

# 2007 Bondholder Meeting

Risk Management  
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**LEHMAN BROTHERS**

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# Agenda

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- ◆ Recent Market
- ◆ Securitized Products
- ◆ High Yield Exposure
- ◆ The Commercial Paper Market
- ◆ Hedge Funds
- ◆ Risk Appetite Usage and Counterparty Credit Exposure
- ◆ Stress Tests
- ◆ Review of Results

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**Recent Market Stress**

# Recent Market: Stress

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**The markets have experienced significant turmoil in 2007..... our risk management activities have been successful at identifying and managing risk**

- ◆ The initial stress felt as early as end of 2006, with underperformance of sub-prime loans
- ◆ Early 2007 saw lower tranches of subprime deals widen significantly
- ◆ Lower tranches of other mortgage securitizations deteriorating ..... multiple rating actions
- ◆ Bear Stearns Asset Management difficulties ..... two funds collapse
- ◆ High profile hedge fund failures ..... causing a rout in all credit including high investment grade bonds
- ◆ Significant de-levering of hedge funds across assets..... additional stress to the market as paper put up for bid
- ◆ CP market, particularly ABCP, faced challenging liquidity conditions.... ABCP market ultimately was forced to rely on backstop liquidity providers and extend maturities on extendible CP
- ◆ The total U.S. CP market declined by almost \$300bn or 13% in outstandings.
- ◆ The potential for ABCP conduits and SIVs to have to unwind and liquidate vast amounts of paper continues to weigh on the market.

# Recent Market: Recovery

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- ◆ Currently, some liquidity is returning to the market..... taking advantage of the historically wide spreads to invest across the credit spectrum.
- ◆ High Grade borrowers returned..... High Yield market also showed improvement..... the primary market has re-opened as banks and dealers managed to sell a portion of the leveraged loan pipeline.
- ◆ The CP market has stabilized, as overall outstandings have remained at approximately \$1.88 trillion in October, with unsecured CP markets having actually grown.
- ◆ The ABCP market has continued to be challenging, with outstandings declining by roughly \$10 billion over the past three weeks.
- ◆ ABCP concerns continue to weigh on the market..... however the market tone improved somewhat due to announcement of master liquidity enhancement conduit (MLEC).

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## Securitized Products

# Securitized Products

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The firm is engaged in a number of activities in the securitized products business, which covers a global, diversified range of asset classes and businesses which are vertically integrated from origination through securitization and distribution

## ◆ Origination

- Tightening lending criteria, particularly from 2nd half of 2006..... significant improvements in performance of portfolio
- The Mortgage Capital Division has several origination entities spanning the US, Europe and Asia. Origination lower in 2007 than in 2006, and slowing further in 2H '2007
  - Alt-A Mortgages – This represents 66% of our total originations. Borrowers are typically higher quality
  - US Sub-prime Mortgages – This represented 16% of our originations through July. We have now discontinued originating sub-prime mortgages.
  - UK Mortgages – This represents 12% of total origination
  - Small Balance Commercial Loans – This represents 4% of total origination. Borrowers are small businesses.

# Securitized Products (continued)

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- ◆ Trading..... moving not storage model
  - We position mortgages through both new issue and secondary trading. In the new issue market, we take positions in loans purchased from our origination platforms as well as from other originators including both private labels and GSEs. We make markets in every product we create in the new issue market.
  - US business uses 82% of the global balance sheet. Businesses include - Prime Mortgage trading, Non Prime Mortgage trading, Agency REMIC/Pass-Throughs/Options, US ABS Trading.
  - International Businesses uses 18% of global balance sheet. European Mortgages, primarily UK non-confirming, accounts for the majority of the international exposure
  
- ◆ Finance
  - In addition to funding clients positions through our Financing Desk, we provide term financing alternatives for clients in both the mortgage and non-mortgage asset classes.
    - We provide warehouse lines for mortgage originators. These are secured, revolving credit lines which can be drawn down to support origination flow. We have a security interest in the mortgages, and make margin calls if the collateral value drops below designated thresholds.
    - We provide financing for non-mortgage assets such as auto loans and small business loans. In addition, we finance Regulation XXX reinsurance reserve credit for term life insurance businesses.

# Comprehensive Risk Framework

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## Risks in the Securitized Products businesses are managed within the overall Lehman Risk Management framework

- ◆ We monitor and actively manage the risk of the origination business.
  - Dedicated risk manager onsite.
  - Monthly risk review process for both current inventory and previously securitized loans
  - Extensive risk reporting to ensure they conform to our standards for performance.
  - The Firm has a process for monitoring exposure to Representations and Warranties (R&W) fraud along with Early Payment Defaults (EPD).
  - Our probability based EPD model is used in in the decision to underwrite loans and help determine what additional compensating factors are required to approve the loan.
- ◆ Counterparty credit risk framework starts with client selection..... all warehouse lines are collateralized and margined on a regular basis
- ◆ Risk appetite is measured daily, calculated at a 95% confidence level. The market risk component employs a simulated P&L approach using 4 years of historical data, weighting current data more heavily, taking into account both linear and non-linear components of risk. We incorporate event risk into risk appetite calculation measuring losses associated with increases in defaults and property value declines.
- ◆ We conduct regular stress testing to see the impact on our P&L of dramatic spread widening.... consistently predicted greater stressed losses than actually occurred.

