SIFMA Insights

COVID-19 Related Market Turmoil Recap: Part II

Fixed Income & Structured Products

July 2020

Key Takeaways

In light of COVID-19 related market dislocations, SIFMA Research tracked daily market metrics (rates, spreads, indexes) across various fixed income and structured products markets, as well as issuance trends. This report is the culmination of that work, analyzing market trends from the start of the year through mid-June.

- Market performance has been a mixed bag, varying by asset class & across subcategories within
- One commonality is that improvement in market fundamentals is directly linked to Fed operations
- Peak issuance $3.3T in April, +126% to 2019; long-term issu. $1.0T each in March/April (+51%/+50%)

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Setting the Scene

Background

The emergence of the global pandemic COVID-19 in the first quarter of 2020 caused severe economic and capital markets shocks. In an unprecedented move, federal, state and local governments purposely shut down economic activity to prevent the spread of the virus. Everything from restaurants to theme parks to manufacturing plants closed, and people holed up in their homes. The world as we knew it stopped. By April, economic statistics painted a bleak picture. The U.S. lost over 23 million jobs, with the reported U3 unemployment rate at 14.7%, according to the Bureau of Labor Statistics (BLS). The U6 statistics[1] provided a more accurate, yet more negative, measure of true unemployment: over 36 million unemployed, 22.8% unemployment rate.

Then the May unemployment report provided a surprise to the upside. Total nonfarm payroll employment rose by 2.5 million, and the unemployment rate declined to 13.3%. Many states had reopened by June. However, we are not fully out of the woods. In June, Federal Reserve (Fed) Chairman Jerome Powell tempered investor enthusiasm when he indicated that interest rates would remain near zero through 2022, citing continued economic uncertainty. And now we are experiencing a resurgence of the virus in several states/cities/counties.

This report analyzes market trends from the start of the year through June 15. The COVID-19 led economic and market shocks created enormous one-way flows from risk to safe assets, and the flows were beyond the capacity of the financial system. The volatility was exacerbated by dealer balance sheet constraints, caused by post global financial crisis regulations, which limited balance sheet capacity and the ability to fully support customers under extreme market stress and to act as an intermediary between the official sector and the economy. This created substantial liquidity constraints in many fixed income and structured products markets. The early signs of the market turmoil began in the first few weeks of March in the repurchase agreement market (repos; used to aid secondary market liquidity for the cash markets like U.S. Treasury securities/UST and provide funding to dealer market making operations). The secured overnight financing rate (SOFR), a reference rate for the U.S. based on the overnight repo markets, moved outside of the fed funds rate range, a rare occurrence and a sign of stress in the repo markets.

Then, the UST market started to show liquidity stresses, particularly in longer dated (10-year, 30-year) and off-the-run securities. In a flight to safety move, investors moved into the short end of the UST curve – these instruments are considered the closest financial assets to cash – from the long end, draining more liquidity from longer-dated securities and causing a spike in longer term interest rates. Stresses spread into the mortgage-backed securities (MBS) space. All sectors of MBS and asset-backed securities (ABS) experienced significant stress in March and April. The turmoil continued to flow into corporate bonds (corporates), particularly in high yield instruments, and municipal securities (munis). Essentially, all risk assets in the fixed income space showed illiquidity and weak demand. And the commercial paper (CP) markets froze, limiting access to another source of short-term funding.

[1] Unemployed plus all persons marginally attached to the labor force and total employed part time for economic reasons

Where are We Now?

- **Rates and Repo**: The functioning of the Treasury market, including Treasury repo, has improved considerably since mid-March. In a sign of the improvement in the repo markets, the Fed discontinued three month repo operations, specifically citing more stable conditions (continuing overnights every day and one-month repos once a week).
- **MBS and ABS**: The MBS and ABS recovery has been uneven across segments. Direct purchases by the Federal Reserve (Fed) calmed the agency MBS market, while off-the-run, specified pools of structured products and collateralized mortgage obligations (CMO) took longer to reach equilibrium. Non-agency RMBS (residential MBS) and CMBS (commercial MBS) markets remain somewhat fragile, as dealers continue to be reluctant to take on risk. Credit risk transfer securities (CRT[2]), particularly the oldest vintage of transactions, still have pockets of stress, and the ABS recovery varied by sector. While these markets have calmed, not all segments have recovered fully to pre COVID-19 levels.
- **Corporates**: There is still stress in some areas of the credit markets, as the Fed's latest program to purchases the bonds themselves (announced in June) is not quite operational. High yield bonds continue to show stress, while most of investment grade has recovered. Looking at issuance trends as an indicator, investment grade issuance was strong in March through May (+178% to 2019 levels on average); high yield essentially stopped in March (-85% to 2019 levels) but had recovered well by May (+60% to 2019 levels).
- **Munis**: In munis, the Fed programs are having an impact on the front end, while liquidity in longer dated munis remains challenged. The new issue market continues to improve, particularly for high-grade issuers. Significant large deals have been able to come to market. Demand is still thin for high-yield issuers, particularly in the secondary market for long-term bonds.
- **CP**: Responding to the Fed program directed at them, issuance has resumed as markets normalized (with varying trends across sectors).

To date, the COVID-19 crisis has been a liquidity event, not yet a solvency event. However, should the virus resurgence cause a mass resumption of lockdowns, and these shutdowns last longer, unemployment will remain high and we will move closer to a solvency event. Companies in highly impacted sectors could (and have) experience credit rating downgrades, which increases a company's cost of borrowing, and potentially defaults. This would exacerbate the country's economic stresses.

The financial system and market infrastructure have been very resilient, withstanding record high turbulence in not just measured volatility but extreme 1,000 point intraday price swings in the equities markets and extreme moves in sectors of the Treasury market. As a sign of resiliency, we point to corporate bond issuance. Issuance increased 107% to the 2019 monthly average in March ($245 billion) and then peaked in April ($316 billion, +168% to 2019 levels). And most of this occurred prior to the Fed programs being stood

[2] Created in 2013 to transfer a portion of risk associated with credit losses within pools of conventional residential mortgage loans from government sponsored enterprises (GSE; Fannie Mae, Freddie Mac) to the private sector

up, i.e. market conditions improved on just the announcement of a Fed program. Had markets not been resilient, issuance at these levels would not have occurred.

The goals remain: (1) flatten the virus curve; (2) flatten the economic decline curve; and (3) maintain stability in financial markets. But what if people don't follow social distancing and the second wave takes over or a vaccine takes significantly longer than anticipated? We go back to square one, and we could have a second round of turmoil in the markets.

On a positive note, we have an unprecedented number of Fed programs and a Fed that continues to vow to use all of its tools to maintain market liquidity and help the economic recovery. Throughout the crisis, the mere announcement of a Fed program has been enough to aid in market recovery.

The U.S. Treasury Department and Congress followed up Fed actions with multiple phases of fiscal stimulus (ex: the $2 trillion CARES Act, including the Paycheck Protection Program) to provide liquidity to individuals, small businesses and corporations in COVID-19 impacted sectors, all to support the economy. Market participants expect another round of fiscal stimulus in July.

Executive Summary

Market performance in fixed income and structured products has been a mixed bag, varying by asset class and across subcategories within sectors. Moving through the analysis time period of January 2 to June 15, we highlight:

- **Volatility**: ICE BofA MOVE Index began the year at 57.20; it peaked at 163.70, +186% to the start of the year; now at 58.09, it is 2% above the start of the year and down 65% from the peak
- **Rates & Repo**:
    - All UST rates have recovered but remain well below pre COVID-19 levels; short-end rates troughed at -0.105 for the 13-week & -0.088 for the 3-month (remain -1.340 & -1.364 from Jan. 2); long-end troughed at 0.521 for the 10-year & 0.967 for the 30-year (remain -1.168 & -0.882 from Jan 2)
    - The 7 UST indexes we tracked fell 0.9% at their troughs; now +6.7% from the start of the year
    - Repo rate troughed at 0.010 and remains -1.430 from the start of the year; SOFR troughed a day later at 0.010 and remains -1.450 from the start of the year
- **Corporate Bonds (Corporates)**:
    - The 12 indexes we tracked fell 13.4% at their troughs, -0.2% from the start of the year; all high yield indexes remain below start of the year levels (now -3.7% on average vs. -18.6% at the trough)
    - CDX spreads were +171% on average at their peaks (max spread widening); remain +50% on average from the start of the year
- **Mortgage-Backed & Asset-Back Securities (MBS & ABS)**: 3 indexes we tracked fell 0.8% at their troughs; now +3.3% from the start of the year
- **Municipal Securities (Munis)**: All tenors of the rate curve spiked on March 20 (ex: 1-year at 2.854, +1.810 from Jan 2); while rates settled back down, all tenors are now well below start of year levels, -0.698 on avg
- Issuance trends varied by asset class as well
    - **Total Fixed Income**: Peak issuance of $3.3T in April, +126% to 2019 monthly average; issuance for only long-term instruments had a strong March & April, $1.0T each (+51% & +50% to 2019)
    - **Increased**: UST and corporates peaked in April, +148% and +168% to 2019; MBS peaked in May, +76% to 2019; and agency debt peaked in March, +121% to 2019 (but was essentially flat in May)
    - **Decreased**: Munis troughed in March, -47% to the 2019 monthly average; ABS troughed in May, -76% to 2019
    - **CP**: Issuance spiked in March to $90B (+13% to 2019), but settled by May ($78.5B, flat to 2019)
- **Concerns around Potential Defaults**: Companies in highly impacted sectors could (and have) experience credit rating downgrades, which increases a company's cost of borrowing, and potentially defaults. This would exacerbate the country's economic stresses. We assess outlook changes and downgrades in this section.

Federal Reserve Programs

When the liquidity stresses began, the Fed undertook swift and unprecedented actions. In March, the Fed took several monetary policy actions to help markets and the economy. It also began buying financial assets to bring them out of clogged pipes and increase the capacity and liquidity in the system, most powerfully in purchasing UST, agency MBS and agency CMBS. It then announced more than a dozen programs to inject liquidity into markets, many of these backstopped by the Treasury. The low hanging fruit to fight market stress and illiquidity was to go back to the 2008 playbook, but the Fed has now gone way past the actions seen during the Global Financial Crisis, both in types of markets and assets supported and in size of funding available.[3]

Improvement by asset class or subsectors can be directly linked to Fed operations, including:

- **Fed Funds Rate**: On March 3, at an unscheduled meeting, the Fed unanimously voted to cut the target Fed Funds rate range by 50 bps, to 1.00%-1.25%. Then, on March 15, ahead of the scheduled March meeting, the Fed again cut the rate to 0.00% to 0.25%, indicating it would keep the rate here until the economy weathers the virus. On June 10, Fed Chairman Powell announced that Federal Open Market Committee (FOMC) participants expect, as their baseline expectation, no rate increase at least through 2022.
- **G7 Statement**: On March 3, U.S. Treasury Secretary Steven Mnuchin and Fed Chairman Powell led a call with the G7 Finance Ministers and Central Bank Governors to discuss COVID-19 and reaffirm the G7's commitment to use all appropriate policy tools to achieve strong, sustainable growth and safeguard against downside risks to the fullest extent possible, supported by the International Monetary Fund, the World Bank and other international financial institutions.
- **Discount Window**: On March 15, the Fed issued a statement encouraging depository institutions to use the discount window to meet demands for credit from households and businesses and lowered the primary credit rate by 150 bps to 0.25%. During the same announcement, the Fed also: (a) encouraged depository institutions to utilize intraday credit extended by the Fed on both a collateralized and uncollateralized basis; (b) encouraged depository institutions to use their capital and liquidity buffers as they lend to households and businesses affected by COVID-19; and (c) reduced reserve requirement ratios to 0% for thousands of depository institutions, to support lending to households and businesses.
- **Swap Lines**: In order to meet the growing global demand for dollar liquidity, on March 15, the Fed, Bank of Canada, Bank of England, Bank of Japan, European Central Bank and Swiss National Bank announced a coordinated action to enhance the provision of liquidity via the standing U.S. dollar liquidity swap line arrangements, lowering the pricing by 25 basis points to the U.S. dollar overnight index swap (OIS) rate plus 25 bps. On March 19, to help further lessen strains in global U.S. dollar funding markets and reach deeper into global markets, the FOMC authorized the NY Fed to enter into temporary (in place for at least six months) U.S. dollar swap lines in amounts up to $60 billion each for the Reserve Bank of Australia, the Banco Central do Brasil, the Bank of Korea, the Banco de Mexico, the Monetary Authority of Singapore, and the Sveriges Riksbank (Sweden) and $30 billion each for the Danmarks Nationalbank (Denmark), the Norges Bank (Norway), and the Reserve Bank of New Zealand.

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[3] The Fed has a requirement that they must limit risk through the use of collateral and good counterparties; they typically make money on these type of liquidity programs, enabling them to consistently return money to the Treasury Department, and there is no cost to taxpayers

- **Asset Purchases**: On March 12, the Fed announced adjustments to schedules of UST and repo operations to address temporary disruptions in Treasury financing markets and support functioning of UST and U.S. dollar funding markets. As a part of its $60 billion reserve management purchases, the Fed announced purchases across a range of maturities to roughly match the maturity composition of UST outstanding. The Fed announced $500 billion three-month repo and one-month repo operations for same day settlement to be offered on a weekly basis for the remainder of the monthly schedule. The Fed also announced $175 billion in daily overnight repo operations and at least $45 billion in two-week term repo operations twice per week over this period. On March 15, the Fed announced it will increase its holdings of UST by at least $500 billion and its holdings of agency MBS by at least $200 billion, to support the smooth functioning of these markets. By March 23, this was increased to be essentially unlimited QE for UST, agency MBS and agency CMBS. The Fed indicated it will provide up to $300 billion in new financing, including $30 billion from the Department of the Treasury, using the Exchange Stabilization Fund.
- **CPFF**: On March 17, the Fed announced it will establish a Commercial Paper Funding Facility (CPFF) to support the flow of credit to households and businesses by providing a liquidity backstop to U.S. issuers of CP through a special purpose vehicle (SPV) that will purchase unsecured and asset-backed CP rated A1/P1 directly from eligible companies. On March 23, this was expanded to include high-quality, tax-exempt CP as eligible securities, and the pricing of the facility was reduced.
- **PDCF**: On March 17, the Fed announced it will establish a Primary Dealer Credit Facility (PDCF), offering overnight and term funding with maturities up to 90 days to allow primary dealers to support smooth market functioning and facilitate the availability of credit to businesses and households. Initially, this consisted of a series of overnight operations as well as term two-week operations, but the caps were raised to allow the Fed to ensure repo markets continue to operate smoothly.
- **MMLF**: On March 18, the Fed announced it will establish a Money Market Mutual Fund Liquidity Facility (MMLF) to enhance the liquidity and functioning of crucial money markets by making loans available to eligible financial institutions secured by high-quality assets purchased by the financial institution from money market mutual funds. On March 20, this was expanded to include eligible financial institutions secured by certain high-quality assets purchased from single state and other tax-exempt municipal money market mutual funds. It was expanded again on March 23 to include a wider range of securities, including municipal variable rate demand notes (VRDNs) and bank certificates of deposit.
- **TALF**: On March 23, the Fed announced the Term Asset-Backed Securities Loan Facility (TALF) enabling the issuance of ABS backed by student loans, auto loans, credit card loans, loans guaranteed by the Small Business Administration (SBA) and certain other assets.
- **PMCCF, SMCCF**: On March 23, the Fed announced the Primary Market Corporate Credit Facility (PMCCF) for new bond and loan issuance and the Secondary Market Corporate Credit Facility (SMCCF) to provide liquidity for outstanding corporate bonds. This included purchasing corporate bond ETFs, particularly those holding fallen angel bonds (companies formerly classified as investment grade but have been downgraded to speculative or junk), where the downgrades happened due to COVID-19. The SMCCF was expanded on June 15 to begin buying a broad and diversified portfolio of corporate bonds themselves to support market liquidity and the availability of credit for large employers.

