Market Briefing

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Date: September 14, 2020

Subject: A Second Half Story Begins

Introduction

Following on our last Market Briefing from earlier this year (March 11, 2020), to say that we have experienced a roller coaster ride in the last six months would be an obvious understatement. The impact of the pandemic on the US economy was severe and we should expect that repercussions will be felt for some time, with some sectoral changes perhaps being permanent. As will be discussed later in greater detail, capital markets were also heavily impacted. While many market indices have seen substantial recovery, those broader indicators that are commonly relied upon do not tell the entire story. Looking only modestly below the surface, we can see continuing vulnerabilities and weakness in many sectors. As we seek to understand the impact on US insurer investments, it makes sense to remind ourselves of what US insurers are invested in as well as consider related investment practices.

US Insurer Invested Assets

	Total Industry		Life Industry		P&C Industry		Health Industry	
	2018	2019	2018	2019	2018	2019	2018	2019
SHORT TERM INVESTMENTS								
ST Investments & Cash Equivalents	208,319,709	236,037,299	92,814,903	104,589,155	88,258,938	102,296,104	27,245,868	29,152,040
LONG TERM INVESTMENTS								
Corporate Bonds	2,204,048,514	2,305,522,911	1,800,989,943	1,874,322,233	354,116,453	376,870,258	48,942,118	54,330,421
Bank Loans	51,815,167	57,790,884	38,473,016	43,244,285	11,684,628	12,956,342	1,657,523	1,590,257
Government Bonds (incl Municipals)	842,737,163	817,818,713	385,891,590	381,267,108	415,780,042	398,580,310	41,065,531	37,971,295
Agency CMBS	69,305,534	80,636,890	47,370,308	50,781,956	20,762,060	27,803,085	1,173,166	2,051,849
Agency RMBS	277,530,504	284,764,167	173,532,944	165,186,733	87,345,051	97,573,330	16,652,509	22,004,104
Agency ABS	24,089,162	25,515,657	16,466,692	16,255,622	7,243,241	8,824,528	379,229	435,506
Non-Agency CMBS	172,265,553	186,069,533	130,029,415	139,207,027	37,662,599	40,849,776	4,573,539	6,012,730
Non-Agency RMBS	95,017,627	93,327,934	74,999,177	73,623,388	18,842,266	18,123,344	1,176,184	1,581,202
Non-Agency ABS	337,151,976	378,418,539	265,851,059	294,879,375	61,315,354	72,154,262	9,985,563	11,384,901
Hybrids	15,945,091	16,692,161	12,569,742	13,020,155	3,069,363	3,328,473	305,986	343,533
SVO Funds	7,173,647	8,721,530	3,608,966	3,223,403	2,171,482	2,799,444	1,393,198	2,698,684
Subtotal Bonds	**4,097,079,936**	**4,255,278,920**	**2,949,782,852**	**3,055,011,284**	**1,019,992,538**	**1,059,863,153**	**127,304,546**	**140,404,482**
Preferred Stock	17,035,335	27,010,370	11,289,694	12,155,867	5,161,870	14,265,274	583,771	589,229
Common Stock	322,701,575	407,647,411	27,081,866	30,294,019	288,233,329	368,368,724	7,386,380	8,984,668
Funds as Common Stock	38,736,982	45,842,263	6,599,063	7,004,223	20,318,070	25,118,239	11,819,848	13,719,801
Subtotal Equity	**378,473,892**	**480,500,043**	**44,970,623**	**49,454,109**	**313,713,269**	**407,752,236**	**19,790,000**	**23,293,698**
Commercial Mortgage Loans	483,994,591	521,770,643	465,808,747	501,787,593	18,080,076	19,800,197	105,768	182,854
Mezzanine Loans	10,192,943	10,400,921	9,823,804	9,400,998	357,789	999,922	11,350	-
Residential Mortgage Loans and Other	46,800,248	54,688,575	45,265,160	53,431,936	1,507,346	1,256,639	27,742	-
Problem Mortgages	1,006,538	1,473,856	968,626	1,306,034	37,912	167,822	-	-
Non-Insurer Occupied Real Estate	19,288,873	21,827,428	14,625,630	17,141,221	4,414,655	4,520,113	248,588	166,094
Subtotal Real Estate Related	**561,283,193**	**610,161,423**	**536,491,967**	**583,067,782**	**24,397,779**	**26,744,692**	**393,448**	**348,948**
Non-Conforming LT Assets (BA)	158,431,638	171,787,460	101,586,260	110,805,288	50,765,372	54,259,003	6,080,006	6,723,169
Affiliated Investments (incl Occupied RE)	597,026,252	665,263,966	177,600,740	195,496,161	389,943,703	437,363,502	29,481,809	32,404,303
Grand Total - Long Term Investments	**5,792,294,911**	**6,182,991,811**	**3,810,432,443**	**3,993,834,624**	**1,798,812,661**	**1,985,982,586**	**183,049,808**	**203,174,601**