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## High Yield Exposure

# High Yield Activities

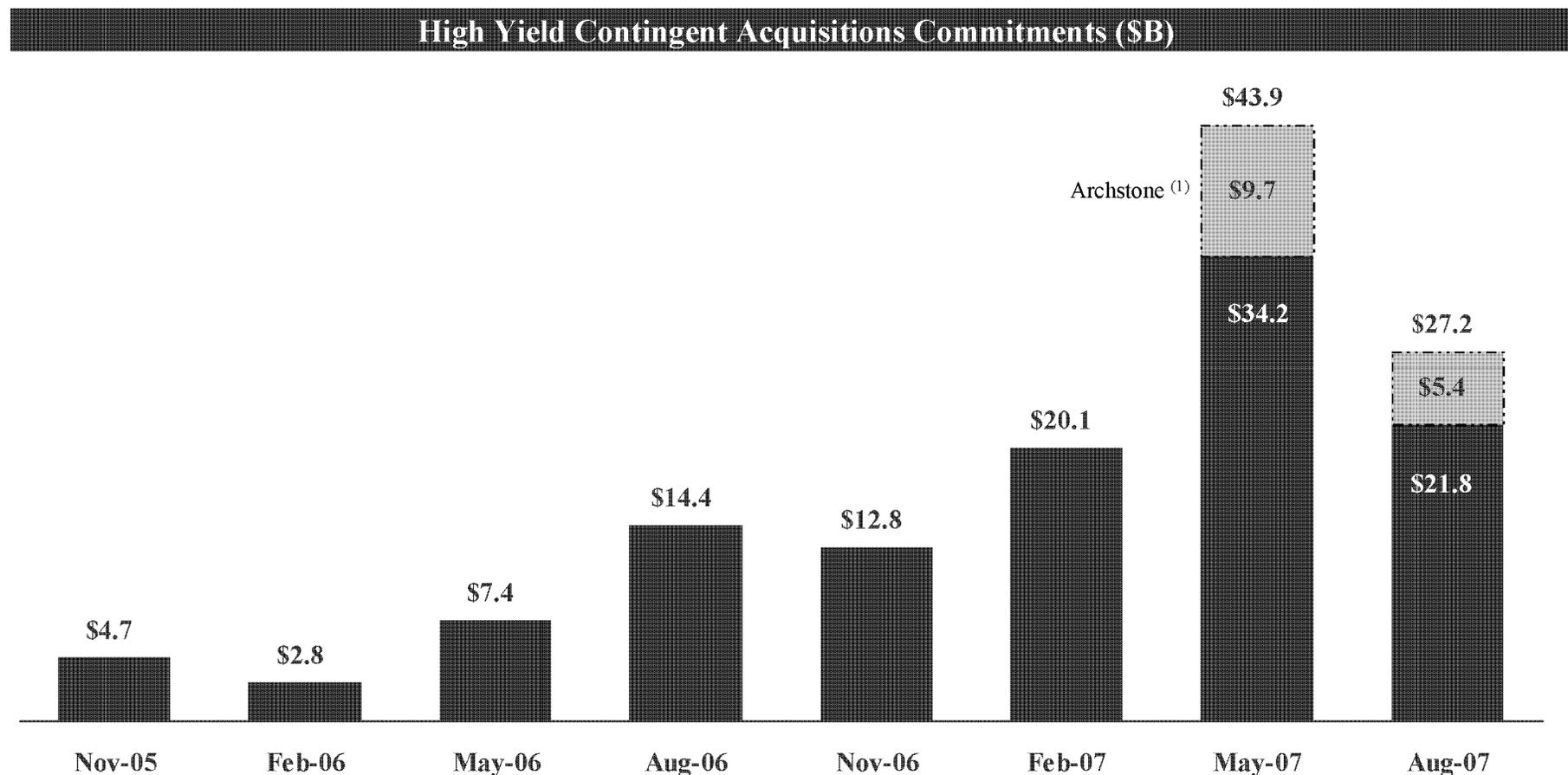
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The Firm's High Yield exposure originates from several sources within the High Yield and Leveraged Finance Businesses

- ◆ Trading ..... bonds and loans in secondary market
- ◆ Origination for banking clients
  - Corporate Acquisitions – traditional M&A activity where one corporation buys another with a strategic fit to expand business. We will provide financing to the acquirer.
  - Sponsor related LBOs – M&A activity associated with a Private Equity fund's purchase of a corporation as one of its portfolio investments. We will provide financing to the sponsor.
  - Staple Financing – M&A activity where we are advising the seller company and offer to provide financing to the buyer for the purchase of the asset.
- ◆ Risk arbitrage business..... risk neutral across capital structure.

