

Making Sense of Credit Default Swaps (CDS)

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Presented by: Kevin Baldwin
Director, Education



About the IFM

The Institute for Financial Markets, founded in 1989, is a section 501(c)(3) nonprofit industry-sponsored educational foundation. The IFM is dedicated to providing quality and unbiased information, research data and instruction. The Institute offers independent-study and exam preparatory materials in print and computer-based formats; instructor-led seminars and customized, in-house training; research data; desktop reference tools; and consultancy on industry standards and best practices.

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About the Instructor

Kevin Baldwin began his career in the futures and options industry in 1990 within the largest non-bank FCM's institutional training department. He taught their six week futures and options course in Chicago for six years. In addition to the six week Chicago program, he provided shorter term derivatives seminars for client institutions in Buenos Aires, Rio de Janeiro, Tokyo, Seoul, London, Mumbai, and Moscow on behalf of the British government's Know How fund. Mr. Baldwin also taught futures & options courses for the Illinois Institute of Technology's Master Program in Financial Markets.

In 1996, Kevin Baldwin joined an innovative Introducing Broker in New York City as managing director and had held various securities and futures registrations including Series 3, 4, 7, 24, 30 and 63. In addition to his professional responsibilities, Kevin became an adjunct faculty member for New York University's School of Continuing Education where he taught both Intermediate Securities Analysis and Futures and Options courses. In 2000, Kevin returned to Chicago and developed a portfolio of websites aimed at different segments of the futures and options community. In the summer of 2006, Mr. Baldwin became the director of education for the Institute for Financial Markets in Washington DC. Since joining the IFM, he has worked to broaden the IFM's course curriculum offerings to include a Strategies & Tactics course aimed at speculators, a Managing Exposure to Financial Instruments course, a Credit Derivatives-OTC & Exchange-Traded, a Algorithmic Trading course, as well as our well known Series 3 preparation course.

Mr. Baldwin earned a Bachelor of Science degree from San Jose State University in California. He also holds an MBA from the University of Chicago, Graduate School of Business.

Disclosure

The risk of loss in trading commodities can be substantial. You should therefore carefully consider whether such trading is suitable for you in light of your financial condition.

The high degree of leverage that is often obtainable in commodity trading can work against you as well as for you. The use of leverage can lead to large losses as well as gains.

The information contained herein is derived from sources believed to be reliable. The audience should practice their own due diligence.

Introduction

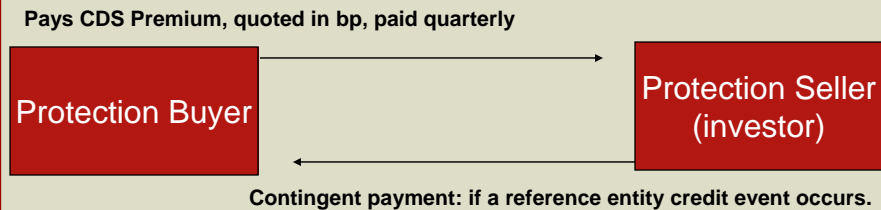
Insuring Uncertainty:

- We pay premiums for car insurance; provides protection in the unlikely event you have an accident
- We pay premiums for mortgage insurance; provides protection to the mortgage underwriter should you stop making house payments
- Municipals often pay premiums for an insurance “wrapper”; guarantor is obligated to make interest payments if municipal fails to pay
- A CDS is similar to an ordinary insurance contract with some important distinctions

What is a CDS?

- A premium is paid to an entity in return for protection, should some event occur.
- A key difference from insurance and a CDS is those buying or selling CDS can trade in/out of them in ways that just aren't possible in the traditional insurance market.
- A CDS is a privately negotiated bilateral agreement in which one party is the protection buyer (risk shedder), while the other is the protection seller (risk taker). The protection is for an unforeseen credit event that may preclude the reference entity from paying their loans/bonds (default).
- If a credit event occurs, the protection seller is obligated to make a payment to the protection buyer.

