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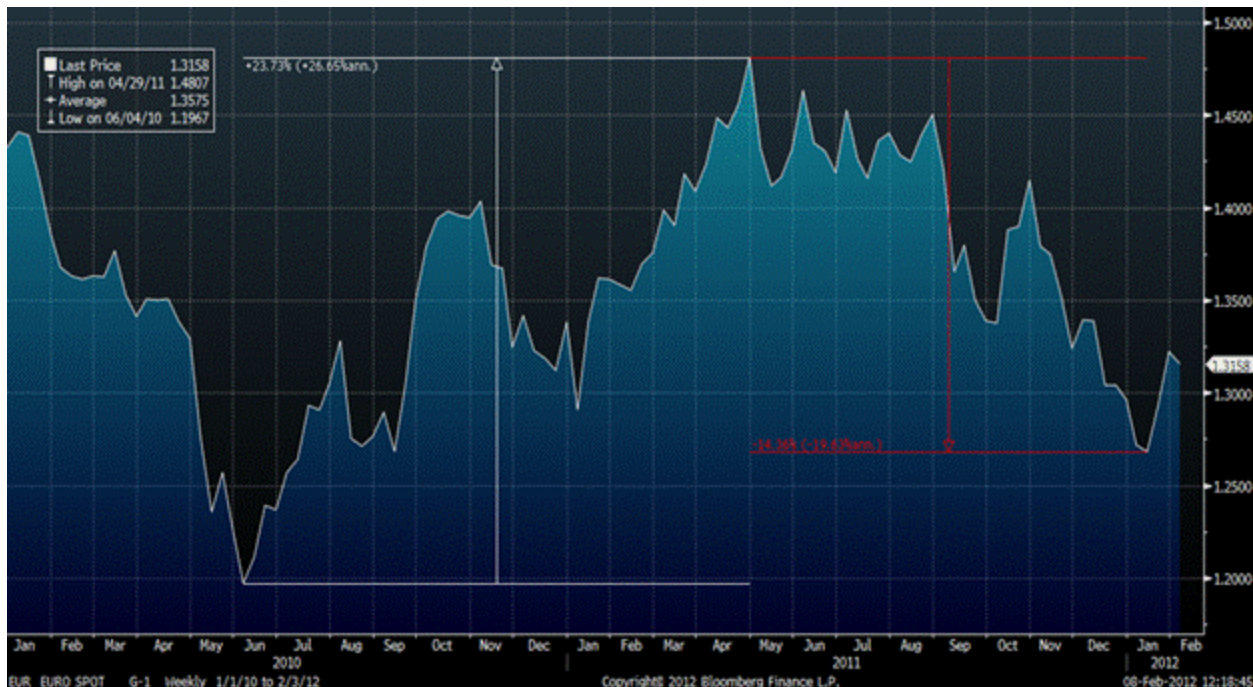
## **Implications of the Financial Turmoil in Europe on Currency Exposure**

### **Overview**

As financial turmoil continues within countries in the European Union (EU) — and, in particular, countries that participate in the common currency — one question that has been raised from time to time, but has thus far not received much consideration, is the possibility of a breakup of the common currency — the euro. Even short of the complete collapse of the euro, is the possibility that countries currently faced with economic difficulties could exit from the euro and reestablish a national currency. While there are currently 27 countries that form the EU, only 17 participate in the common currency. Normally, when a country is faced with severe budgetary issues, a simple solution is to devalue the currency. This makes imports more expensive and exports cheaper to those outside the country. This tactic, however, is obviously not available to countries when they share a currency framework.

A contributing factor to the current turbulence is that there exists a common currency — at least among 17 countries — but an insufficient level of fiscal unity. While the EU has guidelines with respect to fiscal policies and the size of budget deficits, to date there are no real penalties for being in violation of those policies. Recent discussions have sought to resolve this shortcoming, and the EU was on the threshold of an agreement that would dramatically change the current structure for fiscal restraints. However, that agreement was rejected by the United Kingdom. Uncertainty over the past two years regarding the likelihood of one or more of the Eurozone countries defaulting on their sovereign debt obligations has contributed to increased volatility in the exchange rate between the euro and the U.S. dollar.

