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Update on the Insurance Industry's Use of Derivatives and Exposure Trends

The NAIC Capital Markets Bureau published several special reports in the past few years concerning derivatives, providing insight into exposure trends, credit default swaps, hedging, changing reporting requirements, and market developments resulting from enactment of the federal Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank) and other global initiatives. This report reviews U.S. insurers' derivatives holdings and exposure trends as of year-end 2015.

Key Points:

- Derivatives activity in the U.S. insurance industry leveled off in 2015. The total notional value of derivative positions was virtually unchanged over year-end 2014, at \$2 trillion.
- An overwhelming 94% of total industry notional value pertains to hedging, virtually unchanged since year-end 2010, when the Capital Markets Bureau began analyzing the data. Out of that 94%, 49% pertained to interest rate hedges, same as a year earlier, while 24% pertained to equity risk.
- Life insurers accounted for approximately 95% of total notional value, compared to 94% at year-end 2014. Property/casualty (P/C) insurers accounted for 5%, down from 6% a year earlier. Derivatives exposure in the health and fraternal segments was minimal, and title insurers reported no exposure.
- Swaps accounted for the largest share (50%) of total notional value, followed by options (44%), futures (3%) and forwards (3%). Swaps exposure grew 1% in 2015, while options exposure fell 2%.

The Insurance Industry's Use of Derivatives: A Brief Overview

Within the statutory regulatory reporting framework, options, warrants, caps, floors, collars, forwards, futures, swaps and similar instruments are considered derivatives; their definitions are contained in the NAIC *Accounting Practices and Procedures Manual* (AP&P Manual). Derivatives holdings and activity are reported on Schedule DB of the statutory financial statements.

Insurers use derivatives primarily for hedging, income generation and replication of other assets. Hedging—historically the main purpose of derivatives for insurers—accounted for 94% of total notional value outstanding as of year-end 2015, consistent with prior years. Hedges can be constructed as portfolio hedges or specific asset hedges against one or more risks—typically interest rate risk, equity risk, foreign exchange risk and credit risk.

U.S. Insurance Industry Derivatives Use in 2015

After several consecutive years of increase, U.S. insurers' derivatives activity leveled off in 2015 in terms of notional value. Note that most quantities discussed in this special report are in terms of notional value—the nominal or face amount of a financial instrument that is used to calculate payments made on that instrument. Notional values often are not indicators of true economic exposure, but they serve as a more consistent indicator of market activity and scale than book/adjusted carrying value (BACV) or fair value, both of which can be affected by factors such as market prices and accounting treatment.

Total industry derivatives exposure in BACV terms as of Dec. 31, 2015, totaled \$55 billion (Chart 1), accounting for just less than 1% of total cash and invested assets, and representing a decrease of 4% from year-end 2014. The total notional decreased 0.5% from year-end 2014, to \$2 trillion. From Dec. 31, 2010, through Dec. 31, 2015, total insurance industry exposure in BACV terms grew 168%, for a compound average growth rate (CAGR) of 21.8%, while the total notional increased 86% (13.3% CAGR).

