



# ***Are Derivatives “Weapons of Mass Destruction?”***

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# OUTLINE

- **BACKGROUND**
- **BENEFITS**
- **COSTS (ISSUES)**
- **DERIVATIVES IN THIS Financial Crisis**
- **FINANCIAL CRISES – LESSONS NOT LEARNED**
- **VOLATILITIES AND CORRELATIONS**
- **CURRENT REGULATION**
- **PENDING REGULATION**

# BACKGROUND

## BRIEF HISTORY

- **PRE 1970 – COMMODITIES (AGRIC, METALS)**
- **POST 1970 – FINANCIALS (FX, DEBT, EQUITIES, CREDIT)**

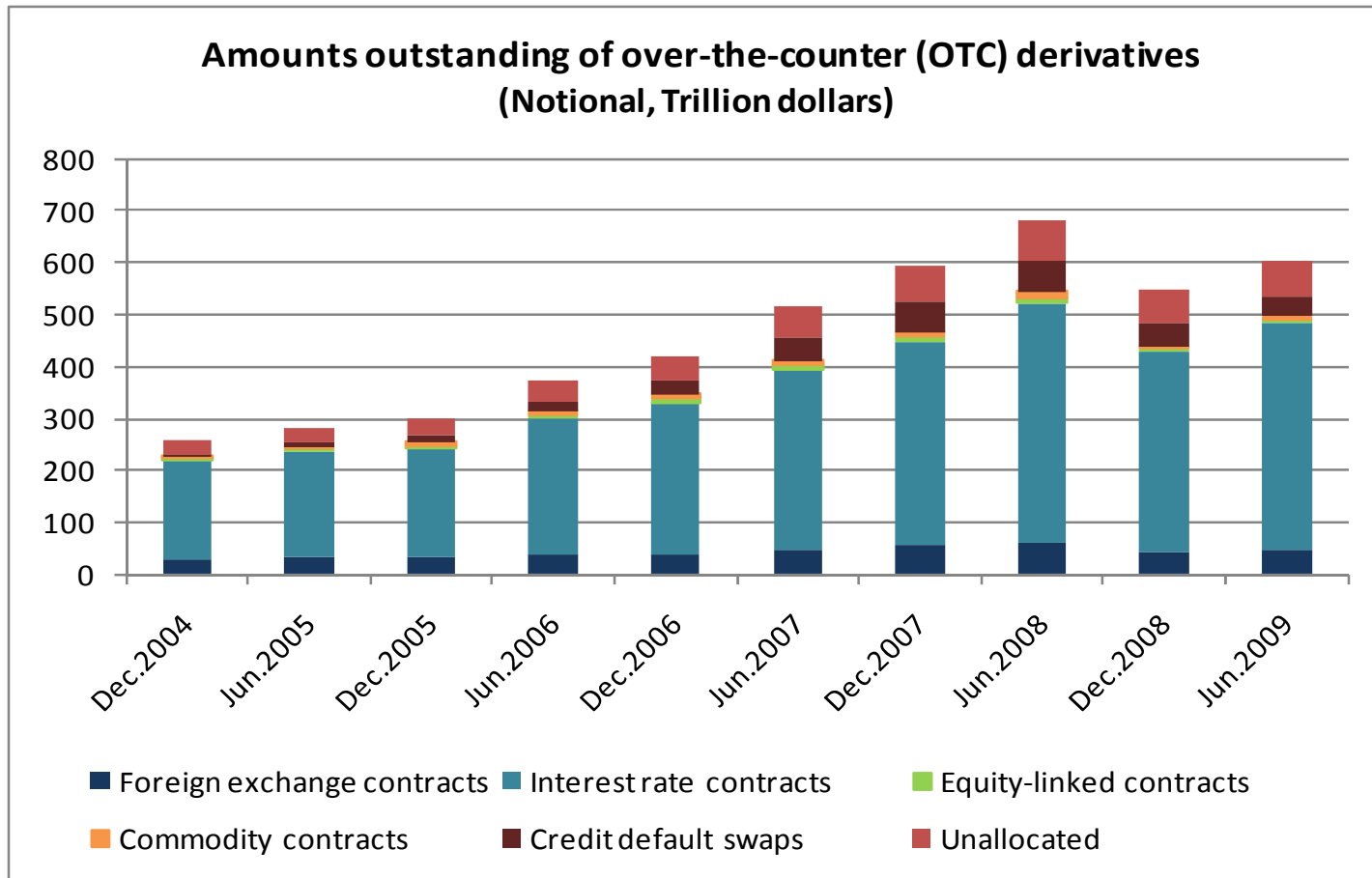
## SIZE OF MARKETS (NOTIONAL)

