Commenting in 1998 on the proposed repeal of the 1933 Glass-Steagall Act separating commercial and investment banking “an archaic set of restrictions”

Lawrence Summers
US Secretary of the Treasury & Future President, Harvard University & Advisor, Citigroup

*Bloomberg Business Week, 12th August 2013*

“Commentators speak loosely about going back to Glass-Steagall. But the Glass-Steagall Act was introduced to deal with a problem that no longer exists: the distribution of fraudulent securities to uniformed customers”

Martin Jacomb
Chairman, Share PLC & Former Chancellor, Buckingham University

*Financial Times, 14th September 2011*
Outline

- Financial Market Developments
- Derivative Products
- The Rôle of Structured OTC Derivatives
- Evolving Regulation of OTC Derivatives


- **Technical changes** (market data, pricing calculations, spreadsheets, global communications, state-of-the-art computing hardware)

- **Regulatory changes** (Basel I and II)

- **Changing product paradigms** (risk transfer, transferring property, exchanging contractual obligations) leading to exponential growth of **over-the-counter** (OTC) **structured products**
Financial Services Trading Background 1980-2007

- From customer benefit to shareholder benefit
- Profits in complexity of structured products
- Risk management and hedge portfolios
- Risk-adjusted return on capital (RAROC)
- Ever increasing leverage due to global lax regulation
- Using counterparty assets to preserve banks’ regulatory capital

Power of OTC Structured Products for Clients

- Optimising interest rate and FX liabilities – options and swaps
- Hedging default risk - credit default swaps (CDSs) and collateralized debt obligations (CDOs)
- Profiting from tax arbitrage – cross-border leasing agreements
Financial Crises 1980-2013

- **Caused by**
  - **Inflation**
    - Russian default August 1998
  - **Currency crashes**
    - Mexican peso crisis 1995. After NAFTA (Canada, Mexico, US)
  - **Currency debasement**
  - **Asset price bubbles**
    - South American debt crisis in the 1980s. Recycling ‘petrodollars’ in the 1970s
    - Black Monday October 1987. US credit expansion by Savings & Loans sector
    - Japanese crisis 1990. Property bubble fuelled by export led growth
    - Asian crisis 1997. Corporate debt burden financed by property bubbles & “hot” money
    - Internet bubble 2000. Irrational exuberance?
    - US subprime crisis 2008. (Self) deception
    - Euro crisis 2010. Reality avoidance
    - China crisis 201?. Credit expansion to fuel export led growth

This Time It’s Different

- Financial crises have marked the development of capitalism since the Renaissance

- These have historically been connected with sovereign credit over the past 800 years Reinhart & Rogoff (2010)

- In his famous book Kindleberger (1989) gives a detailed account of financial crises in Europe and North America from 1618
We have nothing to fear but fear itself

32\textsuperscript{nd} President of the United States  March 1933

This sucker could go down

43\textsuperscript{rd} President of the United States  September 2008
Current State of Derivatives Dealing

- Structured fixed income and credit derivative instruments over the past two decades have enormously increased in value (c. $1 T notional CDOs issued in 2006 and 2007) and complexity (e.g. cash CDOs with 10,000 page contracts and no formal pricing)

- Their uses have been both good and bad!

- The ABS markets are reviving

- The cash CDO market has totally collapsed

- The synthetic CDO market has declined

- Swaps and CDS contracts are being moved to cleared exchanges and all OTC contracts severely regulated with substantial reductions in dealing profits

2. Derivative Products
What is a Future?

- A forward contract is an agreement for delivery of an underlying commodity, security or index value at a specified future maturity date at a fixed price.

- The only option connected to such a contract is default – a frequent event by speculators in 19th Century agricultural commodity markets.

- A future contract is a forward contract in which the discrepancy between the market price of the underlying and the fixed contract price – the margin – is regularly passed between the two counterparties through an organized futures market up to maturity.

What is an Option?

- An option is a derivative security:
  - Its value depends on the value of another asset called the underlying asset e.g. a stock, a bond, a currency exchange rate, a future, an index, etc.

- Ownership of an option gives you the right but not the obligation -- unlike a future -- to buy or sell the underlying asset:
  - At a fixed price: the strike (or exercise) price
  - Over a specified period of time.
It is indeed the truth; one can do more fascinating things with an option than an inventive boy can do with a set of Meccano. *New Yorker* (1937)

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**Call and Put Options**

- **Call Option**
  - Gives you the right to **BUY** at the agreed *strike* price

- **Put Option**
  - Gives you the right to **SELL** at the agreed *strike* price
European Style vs. American Style Options

- **European**
  - Exercise *only at maturity*

- **American**
  - Exercise at *anytime*

---

**Call Payoff Diagram**

- **Payoff**
- **Profit**

Stock Price: $60, $65, $70, $75, $80, $85, $90

Profit: $0, $5, $10, $15, $20

Payoff: $0, $5, $10, $15, $20
Put Payoff Diagram

Payoff

Profit

Stock Price

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What is a Swap?