- **Bank Regulations**: On March 23, five national banking regulators (Fed, OCC, FDIC, NCUA, CFPB) and state banking regulators issued an important statement on loan modifications, waiving the requirement for banks to automatically classify COVID-19 related modifications as TDRs (troubled debt restructurings) for borrowers current prior to any relief.
- **FIMA Repo**: On March 31, the Fed announced the establishment of a temporary repo facility for foreign and international monetary authorities (FIMA Repo Facility) to help support the smooth functioning of financial markets, including the U.S. Treasury market, allowing FIMA account holders (central banks and other international monetary authorities) to enter into repos with the Fed.
- **Bank Regulations**: On April 1, the Fed issued an interim final rule revising the denominator of the supplementary leverage ratio (SLR) to exclude the on-balance sheet Treasury securities and deposits at the Fed, to support market functioning and the flow of credit.
- **Loans**: On April 9, the Fed took additional actions to provide up to $2.3 trillion in loans to support the economy. This funding will assist households and employers of all sizes and bolster the ability of state and local governments to deliver critical services.
- **MLF**: On June 3, the Fed announced an expansion in the number and type of entities eligible to directly use its Municipal Liquidity Facility (MLF), enabling all U.S. states to have at least two cities or counties eligible to directly issue notes to the MLF regardless of population.

Total Fixed Income Overview

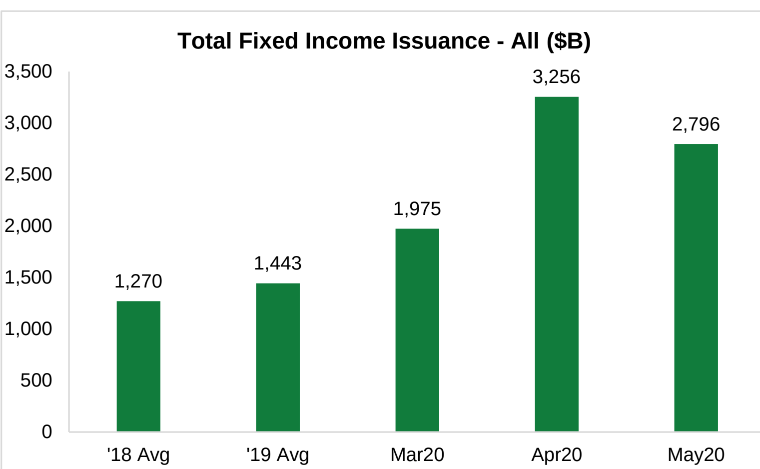
Market performance in the fixed income and structured products markets has been a mixed bag, varying by asset class and across subcategories within sectors. One commonality is that improvement in market fundamentals is directly linked to Fed operations. For example, there was a relatively quick normalization in repo, UST and agency MBS markets. The Fed even discontinued three month repo operations in mid-May, citing more stable conditions (it continued overnights everyday and one-month repos once a week). Other markets are not fully recovered to pre COVID-19 levels. Yet, the mere announcement of a new Fed program has been enough to help improve market fundamentals, such as with corporate and muni bonds.

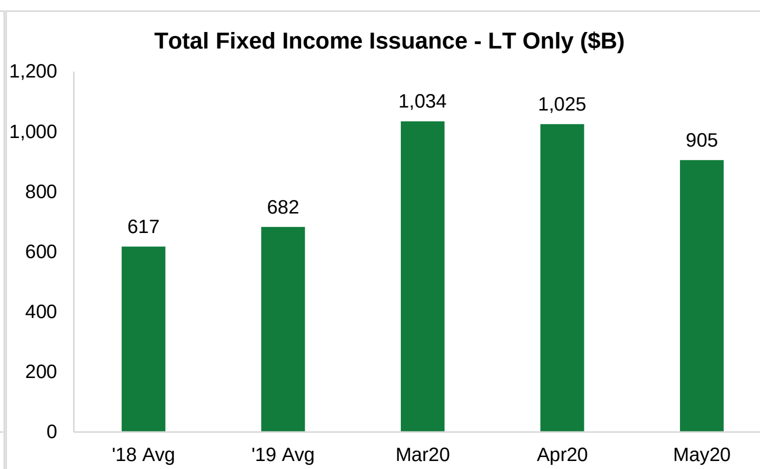
Issuance trends varied by asset class as well. We highlight the following:

- **Total**: Peak issuance of $3.3T in April, +126% to the 2019 monthly average; issuance for long-term instruments only had a strong March and April, $1.0T each month (+51% and +50% to 2019 respectively)
- **Increased**: UST and corporates peaked in April, +148% and +168% to 2019; MBS peaked in May, +76% to 2019; and agency debt peaked in March, +121% to 2019 (but was essentially flat in May)
- **Decreased**: Munis troughed in March, -47% to the 2019 monthly average; ABS troughed in May, -76% to 2019

$B	UST	Corporates	MBS	Agency	Munis	ABS	Total - All	Total - LT Only
2018 Avg	874.2	111.1	158.8	54.1	28.8	43.1	1,270.1	619.6
2019 Avg	1,005.9	117.9	175.8	82.4	35.5	25.5	1,443.1	681.8
Mar 2020	1,314.0	244.8	202.4	181.8	18.7	13.4	1,975.0	1,029.0
Apr 2020	2,491.7	316.4	271.0	136.8	29.4	10.5	3,255.7	1,019.1
May 2020	2,067.1	302.4	309.0	82.3	29.2	6.2	2,796.2	907.8
Mar/2019	30.6%	107.6%	15.1%	120.5%	-47.3%	-47.5%	36.9%	50.9%
Apr/2019	147.7%	168.2%	54.1%	65.9%	-17.1%	-59.0%	125.6%	49.5%
May/2019	105.5%	156.4%	75.7%	-0.2%	-17.8%	-75.6%	93.8%	33.1%

Source: SIFMA Research (LT only excludes T-Bills)





Source: SIFMA Research

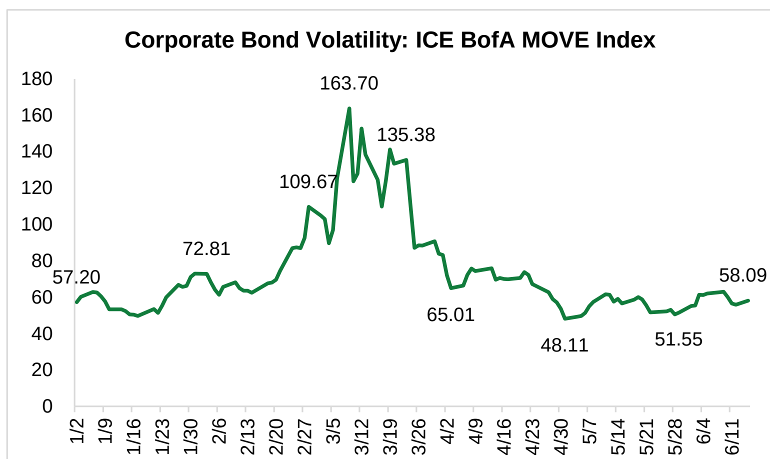
Volatility

Before assessing individual asset class trends, we analyze volatility, as represented by the ICE BofA MOVE Index[4] or the VIX of the bond markets. Moving through the analysis time period of January 2 to June 15, we highlight:

- The MOVE began the year at 57.20
- It peaked at 163.70, +186% to the start of the year
- March was the most volatile month, averaging 115.63 (+97% to Jan average)
- April dropped to 68.89 on average, +17% to Jan average
- The May average was below start of year levels at 54.95 (-6% to Jan average)
- Now at 58.09, it is only 2% above the start of the year and is down 65% from the peak

ICE BofA MOVE Index			
Jan 2	57.20	1Q20	83.46
Peak	163.70	1Q20/Jan 2	46%
Peak Date	3/9	Jan Avg	58.71
Peak/Jan 2	186%	Feb Avg	73.56
Trough	48.11	Feb/Jan	25%
Trough Date	5/1	Mar Avg	115.63
June15	58.09	Mar/Jan	97%
June15/Jan 2	2%	Apr Avg	68.89
June15/Peak	-65%	Apr/Jan	17%
Peak/Trough Spread	115.59	May Avg	54.95
		May/Jan	-6%

Source: Bloomberg, SIFMA estimates



Source: Bloomberg (Jan 2 to Jun 15)

[4] Merrill Lynch Option Volatility Estimate (MOVE) index measures U.S. interest rate volatility by tracking the movement in UST yield volatility implied by current prices of one-month options on 2-year, 5-year, 10-year & 30-year UST. It has a history of providing strong signals about bond market sentiment.