# Contingent & Mandated (but not closed) High Yield Bridge & Loan Commitment Growth

Consistent with the growth in market share in M&A activities and the resultant share in leveraged financing activities, our commitments have grown to \$21.8Bn (\$27.2Bn including Archstone)

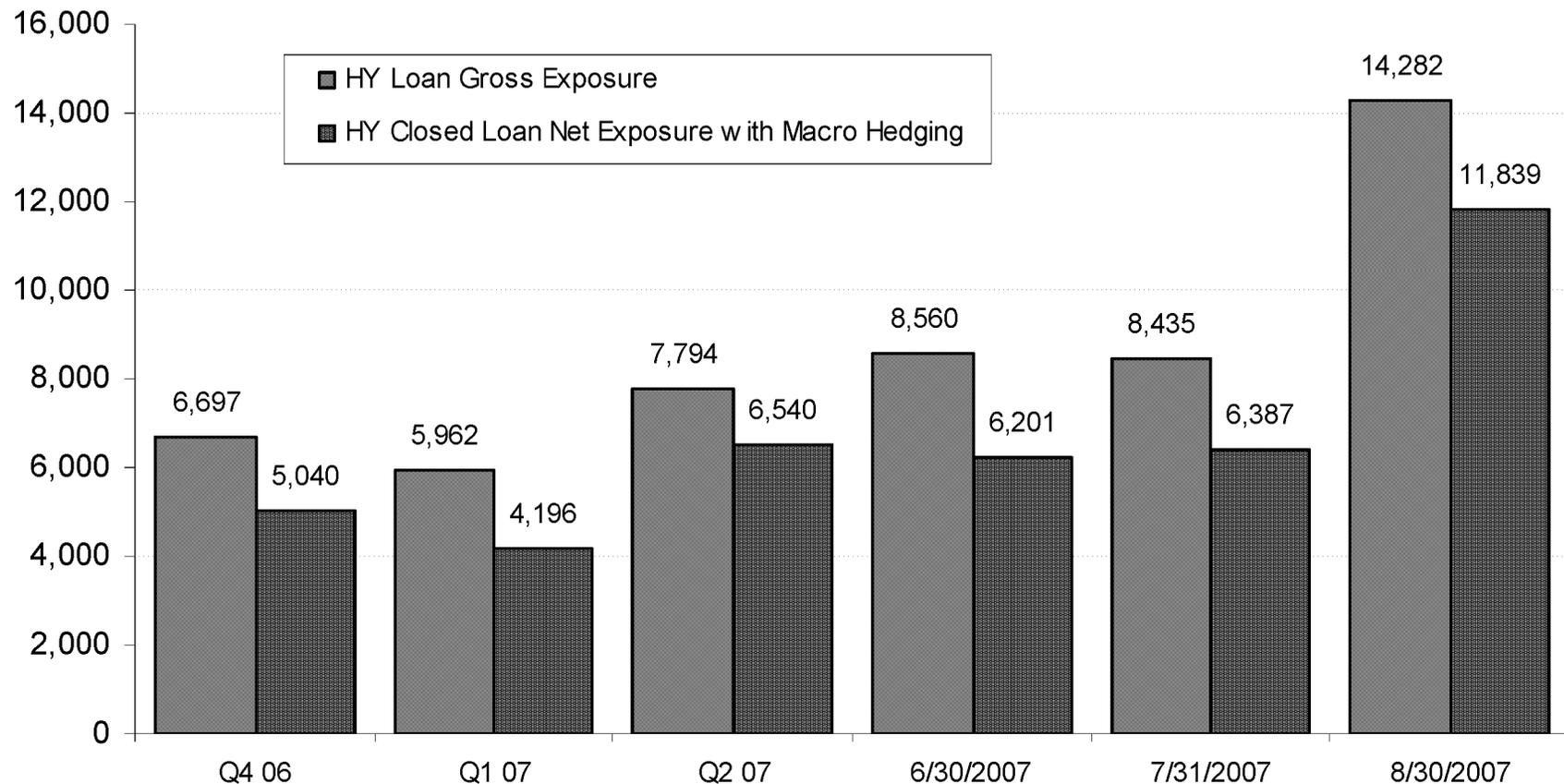


(1) Archstone commitment totaled \$11.1B, of which \$9.7B was debt (\$8.55B debt + \$1.15B junior mezzanine), \$1.15B was Bridge Equity and \$0.25B is permanent equity

# Closed High Yield Bridge and Loan Exposure

Our disciplined approach to risk mitigation through syndication, outright sales, sales through silent partner participation, single-name and macro portfolio hedging enabled us to keep our net exposure largely unchanged through July. Given the current market conditions, our exposure has materially increased over the past month