Typical Credit Default Swap



The Protection Seller receives a periodic premium from the Protection Buyer in exchange for a contingent payment if there is a “credit event of the reference entity”. The contingent payment is determined based on a pre-specified settlement terms.

What Kind of Credit's Can Be Insured?

Default insurance can be purchased against:

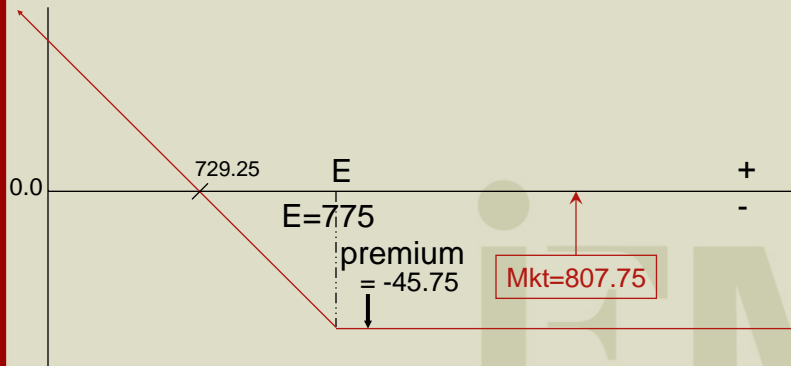
- A loan –known as LCDS
- A bond
- A corporate name –General Motors
- A sovereign credit due to cross border transactions
- credit exposure due to a derivative contract such as a counterparty credit exposure in a cross currency swap transaction
- A credit protection on an individual credit or on a basket of credits (names)

For ex. of tradable indexes see www.markit.com
ABX.HE: Prime, Alt-A, Subprime
CDX. NAIG: HY, HVOL, EM

Protection Buyer Analogous to Long Puts?

Date: 4/1/9 Expiration 6/19/09 ST Rate: 1.00%

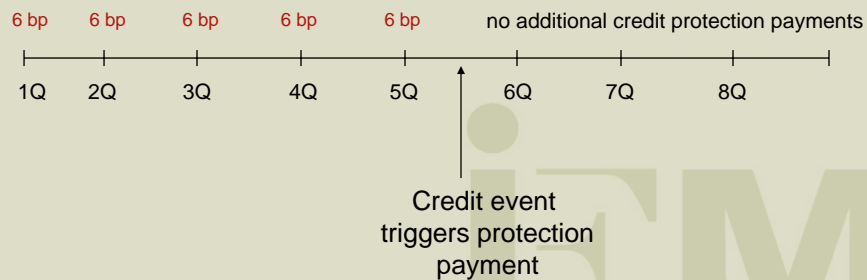
- Long 1 Jun. '9 775.0 Put(s) @ 45.75 = \$2,287.5
 [Mkt: 807.75 IVol: 42.57% Delta: 0.3756]
 [Gam: -0.0024 Theta: 0.3850 Vega: -1.4255]



Amortizing Premium

Assume a two year CDS with a premium of 48 bp, paid out 6 bp per quarter over 8 quarters.

If a credit event occurs triggering a payment from the protection seller, that seller will receive no further periodic payments.



How Much Do You Get in a Default?

The 'plain vanilla' credit default swap is a payment by one party in exchange for a credit default protection payment if a credit default event on a reference asset occurs.

The amount of the payment is the difference between the original price of the reference asset on the trade date and the "recovery value" of the reference asset, post default.

The recovery value can be contentious, thus it is usually formulaic with alternative obligations available to deliver against the Protection Seller.

