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Insights into the Insurance Industry's Derivatives Exposure

Derivative instruments are reported in Schedule DB of the quarterly and annual financial statements of insurance companies. In 2010, Schedule DB was revised to be more streamlined and yet provide more detailed and useful information regarding an insurance company's derivatives exposure and activity. Part A provides positions and activity in options, caps, floors, collars, swaps and forwards. Exposure to, and activity in, futures contracts are reported in Part B. Part C provides positions and activity in replication (synthetic asset) transactions. And, finally, counterparty exposure is reported in Part D.

Insurance companies are required to report all open derivative positions on an individual transaction basis at the end of each reporting period, either quarterly or annually. In addition, intra-period derivative transactions are reported on an annual basis. Therefore, if a derivative instrument was bought or sold and terminated within the same year, this activity would be captured. Schedule DB includes basic information, such as a description of the derivative instrument, the notional amount, the fair value, the maturity date and the counterparty for each individual transaction. It also provides useful information with respect to derivatives that are used for hedging purposes, such as a general description of the asset or risk that is being hedged, a reference to the specific schedule where the hedged asset is reported in the statement, and a quantification of the effectiveness of the hedge at inception and at the end of the period.

In general, insurance companies use derivative instruments to manage and mitigate a variety of risks. As of Dec. 31, 2010, a total of 223 insurance companies participated in the derivatives market. Of this number, 140 were life insurance companies, 63 were property/casualty insurance companies, 14 were health insurance companies and 6 were fraternal insurance companies. The insurance companies with derivatives exposure were domiciled in 39 states, with New York, Connecticut, Michigan and Iowa having the largest exposures. Furthermore, there were approximately 48,600 individual derivative positions across the insurance industry. The average position size was approximately \$18 million in notional value, and the largest single position noted was \$6 billion in notional value. This large derivative position was a macro-portfolio hedge to manage interest rate risk.

The NAIC *Derivative Instruments Model Regulation* (#282) sets standards for the prudent use of derivative instruments by insurance companies. It requires insurance companies to establish written guidelines for transacting in derivative instruments. Internal control procedures must also be outlined describing elements such as the monitoring of derivative positions and the credit risk management process. These guidelines and procedures are typically set forth in a derivatives use plan.

This special report provides basic information on the insurance industry's derivatives and counterparty exposure. The NAIC Capital Markets Bureau expects to conduct further analysis of the data and information provided in Schedule DB and will provide more in-depth insights in the near future.

Derivatives Exposure

As of year-end 2010, the notional value of over-the-counter derivatives — i.e., options, caps, floors, collars, swaps and forwards reported in Part A of Schedule DB — held by the insurance industry totaled \$850.4 billion. This was a 2.1% decrease compared to year-end 2009, when the insurance industry held \$868.7 billion in notional value of derivatives. According to a market survey conducted by the International Swaps and Derivatives Association (ISDA), the total notional amount outstanding of over-the-counter derivatives as of June 30, 2010, was \$466.8 trillion. The insurance industry's exposure to over-the-counter derivatives is merely a fraction (0.18%) of the overall market.

Life insurance companies are the primary users of derivative instruments in the insurance industry, representing 93.4% of the total notional value outstanding. Insurance companies use derivatives to implement investment and portfolio strategies, such as hedging, replicating assets and generating income. Title insurance companies have no derivatives exposure.

<i>Notional Value</i>	Hedging	Replications	Income Generation	Other	Total	% of Total
Life	739,585,498,031	10,981,810,835	257,784	44,116,105,079	794,683,671,729	93.4%
Property & Casualty	30,535,272,669	884,011,905	559,985	23,305,643,685	54,725,488,244	6.4%
Health	562,781,281	-	-	48,000,090	610,781,371	0.1%
Fraternal	364,815,292	-	-	-	364,815,292	0.0%
TOTAL	771,048,367,273	11,865,822,740	817,769	67,469,748,854	850,384,756,636	100.0%

As illustrated in the table below, the primary use of derivatives in the insurance industry is hedging, with 90.7% of the derivatives exposure at year-end 2010 used for hedging risk. Some examples of risks that are hedged include interest rate risk, credit risk, currency risk and equity-related risk. Swaps and purchased options are the primary derivative instruments that are utilized to hedge the various risks faced by insurance companies. Since year-end 2009, the use of derivatives for hedging purposes declined 3.1 percentage points from 93.8%.

