

Markit News: Biggest Credit Movers

Loan CDS Index Movements – November 28 2007

Index	Price	Daily Chg
LCDX.NA. 9 5Y	96.79	0.94
iTraxx LevX Senior Series 1 5Y	96.73	0.14
iTraxx LevX Subordinated Series 1 5Y	97	0.25

CDS Index Movements - November 28 2007

Index	Spread	Daily Chg (bp)	Weekly Chg (bp)	Monthly change
iTraxx Europe Series 8 Version 1 5Y	55.71	-3.31	-7.12	18.21
iTraxx Europe Crossover Series 8 Version 1 5Y	366.02	-13.89	-35.04	44.74
iTraxx Europe HiVol Series 8 Version 1 5Y	74.58	-2.92	-5.57	21.53
CDX.NA.IG.9-V1 5Y	77.31	-6.83	-6.85	16.96
CDX.NA.HY.9-V1 5Y	499.41	-28.61	-45.7	79.66
CDX.NA.IG.HVOL.9-V1 5Y	205.14	-17.36	-20.29	45.18
CDX.NA.XO.9-V1 5Y	255.92	-16.73	-22.75	44.58
CDX.EM.8-V1 5Y	197.48	-16.45	-15.65	50.02
iTraxx Japan Series Number 8 Version 1 5Y	44.45	-0.41	-0.97	12.89
iTraxx Asia ex-Japan Series Number 8 Version 1 5Y	160.42	-1.92	-2.56	66.96

ABX Index Movements - November 28 2007

Index	Price	Daily Chg	Weekly Chg	Monthly change
ABX-HE-AAA 07-02	72.92	4.53	6.47	-8.97
ABX-HE-AA 07-02	37.44	2.44	2.35	-11.62
ABX-HE-A 07-02	28.47	2.14	4.5	-2.75
ABX-HE-BBB 07-02	22.17	0.89	2.29	0.5
ABX-HE-BBB- 07-02	21.47	0.86	2.46	0.91

Credit Improvement - November 28 2007

11/29/2007

How a Good Subprime Call Came to Hurt Morgan Stanley

SOMETIMES, EVEN good bets can go bad.

Before the market for subprime mortgages cracked in February, some smart Wall Street players, including securities firm **Morgan Stanley**, were correctly betting it would go south.

Morgan Stanley executives had just gained a window into that market from the acquisition in December of a

subprime-mortgage company. And a bearish bet helped Morgan Stanley report a 70% jump in profit to a record \$2.67 billion in its first quarter ended in February.

Fast forward eight months. Even though the market for subprime mortgages—which are loans extended to the riskiest borrowers—continues to deteriorate, the same bearish bet has now cost the firm \$3.7 billion, or \$2.5 billion after tax, wiping out most of any profits Morgan Stanley might have made for the fourth quarter that ends later this month.

What went wrong? It turns out Morgan Stanley's hit has a lot in common with a much larger write-down of \$7.9 billion incurred by rival **Merrill Lynch & Co.** Both firms wound up with huge positions of super-senior segments of collateralized debt obligations, or CDOs, which are securities backed by pools of mortgages and other assets.

The firms held the super-senior CDOs—considered relatively safe investments—for different reasons. Merrill's total CDO inventory of \$32.1 billion June 29 was a byproduct of its league-leading franchise underwriting CDOs. Morgan Stanley's \$13 billion at the start of this year helped hedge and finance its bearish subprime bet, company officials said.

But one common element, Wall Street analysts and Morgan Stanley officials said, was: the CDOs paid a higher interest rate than the firms' cost of financing. That generated seductive profits for both firms until the bottom fell out in October after more modest declines in August and September.

In some respects, the way Morgan Stanley's subprime bet went awry is similar to how some quantitative hedge-fund bets soured over the summer. The hedge funds expected low-quality stocks to perform worse than "value" stocks in a downturn, but instead it was the higher-quality shares that got hit.

On a conference call with analysts late Wednesday afternoon, Morgan Stanley

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How Morgan Stanley Got Burned

Continued from the prior page
ley's chief financial officer, Colm Kelleher, said the firm's proprietary traders began making the bearish bet against the subprime market in December, the very month that Morgan Stanley acquired subprime lender Saxon Capital Inc. for \$706 million.