Ex: Pre-default price = 100.00,
post default price = 40.00= recovery value
Protection seller owes the protection buyer: 60.00

CDS Settlements

- Physical delivery: of one or several of the reference assets against repayment at par
- Notional minus post-default market value of the reference asset (aka "cash settlement")
- A pre-agreed fixed pay-off, irrespective of the recovery value (Digital CDS)

Define a “Credit Event”

The definition of what events are covered by CDS is a contentious area of the specification defined by ISDA as one or more of:

- Bankruptcy, filing for protection from creditors -chapter 11 in U.S.
- Failure to pay
- Obligation default or acceleration
- Repudiation or moratorium
- Restructuring – frequently omitted



CDS Spread or Rate

- The spread or rate is the price of the default insurance, usually expressed in basis points (bp=0.01%), per annum, but paid quarterly
- “Spread” is misleading jargon because it is not a “spread” over anything. It is a rate or price of insurance, just like for your car
- Payment: due to complications from getting quotes for post-default debt, physical settlement has been much more popular than cash settlement
- Payments for default normally settle in 4-6 weeks on average



Nomenclature

- Long CDS = protection buyer,
 - short the credit & pays the quarterly premiums
 - a bid of xx bp on a CDS means the bidder is willing to pay xx bp/year for credit protection
- Short CDS = protection seller,
 - long the credit & collects the quarterly premiums
 - an offer of yy bp on a CDS means the seller is willing to grant credit protection in return for an annual premium of yy bp/year



A Bond is a Loan

- If you own a bond, you have loaned money to someone
- The debt is repaid through annual “coupons” payments and the eventual return of principal at maturity
- If interest rates rise, the cash flow provided is less valuable; if interest rates fall, the cash flow is more valuable
- If the borrower defaults, value is destroyed, you may end up in Court
- Uncertain coupon payments/corpus can be insured



Bond Pricing

The bond price is the series of future cash flows discounted to the present:

$$\text{Bond}_{\text{Price}} = \sum_{i=1}^I \frac{\text{Coupons}}{\left(1 + \frac{r}{n}\right)^{nt}} + \frac{\text{Corpus}}{\left(1 + \frac{r}{n}\right)^{nt}}$$

The price of a bond is just the present value of its cash flows discounted at an appropriate rate of interest.

Find the one “r”, when used to discount all future cash flow, that returns today’s flat price. This is Yield-to-Maturity, aka YTM. A poor statistic because it assumes the yield curve is flat.

