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Implied versus Fundamental Losses in CMBX Indices
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Many people have been questioning the level of losses implied by recent market pricing of CMBX. In this analysis we calculate the level of market-implied losses across the CMBX vintages. For each vintage, we compare the market-implied losses to "fundamental" losses projected by PPR's real estate outlook. We note that these market-implied loss estimates – whether computed by us or by others -- attributes all of the market spread to the implied losses and thereby ignores market factors such as liquidity and other technical factors. We focus on the BBB level, rather than a higher level, to derive the clearest market signal on implied losses and their relation to fundamental losses.

Index Series	BBB Spread (bps) (AsOf 3/12/2008)	Implied Deal Loss (%)	CompassCRE Deal Loss		Loss Multiplier	
			Base Case	Severe Recs.	Base Case	Severe Recs.
CMBX1	1132.19	5.70	1.56	3.09	3.72	1.84
CMBX2	1516.88	5.28	2.14	4.47	2.54	1.21
CMBX3	1953.63	4.90	2.11	4.33	2.40	1.16
CMBX4	1888.44	5.72	2.00	4.47	2.91	1.30

Data source: PPR, Trepp, Markit | Loan Performance Update As Of Feb, 2008

Our conclusions are as follows:

1. The level of market-implied losses is consistent with other analysts.[1]
2. The CMBX-1 index has the lowest levels of fundamental losses, at 1.56% in PPR's base economic scenario and 3.09% in our severe recession. The other vintages have about the same level of losses, at ~2.1% and ~4.4% respectively.
3. Consistent with its low fundamental losses CMBX-1 trades at the lowest spread. However, the spread is still relatively high compared to the fundamental losses. This

[1] "CMBX Draws Fire for Lack of Transparency", Commercial Mortgage Alert, March 14, 2008

can be seen by comparing the ratio of market-implied losses to fundamental losses, 3.72 times in the base economic scenario and 1.84 times in the severe recession. In other words, buying credit protection is the most expensive (relative to fundamental losses) in the CMBX-1 vintage. The protection buyer is buying insurance at a relatively high premium – and high market-implied losses – compared with the level of fundamental losses

4. Focusing just on the severe recession, the loss multipliers for the CMBX-2, -3, and –4 vintages are all fairly close to 1, indicating that this scenario is close to where the market is generally pricing real estate risk.[2] In turn, our severe recession has property value and NOI declines that are about the same as seen during the 1990-92 downturn in commercial real estate. The implication is that while market-implied loss rates are quite high, these losses are not unprecedented. In fact, the worst commercial mortgage cohort on record (the 1986 vintage) experienced 8.7% lifetime losses rate due to that early 90s downturn.[3] For an investor, the key question is how likely is this severe recession? Our view is that the severe recession is possible if the credit crunch continues to worsen; however we do not think severe recession is the most likely scenario. And if the market perception changes so that that this severe recession is thought to be a more unlikely outcome, all of the CMBX spreads should decline.
5. The CMBX-2 and CMBX-3 vintages are relatively cheap compared to the fundamentals when compared to CMBX-4. We would expect the CMBX-2 and CMBX-3 spreads to widen relative to CMBX-4.

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[2] The ratio is market-implied losses to fundamental losses will be somewhat above 1 at fair pricing due to the right-skewed nature of loss distributions. The fundamental losses are the median level of losses in the loss distribution given by the economic scenario. However, market pricing is the mean level of losses. With the right skew to the loss distribution, a rule of thumb from commercial mortgage loss experiences is that the mean is about 1.4 times the median.