Chart 1: U.S. Insurance Industry Derivatives Exposure as of Dec. 31, 2015

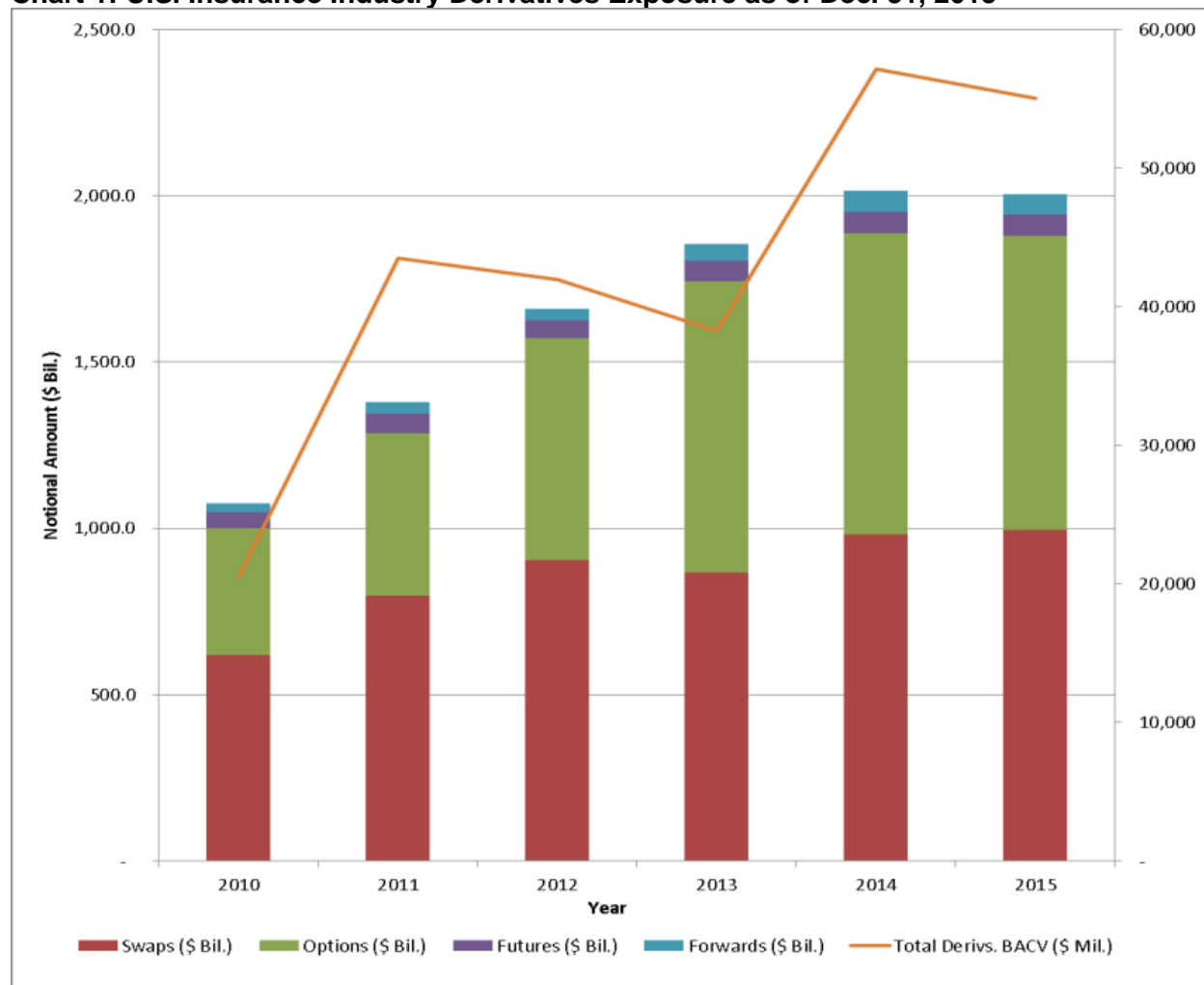


Table 1: Count of Insurers with Derivatives Exposure as of Dec. 31, 2015

Industry Segment	Number of Companies with Derivs. Exposure	Number of Companies: Total Industry	Percentage of Companies with Derivs. Exposure
Life	136	750	18%
P/C	64	2,643	2%
Health	6	958	1%
Fraternal	2	79	3%
Title	-	53	0%
Total	208	4,483	5%

As Table 1 shows, 208 companies—only 5% of all active insurance companies nationwide—have derivatives exposure, but those involved with derivatives tend to be larger, accounting for \$3.68 trillion, or 63% of total insurance industry assets. In the life segment, derivatives use is

concentrated among just 136 companies that together account for \$3.29 trillion in assets, or 87% of the segment total. In all other segments, fewer than 5% of insurers use derivatives, although the two fraternal companies with derivatives positions account for 45% of segment assets, and the 64 P/C companies using derivatives account for 19% of that sector's assets. Table 2 shows U.S. insurance industry derivatives exposure by company size, in terms of total assets. The data show the vast majority of industry derivative holdings are at companies with more than \$10 billion in total assets.

Table 2: U.S. Insurance Industry Derivatives Exposure by Company Size (Assets) as of Dec. 31, 2015

Industry Segment	Insurance Company Total Assets							Total Notional (\$mil.)
	>\$10 bil.	>\$5 bil. to \$10 bil.	>\$2.5 bil. to \$5 bil.	>\$1 bil. to \$2.5 bil.	>\$0.5 bil. to \$1 bil.	>\$0.25 bil. to \$0.5 bil.	<\$0.25 bil.	
Life	1,748,545	105,376	12,063	28,258	4,308	349	489	1,899,389
P/C	19,598	62,660	9,541	10,277	1,878	218	45	104,216
Health	-	-	-	275	-	269	1	544
Fraternal	769	-	-	-	-	50	-	819
Total	1,768,912	168,036	21,605	38,810	6,185	886	534	2,004,967
% of Total	88%	8%	1%	2%	0%	0%	0%	100%

Insurers with derivatives exposure at the end of 2015 were domiciled in 43 states, but exposure was concentrated in Connecticut, Delaware, Iowa, Massachusetts, Michigan, Minnesota and New York, which together accounted for \$1.59 trillion, or about 79% of the total.

Derivatives positions—particularly swaps—can be quite large; the average position size was \$26.4 million (notional, hence not to be construed as an indicator of risk), down modestly year over year (YOY). The largest single position open at Dec. 31, 2015, in terms of notional value, was a \$10 billion corridor option that expires in 2021, which was purchased as an interest rate hedge for a company's fixed income portfolio. (A corridor option is a derivative whose payoff at maturity depends on the amount of time a specified spot rate remains within a specified range during the option's life.)

Table 3: Insurance Industry Derivatives Exposure by Derivative Type as of Dec. 31, 2015

Industry Segment	Swaps	Options	Futures	Forwards	Total Notional Value (\$ Mil.)	% of Total
Life	970,945	806,866	64,862	56,716	1,899,389	94.7%
P/C	22,155	77,606	-	4,455	104,216	5.2%
Health	276	-	-	269	544	0.0%
Fraternal	168	650	-	-	819	0.0%
Total	993,544	885,122	64,862	61,439	2,004,967	100.0%
% of Total	49.6%	44.1%	3.2%	3.1%	100.0%	

As Table 3 shows, life insurers accounted for 95% of total industry notional value, roughly in line with year-end 2014. P/C insurers accounted for 5.2%, down from 6.2% a year earlier, but up from a low of 4.5% in 2011. Health and fraternal derivatives exposure has been minimal in the past five years, and title insurers have no exposure.

