



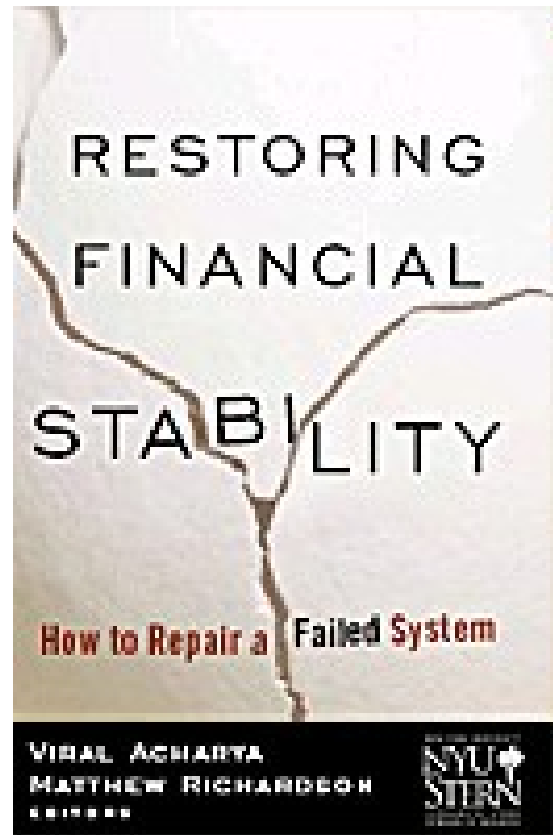
Derivatives Regulation in India – Too much or too little ?

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NYU Stern, NBER, CEPR and
ECGI

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Chapters 10, 11 and 12

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O U T L I N E

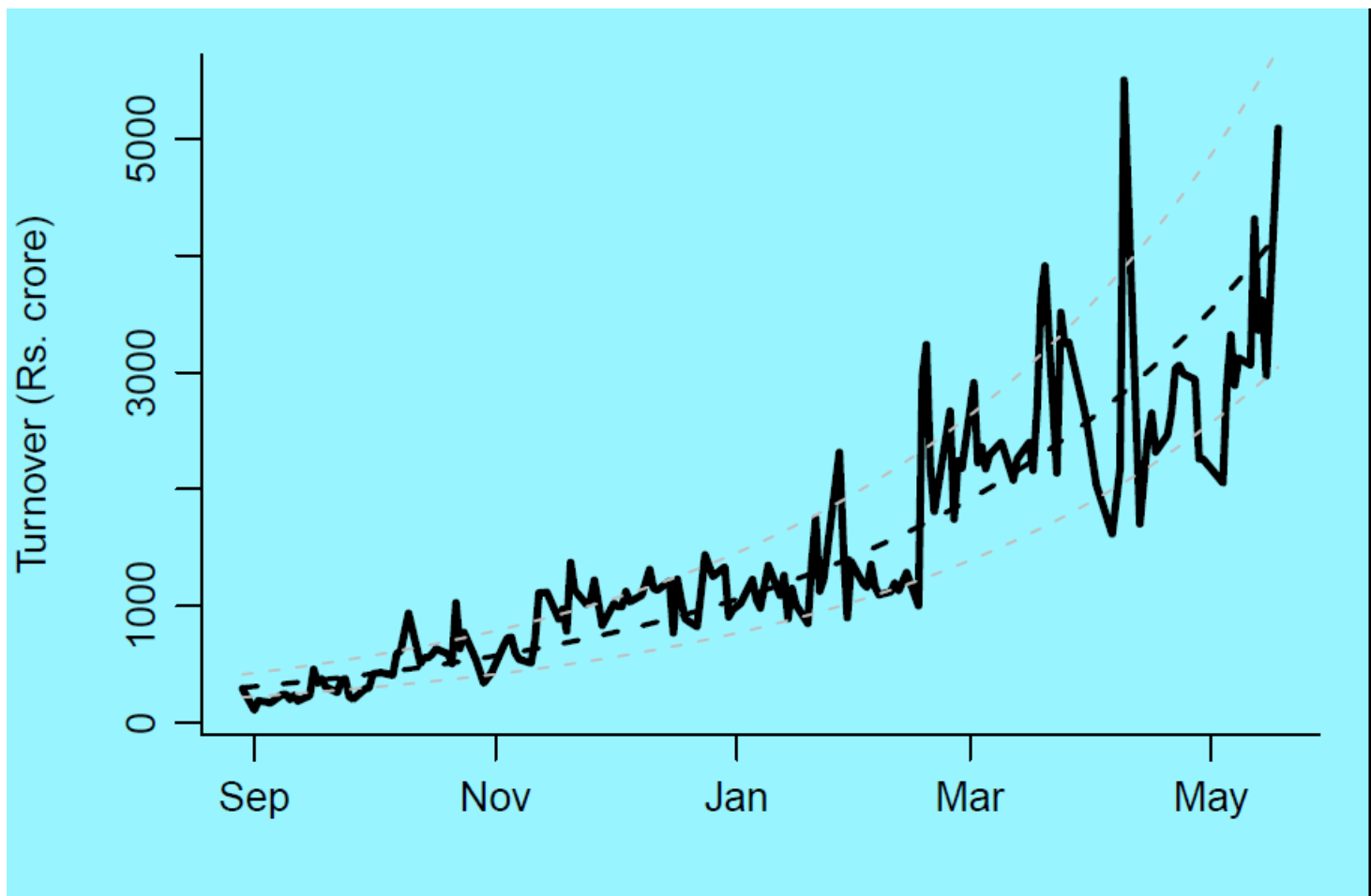
- Introduction
 - Indian landscape in derivatives
 - Making sense of it
- A case for markets and derivatives, even during and after crisis
- A critical assessment of the Indian landscape
 - OTC versus Centralized trading of derivatives
 - More generally
 - In India
- Five recommendations

INTRODUCTION

Some news and facts

- Successful single-stock and index futures and options
- Reasonably successful commodity derivatives
 - Spot delivery and prices an issue in agri-commodities
- IR futures contract launched on NSE, 31 Aug 09
 - 10 year contract only
 - NRIs banned
- FX futures contract introduced earlier
 - INR/USD only
 - FIIs/NRIs banned
 - Deemed reasonably successful (now \$1 bln turnover)
- Whatever is not yet approved is banned
- More products likely to be introduced in future though no clear plans laid out yet

Turnover in FX futures contract



Some news and facts (cont'd)

- Until now, versions of FX and IR futures/forwards were only traded over-the-counter (OTC) by banks
 - Banks and primary dealers can do OTC trades in these and other derivatives (swaps, options) with “hedging” counterparties (typically other banks or firms)
- However, banks still cannot participate in the equity and commodity derivatives
 - Commodity price risk and credit risk in underlying bank positions cannot thus be readily hedged
- Banking regulator (RBI) in charge of OTC markets
 - product design, participation, risk controls
- Other regulators (SEBI, FMC) for exchanges