The profile of long term invested assets of US insurers does not change very much from one year to the next. Recognizing that US insurers largely still operate an investment model that leans more towards buy and hold than actively managed, the turnover ratio of Life insurers, where the bulk of the industry's invested assets reside, is about 10% per year. Changes in the investment program for an insurer in any one year will only shift the overall percentages modestly. However, incremental changes each year will accumulate into more substantive differences over time. We have definitely seen that over the last five to ten years, and more. Some the more substantive changes are the result of basic changes in what is available in the market as insurers have to invest within the larger context. Other changes become apparent as the industry gains increasing comfort in asset types. And, it is inevitable that US insurance companies, like investors everywhere, have had to look to different investments and investment strategies to bolster investment income as low interest rates have become the new normal. Reviewing the year-end 2019 data and comparing to year-end 2018 data, the invested assets of US insurers continued along

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the same general direction that they have been headed in for several years now. Now peaking just over $6 trillion, total industry assets continue to be weighted towards bonds. On the other hand, the shift to real estate related assets, primarily commercial mortgage loans took another step forward. Commercial mortgage loans totaled $521.8 billion, an increase of $37.8 billion. Most of the exposure and most of that year over year increase was among Life insurance companies. With a strong equity market in 2019, common stock exposure also increased by $84.9 billion, with most of that increase among P&C insurers. Less material, but nonetheless worth serious consideration, are increased exposures to investments reported on Schedule BA, primarily private equity funds. In the table above, more difficult to discern without substantial effort, are those affiliated investments that are actually vehicles for investing in capital markets.

	Total Industry		Life Industry		P&C Industry		Health Industry	
	2018	2019	2018	2019	2018	2019	2018	2019
SHORT TERM INVESTMENTS								
ST Investments & Cash Equivalents	4.01	4.28	2.55	2.75	6.26	6.61	17.74	17.07
LONG TERM INVESTMENTS								
Corporate Bonds	42.42	41.78	49.58	49.35	25.13	24.34	31.87	31.81
Bank Loans	1.00	1.05	1.06	1.14	0.83	0.84	1.08	0.93
Government Bonds (incl Municipals)	16.22	14.82	10.62	10.04	29.51	25.74	26.74	22.24
Agency CMBS	1.33	1.46	1.30	1.34	1.47	1.80	0.76	1.20
Agency RMBS	5.34	5.16	4.78	4.35	6.20	6.30	10.84	12.89
Agency ABS	0.46	0.46	0.45	0.43	0.51	0.57	0.25	0.26
Non-Agency CMBS	3.32	3.37	3.58	3.66	2.67	2.64	2.98	3.52
Non-Agency RMBS	1.83	1.69	2.06	1.94	1.34	1.17	0.77	0.93
Non-Agency ABS	6.49	6.86	7.32	7.76	4.35	4.66	6.50	6.67
Hybrids	0.31	0.30	0.35	0.34	0.22	0.21	0.20	0.20
SVO Funds	0.14	0.16	0.10	0.08	0.15	0.18	0.91	1.58
Subtotal Bonds	78.86	77.12	81.20	80.43	72.40	68.44	82.90	82.22
Preferred Stock	0.33	0.49	0.31	0.32	0.37	0.92	0.38	0.35
Common Stock	6.21	7.39	0.75	0.80	20.46	23.79	4.81	5.26
Funds as Common Stock	0.75	0.83	0.18	0.18	1.44	1.62	7.70	8.03
Subtotal Equity	7.28	8.71	1.24	1.30	22.27	26.33	12.89	13.64
Commercial Mortgage Loans	9.32	9.46	12.82	13.21	1.28	1.28	0.07	0.11
Mezzanine Loans	0.20	0.19	0.27	0.25	0.03	0.06	0.01	-
Residential Mortgage Loans and Other	0.90	0.99	1.25	1.41	0.11	0.08	0.02	-
Problem Mortgages	0.02	0.03	0.03	0.03	0.00	0.01	-	-
Non-Insurer Occupied Real Estate	0.37	0.40	0.40	0.45	0.31	0.29	0.16	0.10
Subtotal Real Estate Related	10.80	11.06	14.77	15.35	1.73	1.73	0.26	0.20
Non-Conforming LT Assets (BA)	3.05	3.11	2.80	2.92	3.60	3.50	3.96	3.94

