Counterparty Risk Management – Current Practice and Challenges

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Can we assume 100% recovery only for derivatives?

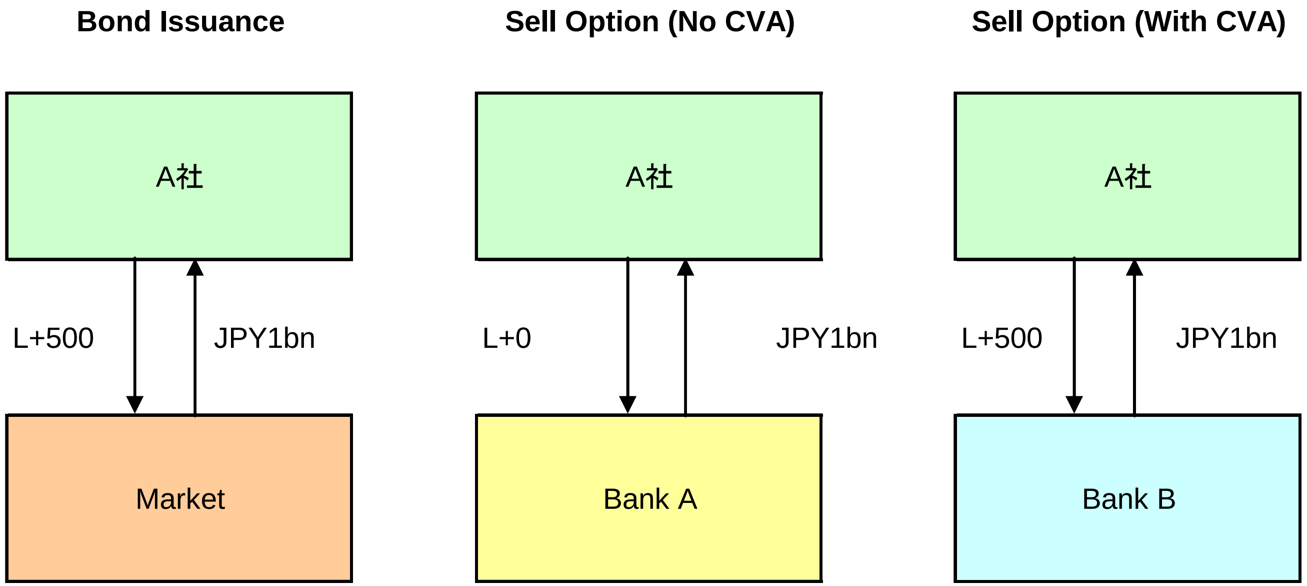
Bond	Loan	Derivatives
Write-Down	Loan Loss Reserve	CVA
Bond Price	Loan Value	Fair Value

- Write-Down (Bond) ≒ Loss Reserve (Loan) ≒ CVA (Derivatives)
- Suppose you receive the following payments from almost defaulted company
  - Bond → Mark down the bond price
  - Loan → Increase loan loss reserve
  - Account Receivable → Increase reserve
  - Derivatives → Nothing (Assume 100% recovery only for derivatives?)

Derivatives users get benefit.
Taxpayers take losses.