[3] Howard Esaki, "Commercial Mortgage Defaults: 1972-2000," Real Estate Finance, Winter 2002

Implied Losses on BBB tranches for CMBX4

Deals	Implied Deal Losses (BBB, %)	Compass[CRE] BaseCase (%)	Loss Multiplier	Compass[CRE] SevereRecs. (%)	Loss Multiplier
Banc of America Commercial Mortgage Inc., Series 2007-2	5.32	1.91	2.79	3.94	1.35
Banc of America Commercial Mortgage Inc., Series 2007-3	5.98	1.59	3.76	3.48	1.72
Bear Stearns Commercial Mortgage Securities Trust 2007-PWR16	5.22	2.04	2.56	4.99	1.05
Bear Stearns Commercial Mortgage Securities Trust 2007-PWR17	5.11	2.03	2.52	5.16	0.99
Citigroup Commercial Mortgage Trust 2007-C6	5.29	1.90	2.78	4.45	1.19
COBALT CMBS Commercial Mortgage Trust 2007-C3	5.85	2.25	2.60	4.57	1.28
COMM 2007-C9 Mortgage Trust	6.80	1.82	3.73	4.01	1.69
Credit Suisse Commercial Mortgage Trust 2007-C3	5.32	2.30	2.31	4.48	1.19
Credit Suisse Commercial Mortgage Trust, Series 2007-C4	7.22	2.37	3.05	4.70	1.54
J.P. Morgan Chase Commercial Mortgage Securities Trust 2007-CIBC19	5.23	2.24	2.33	5.24	1.00
J.P. Morgan Chase Commercial Mortgage Securities Trust 2007-CIBC20	6.61	2.05	3.22	5.52	1.20
J.P. Morgan Chase Commercial Mortgage Securities Trust 2007-LDP11	5.50	2.03	2.71	4.43	1.24
J.P. Morgan Chase Commercial Mortgage Securities Trust 2007-LDP12	6.05	1.85	3.27	4.57	1.32
LB Commercial Mortgage Trust 2007-C3	7.32	2.25	3.25	4.07	1.80
LB-UBS Commercial Mortgage Trust 2007-C2	6.16	2.61	2.36	4.74	1.30
LB-UBS Commercial Mortgage Trust 2007-C6	6.84	2.38	2.87	4.95	1.38
Merrill Lynch Mortgage Trust 2007-C1	5.08	1.67	3.04	3.75	1.35
ML-CFC Commercial Mortgage Trust 2007-7	5.22	2.28	2.29	5.61	0.93
ML-CFC Commercial Mortgage Trust 2007-8	4.73	2.00	2.37	5.12	0.92
Morgan Stanley Capital I Trust 2007-IQ14	5.35	1.71	3.13	3.85	1.39
Morgan Stanley Capital I Trust 2007-IQ15	5.37	2.40	2.24	4.74	1.13
Morgan Stanley Capital I Trust 2007-TOP27	4.10	1.32	3.10	3.35	1.22
Wachovia Bank Commercial Mortgage Trust Series 2007-C31	5.23	1.73	3.02	4.13	1.27
Wachovia Bank Commercial Mortgage Trust Series 2007-C32	6.03	1.62	3.72	3.73	1.62
Wachovia Bank Commercial Mortgage Trust Series 2007-C33	6.18	1.65	3.75	4.25	1.45
Average =	5.72	2.00	2.91	4.47	1.30