Both the acquisition and the trading strategy were in line with Morgan Stanley

HEARD ON THE STREET
John Mack's stated determination in the fall of 2005 to take more risk with the firm's capital, a goal that echoed that of former Merrill Lynch CEO Stan O'Neal, who left his position last month following his firm's losses.

Armed with Saxon, Morgan Stanley quickly climbed to the No. 1 ranking in subprime-mortgage-securities underwriting this year, according to Inside Mortgage Finance, a trade publication in Bethesda, Md. That is up from No. 5 in 2005 and No. 3 in 2006. Merrill, which also acquired a subprime-mortgage company, rose to No. 2 this year from No. 4 in 2006 and No. 7 in 2005.

The subprime-mortgage-underwriting drive left Morgan Stanley with \$2.9 billion in subprime loans and \$4 billion in subprime-mortgage securities on its books as of August. But that position was hedged by an offsetting bearish subprime bet totaling \$6.6 billion.

A Morgan Stanley official said the bearish subprime wager wasn't begun in December to hedge the subprime underwriting of Saxon. But he said it might have been constructed partly from Saxon-generated assets. And he said it might have been informed by market data that Morgan Stanley was getting from Saxon's activities.

The bearish subprime bet, which took the form of derivatives called swaps, required Morgan Stanley to pay interest on those contracts, the

same official said. To offset the bearish subprime bet and help generate interest income to pay the cost of the swaps, he said, the firm amassed the CDO position that produced most of the losses announced Tuesday.

The biggest piece of the \$3.7 billion in pretax paper losses, the firm's data indicated, came from a write-down of the CDO position from \$11.4 billion Aug. 28 to \$8.3 billion Oct. 31—a difference of \$3.1 billion. Such securities fell as much as 4.4% in August and 4.5% in September but tumbled as much as 27% in October.

On the call with analysts, Mr. Kelleher said the mortgage-related bets "did not come out of our client-facing activities" such as underwriting.

Instead, he said, "we began with a short position in the subprime-asset class, which went right through to the first quarter." But as the downturn spread to the senior CDO holdings that were meant to hedge the subprime bet, the firm's exposure changed "from short to flat to long," Mr. Kelleher said.

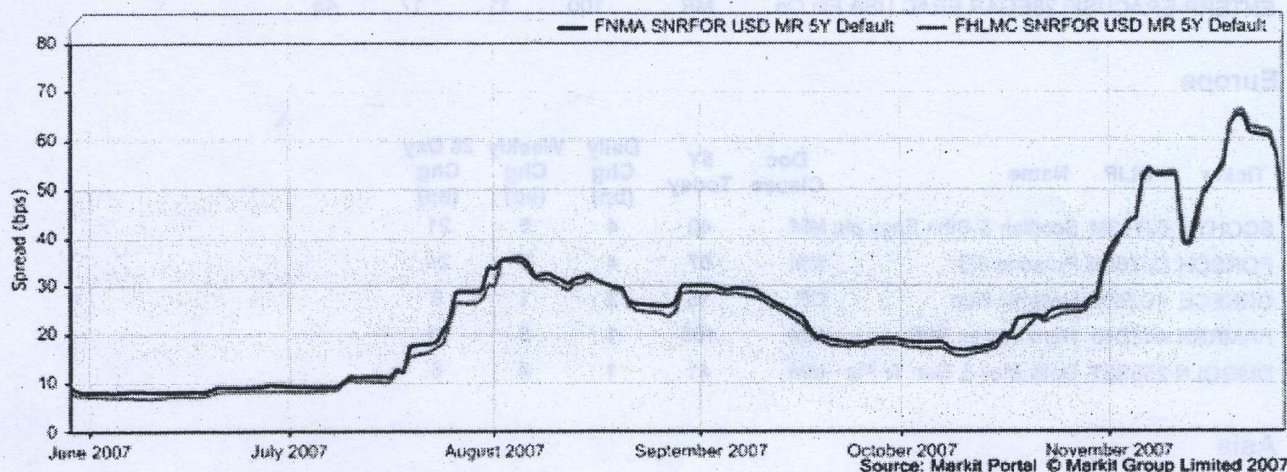
"You go short, expecting a certain predefined range of losses," Mr. Kelleher said. He added, "That range of losses was burnt through by the excessive market action. And then you ended up effectively going long."