Closed HY Bridge and Loan Inventory Exposure and Hedging



# Comprehensive Market and Credit Risk Framework

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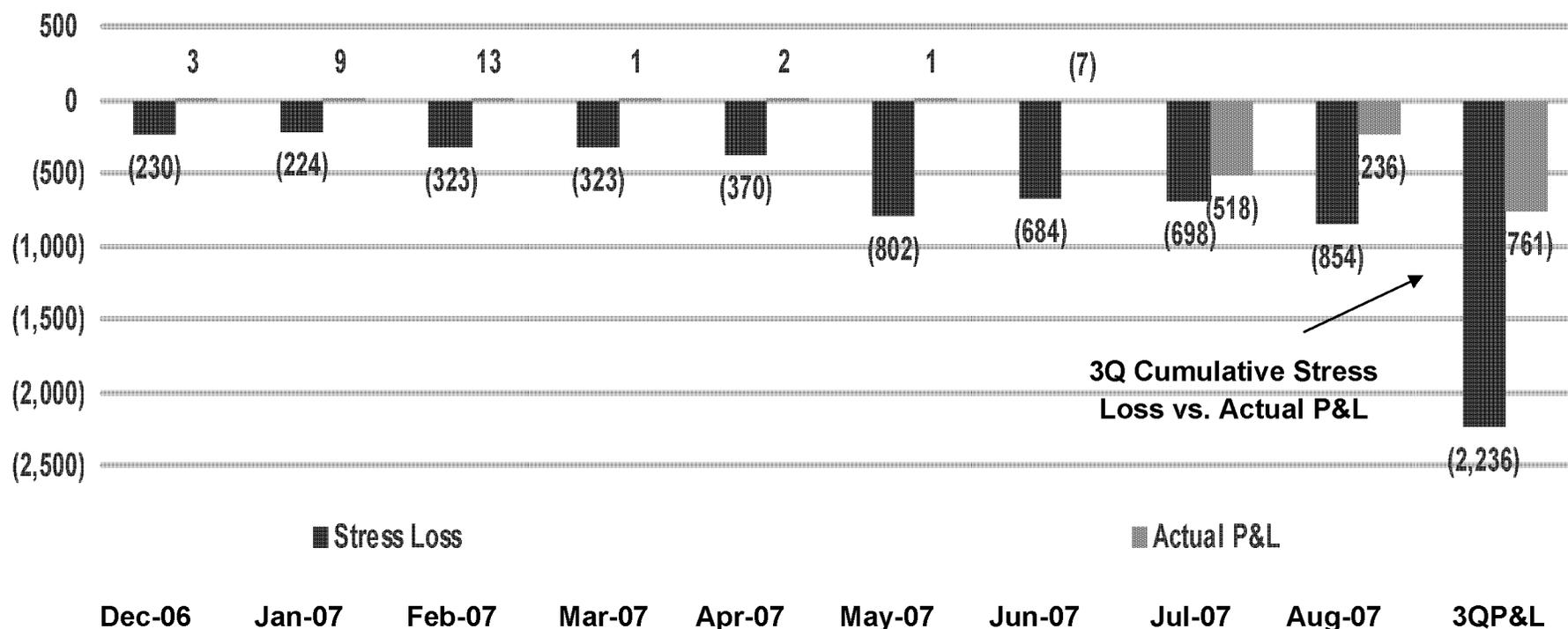
## **Lehman has a comprehensive framework and process for ensuring tight controls around high yield risk**

- ◆ The Firm has numerous committees to oversee risk taking activities and to ensure that controls are appropriately administered and reviewed ..... the committee structure, ensures checks and balances and helps guard against the silo effect.
- ◆ Our risk framework for high yield exposure takes into account risk as a deal flows through each stage..... risk is measured across the entire pipeline and incorporated in risk appetite on a deal probability weighted basis to ensure all risk associated with potential deals becoming actual deals is picked up to avoid any surprises.
- ◆ We employ an additional risk analysis to calculate potential losses in a variety of market conditions ..... this analysis provides the Firm the tool to detect early warning signs
- ◆ Comprehensive scenario and stress analyses are performed regularly on all of our High Yield exposures, including commitments. These stress analyses replicate previous credit market corrections (e.g. 1998 or 2002).
- ◆ Risk management works with finance and treasury to ensure the Firm has adequate capital and liquidity for the business.
- ◆ Risk transfer and mitigation ..... the Firm executes risk mitigation and transfer through syndications, sales and hedging, and other structured solutions.

# Stress Testing

Risk Management performs monthly stress tests on Leveraged Loan exposures. Our stress tests consistently predicted greater stressed losses than actually occurred on both a monthly and cumulative basis. These stress analyses replicate previous credit market corrections such as those experienced in 1998 and 2002

## Stress Tests for High Yield Contingent, Mandated and Closed Loans vs. Monthly P&L



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## The Commercial Paper Market

# Commercial Paper

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## **The Firm is engaged in a number of activities involving Commercial Paper**

- ◆ We act as dealer/placement agent for secured and unsecured issuers globally.
  - The unsecured CP market stands at \$964 billion and historically Lehman's market share has been 15%.
  - The asset-backed CP (ABCP) market currently stands at \$918 billion and historically Lehman's market share has been approximately 15%.
  
- ◆ Our trading desk makes a secondary market in CP and ABCP
  - Provides liquidity to clients in addition to the normal issuance process.
  
- ◆ We are a backstop liquidity provider to CP programs.
  - We have less than \$1Billion of ABCP backstops, of which the majority is funded or pre-funded within one of our banks

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## Hedge Funds

# Hedge Funds

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## **The Firm is engaged in a number of activities involving hedge funds**

- ◆ Institutional flow trading in both Fixed Income and Equities.
  - Cash and derivative products
  - Derivatives
  - Foreign exchange
  - Financing and securities lending
  - Futures
- ◆ Prime Brokerage
  - Lehman has a robust prime brokerage offering and receives consistent industry recognition for the quality of our product and the excellence of our service levels.

