional offices
 - Chief Risk Officer
 - Chief Administrative Officer
 - 52 Market Risk
 - 66 Credit Risk (Counterparty Credit and Commitments)
 - 32 Quantitative Analysis / Model Validation
 - 17 Reporting
 - 5 Operational Risk
 - 5 Sovereign Risk
 - 4 IMD Risk
 - 10 Admin
 - 107 Technology
- ◆ Excluding technologists and administrative staff, we have 183 professionals in GRMD. These professionals are highly qualified, with advanced degrees and substantial experience. Many are either former traders, former desk quants or have relevant business experience

| | Global (CRO/ CAO) | Market Risk | Credit Risk | Quantitative Analysis | Reporting | Operational Risk | Sovereign Risk | IMD Risk | Total | Total Excluding Reporting |
|-------------------------------------------------------------------------|----------------------|----------------|----------------|--------------------------|-------------|---------------------|-------------------|-------------|-------------|---------------------------------|
| PhD | 50% | 26% | 0% | 67% | 0% | 40% | 33% | 0% | 20% | 22% |
| Masters | 0% | 60% | 39% | 29% | 18% | 20% | 67% | 100% | 42% | 45% |
| Bachelors | 50% | 15% | 59% | 4% | 76% | 20% | 0% | 0% | 36% | 32% |
| Other | 0% | 0% | 2% | 0% | 6% | 20% | 0% | 0% | 2% | 1% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Percentage of former traders, desk quants and business experience | 50% | 34% | 21% | 21% | n/a | 40% | 67% | 33% | 25% | 28% |

External Constituents

Risk Management

Relationship with Regulators

- ◆ The Firm enjoys an excellent relationship with its regulators
- ◆ Many senior members of the Firm's Compliance group have either worked at, or with those who work at, the regulatory agencies. Members of the GRMD and the Compliance department also participate in numerous industry associations and sub-committees together with representatives from the regulatory agencies. This has allowed the Firm to develop good working relationships with the various regulatory bodies, as well as influence agenda and formulate policies
- ◆ Representatives of Finance and Risk meet monthly with the SEC (division of Market Regulation) to discuss the Firm's risk metrics and financial performance. This began as a voluntary meeting agreed to in order to help the SEC develop a better understanding of the Firm and is now part of the CSE process
- ◆ The Firm was approved by the SEC as a Consolidated Supervised Entity (CSE) effective November 2005. This designation permits the Firm and its ultimate holding company to calculate net capital using certain risk based standards for market and credit risk
- ◆ In addition, the NYSE, the CBOT, the OTS (for Lehman Brothers Bank), the FSA in Europe and Asia and the BaFin in Germany conduct annual examinations and there have been no significant findings

External Constituents

Risk Management

Relationship with Rating Agencies

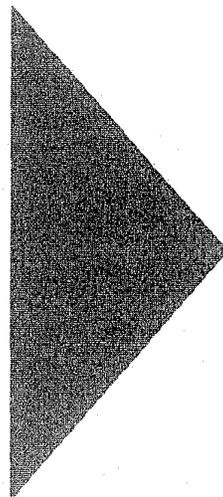
- ◆ Risk Management is one of the key groups facing off with the rating agencies and has built excellent relationships with them. The agencies consistently cite our strong risk management function and framework as one reason behind their favorable view of Lehman Brothers
 - Moody's
 - "We view risk management at Lehman as a significant credit strength for the issuer that supports its current A1, stable rating." (Risk Management Assessment, May 2006)
 - "Credit Strengths for Lehman Brothers Holdings Inc. are: disciplined growth and diversification efforts; rigorous risk management; exceptional cost discipline; strong institutional-customer flow business; profitable international expansion." (Credit Opinion, June 2006)
 - "According to Moody's, Lehman continues to be among the best financial services firms at managing liquidity and market risks, which has contributed to the firm's relatively low earnings and margin volatility." (Press release announcing change in outlook from stable to positive, June 2006)
 - S&P
 - "Liquidity and risk management are strong so that a cyclical downturn in the securities industry should not pose major problems for Lehman." (Summary Credit Opinion, June 2006)
 - Fitch
 - "Market and credit risks are conservatively managed. (...) Risk governance is well-developed and follows industry best practices." (Credit Analysis, July 2006 (draft))

Risk Analysis and Quantification

Risk Management Integrated Framework

The Three Core Functions of Risk Management are

1. Understanding and identifying all risks
2. Ensuring that appropriate limits are in place for all transactions and products
3. Protecting the Firm against “catastrophic” loss



1. Have metrics to measure the risk for all products
2. Define a “Risk Appetite”
3. Have the ability to measure and monitor “tail risk”

Risk Management Integrated Framework

Risk Analysis and Quantification

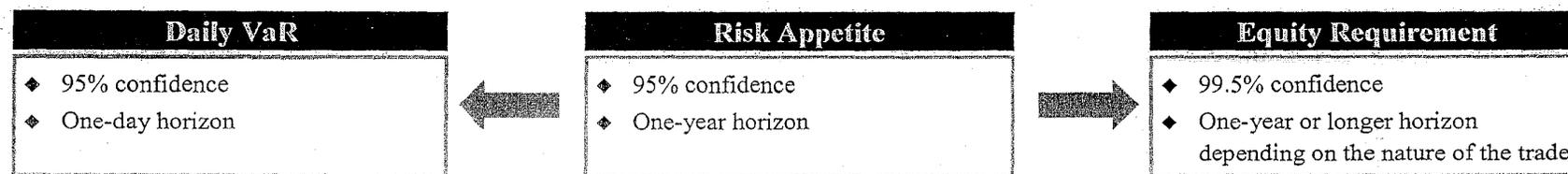
Risk Appetite

- ◆ We have developed a very robust and comprehensive framework for thinking about and managing risks and have established a framework for determining the most appropriate overall level of risk the Firm should be taking
- ◆ The framework begins with the amount of revenue the Firm would make in a downturn and is designed to balance risk and return
 - Our aim is to deploy enough risk in our businesses to generate strong cross-cycle returns
 - While at the same time limiting needless risk levels to ensure we meet our financial targets
- ◆ We have defined this level of risk as our Risk Appetite, which represents the quantity the Firm is “prepared to lose” in a year from market and counterparty credit risk, as well as from stress events
- ◆ We start with our financial targets
- ◆ We take into account a potential simultaneous slowdown in customer flow and banking activities (origination / advisory) which would negatively impact our financial targets since revenue shortfalls can also come from non-risk taking activities
- ◆ In calculating our overall Risk Appetite, our goal is to maintain a minimally acceptable ROTE and compensation adequacy including maintaining sufficient headcount to protect the franchise for the long-term
- ◆ We have been operating inside our risk appetite which is set at a level consistent with a 10% cross-cycle ROTE at a 95% confidence level
- ◆ Our overall risk management philosophy of conservatism and prudence has been an important factor in maintaining our credit spreads, and credit worthiness as well as our improving ratings

Risk Management Integrated Framework

Risk Appetite – The Center of Our Approach to Risk

- ◆ The Risk Appetite represents the quantity the Firm is “prepared to lose” in a year from market, event and counterparty credit risk. Risk Appetite usage is defined and measured at a 95% level of confidence