- **EXCHANGE TRADED – 60 \$trn (2009) vs. 80 \$trn (2008)**
- **OVER THE COUNTER – 610 \$trn (2009) vs. 685 \$trn (2008)**

## OTC DERIVATIVE MARKETS:

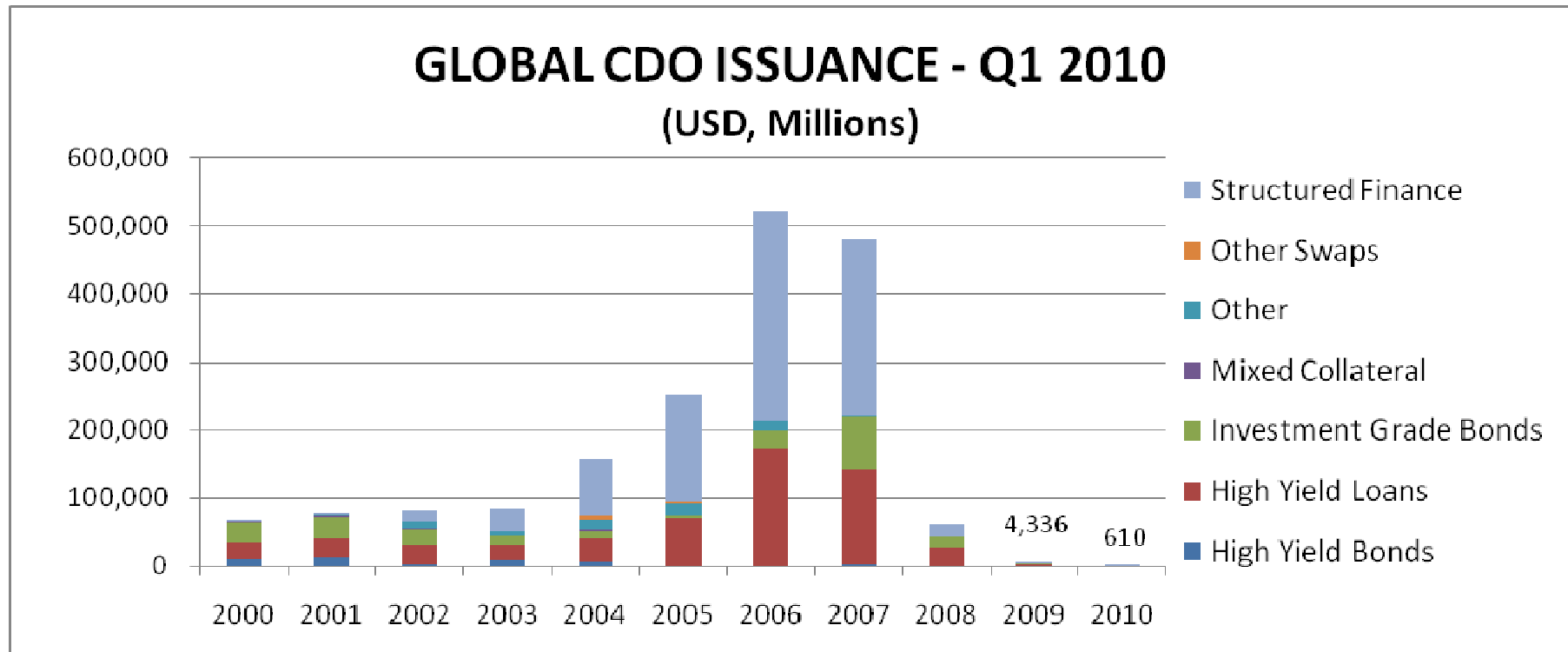
- **INTEREST RATE DERIVATIVES – 500 \$trn**
- **FOREIGN EXCHANGE DERIVATIVES – 40 \$trn**
- **COMMODITIES – 40 \$trn**
- **CREDIT DEFAULT SWAPS – 30 \$trn**

# OTC DERIVATIVES



Source: Bank for International Settlements, OTC derivatives market activity in the first half of 2009

# ALL CDOs



SOURCE: THOMSON REUTERS, SIFMA

# **BENEFITS**

## **(ECONOMIC/SOCIAL WELFARE)**

***FINANCIAL MARKETS → ECONOMIC GROWTH***  
***DERIVATIVE MARKETS → FINANCIAL MARKETS***  
***DERIVATIVE MARKETS → ECONOMIC GROWTH***

- RISK MANAGEMENT (MARKET COMPLETION)**
- PRICE DISCOVERY**
- LIQUIDITY ENHANCEMENT**
- VOLATILITY REDUCTION**
- FORWARD LOOKING INFORMATION**