# Comprehensive Credit Risk Framework

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**Lehman has a comprehensive framework for ensuring tight controls around hedge fund risk. The main components of this framework are:**

- ◆ Client Selection and Screening: Background checks are performed on all new accounts. Salespersons have broad “Know Your Customer” responsibility and are accountable for ensuring suitability of the client’s trading activity.
- ◆ Credit Due Diligence: Credit Risk Management (“CRM”) has dedicated teams of specialists organized by region for due diligence on credit quality of proposed counterparties.
- ◆ Ratings: CRM employs a rigorous credit rating framework
- ◆ Limits: CRM sets credit limits to constrain aggregate exposure to any individual or group of related counterparties.
- ◆ Documentation and Margin: Master documentation with all clients providing for various protections..... ability to net across transactions, collateral and structure margin requirements (Virtually all of our activity with hedge funds is margined)
- ◆ Exposure Monitoring: On a daily basis we calculate exposure against limits using sophisticated modeling of portfolio volatility, stress-test methodologies as well as concentration and liquidity analysis.
- ◆ Credit Monitoring: We perform ongoing credit monitoring on active counterparties, including monthly performance tracking, meetings with the client and formal annual reviews.
- ◆ Despite recent volatility and widely reported problems incurred by a number of funds, we have not experienced any recent credit losses from hedge funds. This is not to say that we don’t take risk, but rather our controls are designed to ensure that the risks are reduced substantially, especially those relating to the taking and monitoring of collateral

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## **Risk Appetite & Counterparty Credit Exposure**

# Risk Appetite Usage – Firm

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- ◆ Risk appetite usage is composed of market risk, event risk and counterparty credit risk and is calculated daily both on a global, consolidated basis, and at regional, divisional, and line-of-business levels.
- ◆ Risk Appetite usage is monitored on a daily basis against the limits.
- ◆ Our franchise is highly diversified due to our product and business mix, as well as our international presence.
- ◆ Given the growth in the Firm's revenue generating ability and capital base, in the Spring of 2006, at our strategic offsite the Firm made the decision to increase our risk profile and utilize more of our risk appetite capacity.
  - Consistent with the increase in the limit, average Risk Appetite usage rose in 2007.
  - Risk Appetite increased in all regions as we have expanded our geographic presence.

# Counterparty Credit Risk

- 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
- 97.5% of our counterparty exposure is in investment grade names

## Credit Exposure Trend by Rating

(US\$ million)

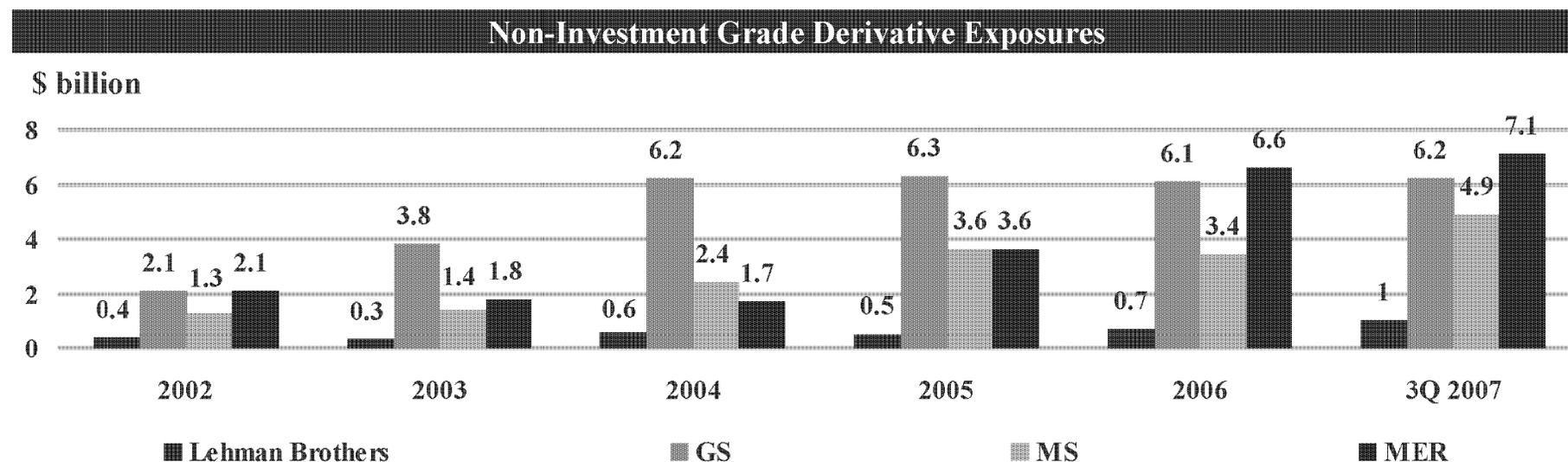
	Ratings					Percentages				
	3Q '06	4Q '06	1Q '07	2Q '07	3Q '07	3Q '06	4Q '06	1Q '07	2Q '07	3Q '07
<b>AAA</b>	5,097	5,312	6,771	6,967	9,104	21.3%	20.6%	23.8%	21.7%	23.1%
<b>AA</b>	10,469	10,487	10,506	14,464	13,652	43.7%	40.8%	36.9%	45.1%	34.7%
<b>A</b>	6,140	6,873	8,063	7,443	13,142	25.7%	26.7%	28.3%	23.2%	33.4%
<b>BBB</b>	1,658	2,348	2,231	2,520	2,486	6.9%	9.1%	7.8%	7.8%	6.3%
<b>BB</b>	421	559	690	461	709	1.8%	2.2%	2.4%	1.4%	1.8%
<b>B or Lower</b>	138	161	243	241	282	0.6%	0.6%	0.8%	0.8%	0.7%
<b>Total</b>	<b>23,923</b>	<b>25,740</b>	<b>28,504</b>	<b>32,096</b>	<b>39,375</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