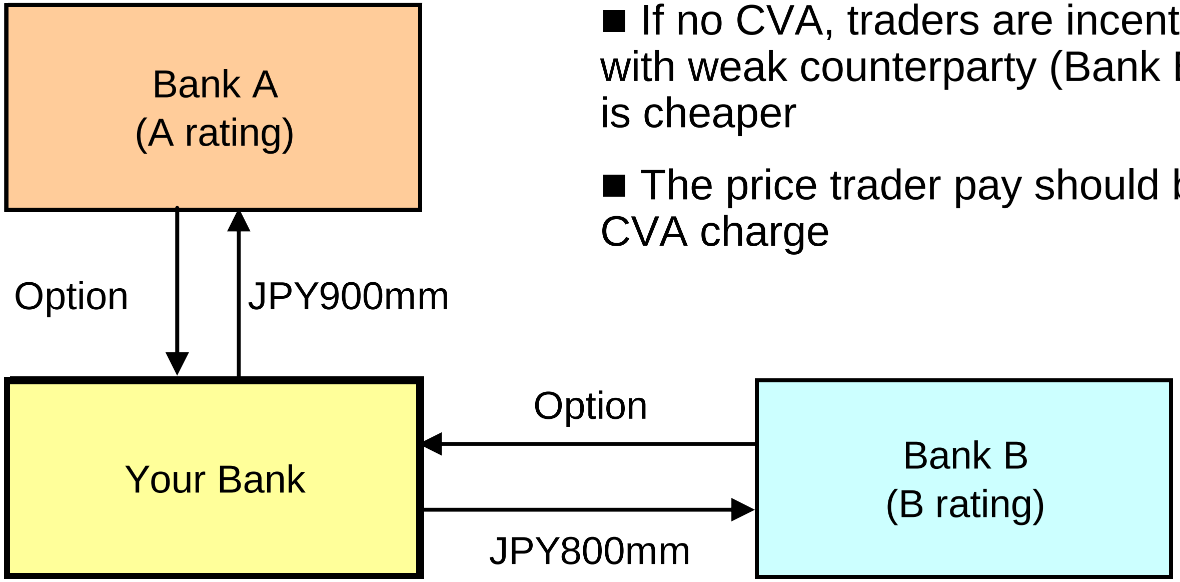
- Counterparties are under no obligation to trade with the bank offering a price that is technically the most accurate if another is offering a lower-cost transaction – so banks using a CVA approach may find themselves losing business. Deutsche's Diplas says this was a constant headache prior to the crisis: "Some guys would just use credit lines instead and wouldn't charge for the counterparty risk if the line wasn't full. Effectively, you had credit risk masquerading as profits, but they would win that business. It put some of us, who were actually trying to take these things into account, in a worse commercial situation." His hope is the playing field will now be more level. (Risk Magazine (RM) Oct 2009)

Funding through derivatives (If no CVA)



- Suppose company A is considering to raise JPY1bn but it's difficult to issue bonds (issue cost estimate is L+500)
  - If it sells option to Bank A (No CVA): fund at Libor flat
  - If it sells option to Bank B (With CVA): fund at L+500

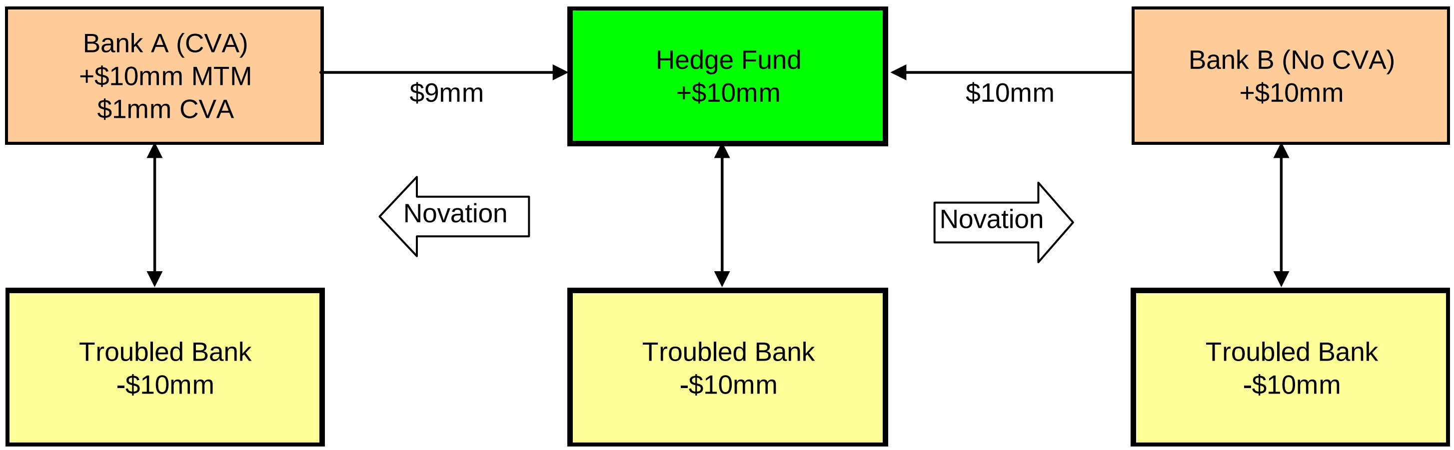
To avoid Adverse Selection



- If no CVA, traders are incentivized to trade with weak counterparty (Bank B) because price is cheaper
- The price trader pay should be the same with CVA charge