r = yield to maturity, $n=2$ payments/year, t = time in decimal

Corporate Bond with Default Possibility

Consider a risky corporate bond

“A” rated company by S&P

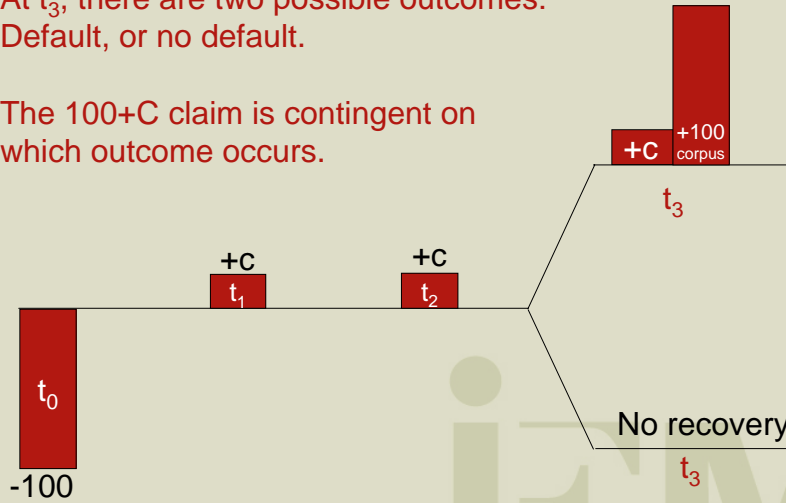
Pays annual coupons of: c

Initially sold @ time zero at Par 3 year term

Corporate Credit: with Default Possibility

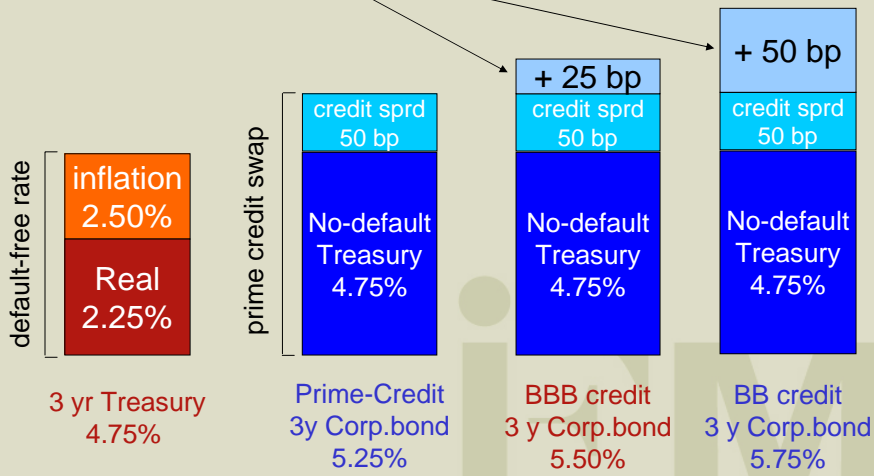
At t_3 , there are two possible outcomes:
Default, or no default.

The $100+C$ claim is contingent on which outcome occurs.



Parsing the Credit vs. Nominal Yield

Credit spread **premium** for bonds riskier than prime credit



Incorporating Default-Risk with the Contractual Identity

Defaultable bond on the credit's name = Default-free deposit + Receiver swap + CDS on credit

There are some technical reasons why this contractual identity doesn't hold up explicitly.

Yet we're able to decompose a risky corporate bond into its essential elements:

1. A default free instrument (very liquid)
2. An interest rate swap (very liquid)
3. A CDS (very liquid)

* Cash markets in many corporate names is illiquid.

CDS Advantages Over Cash Markets

- Allows participants to trade credit risk separately from interest rate risk or currency risk
- It is MUCH easier to go long/short a credit because finding inventory of cash bonds is moot. Any dealer can show you a market in any credit
- Shorting bonds requires finding inventory to RP and cash markets have a mark-to-market property
- You need not fund a bond position to express a view, more leverage
- No short sale constraints, or need to RP the bonds
- Size: CDS is generally much more liquid than cash

Which Names Have Active Trade?

Source: www.marketaxess.com

Market Activity

Shown below are total volume, total trades, number of issues traded and percentage of total trading volume by industry sector. The information is derived from trading reported to FINRA's Trade Reporting and Compliance Engine (TRACE) and is updated and available daily via our BondTicker™ Service.

Sector Rankings for Jan 23, 2009

#	Sector	Total Volume (000's)	Total Trades	# Issues Traded	% Rank
1	Banks-Brokers	2,645,009	6,689	802	18.2%
2	Media Telecom Cable	2,518,335	4,472	385	17.3%
3	General Industrial	1,745,399	3,753	412	12.0%
4	Finance	1,311,733	6,525	611	9.0%
5	Oil-Gas-Exploration-Energy	1,087,723	2,006	274	7.5%
6	Healthcare-Pharmaceuticals	859,920	1,051	142	5.9%
7	Utility	624,069	1,586	223	4.3%
8	Retail-Grocers	610,823	1,798	131	4.2%
9	Consumer Products	553,741	1,875	173	3.8%
10	Insurance	527,074	1,838	252	3.6%
11	Bldg Products-Home Bldrs-REITS	468,808	558	129	3.2%
12	Auto-Auto Parts	412,804	1,039	132	2.8%
13	Technology	337,404	587	60	2.3%
14	Aero-Defense-Transportation	327,574	505	94	2.2%
15	Emerging Markets	215,382	205	38	1.5%

Who Can Trade?