The table above takes a different perspective on the earlier data in the first table. In this case, the focus is on each asset type as a percent of the total of cash and invested assets. While it is a different view, the conclusions are largely the same. Bonds continue to remain the mainstay of US insurers, though it continued to slip slightly in 2019 as a percent of the total, from 78.86% to 77.12%. Within total bonds, corporate bonds are the majority, but also represent a smaller percentage. The same is true of government bonds. The beneficiary of these lower percentages are continued increases in structured securities. In a more detailed view, residential mortgage-backed securities (RMBS) continued the decline we have seen for several years, both for agency-backed and non-agency securities. The main area of increase is in non-agency asset-backed securities (ABS). Outside of bonds, the percentages reflect a modest increase in commercial mortgage loans, from 9.32% to 9.46%. There was also a small increase in the percent of investments reported on Schedule BA. This is not surprising given that the bulk of those assets are in private equity funds which would have similarly benefited from the strong equity market in 2019 which were up around 30%.

As previously noted, US insurers tend to be more buy and hold investors. This is especially true of Life insurers that include asset-liability matching as an important influence on their investment strategy over time. Notwithstanding that, US insurers have also grown increasingly market conscious. Anecdotally, US insurers have been known to increase their level of trading activity during times of market volatility, taking advantage of drops in asset prices and providing pricing support to those assets where there is perceived value. This was clearly the case with a number of larger insurers when analyzing second quarter transactions data. While the data was only reviewed for a small sample of insurers, what was apparent in several was an increase in asset turnover in the second quarter, reflecting as much as a 100% increase over the same period in 2019. The data did not suggest what would be considered "panic selling", as realized capital losses were minimal. Instead, what appeared to be the case was selling of lower

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yielding assets, as in government bonds, and reinvestment in non-government bonds that were available at lower prices.

The breakdown of the industry's invested assets is as important as it has ever been as we consider the impact of the pandemic in 2020 and beyond. Subject to the likelihood of revisions, US Gross Domestic Product (GDP) is estimated to have dropped by an annualized rate of 32.9% in the second quarter. That has a direct impact on corporate earnings, government tax revenues on all levels, and default rates for virtually every asset type. However, the impact will vary across different parts of the economy, and the pace of recovery will also vary.

Life	2015Y	2016Y	2017Y	2018Y	2019Y
Bond Portfolio Maturity Score	13.80	13.84	14.11	13.95	13.91
1 or less	8.2%	8.0%	6.6%	6.9%	7.5%
1 to 5	24.6%	24.7%	24.9%	25.0%	25.0%
5 to 10	30.5%	30.1%	29.9%	30.3%	29.7%
10 to 20	15.8%	16.4%	17.8%	17.4%	17.3%
greater than 20	21.0%	20.8%	20.8%	20.4%	20.5%
Greater than 10 year	36.7%	37.2%	38.6%	37.8%	37.8%

P&C	2015Y	2016Y	2017Y	2018Y	2019Y
Bond Portfolio Maturity Score	8.65	8.66	8.52	8.37	8.07
1 or less	16.3%	15.5%	15.4%	13.9%	15.6%
1 to 5	35.9%	36.3%	37.2%	39.6%	40.7%
5 to 10	33.7%	34.5%	34.3%	34.3%	32.4%
10 to 20	9.0%	8.7%	8.6%	8.2%	7.5%
greater than 20	5.1%	5.0%	4.5%	3.9%	3.8%
Greater than 10 year	14.1%	13.7%	13.1%	12.2%	11.3%