	3Q '06	4Q '06	1Q '07	2Q '07	3Q '07
<b>Investment Grade</b>	97.6%	97.2%	96.7%	97.8%	97.5%
<b>Below Investment Grade</b>	2.4%	2.8%	3.3%	2.2%	2.5%
	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

Note: Does not include money market deposits.

# Non-Investment Grade Derivatives Exposure

Lehman Brothers has continually had the lowest non-investment grade derivative exposure in absolute terms and as a percentage of total tangible equity compared to peers



**Non-Investment Grade Derivative Exposure as % Total Tangible Equity**

	2002	2003	2004	2005	2006	3Q 2007
<b>Lehman Brothers</b>	4%	3%	5%	3%	4%	4%
<b>GS</b>	15%	23%	28%	25%	19%	16%
<b>MS</b>	6%	5%	8%	12%	9%	13%
<b>MER</b>	10%	7%	6%	11%	17%	17%

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## Stress Tests

# Stress Testing

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- ◆ Stress tests and scenario analyses performed regularly to evaluate the potential P&L impact of abnormal yet plausible market conditions
  - Incorporates movements in interest rates, stock prices, FX, volatility, etc., over a wide range of possible scenarios
  - Conservative ..... does not allow re-hedging or selling positions either actively or through the automatic execution
- ◆ 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:
    - Liquidity Crunch due to central banks globally raising rates.
    - Oil price jump due to a major supply disruption with uncertainty on when production will return to its pre-shock levels. This shock is accompanied by deflation fears which result in significant rate reductions by major central banks.
    - Major shifts in the yield and spread curves such as steepening or flattening, or parallel shifts up or down.
  - Other ad-hoc hypothetical scenarios
- ◆ Our stress tests consistently predicted greater stressed losses than actually occurred on both a monthly and cumulative basis.

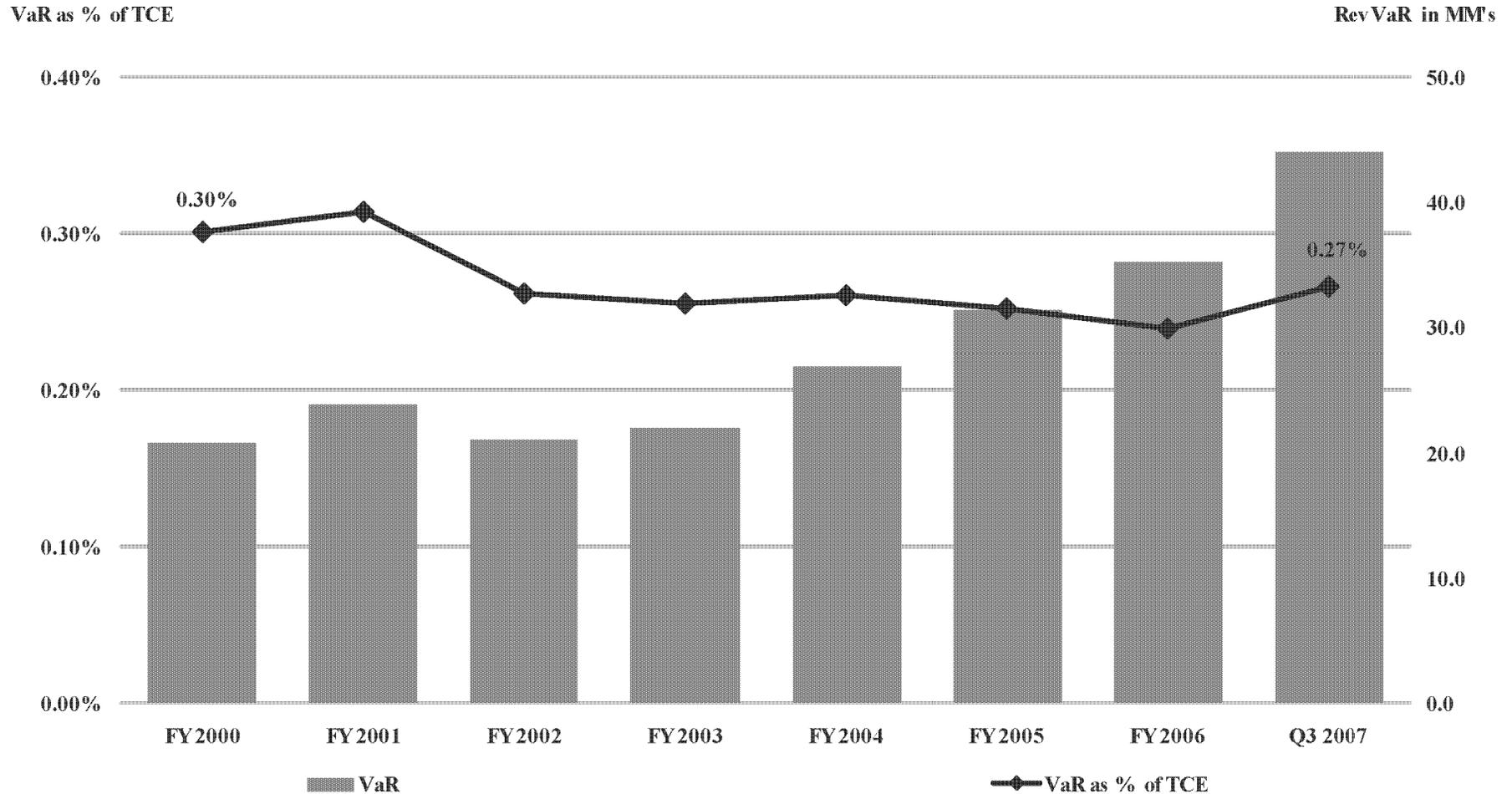
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## Review of Results