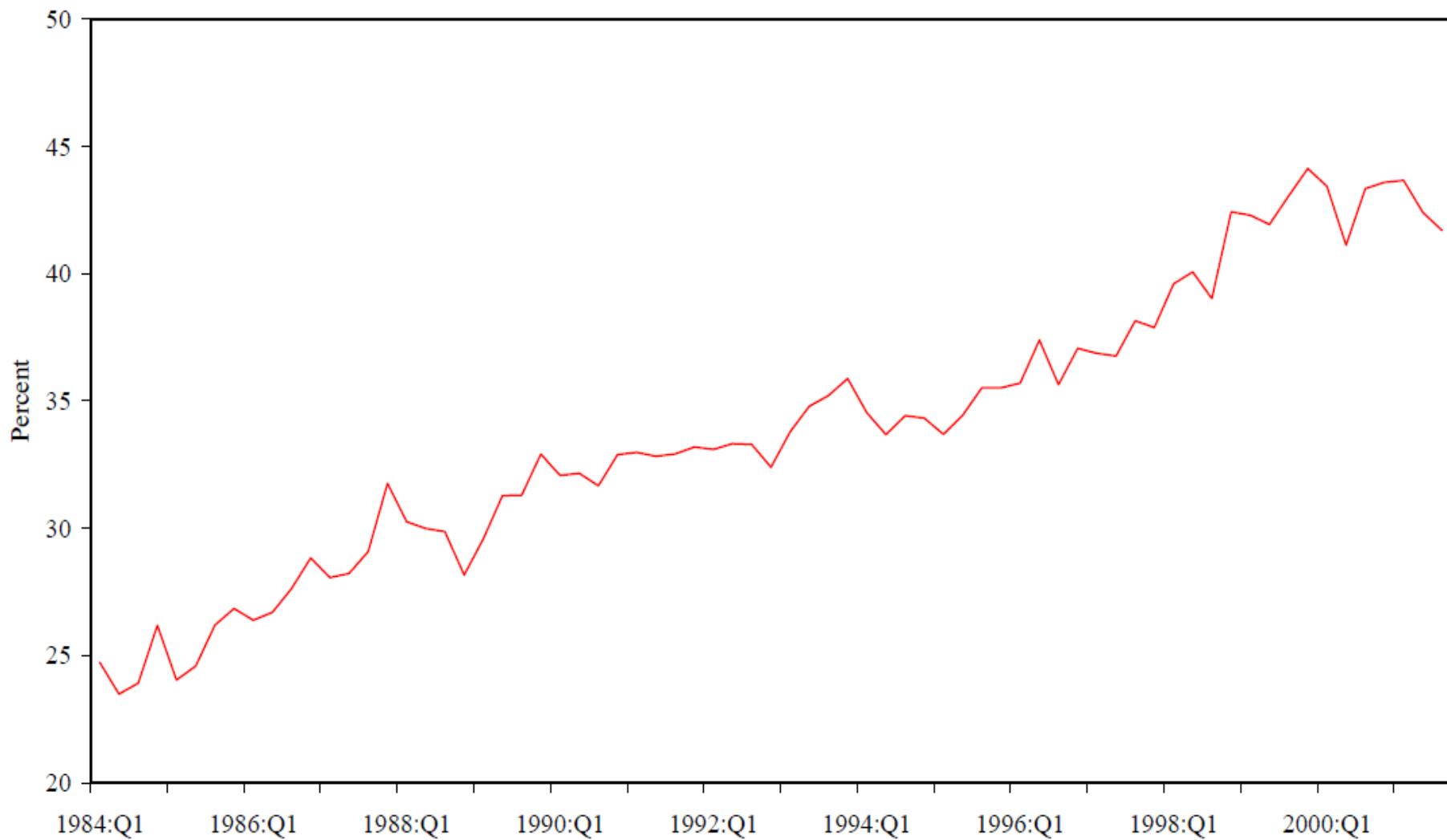
M a k i n g s e n s e o f t h e c u r r e n t l a n d s c a p e

- A G l a s s - S t e a g a l l s t y l e r e g u l a t i o n o f s c o p e :
 - T h o u g h h e d g i n g o p t i o n s t o b a n k s a r e l i m i t e d ,
b e n e f i t i s t h a t r i s k y , s p e c u l a t i v e a c t i v i t y “ d e -
s c o p e d ” f r o m b a n k s
 - B a n k i n g s e c t o r s t a b i l i t y c r i t i c a l f o r H H s a n d S M E s ,
s e c t o r i s e f f e c t i v e l y g u a r a n t e e d , a n d p a r t l y s t a t e -
o w n e d
- S u c h s e p a r a t i o n i s i n c r e a s i n g l y d e e m e d b y
s o m e a s r e a s o n a b l e , c o n t r o v e r s i a l l y s o , f o r
f i n a n c i a l s t a b i l i t y
 - S e e n e x t s i x s l i d e s
 - T r a d i t i o n a l i s s u e s o f r i s k m a n a g e m e n t , p r i c e
d i s c o v e r y , l i q u i d i t y h a v e r e c e n t l y b e e n r e p l a c e d b y

Concerns from the crisis of 2007-09

- Did governments effectively underwrite /insure a ton of massive speculation by the banking sector?
- Is banking sector still performing the monitoring and screening role for which it is deemed “special” and accorded government guarantees?
- Did the excessive securities activity of banks allow them to construct “carry trades” at expense of taxpayers, leading to their insolvency?
- See charts for the US: Diversification in

Figure 1: Rising Share of Noninterest Income in Net Operating Revenue



Note: Noninterest income as a share of net operating revenue (noninterest income plus net interest income).

Source: Aggregate data from FDIC.