# **COSTS – RISKS**

## **(MOSTLY ASSOCIATED WITH OTC)**

**PROBLEMS, IN GENERAL, HOW USED, TRADED, CLEARED**

- EASE OF LEVERAGING**
- COMPLEXITY**
- “SHORT” SQUEZE**
- LACK OF LIQUIDITY**
- LACK OF TRANSPARENCY**
- COUNTERPARTY RISK**
- SYSTEMIC RISK (NOT OBSERVED)**
- LACK OF REGULATORY OVERSIGHT**

# **DERIVATIVES IN THE FINANCIAL CRISIS**

## **CDS – A Cost-Benefit Analysis**

- **HEDGING CREDIT RISK (EX; EXTENDING LOANS)**
- **PRICE DISCOVERY (EX; RATING AGENCIES INEFFECTIVE)**

### ***VERSUS***

- **SIZE OF MARKET AND HOLDING BY BANKS  
(LEVERAGED AND NOT DIVERSIFIED)**
- **LACK OF TRANSPARENCY => SYSTEMIC RISK**
- **COMPLEXITY (CDO<sup>2</sup>..) => SYSTEMIC RISK**
- **LACK OF OVERSIGHT TO ADDRESS SYSTEMIC RISK**



# **FINANCIAL CRISES – LESSONS NOT LEARNED**

- **1986 + S&L CRISIS - Real Estate bubble (TAX EXEMPTION)**  
**1000 S&LS WIPE OUT (RTC Restructured Loans)**  
**COST - \$250 BILLION (Current Prices)**  
**LESSON: MORAL HAZARD - GOVERNMENT BAIL OUT**
- **1987 STOCK MARKETS CRASH – Market Structure issues**  
**DERIVATIVES BLAMED: Portfolio Insurance, Index arbitrage**  
**Crash Indicator (consequence) – extremely high Volatility**
- **FED SUPPLIED LIQUIDITY, INDEX ARBITRAGE RESTRICTED**  
**LESSONS: MARKETS ARE GLOBALIZED, IMPROPER**  
**REGULATION IS COUNTER PRODUCTIVE**