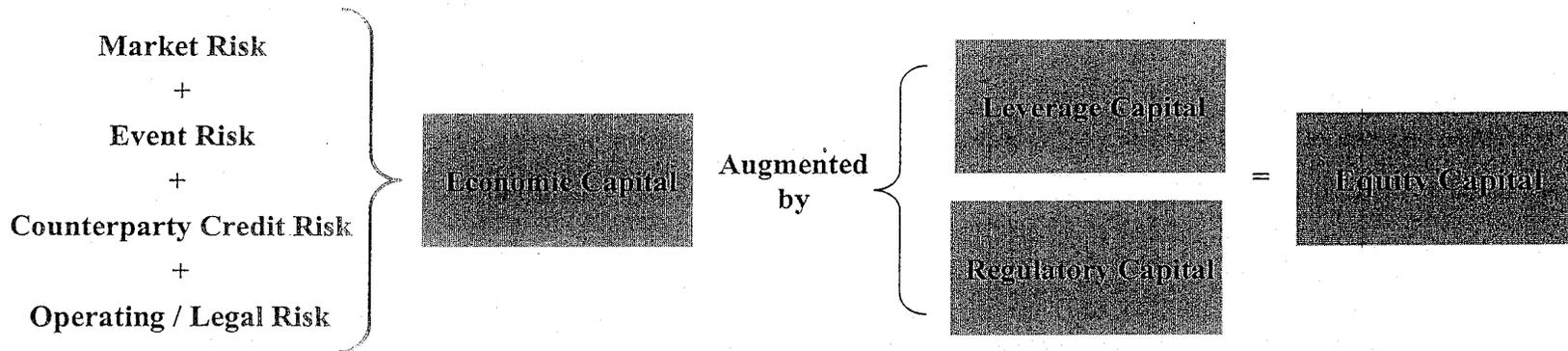


Risk Management Integrated Framework

Risk Equity

- ◆ The equity capital the Firm requires is the economic capital required to protect the Firm against market, event, counterparty credit and operational risks augmented by capital requirements due to external constraints
 - To the extent leverage or regulatory equity is an overriding constraint for the Firm, businesses are charged incremental equity on top of their economic (risk) equity

Equity Capital – Economic Capital and Regulatory Capital



Risk Management Integrated Framework

Risk Analysis and Quantification

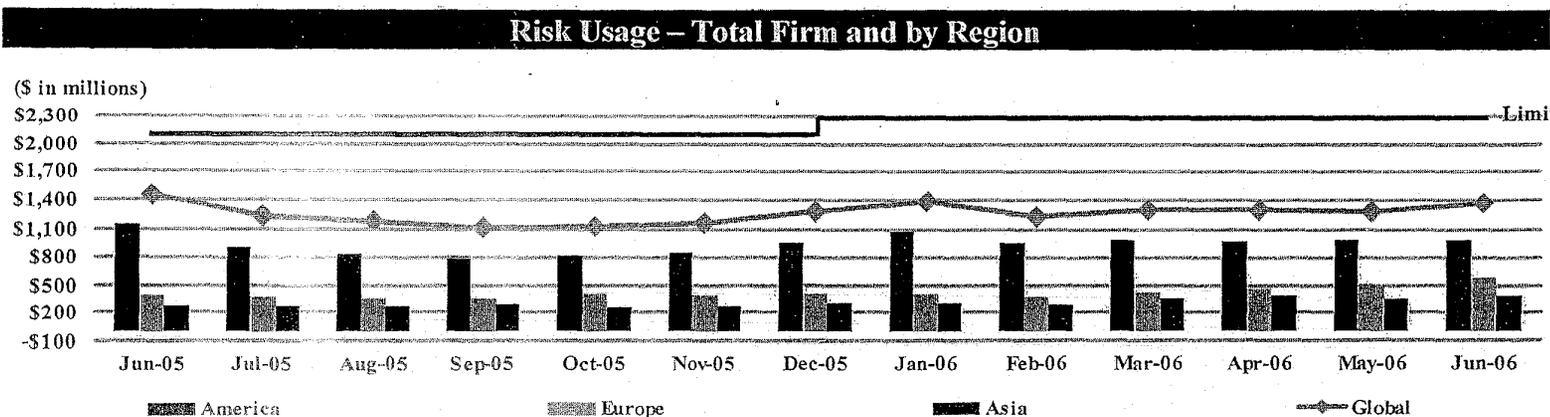
Risk Appetite Usage

- ◆ Risk appetite usage is measured on a globally consolidated basis and reported on a daily basis against our risk appetite limit
- ◆ Risk appetite usage is composed of
 - Market Risk
 - Measures the potential mark-to-market loss on all positions from adverse market moves
 - We use historical simulations which are “walk-backs” through time to determine what would have been the P&L impact on today’s portfolio if we relived each day over the past four years. We weight the data giving more weight to recent market moves while at the same time giving less weight to market moves further back in time.
 - This approach allows us to avoid making assumptions about distributions, about diversification, about relative risk factor weightings
 - In order to determine the reasonableness of the market risk measures, we do back-testing, comparing the market risk generated for the portfolio using the historical simulation approach to its actual trading P&L
 - Event Risk
 - Measures stress and “gap risks” which go beyond potential market risk losses. We measure these risks using statistically measurable stress analyses which capture losses associated with
 - Downgrades for high grade and defaults for High Yield loans, bonds and convertibles
 - Defaults for sub-prime mortgage loans
 - Property value losses on real estate
 - Dividend risk for equity derivatives
 - Deal break risk for merger arbitrage positions
 - Gap risk for fund derivatives
 - Counterparty Credit Risk
 - Measures the potential loss the Firm can suffer due to non-performance of our counterparties on forward settlements, financing and derivative transactions

Review of Results

Risk Appetite Usage

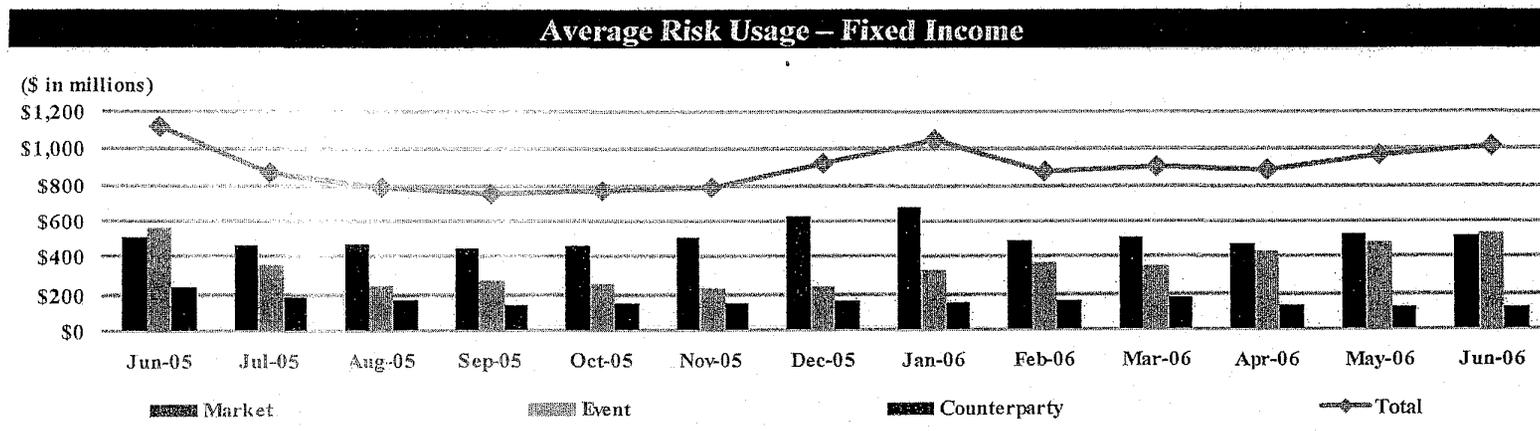
- ◆ The Firm's overall risk usage remains well within its risk appetite limit of \$2.3 billion
- ◆ In absolute terms, total risk usage has been relatively stable over the past year
- ◆ We continue to grow our franchise which allows us to benefit from increased diversification due to an expanded product and business mix, as well as an expanded international presence
- ◆ From a regional perspective, Europe risk usage has grown from \$400mm a year ago to \$585mm while Asia risk usage has increased to \$390mm up from \$270mm
- ◆ In June 2006, Europe and Asia generated 44% of our total revenue, up from 23% a year ago.