Growth

Since year-end 2010, the total notional value of the industry's derivatives holdings has increased at a 13.3% CAGR, substantially outpacing the 3.6% CAGR in total cash and invested assets. As Table 4 shows, however, that growth decelerated, from 28.1% in 2011 to 8.6% in

2014, and turned negative in 2015. Most derivatives types showed YOY decreases in total notional exposure in 2015, except for swaps, which increased 1.3% from a year earlier, and futures, which were flat YOY. Table 5 shows slowing growth in life companies' derivatives exposure in the past five years, while P/C companies rapidly grew their derivatives exposure in 2012 and 2013 before leveling off in 2014 and declining 16% in 2015. Health insurers increased their small exposure by 25% in 2015 after cutting it 58% in 2014, while fraternal companies increased their still-modest exposure 27% in 2015 after nearly quadrupling their holdings in 2014.

Table 4: Insurance Industry Derivatives Growth 2010–2015 (notional, as of Dec. 31, 2015)

Type	2010	2011	2012	2013	2014	2015	5-yr CAGR
Swaps (\$ Bil.)	619.2	796.7	903.1	867.3	980.7	993.5	9.9%
Options (\$ Bil.)	382.1	489.5	669.2	875.5	905.6	885.1	18.3%
Futures (\$ Bil.)	47.2	57.0	52.5	59.8	64.9	64.9	6.6%
Forwards (\$ Bil.)	27.4	35.1	35.7	52.3	64.0	61.4	17.5%
Total Notional (\$ Bil.)	1,075.9	1,378.4	1,660.5	1,854.9	2,015.0	2,005.0	13.3%
Total Cash & Inv. Assets (\$ Bil.)	4.88	5.08	5.31	5.52	5.76	5.82	3.6%
Total Derivs. BACV (\$ MIL)	20,536	43,511	41,934	38,236	57,141	55,032	21.8%
Year-Over-Year Change by Type							
Swaps		28.7%	13.4%	-4.0%	13.1%	1.3%	
Options		28.1%	36.7%	30.8%	3.4%	-2.3%	
Futures		20.7%	-7.9%	13.8%	8.5%	0.0%	
Forwards		28.3%	1.5%	46.7%	22.3%	-3.9%	
Total Notional		28.1%	20.5%	11.7%	8.6%	-0.5%	
Total Cash & Inv. Assets		4.0%	4.6%	4.0%	4.4%	1.0%	
Total BACV		111.9%	-3.6%	-8.8%	49.4%	-3.7%	

Table 5: Insurance Industry Derivatives Growth by Industry Segment 2010–2015 (notional, as of Dec. 31, 2015)

Industry Segment	2010	2011	2012	2013	2014	2015	5-yr CAGR
Life	1,017,770	1,320,983	1,584,247	1,731,668	1,890,018	1,899,389	13.2%
P/C	57,027	55,965	74,954	122,069	123,946	104,216	16.8%
Health	623	870	1,040	1,042	436	544	-6.9%
Fraternal	453	582	276	171	643	819	7.3%
Total Notional (\$ MIL)	1,075,873	1,378,400	1,660,517	1,854,950	2,015,043	2,004,967	13.4%
Year-Over-Year Change by Segment							
Life		29.8%	19.9%	9.3%	9.1%	0.5%	
P/C		-1.9%	33.9%	62.9%	1.5%	-15.9%	
Health		39.6%	19.5%	0.2%	-58.2%	24.8%	
Fraternal		28.5%	-52.6%	-38.0%	276.0%	27.3%	
Total (\$ mil)		28.1%	20.5%	11.7%	8.6%	-0.5%	
Life	95%	96%	95%	93%	94%	95%	
P/C	5%	4%	5%	7%	6%	5%	
Health	0%	0%	0%	0%	0%	0%	
Fraternal	0%	0%	0%	0%	0%	0%	
Total (\$ mil)	100%	100%	100%	100%	100%	100%	

Hedging

Table 6, Table 7 and Table 8 give insight into insurers' derivatives usage; an overwhelming 94% of total industry notional value was for hedging, virtually the same as in prior years.

Table 6: Insurance Industry Derivatives Exposure by Segment and Purpose/Strategy at Dec. 31, 2015

Industry Segment	Hedging	Replication	Income		Total Notional (\$ Mil.)	% of Total
			Generation	Other		
Life	1,818,068	36,720	3	44,597	1,899,389	95%
P/C	63,116	806	50	40,243	104,216	5%
Health	544	-	-	-	544	0%
Fraternal	419	0	400	-	819	0%
Total	1,882,147	37,527	453	84,840	2,004,967	100%
% of Total	94%	2%	0%	4%	100%	

Table 7: Insurance Industry Derivatives Exposure by Type and Purpose/Strategy as of Dec. 31, 2015

Derivative Type	Hedging	Replication	Income		Total Notional (\$ Mil.)	% of Total
			Generation	Other		
Swaps	949,834	37,159	-	6,551	993,544	50%
Options	809,171	282	453	75,216	885,122	44%
Futures	63,365	0	-	1,497	64,862	3%
Forwards	59,778	86	-	1,576	61,439	3%
Total	1,882,147	37,527	453	84,840	2,004,967	100%
% of Total	94%	2%	0%	4%	100%	

Table 8: Insurance Industry Derivatives Used for Hedging Purposes by Risk Type as of Dec. 31, 2015