Rates & Repo

Market Analysis

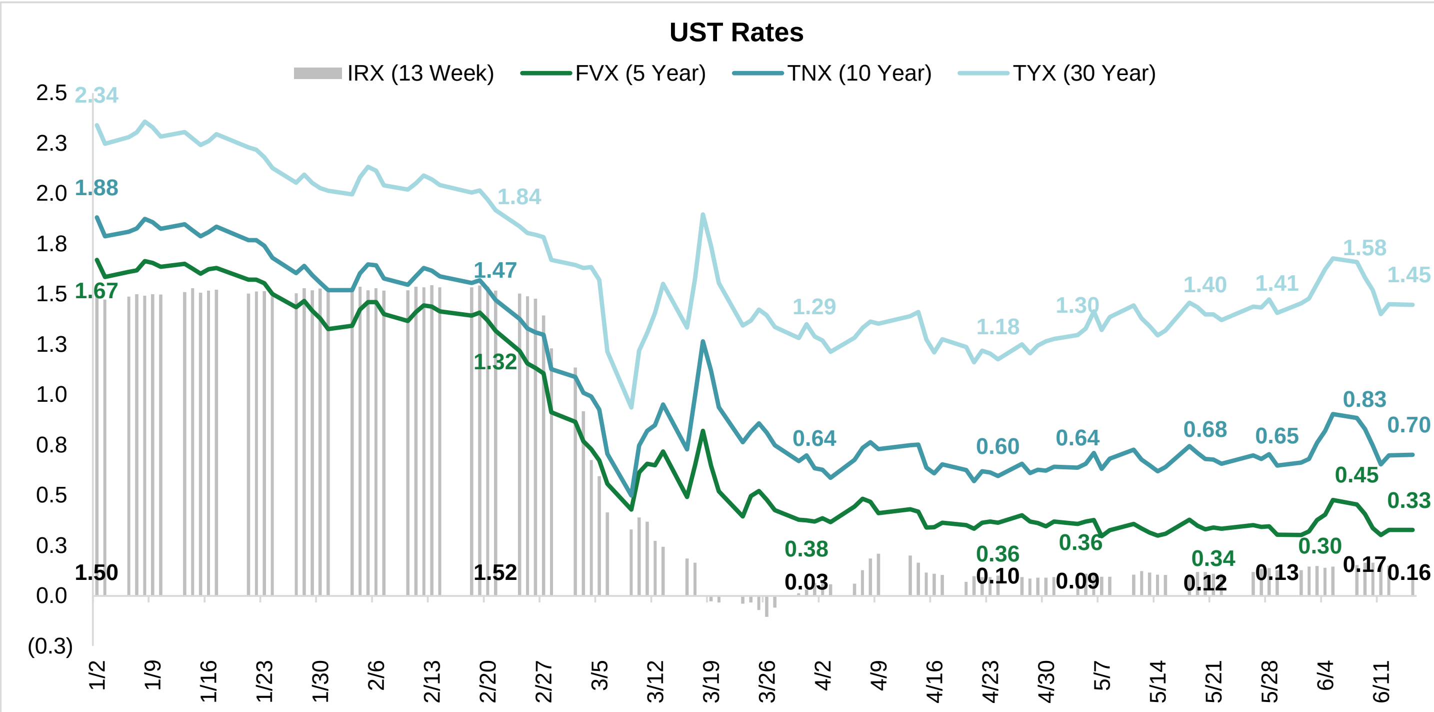
Moving through the analysis time period of January 2 to June 15, we highlight:

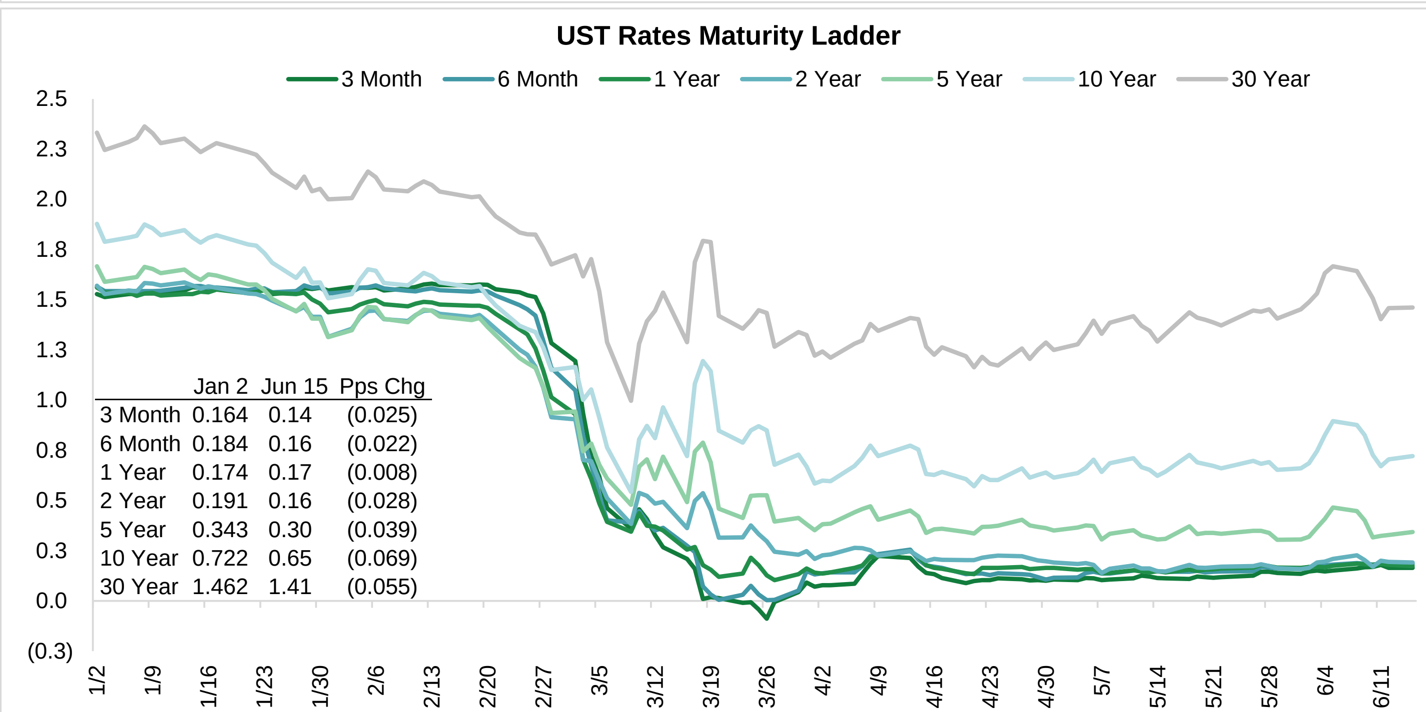
- All rates have recovered but remain well below pre COVID-19 levels
- **Short-End**: The short-end of the curve troughed in March; the 13-week and 3-month rates actually went negative, -0.105 and -0.088 respectively on March 26 (down 1.600 and 1.616 from the start of the year)
    - The 6-month rate came close, 0.004 on March 26 (down 1.562 from the start of the year)
    - The 1-year rate troughed on March 27 at 0.104 (down 1.457 from the start of the year)
- **Middle**: The middle tenors troughed May 7; while the 2-year dropped to 0.140 (down 1.430 from the start of the year), the 5-year troughed at 0.301 on average[5] (down 1.368 from the start of the year)
- **Long-End**: The 10-year troughed on March 9 at 0.521 on average (down 1.359 on average from the start of the year, while the 30-year troughed on March 9 at 0.967 on avg. (down 1.370 on avg. from start of the year)