# Average Revenue Volatility VaR as Percentage of TCE

**While Revenue Volatility VaR has increased in absolute terms, it has remained low as a percentage of Tangible Common Equity**

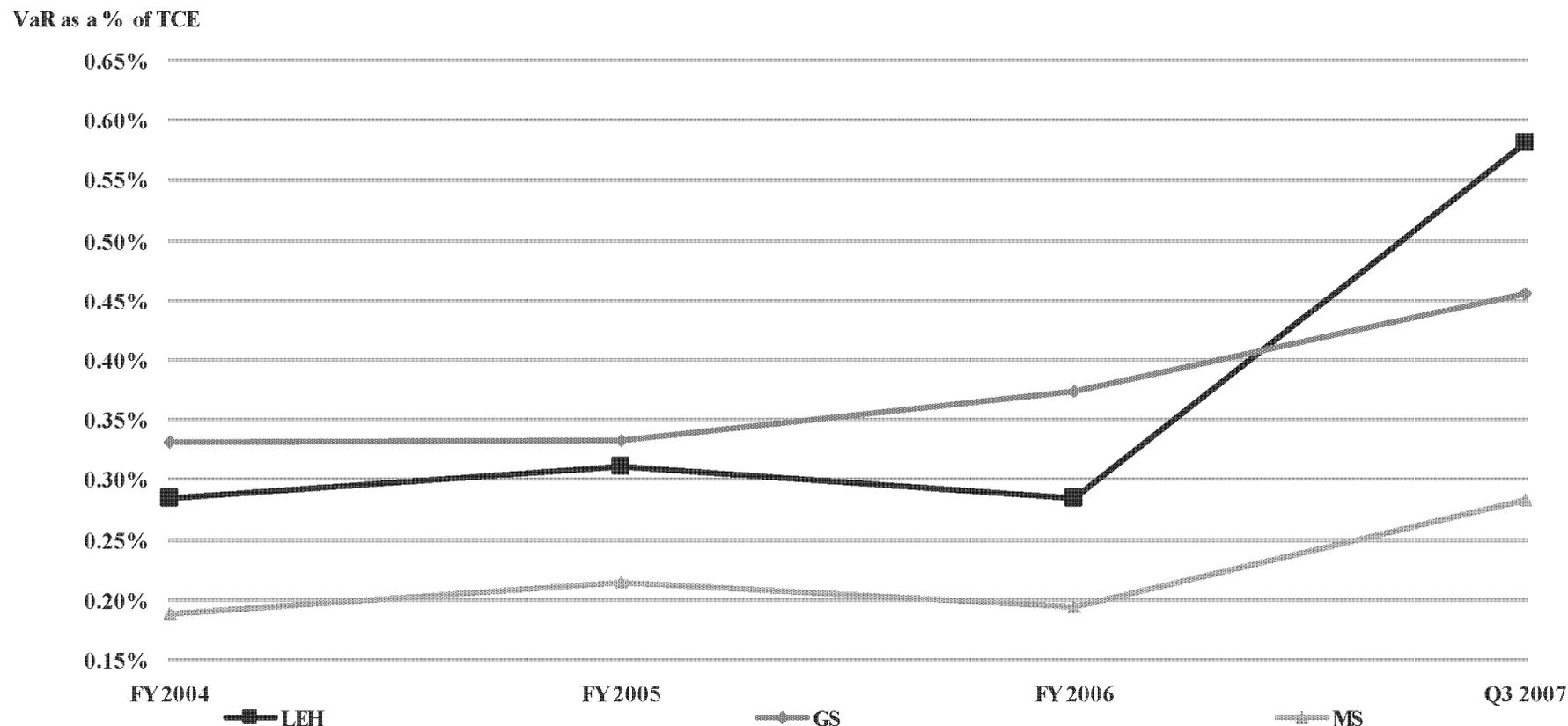
Average Daily Revenue Volatility VaR as % of TCE 2000 – Q3 2007