Through the first nine months of the fiscal year through August, Goldman Sachs Group Inc. analyst William Tanona noted that the bearish subprime bet actually earned Morgan Stanley a profit of \$1 billion. But the firm's disclosure of the paper losses and the position sizes prompted two ratings firms to issue negative outlooks for the company's credit.

Moody's Investors Service said the news "raises questions regarding the effectiveness of Morgan Stanley's trading risk management." Merrill analyst Guy Moszkowski said the trade was "too big." Morgan Stanley ousted a team of CDO traders a few weeks ago.

North America

Ticker	CLIP	Name	Doc Clause	5Y Today	Daily Chg (bp)	Weekly Chg (bp)	28 Day Chg (bp)
GMACLL	3J79EI	GMAC LLC	MR	755	-60	-155	258
GM	3A7486	Gen Mtrs Corp	MR	722	-55	-97	214
F	3H98A7	Ford Mtr Co	MR	754	-51	-86	140
PMI	6FC78Q	PMI Gp Inc	MR	420	-51	-116	81
WM	9CCC54	WA Mut Inc	MR	395	-49	-75	239



FNMA / FHLMC - Fannie Mae and Freddie Mac's spreads tightened sharply yesterday after the latter said it plans to raise \$6 billion from a preferred stock offering in the coming days. Freddie Mac also announced that it would halve its dividend to shore up liquidity. Mortgage losses have unsettled investors in recent weeks, and the news of fresh capital should help calm nerves.

Europe

Ticker	CLIP	Name	Doc Clause	5Y Today	Daily Chg (bp)	Weekly Chg (bp)	28 Day Chg (bp)
KAUPBN	XB776W	Kaupthing banki hf	MM	266	-32	-76	99
ANGIRI	0D855D	Anglo Irish Bk Corp Plc	MM	162	-22	-35	44
LANISL	X1BD7U	Landsbanki Is H F	MM	147	-21	-41	72
GROHE	DFAE7A	Grohe Hldg Gmbh	MM	646	-19	-38	36
MESSA	X2AEDG	M real Corp	MM	601	-18	-38	34

Asia

Ticker	CLIP	Name	Doc Clause	5Y Today	Daily Chg (bp)	Weekly Chg (bp)	28 Day Chg (bp)
AIFUL	008FAQ	Aiful Corp	CR	247	-18	-23	74
FLEX	36CCBM	Flextronics Intl Ltd	XR	242	-13	-17	8
TAKFUJ	8FB46J	Takefuji Corp	CR	150	-9	-10	54
PROMIS	7B778K	Promise Co Ltd	CR	106	-7	-5	40
PHILIP	789AAE	Rep Philippines	CR	182	-6	-16	47

Credit Deterioration - November 28 2007

North America

Ticker	CLIP	Name	Doc Clause	5Y Today	Daily Chg (bp)	Weekly Chg (bp)	28 Day Chg (bp)
IQWCN	7BCA23	Quebecor World Inc	MR	894	62	154	441
STZ	2D139V	Constellation Brands Inc	XR	293	19	21	99
EQR-ERPOperLP	28EGCE	ERP Oper Ltd Pship	MR	150	12	25	86
AVB	0F87CC	Avalon Bay Cmnty Inc	MR	124	12	18	76
ENTERP-ERACUSFi	28EGAR	ERAC USA Fin Co	MR	100	11	17	45

Europe

Ticker	CLIP	Name	Doc Clause	5Y Today	Daily Chg (bp)	Weekly Chg (bp)	28 Day Chg (bp)
SCOHYD 8J113M		Scottish & Stn Engy plc	MM	40	4	8	21
PORSCH DJ76CE		Porsche AG	MM	67	4	0	29
GREECE 4G5656		Hellenic Rep	CR	15	2	1	6
HAMRSN 448B46		Hammerson PLC	MM	105	1	3	31
DMGOLN 256B8T		Daily Mail & Gen Tr Plc	MM	41	1	4	6

Asia

Ticker	CLIP	Name	Doc Clause	5Y Today	Daily Chg (bp)	Weekly Chg (bp)	28 Day Chg (bp)
CMBKKO	Y7FFES	Woori Bk	CR	113	6	15	70
HANABK	449F97	Hana Bank	CR	107	4	12	66
JALC	JL8606	Japan Aircls Corp	CR	346	2	1	21
HIT	JL22AE	Hitachi Cap Corp	CR	23	2	3	9
PCCW-HKTTelLtd	Y4E82R	PCCW HKT Tel Ltd	CR	71	2	0	22

Lecture X :

Credit

I. Credit Default Swap (CDS)

Dark mathematics & par legal - Negative basis.

i) ASSET SWAP.

ii) Total return swap

19)

VS
debit
coupon = 3.2%

Interest rate risk.