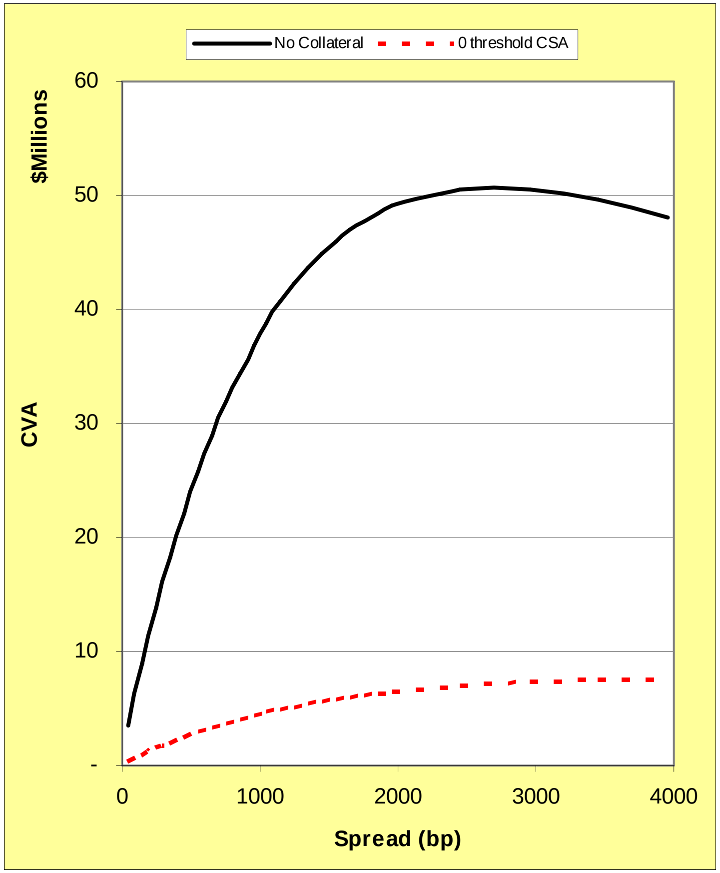
- Kristian Liiv, counterparty credit risk control manager at SEB in Stockholm, says: "Banks that don't price accurately for counterparty risk are at risk of adverse selection, and my guess is this is happening already."(RM, Oct 2009)

Risk may concentrate on banks without CVA desk



- Hedge funds want to get out of the trade with a troubled bank
  - Bank A with CVA desk: quote $9mm after CVA
  - Bank B without CVA desk: quote $10mm
- All hedge funds may come to Bank B as price is cheaper. Bank B will end up taking lots of risk

Popular belief among Japanese banks
- Large loss could happen in Japan?



CVA should be low as most trades are collateralized

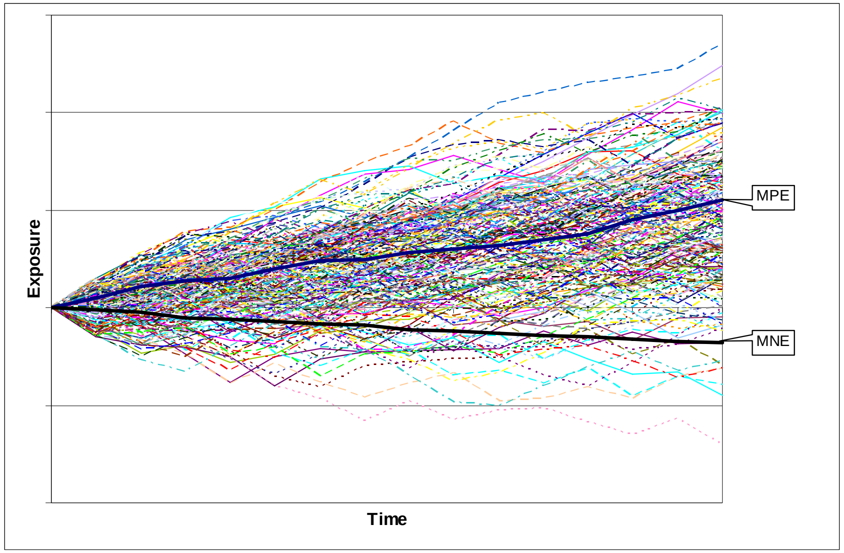
Less risky trades compared with US/European banks