<i>Notional Value</i>	Hedging	Replications	Income Generation	Other	Total	% of Total
Swaps	441,984,830,725	11,821,673,864	-	10,567,405,604	464,373,910,193	54.6%
Purchased Options	280,041,158,974	-	247,069	53,071,032,963	333,112,439,006	39.2%
Written Options	26,566,233,987	-	570,700	299,099,245	26,865,903,932	3.2%
Forwards	22,456,143,587	44,148,876	-	3,532,211,042	26,032,503,505	3.1%
TOTAL	771,048,367,273	11,865,822,740	817,769	67,469,748,854	850,384,756,636	100.0%
% of Total	90.7%	1.4%	0.0%	7.9%	100.0%	

The type of derivative contract most widely used by insurance companies is swaps, which represented a notional value of \$464.4 billion (or 54.6%) of the insurance industry's derivatives exposure as of year-end 2010. The following table provides a breakdown of the insurance industry's exposure to swap derivatives by type of contract and by type of insurer. Fraternal insurance companies did not participate in the swaps derivatives market in 2010. Interest rate swaps are the most commonly used swap derivative, followed by foreign exchange swaps and credit default swaps.

<i>Notional Value</i>	Life	Property & Casualty	Health	Total	% of Total
Interest Rate	327,804,392,118	6,387,702,807	547,000,000	334,739,094,925	72.1%
Foreign Exchange	54,256,394,129	1,798,397,402	-	56,054,791,531	12.1%
Credit Default	27,058,164,629	6,392,485,823	-	33,450,650,452	7.2%
Total Return	12,242,203,313	4,868,498,666	-	17,110,701,979	3.7%
Other	16,375,424,129	6,579,852,296	63,394,881	23,018,671,306	5.0%
TOTAL	437,736,578,318	26,026,936,994	610,394,881	464,373,910,193	100.0%
% of Total	94.3%	5.6%	0.1%	100.0%	

Furthermore, this table emphasizes again that life insurance companies are the primary users of derivative instruments in the insurance industry. Life insurance companies represent 94.3% of

the swaps derivatives exposure in the insurance industry. As the following table illustrates, hedging is the primary use for interest rate swaps, currency swaps, credit default swaps and total return swaps, representing 95.2% of swaps derivatives activity. Derivative transactions in the “Replications” and “Other” categories might also be used for hedging purposes, but might not fit within the strict definition of hedging under the statutory accounting framework.

<i>Notional Value</i>	Hedging	Replications	Income Generation	Other	Total
Interest Rate	330,416,579,053	-	-	4,322,515,872	334,739,094,925
Foreign Exchange	54,401,166,362	-	-	1,653,625,169	56,054,791,531
Credit Default	21,657,258,087	11,015,889,571	-	777,502,794	33,450,650,452
Total Return	12,759,304,457	805,784,293	-	3,545,613,229	17,110,701,979
Other	22,750,522,766	-	-	268,148,540	23,018,671,306
TOTAL	441,984,830,725	11,821,673,864	-	10,567,405,604	464,373,910,193
% of Total	95.2%	2.5%	0.0%	2.3%	

In addition to the over-the-counter derivatives discussed above, the insurance industry also has exposure to futures, which are traded through exchanges and cleared through central clearinghouses and are reported in Part B of Schedule DB. As of year-end 2010, the notional value of futures contracts held by the insurance industry totaled \$16.0 billion. The life insurance industry also is the primary user of futures contracts. Hedging is the most common use of futures contracts, as detailed in the following table.

<i>Notional Value</i>	Hedging	Replications	Income Generation	Other	Total	% of Total
Life	15,150,804,097	-	-	516,337,903	15,667,142,000	97.9%
Property & Casualty	192,998,875	600	22,500	147,866,320	340,888,295	2.1%
Health	-	-	-	774,000	774,000	0.0%
Fraternal	207,700	-	-	-	207,700	0.0%
TOTAL	15,344,010,672	600	22,500	664,978,223	16,009,011,995	100.0%

Although the market typically refers to notional values when referring to derivatives, it does not indicate the true economic exposure that an insurance company might face. The NAIC also focuses on potential exposure that is a “statistically derived measure of the potential increase in derivative instrument credit risk exposure...resulting from future fluctuations in the underlying interest upon which derivative instruments are based.” For example, for collars, swaps (other than credit default swaps) and forwards, the potential exposure is calculated using the following formula:

0.5% x notional amount x square root of remaining years to maturity

For a credit default swap that is sold or written, the potential exposure is the larger of the notional amount or the maximum potential payment. For a credit default swap that is purchased, the potential exposure is zero.