Co ABC
Ts + 45
bond

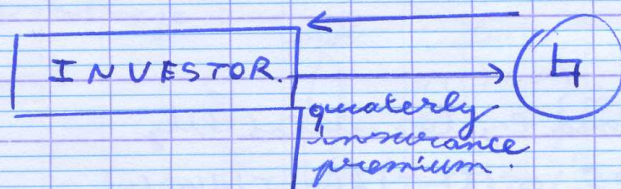
} lender is taking the risk that the Borrower will not pay.

Bank
L

Co ABC
L + Δ

We can buy an insurance against non-payment of Borrower.

?



We buy an insurance against a credit event (non-payment, bankruptcy, ...)

In case of a credit event, you can deliver an "obligation" of the issuer (Borrower) and get par for it.

ex: $N = 100 \$$

① we lend L

② if we lend to the company, we get $L + 100bps$, and in case of default the protection seller will give us back $100 \$$,

• What is the relationship between CDS spread = insurance premium & Δ .

When company ABC issues the "floater" at $L + \Delta$.

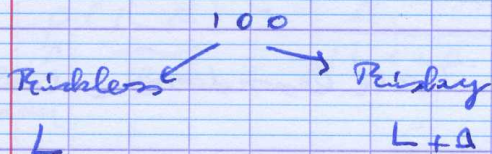
The price of the bond depends on the spread

Discount	par	premium
+ 95	100	105

$$\boxed{100} \sim L + \begin{array}{l} 250 \\ 150 \\ 100 \end{array}$$

* time $T + \Delta$ with $\Delta = 150$.

The CDS premium = spread of a "par floater"



Suppose $CDS < \Delta$:

{ Buy the bond } payoff = $L + (\Delta - CDS) > L$ = riskless.
 { Buy the CDS } $\uparrow$ get $\uparrow$ pay as protected.

payoff (this pos.) > riskless.

Suppose $CDS > \Delta$:

{ Throw the bond : } payoff = 100
 { sell CDS : } = CDS premium quarterly.

• no default: pay $-L - \Delta$ receive $L + CDS$.
 $CDS - L$

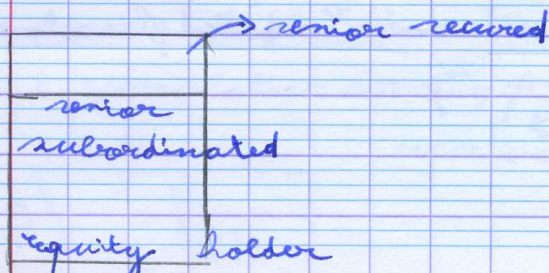
• If there is a default:

Let the deliverer default the defaulted bond

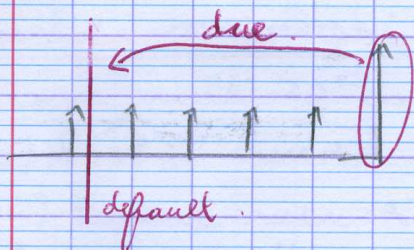
to be for 100 \$

$$\Rightarrow \boxed{CDS = \Delta}$$

exam: The obligations of a company have different seniority.



Def: deliverable obligation - reference obligation.
 Senior unsecured obligation of borrower.



ex: $100 \begin{cases} 50 & 200 \\ 25 & 100 \\ 25 & 100 \end{cases}$ recovery of 25 ds/\$

sem: 1 sign of bankruptcy: all bonds are traded at the same price.

def: ISDA: International Swap Dealers Association.

vocabulary:

- reference entity / reference credit
- reference obligation / deliverable.
- Credit event: bankruptcy, failure to pay, obligation acceleration & cross-default.
- Restructuring (7% for 5 1/2 yr $\rightarrow$ 4% for 30 yr)

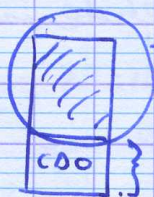
def: Monolines (AMBAC, MBIA, FICG)



$\Rightarrow$ default only if both default.
 $AA \rightarrow AAA$.