Industry Segment	Interest					Hedging Total Notional Value	% of Total
	Rate	Equity	FX	Credit	Other	(\$ Mil.)	
Life	970,575	480,963	106,762	5,320	254,448	1,818,068	97%
P/C	3,276	2,819	2,980	223	53,818	63,116	3%
Health	276	-	269	-	-	544	0%
Fraternal	50	200	168	-	-	419	0%
Total	974,177	483,982	110,179	5,543	308,266	1,882,147	100%
% of Total	52%	26%	6%	0%	16%	100%	

Table 9: Insurance Industry Growth in Hedging with Derivatives by Risk Type 2010–2015

Risk Type	2010	2011	2012	2013	2014	2015	5-yr CAGR
Interest rate	505,499	879,852	1,072,973	974,228	1,230,462	974,177	14.0%
Equity	154,044	235,818	288,621	380,597	425,422	483,982	25.7%
FX	75,023	96,013	118,269	316,639	108,264	110,179	8.0%
Credit	27,172	24,325	23,404	17,747	12,134	5,543	-27.2%
Other	24,654	68,816	64,446	55,979	109,036	308,266	65.7%
Total (\$ MIL.)	786,392	1,304,824	1,567,713	1,745,190	1,885,318	1,882,147	19.1%
Year-over-Year Change in Hedging by Risk Type							
Interest rate		74.1%	21.9%	-9.2%	26.3%	-20.8%	
Equity		53.1%	22.4%	31.9%	11.8%	13.8%	
FX		28.0%	23.2%	167.7%	-65.8%	1.8%	
Credit		-10.5%	-3.8%	-24.2%	-31.6%	-54.3%	
Other		179.1%	-6.4%	-13.1%	94.8%	182.7%	
Total (\$ Mil.)		65.9%	20.1%	11.3%	8.0%	-0.2%	
Year-end Interest Rates and Index Values							
2-year Treasury Yld. (%)	0.61	0.25	0.25	0.38	0.67	1.20	
10-year Treasury Yld. (%)	3.30	1.89	1.78	3.04	2.17	2.45	
Trade-weighted Dollar Index	99.57	100.75	99.06	102.00	111.20	122.62	
S&P 500	1,257.64	1,257.60	1,426.19	1,848.36	2,058.90	2,043.94	

At Dec. 31, 2015, 52% of the \$1.882 trillion in notional value for hedging purposes was to hedge interest rate risk, down from 65% a year earlier; 26% related to equity risk, compared to 23% at Dec. 31, 2014.

Table 9 gives insight into hedging trends over time. For example, since 2010, insurers have tended to increase their hedging of interest rate risk as long-term interest rates trended lower, and then back off their hedges during periods of rising rates. By contrast, insurers increased their hedging of equity risk each year since 2010. Insurers increased their foreign exchange hedges by more than 20% per year in 2011 and 2012, even though currencies of the major developed economies traded in a relatively tight range for much of that time. In 2013, however, on the heels of currency devaluations in Japan and Latin America and volatility in certain emerging-market currencies, total foreign exchange (FX)-related notional exposure spiked 168%, before returning in 2014 and 2015 to a level more consistent with recent history. Finally, the total notional value of credit risk hedges has trended steadily lower since 2010, while the increase in notional pertaining to "other" risks has increased sharply.

Insurers use a variety of hedging tools. To hedge interest rate risk, as of year-end 2015,

insurers tended to favor interest rate swaps (64% of total interest rate risk hedges' notional value) and options (34%), including interest rate caps (21%), as well as other vehicles such as floors and swaptions. To hedge equity risk, the primary tools were put options (40%), call options (32%) and collars (11%). FX risk was hedged mainly with currency swaps (63%) and forwards (26%), and credit risk was hedged mainly with credit default swaps (CDS) (87%), as well as a smaller number of total return swaps.

Hedge Effectiveness

On Schedule DB, hedges are classified as either "hedging effective" or "hedging other." A hedge generally is considered effective when "the change in fair value of the derivative hedging instrument is within 80% to 125% of the opposite change in fair value of the hedged item attributable to the hedged risk." A hedge also can be designated as effective "when an R-squared of 0.80 or higher is achieved when using a regression analysis technique."

Given the strict criteria and extensive documentation required, many hedges are not deemed effective for accounting purposes but still provide strategic value; these positions, reported as "hedging other" on Schedule DB, still are intended to reduce risk, but simply do not meet the accounting and documentation requirements.

Table 10: Hedging Positions by Type and Statutory Accounting Treatment as of Dec. 31,

Derivative Type	Hedging		Total	% of Total
	Effective	Other	Notional (\$ Mil.)	
Swaps	152,298	797,536	949,834	50%
Options	29,123	780,048	809,171	43%
Futures	38	63,326	63,365	3%
Forwards	15,738	44,040	59,778	3%
Total	197,197	1,684,950	1,882,147	100%
2015 % of Total	10%	90%	100%	

According to *Statement of Statutory Accounting Principles (SSAP) No. 86—Derivatives*, derivatives used in effective hedges are valued and reported in a manner consistent with the hedged asset or liability ("hedge accounting"). Derivative instruments used in transactions that are not deemed hedge-effective are reported at fair value, and changes in fair value are recorded as unrealized gains or losses ("fair value accounting"). In those cases, BACV would reflect the changes in value. Hedge accounting, then, helps limit volatility in financial reporting. As shown in Table 10, the proportion of hedges classified as hedging effective as of Dec. 31, 2015, was 10%; it has ranged between 7% and 12% in recent years.