# **FINANCIAL CRISES – LESSONS NOT LEARNED (c)**

- **1997- ASIAN FINANCIAL CRISIS (Currency-Credit Crisis)**

**Central Bank Policies => Excessive Borrowing. (High Volatility)**

**LESSON: BEWARE OF EXCESSIVE LEVERAGE**

- **1998 (Fall) – RUSSIAN DEFAULT & LTCM DEFAULT**

**Crash Indicator (consequence) – extremely high Volatility**

**FED INTERVENTION; To Prevent Melt Down**

**LESSONS: EXCESSIVE LEVERAGE, POOR RISK MANAGEMENT**

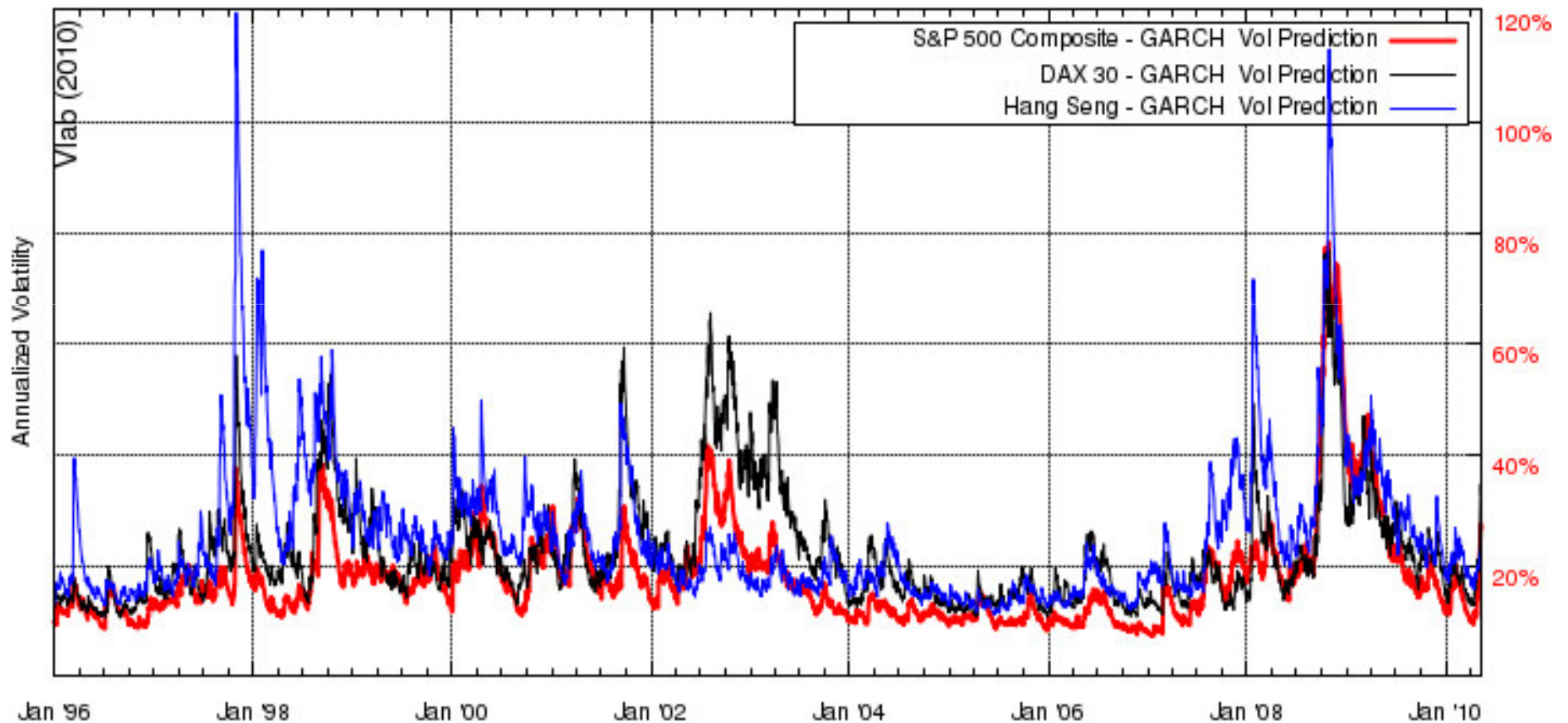
