Junior-Subordinated Capital Securities Markets

December 2022 Updates

The fixed income credit markets were mixed in December as the Fed continued to emphasize that interest rates would be high for longer than markets appear to expect. The 30yr bond closed the month yielding 3.94% (16bps higher) and the 10yr note closed yielding 3.83% (18bps higher). Real rates on the front end of the treasury curve (e.g., UST 5yr TIPS) rose by 37bps (to 1.64%); the 5yr implied breakeven inflation rate (i.e., the difference in yields between the 5yr UST and the 5yr Treasury Inflation Protected Security) decreased by 10bps to close at 2.38%. The implication is that the bond market continues to be very sanguine about the Fed's inflation fighting resolve as the core measures wane. The VIX (i.e., Chicago Board Options Exchange Volatility Index) rose 5.44% to 21.70 as the S&P 500 declined to 3840, down 140 points, which was again below the 20% decline mark (3835) earmarking equity markets expect a recession soon.

Before we talk hybrids, the performance in some of the more senior corporate credit sectors for comparative references on returns and yield changes is shown below:

- The junk market (measured by the ICE BofA High Yield ***h0a0*** index) fell 0.75% to close yielding 8.95% (33bps higher).
- Global bank credit (measured by ICE BofA ***e0ba*** index) rose 0.09% to close yielding 5.55% (5bps higher).
- The BBB rated 5-10yr corporate sector (measured by ICE BofA ***c6a4*** index) rose 0.03% to close yielding 5.82% (6bps higher).

Review of Market Structure:

The market for hybrids or **global junior-subordinated capital securities** (*i.e.,* "**Jsubs**") as we call them is comprised of two core sectors:

1. Preferred Securities, and
2. Contingent Capital Securities

Each sector has evolved with unique technical, structural, and fundamental features that are discussed and updated below:

Global junior subordinated capital securities are comprised of two sub-sets that represent a broad group of global junior-subordinated capital securities, which can be referenced by two ICE BofA indexes: 1) The ICE BofA US All Capital Securities Index (***i0cs***) and 2) The ICE BofA US Dollar Contingent Capital Index (***cdlr***).

Our litmus test for hybrids satisfies two core characteristics:

1) any non-payment of distributions would not accelerate an event of default (i.e., distributions are "junior-subordinated" to ordinary interest obligations) and,
2) balance sheet classification is something other than common stock under GAAP disclosure.

The US All Capital Securities (***i0cs***) benchmark of preferred securities represents $338 billion (face amount) of investment grade and below investment grade instruments in both the retail $25par market (32%) and the institutional $1,000par market (68%). The USD Contingent Capital Index of US dollar denominated junior-subordinated capital securities ***(cdlr)*** represents $152 billion (face amount) of investment grade and below investment grade fixed-rate instruments with contractual triggers that could subordinate them to common stock in a reorganization that would not fall into a receivership after the bail-in. These two benchmarks combine for a $490 billion universe of fixed-rate junior-subordinated USD capital securities with preferred securities (measured by ***iocs***) being a 69% subset and contingent capital securities (measured by ***cdlr)*** being a 31% subset of the total global USD junior subordinated group.

Preferred Securities

In the preferred securities sleeve, there are four sub-component indexes in the US All Capital Securities Index (***i0cs)*** – this entire index is comprised of global "preferred securities". A **"preferred security"** can represent a capital security issued either through charter amendment (i.e., as a stock) or through indenture (i.e., as a bond) typically within the context of a "gone-concern" statutory authority (*e.g.,* US banks). As a gone concern, a company reorganization would be processed through a bankruptcy court. Preferred security payments are in priority to common stock dividends, yet can be deferred (i.e., payments are cumulative) or eliminated (i.e., payments are non-cumulative) without causing an immediate event of default; any principal loss absorption on a preferred security would be forced only *ex-post* through a statutory resolution in a bankruptcy proceeding.

The four sub-components of the *i0cs* benchmark that consolidate into the retail and institutional sectors of rated preferred securities are:

1. **ICE BofA Fixed Rate Preferred Index (*p0p1*) @ 45% *of i0cs***
    - Comprised of IG $25par and IG $1,000par (incl. US AT1)
        - The *p0p1* fell 1.92% this month to close yielding 7.05% (+18bps)
        - Headcount was up unchanged; face value down $0.668 bil.
2. **ICE BofA US Capital Securities Index (*c0cs*) @ 23% of *i0cs***
    - Comprised of dated IG $1,000par dated hybrids (excl. US AT1)

- The *c0cs* rose 2.01% this month to close yielding 6.88% (-30bps)
- Headcount was down 1; face value down $0.500 bil.