Swaps

Table 11 breaks down the insurance industry's exposure to swaps by type of contract and insurance industry type. Interest rate swaps are the most common (83% of notional value for all open insurance industry swap positions), followed by FX swaps (8%), total return swaps (4%) and CDS (3%). Similar to overall derivatives exposure, life companies accounted for the vast majority of swap exposure within the insurance industry, with a 98% share at year-end 2015. YOY, insurers increased their swaps exposure only about 1%, compared to an 8% increase in 2014.

Table 11: Insurance Industry Swaps Exposure by Contract Type as of Dec. 31, 2015

Contract Type	Life	P/C	Health	Fraternal	Total Notional (\$ Mil.)	% of Total
Interest Rate	807,576	12,217	276	15	820,084	83%
FX	73,720	2,300	-	153	76,173	8%
Credit Default	30,932	3,406	-	-	34,338	3%
Total Return	38,970	4,167	-	-	43,138	4%
Other	19,747	65	-	-	19,812	2%
Total	970,945	22,155	276	168	993,544	100%
% of Total	98%	2%	0%	0%	100%	

Table 12 shows that hedging accounted for 96% of total insurance industry swaps' notional value as of Dec. 31, 2015, approximately the same proportion as a year earlier, and was the primary purpose for all types of swaps except CDS, which were employed primarily in replications.

Table 12: Insurance Industry Swaps Exposure by Type and Purpose/Strategy as of Dec. 31, 2015

Contract Type	Hedging	Replication	Income Generation	Other	Total Notional (\$ Mil.)	% of Total
Interest Rate	805,346	11,770	-	2,968	820,084	83%
FX	73,877	-	-	2,296	76,173	8%
Credit Default	9,047	25,262	-	29	34,338	3%
Total Return	41,790	98	-	1,250	43,138	4%
Other	19,775	29	-	8	19,812	2%
Total	949,834	37,159	-	6,551	993,544	100%
% of Total	96%	4%	0%	1%	100%	

Table 13 breaks down the insurance industry's use of swaps by type according to the risks they are attempting to hedge. Not surprisingly, interest rate, FX and CDS are overwhelmingly employed to manage their risk namesakes, while total return swaps are predominately used to manage equity risk.

Table 13: Insurance Industry Swaps Exposure (for Hedging Purposes) by Type of Contract and Risk Hedged, as of Dec. 31, 2015

Contract Type	Interest					Other	Hedging Total Notional (\$ Mil.)	% of Total
	Rate	Equity	FX	Credit				
Interest Rate	614,182	422	37	-	-	205,443	820,084	83%
FX	-	-	71,346	-	-	4,827	76,173	8%
Credit Default	-	-	-	28,129	-	6,209	34,338	3%
Total Return	9,133	32,810	-	690	-	505	43,138	4%
Other	5,828	7,250	146	-	-	6,588	19,812	2%
Total	629,143	40,482	71,528	28,819	-	223,572	993,544	100%
% of Total	63%	4%	7%	3%	-	23%	100%	

Options

Table 14 and Table 15 break down options exposure by type of contract, purpose and company type. Put options are most common (25% of total notional), closely followed by caps and call

options/warrants. Given the stock market's strong performance in recent years, insurers probably purchased put options as hedges against potential declines in market prices; puts for hedging accounted for 96% of all put transactions. Caps and call options accounted for 23% and 24%, respectively, of all option transactions. Similar to overall derivatives exposure, life companies accounted for the overwhelming majority of options exposure, with 91% of the industry total at year-end 2015.

Table 14: Insurance Industry Options Exposure by Type of Contract as of Dec. 31, 2015

Option Type	Life	P/C	Health	Fraternal	Total	
					Notional (\$ Mil.)	% of Total
Put options	213,321	9,051	-	-	222,372	25%
Caps	202,606	311	-	50	202,966	23%
Call options/warrants	208,016	50	-	600	208,666	24%
Floors	31,115	41,306	-	-	72,421	8%
Collars	59,582	-	-	-	59,582	7%
Other	92,227	26,888	-	-	119,115	13%
Total	806,866	77,606	-	650	885,122	100%
% of Total	91%	9%	0%	0%	100%	

Table 15: Insurance Industry Options Exposure by Type and Purpose/Strategy as of Dec. 31, 2015

Option Type	Hedging	Replication	Income		Total	
			Generation	Other	Notional (\$ Mil.)	% of Total
Put options	213,509	155	-	8,708	222,372	25%
Caps	202,962	-	-	5	202,966	23%
Call options/warrants	198,680	115	453	9,418	208,666	24%
Floors	72,421	-	-	-	72,421	8%
Collars	59,582	-	-	-	59,582	7%
Other	62,017	12	0	57,085	119,115	13%
Total	809,171	282	453	75,216	885,122	100%
% of Total	91%	0%	0%	8%	100%	

Table 16 breaks down the insurance industry's use of options by type according to the risks they intended to hedge. Here, the story is a bit more complex than in the case of swaps. Equity risk is the largest category in notional terms, followed fairly closely by interest rate risk. With respect to equity risk, put options are the top choice for insurers, followed by call options and collars. With respect to interest rate hedging, caps appear to be the prevailing choice, followed by smaller exposures to floors, calls and other instruments. Most likely also included in call options are swaptions—options to enter into a swap contract at a future date. (New reporting guidance for swaptions has been adopted for 2016.) Swaptions are another tool to manage interest rate risk, particularly with respect to certain life products with guaranteed benefits, where the duration of liabilities can depend on customer behavior; this is known as lapse or surrender risk. There are many determinants of lapse risk, including market factors such as interest rates. As market interest rates decline, the average yield of the general account also begins to move lower because maturing assets are reinvested at lower yields. In the event of a future market selloff (whereby market yields rise), the average yield of the general account might not keep up

with market yields, so policyholders ultimately could be incented to surrender their policies, forcing the insurance company to sell assets at a loss.