SP500/emi	Gold	Grains	Energy	Red Chili
DJIA/mini	Silver	Soybeans	WTI Crude	Pepper
Russell 2000	Platinum	Soymeal	Brent Crude	Spices
TSE	HG Ally	Bean Oil	Heating Oil	Castor Seeds
EuroStoxx	FX	Corn	Gas Oil	Rice Bran
All-Ords	Euro-\$	Wheat	Natural Gas	Mustard Oil
Nikkei	GBP/\$	R.Rice	Gasoline	Palm Oil
KOSPI	CHF/\$	Oat	Propane	Cotton Seed
Hang Seng	JPY/\$	Softs	Electricity	Coconut Oil
Bovespa	MEX/\$	Cocoa	Climatology	Sarbat Rice
MexBolsa	CAD/\$	Cotton	(Weather)	Basmati Rice
Dax	Cross Pairs	Coffee	Pollution	Groundnut Oil
FTSE	Yield	Sugar	Rate Swaps	Refined Soy
MIB30	US Gov't:2 Yr,5 Yr,	W-sugar	Mortgages	Ref.Sunflower
Metals	10yr, Long Bonds	FCOJ	CRB	Sesame Seed
Aluminum	Euro-bonds	Ethanol	Goldman Index	Cashews
Copper	Jgbs	Pulp	DJ-AIG Index	Steel Long
Lead	CHF Bonds	FTeurofirst	USDX	Steel Flat
Tin	CAD Bonds	Next 150	Trackers	Furnace Oil
Zinc	Eurodollars	Nextprime	Warrants	Mid-east Sour
Platinum	Euribor	Nexecon	FDTR	Rubber

Bank of America 5 & 10 year CDS

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Ford Motor 5 & 10 year CDS

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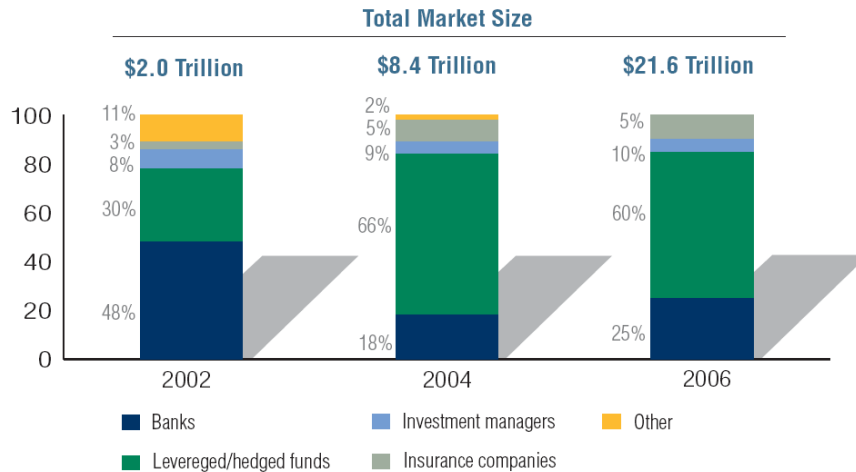
General Motors 5 & 10 year CDS