Figure 2: Noninterest Income is More Volatile than Net Interest Income

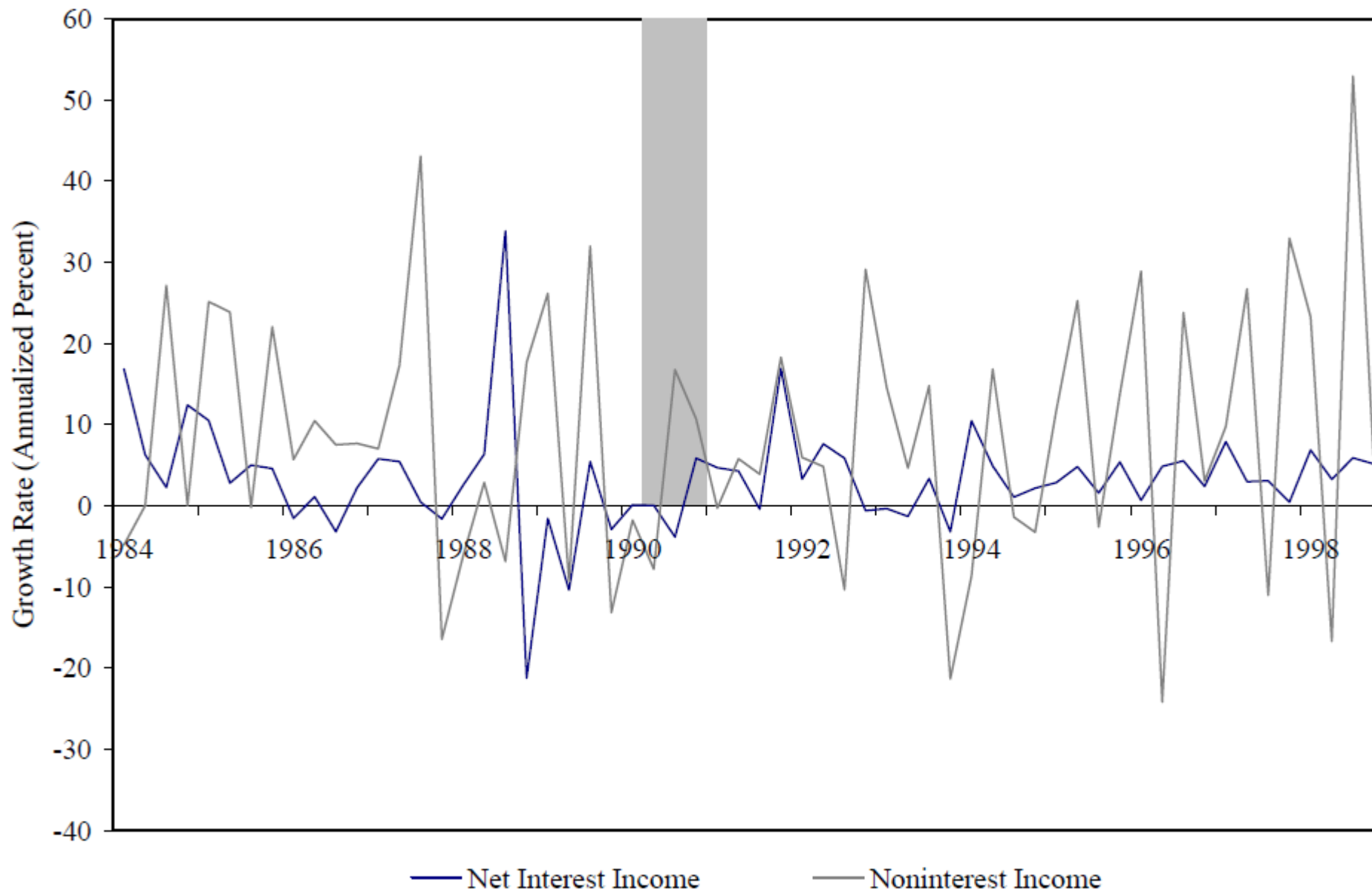
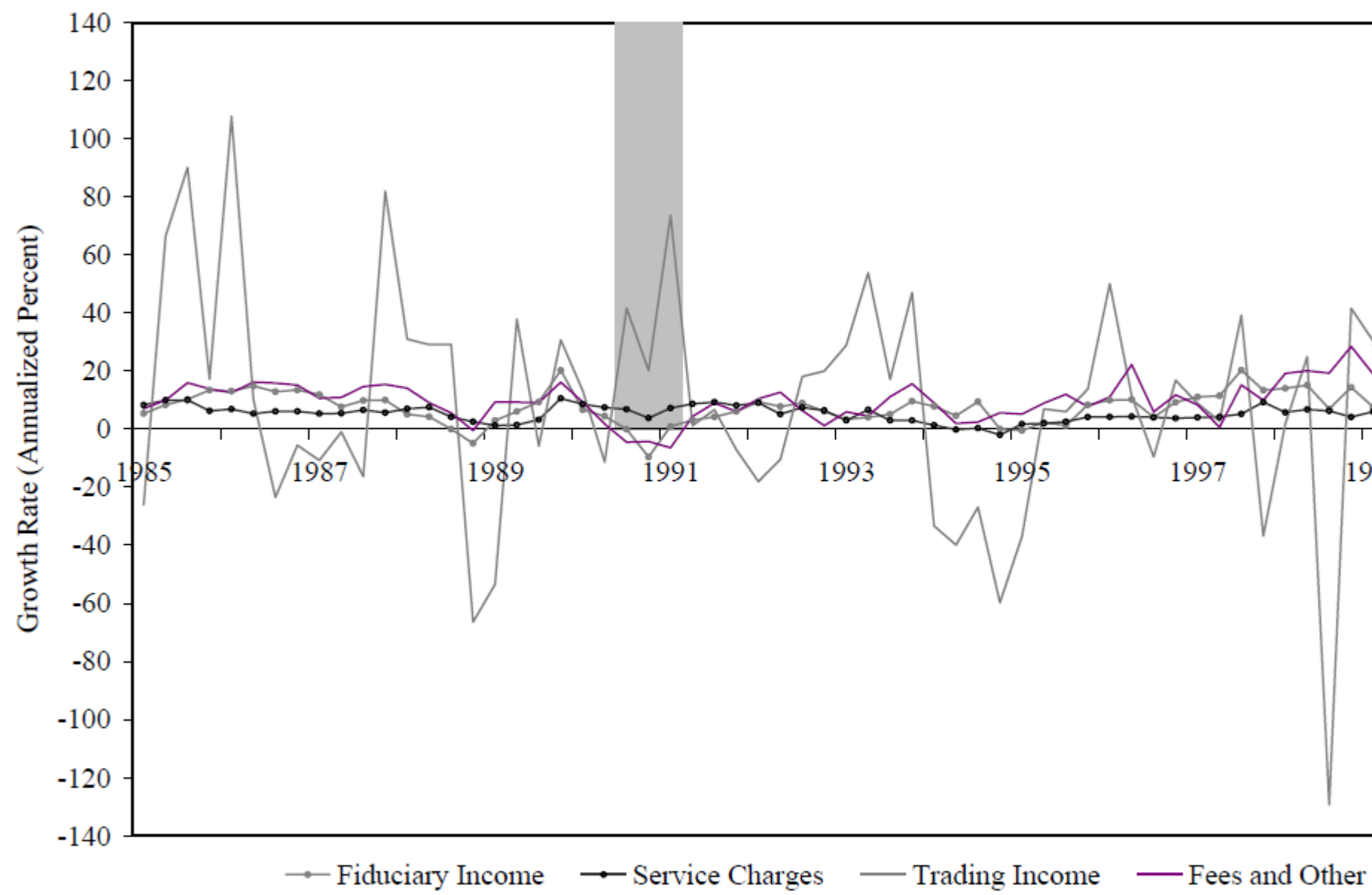
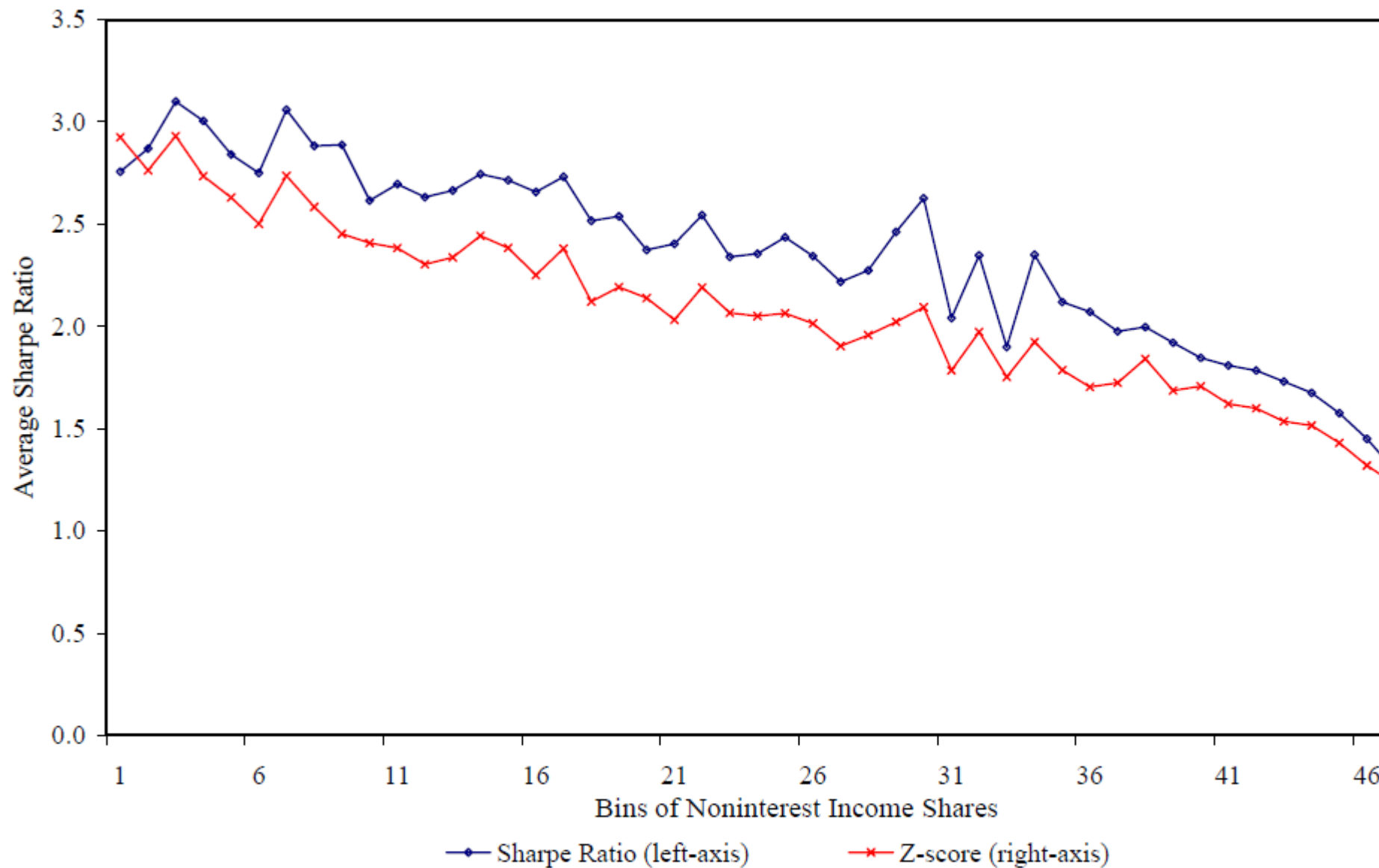


Figure 3: Trading is the Most Volatile Type of Noninterest Income



Note: All figures are in percent unless otherwise indicated. NBER recession dates are used.