Insurance
 Wrap

ex: municipal bonds.



$\Rightarrow$ wrap $\Rightarrow$ AAA.

} subordination.

20 | - Recovery

- probability of default

riskless

| - Loss

- Hazard function.

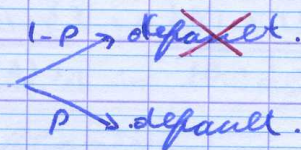
risky

i : interest rate

R : recovery

p = prob. of default.

} Δ ?



$$(1+i) = (1-p)(1+i+\Delta) + pR(1+i+\Delta)$$

$$= 1+i+\Delta - p - pi - p\Delta + pR + pRi + pR\Delta$$

$$0 = -p(1+i+\Delta) + pR(1+i+\Delta) + \Delta$$

$$\underbrace{p}_{\text{prob. of default}} \underbrace{(1-R)}_{\text{loss}} = \frac{\Delta}{1+i+\Delta}$$

$$\text{Expected loss} \approx \frac{\Delta}{1+i+\Delta} \approx \Delta$$

$$\text{Spread} \approx \text{prob. of default} \times (1-R)$$

$$\text{spc: } p \times 0.6 = 1\%$$

$$p = 1.6\%$$

$$p = \frac{7.5}{0.6} = 16\%$$

Approximation:

$$1+i+\Delta \approx 1 \Rightarrow$$

$$p \approx \frac{\Delta}{1-R}$$

$$\text{proof: } (1-p)\Delta = p(1-R)$$

$$\frac{p}{1-p} \approx \frac{\Delta}{1-R} = \frac{p}{1-p+p} = \frac{\Delta}{1-R+\Delta}$$

$$p = \frac{\Delta}{1-R+\Delta} \Rightarrow \boxed{p \approx \frac{\Delta}{1-R}}$$

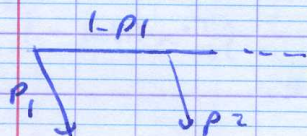
def: Hazard rate:

Assume recovery is 0.

$sc(t)$ = instantaneous rate

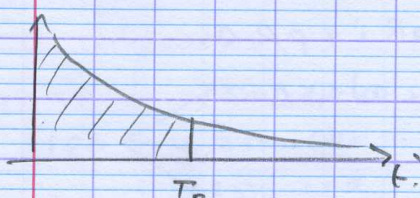
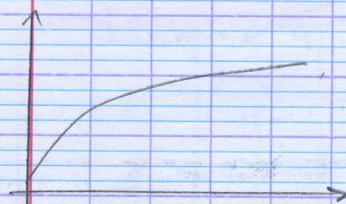
price of 0-coupon bond with time T is: $P(0,T) = e^{-\int_0^T sc(t)dt}$

know τ the time to default has density $f(t)$ and CDF (cumulative density F) F .



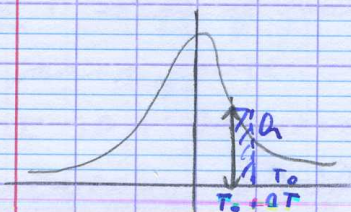
$$\text{receive } p_1 \approx \frac{\Delta_1}{1-R}$$

$$\frac{(1-p_1)\Delta_2}{(1+r_1)} + \frac{(1-p_1)(1-p_2)\Delta_2}{(1+r_1)(1+r_2)} = \frac{p_1(1-R)}{(1+r_1)} + \frac{(1-p_1)(1-R)p_2}{(1+r_1)(1+r_2)}$$



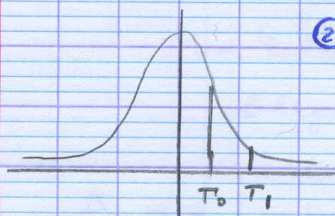
$$\text{Pr}(\tau \leq T_0) = F(T_0) = \int_0^{T_0} h(t) dt.$$

Important assumption:
the time to default τ and interest rates are independent.



what is h ?