- An agreement to exchange one stream of cash flows for another
  - Example: a **fixed** versus a **floating** interest rate paid on a **notional principal** amount – a **par swap**
  - Two different floating rates
  - Two different currencies
  - Different assets e.g. equities
**Generic Rate Swap Structure**

- Counterparty A converts from fixed to floating
- Counterparty B converts from floating to fixed
- Through an over the counter (OTC) product of a swap dealer who charges both parties a spread

---

**Evolution of the Swap Market**

- Began in the early 1970’s
  - Collapse of Bretton Woods: floating currency rates and FX volatility
  - UK exchange controls
  - Parallel/back-to-back loans
  - IBM-World Bank swap of 1981

- Regulation & standardization
  - International Swap Dealers Association (ISDA) formed in 1985
    - Development of Master Swap Agreement led to market takeoff
  - Capital Adequacy
First Decade Market Growth

Market volume by end 1997 about $17 trillion in notional principal and about $490 trillion now

What is a Credit Derivative?

- A financial contract with a payout linked to
  - Loan, bond or securitised credit cash flow (e.g. mortgage) values
  - Default or credit events
  - Credit spreads
  - Credit ratings
- With cash settlement or delivery of the relevant underlying asset or portfolio if appropriate
- On single (borrower) names, baskets (of names) or indices
- Delivery as notes or OTC contracts
- Delivery as swaps or options
Credit Default Swap (CDS)

- Party A pays default premium x% until default
- Party B pays agreed notional principal on default (relative to underlying reference loan or security)

Bank A can take cost of the swap into account in pricing an underlying loan and removes credit risk of perhaps a valued customer by what is in effect a default put – a major ingredient of the crisis!

3. The Rôle of Structured OTC Derivatives
Views on the Rôle of Derivatives

- Guns don’t kill people. People kill people!  
  US National Rifle Association

- Derivatives are weapons of mass destruction  
  Warren Buffet

- There are two types of derivatives – “bought” and “sold”  
  – in proportion 30% to 70%  
  City MD

- Banking is the last industry to go “high tech” after aerospace, oil, manufacturing, airlines, logistics, film making, etc.

Asset Value Proportions of 2009 Global GDP

- Derivatives (notional) 1012% $600 T 80%
- Debt & ABS 129% $77 T 10%
- Broad Money 115% $69 T 9%
- Money 9% $5 T 1%
**Global OTC Derivatives Markets**

(In billions of U.S. dollars; nominal amounts of contracts outstanding)

- Unhedged
- Commodity
- Equity-linked
- Foreign-exchange
- Credit default swaps
- Interest rate
- Total exchange-traded contracts

Source: Bank for International Settlements.

Note: Over-the-counter data through June 2009, exchange-traded data through December 2009.

1. Includes foreign-exchange, interest rate, equity, commodity, and credit derivatives of nonreporting institutions.

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**Current Derivative Valuations**

**Table 19: Amounts outstanding of over-the-counter (OTC) derivatives**

<table>
<thead>
<tr>
<th>Risk category / instrument</th>
<th>Gross market values</th>
<th>BIS Semiannual Report (2013)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forex contracts</td>
<td>1,294,233</td>
<td>1,004,233</td>
</tr>
<tr>
<td>Interest rate contracts</td>
<td>2,975,233</td>
<td>2,004,233</td>
</tr>
<tr>
<td>Equity contracts</td>
<td>3,975,233</td>
<td>2,004,233</td>
</tr>
<tr>
<td>Options</td>
<td>3,975,233</td>
<td>2,004,233</td>
</tr>
</tbody>
</table>

*Note: c. 6% global GDP*
Cui Bono? Whose Risk Is It Anyway?

- Hedging bank interest rate and forex strategies with swaps
- Managing banks' counterparty risk with cross-border leasing deals incorporating credit default swaps
- Who's insuring whom? – collaterized debt obligations (CDOs) in the retail market
- Playing poker against the client – swaps with issuers' cancellation rights and CDOs with issuers' substitution rights

Different Rules for Derivatives?