Figure 8: Relation between Risk Measures and Noninterest Income Sha



Note: Sharpe Ratio is average return on equity (ROE) divided by the standard deviation of ROE. Z-score is the average return on asse

Exhibit 3

Major Wholesale Banks Write-downs and Exposures - Q2-08



EQUITY (US\$bn)	2Q08	31.12. 2006	2Q08	31.12. 2006	2Q08	31.12. 2006	2Q08	31.12. 2006	2Q08	31.12. 2006	2Q08	31.12. 2006	2Q08	31.12. 2006	2Q08	31.12. 2006		
Equity attr. to shareholders	43.5	40.5	35.8	21.3	50.3	43.3	127	115.8	109	118.8	21.1	35.9	33.4	34.3	39.7	32.7	19.3	18.1

WRITEDOWNS (US\$bn)	2Q08	Cumulative	2Q08	Cumulative	2Q08	Cumulative	2Q08	Cumulative	2Q08	Cumulative	2Q08	Cumulative	2Q08	Cumulative	2Q08	Cumulative		
Leveraged loans ¹	0.2	0.5	0.1	2.8	0.3	3.9	0.7	3.1	0.4	4.2	0.3	1.9	0.5	2.3	0.8	2.8	0.4	1.3
Total subprime ²	1.1	2.4	(0.5)	4.4	0.3	0.3	0.4	2.2	6.0	32.5	6.9	34.2	0.4	8.8			2.0	3.6
Other MBS/ABS	3.4	18.7	0.5	1.9	2.9	5.9		1.4	0.9	2.5	0.7	2.3	0.3	2.1		1.0	1.7	2.8
Total MBS/ABS write-downs	4.5	41.1	(0.1)	6.3	3.2	6.2	0.4	3.6	6.9	34.9	7.6	36.5	0.7	10.9	0.0	1.0	3.7	6.4
Total	4.7	41.6	0.0	9.1	3.5	10.0	1.1	6.7	7.3	39.1	8.0	38.3	1.2	13.2	0.8	3.8	4.1	7.7

EXPOSURES (US\$bn)	2Q08	2Q08	2Q08	2Q08	2Q08	2Q08	2Q08	2Q08	2Q08	2Q08
Leveraged loans	6.8	14.0	38.3	18.9	24.2	7.5	22.3	11	11.5	
US Subprime exposure ³	6.7	1.9	2.9	1.9	22.5	8.3	0.3	1.8	3.4	
US Alt-A exposure	6.4	1.1	5.9	10.6	1.64	1.5	2.4	4.7		} 10.2
US Prime exposure	6.1	0.7		8.9		33.7		8.5		
Other MBS/ABS exp.	11.8	2.7				7.4	4.3		11.3	
CMBS exposure	6.5	14.7	16.7	11.6	45.1	14.9	6.4	17.0	29.4	
Total MBS/ABS exposure	37.5	21.1	25.5	33.0	84.0	65.8	13.4	32.0	54.3	
Total	44.3	35.1	63.8	51.9	108.2	73.3	35.7	43.0	65.8	

SOURCE: Competitor 2Q result announcements and pre-announcements; transcripts; brokers' notes; 10-Q filings

1. Net of hedges and underwriting fees

2. Net of hedges

3. Exposure net of hedges (except for LEH) or monoline insurance

Data: UBS AG. Source: Chapter 5 "Enhanced Regulation of Large, Complex Financial Institutions" (Saunders, Smith and Walter) from *Restoring Financial Stability*

COULD THIS HAVE BEEN AVOIDED ?

- Solution I: Prevent banks from undertaking securities activities where counterparties could be speculators, constituting a special form of Glass-Steagall
 - How will banks hedge? In OTC markets, perhaps?
 - NOTE: Problems in this crisis rose in OTC not exchanges
 - Needs sophisticated accounting / regulation of OTC
- Solution II: Do not restrict scope of banks to securities activities, but employ efficient risk-control mechanisms such as centralized clearinghouses (CCHs) to develop well-regulated markets
 - Restrict leverage (off-balance sheet) ensure better

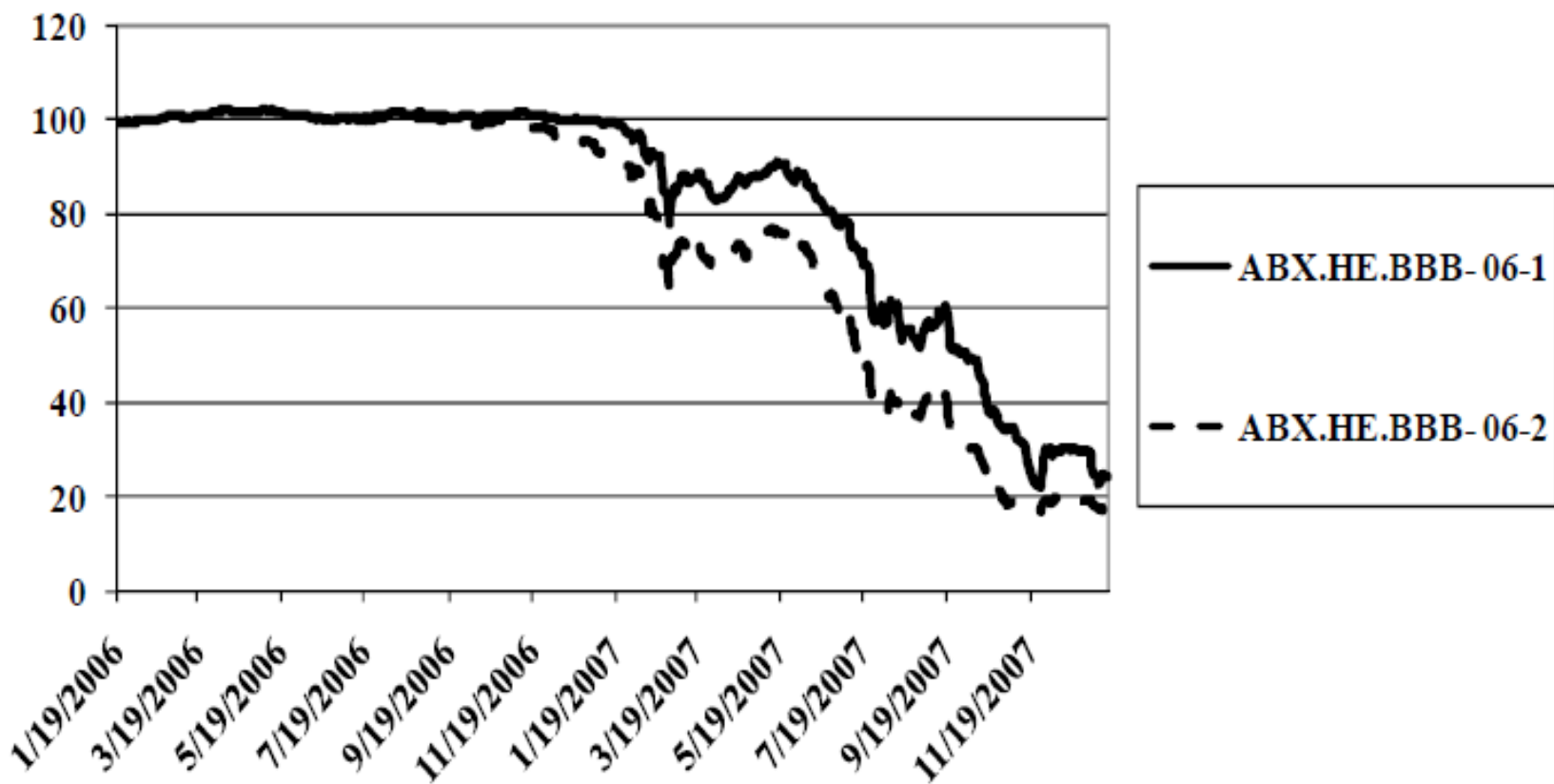
IS THERE (STILL) A CASE FOR DERIVATIVES AND MARKETS GIVEN THE CRISIS?