3. **ICE BofA High-Yield Capital Securities Index (*h0c*s) @ 5% of *i0cs***

- Comprised of BIG $1,000par legacy Tier1 and BIG $1,000par hybrids
    - The *h0cs* rose 1.50% this month to close yielding 7.84% (-22bps)
    - Headcount unchanged; face value unchanged

4. ICE BofA High Yield Fixed Rate Preferred Index (*p0hy*) @ 27% of *i0cs*

- Comprised of BIG $25par and BIG 1,000par (incl. US AT1)
    - The *p0hy* fell 3.26% this month to close yielding 8.77% (+58bps)
    - Headcount was unchanged; face value down $0.03bil.

Overall, the ICE BofA All US Capital Securities Index (***i0cs***) fell 1.14% in December to close yielding 7.48%, which was 14bps higher than last month's closing yield and a spread of +353bps over comparable US Treasury securities (4bps higher).

Contingent Capital Securities

A **"contingent capital security"** (i.e., a "CoCo") represents a capital security issued through indenture typically within the context of a "going-concern" type regulatory regime for banking, which would reorganize a potentially insolvent bank through the contracts of its capital before falling into a conservatorship proceeding. CoCos payments are non-cumulative and *pari passu* to common stock dividends and can be reduced or eliminated without causing an event of default. Principal loss absorption on a CoCo could be forced ex-ante through a regulatory action in advance of any bankruptcy proceeding (note that an actual bankruptcy may not happen because enough loss absorbing bail-in capital, including tier-2 capital, could be available through the "living will" of the entity's core capital). The ICE BofA USD Contingent Capital Index (***cdlr***) is comprised of US dollar denominated constituents (exclusively), which represent 65% of the mature master multi-currency benchmark (*coco*). We will utilize the USD benchmark (*cdlr*) as it more meaningfully reflects the contingent capital currency primarily held in our portfolios.

The ICE BofA USD Contingent Capital Index (***cdlr***) rose 2.33% this month to close yielding 8.29%, which was 32bps lower than last month and a spread of +428bps over comparable US Treasury securities (43bps tighter).

Discussion of Retail and Institutional Sectors:

We report on the retail and institutional sectors using statistical tables in a *Spread Value Matrix* to provide readers with data on absolute and relative spread positionings. The data samples are sourced from ICE BofA benchmarks starting in March 2017, which is when retail benchmark calculations on yield-to-worst for currently callable $25par preferred securities were improved to reflect actual yields, even if negative. We provide measures of inflation coverage in a *Purchasing Power Matrix*; and a table for yield-to-worst, net of inflation and of historical default in a *Real Yield Matrix* that compares hybrids, investment grade corporates and high yield bonds. Finally, we show data on prior credit cycles for each sector to give you a *Comprehensive Risk Estimate* to the average bottom of the last 3 credit cycles (2013, 2016 and 2018) -- the rationale here is to illustrate risk measures relative to prior down credit cycles, but <u>not</u> necessarily an outlook to that direction. By following these tables monthly (and sometimes as “pop-outs” in flash reports), investors should gain consistent insights to assist in making more informed and supportive asset allocation decisions using junior subordinated capital securities.

Snapshot of Junior Subordinated Spread Sector Moves vs. Global Financials:

	p0p4	p0p4-e0ba	stb8	stb8-e0ba	cdlr	cdlr-e0ba
Capital Securities Spread Value Matrix	(a)	(b)	(a)	(b)	(a)	(b)
	Retail	Retail	NoCo	NoCo	CoCo	CoCo
Sample Periods	03/31/2017 to Date		03/31/2017 to Date		03/31/2017 to Date	
Jr-Subs	*Absolute	**Relative	*Absolute	**Relative	*Absolute	**Relative
High	588	251	486	205	660	313
Low	-178	-267	176	60	223	143
Range	766	518	310	145	437	170
Average	63	-47	251	140	331	221
Stdev	122	105	48	27	62	34
Monthend	245	111	303	169	375	241
Spread Scores:						
(monthend-ave)/stdev	1.49	1.50	1.08	1.07	0.71	0.59
Δ from Last Month	0.51	0.67	-0.33	-0.26	-0.31	-0.38

Source: Bloomberg; ICE BofA Bond Indices

** Absolute = Option Adjusted US Government Spread; (current-ave)/stdev*

*** Relative = spread to global financials measured by e0ba ICE Bond Index; (current-ave)/stdev*

The way we interpret the above option adjusted spread table is by the statistical positioning of the *Spread Scores* where, **zero** = "*fair value*", **+/- 1stdev.** = "*undervalued*"/ "*overvalued*", respectively and **+/- 2stdevs** = "*very undervalued*"/ "*very overvalued*", respectively.