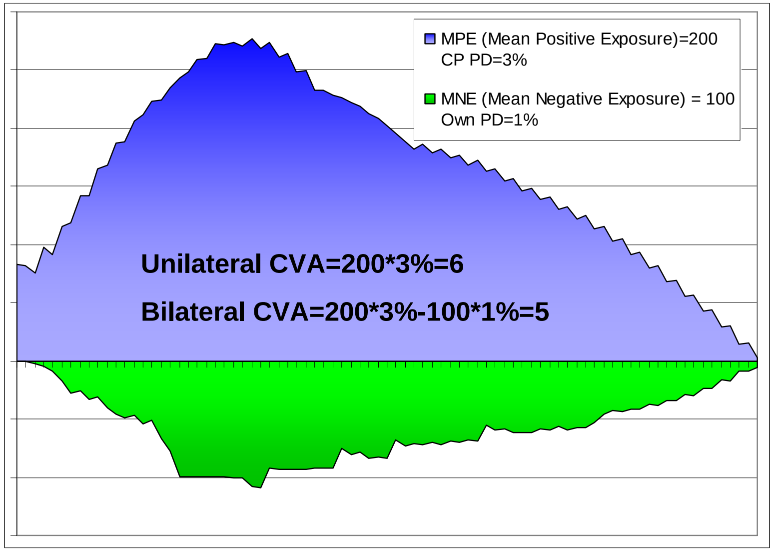
- CVA for 5y JPY100bn Pay JPY Cross Currency Swap
- If spread>1,000bp, CVA loss will be around $40mm ($4mm under CSA)
- Mar 2009, Toshiba 1,000bp, Sumitomo Realty 1,200bp, Marubeni 1,500bp, Orix 2,600bp etc
- CVA will not increase much after certain level – not much difference if counterparty spread is 2,000bp or 5,000bp
- Need to report large CVA loss if comply with FAS157
- If no CVA, there would be no loss
- Should have CVA loss even under zero threshold CSA

CVA is getting more common practice

- "…A lot of banks that didn't have CVA desks two years ago now have them and the high-level methodologies are broadly consistent – they are simulating exposures using Monte Carlo and they're calibrating using market instruments to make them risk neutral." Andrew Williams, Morgan Stanley (RM Apr 2010)
- "…We know we're dealing at the wrong price, but we just need to build a presence in the market so we just won't be charging for credit for the foreseeable future." interestingly, Anderson (DB) says he was told late in April that the bank in question had changed course and is own building a CVA desk." (RM Apr 2010)
- It's difficult to get banks – or treasurers who echo claims of consistent underpricing by some dealers – to point the finger at specific institutions, but German Landesbanks and Japanese institutions are mentioned frequently. It's a charge that Daiwa, for one, firmly denies. "We can't speak for what other institutions may be doing when it comes to pricing, but we do include credit risk pricing within the spread. This takes into account the credit quality of the counterparty, collateral agreements, legal documentation and, of course, the nature of the trade and maturity of the transaction," says Francois Faure, head of risk management at the bank in London. (RM Apr 2010)
- "Prior to the crisis, times were good, credit was easy, and we had enough relationships with bankers that no one would dare charge us additional credit. But when we went into the market with these cross-currency swaps, the banks suddenly started discussing credit charges with us" – Jonathan Cowan at Toyota Financial Services. (RM Oct 2009)

Unilateral CVA vs. Bilateral CVA





- Dealers agree US banks all employ the bilateral approach – their accounting standards require it – but say the picture is mixed for Europeans. Barclays Capital uses bilateral CVA in "many situations", according to John Langley, co-head of the risk solutions group at Barclays Capital in London. BNP Paribas doesn't use a bilateral CVA, says Banks – although he stresses the firm does take full account of portfolio effects, which means it still prices competitively. (RM Apr 2010)

- "Even if every bank uses the same methodology to work out the client's default probability, you could still come up with different numbers just because some banks use a unilateral CVA, which would produce a higher charge, and others do it on a bilateral basis," - Nicholas Hutchinson, Morgan Stanley. (RM Apr 2010)

Risk Control via CVA

Pay Fix Credit Charge (bp running)

Rating	No Coll	With Collateral		
		$10m Threshold	$5m Threshold	0 Threshold
AA	1.0	0.5	-	-
A	3.0	2.0	1.0	-
BBB	4.0	3.0	2.0	-
BB	11.0	9.0	6.0	0.5

Rec Fix Credit Charge (bp running)