Risk Appetite Usage

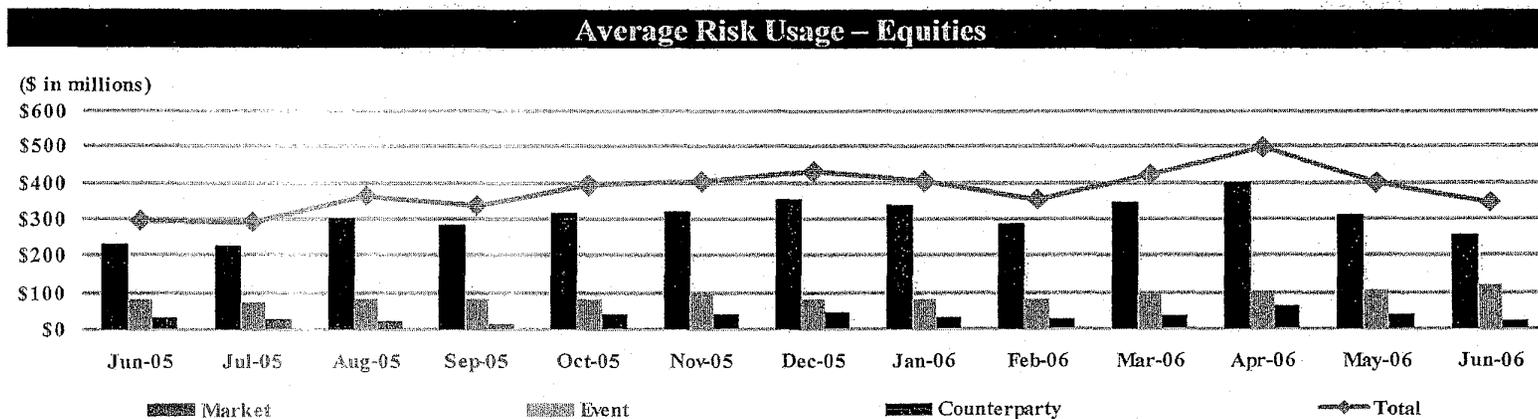
Review of Results

- ◆ Fixed Income risk usage is down slightly from \$1.1 billion in June 2005, to \$1.0 billion currently
- ◆ Intra-year a decrease in event risk was offset by an increase in market risk
 - Real Estate risk usage declined to \$350mm, down from \$485mm in June 2005, having hit a low of \$150mm in December 2005. While our balance sheet at risk increased, overall risk is down due to the portfolio composition shifting toward more liquid, securitizable assets while exiting several large bridge equity positions
 - Consistent with the strong M&A/LBO markets, High Yield risk increased from \$310mm in June 2005 to \$360mm in June 2006
 - High Grade risk increased from \$220mm in June 2005 to \$330mm in June 2006, as strong credit markets through Spring 2006 allowed us to further grow our franchise.
 - Market risk peaked in January driving overall risk usage, as several desks in FID increased their net short interest rate exposures



Risk Appetite Usage

- ◆ Equities risk usage increased to \$340mm, up from \$300mm a year ago but down from the peak levels in April
 - Consistent with our strategy of building out our Equity Division, our net long delta exposure had increased over the past year from \$800mm to \$1.2bn. From February through April, we increased our exposures in all regions, particularly in America and Asia, reflecting our bullish view on these markets
 - We turned less bullish beginning in May and thus reduced exposure as the markets entered a major correction

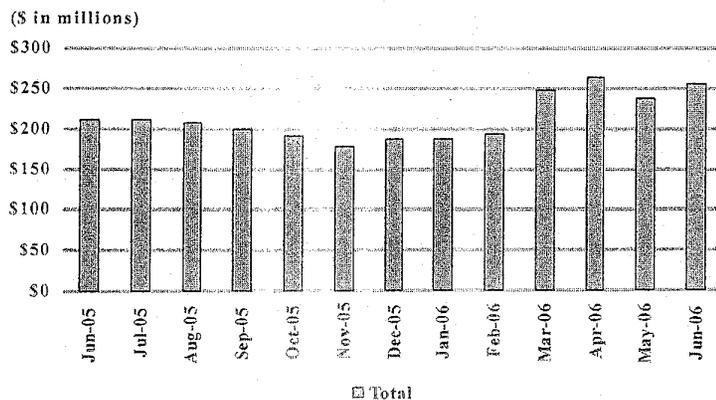


Risk Appetite Usage

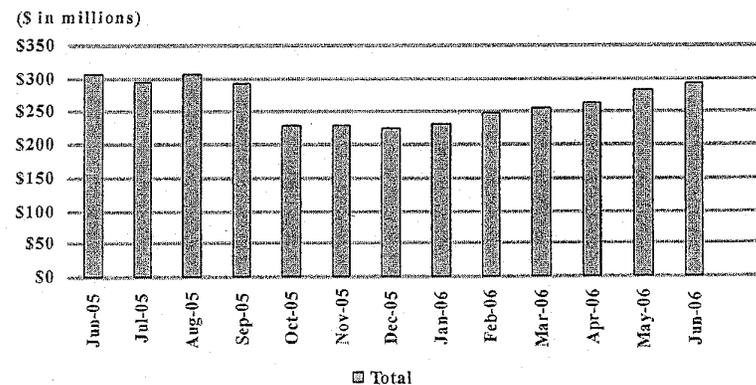
Review of Results

- ◆ Global Trading Strategies risk usage increased from \$210mm in June 2005, to \$260mm
- ◆ While risk usage remained relatively stable for most of the past year, during the past quarter it has trended upwards, as result of position taking associated with M&A activities
- ◆ Investment Management risk usage, primarily driven by our balance sheet at risk in private equity funds and direct investments, is at similar levels of a year ago
- ◆ In the Fall, risk was reduced as we transferred assets we had been warehousing into new real estate funds
- ◆ Risk has trended up in the last few months as we position ourselves to launch new funds of private equity funds

Risk Usage – Global Trading Strategies



Risk Usage – Investment Management



Counterparty Credit Exposure

Review of Results

- ◆ We continue to be prudent in our approach to counterparty credit risk
 - We have a very low tolerance for delays on receiving collateral, where applicable
 - We give very close scrutiny to the value of customer collateral posted against margin loans
- ◆ We have a very high quality credit portfolio
- ◆ 97.9% of our counterparty exposure is in investment grade names
- ◆ The bulk of our exposure is to banks and other financial institutions
- ◆ Hedge Fund exposure represents 1% of our total portfolio
- ◆ 91.3% of our exposure is in the U.S., Canada and Western Europe

Current Credit Exposure Trend by Rating

(US\$ million)

| | Ratings | | | | | | Percentages | | | | | |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | 2Q '05 | 3Q '05 | 4Q '05 | 1Q '06 | 2Q '06 | Jun-06 | 2Q '05 | 3Q '05 | 4Q '05 | 1Q '06 | 2Q '06 | Jun-06 |
| AAA | 3,759 | 3,745 | 3,569 | 4,347 | 5,506 | 4,823 | 21.1% | 20.5% | 19.3% | 22.5% | 20.5% | 21.3% |
| AA | 5,710 | 6,163 | 6,763 | 6,643 | 11,929 | 9,236 | 32.1% | 33.7% | 36.5% | 34.3% | 44.5% | 40.8% |
| A | 6,110 | 5,966 | 5,933 | 6,073 | 6,987 | 6,152 | 34.3% | 32.6% | 32.0% | 31.5% | 26.1% | 27.2% |
| BBB | 1,540 | 1,807 | 1,825 | 1,826 | 2,010 | 1,953 | 8.6% | 9.9% | 9.8% | 9.5% | 7.5% | 8.6% |
| BB | 564 | 467 | 314 | 336 | 308 | 359 | 3.2% | 2.6% | 1.7% | 1.8% | 1.1% | 1.6% |
| B or Lower | 130 | 155 | 135 | 83 | 82 | 135 | 0.7% | 0.8% | 0.7% | 0.4% | 0.3% | 0.5% |
| Total | 17,813 | 18,304 | 18,539 | 19,308 | 26,822 | 22,658 | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |

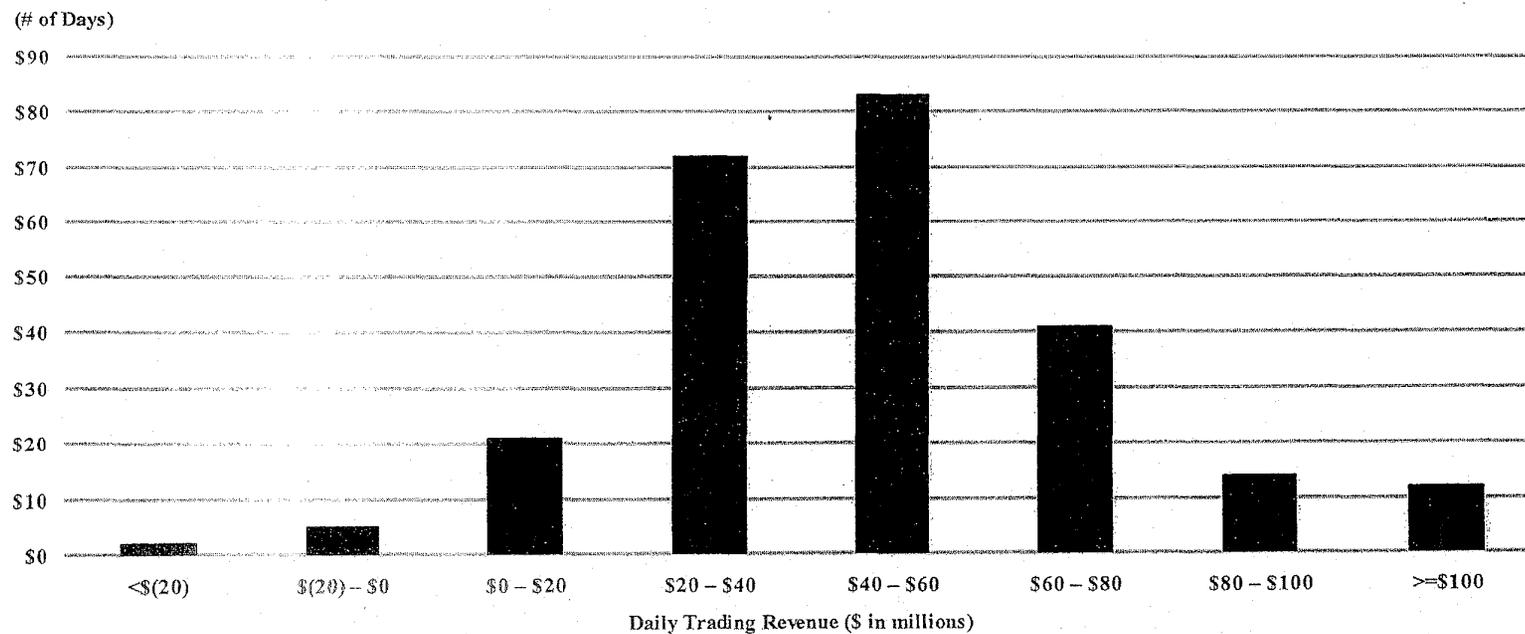
| | 2Q '05 | 3Q '05 | 4Q '05 | 1Q '06 | 1Q '06 | Jun-06 |
|------------------------|--------|--------|--------|--------|--------|--------|
| Investment Grade | 96.1% | 96.6% | 97.6% | 97.8% | 98.5% | 97.9% |
| Below Investment Grade | 3.9% | 3.4% | 2.4% | 2.2% | 1.5% | 2.1% |
| | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

Note: Does not include money market deposits.

Trading Revenues

- ◆ Average daily trading revenue was \$49mm from June 2005 through May 2006
- ◆ Consistent with our conservative risk profile, we had only seven negative trading days

Daily Trading Revenue Distribution (June 2005 through May 2006)



Stress Tests

Review of Results

- ◆ Stress tests and scenario analyses are performed regularly to evaluate the potential P&L impact on the Firm's portfolio of abnormal yet plausible market conditions
 - Analyses of movements in interest rates, stock prices, FX, volatility, etc., are run over a wide range of possible scenarios to determine the impact on the current portfolio of these extreme instantaneous shocks
 - These analyses are conservative because they do not allow for re-hedging or selling down a position either actively or through the automatic execution of existing stop-losses
- ◆ Our stress tests are run regularly on a suite of scenarios, including:
 - Re-runs of historical episodes of extreme market moves, for example:
 - 9/11 terrorist attacks
 - Russia default contagion and LTCM
 - November 2001 volatile bond market
 - October 1987 stock market crash
 - Hypothetical scenarios due to shocks that have some probability of occurrence and are driven by macro fundamental shifts, for example:
 - Dollar declines due to the current account deficit
 - Oil price increase leading to cost-push inflation
 - Yield curve steepening due to potential inflationary expectations
 - Credit spreads widening due to an increase in the overall level of the curve
 - Other ad-hoc hypothetical scenarios
- ◆ We subject both our trading and counterparty portfolio to stress tests

Stress Tests

Review of Results

Revenue Impact on Trading Portfolio for June 30, 2006 (\$Millions)

| | Bull Steepening | Bull Flattening | Bear Flattening | Bear Steepening | EMG Crisis | Rating/ Default & HF Risk | HY / LBO / Default Risk | Equity Crash (1987) | Parallel Move Down | Parallel Move Up | Black Monday | Oil Supply Crisis | Liquidity Crunch |
|--------------------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------------------------|----------------------------------|---------------------------|--------------------------|---------------------|-----------------|-------------------------|---------------------|
| Fixed Income | (42) | (39) | 283 | (159) | (150) | (231) | (246) | (306) | (273) | 264 | (254) | (262) | 179 |
| Equities | 69 | 93 | 291 | 33 | 51 | (11) | 38 | (374) | 70 | 292 | (233) | 22 | 27 |
| Global Trading Strategies | (156) | 15 | 106 | (85) | (149) | (73) | (149) | (250) | (167) | 108 | (188) | (158) | (117) |
| Investment Management | (76) | 33 | 48 | (53) | (88) | (39) | (89) | (192) | (77) | 49 | (128) | (98) | (105) |
| Global Principal Strategies | 20 | 18 | (39) | (25) | 24 | 9 | 9 | (16) | 28 | (38) | 9 | 27 | (31) |
| Prime Services | 54 | 45 | (79) | (35) | 48 | 41 | 41 | 52 | 51 | (52) | 52 | 78 | (79) |
| Firm Total | (132) | 164 | 610 | (323) | (264) | (305) | (396) | (1,086) | (368) | 623 | (742) | (390) | (127) |

Note: These represent revenue losses associated with instantaneous market moves that in actuality occurred over two-week periods.

These analyses are conservative because they do not allow for re-hedging or selling down a position either actively or through the automatic execution of existing stop-losses.

Conclusion

Conclusion

Conclusion

- ◆ We have a strong culture of Risk Management throughout the Firm
- ◆ Our franchise is to facilitate clients
- ◆ We have developed a very robust and comprehensive framework for thinking about and managing all forms of risk
 - Our powerful risk and equity allocation tools help guide the Firm in its overall management and decision making
- ◆ We are prudent toward our approach to credit risk which has resulted in a very high quality and well diversified credit portfolio
 - We have very low tolerance for delays on receiving collateral, where applicable
 - We give close scrutiny to the value of customer collateral posted against margin loans
- ◆ Our approach is to mitigate risk through various hedging strategies, and follow a model of credit facilitation where we act as a conduit between our clients and the capital markets, rather than as the ultimate holder of the risk
- ◆ Our overall Risk Management philosophy of conservatism and prudence has been an important factor in our improving credit spreads, ratings and credit worthiness

Appendix

LEHMAN BROTHERS

31

Bull Steepening

Post 9/11 Flight to Quality (Sep 11, 2001 - Sep 25, 2001)

Rates

- ◆ USD: Treasury rates: 2Y -90bps, 10Y -30bps (60bps steepening),
 - Swap Spr: 2Y +20bps, 10Y +5bps
 - Cap vol +5%, Swaption vol +3%
- ◆ EUR: Govt rates: 2Y -57bps, 10Y -17bps (40bps steepening),
 - Swap Spr: 10Y +11 bp
 - Cap vol +5%, Swaption vol +3%
- ◆ GBP: Govt rates: 2Y -52bp, 10y rates -12bp (40bps steepening) ,
 - Swap Sprd :+20 bps,
 - Cap vol +7%, Swaption vol +3.5%,
- ◆ JPY: 10Y rate unchanged, sprd +10 bps,
- ◆ Inflation: +35 bps
(vol shocks are absolute)

FX

- ◆ Major ccys up 4%, except CHF up 7% and GBP up 1%, EM ccys down 5%
- ◆ Vols: Latam 20%, TRY and Eastern Europe 15%, RUR 45%,
- ◆ Major ccys 30%, Minor Asia 35%
(vol shocks are relative)

Mortgage

- ◆ FNCL (Fannie Mae 30yr) LOAS tightens by 5 bps, HEL AAA tightens by 2 bp and BBB tightens by 10 bp. OAS Drop (i.e. spread between non-agency and agency mortgage securities) decreased by 3bp, CMBS AAA -2bp, BBB -5bp. Trust IO LOAS -54 bp, PO LOAS +8.