Table 16: Insurance Industry Options Exposure (for Hedging Purposes) by Type of Contract and Risk Hedged, as of Dec. 31, 2015

Option Type	Interest			Credit & Other	Hedging Total	% of Total
	Rate	Equity	FX		Notional (\$ Mil.)	
Put options	12,129	191,807	2,445	-	206,381	28%
Caps	202,653	229	-	-	202,882	27%
Call options/warrants	29,749	152,882	1,698	-	184,329	25%
Floors	26,862	-	-	-	26,862	4%
Collars	4,900	51,645	3,037	-	59,582	8%
Other	54,416	7,447	-	-	61,863	8%
Total	330,709	404,009	7,179	-	741,898	100%
% of Total	45%	54%	1%	0%	100%	

Credit Default Swaps

As of year-end 2015, the notional value of CDS held by the U.S. insurance industry totaled \$34.3 billion, a 5% decrease from \$34.9 billion at year-end 2014. Life and P/C companies were the only participants in the CDS market in 2015, as in 2014.

CDS can be either bought or sold, for different purposes. In CDS nomenclature, to buy protection is to reduce (or short) credit risk, and to sell (write) protection is to assume (go long) credit risk. Table 17 illustrates that as of year-end 2015, about \$19.7 billion (or 57%) of the \$34.3 billion in insurance industry CDS exposure was as a seller of protection (long credit). The remainder was bought protection (short credit). Credit risk can be hedged by buying protection on a specific entity (single-name CDS) or on a specified index. The industry's ratio of bought to total protection was 43% at the end of 2015, down from 47% a year earlier, indicating that credit sentiment among insurers moderately improved.

Most insurers selling protection (assuming credit risk) are engaging in replication (synthetic asset) transactions (RSAT), effectively packaging CDS positions with U.S. Department of the Treasury (Treasury) securities or other bonds in their portfolios to create synthetic securities that give them the desired risk exposures and terms, irrespective of any availability, liquidity and price constraints they may face in the cash bond markets.

Table 17: Insurance Industry CDS Exposure as of Dec. 31, 2015

Industry Segment	Buyer	Seller	Total	
			Notional (\$ Mil.)	% of Total
Life	13,064	17,868	30,932	90%
P/C	1,531	1,874	3,406	10%
Total	14,596	19,742	34,338	100%
% of Total	43%	57%	100%	

Counterparty Exposure

The two parties to any derivatives contract give rise to counterparty risk—the risk faced by one party that the other will not satisfy the obligations of the contract. Insurers mainly face counterparty risk in derivatives contracts that are traded over the counter (OTC), such as certain options, swaps and forwards. Historically, these have been bilateral, negotiated contracts that settle between the parties. Many view the growing number of derivatives contracts that settle

through a central clearinghouse as less of a concern because of the strict collateral requirements and risk-neutral objective that they follow, whereas dealers participating in bilateral contracts have more leeway. Futures and listed options trade on exchanges, which provide a similar clearing function to clearinghouses; "standardized" OTC derivatives must now clear through central clearinghouses.

Table 18 summarizes exposures in notional value to the top 10 counterparties as of year-end 2015. As in the overall derivatives market, the insurance industry's counterparty exposure is concentrated amongst relatively few institutions. The 10 counterparties listed in Table 18 represent 69% of the notional value outstanding in the insurance industry as of year-end 2015, roughly in line with prior years, although positions may have changed. (As before, note that notional value may not accurately depict the true exposure to a given risk.)

Table 18: Insurance Industry Exposure to Top 10 Counterparties as of Dec. 31, 2015 (\$

Counterparty	Life	P/C	Health	Fraternal	Total	% Of
					Notional	Total
					Value	
					(\$ Mil.)	
CITIBANK	136,330	62,144	75	5	198,554	10%
GOLDMAN SACHS	176,843	1,146	-	-	177,989	9%
DEUTSCHE BANK	161,819	14,214	-	-	176,033	9%
BANK OF AMERICA	158,244	3,217	200	48	161,710	8%
CREDIT SUISSE	134,496	1,787	-	-	136,283	7%
MORGAN STANLEY	111,145	420	-	15	111,580	6%
CHICAGO MERC EXCH	99,020	9,048	-	-	108,068	5%
WELLS FARGO	107,093	783	-	-	107,876	5%
JP MORGAN	101,946	4,980	-	94	107,019	5%
BARCLAYS	103,826	1,557	-	-	105,383	5%
Total Top 10	1,290,761	99,297	275	162	1,390,496	69%
Total Notional Value	1,899,389	104,216	544	819	2,004,968	100%
Total Top 10 % of Total						
Mil.) Notional	68%	95%	51%	20%	69%	

Counterparty exposure is expected to evolve as more derivatives trading moves from bilateral to central counterparty clearing; note that the Chicago Mercantile Exchange (CME) cracked the top 10 counterparties list in 2015. According to the Financial Stability Board (FSB), most of the 24 FSB member jurisdictions had or were expected to have implemented a legal framework and standards for making specific central clearing determinations for more than 90% of OTC derivatives transactions in their jurisdiction by the end of 2016. In the year ended Sept. 30, 2015, of single currency interest rate OTC derivatives transactions reported under Commodity Futures Trading Commission (CFTC) rules, centrally cleared trades averaged 70% of weekly aggregate transaction volume. The rate of central clearing of OTC credit derivative indices was even higher, at 79% for the same period. The portion of total notional exposure (as reported in Schedule DB) in centrally cleared instruments increased in 2015, to 22% from 14% in 2014; the smaller share reflects the many legacy or non-standardized uncleared positions on the books, which can be quite long-dated—20 or more years in some cases—but the centrally cleared share will grow as legacy positions run off.