### **Chart 1: Euro/U.S. Dollar Exchange Rate 2010–2012**



*From a low in June 2010 to a high in April 2011, the value of the euro appreciated by nearly 24% (from 1.20 to 1.48). From the peak in April 2011 to January 2012, the euro then depreciated nearly 15% (from 1.48 to 1.27).*

### **The Issue**

Over the past year, the NAIC's Capital Markets Bureau has written several reports on the U.S. insurance industry's exposure to the ongoing Eurozone turmoil. We have noted that the overall industry exposure is moderate and should be manageable. As indicated in a report published in **October 2011**, total investments by U.S. insurers in EU-domiciled entities were \$228 billion on a book/adjusted carrying value (BACV) basis as of June 30, 2011. This includes \$21.4 billion in those countries that have received the most press, and in some cases have required economic assistance, namely Portugal, Italy, Ireland, Greece and Spain. In a separate report dated **May 2011**, the NAIC's Capital Markets Bureau focused on foreign currency exposure in the investments of U.S. insurers. In that report, we noted that investments denominated in euros totaled approximately \$23 billion as of year-end 2010.

A complete collapse of the euro is highly unlikely. The probability of any one country exiting from the common currency and reestablishing a national currency is also very low. This is in part because there is no current provision for a country exiting from the euro without also completely removing itself from the EU on a unilateral basis. However, as Europe appears to be heading into a recession, and as Greece shuttles back and forth between a negotiated or uncontrolled default on its outstanding sovereign debt, the implications of either of these scenarios — however unlikely — is worth a brief consideration. If a country decides to withdraw from the Euro, there is a risk that there will be little, if any, official warning. In that case, it is also likely to be coupled with significant restrictions on currency transactions, to safeguard any remaining currency reserves. Economically, the reestablishment of a new national currency would be at a substantially devalued exchange rate vs. the current euro exchange rate. The withdrawal of a country from the euro and the EU is also likely to have implications on the value of the euro as it relates to the remaining participating countries.

### **Bond Exposure**

As mentioned above, and as reported previously by the Capital Markets Bureau, total bond exposure to entities domiciled in countries belonging to the EU is not substantial within U.S.

insurers. Investments totaling \$133 billion (out of the \$228 billion previously reported total) are related to countries that use the euro. Even among those investments, the majority are denominated in U.S. dollars. For purposes of this discussion, and focusing on the \$22.7 billion that is denominated in euros, \$20.8 billion are held by life companies and \$1.8 billion is held by property/casualty companies. Other insurer types have relatively insignificant exposure of less than \$1 billion. Twenty-one states have insurers that reported exposure to euro-denominated bonds. We also noted that, within this total exposure, \$3 billion were held in securities without a legal maturity, also known as perpetuals. Securities with longer dated maturities (perpetuals being the extreme) would be expected to have greater market value volatility in an adverse scenario. All exposure to perpetuals was held by life companies. The table below details the 10 largest euro-denominated bond exposures, based on BACV by the state of domicile of the insurer as of year-end 2010.

**Table 1: States with Largest Euro Bond Exposures**

(\$ in 000's)	Total BACV	% Total	BACV of Perpetuals	% Total
Nebraska	8,912,937	39.3%	2,834,303	94.0%
New York	4,118,912	18.2%	154,850	5.1%
Delaware	3,194,372	14.1%	-	0.0%
New Jersey	2,245,090	9.9%	25,171	0.8%
Connecticut	1,261,928	5.6%	-	0.0%
Massachusetts	822,569	3.6%	-	0.0%
Wisconsin	647,013	2.9%	-	0.0%
Iowa	516,117	2.3%	-	0.0%
Michigan	197,977	0.9%	-	0.0%
Texas	179,325	0.8%	-	0.0%

The average remaining life to maturity for the industry's euro-denominated bond exposure was 6.3 years. This does not take into account the impact of the holdings in perpetuals. Attaching a fictional 30-year final to the perpetual holdings (a reasonable proxy for the duration impact) would increase the average life to maturity to 6.9 years. Not including the perpetuals, the table below lists the 10 longest average years to maturity, again based on state of domicile of the insurer.