UST Rates	IRX (13W)	FVX (5Y)	TNX (10Y)	TYX (30Y)	3 Month	6 Month	1 Year	2 Year	5 Year	10 Year	30 Year
Jan 2	1.495	1.671	1.882	2.341	1.528	1.566	1.561	1.570	1.667	1.878	2.332
Trough	(0.105)	0.296	0.499	0.937	(0.088)	0.004	0.104	0.140	0.306	0.543	0.997
Trough Date	3/26	5/7	3/9	3/9	3/26	3/26	3/27	5/7	5/7	3/9	3/9
Trough/Jan 2	(1.600)	(1.375)	(1.383)	(1.404)	(1.616)	(1.562)	(1.457)	(1.430)	(1.361)	(1.335)	(1.335)
Jun15	0.155	0.328	0.702	1.448	0.164	0.184	0.174	0.191	0.343	0.722	1.462
Jun15/Jan 2	(1.340)	(1.343)	(1.180)	(0.893)	(1.364)	(1.382)	(1.387)	(1.379)	(1.324)	(1.156)	(0.870)
1Q20	1.057	1.143	1.361	1.866	1.093	1.089	1.062	1.086	1.151	1.367	1.873
1Q20/Jan 2	(0.438)	(0.528)	(0.521)	(0.475)	(0.435)	(0.477)	(0.499)	(0.484)	(0.516)	(0.511)	(0.459)
Jan Avg	1.507	1.562	1.754	2.216	1.542	1.553	1.527	1.518	1.562	1.754	2.215
Feb Avg	1.501	1.325	1.502	1.971	1.537	1.499	1.407	1.337	1.330	1.506	1.974
Feb/Jan	(0.006)	(0.237)	(0.253)	(0.245)	(0.005)	(0.054)	(0.120)	(0.181)	(0.231)	(0.248)	(0.241)
Mar Avg	0.244	0.584	0.864	1.442	0.280	0.291	0.320	0.457	0.604	0.878	1.458
Mar/Jan	(1.263)	(0.978)	(0.891)	(0.774)	(1.263)	(1.262)	(1.207)	(1.062)	(0.957)	(0.876)	(0.758)
Apr Avg	0.108	0.385	0.652	1.268	0.121	0.158	0.171	0.222	0.387	0.649	1.262
Apr/Jan	(1.399)	(1.177)	(1.102)	(0.947)	(1.421)	(1.395)	(1.356)	(1.296)	(1.175)	(1.104)	(0.953)
May Avg	0.111	0.339	0.674	1.381	0.119	0.146	0.156	0.169	0.339	0.670	1.374
May/Jan	(1.396)	(1.223)	(1.081)	(0.835)	(1.424)	(1.407)	(1.371)	(1.350)	(1.223)	(1.084)	(0.841)

Source: Bloomberg, SIFMA estimates (two different sets of representative rate baskets)

[5] Average of the two representative rate baskets





	Jan 2	Jun 15	Pps Chg
3 Month	0.164	0.14	(0.025)
6 Month	0.184	0.16	(0.022)
1 Year	0.174	0.17	(0.008)
2 Year	0.191	0.16	(0.028)
5 Year	0.343	0.30	(0.039)
10 Year	0.722	0.65	(0.069)
30 Year	1.462	1.41	(0.055)

Source: Bloomberg (Jan 2 to Jun 15)

Looking at representative indexes during the analysis time period of January 2 to June 15, we highlight:

- On average, the 7 indexes we tracked fell 0.9% at their troughs
    - Agency debt was the worse off, -2.7% at the trough
- On average, the indexes are +6.7% from the start of the year
    - UST 10-year has recovered the most, +17.6%

Index	Government	Aggregate	Agency	UST	UST 1-3Y	UST 1-10Y	UST 10Y
Jan 2	2,350.23	191.02	372.19	137.92	113.35	128.74	203.08
Trough	2,337.36	190.80	362.01	137.16	113.26	128.41	199.33
Trough Date	1/6	3/17	3/17	1/6	1/6	1/6	1/6
Trough/Jan 2	-0.5%	-0.1%	-2.7%	-0.6%	-0.1%	-0.3%	-1.8%
Jun15	2,526.45	197.72	381.93	148.42	116.57	135.48	238.79
Jun15/Jan 2	7.5%	3.5%	2.6%	7.6%	2.8%	5.2%	17.6%
1Q20	2,419.25	192.88	376.17	142.03	114.49	131.14	218.66
1Q20/Jan 2	2.9%	1.0%	1.1%	3.0%	1.0%	1.9%	7.7%
Jan Avg	2,359.58	191.53	373.98	138.48	113.49	129.06	205.21
Feb Avg	2,400.59	192.93	379.69	140.91	114.02	130.38	215.16
Feb/Jan	1.7%	0.7%	1.5%	1.8%	0.5%	1.0%	4.8%
Mar Avg	2,492.31	194.12	375.21	146.39	115.85	133.80	234.52
Mar/Jan	5.6%	1.3%	0.3%	5.7%	2.1%	3.7%	14.3%
Apr Avg	2,534.84	196.47	372.97	148.95	116.44	135.18	244.97
Apr/Jan	7.4%	2.6%	-0.3%	7.6%	2.6%	4.7%	19.4%
May Avg	2,530.69	197.30	377.46	148.68	116.58	135.43	241.13
May/Jan	7.3%	3.0%	0.9%	7.4%	2.7%	4.9%	17.5%

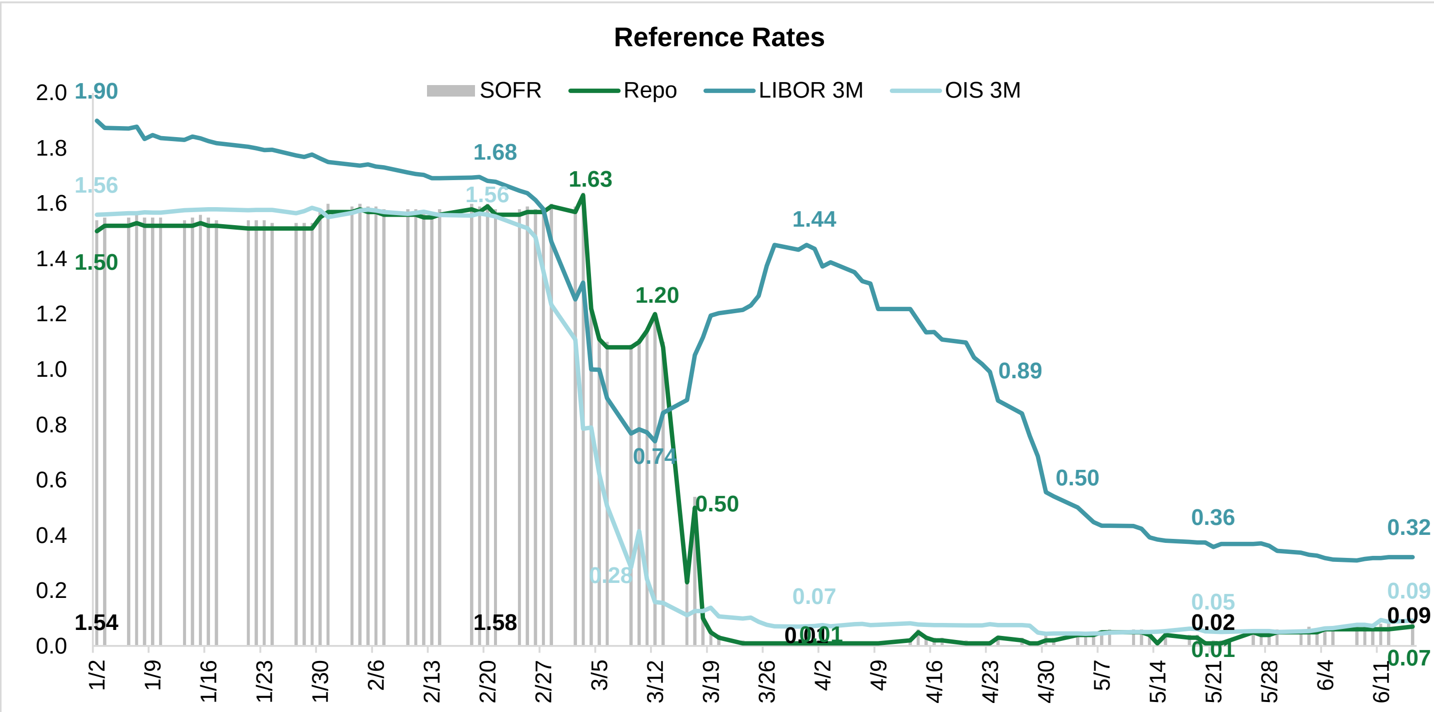
Source: Bloomberg, SIFMA estimates (aggregate = agency, MBS, CMBS and ABS)

Looking at alternative reference rates, we highlight:

- **Repo**: This rate troughed on March 23 at 0.010, -1.490 from the start of the year; it remains -1.430 from the start of the year
- **SOFR**: This rate troughed on March 24 at 0.010, -1.530 from the start of the year; it remains -1.450 from the start of the year
- **OIS**: This rate troughed on April 30 at 0.044, -1.516 from the start of the year; it remains -1.469 from the start of the year