Spread performance for hybrids was divergent this month with retail paper widening the most and CoCo paper tightening the most – NoCos tightened too. The OAS on retail paper widened by 60bps (i.e., +0.95 stdevs) as long bonds slipped along with stocks. The OAS for the institutional $1,000par preferred securities sector ("NoCos") tightened 26bps and still stands at 1.08 standard deviations wide of average. The OAS for the CoCo sector tightened by 43bps giving it the most positive relative move on the month (i.e., -0.69 stdevs). From an OAS valuation perspective, retail is in mid-range *undervalued* territory; CoCos are a cheap *fair value*; and NoCos are *undervalued*.

Implications of Market Activity:

$25par Retail Preferred Securities Sector

The retail preferred securities sector measured by *p0p4* fell $4.85 in December to $78.72 on the heels of bonds and equities slipping into yearend. The following table illustrates the retail sector's three prior credit cycles compared to month end valuations:

Retail Pfds.	Valuation Implosions			Average		Diff. to	
Credit Cycle Bottoms >	2013	2016	2018	Prior Bottoms	Current	Average	
GA10	2.98%	1.64%	2.74%	**2.45%**	3.83%	1.38%	
PCE DEFY	1.48%	0.59%	1.86%	**1.31%**	6.00%	4.69%	
Real UST10yr	1.50%	1.05%	0.88%	**1.14%**	-2.17%	-3.31%	
$25Coupon	6.64%	6.46%	6.05%	**6.38%**	5.45%	-0.93%	
$25Price	$94.06	$98.66	$93.09	**$95.27**	$78.93	-$16.34	
$25Current Yield	7.06%	6.55%	6.50%	**6.70%**	6.90%	0.20%	
Mdur Worst	9.52	10.44	10.95	**10.30**	12.18	1.88	
CY Spread vs. T10yr	4.08%	4.91%	3.76%	**4.25%**	3.07%	-1.17%	
Source: Bloomberg; ICE BofA Bond Indices						2.00%	Est. Price Risk to AveCY
				Comprehensive Risk Est.		8.90%	**Est. Price Risk + CY**
				Recapture Rate (yrs.)		-0.29	Est. Price Risk / CY
					Memo:	-20.71%	Total Return YTD

The current yield of the retail sector closed December at 6.90%, which was 49bps higher than last month and 20bps <u>higher</u> than the average current yield at the bottom of the last three credit cycles. The current yield spread to the 10yr US Treasury note is 307bps which is 117bps less than the average spread of the last three credit cycle bottoms as retail preferred yields are high, but spread is squeezed by UST yields being so high as well. A gauge to yields being high is the discount price to the sector – the dollar price of the retail sector is $16.34 lower than the average of the prior bottoms, which means that there is significantly more convexity to the retail market during this cycle than there was during the prior cycles even though yields were higher. The implication of a 0.20% current yield decline to 6.70% (the average current yield of the prior bottoms) is an estimated 2.00% price <u>increase</u> using the current modified duration of

12.18; then adding back a current book yield (assuming a 12month path) of 6.90% makes the *Comprehensive Risk Estimate* for the retail sector positive at 8.90%. The income recapture rate of the illustrated price gain is negative (i.e., -0.29yrs) because the market yield is higher than the worst current yield on average over the last three credit cycles indicating the retail sector has more opportunity than risk.

There were no new issues to speak of.

$1,000par Institutional Preferred Securities Sector

The $1,000 par institutional sector of the preferred securities market rose $0.46 as yields declined 17bps to 7.54% by the end of December. The following table illustrates the institutional preferred securities sector's three prior credit cycles compared to closing valuations this month:

Institutional Pfds.	Valuation Implosions			Average		Diff. to	
Credit Cycle Bottoms >	2013	2016	2018	Prior Bottoms	Current	Average	
GA10	2.94%	1.75%	2.74%	**2.48%**	3.83%	1.35%	
PCE DEFY	1.17%	0.59%	1.86%	**1.21%**	6.00%	4.79%	
Real UST10yr	1.77%	1.16%	0.88%	**1.27%**	-2.17%	-3.44%	
Coupon	6.77%	6.43%	5.88%	**6.36%**	5.19%	-1.17%	
Price	$103.96	$99.62	$97.23	**$100.27**	$90.46	-$9.81	
Current Yield	6.51%	6.45%	6.05%	**6.34%**	5.74%	-0.60%	
Mdur Worst	5.90	5.23	4.64	**5.26**	3.84	-1.42	
CY Spread vs. T10yr	3.57%	4.70%	3.31%	**3.86%**	1.91%	-1.95%	
Source: Bloomberg; ICE BofA Bond Indices						-2.31%	Est. Price Risk to AveCY
				Comprehensive Risk Est.		3.43%	**Est. Price Risk + CY**
				Recapture Rate (yrs.)		0.40	Est. Price Risk / CY
					Memo:	-11.38%	Total Return YTD

The current yield of the institutional preferred sector closed the month at 5.74%, which was 5bps lower than last month. This brings the current yield of the sector to 60bps less than the average current yield at the bottom of the last three credit cycles. The implication of a 0.60%

current yield increase to 6.34% (the average current yield of the prior bottoms) is an estimated 2.31% price decline using the modified duration of 3.84; then adding back a current book yield (assuming a 12month path) of 5.74% makes the *Comprehensive Risk Estimate* for the NoCo sector equal to a 3.43% horizon return to accept the risk. It would take 0.40yrs to recapture this capital loss estimate with book income. The NoCo sector continues to be in a cushioned valuation position.

There were no new issues in December.

Contingent Capital Securities Sector

The CoCo sector rose $1.58 as this month to $89.65. The 1.0% rise in the European bank sector helped the CoCo sector go up in addition to their have the best yield per unit of duration. At 5.86% net of default and inflation expectations, the CoCo sector has a 184bp advantage over high yield (i.e., junk) bonds.

The following table illustrates the contingent capital securities sector's three prior credit cycles compared to closing valuations this month:

CoCo Securities	Valuation Implosions			Average		Diff. to	
Credit Cycle Bottoms >	2013	2016	2018	Prior Bottoms	Current	Average	
GA10	3.01%	1.75%	2.88%	**2.55%**	3.83%	1.28%	
PCE DEFY	1.48%	0.59%	1.86%	**1.31%**	6.00%	4.69%	
Real UST10yr	1.53%	1.16%	1.02%	**1.24%**	-2.17%	-3.41%	
Coupon	7.63%	6.40%	6.78%	**6.94%**	6.23%	-0.71%	
Price	$105.04	$89.12	$96.21	**$96.79**	$89.65	-$7.14	
Current Yield	7.26%	7.18%	7.05%	**7.16%**	6.95%	-0.21%	
Mdur Worst	4.76	5.30	3.95	**4.67**	2.71	-1.96	
CY Spread vs. T10yr	4.25%	5.43%	4.17%	**4.62%**	3.12%	-1.50%	
Source: Bloomberg; ICE BofA Bond Indices						-0.58%	Est. Price Risk to AveCY
				Comprehensive Risk Est.		6.37%	**Est. Price Risk + CY**
				Recapture Rate (yrs.)		0.08	Est. Price Risk / CY
					Memo:	-11.29%	Total Return YTD

The current yield of the CoCo sector closed November at 6.95%, which was 12bps lower than last month and 21ps less than the average current yield at the bottom of the last three credit cycles (i.e., 7.16%). The current yield spread to treasury 10yr notes is 150bps lower than the average of the last three credit cycle bottoms because 3yr treasury yields are so high. The CoCo price average of $89.65 is lower than any of the past three cycles, which (like the other hybrid sectors) highlights that the term structure of interest rates (i.e., high real US Treasury yields) being the primary reason for deeply discounted prices. The implication of a 0.21% current yield increase to 7.16% (the average current yield of the prior bottoms) is an estimated 0.58% price decline using the modified duration of 2.71; then adding back the current book yield (assuming a 12month path) of 6.95% makes the *Comprehensive Risk Estimate* for the CoCo sector 6.37%. The recapture rate is just 1 month. CoCo prices have underperformed performed NoCo prices by 1.20pts this year even though CoCos have 1.13yrs less duration, but income helped them outperform on a total return basis by 0.48%. The rally in CoCos since September has them a cheap *fair value* on spread statistically, but in the absolute yield category the almost match the yields at the bottom of the last three credit cycles.

<u>Outlook:</u>

This month, the Fed boosted the federal funds rate another 50bps to a target range of 4.25% - 4.50%. Coming into the meeting last month we believed the risk to the terminal rate was over 5% and the Fed indicated that this is more likely now given the strength in labor and resilience in the financial system.