**POOR OVERSIGHT (Lack of Transparency) → SYSTEMIC RISK**

**FED INTERVENTION – MORAL HAZARD**

# **FINANCIAL CRISES – LESSONS NOT LEARNED (cont.)**

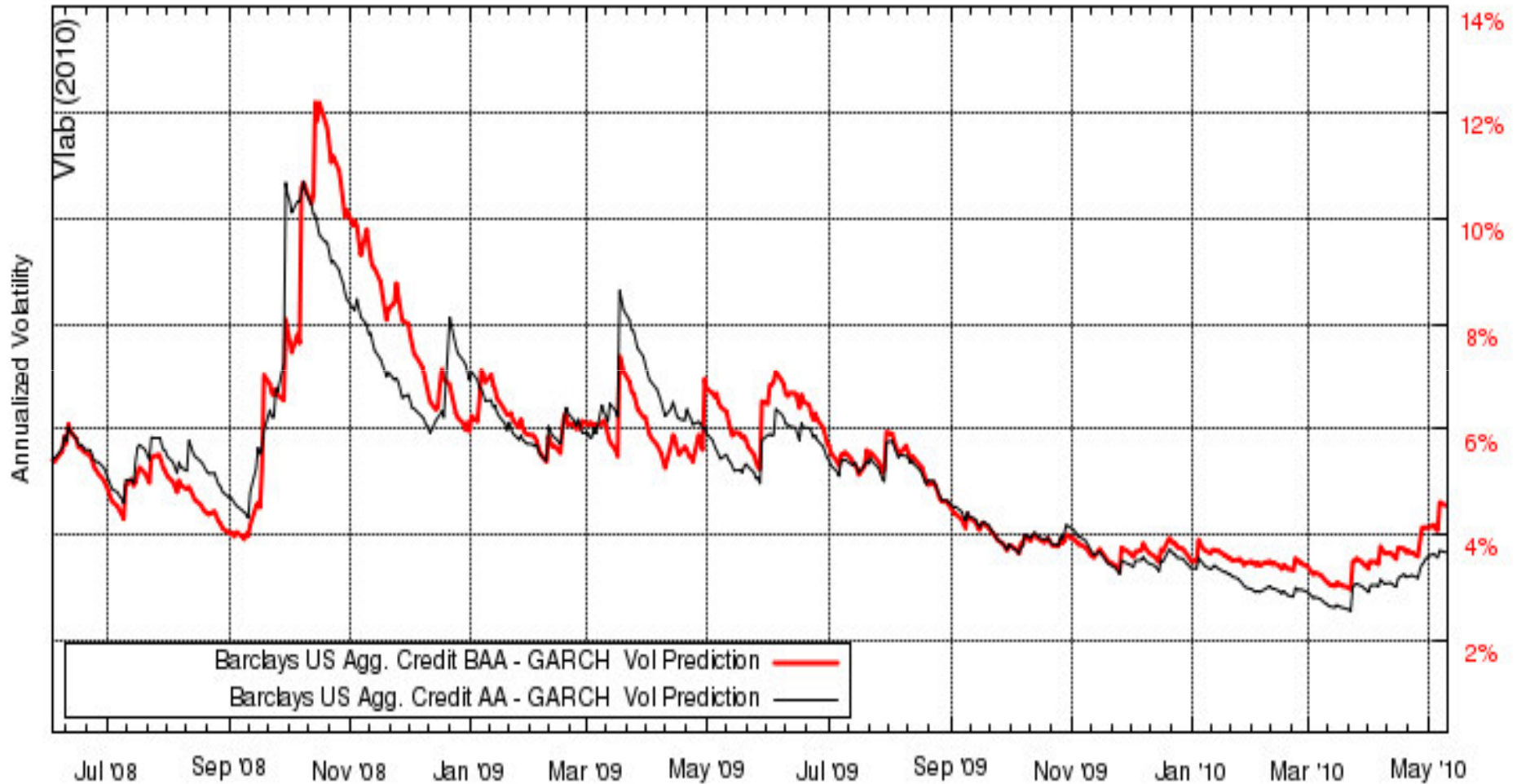
- **2001+ SECURITIZATION: MORTGAGES PACKAGED INTO CDOs WITH RISK TRANCHES (80% sold to investors)**
- **INSTITUTIONAL INVESTORS AROUND THE WORLD BOUGHT CDOs (PENSION FUNDS, HEDGE FUNDS)**
- **BUYERS OF CDOs WOULD BUY INSURANCE (CDS) FROM BEAR STERNS, AIG, ETC.**
- **BUT SOME ON THE SAME SIDE (LONG CDOS AND SHORT CDS)**
- **2003-2007 LOW VOLATILITY IN STOCKS, BONDS AND CURRENCIES ADDED TO RISK TAKING ATTITUDE (SEE VOLATILITY CHARTS)**