- Financial innovation went awry in the crisis due to
 - Poor institutional infrastructure (O T C)
 - Incentive problems
- A case for derivatives and markets IN SPITE of crisis
 - In absence of indices revealing the risk of sub-prime tranches, crisis would have been triggered much later than it did reducing response times (Gorton, 2008)
 - Even during stress in CDS markets, the relative ranking of risk was accurate
 - Measures of systemic risk based on pre-crisis data

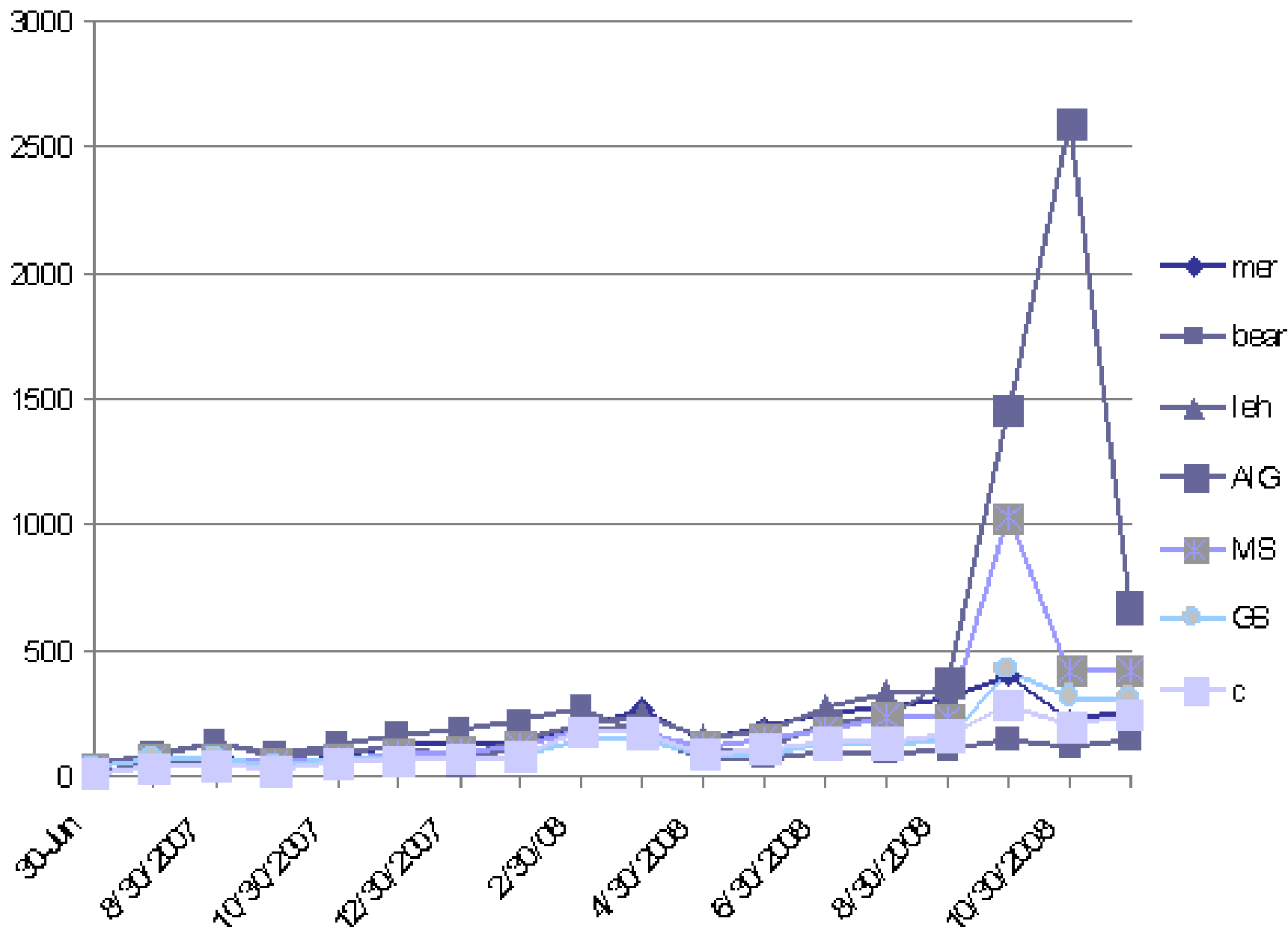
Gorton (2008): Information, Liquidity and the (Ongoing) Panic

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Figure 1: ABX BBB- Subindex Prices



Behavior of CDS during the



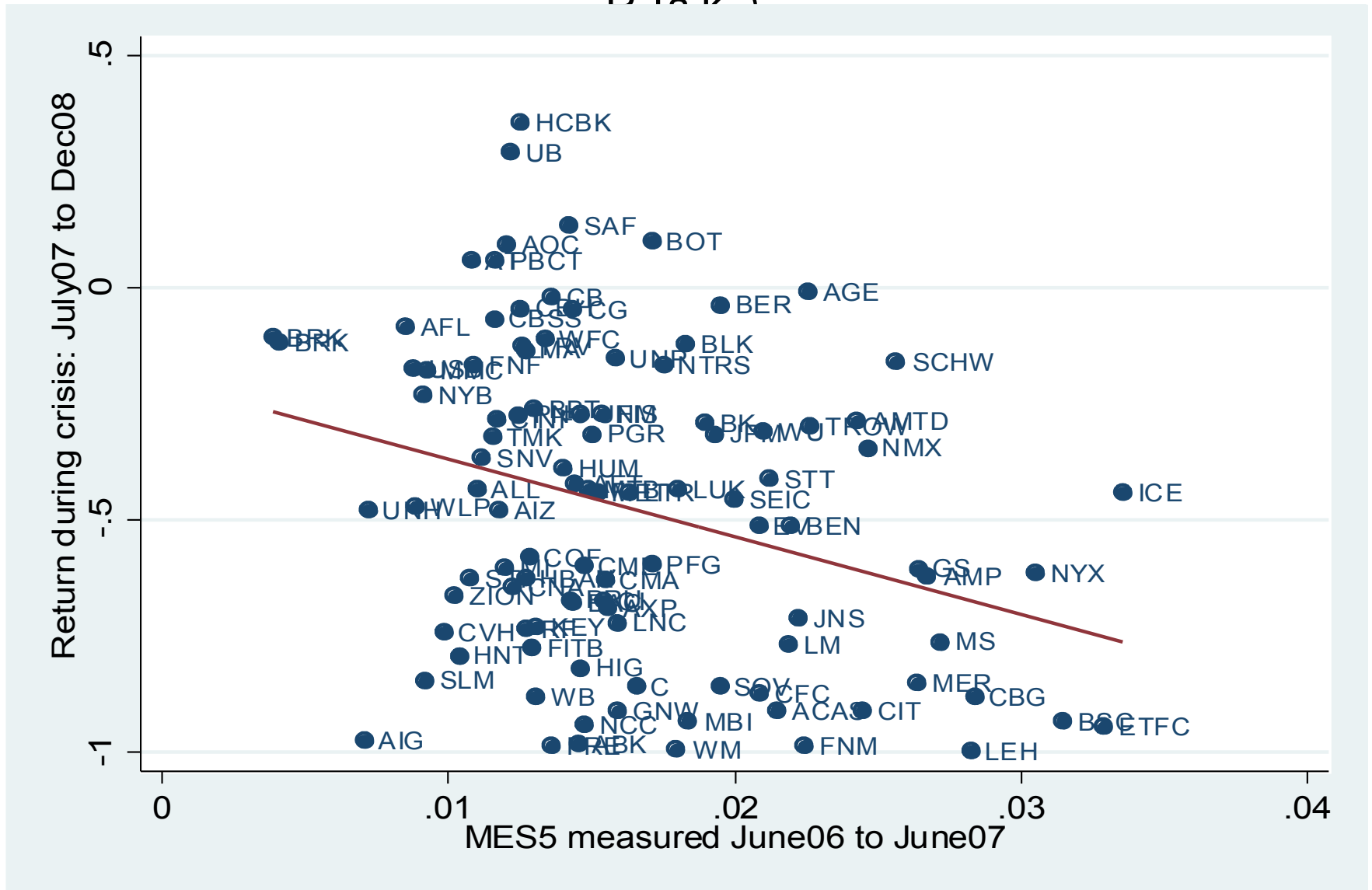
Temporary Liquidity Guarantee Program – UK

Bank	Median 3-year CDS fee in year ending 7 Oct 2008	Median 5-year CDS fee in year up to 7 Oct 2008	UK Loan Guarantee fee (median 5-year CDS + 50 bps)	“Fair-price” of guarantee (average 3-year CDS spread in Nov 2008)
Abbey National	56.5	72.6	112.6	71.2
Barclays	66.0	81.4	131.4	135.7
HBOS	93.3	112.7	162.7	117.4
HSBC	48.5	58.8	108.8	102.1
Lloyds TSB	55.6	62.5	112.5	82.7
Nationwide	122.8	128.3	178.3	123.0
RBS	73.5	85.9	135.9	120.8
Std. Chartered	50.3	67.5	117.5	124.1
Average	70.8	83.7	133.7	109.6