Reference Rates	Repo	SOFR	LIBOR 3M	OIS 3M
Jan 2	1.500	1.540	1.900	1.560
Trough	0.010	0.010	0.374	0.044
Trough Date	3/23	3/24	5/19	4/30
Trough/Jan 2	(1.490)	(1.530)	(1.526)	(1.516)
Jun15	0.070	0.090	0.321	0.092
Jun15/Jan 2	(1.430)	(1.450)	(1.579)	(1.469)
1Q20	1.208	1.227	1.522	1.101
1Q20/Jan 2	(0.292)	(0.313)	(0.378)	(0.459)
Jan Avg	1.520	1.548	1.821	1.572
Feb Avg	1.568	1.586	1.678	1.528
Feb/Jan	0.047	0.038	(0.142)	(0.044)
Mar Avg	0.600	0.610	1.102	0.284
Mar/Jan	(0.921)	(0.939)	(0.718)	(1.287)
Apr Avg	0.016	0.020	1.098	0.073
Apr/Jan	(1.504)	(1.529)	(0.723)	(1.498)
May Avg	0.035	0.045	0.407	0.051
May/Jan	(1.485)	(1.504)	(1.413)	(1.521)

Source: Bloomberg, SIFMA estimates (LIBOR = London inter-bank offered rate; OIS = overnight indexed swap)



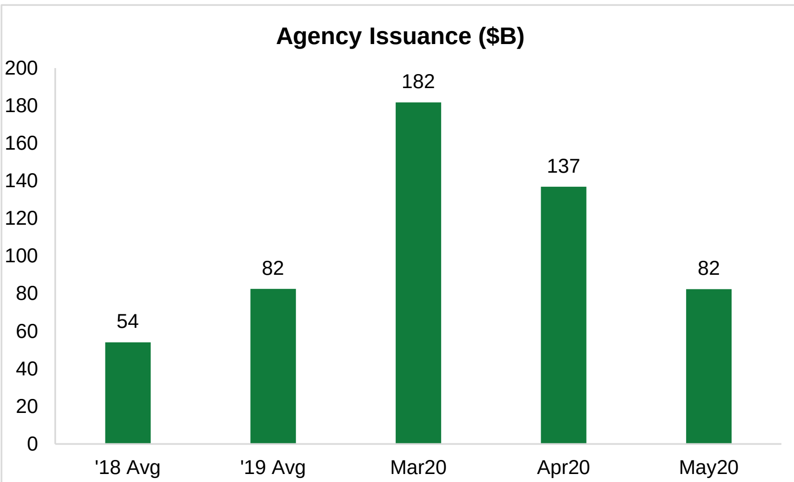
Source: Bloomberg (Jan 2 to Jun 15)

Issuance Trends

Agency Issuance

Issuance trends varied by asset class as well. We highlight the following for federal agency securities issuance:

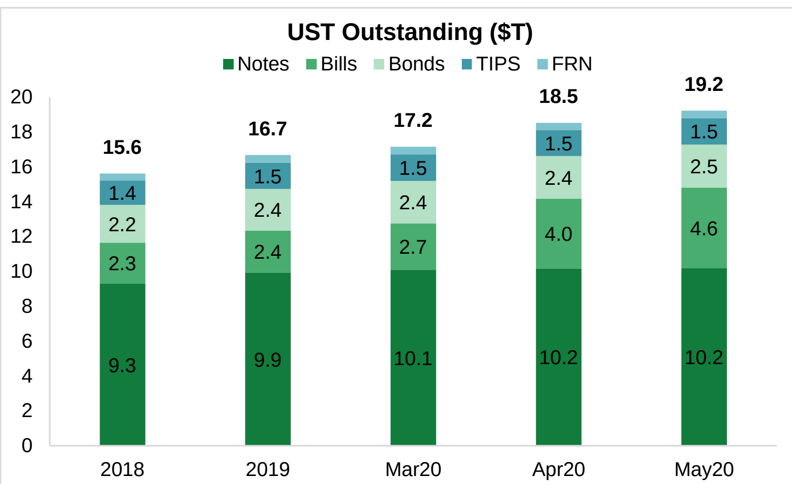
- Peaked in March at $182B, +220% to the 2019 monthly average
- May issuance settled back down to last year's levels, $82B



UST Issuance

While the Fed programs, with the assistance of the Treasury, helped calm market turmoil, the government will eventually need to pay for these programs and the substantial fiscal stimulus that Congress has mandated. Market participants have expressed some concerns about the significant supply pressures coming to bear on the short end of the UST curve, thus pushing up yields. Not surprisingly, the U.S. Treasury Department indicated that its financing needs for the next quarter were significantly in excess of any prior projections, at around $3 trillion. Expectations are that Treasury will have to significantly up the size of its borrowings in both the short and the long term to fund the market programs. The challenge ahead for the UST markets will be to absorb the unprecedented supply of securities without compromising market functioning. Concerns remain for liquidity risks of the expected Treasury supply coupled with any easing of the amounts bought by the Fed.

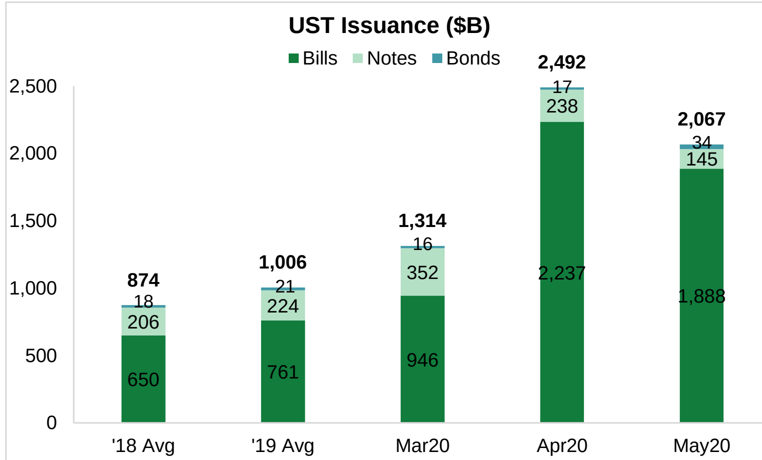
The increasing issuance trend has already begun. As of May 2020, there was $19.2 trillion in UST outstanding, +15% to the end of 2019. The increase is driven by issuance of bills, +92% since 2019, followed by a 4% increase in bonds and 2% increase in notes.

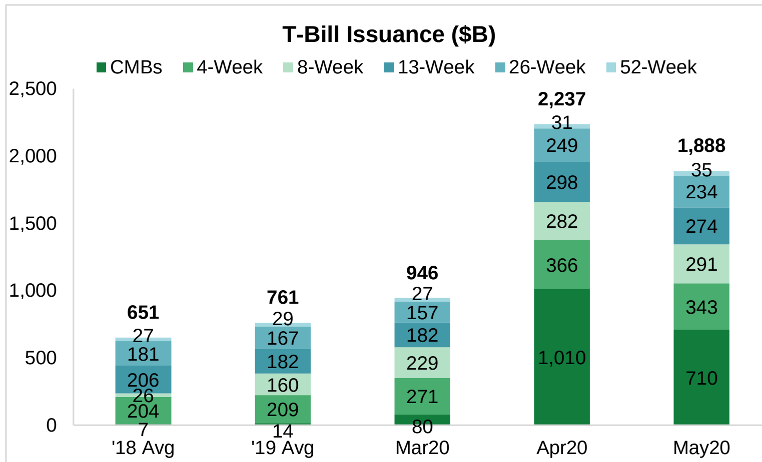


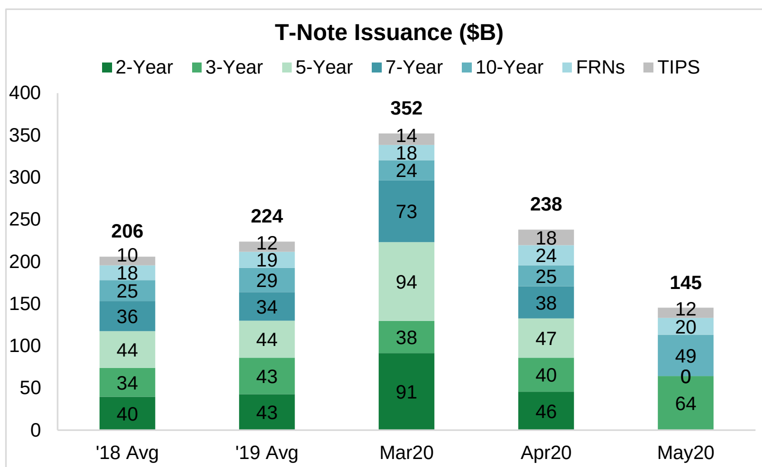
Source: U.S. Department of the Treasury, SIFMA estimates