**Table 2: Average Years to Maturity**

Nebraska	14.92
Massachusetts	12.87
Tennessee	11.24
Michigan	10.17
Rhode Island	8.07
Iowa	7.55
Connecticut	6.89
Delaware	6.58
Maryland	6.51
Wisconsin	6.39

**Derivatives Exposure: Asset Hedges**

A second order issue is how a country's withdrawal from the euro, or how a dissolution of the euro altogether, would impact currency swap agreements. U.S. insurers hedge most of the currency risk in their investment portfolios. Upon reviewing disclosures and reporting on

derivatives use among U.S. insurers, we also found euro currency hedges for liabilities and variable annuities.

Euro currency swap agreements that were identified as hedging asset risk had a reported notional value of approximately \$19.7 billion as of year-end 2010. Life companies held \$17.6 billion of that total, and \$2.1 billion was at property/casualty companies. Valuation of the currency swaps is clearly volatile in the current environment. As of year-end 2010, total BACV of the currency swaps was \$179.5 million. The table below shows a breakdown of the 10 largest exposures by state of domicile of the insurer based on notional value. Positions with a negative BACV, where the insurer owes the counterparty, are shown separately from those with a positive BACV, where the counterparty would owe the insurer in the event of an unwind.

**Table 3: States with 10 Largest Notional Exposures to Euro Currency Swaps**

(\$ in 000's)	Notional Value		Negative	Positive
			BACV	BACV
New York	6,115,278	31.1%	(247,250)	82,311
New Jersey	4,417,129	22.5%	(180,223)	32,339
Connecticut	2,084,719	10.6%	(48,807)	386,930
Iowa	1,727,682	8.8%	(57,965)	160,326
Delaware	1,347,611	6.9%	(39,606)	27,076
Massachusetts	1,316,312	6.7%	(7,327)	30,750
Pennsylvania	649,708	3.3%	(14,522)	3,259
Nebraska	573,643	2.9%	(1,798)	47,302
Wisconsin	379,929	1.9%	(14,835)	7,201
Illinois	328,348	1.7%	(75)	1,661

For purposes of this analysis, we did not engage in a detailed match of euro-denominated bond exposures and notional values of euro currency swaps. However, it is evident on its face that the positions held, while identified as hedging positions, are not perfectly matched. This is the case both for notional value of the currency swap vs. either par value or BACV of the bonds held, as well as remaining life to maturity of the bonds vs. remaining life of the reported currency swap. The mismatch would have a significant impact of the effectiveness of the hedge even without any uncertainty about the future of the euro.

**Table 4: Comparison of Exposure**

(\$ in 000's)	Par Value of Bonds	BACV of Bonds	Notional Value of Swaps	Notional vs Par	Remaining Life		
					Bonds	Swap	Bonds vs Swaps
Arizona	77,519	75,052	66,684	0.86	4.89	5.08	0.96
Connecticut	1,398,136	1,261,928	2,084,719	1.49	6.89	4.70	1.47
Delaware	3,183,349	3,194,372	1,347,611	0.42	6.58	2.46	2.68
Iowa	515,538	516,117	1,727,682	3.35	7.55	5.52	1.37
Illinois	164,857	163,980	328,348	1.99	6.17	0.21	29.19
Massachusetts	1,053,128	822,569	1,316,312	1.25	12.87	0.31	41.38
Michigan	202,369	197,977	288,038	1.42	10.17	2.55	3.98
Missouri	41,543	42,321	11,926	0.29	1.69	4.16	0.41
Nebraska	9,032,434	8,912,937	573,643	0.06	14.92	3.95	3.78
New Jersey	2,267,550	2,245,090	4,417,129	1.95	5.88	5.14	1.14
New York	4,179,071	4,118,912	6,115,278	1.46	4.95	4.61	1.08
Ohio	101,693	101,278	167,172	1.64	3.57	6.07	0.59
Pennsylvania	30,367	30,572	649,708	21.40	2.26	4.36	0.52
Rhode Island	6,708	6,659	13,422	2.00	8.07	6.57	1.23
Tennessee	16,031	16,031	15,793	0.99	11.24	11.24	1.00
Texas	173,158	179,325	147,787	0.85	3.83	8.05	0.48
Wisconsin	671,752	647,013	379,929	0.57	6.39	6.67	0.96