The following table provides the insurance industry’s potential exposure as a result of the derivative instruments held as of year-end 2010. Potential exposure for over-the-counter derivatives totaled \$20.3 billion or 2.4% of the notional value. Potential exposure for futures totaled \$1.1 billion or 6.9% of the notional value.

<i>Potential Exposure</i>	OTC Derivatives	Futures	Total	% of Total
Life	18,513,257,385	1,072,251,425	19,585,508,810	91.7%
Property & Casualty	1,738,001,760	29,062,600	1,767,064,360	8.3%
Health	4,338,080	765,000	5,103,080	0.0%
Fraternal	606,725	-	606,725	0.0%
TOTAL	20,256,203,950	1,102,079,025	21,358,282,975	100.0%

Counterparty Exposure

Counterparty risk is the risk faced by a party that the other party will not satisfy the obligations of a derivatives contract. Insurance companies face counterparty risk primarily when entering into derivatives contracts that are traded over-the-counter, such as options, swaps and forwards. Although futures are traded through exchanges and cleared through a central clearinghouse, counterparty risk still exists but is considered to be minimal.

Large financial institutions are typically the most common counterparties in the derivatives market. According to a report published by the Office of the Comptroller of the Currency based on data for the fourth quarter of 2010, “derivatives activity in the U.S. banking system continues to be dominated by a small group of large financial institutions.” U.S.-based financial institutions that actively participate in the derivatives market are JP Morgan Chase, Bank of America, Citigroup, Goldman Sachs and Morgan Stanley. Non-U.S. financial institutions — such as Barclays Capital, Credit Suisse, BNP Paribas, Deutsche Bank and HSBC — also are active participants in the derivatives market.

The following table summarizes exposure in notional value to the 10 counterparties mentioned above. Similar to the derivatives market in general, counterparty exposure in the insurance industry is concentrated in a small number of financial institutions. The 10 counterparties listed in the table represent 76.4% of the notional value outstanding in the insurance industry. Deutsche Bank was the largest counterparty to the insurance industry, representing 10.6% of the industry’s total notional value outstanding as of year-end 2010. JP Morgan Chase and Barclays Bank were the second- and third-largest counterparties, with 9.0% and 8.7%, respectively, of the notional value outstanding.

<i>Notional Value</i>	Life	Property & Casualty	Health	Fraternal	Total	% of Total
Deutsche Bank	80,880,613,683	9,107,914,721	10,000,000	-	89,998,528,404	10.6%
JP Morgan Chase	73,344,329,496	2,917,027,616	-	56,705,000	76,318,062,112	9.0%
Barclays Bank	72,134,504,768	2,082,547,480	-	-	74,217,052,248	8.7%
Citigroup	47,593,359,319	21,716,818,596	75,000,000	585,000	69,385,762,915	8.2%
Credit Suisse	66,921,553,578	521,473,240	-	-	67,443,026,818	7.9%
BNP Paribas	62,557,085,498	20,000,000	-	-	62,577,085,498	7.4%
Goldman Sachs	52,603,780,940	6,410,669,250	-	300,000,000	59,314,450,190	7.0%
Morgan Stanley	54,903,361,506	2,576,000,000	-	-	57,479,361,506	6.8%
Bank of America	49,575,890,905	3,322,065,108	-	-	52,897,956,013	6.2%
Merrill Lynch	24,029,322,025	959,900,000	-	-	24,989,222,025	2.9%
HSBC	14,771,606,243	425,369,437	-	-	15,196,975,680	1.8%
Total	599,315,407,961	50,059,785,448	85,000,000	357,290,000	649,817,483,409	76.4%

Note: Merrill Lynch is a wholly owned subsidiary of Bank of America.

The NAIC Capital Markets Bureau will be drilling down further into specific aspects of the insurance industry’s exposure to derivatives and will publish its findings in future special reports.