Looking deeper at issuance trends, we highlight the following, as compared to 2019 monthly averages:

- **Total UST**: April $2.5T, +148%; May $2.1T, +106%
  - 90.5% total April/May issuance was in bills (8.4% notes, 1.1% bonds)
- **T-Bills**: April $2.2T, +194%; May $1.9T, +148%
  - Fed program funding driven by cash management balances (CMB): April $1.0T, +6,906%; May $710B, +4,825%
  - 4-week: April +75%, May +65%
  - 8-week: April +76%, May +82%
  - 13-week: April +64%, May +50%
  - 26-week: April +49%, May +40%
  - 52-week: April +7%, May +22%
- **T-Notes**: March $352B, +57%; April $238B, +6%
  - 2-year: March +115%, April +7%
  - 3-year: March -12%, April -8%
  - 5-year: March +115%, April +7%
  - 7-year: March +115%, April +12%
  - 10-year: March -17%, April -13%
  - FRNs: March -6%, April +25%
  - TIPS: March +14%, April +55%
- **T-Bonds**: April $17.1B, -19%; May $33.6B, +60% (all 30-year bonds, no TIPS)







Source: U.S. Department of the Treasury, SIFMA estimates

MBS & ABS

Market Analysis

Looking at representative indexes during the analysis time period of January 2 to June 15, we highlight:

- On average, the 3 indexes we tracked fell 0.8% at their troughs
  - ABS was the worse off, -2.2% at the trough
- On average, the indexes are +3.3% from the start of the year
  - The aggregate and MBS have recovered the most, +3.5%

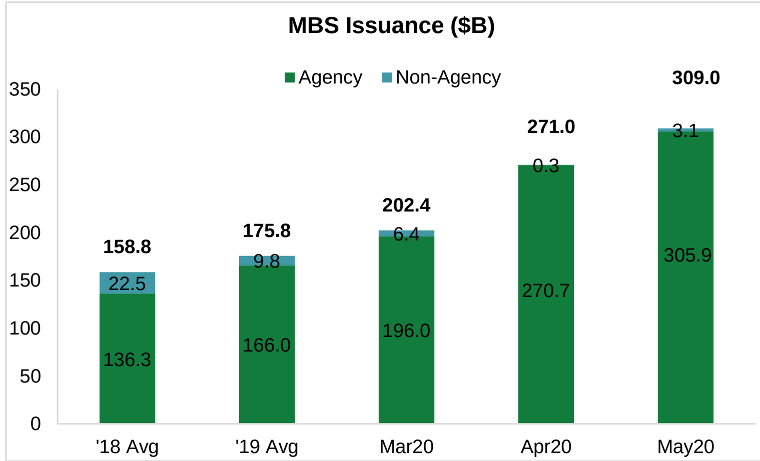
Index	Aggregate	MBS	ABS
Jan 2	191.02	2,240.20	358.87
Trough	190.80	2,235.63	350.93
Trough Date	3/17	3/17	3/26
Trough/Jan 2	-0.1%	-0.2%	-2.2%
Jun15	197.72	2,317.59	369.77
Jun15/Jan 2	3.5%	3.5%	3.0%
1Q20	192.88	2,261.27	361.28
1Q20/Jan 2	1.0%	0.9%	0.7%
Jan Avg	191.53	2,245.59	360.30
Feb Avg	192.93	2,260.24	362.65
Feb/Jan	0.7%	0.7%	0.7%
Mar Avg	194.12	2,277.14	361.02
Mar/Jan	1.3%	1.4%	0.2%
Apr Avg	196.47	2,306.81	360.84
Apr/Jan	2.6%	2.7%	0.1%
May Avg	197.30	2,315.30	364.83
May/Jan	3.0%	3.1%	1.3%

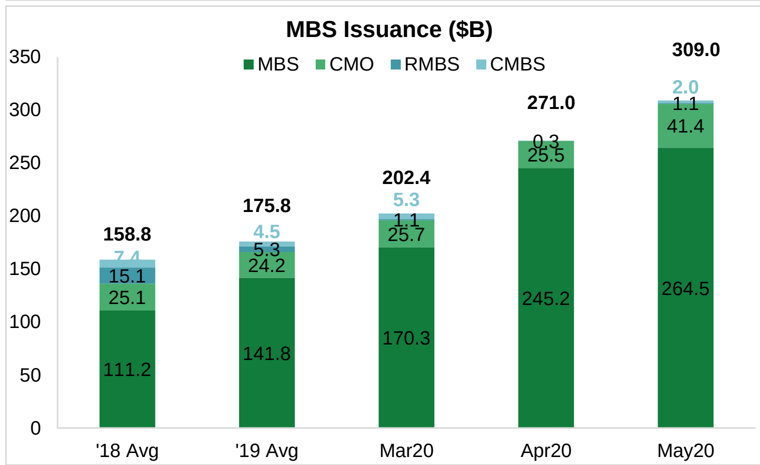
Source: Bloomberg, SIFMA est (agg = agency, MBS, CMBS, ABS)

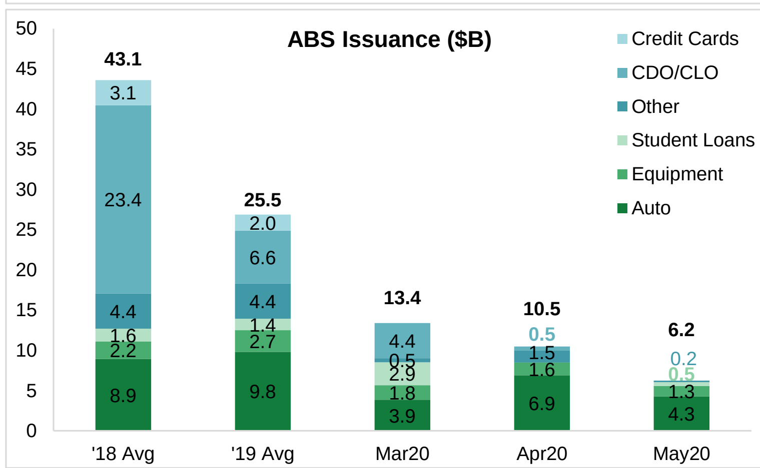
Issuance Trends

We highlight the following, as compared to 2019 monthly averages:

- **MBS**: April $271B, +54%; May $309B, +76%
  - **Agency**: April $271B, +63%; May $306B, +84%
  - **Non-agency**: March $6.4B, -35%; May $3.1B, -68%
  - **Agency MBS**: April $245B, +73%; May $265B, +87%
  - **Agency CMO**: March $26B, +6%; May $41B, +71%
  - **Non-agency RMBS**: March $1.1B, -80%; May $1.1B, -79%
  - **Non-agency CMBS**: March $5.3B, +18%; May $2.0B, -55%
- **ABS**: March $13.4B, -47%; April $10.5B, -59%
  - **Auto**: April $6.9B, -30%; May $4.3B, -57%
  - **Equipment**: March $1.8B, -32%; April $1.6B, -41%
  - **Student loans**: March $2.9B, +99%; May $0.5B, -68%
  - **Other**: March $0.5B, -89%; April $1.5B, -66%
  - **CDO/CLO**: March $4.4B, -33%; April $0.5B, -92%
  - **Credit Cards**: 2019 $2.0B on average per month; none in March through May 2020







Source: SIFMA Research (other ex: tax liens, trade receivables, boat loans, etc.)