#### **Derivatives Exposure: Non-Asset Hedges**

In addition to the asset-related hedging activity, several companies in a small number of states also reported other hedging activity for euro currency risk. These were identified as either hedging liabilities or variable annuities.

**Table 5: Non-Asset Hedges (\$000)**

Liability Hedges	Remaining Life	Notional Value of Hedges	Negative BACV	Positive BACV
Connecticut	10.59	93,694	-	6,923
Delaware	0.85	44,149	(174)	1,461
New Jersey	1.30	193,246	(3,952)	2,249
Total	1.27	331,089	(4,125)	10,632

Variable Annuity Hedges	Remaining Life	Notional Value of Hedges	Negative BACV	Positive BACV
Connecticut	0.34	5,460,185	(1,030)	55,538
Delaware	0.20	450,033	(2,761)	-
Indiana	0.25	111,912	-	3,565
Michigan	0.20	685,000	-	-
Minnesota	0.19	555,454	-	1,751
Total	0.27	7,262,584	(3,791)	60,853

#### **Life of the Common Currency**



There are several questions and sub-questions to be asked, for which there might not be clean, easy answers. What are the implications if the euro completely collapses? What are the implications if one or more countries decide to exit from the common currency? In the latter case, at least, there are different answers depending on whether the holding is in a country that is withdrawing from the common currency, or in the remaining countries. Both bond agreements and currency swap agreements include language specific to the eligible currency as legal tender for the purposes of the contract.

As noted earlier, the likelihood of the euro breaking up is recognized as essentially nonexistent. While structurally one can say that anything put together can also be taken apart — especially when it involves sovereign nations — the economic implications of such an action are extremely severe. This is especially true if the action is taken without adequate warning and careful deliberation by all of the stakeholders. The possibility of one or more nations deciding to exit the euro is modestly more possible. However, the implications of such an event occurring in the short term, without the same kind of deliberate process by the EU members, are almost as daunting as the case for a wholesale collapse of the common currency.

Taking the case of any country, perhaps using Greece as an example for the purposes of this discussion, deciding that it wants to exit from the euro and reestablish a new national currency, Article 140 of the Treaty on the Functioning of the European Union (TFEU) specifically refers to the irrevocable fixing of conversion rights. Therefore, the only way to exit the euro is to simultaneously exit the EU. Article 50 of the Treaty on European Union does provide for the voluntary right of secession from the EU but does not establish a mechanism or process for doing so. Greece could decide to do so unilaterally. However, without the cooperation of the EU members, Greece would need to effectively close its borders to prevent capital flight — i.e., citizens taking the Euros outside of Greece to maintain their value as opposed to accepting the devalued new currency — and to prevent labor flight. The loss in trade with EU members until the myriad resulting disputes could all be resolved would obviate any near or intermediate term benefit from the currency devaluation.

A more deliberate process, either in the case of any one country exiting the euro and the EU, or a complete breakup of the euro, would include votes of the European Parliament and unanimous agreement by each of the individual national governments. This scenario would understandably take time and would most likely take into account and ensure the smooth transition for any agreements, contracts and relationships that are affected. During that time, currency translation and exchange rates would necessarily be established and likely a market-based determination would evolve even before the official dissolution.