Temporary Liquidity Guarantee Program – U S

Bank	Median 3-year CDS fee in year ending 7 Oct 2008	Median 5-year CDS fee in year up to 7 Oct 2008	Loan Guarantee fee	“Fair-price” of guarantee (average 3-year CDS spread in Nov 2008)
Bank of America	71.0	85.0	75	126.0
Citigroup	100.0	115.2	75	238.3
Goldman Sachs	109.0	107.0	75	321.0
JPMorgan Chase	70.6	85.0	75	115.8
Morgan Stanley	174.1	159.4	75	475.7
Average	104.9	110.3	75	255.4

“Tail beta” pre-crisis and in-crisis returns (Acharya et al, 2009: Regulating Systemic Risk)



Ranking by systemic risk (MES and \$MES)

MES (per share & \$)		
Ranking based on MES as of June 07	MES (%)	MES (\$)
E TRADE FINANCIAL CORP	1	37
BEAR STEARNS COMPANIES INC	2	20
C B RICHARD ELLIS GROUP INC	3	54
LEHMAN BROTHERS HOLDINGS INC	4	12
MORGAN STANLEY DEAN WITTER & CO	5	4
GOLDMAN SACHS GROUP INC	6	5
MERRILL LYNCH & CO INC	7	6
SCHWAB CHARLES CORP NEW	8	16
C I T GROUP INC NEW	9	50
T D AMERITRADE HOLDING CORP	10	42
T ROWE PRICE GROUP INC	11	36
EDWARDS A G INC	12	68
FEDERAL NATIONAL MORTGAGE ASSN	13	8
JANUS CAP GROUP INC	14	76
FRANKLIN RESOURCES INC	15	13
LEGG MASON INC	16	44
AMERICAN CAPITAL STRATEGIES LTD	17	62
STATE STREET CORP	18	24
COUNTRYWIDE FINANCIAL CORP	19	27
EATON VANCE CORP	20	75

MES (per share & \$)		
Ranking based on \$ MES as of June 07	MES (%)	MES (\$)
CITIGROUP INC	31	1
JPMORGAN CHASE & CO	24	2
BANK OF AMERICA CORP	49	3
MORGAN STANLEY DEAN WITTER & CO	5	4
GOLDMAN SACHS GROUP INC	6	5
MERRILL LYNCH & CO INC	7	6
WELLS FARGO & CO NEW	55	7
FEDERAL NATIONAL MORTGAGE ASSN	13	8
AMERICAN INTERNATIONAL GROUP INC	90	9
WACHOVIA CORP 2ND NEW	57	10
AMERICAN EXPRESS CO	36	11
LEHMAN BROTHERS HOLDINGS INC	4	12
FRANKLIN RESOURCES INC	15	13
METLIFE INC	39	14
WASHINGTON MUTUAL INC	28	15
SCHWAB CHARLES CORP NEW	8	16
PRUDENTIAL FINANCIAL INC	50	17
BANK NEW YORK INC	25	18
FEDERAL HOME LOAN MORTGAGE COR	53	19
BEAR STEARNS COMPANIES INC	2	20

Solution II: Clearinghouses

- Bank participation in exchange-traded FX and IR products already signals a departure from pure Glass-Steagall approach (Solution I)
 - Step forward: E.g., OTC swaps hedged by ED futures
- Three questions:
 - Is the current regulatory structure with co-existing OTC and exchange products sustainable, or even desirable?
 - How to best deal with the transition to more developed markets? Is there institutional capacity for transition?

OTC VS . CENTRALIZED MARKETS

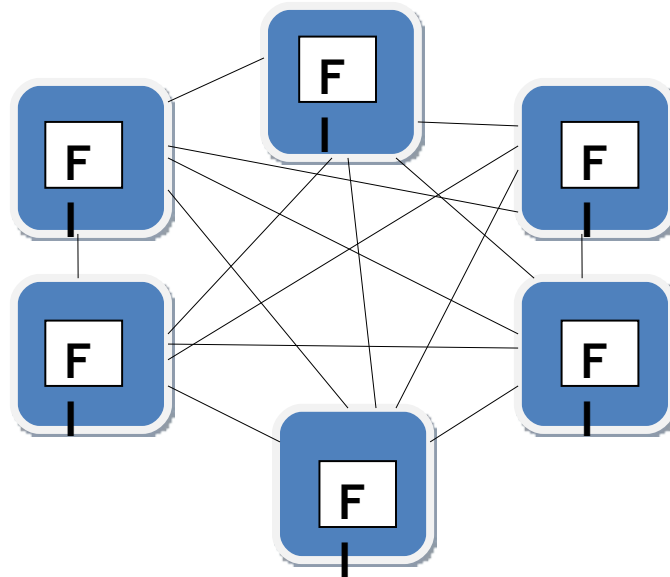
TOXIC ASSETS PURCHASED O T C

- The vast quantities of assets that are now considered “toxic”, were all purchased over the counter or O T C (or created to be held).
- We still do not know the volume of many of these.
- We still do not know the guarantees that have been written on assets (by A.I.G., for example) that will soon be binding.
- R B S (A B N A M R O) and State Street disclosed conduit-linked losses of \$40 and \$10 billion, respectively, as late as January 20/21 2009!

Major Issues with OTC Trading in Derivatives

- Counterparty risk externality
 - If A sells insurance to B, turns around and sells 100 such additional insurances without additional capital, then A has diluted B's insurance claim on A
 - Hence, B needs to know “what else is being done”
- Transparency
 - prices, volumes, and open interest
 - risk exposure
- Hedging vs speculation
(Indian context)

O T C Trading



But any other structure may also arise
And in O T C , no one knows which structure is at
work

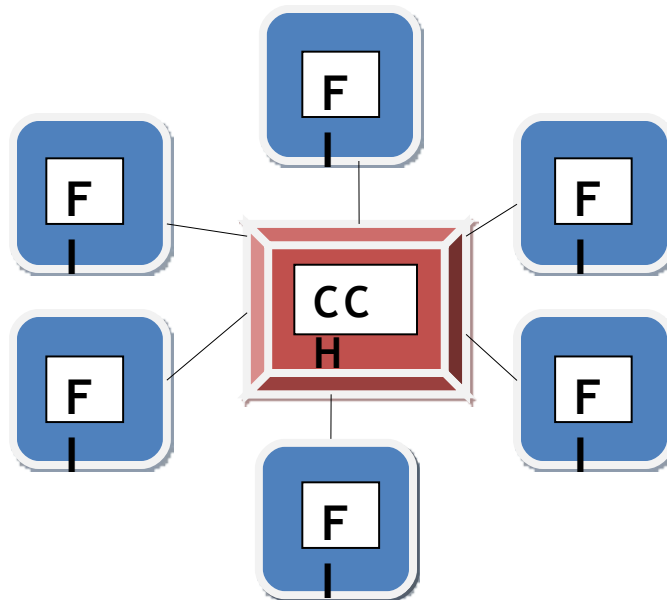
A TRANSPARENCY PROPOSAL FOR OTC MARKET

- Every trade and the associated contract should be posted in a standard form on the Internet within some time frame (example: TRACE for corporate bonds)
- Counterparties could verify the accuracy
- Third party vendors could aggregate this data and help investors assess counterparty risk
- Regulators could today publish this on many popular contracts. Data can be made available to regulators and put on the web for participants.
- Check out DTCC's disclosure for Credit Derivatives.

CENTRALIZED COUNTERPARTY

- Even better solution to counterparty risk is to have a centralized counterparty (C C).
- After a bilateral contract is agreed to, the parties each specify the centralized counterparty as their counterparty .
- The centralized counterparty sets margins and collects payments in advance to insure its positions .
- Failure to post margins leads to contract termination without loss to C C (if margins are

CENTRALIZED COUNTERPARTY



C C H knows exactly, at least locally for that
markets,

W H A T E L S E I S B E I N G D O N E !

EXCHANGE

- On an exchange there is a centralized counterparty that does all the financial clearing and payments.
- For long horizon contracts, margins are posted.
- Position limits are generally imposed.
- In addition, on an exchange, you do not know the counterparty and the process of price discovery leads to potentially better pricing.