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Equity **CDSH**

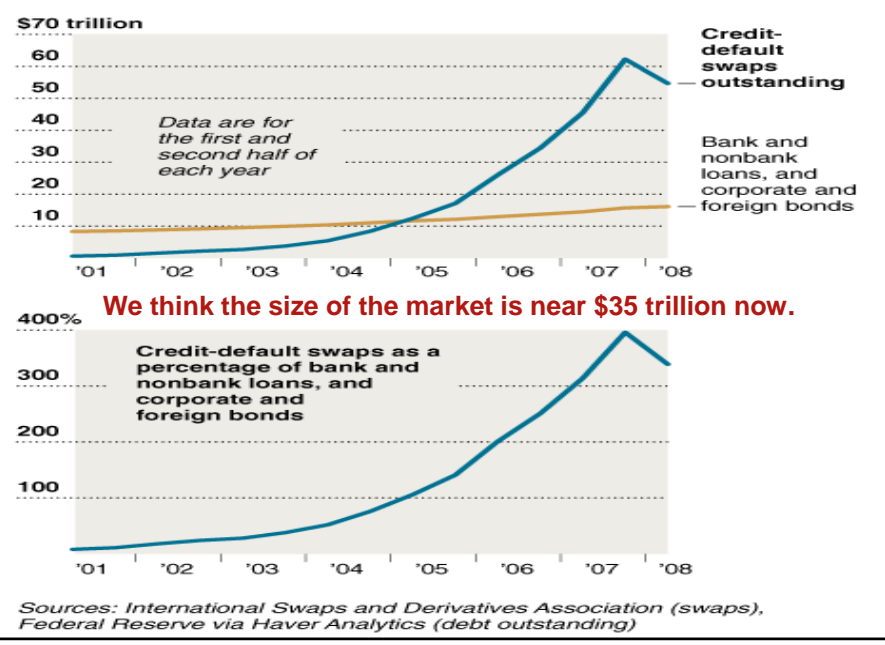


CDS market participants

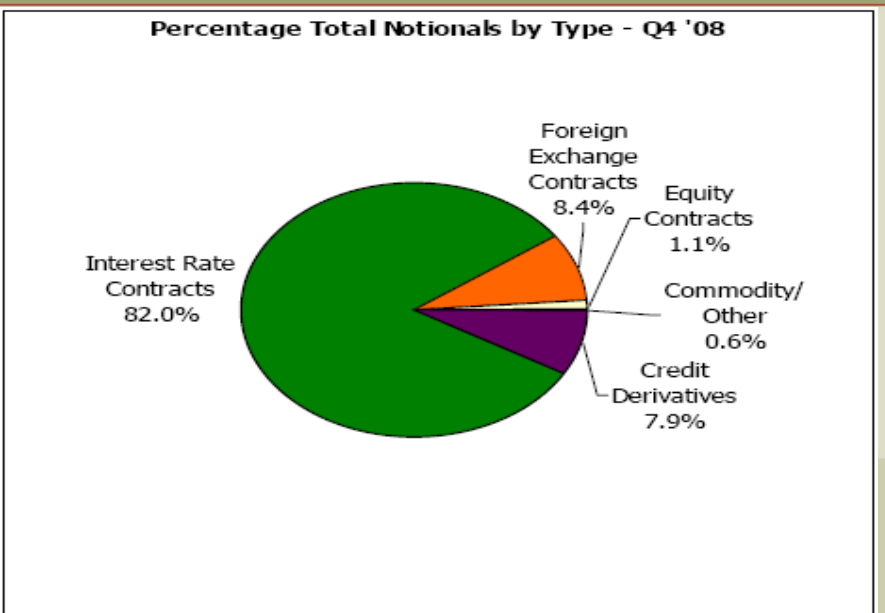


Source: Merrill Lynch, Morgan Stanley and Lehman Brothers

The New York Times September 27, 2008
The Credit-Default Swaps Market Starts to Shrink



Trading & Derivatives Activities 4Q 2008
 Source: OCC's Quarterly Report on Bank



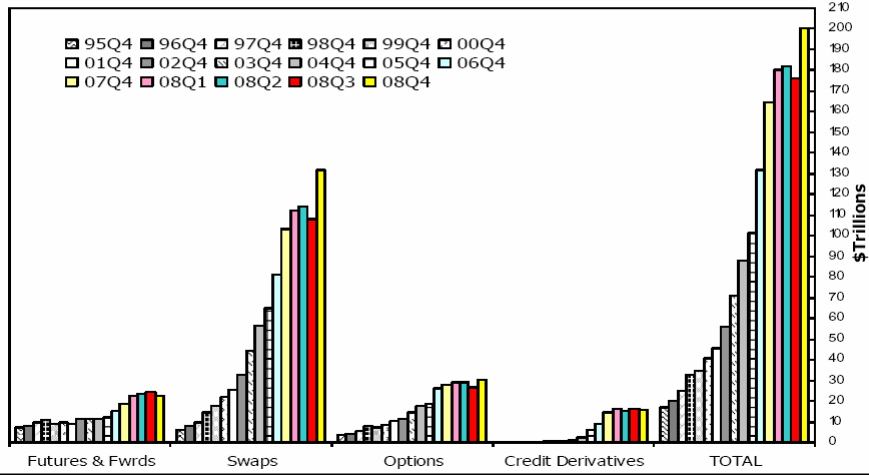
Trading & Derivatives Activities 4Q 2008