Implied Losses on BBB tranches for CMBX3

Deal	Implied Deal Losses (BBB, %)	Compass[CRE] BaseCase (%)	Loss Multiplier	Compass[CRE] SevereRecs.	Loss Multiplier
Banc of America Commercial Mortgage, 2007-1	5.19	2.64	1.97	5.74	0.90
Banc of America Commercial Mortgage, 2006-6	5.39	1.84	2.93	4.11	1.31
Bear Stearns Commercial Mortgage Securities, 2007-PWR15	4.74	2.11	2.25	4.15	1.14
Bear Stearns Commercial Mortgage Securities, 2006-PWR14	4.73	1.94	2.44	4.71	1.00
Citigroup Commercial Mortgage Securities, 2007-CD4	5.11	1.66	3.08	4.37	1.17
Citigroup Commercial Mortgage Trust, 2006-C5	4.36	2.01	2.17	4.00	1.09
COBALT CMBS Commercial Mortgage Trust, 2006-C1	4.81	1.99	2.42	3.95	1.22
COMM, 2006-C8	5.29	2.70	1.96	6.54	0.81
Credit Suisse, 2007-C1	4.98	2.04	2.44	3.84	1.30
Credit Suisse, 2006-C5	4.94	3.05	1.62	5.09	0.97
Greenwich Capital Commercial Funding, 2007-GG9	4.97	1.96	2.53	3.74	1.33
J. P. Morgan Commercial Mortgage Finance Corp., 2007-LDP10	4.82	1.74	2.77	3.97	1.21
JP Morgan Chase Commercial Mortgage Securities Corp., 2007-CIBC18	5.00	2.04	2.45	4.64	1.08
JP Morgan Chase Commercial Mortgage Securities Corp., 2006-LDP9	4.69	2.52	1.86	4.16	1.13
JP Morgan Chase Commercial Mortgage Securities Corp., 2006-CIBC17	5.45	3.05	1.79	5.24	1.04
LB-UBS Commercial Mortgage Trust, 2007-C1	5.62	1.78	3.16	3.85	1.46
LB-UBS Commercial Mortgage Trust, 2006-C7	3.80	1.81	2.10	3.53	1.08
ML-CFC Commercial Mortgage Trust, 2007-5	4.86	2.31	2.10	4.11	1.18
ML-CFC Commercial Mortgage Trust, 2006-4	5.34	2.13	2.51	5.26	1.02
Morgan Stanley Capital I, 2006-IQ12	4.62	1.88	2.46	4.35	1.06
Morgan Stanley Capital I, 2007-IQ13	4.88	1.85	2.64	3.60	1.36
Morgan Stanley Capital I, 2007-HQ11	5.33	1.73	3.08	3.74	1.43
Morgan Stanley Capital I, 2007-T25	4.11	1.89	2.17	3.91	1.05
Morgan Stanley Capital I, 2006-HQ10	4.87	2.55	1.91	4.93	0.99
Wachovia Bank Commercial Mortgage Trust, 2006-C29	4.72	1.47	3.21	2.77	1.71
Average =	4.90	2.11	2.40	4.33	1.16

Implied Losses on BBB tranches for CMBX2

Deal	Implied Deal Losses (BBB, %)	Compass^{CRE} BaseCase (%)	Loss Multiplier	Compass^{CRE} SevereRecs. (%)	Loss Multiplier
Banc of America Commercial Mortgage Trust 2006-5	5.32	1.87	2.85	4.22	1.26
LB-UBS COMMERCIAL MORTGAGE TRUST 2006 C6	5.17	2.00	2.58	4.12	1.25
Credit Suisse Commercial Mortgage Trust Series 2006-C4	5.07	3.02	1.68	6.22	0.82
ML-CFC Commercial Mortgage Trust 2006-3	4.84	2.49	1.94	4.56	1.06
Bear Stearns Commercial Mortgage Securities Trust 2006-PWR13	5.13	1.95	2.63	4.34	1.18
J.P. Morgan Chase Commercial Mortgage Securities Trust 2006-CIBC16	5.30	2.83	1.87	5.90	0.90
Banc of America Commercial Mortgage Inc., Series 2006-4	5.61	2.34	2.40	4.64	1.21
Wachovia Bank Commercial Mortgage Trust Series 2006-C27	5.74	1.89	3.04	4.65	1.24
Merrill Lynch Mortgage Trust 2006-C2	5.93	2.68	2.21	5.73	1.03
Morgan Stanley Capital I Trust 2006 - HQ9	4.70	2.00	2.35	4.11	1.14
Morgan Stanley Capital I Trust 2006-TOP23	3.70	1.19	3.11	2.84	1.30
Banc of America Commercial Mortgage Inc., Series 2006-3	5.68	2.09	2.72	3.84	1.48
Greenwich Capital Comm. Funding Corp. Comm. Mortgage Trust 2006-GG7	5.59	2.33	2.40	4.11	1.36
Credit Suisse Commercial Mortgage Trust Series 2006-C3	5.68	2.02	2.81	4.16	1.37
Citigroup Commercial Mortgage Trust 2006-C4	5.54	3.02	1.84	4.72	1.17
J.P. Morgan Chase Commercial Mortgage Securities Trust 2006-LDP7	5.25	2.00	2.62	4.64	1.13
LB-UBS COMMERCIAL MORTGAGE TRUST 2006-C4	5.28	1.90	2.78	3.63	1.46
Wachovia Bank Commercial Mortgage Trust Series 2006-C26	5.27	2.65	1.99	5.76	0.92
ML-CFC Commercial Mortgage Trust 2006-2	5.12	1.90	2.69	4.16	1.23
Banc of America Commercial Mortgage Inc., Series 2006-2	5.37	1.93	2.78	4.50	1.19
Bear Stearns Commercial Mortgage Securities Trust 2006-PWR12	5.23	1.94	2.70	4.64	1.13
J.P. Morgan Chase Commercial Mortgage Securities Trust 2006-CIBC15	5.46	2.18	2.51	5.50	0.99
Morgan Stanley Capital I Trust 2006-IQ11	4.91	1.50	3.28	3.27	1.50
COMM 2006-C7 Mortgage Trust	5.41	1.98	2.73	3.89	1.39
Wachovia Bank Commercial Mortgage Trust Series 2006-C25	5.65	1.82	3.10	3.58	1.58
Average =	5.28	2.14	2.54	4.47	1.21