WHY NOT MOVE ALL OTC TO CC or EXCHANGES?

- Only highly standardized contracts can be moved to CC or Exchanges.
- Only high volume contracts are suitable.
- We will surely have many OTC contracts.
 - Newer, customized products
 - Smaller markets
 - Institutional markets
 - Up to a size, OTC ok and does not pose systemic risk
 - Large size OTC markets -> Move them to CCP / Exchange

S U M M A R Y : F O U R M O D E L S

- O T C
- R E G I S T R Y - D a t a w a r e h o u s e w i t h s o m e
t r a n s p a r e n c y
- C L E A R I N G H O U S E - C e n t r a l i z e d
c o u n t e r p a r t y f o r a l l t r a d e s
- E X C H A N G E

Four possible solutions to and their relative merits

Market Characteristics	OTC	Registry (Solution I)	Clearing House (Solution II)	Exchange (Solution III)
trading style	bilateral negotiation	bilateral negotiation	bilateral negotiation	continuous auction
market participants	large well-capitalized firms	large well-capitalized firms	well-capitalized counterparties only	retail trade possible; largest trades in upstairs market
flexibility/standardization of contracts	maximum flexibility	maximum flexibility	flexible terms; standardized credit enhancement	largely standardized contracts

Market Characteristic	OTC	Registry (Solution I)	Clearing House (Solution II)	Exchange (Solution III)
counterparty credit risk	substantial	substantial	little to none	little to none
collateral/ margin requirements	bilateral negotiation and management	consistent mark to market valuation of positions and collateral; required amounts set bilaterally by counterparties	consistent mark to market valuation of positions and collateral; required amounts standardized and set by Clearing House	consistent mark to market valuation of positions and collateral; required amounts standardized and set by Clearing House

Market Characteristic	OTC	Registry (Solution I)	Clearing House (Solution II)	Exchange (Solution III)
price information	largely opaque; daily quotes available	largely opaque; daily quotes available	more transparent; daily settlement prices publicly available	transparent to all
volume and open interest information	opaque	largely opaque	more transparent	transparent to all
information on large trader positions	opaque	available only to regulators	available only to regulators	available only to regulators
netting of cash flows	bilateral only	yes	yes	yes
netting of offsetting positions	bilateral only	bilateral only	yes	yes
secondary market	only by mutual agreement between counterparties	only by mutual agreement between counterparties	yes	yes

THE INDIAN CONTEXT - OTC VS EXCHANGES

O T C in the Indian context

- Repo and other inter-bank markets through C C I L
 - Excellent idea to clear centrally, one that most missed !
- One leg of other O T C contracts always a regulated bank, another typically a “hedge” by a corporation
 - Contract specs tightly regulated (e.g., no commodities)
 - Requirement of (effectively) real-time disclosure of positions, and monitoring that banks are in turn monitoring corporations to ensure contract is a hedge
 - How can one be sure the firm is hedging? Especially, when firms could be doing trades on exchanges?
 - How do counterparties know what else is being done?
 - Answers get murkier with newer products
 - Hence, O T C setting makes introduction of new

Hedging or Speculation ?

Merton H. Miller in a conversation with the treasurer of a medium-sized oil company in Chicago who bemoaned his company's losses when the Gulf war's end brought down the price of oil:

"It serves you right for speculating and gambling," Miller told him. "Oh, no, we didn't speculate. We didn't use the futures market at all," insisted the treasurer. "That's exactly the point," Miller replied. "When you hold inventory, non-hedging is gambling. You gambled that the price of oil would not drop and you lost."

C o - e x i s t e n c e o f O T C a n d e x c h a n g e s

- O T C m a r k e t s b e s t f o r n e w , c u s t o m i z e d p r o d u c t s
- O f t e n , O T C p r o d u c t s a r e “ c l o s e ” v e r s i o n s (c l o n e s !) o f e x c h a n g e - t r a d e d p r o d u c t s ; a n y r e a l b e n e f i t s ?
- F r e e m a r k e t s s h o u l d e n s u r e n o a r b i t r a g e b e t w e e n s i m i l a r p r o d u c t s b u t O T C m a y h a v e p r i v a t e b e n e f i t s t o s o m e p l a y e r s (i n f o r m a t i o n , o p a c i t y ...)
- B u t w i t h p a r t i c i p a t i o n r e s t r i c t i o n s (a s i n I n d i a) , i t i s u s e f u l t o a s k w h o w i l l p l a y t h e a r b i t r a g e u r ?

O T C and exchange issues

- Corporate treasuries, NBFC's, FII's act as arbitrageurs
 - If a corporation has an exchange-traded exposure and wants to hedge with OTC, is that allowed?
 - Even if there is a true underlying exposure, the corporate treasury can “misestimate” its hedge ratio and speculate!
 - Metallgesellschaft, AG (using a mix of OTC and exchange products)
 - Also, isn't the counterparty bank effectively sharing its risks with exchange participants, but through a corporation?
 - Then, why not let banks be the direct arbitrageurs?
Risk?

Things have worked well so far...

- Does that mean the infrastructure is sufficient?
 - E.g., OTC trades are self-reported unlike at exchanges
- Evidence that as markets and players get more sophisticated, any available regulatory arbitrage gets finessed and regulatory burden in OTC rises
 - Catching “criminals” rather than avoiding “crimes”
- Two guiding principles:
 - Ensure arbitrageurs are sophisticated players
 - Harmonize regulation; move large standardized

M y o v e r a l l a s s e s s m e n t

- 1 . R e g u l a t o r y d e s i r e t o c u r b l e v e r a g e a n d r i n g - f e n c e t h e g o v e r n m e n t g u a r a n t e e s h a s p r u d e n t i a l b a s i s
 - R e s t r i c t i n g s c o p e o f b a n k s i s o n e w a y o f a p p r o a c h i n g r i s k r e g u l a t i o n , b u t n o t w i t h o u t i t s s h a r e o f l i m i t a t i o n s
 - B u t i m p o r t a n t l y , w e l l - r e g u l a t e d m a r k e t s a r e g r a d u a l l y e v o l v i n g i n m o s t p a r t o f s e c u r i t i e s s p a c e
- 2 . H o w t e n a b l e a r e t h e p a r t i c i p a t i o n r e s t r i c t i o n s ?
- 3 . H o w t o b e s t d e a l w i t h t r a n s i t i o n f r o m O T C t o c e n t r a l i z e d m a r k e t s ?
- 4 . C a n w e h a v e s o m e " b i g - b a n g " c h a n g e s ?

**RECOMMENDATIONS:
SOME “BIG BANG” CHANGES**

Five recommendations

1. Rapidly privatize, or as a second-best at least professionalize, most of the banking sector
2. Build greater capacity in banks, DFIs, and corporations for derivatives usage
3. Employ efficient risk control mechanisms: CCPs, Portfolio & risk-sensitive margins, Position limits, OTC to CCP/exchange migrations

Five recommendations (cont'd)

4. Conduct/sanction research on risk analysis of OTC /exchange trading, exposures, margining
5. Some new products /indices; removal of bans

1 . P r i v a t i z e b a n k i n g s e c t o r

- An unstated concern with allowing banks to participate in exchange-traded derivatives is the lack of capacity, and thereby, potential risk, at public sector banks
 - E .g ., would we want them writing deep OTM options whose risks are difficult to manage ?
- In fact, market participants suggest poor technology for derivatives trading and hedging at Indian banks, public as well as private

Privatize banking sector (cont'd)

- Option 1: Privatize most of the banking sector (e.g., Brazil in 90's, now just one public bank)
 - NOTE: Many foreign banks are in “temporary government ownership”, not nationalized forever!
 - Greater competition, efficiency, deeper markets
 - Better incentivized and motivated workforce
 - Remove barriers to entry for private sector banks

2. Build institutional depth

- Concentrated institutional space: insurance, provident funds, mutual funds, etc.
- DFI's small players even in lightly regulated equity markets (cash or derivatives)
- Need a richer set of institutional participants
 - Domestic FI's: Hedge funds, Proprietary traders, Algorithmic trading ("noise" trading)
 - On level-playing terms with FII's
- Usual concern: Can they create havoc? Will they speculate too much?