- Three key questions remain for Fed policy on federal funds:
    1. How high?
        - ✓ Answer: 4.75% - 5.00%
            - ❖ Risk: 5.25% - 5.50%
    2. How fast?
        - ✓ Answer: by March 2023
            - ❖ Risk: by June 2023

3. How long?
   - ✓ Answer: hold for 1yr = March 2024
     - ❖ Risk: hold for 6 months = December 2023

The Federal Reserve Bank's preferred measure of inflation is the PCE Deflator – Chairman Powell wants to sustain a positive real federal funds rate. We know that The Fed always gets what the Fed wants, and the Fed wants a PCE Deflator-to-federal funds rate gap to show a positive real rate. Though the gap has narrowed, we do not expect the Fed to stop raising rates until the PCE deflator crosses into the federal funds bound – then, there should be one more 25bps hike to complete the cycle and anchor its desired disinflation goal – a positive real federal funds rate is the evidence to that goal being achieved. The terminal federal funds rate will probably end up at 4.75% - 5.00% bound. When the Fed went through this exercise in 2019, it was satisfied with a real federal funds rate of 75bps and by the time the 2yr note yield declined to meet the PCE deflator, the Fed was forced to buy US T-bills to expand its balance sheet and push up on inflation. We do not expect the Fed to be so quick to use its balance sheet this time around because inflation (i.e., the PCE Deflator at 5.54%) is well beyond being close to the Fed's 2% target. We believe, therefore, that the Fed will keep short term rates high for longer – or in other words, into March 2024.

Here's a look at the multiples of 5yr average implied inflation that are available in hybrids compared to more senior financials:

	A	B	C	D=B/C	E=D/A
Purchasing Power Matrix: Financials	Mdur	YTW%	5yrBE Inflation%	Inflation Coverage	Inflation Coverage/ Mdur
Retail $25par (p0p4)	12.18	7.48	2.38	3.14	0.26
NoCos (stb8)	3.84	7.61	2.38	3.19	0.83
CoCos (cdlr)	2.71	8.35	2.38	3.50	1.29
More Sr. Fins (e0ba)	4.80	5.55	2.38	2.33	0.49

Source: Bloomberg; ICE BofA Bond Indices

The inflation coverages are still quite robust at better than 3% for junior subordination. The contingent convertible sector (CoCos) is still the winner on *Inflation Coverage* and risk adjusted coverage when factoring in duration. The Noco sector wins the silver medal again on both scores. The retail sector measures up too, but one must accept 3x the duration risk of NoCos to get the coverage.

Defense continues to be our primary investment objective this year and positive real yields for hybrids helps us run the playbook. Real yields are quite attractive in hybrids and even more so when we adjust historical default risks from real yields. Below we assess a more comprehensive view of real yields net of inflation and net of default in a *Real Yield Matrix* to double risk adjusted yield comparisons in hybrids, investment grade corporates and below investment grade corporates (i.e., junk bonds):

Real Yield Matrix	Hybrids		Corporates	
	Preferreds	CoCos	IG Corps	BIG Corps
Bloomberg Index	*cips+hips*	*cdlr*	*c6c0*	*h0a0*
Mod.Duration	3.84	2.71	6.18	4.25
Yield-to-Worst	7.61	8.35	5.6	8.99
Inflation[1] Adjustment	2.38	2.38	2.38	2.38
Real Yields	5.23	5.97	3.22	6.61
Default[2] Adjustment	-0.11	-0.11	-0.04	-2.57
YTW, net, net adj.	**5.12**	**5.86**	**3.18**	**4.04**
Composite Rating	*BBB2*	*BB1*	*BBB1*	*B1*
Last Month End:	Hybrids		Corporates	
	Preferreds	CoCos	IG Corps	BIG Corps
YTW, net, net adj.	5.12	6.02	2.99	3.57
Change from Last	☆ 0.00	☆ -0.16	☆ 0.19	☆ 0.47

Source: Bloomberg; ICE BofA Bond Indices

[1] *Inflation assuption based on the UST5yr breakeven inflation rate*
[2] *Sprectrum's 10yr annual default study through 2020*

Hybrids offer the most positive double-net real yield opportunity in credit. As the Fed focuses more on labor (i.e., one of its policy objectives) and wage cost increases than it will on recession, it should keep its more restrictive policy in place until its job is done on inflation – Hybrid yields rates are likely to stay elevated for some time, which should keep the window of opportunities in Hybrids open for longer too. In a year when we don't expect duration to be a major contributor to performance, the income a accretion component of Hybrids looks quite compelling to core corporates and to high yield, net of default.

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