Credit

- ◆ HG spreads out 15%
- ◆ HY market down 4.3% (Ba), 5.7% (B), 8.5% (Caa and below), loan market down 1.4% (Ba), 1.9% (B), 2.8% (Caa and below).
- ◆ Defaults swaps down 6%
- ◆ Latin/East Europe EMG spreads widen 15%, Asia credit spreads widen 10%
- ◆ Correlation skew increases by 15pts

Equity

- ◆ North America -11.5%, UK -12%, Germany -19%, France -16.5%, Remaining Euro -14% Japan -6%, Hong Kong -14%, Korea -14%, Mexico -13%, Brazil -12.5%
- ◆ 1M Vol +34%, 3M Vol +22%, 6M Vol +19%, 9M Vol +15%, 1Y Vol +12%, 2Y Vol +8.5%, 3Y Vol +7%, 5Y Vol +6%
(vol shocks are relative)

Bull Flattening

Period before the major rates backup in the summer of 2003. Generally strong market tone across all asset classes due to signs of economic recovery and low inflation expectations, but reduced demand for energy (May 1, 2003 - May 15, 2003)

| | |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rates | <ul style="list-style-type: none"> ◆ USD: <ul style="list-style-type: none"> - Treasury rates: 2Y -25bps, 10Y -50bps (25bps flattening) - Swap Spr: -5bps - Cap vol +4%, Swaption vol +2% ◆ EUR: <ul style="list-style-type: none"> - Govt rates: 2Y -46bps, 10Y -56bps (10bps flattening) - Swap Spr: -11bps - Cap vol -3%, Swaption vol -3% ◆ GBP: <ul style="list-style-type: none"> - Govt rates: 2Y -55bps, 10Y -65bps (10bps flattening) - Swap Spr: -20bps - Cap vol -3%, Swaption vol -3% ◆ JPY: 10Y rate -2bp, sprd +30 bps ◆ Inflation: -35 bps <i>(vol shocks are absolute)</i> |
| FX | <ul style="list-style-type: none"> ◆ All ccys up 3%, except Latam down 4% and minor Asian ccys up 1% ◆ Vols: Latam 20%, RUB 400%, TRY 60%, Eastern Europe 15% ◆ JPY 20%, Other majors 10%, Minor Asian 30% <i>(vol shocks are relative)</i> |
| Mortgage | <ul style="list-style-type: none"> ◆ FNCL (Fannie Mae 30yr) LOAS tightens by 5 bps, HEL AAA -2 bp and BBB -10bp. OAS Drop by -3; CMBS AAA -3bp, BBB -5bp. Trust IO LOAS - 54 bp, PO + 8. |
| Credit | <ul style="list-style-type: none"> ◆ HG spreads out 10%. HY market up 1.0% (Ba), 0.2% (B), 0.2% (Caa and below), loan market up 0.2% (Ba), 0.0% (B), 0.0% (Caa and below). Defaults swaps up 0.5%. Latin/East Europe EMG spreads tighten 5% ◆ Asia credit spreads 5% tightening |
| Equity | <ul style="list-style-type: none"> ◆ North America +3.5%, UK +3.5%, Germany 0%, France +1.0%, Remaining Euro +1%, Japan +3.5%, Hong Kong +3.5%, Korea +4%, Mexico +1%, Brazil +2.5% ◆ Vols: 1M Vol -11%, 3M Vol -7%, 6M Vol -6%, 9M Vol -5%, 1Y Vol -4%, 2Y Vol -3%, 3Y Vol -2%, 5Y Vol -2% <i>(vol shocks are relative)</i> |
| Energy | <ul style="list-style-type: none"> ◆ Crude oil front end prices fall 19%, back end prices fall 13% ◆ Oil products front end prices fall 23%, back end prices fall 15% ◆ Oil vols down 50% ◆ US natural gas front end falls 19%, back end 13%, vols fall by 50% ◆ US power front end prices fall 34%, back end falls 25% <i>(Front end 0-6mo; back end 4yr and up; vol shocks are relative)</i> |

Bear Flattening

Treasury down trade caused by asset reallocation and yield searching. Spreads generally widened moderately, and Equity and high yield asset classes outperformed others (Oct 30, 2001 - Nov 14, 2001)

| | |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rates | <ul style="list-style-type: none"> ◆ USD: Treasury rates: 2Y +95bps, 10Y +70bps (25bps flattening) <ul style="list-style-type: none"> - Swap Spr: 2Y +12bps, 10Y +8bps - Cap vol +4%, Swaption vol +2% ◆ EUR: Govt rates: 2Y +61bps, 10Y +41bps <ul style="list-style-type: none"> - Swap sprd + 11 bp - Cap vol +5%, Swaption vol +3% ◆ GBP: Govt rates: 2Y +70, 10Y +50bps <ul style="list-style-type: none"> - Swap sprd +20 bps - Cap vol +7%, Swaption vol +3.5% ◆ JPY: 10Y rate +1bps, sprd -10 bps ◆ Inflation: -35 bps <i>(vol shocks are absolute)</i> |
| FX | <ul style="list-style-type: none"> ◆ Major ccys down 3%, BRL and TRY up 4%, RUB and Eastern Europe down 1%, minor Asian up 1% ◆ Vols: Latam 20%, RUB 140%, TRY 40%, Eastern Europe 30% ◆ JPY 15%, Other majors -10% ◆ Minor Asia 50% <i>(vol shocks are relative)</i> |
| Mortgage | <ul style="list-style-type: none"> ◆ FNCL (Fannie Mae 30yr) LOAS widens by 5bps, HEL AAA widens by 5bps and BBB widens by +10 bp. OAS Drop by +3; CMBS AAA +3bp, BBB +5bp. Trust IO LOAS + 54 and PO LOAS -10 |
| Credit | <ul style="list-style-type: none"> ◆ HG spreads out 10% HY market up 1.4% (Ba), 0.2% (B), 2.9% (Caa and below), loan market up 0.0% (Ba), 0.2% (B), 0.4% (Caa and below) ◆ Defaults swaps up 1.4% ◆ Latin/East Europe EMG spreads tighten 5%, Asia credit spreads tightens 5% |
| Equity | <ul style="list-style-type: none"> ◆ North America +8%, UK +5%, Germany +9%, France +8%, Remaining Euro +7%, Japan -4%, Hong Kong +9%, Korea +14%, Mexico +4%, Brazil +16% ◆ 1M Vol -21%, 3M Vol -13.5%, 6M Vol -11.5%, 9M Vol -9.5%, 1Y Vol -7%, 2Y Vol -5%, 3Y Vol -4%, 5Y Vol -3.5% <i>(vol shocks are relative)</i> |

Bear Steepening

Post LTCM (Sep 28, 1998 - Oct 13, 1998)

Rates

- ◆ USD:
 - Treasury rates: 2Y +45bps, 10Y +75bps (30bps steepening)
 - Swap Spr: 2yr +10bps, 10yr +15bps
 - Cap vol +4%, Swaption vol +2%
- ◆ EUR: Govt rates: 2Y +49bps, 10Y +51ps (2bp steepening)
 - Swap sprd +11 bp,
 - Cap vol +3%, Swaption vol +3%
- ◆ GBP: Govt rate 2Y +46bp, 10Y +50ps (4bps steepening)
 - Cap vol +7%, Swaption vol +3.5%
- ◆ JPY: 10Y rate -11bps, sprd -45 bps
- ◆ Inflation: +35 bps
(vol shocks are absolute)

FX

- ◆ JPY up 15%, minor Asia up 3%, Major Europe up 5%, TRY unch, Latam down 10%, RUB down 90%
- ◆ Vols: Latam 65%, RUR 1300%, Eastern Europe 250%, TRY 70%
- ◆ JPY 90%, other major 50%, Minor Asia 25%
(vol shocks are relative)