In the case of typical bond agreements, the language referring to “Issuance Currency” defines the euro as “the lawful currency of the participating member states of the European Union that adopt a single currency in accordance with the Treaty establishing the European Communities, as amended by the Treaty on European Union.” In the case of only Greece exiting the euro and the EU, the euro would continue to exist. How individual bonds are treated would depend on the country of issuance as stated in the agreement, which might or might not be the same as the issuer’s country of domicile. Any bonds issued under the laws of the remaining EU members would likely remain unaffected by Greece exiting the euro and the EU. Depending on the actual market circumstances, those bondholders might see an actual benefit if the euro appreciates because of Greece’s withdrawal. Bonds issued under Greek law would be expected to convert to the new currency. Those bondholders are likely to suffer substantial losses in value, assuming a significant devaluation of the new national currency vs. the euro.

So, to the extent that euro cash flows from euro-denominated bonds are hedged with a currency swap so that the insurer receives U.S. dollars, there are two relevant definitions in the standard currency swap documentation from the International Swap and Derivatives Association (ISDA). The definition of euro is the same as indicated in the paragraph above. Interestingly, there is also a separate definition for “Contractual Currency.” That definition allows for satisfaction of the

contractual terms in another currency, besides the Contractual Currency if “such tender results in the actual receipt by the party to which payment is owed, acting in good faith and using commercially reasonable procedures in converting the currency so tendered into the Contractual Currency, of the full amount in the Contractual Currency of all amounts payable in respect of this Agreement.” In other words, another currency can be delivered in lieu of the euro, as long as the delivered currency can be easily converted into the euro. The language also includes a top-off requirement to ensure that full value of a bond is delivered. Therefore, if the bond was issued in Greece, and the insurer received, instead of euros, the new national currency, the insurer could still satisfy their side of the swap by delivering a sufficient amount of the new currency that is equivalent to the required amount of euros, and receive the dollars contracted for in the swap agreement. This is still a negative situation for the insurer, given the likely depreciated value of the new currency vs. the appreciated value of the euro that they would need to match, but at least the insurer would be in a position to satisfy its side of the trade and receive some U.S. dollars. The significance of the shortfall would depend on the expected negotiations between bondholders and the obligors on the bonds to make the bondholders whole on the transaction.

As for the non-asset related currency hedges, the amounts are small and, with one even smaller exception, all appear to be short-dated. While on one hand, in this example, these contracts did not provide for a significant amount of protection against currency volatility, in this situation that might have been beneficial, because it allows for increased flexibility in a changing environment.

### **Conclusion**

The exposure of the U.S. insurance industry to the euro, either in the form of euro-denominated bonds or in euro currency swaps, is limited. Even if euro-denominated bond exposure is hedged, it is impossible to determine the impact of a break-up in the euro or the consequences of a withdrawal of one or more countries from the common currency, because there currently is no established process for such a withdrawal. One scenario would be a sudden decision with little or no specific warning that the event was going to occur. The economic turmoil of such a scenario is substantial enough to negate any expected benefits of exiting the euro by one or more countries or dissolution of the common currency as a whole. While there is an inability to hedge against that risk, the reason for the inability is also the main reason why the event is considered so unlikely as to be discounted to zero. The alternative scenario is a relatively long, deliberate process to break up the EU and the euro. Though also considered highly unlikely, that scenario allows for negotiated and carefully considered resolution of disputes and revaluations.