June 10, 2011

Major Insurer Share Prices

		Close	Change %			Prior		
			Week	QTD	YTD	Week	Quarter	Year
Life	Aflac	\$44.86	(3.6)	(15.0)	(20.5)	\$46.55	\$52.78	\$56.43
	Ameriprise	56.04	(3.9)	(8.3)	(2.6)	58.34	61.08	57.55
	Genworth	10.10	(6.0)	(25.0)	(23.1)	10.75	13.46	13.14
	Lincoln	26.30	(4.4)	(12.5)	(5.4)	27.50	30.04	27.81
	MetLife	40.91	(2.2)	(8.5)	(7.9)	41.85	44.73	44.44
	Principal	28.29	(5.7)	(11.9)	(13.1)	29.99	32.11	32.56
	Protective	21.87	(5.4)	(17.6)	(17.9)	23.13	26.55	26.64
	Prudential	59.04	(3.8)	(4.1)	0.6	61.36	61.58	58.71
	UNUM	24.80	(2.0)	(5.5)	2.4	25.30	26.25	24.22
PC	ACE	\$65.99	(3.3)	2.0	6.0	\$68.27	\$64.70	\$62.25
	Axis Capital	31.59	(3.6)	(9.5)	(12.0)	32.77	34.92	35.88
	Allstate	29.65	(3.5)	(6.7)	(7.0)	30.72	31.78	31.88
	Arch Capital	32.68	(3.1)	(1.2)	11.3	33.73	33.06	29.35
	Cincinnati	29.19	(1.0)	(11.0)	(7.9)	29.48	32.79	31.69
	Chubb	63.60	(2.5)	3.7	6.6	65.25	61.31	59.64
	Everest Re	83.10	(5.3)	(5.8)	(2.0)	87.74	88.18	84.82
	Progressive	20.01	(4.7)	(5.3)	0.7	21.00	21.13	19.87
	Travelers	59.21	(3.3)	(0.5)	6.3	61.24	59.48	55.71
	WR Berkley	31.96	(2.3)	(0.8)	16.7	32.70	32.21	27.38
	XL	20.87	(7.2)	(15.2)	(4.4)	22.48	24.60	21.82
	Other	AON	\$50.20	(2.6)	(5.2)	9.1	\$51.55	\$52.96
AIG		28.96	4.9	(17.6)	(40.0)	27.62	35.14	48.27
Assurant		34.48	(3.6)	(10.5)	(10.5)	35.77	38.51	38.52
Fidelity National		15.12	(3.3)	7.0	10.5	15.64	14.13	13.68
Hartford		24.26	(4.9)	(9.9)	(8.4)	25.50	26.93	26.49
Marsh		29.61	(2.3)	(0.7)	8.3	30.32	29.81	27.34
Health	Aetna	\$42.86	(0.9)	14.5	40.5	\$43.26	\$37.43	\$30.51
	Cigna	49.09	(1.2)	10.9	33.9	49.68	44.28	36.66
	Humana	78.19	0.0	11.8	42.8	78.19	69.94	54.74
	United	49.41	1.0	9.3	36.8	48.93	45.20	36.11
	WellPoint	76.34	(0.6)	9.4	34.3	76.82	69.79	56.86
Monoline	Assured	\$14.32	(12.6)	(3.9)	(19.1)	\$16.38	\$14.90	\$17.70
	MBIA	7.83	(9.7)	(22.0)	(34.7)	8.67	10.04	11.99
	MGIC	6.08	(19.9)	(31.6)	(40.3)	7.59	8.89	10.19
	PMI	1.12	(18.2)	(58.5)	(66.1)	1.37	2.70	3.30
	Radian	3.66	(16.8)	(46.3)	(54.6)	4.40	6.81	8.07
	XL Capital	20.87	(7.2)	(15.2)	(4.4)	22.48	24.60	21.82