Building institutional depth (cont'd)

- The key is to have efficient risk controls at product/trading level rather than by institution (see earlier discussion and point 3. to follow)
 - Important to ensure FI's are not “shadow banks” doing regulatory arbitrage with high leverage
- Example: Commodity derivatives participation
 - Concern that speculation could affect spot markets

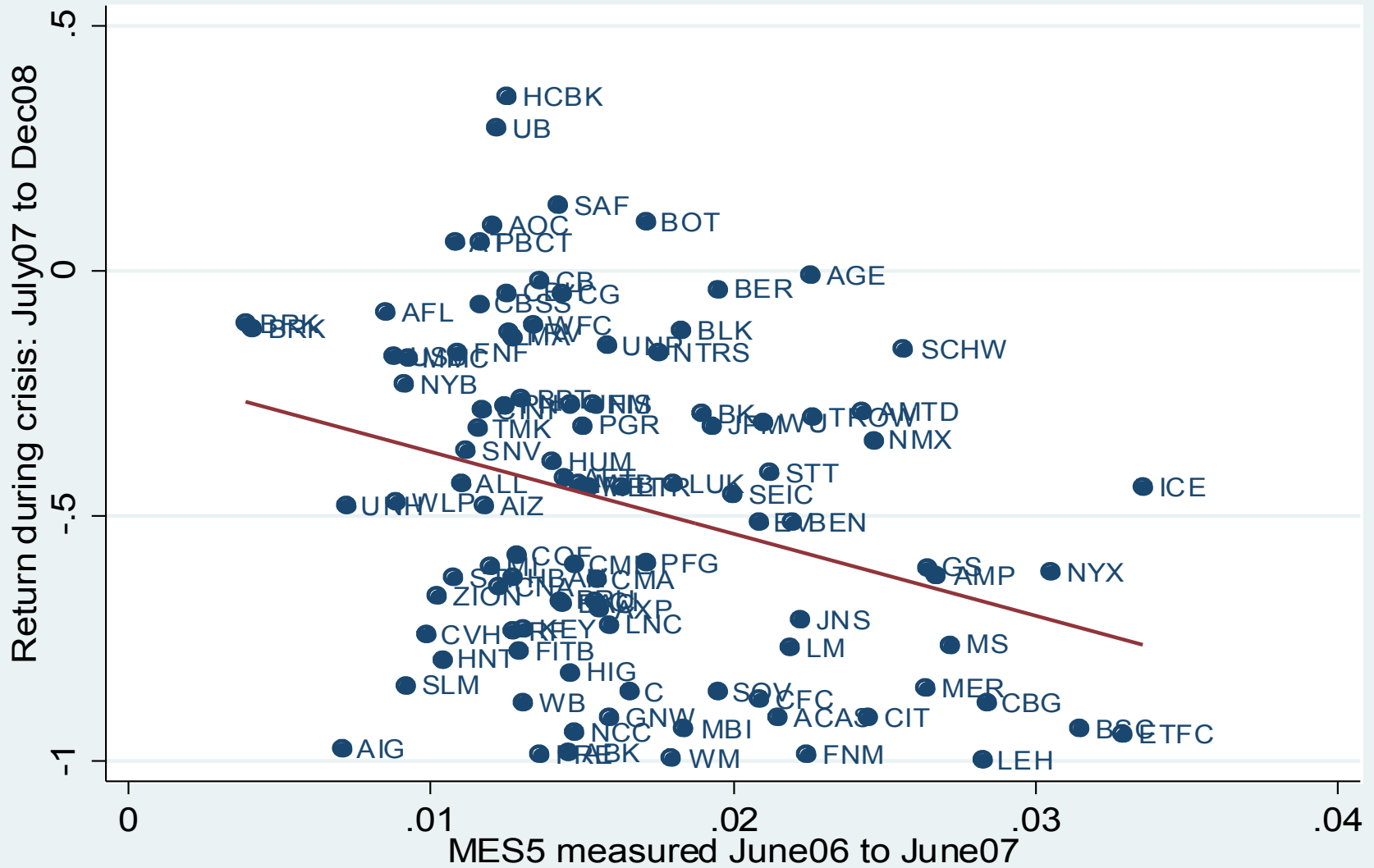
Building institutional depth (cont'd)

- Greater training in derivatives usage, risk assessment and risk management
 - Individuals
 - Corporate treasuries
 - NBFC's
- Information systems for enterprise-wide risk assessment and management
- Should the corporations be required to fully, and in detail, disclose their derivatives positions (hedges) with MTM profits/losses?
 - Impose a disciplining device on speculative excess

3 . C o n t r o l r i s k s : E m p l o y C C H s

- H i s t o r i c a l l y , n o C C H h a s f a i l e d
 - C a p i t a l i z a t i o n p r o v i d e d b y m e m b e r s , h e n c e a l s o a n e f f i c i e n t p r i v a t i z a t i o n o f c o u n t e r p a r t y r i s k s
 - C L S b a n k i n F X s p o t , a n O T C m a r k e t t h a t w o r k e d s e a m l e s s l y d u r i n g t h e c r i s i s
- E v i d e n c e t h a t e x c h a n g e s a n d C C H ' s a r e v u l n e r a b l e d u r i n g s e v e r e c r i s e s
 - H e n c e , e n s u r e C C H s a r e e x t r e m e l y w e l l - c a p i t a l i z e d
 - W o u l d r e g u l a t o r s w a n t t o b a i l o u t a b a n k o r a C C H ?
- E m p l o y p o s i t i o n l i m i t s
 - E s p e c i a l l y i n t h i n m a r k e t s w h e r e m a r g i n i n g b a s e d o n m a r k - t o - m a r k e t i s d i f f i c u l t a n d l i q u i d i t y r i s k i s s u b s t a n t i a l
 - T i e d t o u n d e r l y i n g v o l a t i l i t y a n d c a p i t a l i z a t i o n o f t h e p l a y e r

Systemic risk (“tail beta”)



Risk control mechanisms

(cont'd)

- Better margining / collateral requirements
 - Portfolio approach
 - Risk sensitive approach
 - Higher margins for weaker balance sheets
 - Higher for OTC products
 - Liquidity risk
 - Quality of collateral
 - 100% cover for the largest exposure at each point
(an implicit position limit)
 - Cross-platform standardization and exposure aggregation

Risk control mechanisms

(cont'd)

- “One market principle”
 - Avoid duplication of products across platforms
 - Avoid multiple regulators in similar products with non-uniform restrictions
 - If OTC product is important and large enough to be on an exchange, simply migrate the OTC market completely to the exchange
 - OTC markets tend to have higher spreads, are opaque, confer artificial advantages to dealers (banks) and create barriers to entry
 - Classic example: Trading in corporate bonds since TRACE

4 . R e s e a r c h

- Document and study effects of derivatives
 - Single stock and index futures, single stock and index options, FX futures, IR futures
 - Effects on cash market levels, price discovery and liquidity
 - Was exchange-based margining sufficient given realized volatility levels?
- Document and study type and extent of OTC product usage by corporations
 - Magnitude of hedging benefits, size of bank exposures
 - Quality of bilateral margining by banks

5. Innovations and deregulation

- Volatility indices a la VIX (see VLAB of NYU Stern for “demo”)
- Liquidity indices for different markets
 - Market liquidity in equity, commodity, FX and IR products
- Infrastructure for secondary trading in loan sales
 - Significant bank balance-sheet risks still remain in loans rather than in securities
- Corporate bond market
 - Elicit retail participation through de-mat accounts
 - Create a common platform as gilts or equities for trading of foreign-currency bonds of Indian corporations
 - Should lead naturally to setting up of CDS markets
- Credit default swaps: Loan CDS as well as Bond CDS
 - Credit-risk management tool for banks
 - Price-discovery on corporation credit risk, especially given the foreign currency borrowings

Innovations and deregulation (cont'd)

- Allow short-selling
 - Create infrastructure and margining for securities borrowing and lending, in equities and bonds
 - Short-selling reveals negative information and prevents sudden downward price jumps
 - Perhaps ok to maintain the ban on naked short sales
- In absence of short-selling, derivatives do not just help customize existing risks but in fact enable taking a view on risks intended to be banned!

C o n c l u s i o n

- If we can improve trading and market infrastructure and regulation at a RAPID PACE
- The pace of innovation will then follow
- Markets will be well-regulated
- And systemic risk and financial stability preserved