# GARCH VOLATILITY: S&P, DAX, HSI



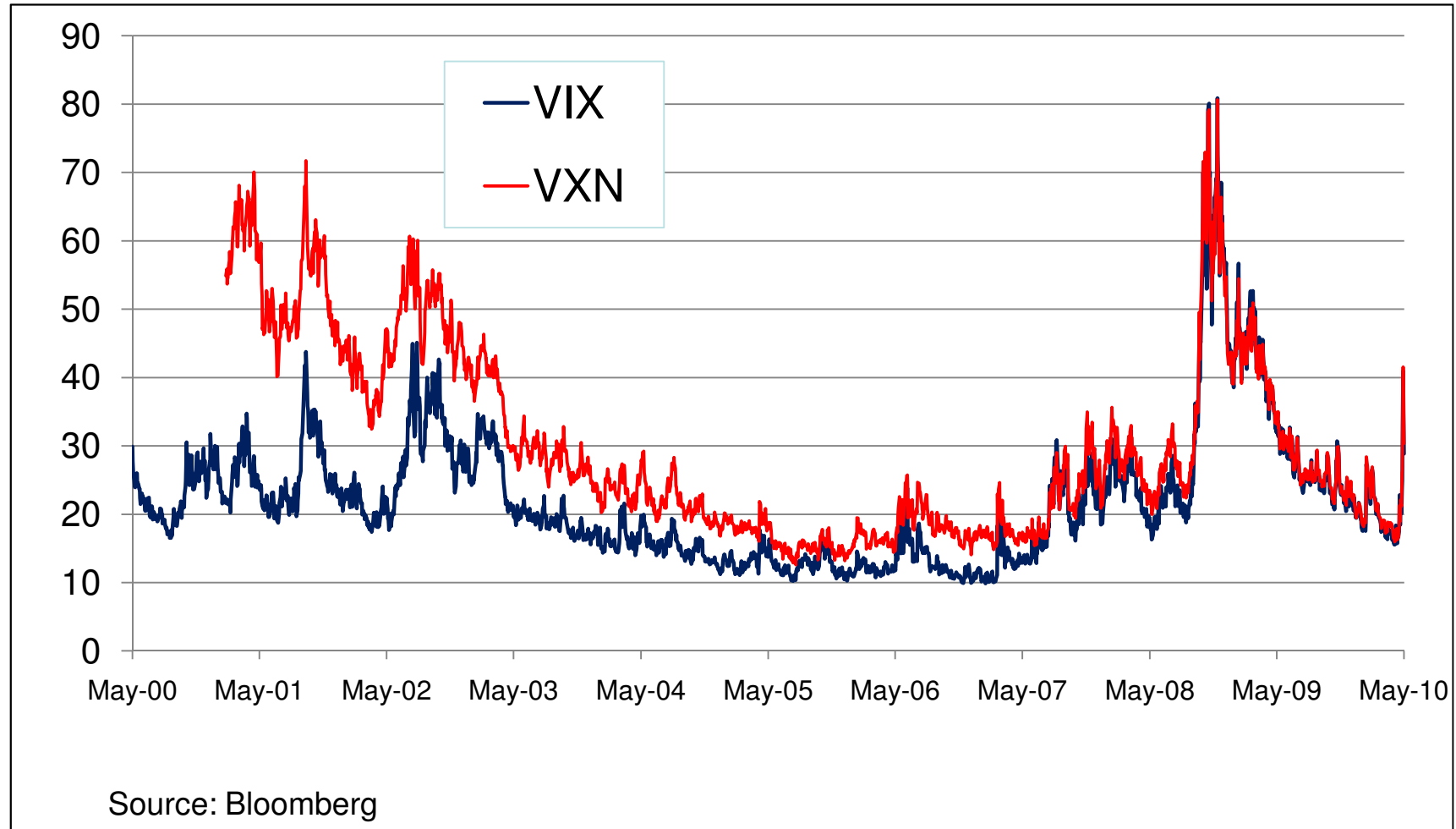
Source: NYU-Stern VLAB

# CORPORATE AA BOND VOLATILITY



Source: NYU-Stern VLAB

# Implied Volatility Indices (May 00 – May 10)

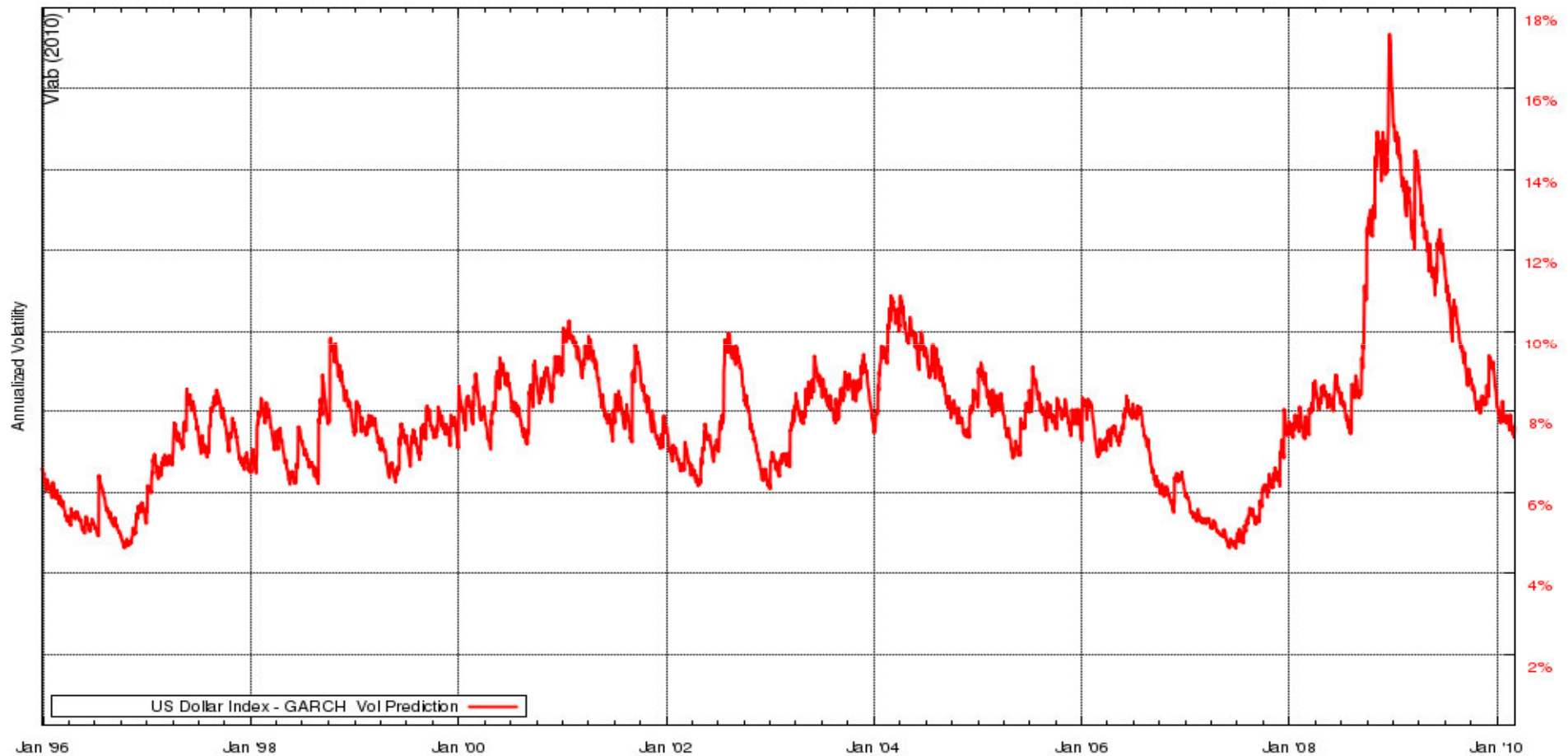


# **FINANCIAL CRISES – LESSONS NOT LEARNED (current crisis)**

- **HOLD HIGHLY RISKY PORTFOLIOS (CDOs, CDSs)**
- **UNPRECEDENTED EXCESSIVE LEVERAGE**
- **POOR RISK MANAGEMENT (IGNORE TAIL RISK)**
- **OBLIVIENT TO SYSTEMIC RISK; NO ONE WATCHING**
- **COUNTING ON BAIL OUT (MORAL HAZARD IN PLAY)**
- **MARCH 2008 BEAR STEARNS – NO RED LIGHT –**  
**CONFIRMS THE ABOVE (BAIL OUT....)**

# DOLLAR INDEX VOLATILITY

US Dollar Index - GARCH Annualized Volatility



Source: NYU-Stern VLAB



# **CONDITIONS FOR A WELL FUNCTIONING DERIVATIVES MARKET**

- **FINANCIAL UNCERTAINTY (NOT SUBSIDIZED)**