# Peer Comparison - Historical VaR as Percentage of TCE

Historical Simulation VaR as a percentage of Tangible Common Equity is in the range of our 'Aa' rated peers. Our VaR number includes, virtually all business activity, whereas an increasing proportion of our peers' business falls outside VaR<sup>1</sup>

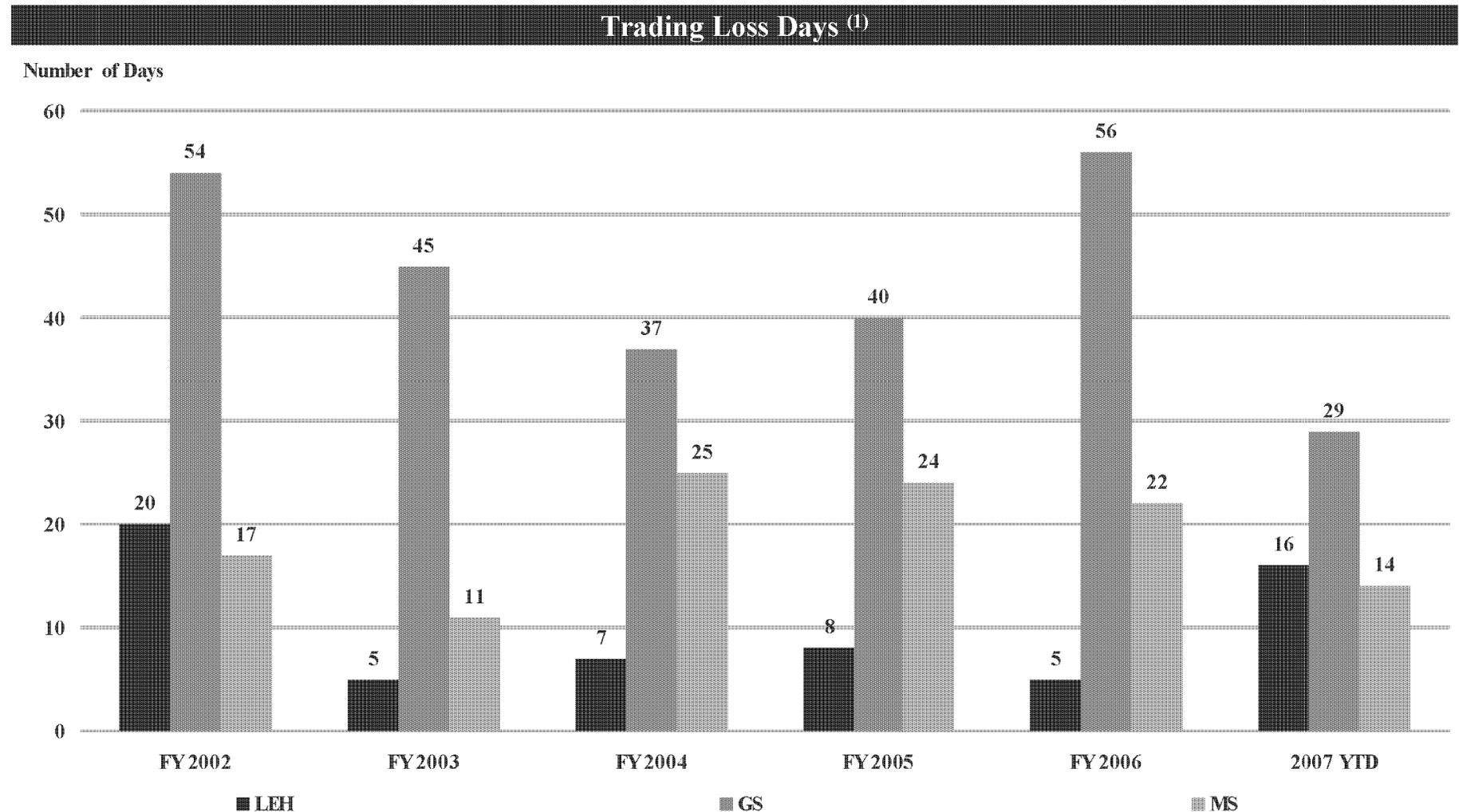
Historical Simulation VaR at 95% as a percentage of TCE



1. Our Peers exclude a significantly larger proportion of their Assets from VaR calculation  
 -Lehman excludes approximately \$1 billion worth of principal investment assets from VaR calculations  
 -Goldman has approximately \$23 billion worth of Principal Investments, Minority Stakes and Real Estate Investments that are excluded from VaR calculations  
 -Morgan excludes \$2.4 billion of Public Equity Investments and \$6.6 billion of Other Assets which represent the sum of Private Equity and Real Estate

# Peer Comparison – Trading Loss Days

Lehman has averaged ~ 9 trading loss days a year, while GS and MS have averaged ~ 46 and 20 days, respectively



1. Competitor data is approximated from histograms in the annual reports