Mortgage

- ◆ FNCL (Fannie Mae 30yr) LOAS widens by 10, HEL AAA widens by 3bps and BBB widens by 20 bp. OAS Drop by +6; CMBS AAA +2 bps, BBB +10 bp. Trust IO LOAS + 109 bp, PO LOAS -18 bp

Credit

- ◆ HG spreads out 10% HY market down 3%, loan market down 0.5%. Latin/east Europe EMG spreads widen 5% Asia credit spreads 5% widening
- ◆ North America -5%, UK -2%, Germany -8%, France -2%, Remaining Euro -5%, Japan -5%, Hong Kong +13.5%, Korea +13%, Mexico -4%, Brazil -3%
- ◆ 1M Vol +15%, 3M Vol +10%, 6M Vol +8%, 9M Vol +7%, 1Y Vol +5%, 2Y Vol +4%, 3Y Vol +3%, 5Y Vol +2.5%
(vol shocks are relative)

EMG Crisis

Market meltdown driven by EMG (Russian default) with spiked idiosyncratic risk, higher defaults, higher correlations, falling energy demand (Aug 17, 1998 - Aug 30, 1998)

| | |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rates | <ul style="list-style-type: none"> ◆ USD: Treasury rates: 2Y -65bps, 10Y -50bps (15bps steepening) <ul style="list-style-type: none"> - Swap Spr: +20bps - Cap vol +5%, Swaption vol +3% ◆ EUR: Govt rates: 2Y -57bp, 10Y -17bp (40bps steepening) <ul style="list-style-type: none"> - Swap spr: 10Y -11 bp - Cap vol +5%, Swaption vol +3% ◆ GBP: Govt rates: 2Y -72bps, 10Y -32bp (40bps steepening) <ul style="list-style-type: none"> - Swap sprd: +20 bps, - Cap vol +7%, Swaption vol +3.5% ◆ JPY: 10Y rate +5bp, Swap sprd +10 bps ◆ Inflation: +35 bps <i>(vol shocks are absolute)</i> |
| FX | <ul style="list-style-type: none"> ◆ TRY down 50%, RUR down 90%, Latam down 20%-40%, minor Asia down 20%-40%, JPY up 10%, GBP up 4%, EUR up 5%, CHF up 6% ◆ Vols: TRY 3000%, RUR 1000%, Latam 2000%, CNY 650% ◆ Minor Asia 800%, Majors 30% <i>(vol shocks are relative)</i> |
| Mortgage | <ul style="list-style-type: none"> ◆ FNCL (Fannie Mae 30yr) LOAS widens by 15, HEL AAA widens by 5 and BBB widens by 45 ◆ OAS Drop by +8 bp, CMBS AAA +5 bp, BBB +30 bp, Trust IO LOAS +163, PO LOAS -27 |
| Credit | <ul style="list-style-type: none"> ◆ HG spreads widen 10% ◆ HY market down 2%, loan market down 0.5%. Latin/east European EMG meltdown: spreads out 50% Asia credit spreads out 20% EMG default rate spike up to 10% or one country default out of high beta countries ◆ Correlation skew increases by 15pts |
| Equity | <ul style="list-style-type: none"> ◆ North America -5%, UK -4%, Germany -8.5%, France -7%, Remaining Euro -7%, Japan -6%, Hong Kong +9%, Korea+1%, Mexico -11%, Brazil -22% ◆ 1M Vol +24%, 3M Vol +15.5%, 6M Vol +13%, 9M Vol+11%, 1Y Vol +8.5%,2Y Vol +6%, 3Y Vol +5%, 5Y Vol +4% <i>(vol shocks are relative)</i> |
| Energy | <ul style="list-style-type: none"> ◆ Crude front end prices fall 22%, back end prices fall 15% ◆ Oil products front end prices fall 27%, back end prices fall 18% ◆ Oil front end vols down 50% ◆ US natural gas front end falls 21%, back end falls 15%, vols fall by 50% ◆ US power front end falls 37%, back end falls 28%. <i>(Front end 0-6mo; back end 4yr and up; vols are relative)</i> |

Rating/Default and Hedge Fund Risk

Significant rating risk (e.g. GM), one name default in CDX or HVOL coupled with hedge fund blow-out on structured credit products causing panic selling, significant market widening with CDS basis gapping out (Jul 18, 2002 - Aug 2, 2002)

| | |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rates | <ul style="list-style-type: none"> ◆ USD: Treasury rates: 2Y -46bps, 10Y -35bps (11bps steepening) <ul style="list-style-type: none"> - Swap Spr: +14bps - Cap vol +5%, Swaption vol +3% ◆ EUR: Govt rates: 2Y -57bps, 10Y -17bp (40bps steepening) <ul style="list-style-type: none"> - Swap spr: 10Y +11 bp - Cap vol +5%, Swaption vol +3% ◆ GBP: Govt rates: 2Y -72bps, 10Y -32bp (40bps steepening) <ul style="list-style-type: none"> - Swap Sprd: +20 bps, - Cap vol +7%, Swaption vol +3.5% ◆ JPY: 10Y +4bp, Swap sprd +10 bps ◆ Inflation: +35 bps (vol shocks are absolute) |
| FX | <ul style="list-style-type: none"> ◆ Major ccy in the range of +/- 4%, minor Asian +/-2%, Latam down 2%-5%, and TRY and Eastern Europe down 6% ◆ Vols: Latam 10%, TRY 40%, RUR and Eastern Europe 40%, Major ccy 15%, minor Asia 50% (vol shocks are relative) |
| Mortgage | <ul style="list-style-type: none"> ◆ FNCL (Fannie Mae 30yr) LOAS widens by 20, HEL AAA widens by 15 bp and BBB widens by 70bp. OAS Drop by +10, CMBS AAA +12 bp, BBB +60bp. Trust IO LOAS +218, PO LOAS -36 |
| Credit | <ul style="list-style-type: none"> ◆ HG spreads widen 20%. HY market down 3.0% (Ba), 6.5% (B), 5.5% (Caa and below), loan market up 0.8% (Ba); yet down 1.6% (B), 1.4% (Caa and below). Defaults swaps down 4%. ◆ Asian distressed NPL unchanged ◆ Latin/east Europe EMG spreads widen 20% ◆ Asia credit spreads 20% widening (summer 02) BBB default rate spike up to 0.5% ◆ Correlation skew increases by 15pts |
| Equity | <ul style="list-style-type: none"> ◆ North America -2%, UK -5%, Germany -14%, France -8%, Remaining Euro -7%, Japan -8%, Hong Kong -4.5%, Korea -9.5%, Mexico -12%, Brazil -9% ◆ 1M Vol +18%, 3M Vol +12%, 6M Vol +10%, 9M Vol +8%, 1Y Vol +6%, 2Y Vol +4.5%, 3Y Vol +3.5%, 5Y Vol +3% (vol shocks are relative) |

HY/LBO/Default Risk

Global default rate increase coupled with lower recovery. Investor demand dries up after "hot" market, leading to a longer syndication time line or no syndication in large LBO or M&A loan deals (Sep 16, 2002 - Oct 17, 2002)

Rates

- ◆ USD: Treasury rates: 2Y -46bps, 10Y -35bps (11bps steepening)
 - Swap Spr: +14bps (widened)
 - Cap vol +5%, Swaption vol +3%
- ◆ EUR: Govt rates: 2Y -57bp, 10Y -17bp (40bps steepening)
 - Swap spr: 10Y +11 bp
 - Cap vol +5%, Swaption vol +3%
- ◆ GBP: Govt rates: 2Y -72bps, 10Y -32bp (40bps steepening)
 - Cap vol +7%, Swaption vol +3.5%
- ◆ JPY: 10Y rate +2 bp, swap sprd +10 bps
- ◆ Inflation: +35 bps
(vol shocks are absolute)

FX

- ◆ Major ccy in the range of +/- 4%, minor Asian +/-2%, Latam down 2%-5%, and TRY and Eastern Europe down 6%.
- ◆ Vols: Latam 10%, TRY 40%, RUR and Eastern Europe 40%, Major ccy 15%, minor Asia 50%
(vol shocks are relative)