June 10, 2011							
Major Market Variables							
	Close	Change %			Prior		
		Week	QTD	YTD	Week	Quarter	Year
Dow Jones Ind	11,951.91	(1.6)	(3.0)	3.2	12,151.26	12,319.73	11,577.51
S&P 500	1,270.98	(2.2)	(4.1)	1.1	1,300.16	1,325.83	1,257.64
S&P Financial	199.20	(2.6)	(9.7)	(7.2)	204.60	220.71	214.77
S&P Insurance	179.58	(2.8)	(7.9)	(4.6)	184.83	194.96	188.22
US Dollar \$							
		Change %			Prior		
/ Euro	\$1.43	(2.0)	1.3	7.2	\$1.46	\$1.42	\$1.34
/ Crude Oil bbl	99.29	(1.1)	(7.0)	7.7	100.43	106.72	92.22
/ Gold oz	1,528.60	(0.9)	6.2	7.6	1,541.90	1,438.90	1,420.78
Treasury Ylds %							
	%	Change			%	%	%
1 Year	0.17	0.00	(0.11)	(0.10)	0.17	0.28	0.27
10 Year	2.97	(0.02)	(0.50)	(0.33)	2.99	3.47	3.30
30 Year	4.18	(0.04)	(0.33)	(0.15)	4.22	4.51	4.34
Corp Credit Spreads -bp							
		Change %			Prior		
CDX.IG	86.03	6.9	2.6	1.2	80.45	83.81	85.00

June 10, 2011

Major Insurer Bond Yields

	Company	Coupon	Maturity	Price			Spread	
				Current	Change	Yield	B.P.	Change
Life	Aflac	8.500%	5/15/2019	\$123.36	(\$0.88)	4.90%	233	14
	Ameriprise	5.300%	3/15/2020	\$109.05	(\$0.70)	4.06%	126	6
	Genworth	6.515%	5/15/2018	\$102.14	(\$0.90)	6.13%	378	18
	Lincoln National	8.750%	7/15/2019	\$127.73	(\$1.04)	4.59%	198	17
	MassMutual	8.875%	6/15/2039	\$142.23	(\$0.29)	5.80%	168	7
	MetLife	4.750%	2/15/2021	\$102.59	(\$0.78)	4.42%	142	10
	Mutual of Omaha	6.800%	6/15/2036	\$107.98	\$1.67	6.17%	219	(11)
	New York Life	6.750%	11/15/2039	\$118.83	\$0.05	5.44%	127	1
	NLV Financial	7.500%	8/15/2033	\$117.86	(\$0.08)	6.03%	225	4
	Northwestern Mutual	6.063%	3/15/2040	\$108.39	(\$1.99)	5.48%	130	20
	Pacific Life	9.250%	6/15/2039	\$135.61	\$0.61	6.48%	233	1
	Principal	6.050%	10/15/2036	\$107.85	\$0.87	5.47%	149	7
	Prudential	4.500%	11/15/2020	\$100.61	(\$0.59)	4.42%	153	13
	TIAA	6.850%	12/15/2039	\$115.86	(\$1.56)	5.72%	157	14
P&C	ACE INA	5.900%	6/15/2019	\$114.32	(\$0.30)	3.81%	121	5
	Allstate	7.450%	5/15/2019	\$121.42	(\$0.53)	4.24%	168	8
	American Financial	9.875%	6/15/2019	\$125.83	(\$0.30)	5.79%	321	6
	Berkshire Hathaway	5.400%	5/15/2018	\$112.68	(\$0.21)	3.33%	102	5
	Travelers	3.900%	11/15/2020	\$98.32	(\$0.30)	4.12%	123	6
	XL Group	6.250%	5/15/2027	\$103.53	\$1.43	5.90%	254	(7)
Other	AON	5.000%	9/15/2020	\$104.56	(\$0.08)	4.40%	154	8
	AIG	5.850%	1/15/2018	\$105.06	(\$1.22)	4.94%	272	23
	Fidelity National	7.875%	7/15/2020	\$110.88	(\$0.19)	6.28%	481	13
	Hartford	5.500%	3/15/2020	\$104.92	(\$0.81)	4.81%	206	14
	Marsh	9.250%	4/15/2019	\$130.17	(\$1.06)	4.61%	202	15
	Nationwide	9.375%	8/15/1939	\$126.38	(\$1.39)	7.18%	305	15
Health	Aetna	3.950%	9/15/2020	\$99.69	(\$0.04)	3.99%	114	4
	CIGNA	5.125%	6/15/2020	\$107.66	(\$0.02)	4.10%	128	3
	United Healthcare	3.875%	10/15/2020	\$99.19	(\$0.25)	3.98%	108	4
	Wellpoint	4.350%	8/15/2020	\$102.48	(\$0.02)	4.02%	118	4

Questions and comments are always welcome. Please contact the Capital Markets Bureau at CapitalMarkets@naic.org.

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