- Structured derivatives which lead to problems are not directly comparable with normal market commodities because they tend to be individually customized and thus largely outside the purview of the ideal market mechanism – namely open price competition
- Pricing over-the-counter (OTC) structured derivatives is usually beyond the scope of anyone other than investment banks or specialist corporations
- Thus in modern financial markets there may be many situations where clients are in principle unable to apply pricing competition
  - This is recognised by regulatory measures such as the division of clients into retail, professional and eligible counterparty and concepts such as (non-)complex instruments (MiFID and Dodd-Frank)
- But the implications have not so far been adequately recognized by courts
Caveat Emptor Revisited

- It has been said that 30% of OTC derivatives are bought and 70% are sold (recently revised to 20 vs. 80%)
- Meaning that only 30% of deals are between counterparties who are professionally able to assess the risks involved while 70% involve counterparties who have no idea of what they are buying
- A rule of thumb is that such a counterparty should never accept a restructuring of an existing losing deal but rather cut their losses then and there

Representative OTC Derivative Deals

- Issued by banks in the 2004-2006 boom period through the crisis to the present
- Deals with maturities from 6 months to indefinite (consol bonds)
- Clients are SME’s, local authorities and wealthy individuals in Europe and the UK
- Contracts involve structured versions of swaps, bonds raising capital for financial institutions and foreign exchange (FX) hedging programmes
- Representation of the risks involved to clients is typically stated as “unlimited” and/or ignored egregious features of the contract structuring like one-sided cancellation options without compensation
  Dempster, Medova & Roberts (2011)
Stylized Features of OTC Derivative Deals

- Each deal represents a play by the issuing bank that exploits their superior knowledge of possible future market evolution relative to the client’s
- Issuers are usually the client’s commercial bank and the term sheets/contracts usually bear a feminine bank signature
- Often the bank requires the deal as a condition of a loan, refinancing or bond floatation
- Each deal is structured to have the enticement of a short term client “sweetener” which can sometimes be very subtle
- Often enticement can be buried in a programme of successive similarly structured deals which only in the latter stages become egregious – playing the “fish”
- Due to severe asymmetry of information the client is in no position to understand the relative risks to client and bank which are often extreme for the client
- When a deal begins to go wrong for the client the bank offers to postpone the agony by restructuring the deal(s) to one even worse!

Swap NPV Distributions

Par Swap
Swap with Bank Cancellation
Euribor Ladder Swap
Play on Declining Spread
From Increasing Short Rates

Declining Spread Increases Client Payments
To Result in Serious Potential Losses

Which Just Get Worse
Structured Bond Tier 1 Capital Bond Coupons

Net payments by Bank over bond maturity (at inception 2.3.2005)

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Client FX Hedging Programme

- **Over 70 option pairs** over a 33 month period in which 26 struck between March 2007 and February 2008 resulted in **substantial losses**

- **Mispricing** of both paired options involving **negative smile corrections**

- **Multiple restructurings** incorporating losses in notional and improving knock-in points for bank amounting to 28% of client losses

- **Contract exercise changes** involved in a total of €30.5 M losses on 26 losing deals which were billed over 5 days to the client when some *European options* had not yet expired

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USD-EUR Evolution

4:1 Asymmetric Option Pair Payoffs (Later 6:1)
36% Average Initial Client Option Overvaluation

Bank Plays Seen More Recently

- As Lehman’s and other bank’s positions worsened over 2008 and short rates dropped precipitously CMS spread ladder swaps began to be based on yield curve steepening
- Projected drops in the Eurostoxx50 as the crisis deepened based on earlier internet bubble behaviour of the index
- UK banks sold vanilla fixed floating swaps to retail customers – or required them as “hedges” on loans! – with no warning of the imminent downside short rate risks
- (Slightly) more sophisticated clients were sold structured collars
- Many cross currency or currency related swaps with clients were based on the strengthening of the Swiss franc against other currencies with the “flight to quality” as the euro crisis developed
- Projected drops in the 10 year constant maturity swap rate CMS10 as the crisis deepened with current artificially low rates due to quantitative easing (QE)
- Projected strengthening or currently (Abe) weakening of the JPY-USD exchange rate with short maturity high frequency structured target profit forward contracts
EuroStoxx50 Evolution

UK Base Rate Evolution
EUR-GBP, GBP-CHF & EUR-CHF Evolution

EUR-CHF Evolution
NPV VaR of a Restructured Currency Swap

CMS10 Rate Evolution
2nd Restructured CMS10 Memory Swap
Amortised NP €10.5M

NPV of 2nd Restructured CMS10 Memory Swap
**JPY-USD Evolution**

![Graph showing USD/JPY evolution over time]

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**Bank Issuance of OTC Derivative to Clients**

- Products are invariably *mispriced* in favour of the bank at inception and get worse over time
- It’s like going to the track having fixed the horse race
- You are not absolutely guaranteed to win but you surely have an edge on the punters!
4. Evolving Regulation of OTC Derivatives

Why Do Clients Sign OTC Contracts?