Mortgage

- ◆ FNCL (Fannie Mae 30yr) LOAS widens by 5, HEL AAA widens by 5 bp and BBB widens by 80 bp. OAS Drop by +12, CMBS AAA +8 bp, BBB +65 bp. Trust IO LOAS +54 bp, PO LOAS -10 bp

Credit

- ◆ HG spreads widen 10%
- ◆ HY market down 3.5% (Ba), 7.5% (B), 6.0% (Caa and below), loan market down 1.2% (Ba), 2.5% (B), 2.0% (Caa and below). Defaults swaps down 6%. Latin/East Europe EMG spreads widen 10%

Equity

- ◆ North America -13%, UK -7.5%, Germany -22%, France -15.5%, Remaining Euro -11%, Japan -10.5%, Hong Kong -6%, Korea -12%, Mexico -5%, Brazil -11.5%
- ◆ 1M Vol +15%, 3M Vol +10%, 6M Vol +8%, 9M Vol +7%, 1Y Vol +5%, 2Y Vol +4%, 3Y Vol +3%, 5Y Vol +2.5%
(vol shocks are relative)

Equity Crash (1987)

Weakening US dollar, deteriorating US current account deficit, escalating US government debt, High P/E's low dividend yields (Oct 5, 1987 - Oct 19, 1987)

| | |
|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rates | <ul style="list-style-type: none"> ◆ USD: <ul style="list-style-type: none"> - Treasury rates: 2Y -80bps, 10Y -30bps (50bps steepening) - Swap Spr: 2yr +20bps, 10yr +5bps - Cap vol +5%, Swaption vol +3% ◆ EUR: Govt rates: 2Y -46, 10Y -6bps, 10y rates -6bp (40bps steepening), <ul style="list-style-type: none"> - Swap spr: 10Y -11 bp - Cap vol +5%, Swaption vol +3% ◆ GBP: Govt rates: 2Y -52bps, 10Y -12bp (40bps steepening) <ul style="list-style-type: none"> - Swap spr: +20 bps - Cap vol +7%, Swaption vol +3.5% ◆ JPY: 10Y rate -25 bp, Swap sprd +10 bps ◆ Inflation: +35 bps <i>(vol shocks are absolute)</i> |
| FX | <ul style="list-style-type: none"> ◆ Major ccys up 5% except CHF up 8%, Emerging Europe down 5% ◆ Latam down 10%, Asia down 5%, Minor Asia down 10% ◆ Vols: 20% across <i>(vol shocks are relative)</i> |
| Mortgage | <ul style="list-style-type: none"> ◆ FNCL (Fannie Mae 30yr) LOAS widens by 10 bps, HEL AAA widens by 4 bp and BBB widens by 50 bp. OAS Drop by +6, CMBS AAA +5bp, BBB +40 bp. Trust IO LOAS +109, PO LOAS -18 |
| Credit | <ul style="list-style-type: none"> ◆ HG spreads widen 10% ◆ HY market down 4%, loan market down 0.5%. Latin/east Europe EMG spreads widen 10% ◆ Asia credit spreads 10% widening ◆ Correlation skew increases by 15pts |
| Equity | <ul style="list-style-type: none"> ◆ North America -31.5%, UK -14%, Germany -14%, France -17.5%, Remaining Euro -14.5%, Japan -1%, Hong Kong -15%, Korea +4%, Mexico -31.5%, Brazil -31.5% ◆ 1M Vol +610%, 3M Vol +397%, 6M Vol +355.5%, 9M Vol +274.5%, 1Y Vol +214%, 2Y Vol +153%, 3Y Vol +122%, 5Y Vol +106% <i>(vol shocks are relative)</i> |

Black Monday (10/16 – 10/19 1987)

Rates

- ◆ **USD:**
 - Treasury rates: 2Y -80bps, 10Y -30bps (50bps steepening)
 - Swap Spr: 2yr +20bps, 10yr +5bps
 - Cap vol +5%, Swaption vol +3%
- ◆ **EUR:** Govt rates: 2Y -46, 10Y -6bps, 10y rates -6bp (40bps steepening),
 - Swap spr: 10Y -11 bp
 - Cap vol +5%, Swaption vol +3%
- ◆ **GBP:** Govt rates: 2Y -52bps, 10Y -12bp (40bps steepening)
 - Swap spr: +20 bps
 - Cap vol +7%, Swaption vol +3.5%
- ◆ **JPY:** 10Y rate -25 bp, Swap sprd +10 bps
- ◆ **Inflation:** +35 bps
(vol shocks are absolute)

FX

- ◆ Major ccys up 5% except CHF up 8%, Emerging Europe down 5%
- ◆ Latam down 10%, Asia down 5%, Minor Asia down 10%
- ◆ Vols: 20% across
(vol shocks are relative)

Mortgage

- ◆ FNCL (Fannie Mae 30yr) LOAS widens by 10 bps, HEL AAA widens by 4 bp and BBB widens by 50 bp. OAS Drop by +6, CMBS AAA +5bp, BBB +40 bp

Credit

- ◆ HG spreads widen 10%
- ◆ HY market down 4%, loan market down 0.5%. Latin/east Europe EMG spreads widen 10%
- ◆ Asia credit spreads 10% widening
- ◆ Correlation skew increases by 15pts

Equity

- ◆ North America -20.5%, UK -21.5%, Germany -10.5%, France -8.5%, Remaining Euro -12.5%, Japan -15%, Hong Kong -33.5%, Korea -2.5%, Mexico -20.5%, Brazil -20.5%
- ◆ 1M Vol +313%, 3M Vol +181%, 6M Vol +128%, 9M Vol +104%, 1Y Vol +90%, 2Y Vol +64%, 3Y Vol +52%, 5Y Vol +40%
(vol shocks are relative)

Parallel Move Down

Modeled after Post 9/11 Flight to Quality (Sep 11, 2001 - Sep 25, 2001)

| | USD: |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rates | - Treasury: -65bps |
| | - Swap spr: +10bps |
| | - Cap vol +4%, Swaption vol +3% |
| | EUR: -50 bps |
| | GBP: -55 bps |
| | JPY: -5 bps |
| | <i>(vol shocks are absolute)</i> |
| FX | Major ccys up 4%, except CHF up 7% and GBP up 1%, EM ccys down 5% |
| | Vols: Latam 20%, TRY and Eastern Europe 15% RUR 45% |
| | Major ccys 30%, Minor Asia 35% |
| | <i>(vol shocks are relative)</i> |
| Mortgage | FNCL (Fannie Mae 30yr) LOAS widens by 5bps, HEL AAA widens by 5 bp and BBB widens by 20 bp. OAS Drop by +3, CMBS AAA +2 bp, BBB +15 bp. Trust IO LOAS + 54, PO LOAS -10 |
| | |
| Credit | HG spreads out 15%; HY market down 4.3% (Ba), 5.7% (B), 8.5% (Caa and below), loan market down 1.4% (Ba), 1.9% (B), 2.8% (Caa and below). Defaults swaps down 6%. Latin/East Europe EMG spreads widen 15%. Asia credit spreads 10% widening. Correlation skew increases by 15pts |
| | |
| Equity | North America -11.5%, UK -12%, Germany -19%, France -16.5%, Remaining Euro -14%, Japan -6%, Hong Kong -14%, Korea -14%, Mexico -13%, Brazil -11.5% |
| | 1M Vol +34%, 3M Vol +22%, 6M Vol +19%, 9M Vol +15%, 1Y Vol +12%, 2Y Vol +8.5%, 3Y Vol +7%, 5Y Vol +6% |
| | <i>(vol shocks are relative)</i> |

Parallel Move Up

Similar to Oct 30, 2001 – Nov 14, 2001 period

Rates

- ◆ **USD:**
 - Treasury: +75bps
 - Swap spr: +10bps
 - Cap vol +3%, Swaption vol +2%
 - ◆ **EUR:** +50 bps
 - ◆ **GBP:** +45 bps
 - ◆ **JPY:** +5 bps
- (vol shocks are absolute)*