Implied Losses on BBB tranches for CMBX1

Deal	Implied Deal Losses (BBB, %)	Compass^{CRE} BaseCase (%)	Loss Multiplier	Compass^{CRE} SevereRecs. (%)	Loss Multiplier
Banc of America Commercial Mortgage, 2005-4	7.36	1.40	5.26	2.69	2.74
Banc of America Commercial Mortgage, 2005-5	6.82	1.45	4.71	2.91	2.35
Banc of America Commercial Mortgage, 2005-6	5.38	1.40	3.84	2.48	2.17
Bear Stearns Commercial Mortgage Securities, 2005-PWR10	5.26	1.94	2.71	4.27	1.23
Bear Stearns Commercial Mortgage Securities, 2005-PWR9	5.01	1.39	3.61	3.11	1.61
Bear Stearns Commercial Mortgage Securities, 2005-TOP20	3.91	1.26	3.10	2.27	1.72
Citigroup Commercial Mortgage Trust, 2005-C1	5.76	1.69	3.41	3.25	1.77
CS First Boston Mortgage Securities Corp., 2005-C5	5.06	1.71	2.96	3.17	1.60
CS First Boston Mortgage Securities Corp., 2005-C6	5.48	1.63	3.36	3.47	1.58
GE Capital Commercial Mortgage Corp., 2005-C4	5.73	1.61	3.56	3.29	1.74
GMAC Commercial Mortgage Securities, Inc., 2006-C1	5.83	1.57	3.71	3.42	0.55
Greenwich Capital Commercial Funding, 2005-GG5	5.37	1.45	3.70	3.15	1.70
J. P. Morgan Commercial Mortgage Finance Corp., 2005-LDP5	7.00	1.78	3.93	2.94	2.38
JP Morgan Chase Commercial Mortgage Securities Corp., 2005-CIBC13	5.62	1.91	2.94	3.43	1.64
JP Morgan Chase Commercial Mortgage Securities Corp., 2005-LDP4	5.30	1.63	3.25	3.04	1.74
LB Commercial Conduit Mortgage Trust, 2005-C5	6.46	1.56	4.14	2.95	2.19
LB-UBS Commercial Mortgage Trust, 2005-C7	6.93	1.32	5.25	2.42	2.86
LB-UBS Commercial Mortgage Trust, 2006-C1	5.58	1.57	3.55	2.88	1.94
Merrill Lynch Mortgage Trust, 2005-CKI1	4.95	1.89	2.62	3.63	1.36
Merrill Lynch Mortgage Trust, 2005-LC1	6.00	1.57	3.82	2.93	2.05
Morgan Stanley Capital I, 2005-HQ7	5.44	1.63	3.34	3.71	1.47
Morgan Stanley Capital I, 2005-IQ10	5.01	1.56	3.21	2.68	1.87
Morgan Stanley Capital I, 2006-T21	4.32	0.86	5.02	2.05	2.11
Wachovia Bank Commercial Mortgage Trust, 2005-C21	6.70	1.52	4.41	3.30	2.03
Wachovia Bank Commercial Mortgage Trust, 2005-C22	6.22	1.69	3.68	3.74	1.66
Average =	5.70	1.56	3.72	3.09	1.84