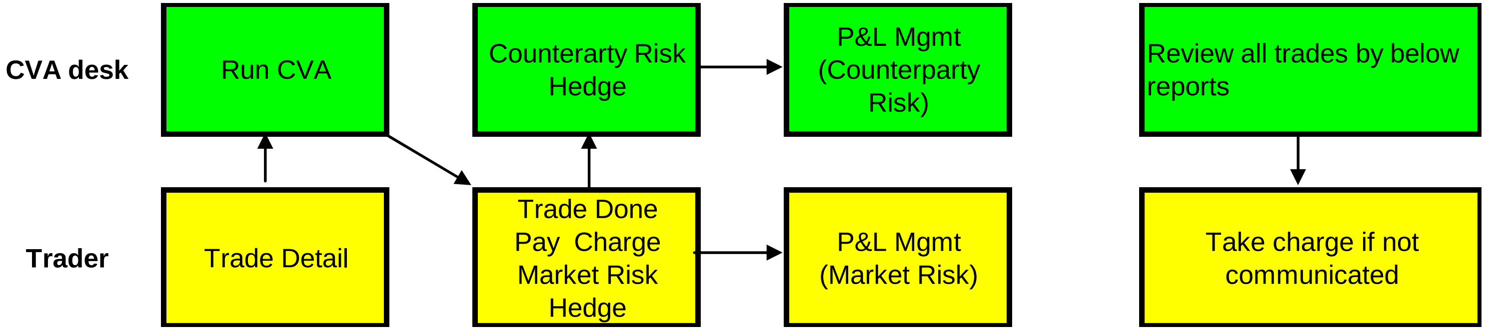
Rating	No Coll	With Collateral		
		$10m Threshold	$5m Threshold	0 Threshold
AA	(4.5)	(4.0)	(3.5)	(2.5)
A	(4.0)	(3.5)	(3.0)	(2.0)
BBB	(3.5)	(3.0)	(2.5)	(1.5)
BB	(1.5)	(1.0)	(0.5)	0.5

- Incentivize sales to tighten collateral terms
- “On one particular swap, the company (Virgin Media) invited 24 banks to quote on the credit exposure, receiving prices – for the same trade with the same counterparty – that ranged from single digits to more than 100 basis points. ” (RM, Apr 2010)
- “Pre-crisis, on a five-to10-year currency exposure, we (Veigin Media) were looking at a credit charge in the low 20s, maybe the high 20s. Now, that’s shifted into a number typically beginning with a four. So you’ve got almost a doubling of credit charges pre- and post-crisis.” (RM, Apr 2010)
- “The company (Tesco) asked all 14 of its relationship banks to quote – four declined, and the other 10 came back with quotes that covered a 62bp spread.” (RM, Apr 2010)

Issue on credit charge

- How to enforce credit charging
  - Discussion with sales and trading
  - Support from senior management / Change in accounting/tax requirements
  - Communication to clients
- What risk should CVA desk take
  - CVA desk takes counterparty risk, not legal risk, reputation risk or franchise risk
- Issues specific to Japan
  - Low margin
  - Loose collateral terms
  - Broad eligible collateral
  - Tendency to avoid mark to market

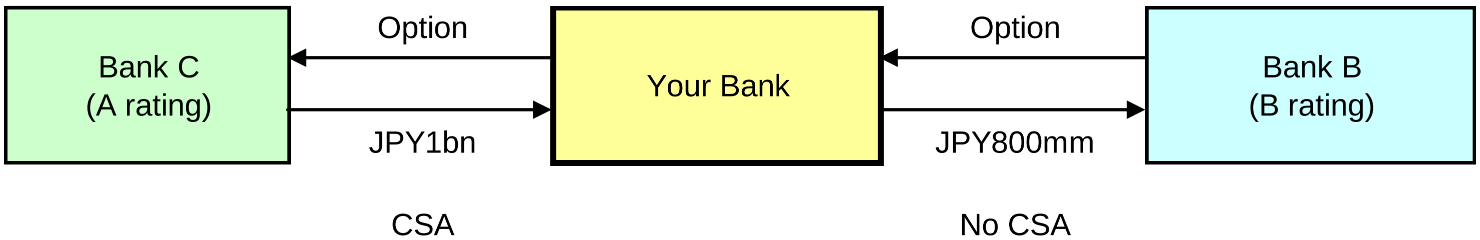
Credit Charge Work Flow



Trade ID	Account	Trading Book	Product	Counterparty Name	Netting	New Charge	CVA balance
XXXX1	1000001	AAAAA	FX	XXXXXXXXXX1	1	2,500	560,000
XXXX2	1000007	BBBBB	IR Swap	XXXXXXXXXX1	2	3,200	1,250,000
XXXX3	2005100	CCCCC	IR Swap	XXXXXXXXXX1	3	(2,500)	(1,500,000)
XXXX4	3050100	DDDDD	CR Swap	XXXXXXXXXX2	1	5,000	3,500,000
XXXX5	1200001	EEEEE	Com Swap	XXXXXXXXXX3	1	3,210	120,000
XXXX6	1545600	FFFFF	EQ Swap	XXXXXXXXXX4	1	-	1,250
XXXX7	1000001	GGGGG	FX Option	XXXXXXXXXX5	1	(150,000)	1,600,000
XXXX8	3050100	HHHHH	CDS	XXXXXXXXXX6	1	652,000	154,200