FX

- ◆ Major ccys down 3%, BRL and TRY up 4%, RUB and Eastern Europe down 1%, minor Asian up 1%
 - ◆ Vols: Latam 20%, RUB 140%, TRY 40%, Eastern Eur 30%, JPY 15%
 - ◆ Other majors -10%, Minor Asia 50%
- (vol shocks are relative)*

Mortgage

- ◆ FNCL (Fannie Mae 30yr) LOAS widens by 5 bps, HEL AAA widens by 5 bp and BBB widens by 10 bp. OAS Drop by +3, CMBS AAA 2 bp, BBB 5 bp. Trust IO LOAS +54, PO LOAS -10

Credit

- ◆ HG spreads out 10% HY market up 1.4% (Ba), 0.2% (B), 2.9% (Caa and below), loan market up 0.0% (Ba), 0.2% (B), 0.4% (Caa and below). Defaults swaps up 1.4%. Latin/east Europe EMG spreads widen 5% Asia credit spreads 5% widening

Equity

- ◆ HG spreads out 10% HY market up 1.4% (Ba), 0.2% (B), 2.9% (Caa and below), loan market up 0.0% (Ba), 0.2% (B), 0.4% (Caa and below). Defaults swaps up 1.4%. Latin/east Europe EMG spreads widen 5% Asia credit spreads 5% widening
 - ◆ North America +8%, UK +5%, Germany +9%, France +8%, Remaining Euro +7%, Japan -4%, Hong Kong +9%, Korea +14%, Mexico +4%, Brazil +16%
 - ◆ 1M Vol -21%, 3M Vol -14%, 6M Vol -11.5%, 9M Vol -9.5%, 1Y Vol -7%, 2Y Vol -5%, 3Y Vol -4%, 5Y Vol -3.5%
- (vol shocks are relative)*

Oil Supply Crisis

Major oil supply disruption at the source, likely due to political events in oil producing countries and/or terrorism, with great uncertainty around supplies returning to normal levels in the near future

| | |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rates | <ul style="list-style-type: none"> ◆ USD: <ul style="list-style-type: none"> - Treasury rates: 2Y -125bps, 10Y -50bps (75bps steepening) - Swap Spr: 2yr +20bp, 10yr: +10bp. Cap vol +5%, Swaption vol +3% ◆ EUR: <ul style="list-style-type: none"> - Govt rates: 2Y -50bps, 10Y -25bps (25bps steepening) - Swap Spr: -3bps. Cap vol +5%, Swaption vol +3% ◆ GBP: <ul style="list-style-type: none"> - Govt rates: 2Y -75bps, 10Y -25bps (50bps steepening) - Swap Spr: -5bps. Cap vol +7%, Swaption vol +3.5% ◆ JPY: <ul style="list-style-type: none"> - Govt rates: 10Y -30bp. Cap vol +15%, Swaption vol +10% ◆ Inflation: -20 bps <i>(vol shocks are absolute)</i> |
| FX | <ul style="list-style-type: none"> ◆ EUR +6%, JPY +8%, GBP +4%, CHF +9%, Latam -10% to -15%, Emerging Europe -12%, Asia -12%, Other : pegged currencies: -1%/+1% ◆ Vols: +50% on major currencies, +100%-200% on emerging currencies <i>(vol shocks are relative)</i> |
| Mortgage | <ul style="list-style-type: none"> ◆ FNCL (Fannie Mae 30yr) LOAS +5, HEL AAA +3 and BBB +45. OAS Drop +3; CMBS AAA +2, BBB +25. Trust IO LOAS +54, PO -10. |
| Credit | <ul style="list-style-type: none"> ◆ HY market down 3.7% (Ba), 6.1% (B), 7.0% (Caa and below), and 5.0% (NR) - for both bonds and default swaps. Loans down 0.3% (Ba), 1.7% (B) and 2.1% (Caa and below) ◆ HG spreads widen 15%. Latin/East Europe EMG spreads widen 10% (non-oil exporters). Asia credit spreads widen 15% (non-oil exporters) |
| Equity | <ul style="list-style-type: none"> ◆ North America -13.5% UK -11.5% Germany -19.5% France -21% Remaining Euro -18.5% Japan -23% Hong Kong -17% Korea -12.5% Mexico -19% Brazil -19% ◆ All Energy Sector Stocks: -3.9% ◆ Vols: 1M +69%, 3M +40%, 6M +28%, 9M +23%, 1Y 20%, 2Y 14%, 3Y 12%, 5Y 9% <i>(vol shocks are relative)</i> |
| Energy | <ul style="list-style-type: none"> ◆ Crude oil: front 6 mo ave. price: \$130/ bbl, Year 1: \$125/ bbl, Year 2: \$110/ bbl, Year 3: \$90/ bbl ◆ Oil products: Heating oil - \$3.10/ gallon, Unleaded gas: \$3.25/ gallon. Oil vols up 100% ◆ US natural gas: front 6mo ave. price: \$10.5/ mmbtu, following oil curve pattern ◆ US power peak prices: front end: \$110/ MWh, following natural gas curve pattern <i>(Front end 0-6mo; back end 4yr and up; vol shocks are relative)</i> |

Liquidity Crunch

Hawkish Federal Reserve and major central banks continuing on a path of raising rates draining extra liquidity enjoyed previously, resulting in a decline in risky assets

| | |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rates | <ul style="list-style-type: none"> ◆ USD: Treasury rates: 2Y +95bps, 10Y +70bps (25bps flattening); Swap spr: 2Y +12bps, 10Y +8bps; Cap vol +4%, Swaption vol +2% ◆ EUR: Govt rates: 2Y +61bps, 10Y +41bps; Swap sprd + 11 bp; cap vol +5%, Swaption vol +3%, ◆ GBP: Govt rates: 2Y +70, 10Y +50bps; Swap sprd +20 bps; cap vol +7%, Swaption vol +3.5% ◆ JPY: Govt rates:10Y rate +1bps; Swap sprd -10 bps ◆ Inflation: -35 bps <i>(vol shocks are absolute)</i> |
| FX | <ul style="list-style-type: none"> ◆ Majors down 2% to 3%, Latam down 15% to 32%, Emerging Europe down 15% to 35%, Asia down 7% to 15% ◆ Vols: +15% on major currencies, +50% on Latam currencies and up 30%-200% on emerging Europe and Asian currencies <i>(vol shocks are relative)</i> |
| Mortgage | <ul style="list-style-type: none"> ◆ FNCL (Fannie Mae 30yr) LOAS +5, HEL AAA +5 and BBB +45 . OAS Drop +3; CMBS AAA +5, BBB +40. Trust IO LOAS +54, PO -10 |
| Credit | <ul style="list-style-type: none"> ◆ HG spreads widen 40% ◆ HY market down 6.3% (Ba), 7.0% (B), 7.5% (Caa and below). HY Loans down 1.3% (Ba), 2.8% (B), 4.2% (Caa and below). CDS down 7.6% (Ba), 7.5% (B), 7.5% (Caa and below). Latin/East European EMG spreads widen 50% Asia credit spreads widen 40% ◆ Correlation skew increases by 15pts |
| Equity | <ul style="list-style-type: none"> ◆ North America -11.7%, UK -5.5%, Germany -11.5%, France -8%, Remaining Euro -8%, Japan -8%, Hong Kong -8%, Korea -8%, Mexico -15%, Brazil -25%, India -20%, Turkey -22% ◆ Vols: 1m +69%, 3m +40%, 6m +28%, 9m +23%, 1y 20%, 2y 14%, 3y 12%, 5y 9% <i>(vol shocks are relative)</i> |
| Energy | <ul style="list-style-type: none"> ◆ Crude front end prices fall 22%, back end prices fall 15% ◆ Oil products front end prices fall 27%, back end prices fall 18% ◆ Oil front end vols down 50% ◆ US natural gas front end falls 21%, back end falls 15%, vols fall by 50% ◆ US power front end falls 37%, back end falls 28% <i>(Front end 0-6mo; back end 4yr and up; vol shocks are relative)</i> |

Note: The factors are meant to reflect the nature of the stress events covering the historical periods specified for each scenario. The actual factors might be adjusted depending on the conditions of the current markets (such as if a ccy peg has already been broken, default correlations are already up, new risk factors appear in the market, one country started to resemble another country due to structural and/or political changes, etc.).