Health	2015Y	2016Y	2017Y	2018Y	2019Y
Bond Portfolio Maturity Score	7.64	7.30	7.79	8.07	7.48
1 or less	24.7%	25.1%	19.0%	16.6%	17.7%
1 to 5	39.5%	39.3%	41.7%	43.0%	44.9%
5 to 10	24.0%	25.7%	28.8%	28.9%	28.4%
10 to 20	5.3%	4.7%	5.2%	6.0%	4.9%
greater than 20	6.5%	5.3%	5.3%	5.6%	4.1%
Greater than 10 year	11.8%	9.9%	10.6%	11.5%	9.0%

As investors in general have sought to increase portfolio yields in the low interest rate environment, one frequently cited approach has been to extend duration, to go farther out on the yield curve. Shortly after the 2008 financial crisis, it was noted that US insurers significantly decreased the duration of these investments, reflecting uncertainty about the direction of US monetary policy. This tendency was reversed and in the data in the above table, we can see that the maturity profile has been relatively stable for all three insurer groups over the last five years. While maturity is not a perfect translation of duration risk, it is the data that is readily available from insurers' investment schedules and should nonetheless offer a reasonable directional view of any significant changes over time.

Of greatest interest in the data is the percentage of bonds that have maturities of ten years or greater. Assuming a reasonable translation into duration of those same investments, those bonds would see the most significant degree of market value volatility with changes in interest rates. For Life insurers, the percentage has been relatively unchanged over the five year period. For Property & Casualty and Health insurers, there has been a modest decrease in that percentage.

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Life	2015Y	2016Y	2017Y	2018Y	2019Y
Bond Portfolio Credit Sore	1.46	1.47	1.47	1.48	1.47
NAIC 1	62.4%	62.4%	62.0%	60.4%	60.6%
NAIC 2	31.7%	31.5%	32.3%	34.2%	34.2%
NAIC 3	3.9%	3.9%	3.6%	3.3%	3.2%
NAIC 4	1.5%	1.6%	1.6%	1.5%	1.4%
NAIC 5	0.4%	0.5%	0.5%	0.5%	0.5%
NAIC 6	0.1%	0.1%	0.1%	0.1%	0.1%
Below Investment Grade	5.9%	6.1%	5.7%	5.3%	5.2%

P&C	2015Y	2016Y	2017Y	2018Y	2019Y
Bond Portfolio Credit Sore	1.27	1.28	1.26	1.27	1.28
NAIC 1	81.6%	81.0%	80.9%	79.9%	79.8%
NAIC 2	13.9%	14.2%	14.7%	16.2%	15.8%
NAIC 3	2.1%	2.3%	2.3%	2.0%	2.1%
NAIC 4	1.3%	1.6%	1.7%	1.6%	1.7%
NAIC 5	0.9%	0.9%	0.3%	0.3%	0.4%
NAIC 6	0.2%	0.2%	0.1%	0.1%	0.2%
Below Investment Grade	4.5%	4.9%	4.4%	3.9%	4.4%

Health	2015Y	2016Y	2017Y	2018Y	2019Y
Bond Portfolio Credit Sore	1.25	1.25	1.28	1.29	1.29
NAIC 1	81.3%	81.4%	79.6%	78.4%	77.7%
NAIC 2	14.4%	14.0%	15.6%	16.5%	17.5%
NAIC 3	2.7%	2.9%	2.8%	2.9%	2.8%
NAIC 4	1.4%	1.6%	1.9%	1.9%	1.7%
NAIC 5	0.2%	0.2%	0.2%	0.2%	0.2%
NAIC 6	0.1%	0.0%	0.0%	0.0%	0.1%
Below Investment Grade	4.3%	4.6%	4.9%	5.1%	4.8%