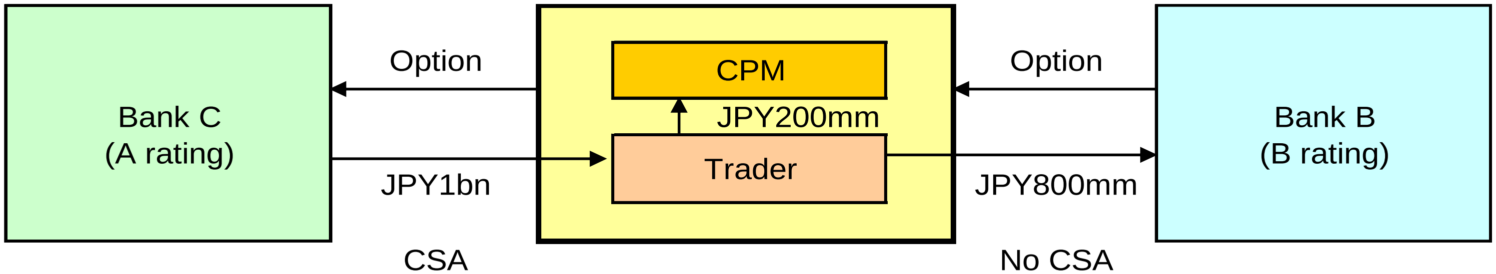
Cash Flow impact of CVA

No CVA desk



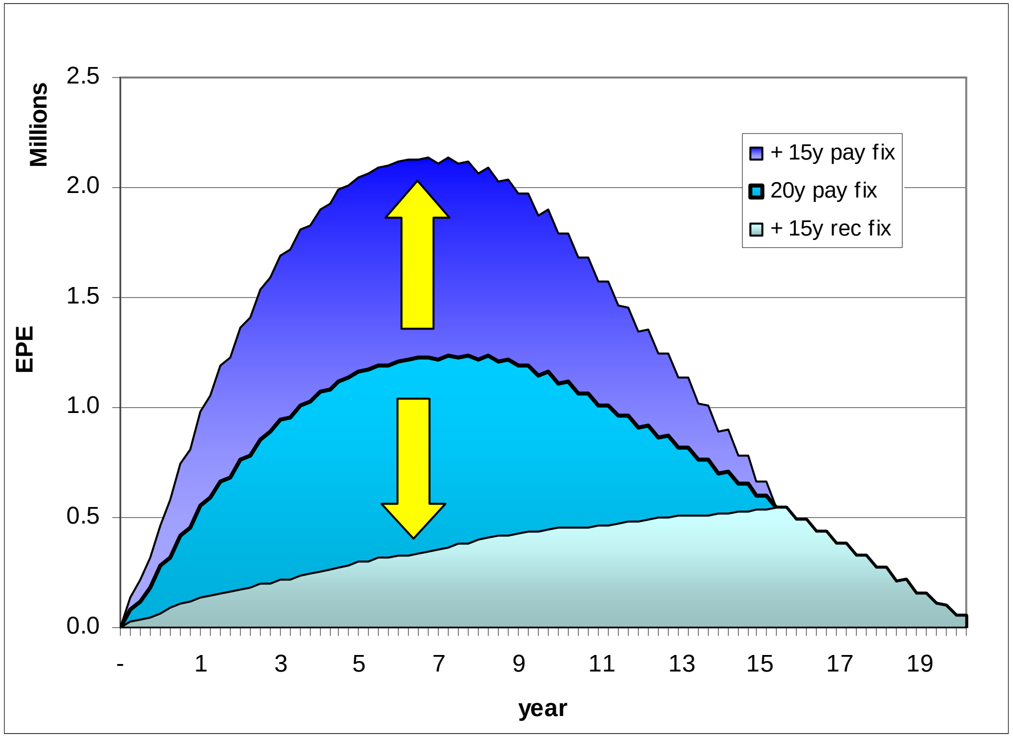
This means you secured funding from A rated bank and provide unsecured funding to B rated bank