February 10, 2012										
Major Insurer Share Prices		Close	Change %			Prior				
			Week	QTD	YTD	Week	Quarter	Year		
Life	Aflac	\$48.30	(2.6)	11.7	11.7	\$49.57	\$43.26	\$43.26		
	Ameriprise	54.15	(0.1)	9.1	9.1	54.21	49.64	49.64		
	Genworth	8.73	(2.0)	33.3	33.3	8.91	6.55	6.55		
	Lincoln	24.14	2.2	24.3	24.3	23.62	19.42	19.42		
	MetLife	36.89	(1.8)	18.3	18.3	37.57	31.18	31.18		
	Principal	26.21	(2.5)	6.5	6.5	26.89	24.60	24.60		
	Protective	26.67	1.2	18.2	18.2	26.36	22.56	22.56		
	Prudential	58.99	(1.6)	17.7	17.7	59.92	50.12	50.12		
	UNUM	22.40	(5.1)	6.3	6.3	23.60	21.07	21.07		
PC	ACE	\$73.05	0.1	4.2	4.2	\$73.01	\$70.12	\$70.12		
	Axis Capital	32.24	2.5	0.9	0.9	31.46	31.96	31.96		
	Allstate	30.97	1.2	13.0	13.0	30.59	27.41	27.41		
	Arch Capital	37.95	2.0	1.9	1.9	37.21	37.23	37.23		
	Cincinnati	34.46	4.1	13.1	13.1	33.10	30.46	30.46		
	Chubb	68.77	1.4	(0.7)	(0.7)	67.79	69.22	69.22		
	Everest Re	87.17	(0.5)	3.7	3.7	87.64	84.09	84.09		
	Progressive	21.43	1.4	9.8	9.8	21.13	19.51	19.51		
	Travelers	59.32	0.0	0.3	0.3	59.30	59.17	59.17		
	WR Berkley	36.23	0.6	5.3	5.3	36.00	34.39	34.39		
	XL	19.28	(7.9)	(2.5)	(2.5)	20.94	19.77	19.77		
	Other	AON	\$48.54	1.2	3.7	3.7	\$47.98	\$46.80	\$46.80	
AIG		26.66	(0.4)	14.9	14.9	26.78	23.20	23.20		
Assurant		43.44	4.7	5.8	5.8	41.50	41.06	41.06		
Fidelity National		17.72	(2.7)	11.2	11.2	18.22	15.93	15.93		
Hartford		19.88	3.0	22.3	22.3	19.31	16.25	16.25		
Marsh		32.04	(0.5)	1.3	1.3	32.19	31.62	31.62		
Health	Aetna	\$45.68	4.6	8.3	8.3	\$43.66	\$42.19	\$42.19		
	Cigna	43.52	1.7	3.6	3.6	42.78	42.00	42.00		
	Humana	85.63	0.6	(2.3)	(2.3)	85.15	87.61	87.61		
	United	53.25	3.8	5.1	5.1	51.32	50.68	50.68		
	WellPoint	64.08	(0.4)	(3.3)	(3.3)	64.35	66.25	66.25		
Monoline	Assured	\$17.47	6.5	33.0	33.0	\$16.41	\$13.14	\$13.14		
	MBIA	11.92	(1.7)	2.9	2.9	12.13	11.59	11.59		
	MGIC	4.36	(2.8)	16.9	16.9	4.49	3.73	3.73		
	Radian	3.40	5.3	45.3	45.3	3.23	2.34	2.34		
	XL Capital	19.28	(7.9)	(2.5)	(2.5)	20.94	19.77	19.77		

February 10, 2012										
Major Market Variables		Close	Change %			Prior				
			Week	QTD	YTD	Week	Quarter	Year		
Dow Jones Ind	12,801.23	(0.3)	4.8	4.8	12,845.13	12,217.56	12,217.56			
S&P 500	1,342.64	(0.1)	6.8	6.8	1,344.33	1,257.60	1,257.60			
S&P Financial	196.00	(0.7)	11.9	11.9	197.41	175.23	175.23			
S&P Insurance	182.48	(0.8)	7.2	7.2	183.98	170.17	170.17			
US Dollar \$										
/ Euro	\$1.32	0.3	1.6	1.6	\$1.31	\$1.30	\$1.30			
/ Crude Oil bbl	99.02	1.9	0.2	0.2	97.18	98.83	98.83			
/ Gold oz	1,723.30	0.0	10.0	10.0	1,722.80	1,566.80	1,566.80			
Treasury Ylds %	%				%	%	%			
1 Year	0.15	0.03	0.05	0.05	0.13	0.11	0.11			
10 Year	1.97	0.07	0.10	0.10	1.90	1.88	1.88			
30 Year	3.13	0.04	0.23	0.23	3.09	2.90	2.90			
Corp Credit Spreads -bp										
CDX.IG	82.05	(0.4)	(27.9)	(27.9)	82.38	113.83	113.83			