Historically, credit risk has been considered one the most significant risks with US insurers' investment portfolios. While this may still be the case, from the data in the table above, it also appears to be a risk that is being reasonably well managed. Ther percentage of bond portfolios in below investment grade bonds has not changed much in the last five years for any of the US insurer types. Life insurers have generally decreased their exposure to below investment grade bonds since the 2008 financial crisis. Property & Casualty and Health insurers did materially increase their below investment grade exposure, to be closer to the Life insurer averages, several years ago. However, those increases have moderated since 2015. On the other hand, for all three insurer types, there have been increases in bonds with an NAIC 2 Designation, which would reflect a BBB rating agency rating. These would be most at risk of downgrade to below investment grade in an environment as we are experiencing, especially those on the cusp with a BBB-minus rating. The increase in BBB-rated exposures through 2019 also is indicative of the general trend in the market place as BBB-quality bonds are accounting for roughly half of the investment grade market, a significant increase over earlier years.

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Derivatives - Notional Value	2015Y	2016Y	2017Y	2018Y	2019Y
Life	1,814,408,549	2,013,269,077	1,943,850,756	2,071,704,690	2,308,181,342
P&C	42,364,010	40,580,669	42,615,823	52,885,563	53,338,856
Health	150,041	908	538	400,158	400,631
Total	1,856,922,600	2,053,850,654	1,986,467,118	2,124,990,412	2,361,920,829

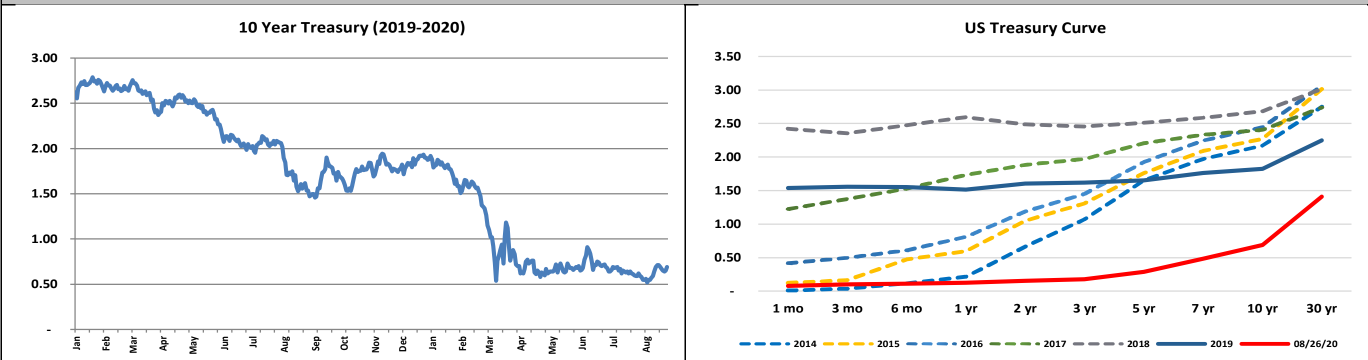
Securities Lending	2015Y	2016Y	2017Y	2018Y	2019Y
Life	48,705,377	46,851,017	48,207,447	41,644,999	43,439,843
P&C	2,707,340	3,051,177	4,942,502	5,941,209	5,908,155
Health	1,306,790	1,203,708	723,549	977,540	951,999
Total	52,719,507	51,105,902	53,873,499	48,563,749	50,299,997

Repurchase Agreements	2015Y	2016Y	2017Y	2018Y	2019Y
Life	24,062,818	23,901,206	23,176,076	26,175,493	23,752,512
P&C	1,881,762	1,726,698	1,751,418	1,643,093	2,170,432
Health	19,819	19,483	5,665	68,379	92,580
Total	25,964,398	25,647,387	24,933,159	27,886,965	26,015,524

In addition to what US insurers report as invested assets, it is also important to consider other investment practices. The most significant of these are derivatives transactions and securities lending, along with repurchase agreements. For all three of these, US insurers account for a relatively small percentage of the overall market activity.

The notional value of derivatives is not a good indicator of risk, but is a reasonable reflection of derivatives activity. That continues to show consistent growth over the five year time period. Also, it is worth remembering that derivatives activity among US insurers is almost entirely dedicated to hedging, though most is not deemed to be hedge effective from an accounting perspective. From the standpoint of notional value, Life insurers represent the main users of derivatives, and even among Life insurance companies is concentrated in a relatively small number of the largest companies. Activity in both securities lending and repurchase agreements has been relatively unchanged in the last five years.