Have CVA desk



Portfolio Effect

First traded 20yr pay fix, then do 15yr swap

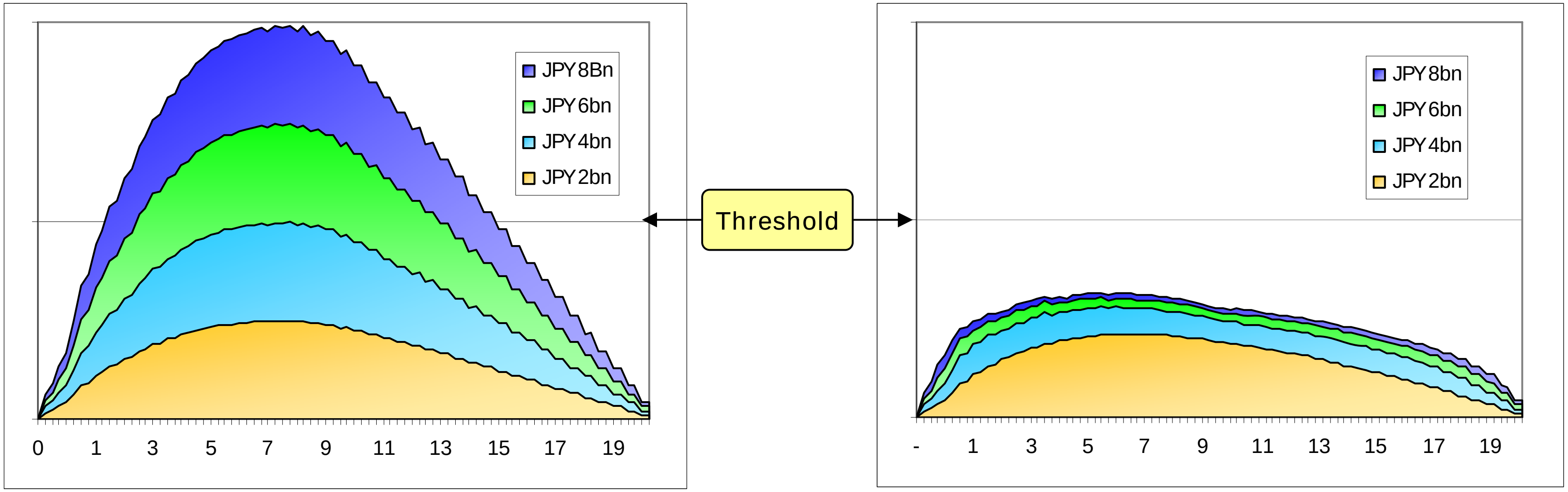


- "As recently as the end of last year, I spoke to one derivatives head at a multinational bank and he was still frustrated its marketers can't simulate deals on a portfolio basis. We've been doing that for years – and that's' to the benefit of clients, because if a deal comes in that is an offset to the portfolio, they get the benefit of that" – Clive Banks at BNP Paribas (RM Apr 2010)
- "Some dealers are able to enjoy a significant pricing advantage by taking these effects into accounts." – Paul Anderson, Deutsche Bank (RM, Apr 2010)
- "If I'm receiving yen in an old trade and paying yen in the new one, it should be risk reducing for the bank and I should see the benefit. If the bank is not going to give me that benefit, I'll take it to someone else." – Jonathan Cowan, Toyota Financial Services. (RM, Apr 2010)

Credit charge with Threshold

Trade 2bn IRS each time under JPY500mm CSA

No collateral **CSA with $5mm threshold**



■ The more interesting issue is the CVA a bank assigns to the first of these two trades. On the face of it, there's no option but to charge enough to cover the stand-alone expected loss. But Anderson says if a bank expects to ink further trades with the same counterparty in the coming months and years, it might be reasonable to assume offsetting exposures in the future. (RM, Apr 2010)