February 10, 2012 Major Insurer Bond Yields				Weekly Change				
Company	Coupon	Maturity	Price			Spread		
			Current	Change	Yield	B.P.	Change	
Life	Aflac	8.500%	5/15/2019	\$127.96	\$0.84	4.02%	249	(17)
	Ameriprise	5.300%	3/15/2020	\$110.22	(\$0.18)	3.82%	203	(9)
	Genworth	6.515%	5/15/2018	\$102.32	(\$0.41)	6.06%	486	13
	Lincoln National	8.750%	7/15/2019	\$127.04	\$0.37	4.41%	279	(16)
	MassMutual	8.875%	6/15/2039	\$145.86	\$0.26	5.58%	253	(9)
	MetLife	4.750%	2/15/2021	\$109.93	(\$0.31)	3.45%	162	0
	Mutual of Omaha	6.800%	6/15/2036	\$119.04	\$1.06	5.39%	256	(11)
	New York Life	6.750%	11/15/2039	\$131.56	\$0.36	4.70%	164	(7)
	Northwestern Mutual	6.063%	3/15/2040	\$124.34	\$0.97	4.52%	145	(9)
	Pacific Life	9.250%	6/15/2039	\$133.81	(\$0.00)	6.57%	353	(2)
	Principal	6.050%	10/15/2036	\$107.03	\$1.56	5.52%	263	(10)
	Prudential	4.500%	11/15/2020	\$106.52	\$0.87	3.62%	179	(17)
	TIAA	6.850%	12/15/2039	\$131.86	\$0.28	4.77%	171	(2)
P&C	ACE INA	5.900%	6/15/2019	\$120.10	(\$0.00)	2.84%	130	(10)
	Allstate	7.450%	5/15/2019	\$126.25	\$0.58	3.34%	188	(10)
	American Financial	9.875%	6/15/2019	\$123.78	(\$9.08)	5.84%	415	107
	Berkshire Hathaway	5.400%	5/15/2018	\$119.56	(\$0.34)	2.05%	82	1
	Travelers	3.900%	11/15/2020	\$109.33	(\$0.22)	2.69%	90	(0)
	XL Group	6.250%	5/15/2027	\$104.90	(\$0.00)	5.76%	346	(4)
Other	AON	5.000%	9/15/2020	\$111.88	(\$0.15)	3.40%	165	(2)
	AIG	5.850%	1/15/2018	\$107.37	\$0.95	4.42%	329	(21)
	Fidelity National	7.875%	7/15/2020	\$113.06	\$0.31	5.88%	396	(32)
	Hartford	5.500%	3/15/2020	\$105.10	\$0.87	4.74%	305	(15)
	Marsh	9.250%	4/15/2019	\$134.32	\$0.23	3.74%	227	(7)
	Nationwide	9.375%	8/15/1939	\$125.61	\$1.40	7.22%	404	(21)
Health	Aetna	3.950%	9/15/2020	\$106.23	(\$0.08)	3.11%	134	(4)
	CIGNA	5.125%	6/15/2020	\$110.02	(\$0.49)	3.72%	200	5
	United Healthcare	3.875%	10/15/2020	\$108.21	\$0.03	2.80%	103	(5)
	Wellpoint	4.350%	8/15/2020	\$109.90	(\$0.28)	3.02%	128	(1)

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