Markets



With nearly 90% of the US insurance industry's invested assets being in some form of fixed income investment, there is no doubt that the level of interest rates is a critical aspect of the market environment. The Federal Reserve Board of Governors (the Fed) had been gradually moderating its accomodative monetary policy through 2018, resulting in interest rates moving slightly up. With the onset of the pandemic and reflecting concerns about the impact on the economy, the Fed moved aggressively to lower interest rates and push liquidity into the market place. The Fed lowered its targets for short term interest rates and also pledged as much as $10 trillion to a buying program for longer dated bonds. This included a much broader list of asset types than even the 2008 financial crisis. The result was a decline in interest rates across the entire yield curve by 100 basis points or more, and a 10-year Treasury yield that hit its lowest level in modern memory, and as of the end of August was only approximately 65 basis points. The US Treasury yield curve had already been flattening significantly from 2016 as

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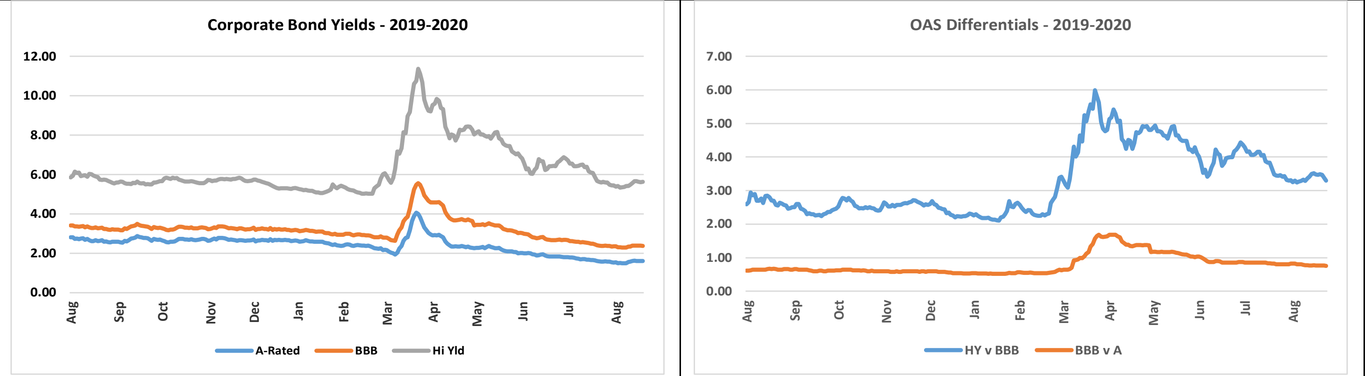
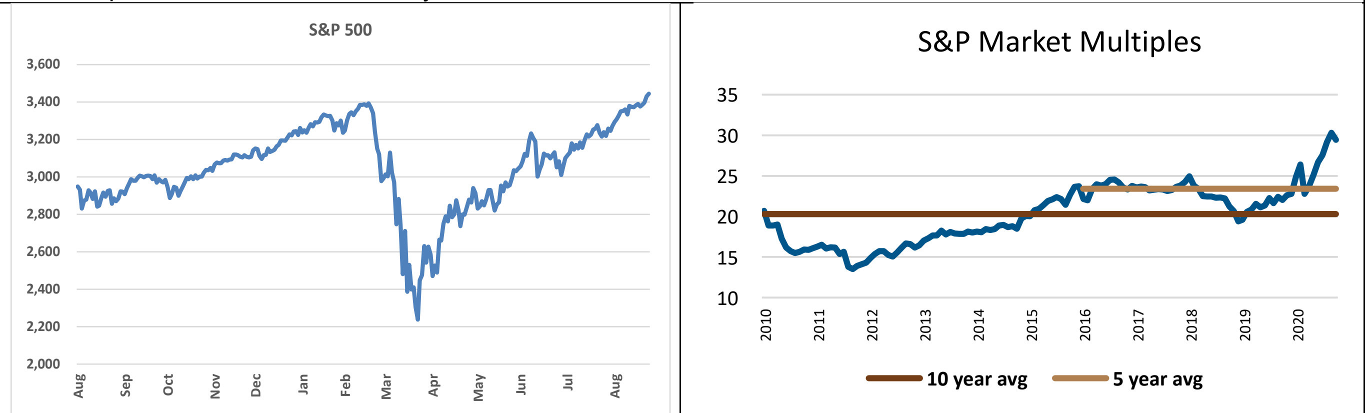
the market grew increasingly concerned over the longer term prospects for the economy. Notwithstanding a modest steepness in the yield curve out at the longest maturities, the flat yield curve with a 10-year Treasury yield, often considered a sweet spot of the market, at well less than 1.00%, represents a major challenge for insurers that have historically sought to match longer duration liabilities with longer duration assets and gain a yield advantage by doing that. With the current market, that advantage is virtually non-existent, while still resulting in market value volatility when interest rates begin to rise.