Source: OCC's Quarterly Report on Bank

Derivative Contracts by Product

All Commercial Banks

Year-ends 1995 - 2007, Quarterly - 2008

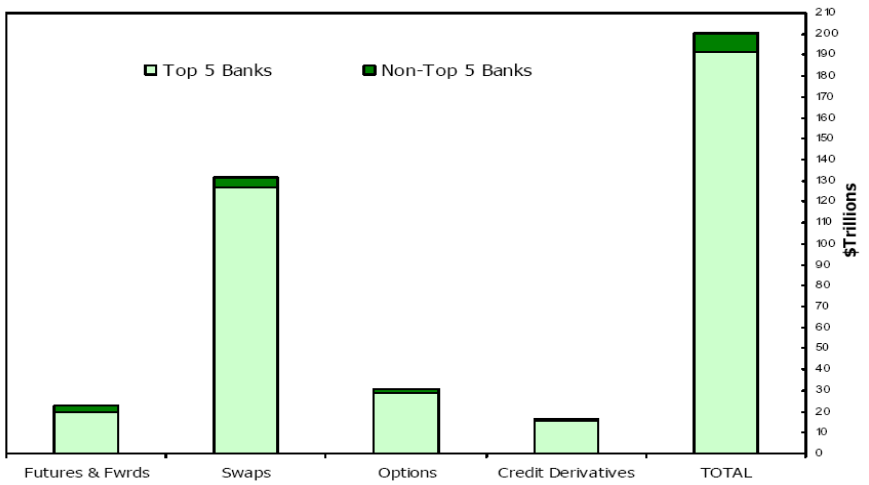


Trading & Derivatives Activities 4Q 2008

Source: OCC's Quarterly Report on Bank

Five Banks Dominate in Derivatives

All Commercial Banks, Fourth Quarter 2008



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As a nonprofit educational foundation, we offer variety of live courses, customized, in-house programs and Web-courses. Our clients include global investment banks, broker-dealers, FCMs, hedge funds, portfolio and money managers, traders, investors, public-policy makers, regulators and exchanges. Courses range from basic and intermediate to expert levels and are designed to meet the varied educational needs of those seeking a strong foundation to more experienced professionals seeking to enhance their skill set and performance. All IFM courses are led by qualified, well-rounded educators who blend theory with industry practice and realistic application.

Live Courses		Web-Courses		Web-Seminars	
Date	Location	All Events	Early-bird Deadline	Fee	
		Making Sense of Credit Default Swaps (CDS) Audience for this Intermediate Course: Asset managers, hedge fund managers, exchange staff and regulators. Qualifies for 7 CE credits. Generous in-kind support of NYMEX helps the IFM provide this course and keep the fee low.	\$495 / Apr.16	\$550	
		Making Sense of Credit Default Swaps (CDS) Audience for this Intermediate Course: Asset managers, hedge fund managers, exchange staff and regulators. Qualifies for 7 CE credits. Generous in-kind support of Eurex helps the IFM provide this course and keep the fee low.	\$495 / Apr.13	\$550	
May 13-14, 2009	Chicago IL	Futures and Options/Series 3 Exam Audience for this Basic to Intermediate Course: Market-users; investors; compliance, IT and Ops staff; exchange and clearinghouse staff; regulators; policy-makers; Series 3 Exam candidates and anyone who needs an in-depth understanding of futures and options markets. Qualifies for 14 CE credits. Generous in-kind support of the CME Group helps the IFM provide this course and keep the fee low.	\$600 / Apr.15	\$650	
May 18-19, 2009	Chicago IL	Is Algorithmic Trading within Your Grasp? Audience for this Intermediate/Expert Course: Traders, trading desk directors, institutional portfolio managers, asset managers, etc.	\$1,200 / Apr.20	\$1,300	

For a calendar of upcoming courses go to www.theIFM.org

Upcoming CDS Courses

- **New York**
Tuesday, June 2, 2009 – 9:00 AM – 5:00 PM
- **Washington DC/Crystal City**
Friday, June 19, 2009 – 9:00 AM – 5:00 PM
- **Chicago**
Thursday, June 25, 2009 – 9:00 AM – 5:00 PM



Thank You!

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