① $\Delta x(\Delta T) \rightarrow$ probability



② $\rightarrow$ relative likelihood odds ratio.

$$P(A|B) = \frac{P(A \cap B)}{P(B)} = \frac{h(T_0)}{1 - F(T_0)}$$

$$h(t) = \frac{f(t)}{1 - F(t)}$$

hazard rate

$$\int_0^{T_0} h(t) dt = \int_0^{T_0} \frac{f(t)}{1 - F(t)} dt = \left[-\ln(1 - F(t)) \right]_0^{T_0} = \ln(1 - F(0)) - \ln(1 - F(T_0))$$

$$\int_0^{T_0} h(t) dt = -\ln(1 - F(T_0))$$

rem: $h(t)$ is the prob. that I have not defaulted and I default at t .
Multiply both sides by -1

$$(1) \quad 1 - F(T_0) = \exp\left(-\int_0^{T_0} h(t) dt\right).$$

consider a risky bond:

$$P(0, T_0) = P(0, T_0) \text{Pr}(\tau > T_0)$$

$$= P(0, T_0) [1 - F(T_0)]$$

$$= \exp\left(-\int_0^{T_0} h(t) dt\right) \cdot \text{Pr}(\text{company default} > T_0).$$

$$(1) \Rightarrow P(0, T_0) = P(0, T_0) e^{-\int_0^{T_0} h(t) dt} \quad \text{or} \quad e^{-\int_0^{T_0} (r(t) + h(t)) dt}$$

CDS = Δ when floater = par = $(L + Δ)$.

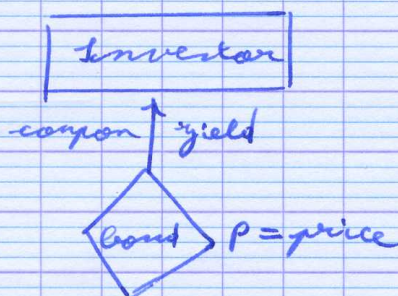
3rd What can we do to estimate Δ in the absence of a port?

→ synthetically create a par floater.

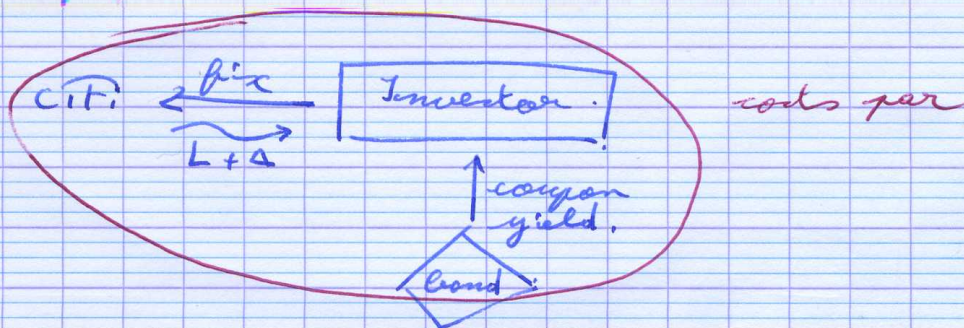
eg: a net swap.

We have an investor.

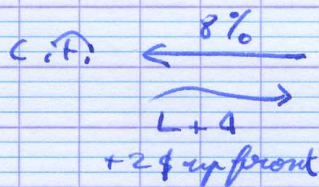
$L + Δ$
 $\xrightarrow{\text{costs par}}$



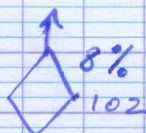
I want to convert the fixed coupon for $\xrightarrow{L + Δ}$.
 → swap.



ex:

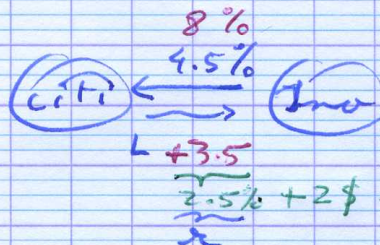


$$102 - 2 = 100 \Rightarrow \text{par.}$$



$$\Delta_{\text{net}} \approx \Delta$$

5th - swap rule



goal = determine x (floating spread) such that the whole is par (and add x \$ up front).