US insurers commit a relatively small percent of their invested assets to government bonds. Corporate bond yields, and their option adjusted spreads (OAS), are more reflective of actual investment yields for the bulk of the portfolios. Both of those spiked in March with the onset of the pandemic. Since then, there has been a substantial recovery. However, that recovery has not been entirely uniform. The yield and OAS on higher quality bonds have not only recovered, but as a general statement are both lower than pre-pandemic levels. The differential (the graph above on the right) between those higher quality investments (in the graphs above represented by A-rated bonds) and middle quality investments (BBB-rated), and even more so between BBB-rated and High Yield bonds, widened with the pandemic and have not fully recovered.



Equity markets with the pandemic fell 30% from the end of February to the end of March, a period of roughly five weeks. In comparison, with the 2008 financial crisis, equity markets fell 45%, but that was spaced out over a period of nearly eighteen months. The pace of the decline in the early days of the pandemic has been almost equally matched in the recovery, at least as it is reflected in the S&P 500 index. This, however, is not a complete picture as the direction of the S&P 500 index, along with other equity indices, has been heavily driven by companies with larger equity capitalizations. This was especially the case with equity of technology related companies that up until the last few days were dramatically outperforming other sectors. Focusing on other sectors, the recoveries have been much more lackluster. Those sectors most heavily impacted by the pandemic are those related to travel and leisure. Equities of financial institutions, including banks, insurance companies and broker-dealers, are still down nearly 20% since the beginning of 2020.

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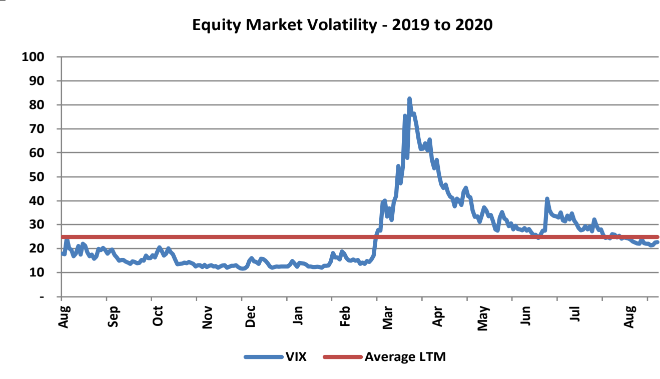
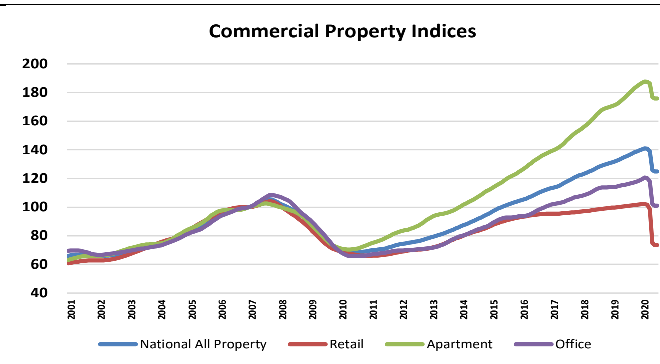
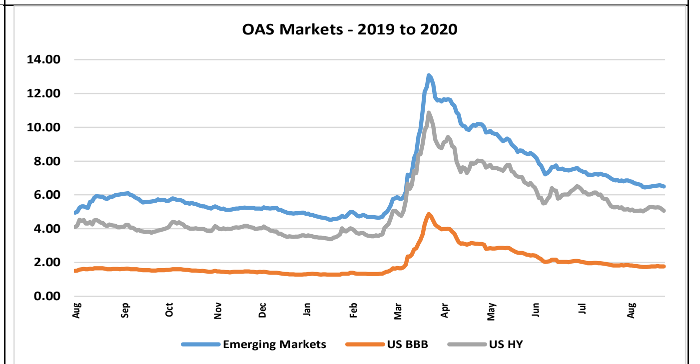
The strength of the recovery in equities may also be somewhat suspect. Judging by the graph above on the right, the recovery in equities is built on higher and higher multiples as earnings have been driven lower by the considerable decline in economic activity. Current estimates of market multiples are in the range of 30 times, well in excess of either the five-year or ten-year average.