Posted Collateral

To mitigate counterparty credit risk, counterparties generally are required to post collateral. Insurers report counterparty exposure on Schedule DB, Part D, in BACV and fair value terms;

collateral posted to insurers is best measured in fair value because BACV does not apply to collateral pledged to a reporting entity in which there has not been a default (i.e., Off-Balance Sheet Collateral).

Table 19: Insurance Industry Posted Collateral (BACV) as of Dec. 31, 2015 (\$ Mil.)

Collateral Type	Life	P/C	Health	Fraternal	Total BACV (\$ Mil.)	% of Total	% of Insurance Industry Exposure to Asset Type
Cash (U.S. \$)	1,575	463	-	-	2,039	9%	0.9%
Corporate Bonds - U.S.	1,857	5	-	-	1,862	8%	0.1%
Foreign Government	229	-	-	-	229	1%	0.2%
Loan Backed and Structured (ABS)	216	-	-	-	216	1%	0.0%
Municipal	-	111	-	-	111	0%	0.0%
U.S. Treasury and Agency	10,306	863	-	47	11,216	50%	4.5%
MBS-Agency	4,562	227	-	47	4,835	22%	1.5%
Other/NA	1,867	57	-	-	1,924	9%	NA
Total	20,612	1,726	-	93	22,431	100%	0.4%
% of Total	92%	8%	0%	0%	100%		

Table 19 shows that as of year-end 2015, about \$22.4 billion BACV of collateral was posted by insurers with counterparties (\$23.7 billion fair value), compared to \$12.1 billion BACV (\$13.1 billion fair value) a year earlier. Insurers had collateral with a fair value of about \$70 billion posted to them by counterparties, up from \$36.3 billion at the end of 2014. Life companies accounted for 92% of the total BACV of collateral posted with counterparties as of year-end 2015, since they are the primary users of derivatives in the industry. P/C accounted for 8%, and fraternal accounted for less than 1%.

Treasury and agency securities were the prevalent collateral type, comprising 50% of the total BACV as of Dec. 31, 2015. Other significant collateral types were cash (9%), U.S. corporate bonds (8%) and agency mortgage-backed securities (22%), which together accounted for nearly 90% of collateral posted by insurers. Note that collateral pledged to counterparties by insurers remains on their balance sheets, but the amount pledged is small compared to their total assets, and is a restricted asset.

Conclusion

The notional amount of insurance industry derivatives exposure appears to have leveled off as of year-end 2015, after years of strong growth, and the actual economic exposure to the industry remains small. Life insurers consistently have had the largest derivatives exposure, followed by P/C, health and fraternal companies; title companies have none. Concern over the size of total notional exposure should be mitigated by its focus; the vast majority of the industry's derivatives exposures continue to be for hedging, chiefly of interest rate risk, as well as equity risk and other risks to a small extent.

The NAIC Capital Markets Bureau will continue to track derivatives usage trends among insurers, and will monitor developments in the derivatives market and their impact on insurance industry investments. We will report on any developments as deemed appropriate.

Major Insurer Share Prices		Close	Change %			Prior		
			Week	QTD	YTD	Week	Quarter	Year
Life	Aflac	\$72.53	0.7	4.2	4.2	\$72.02	\$69.60	\$69.60
	Ameriprise	131.71	(0.3)	18.7	18.7	132.10	110.94	110.94
	Genworth	4.16	2.5	9.2	9.2	4.06	3.81	3.81
	Lincoln	67.96	(1.5)	2.6	2.6	69.01	66.27	66.27
	MetLife	53.36	(1.2)	(1.0)	(1.0)	54.02	53.89	53.89
	Principal	63.44	(0.2)	9.6	9.6	63.54	57.86	57.86
	Prudential	109.92	(1.0)	5.6	5.6	111.06	104.06	104.06
	UNUM	47.77	(2.1)	8.7	8.7	48.81	43.93	43.93
PC	Axis Capital	68.27	(0.8)	4.6	4.6	68.81	65.27	65.27
	Allstate	82.85	1.0	11.8	11.8	82.05	74.12	74.12
	Arch Capital	95.60	0.5	10.8	10.8	95.09	86.29	86.29
	Cincinnati	75.18	1.6	(0.8)	(0.8)	73.97	75.75	75.75
	Chubb	138.10	0.2	4.5	4.5	137.81	132.12	132.12
	Everest Re	235.99	0.4	9.1	9.1	234.99	216.40	216.40
	Progressive	40.31	1.9	13.5	13.5	39.54	35.50	35.50
	Travelers	123.14	0.3	0.6	0.6	122.83	122.42	122.42
	WR Berkley	72.69	0.7	9.3	9.3	72.16	66.51	66.51
	XL	40.21	(0.6)	7.9	7.9	40.45	37.26	37.26
Other	AON	\$118.91	0.9	6.6	6.6	\$117.86	\$111.53	\$111.53
	AIG	62.42	(1.0)	(4.4)	(4.4)	63.08	65.31	65.31
	Assurant	98.97	(0.7)	6.6	6.6	99.64	92.86	92.86
	Fidelity National	38.58	2.6	13.6	13.6	37.61	33.96	33.96
	Hartford	48.78	(1.9)	2.4	2.4	49.72	47.65	47.65
	Marsh	75.14	2.0	11.2	11.2	73.67	67.59	67.59
Health	Aetna	\$131.80	(0.8)	6.3	6.3	\$132.80	\$124.01	\$124.01
	Cigna	151.89	(0.0)	13.9	13.9	151.92	133.39	133.39
	Humana	218.90	0.4	7.3	7.3	217.93	204.03	204.03
	United	169.70	(0.2)	6.0	6.0	169.98	160.04	160.04
Monoline	Assured	\$39.06	(2.5)	3.4	3.4	\$40.06	\$37.77	\$37.77
	MBIA	8.91	(3.9)	(16.7)	(16.7)	9.27	10.70	10.70
	MGIC	10.63	0.6	4.3	4.3	10.57	10.19	10.19
	Radian	18.74	0.1	4.2	4.2	18.72	17.98	17.98
	XL Capital	40.21	(0.6)	7.9	7.9	40.45	37.26	37.26