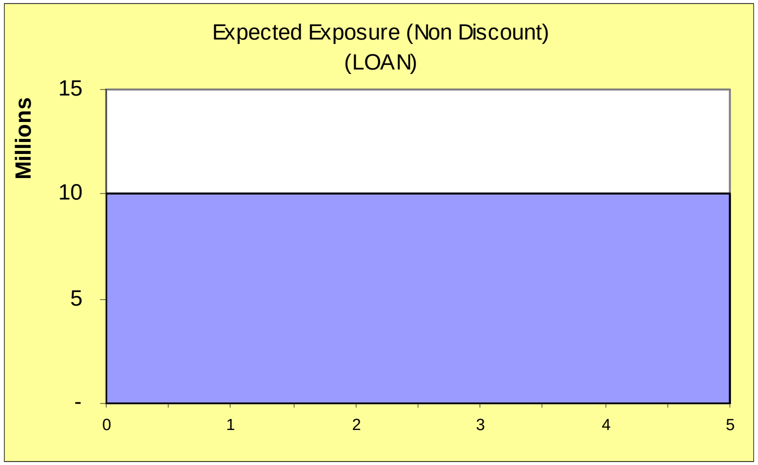
CDS Hedge

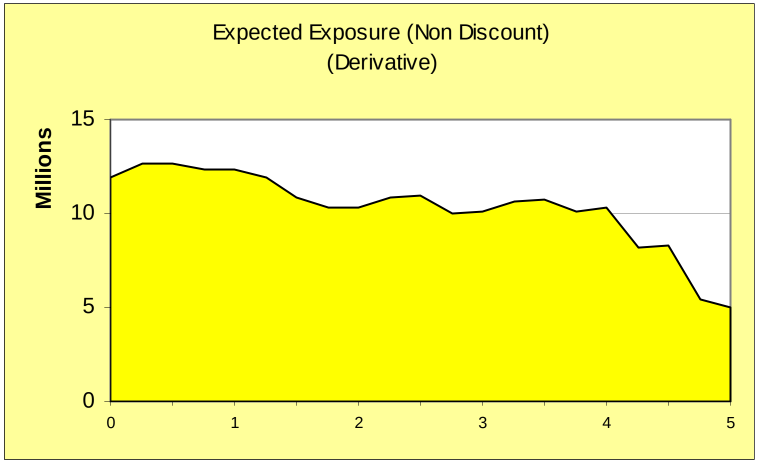
Credit

CS01	CVA	Hedge	Total
Own	800,000	(850,000)	(50,000)
A社	(100,000)	0	(100,000)
B社	(99,000)	100,000	1,000
C社	(54,000)	60,000	6,000
D社	(45,000)	50,000	5,000
E社	(58,000)	14,000	(44,000)
F社	(72,000)	32,000	(40,000)
G社	(30,000)	32,000	2,000
H社	(25,000)	25,000	0
I社	(25,000)	20,000	(5,000)
J社	(16,000)	10,000	(6,000)
K社	(16,000)	0	(16,000)
L社	(31,000)	15,000	(16,000)
M社	(22,000)	7,000	(15,000)
N社	(14,000)	0	(14,000)
O社	(13,000)	0	(13,000)
P社	(13,000)	1,000	(12,000)
Q社	(12,000)	0	(12,000)
R社	(12,000)	0	(12,000)
S社	(11,000)	0	(11,000)
T社	(11,000)	0	(11,000)
U社	(11,000)	0	(11,000)
itraxx		400,000	400,000
Total	110,000	(84,000)	26,000

- Need to manage own credit risk under bilateral CVA
- Sometimes need proxy hedges by index or single name in the same industry
- Need to take trade maturity into account when hedging
- Tends to end up having curve positions and relative value positions
- Limit monitoring on book level and individual name level
- Need to adjust hedge for new trades, unwind, novation, new CSA, docs amendment etc
- Cross gamma hedge between FX, IR and Credit
- Normally hard to take on frequent hedges due to wide bid offer in Japan

Funding Charge





- Have Derivatives Exposure ≒Provide Loans → Incur funding costs
  - Assuming you get novation to receive $10mm in 5 years from some derivatives, you pay $10mm and have $10mm receivable (assume no discount)
  - This is effectively same with 5y $10mm loan
  - You need to charge funding costs on top of CVA
  - Similar to situation where you need working capital for account receivable
- Need to charge necessary cost in order to maintain resilience of banking sector

How to make profit through CVA
— Trading strategy when your own spread widens

- Trade pay JPY/ Rec USD cross currency swap (No collateral)
- Sell option (No collateral)
- Sell CDS when fixed coupon < current spread (No collateral)
- Trade off-market swap with receiving upfront payment (No collateral)
- Take payable trades by novation
- Trade fully funded TRS
- Collect deposit
- Relax collateral terms
- Expand trades with banks with no CVA desk

Trading aspect is necessary for future Risk Management

- Everything has price – Price to reduce threshold, price to decide not to exercise trigger right, price to reduce margin frequency, price to receive illiquid collateral, etc
- Trade approval by taking into account various credit risk mitigation
  - CDS, Guarantee, Risk Participation, Credit Link Note, CCDS, Novation, Derivatives Syndication, etc
- Potential Exposure Limit under dynamic hedging (Liquidity is key)
- Need to look at recovery swap market (and hedge recovery if necessary)
- Trade approval considering CDS liquidity, bid-offer (at stressed environment)
- Counterparty default could be profit opportunity, rather than loss making event
- Risk management can contribute firms' profit

Reference

- “Confusion over CVA”, Duncan Wood (Risk Magazine, 30 Apr 2010)
- “Credit pricing principles”, Duncan Wood (Risk Magazine, 02 Oct 2009)