- **DEMAND FOR HEDGING (LONG AND SHORT)**
- **LIQUID TRADED UNDERLYING ASSET**
- **MARKET STRUCTURE AND PRODUCT DESIGN**
- **EXCHANGE VS. OTC – STANDARDIZED vs. TAILORED**

**TRADEOFF: LIQUIDITY vs. HEDGING EFFECTIVENESS**

**CLEARING CORP vs. COUNTER PARTY RISK**

**MARKET VALUES vs. MODEL VALUES**

**TRANSPARENCY vs. OPAQUENESS → SYSTEMIC RISK**

# REGULATORY PRINCIPLES

- **ISSUES: COUNTERPARTY RISK (ILLIQUIDITY), CAPITAL EROSION IN FI (LIQUIDITY PROVIDERS), NON “FAIR” VALUATION**
- **ALL SOURCES OF SYSTEMIC RISK (ARISING FROM OTC)**
- ***MAIN PRINCIPLE: TRANSPARENCY (REGULATOR, PUBLIC)***
- ***SECOND PRINCIPLE: “FAIR VALUE” (CONTINUOUS, MTM, MTM’)***
- ***THIRD PRINCIPLE: AVOID REGULATORY ARBITRAGE (DOMESTIC, INTERNATIONAL)***
- **SOLUTIONS: REGISTRY, CENTRAL CLEARING, EXCHANGE**