March 17, 2017							
Major Market Variables		Change %			Prior		
		Close	Week	QTD	YTD	Week	Quarter
Dow Jones Ind	20,914.62	0.1	5.8	5.8	20,902.98	19,762.60	19,762.60
S&P 500	2,378.25	0.2	6.2	6.2	2,372.60	2,238.83	2,238.83
S&P Financial	406.86	(0.9)	5.3	5.3	410.72	386.53	386.53
S&P Insurance	367.70	(0.0)	4.1	4.1	367.76	353.26	353.26
USDollar \$		Change %			Prior		
/ Euro	\$1.07	0.5	2.1	2.1	\$1.07	\$1.05	\$1.05
/ Crude Oil bbl	48.75	0.6	(9.4)	(9.4)	48.45	53.81	53.81
/ Gold oz	1,228.50	2.0	6.7	6.7	1,204.30	1,150.90	1,150.90
Treasury Ylds %		Change bp			%	%	%
1 Year	0.99	(0.05)	0.17	0.17	1.03	0.82	0.82
10 Year	2.50	(0.08)	0.05	0.05	2.58	2.45	2.45
30 Year	3.11	(0.05)	0.04	0.04	3.16	3.07	3.07
Corp Credit Spreads -bp		Change %			Prior		
CDX.IG	60.95	(5.6)	(9.8)	(9.8)	64.55	67.59	67.59

March 17, 2017										
Major Insurer Bond Yields					Weekly Change					YTD
Company	Coupon	Maturity	Current	Change	Yield	Spread over UST		Spread	Change	Change
						B.P.	Change			
Life	Ameriprise	AMP	3.700%	10/15/2024	\$102.33	\$0.48	3.35%	96	3	(8)
	Lincoln National	LNC	3.350%	3/9/2025	\$98.78	\$0.62	3.53%	114	(0)	2
	MassMutual	MASSMU	3.600%	4/9/2024	\$102.57	\$0.82	3.19%	85	(3)	(8)
	MetLife	MET	4.050%	3/1/2045	\$95.30	\$0.70	4.34%	127	1	(0)
	New York Life	NYL	2.350%	7/14/2026	\$93.11	\$0.69	3.21%	75	2	0
	Pacific Life	PACLIF	5.125%	1/30/2043	\$106.45	\$1.01	4.69%	167	(3)	(23)
	Principal	PPG	6.050%	10/15/2036	\$120.15	\$1.09	4.49%	164	(3)	(5)
	Prudential	PRU	4.600%	5/15/2044	\$104.40	\$0.82	4.32%	127	1	(6)
Allstate	ALL	4.500%	6/15/2043	\$105.38	\$0.91	4.16%	112	(2)	(7)	
	Berkshire Hathaway	BRK	4.300%	5/15/2043	\$102.13	\$0.64	4.17%	116	2	5
	Travelers	TRV	4.600%	8/1/2043	\$107.95	\$1.04	4.10%	104	(2)	(0)
	XL Group	XL	6.250%	5/15/2027	\$117.02	\$0.06	4.17%	155	(1)	(14)
Other	AON	AON	4.250%	12/12/2042	\$91.38	\$0.57	4.84%	182	0	8
	AIG	AIG	6.820%	11/15/2037	\$122.88	\$0.05	5.03%	217	9	6
	Hartford	HIG	4.300%	4/15/2043	\$95.21	\$1.67	4.62%	158	(4)	(26)
	Nationwide	NATMUT	5.300%	11/18/2044	\$107.91	\$1.13	4.78%	173	(2)	(27)
Health	Aetna	AET	6.750%	12/15/2037	\$131.61	\$1.15	4.41%	155	1	(8)
	CIGNA	CI	6.150%	11/15/2036	\$119.16	\$0.08	4.65%	181	7	(27)
	United Healthcare	UNH	4.750%	7/15/2045	\$109.02	\$1.70	4.20%	112	(5)	(1)

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

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