**Theory**

- In over-the-counter markets “buyers and sellers and sellers negotiate terms privately, often in ignorance of the prices currently available from other potential counterparties and with limited knowledge of trades recently negotiated elsewhere in the market ... (illiquidity) premia are higher when counterparties are harder to find, when sellers have less bargaining power, when the fraction of qualified owners is smaller, and when risk aversion, volatility, or hedging demand is larger”

  Based on random search by rational risk neutral investors and the central limit theorem

  Duffie (2012)

- Structured investment products offer no gain after fees to such investors and appear to do so only if investors misestimate outcome likelihoods by overweighting favourable relative to unfavourable outcomes – a theory of gullibility?

  Hens & Rieger (2013)
Why Do Clients Actually Sign OTC Contracts?

On a scale from the honest weak to the powerful

- **Desperation**
  - City of Detroit

- **Coercion**
  - Bank loan or loan rollover requires accompanying “hedge” derivatives (UK & US SMEs)

- **Trust**
  - Ille Papier v DB German Supreme Court case (2011)

- **Gullability**
  - German Landesbanken (unknown B €)
  - Austrian National Railways (€ 90 M)
  - Milan, Pisa, Sicily, Monte Casino, … (600 municipalities, over 1000 global deals, c. € 2.5 B lost)

- **Complicity**
  - Italian (1999) (c. € 31 B to 2012) and Greek (2001) (unknown B €) governments for Eurozone entry
  - Monte dei Paschi di Sienna (c. € 600 M to € 1.5 B)
  - Stichting Vestia Group (€ 700 M)

US Dodd-Frank and Consumer Protection Acts

- Much media attention has been focussed on the Volker rule which partially restores the Glass-Steagall Act of 1933 separating commercial and investment banking (broker-dealers) and moving OTC derivative trading to cleared exchanges under the direction of the Commodity Futures Trading Commission

- Specifically investment banks must cease proprietary trading (i.e. on their own account) and divest themselves of solely-owned hedge and private equity funds

- The SEC and CFTC have detailed the implementation of these acts in July 2013 but much must still be done internationally and it remains to be seen how much teeth they will have

- However clear rules enforcing duty of care and separating advice and trading with clients specifically for all governmental entities, pension funds (Erisa entities) and foundations have been overlooked or played down by banks and the media – especially possible retroactive application

- In essence this is the motivation behind the US government’s law suits of 18 global derivative issuers over CDO’s
**Client Protection?**

- Moving some OTC structured products to cleared exchanges mainly addresses *interbank* derivative trading to which most current regulation is addressed.
- **Client** problems could be alleviated by regulation to require the *visual display* by banks of the *asymmetric risks* involved in remaining OTC structured products along the lines of the diagrams we have shown for swaps, bonds and FX contracts – unfortunately unlikely for the ongoing Dodd-Frank implementation by the CFTC.
- This would result in *fairer products* and encourage the widespread *proper use of derivatives by clients* for hedging various risks.
- The concomitant would be a *smaller margin for banks!*

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**Barclays Balance Sheet 2012**

<table>
<thead>
<tr>
<th>Assets £ M</th>
<th>Liabilities £ M</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Derivatives</strong></td>
<td><strong>Derivatives</strong></td>
</tr>
<tr>
<td>469,146</td>
<td>462,468</td>
</tr>
<tr>
<td>6,679 net</td>
<td>Depots 385,707</td>
</tr>
<tr>
<td>Loans 425,729</td>
<td>Other 579,190</td>
</tr>
<tr>
<td>Other 509,270</td>
<td>Equity 62,957</td>
</tr>
<tr>
<td>Cash 86,175</td>
<td>4.2 % 24:1</td>
</tr>
<tr>
<td>£ 1,490,322 M</td>
<td>£ 1,490,322 M</td>
</tr>
<tr>
<td>£ 1.5 T or 61% of UK £2.44 T GDP</td>
<td></td>
</tr>
</tbody>
</table>

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Systemic Consequences of Derivative Practice

- S&P estimated in 2011 that the top 20 derivatives dealers with 90% of the OTC market (those sued by the US government plus UniCredit and Intesa) currently have over $500 B each in these assets – a staggering total of $10 T and over 3 times the $3 T global bank eventual markdowns estimated at the end of 2008 which are still being realized.

- The BIS total estimate as of end 2012 was $21.1 T gross hedged mark-to-market interbank and corporate plus a further $3.6 T net MTM of un-hedged credit exposure – in large part due to deals of the type we have discussed.

- What would be the systemic consequences if a significant part of these cash flows and profits were to disappear due to regulation/litigation/default? Exit from serious investment banking is already underway for UBS and under discussion at Credit Suisse and Barclays.

- Does Jamie Dimon, CEO of JP Morgan Chase, know something that we don’t (even before the 2012 JPM $6.2 B loss)? On 12th September 2011 he was quoted in the Financial Times as saying “It could be ‘10 years’ before the (financial) industry emerges from lawsuits brought by investors seeking compensation.”

References


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