# **LEVEL I – REGISTRY**

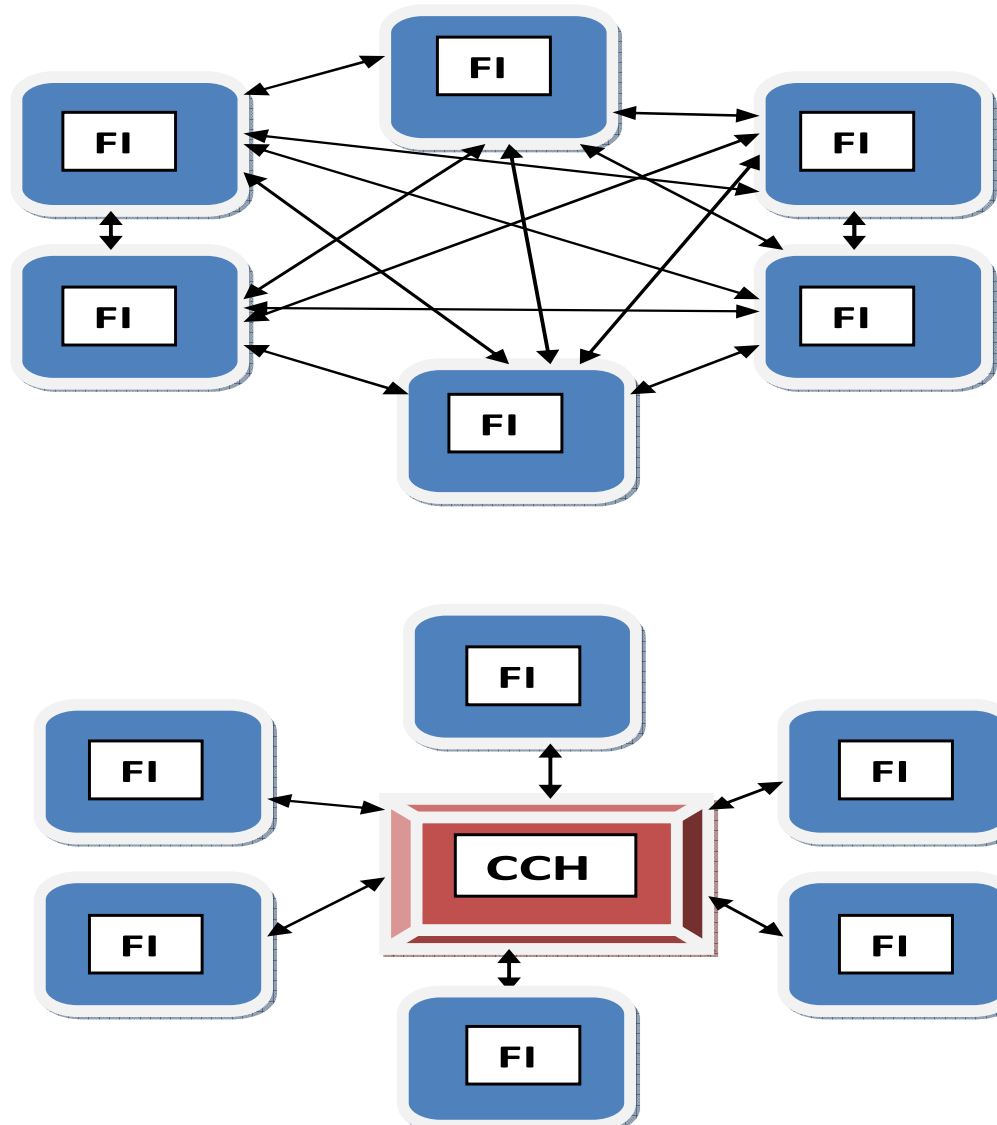
- **REGULATOR: ALL OTC TRANSACTIONS (DETAILS)**
  - **PRICE, VOLUME (SIZE), PARTIES (INSTITUTIONS)**
- **PUBLIC**
  - **TRACE FOR VOLUME/PRICES (EXCEPTION, LARGE TRADES)**
  - **POSSIBLY POSITIONS, PERHAPS 13-F LIKE FILINGS, OR SOME AGGREGATION (INSTITUTIONS/BILATERAL)**

# **LEVEL II – CENTRAL CLEARING**

- **CURRENT CC (E.G. OCC, CME, ICE, HKE....)**
- **NEWLY CREATED NETWORK OF FIs**
- **ADVANTAGES: SIGNALING, TRANSPARENCY, CONTINUOUS MONITORING, VALUATION AND MARGINING**
- **SYSTEMIC RISK CLOSE TO ZERO (NO CC DEFAULTED)**

# Proposal – Clearing House

OTC Versus Central Clearing House



# **LEVEL III – DERIVATIVES EXCHANGE**

- **STANDARDIZED PRODUCTS (E.G. CDS)**
- **MEMBERS WELL CAPITALIZED**
- **LIQUID AND TRANSPARENT**
- **MARGINING SYSTEM**
- **PROBABILITY OF COLLAPSE SMALL (TIED TO CC)**

## **PENDING LEGISLATION: REGULATORY ACTION, TAXES AND OTHER**

- **SHORT SELLING; “ALTERNATIVE UPTICK RULE” PASSED**
- **OTC DERIVATIVES => CLEARING CORP. => EXCHANGES (?)**
- **REGULATION OF RATING AGENCIES TO AVOID CONFLICTS OF INTEREST**
- **DISCLOSURE OF POSITIONS BY HEDGE FUNDS (?)**
- **CONSUMER FINANCIAL PROTECTION AGENCY (FED?)**
- **FINANCIAL TRANSACTION TAX (THE “TOBIN TAX”) (?)**
- **THE VOLCKER RULE: BANKS - NO PROPRIETRY TRADING (?)**
- **RULES TO LIMIT SPECULATION (EURO, OIL, OTHER)**

# Regulation-Update

- Ban on “naked” shorts (CDS) – Germany
- Senate Bill on Derivatives Passed
- Ban on Speculation in Derivatives - Germany