Since US insurers are not total return focused and geared more towards a buy and hold investment strategy, equity market volatility, as represented on the left, or bond market volatility are not a major area of concern for most of their investment practices. Where volatility may still be an issue is in derivatives valuation since assumptions of volatility are a significant input in that valuation. This may also influence considerations of hedge effectiveness. Volatility spiked in March and has largely come back but is still modestly higher than pre-pandemic.





The growth in investments in commercial real estate related assets over the last five to ten years means that there is increased exposure to volatility in real estate valuations. While most of the investments are in commercial mortgage loans, there is also exposure through commercial mortgage-backed securities (CMBS), real estate investment trusts (REITs), debt and equities of property managers and, indirectly, through banks that may have substantial exposures to all of those asset types. Going into 2020, there were already increasing concerns about inflated property values and loosening of underwriting standards in mortgage lending. This was especially the case for the retail sector which has been struggling to reinvent itself in recent years. The pandemic further exposed those vulnerabilities. Data on how this has impacted values is thus far relatively incomplete, but what is available is represented in the graph above on the left. Retail along with Lodging, which is not depicted, have suffered 20% to 30% drops. Apartment and Office have not seen as a dramatic a change, but longer term prospects are still uncertain. With still a substantial degree of uncertainty, the American Council of Life Insurers (ACLI) is working with the Life Risk-Based Capital Working Group on guidance that would not take full account of the downturn in 2020 as it may impact loan-to-value and debt service coverage ratios. The rationale is that 2020 is a unique situation that was at least partially driven by government imposed shutdowns.

While commercial mortgage lending should be considered a core asset for the US insurance industry, there are other asset classes where many insurance companies have invested in on the margin. Sometimes referred to as cusp markets, most investors participate in these asset types only as an enhancement to portfolio yield, but are readily exited when markets become less reliable. One of those is emerging markets debt. In the above right graph, option adjusted spreads for emerging markets debt is compared with US corporate issues for BBB-rated and high yield. The option adjusted spread on emerging markets debt versus US high yield has ranged from a high of 450 basis points to a negative 20 basis points. The more recent peak in March was 300 basis points, with the current differential at 125 basis points.

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The (Totally Not) Final Word
It is likely at least many months before the extent of the impact of the pandemic on investment markets can be fully grasped. One area that has not been mentioned earlier in this Market Briefing is any increase in defaults among bonds, loans and mortgages. While defaults across different asset types have increased, these increases have thus far been significantly below what some analysts had feared. Recent analysis by S&P Global has shown that defaults on bank loans have increased to just over 4.0%, with continuing expectations that could reach 7.5% by year-end. Estimates of defaults on commercial mortgage loans have increased to 10.3% among those supporting CMBS, with lower percentages for the broader market. Defaults on residential mortgage loans are also around 7.8%. To some degree, defaults may have been delayed by various forbearance programs and initiatives offered by Federal, state and local governments. As these programs begin to expire, will the economy have recovered enough to avoid a spike in defaults? If the overall economy takes longer to fully recover, will the high expectations reflected in equity valuations reverse? If both of these more dire trends take hold, will credit spreads spike again? More to come.

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