Corporate Bonds

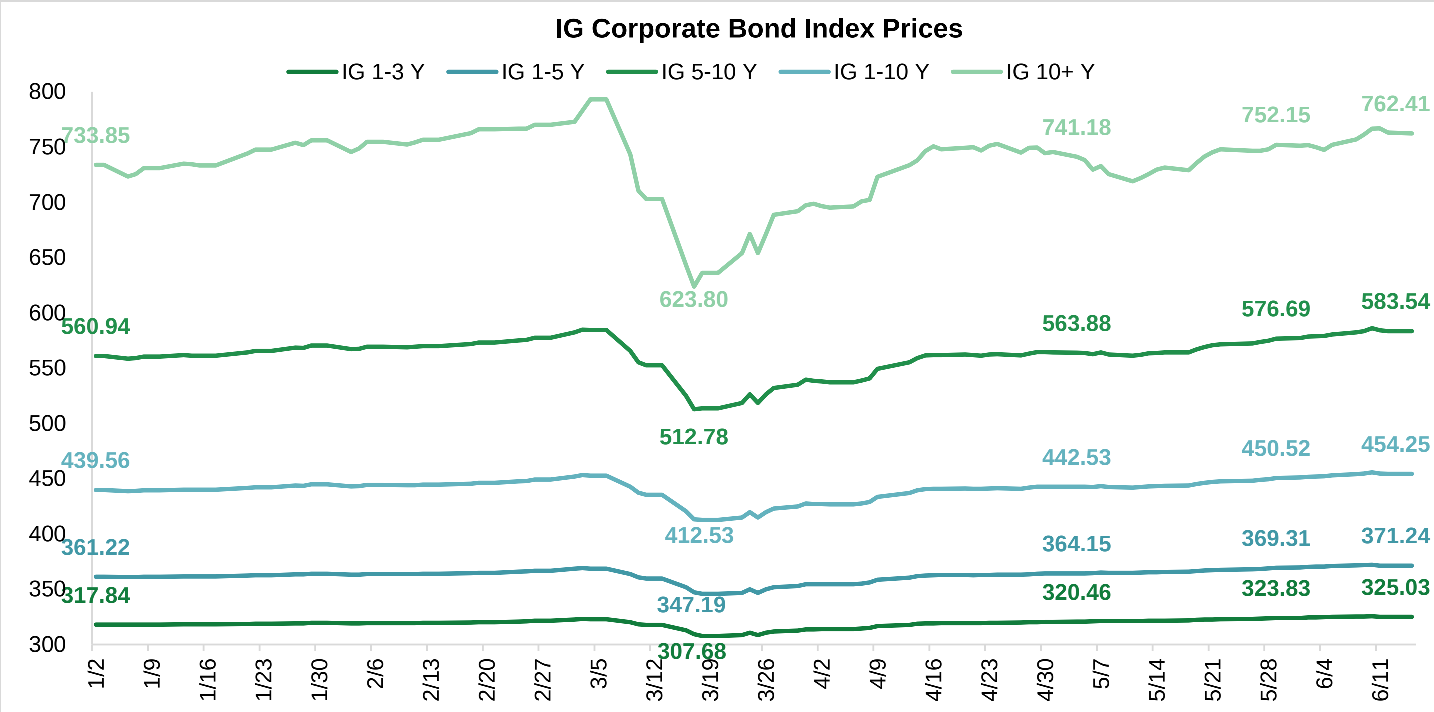
Market Analysis

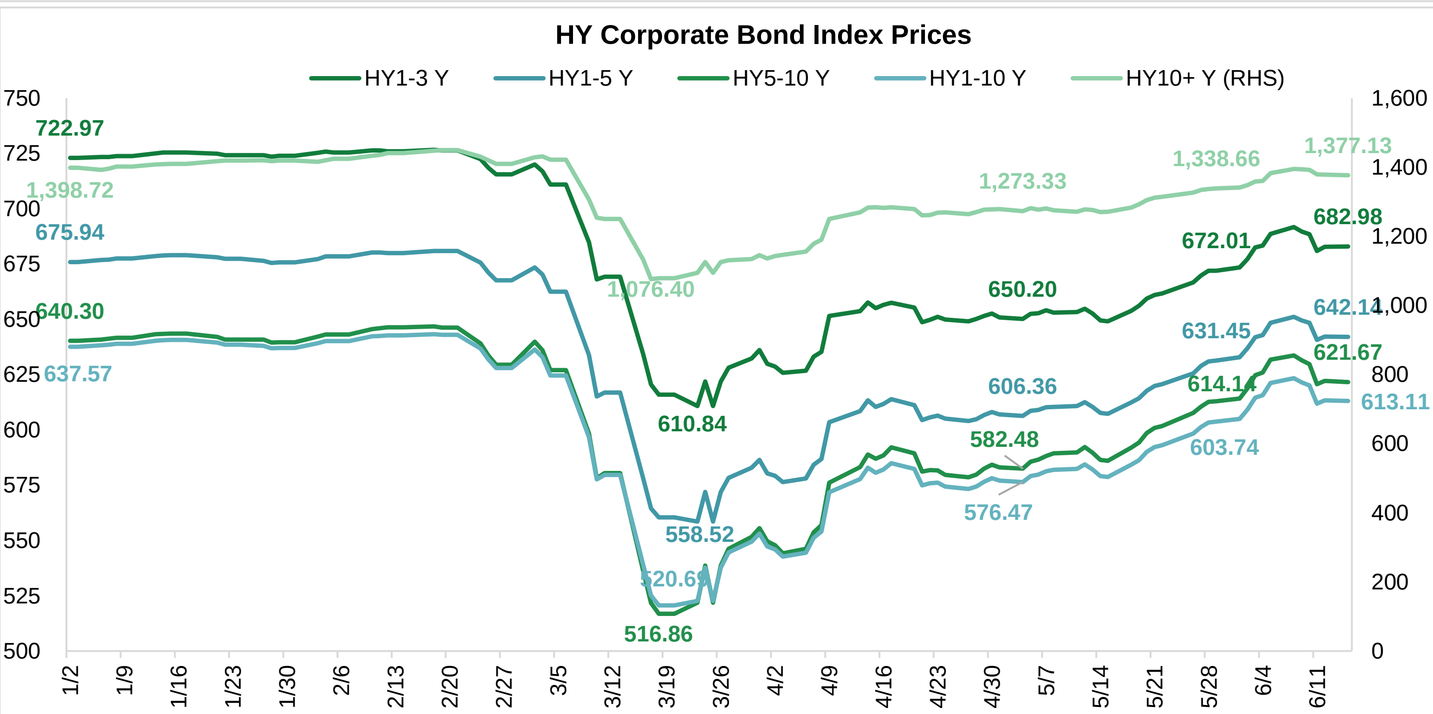
Looking at representative indexes during the analysis time period of January 2 to June 15, we highlight:

- On average, the 12 indexes we tracked fell 13.4% at their troughs
    - High yield 1-+ years was the worse off, -23.0% at the trough
- On average, the indexes are -0.2% from the start of the year
    - Corporates 5-10 years has recovered the most, +4.0%; all high yield indexes remain below start of the year levels

Index	Corporates	Corp 1-3Y	Corp 1-5Y	Corp 5-10Y	Corp 1-10Y	Corp 10Y+	High Yield	HY 1-3Y	HY 1-5Y	HY 5-10Y	HY 1-10Y	HY 10Y+
Jan 2	3,261.99	317.84	361.22	560.94	439.56	733.85	2,187.15	722.97	675.94	640.30	637.57	1,398.72
Trough	2,897.32	307.68	345.72	512.78	412.53	623.80	1,787.42	610.84	558.52	516.86	520.69	1,076.40
Trough Date	3/18	3/18	3/18	3/17	3/18	3/17	3/18	3/23	3/23	3/18	3/18	3/17
Trough/Jan 2	-11.2%	-3.2%	-4.3%	-8.6%	-6.1%	-15.0%	-18.3%	-15.5%	-17.4%	-19.3%	-18.3%	-23.0%
Jun15	3,374.52	325.03	371.24	583.54	454.25	762.41	2,114.04	682.98	642.14	621.67	613.11	1,377.13
Jun15/Jan 2	3.4%	2.3%	2.8%	4.0%	3.3%	3.9%	-3.3%	-5.5%	-5.0%	-2.9%	-3.8%	-1.5%
1Q20	3,245.57	317.56	360.71	559.26	438.62	732.03	2,103.81	699.27	650.82	614.85	612.94	1,347.26
1Q20/Jan 2	-0.5%	-0.1%	-0.1%	-0.3%	-0.2%	-0.2%	-3.8%	-3.3%	-3.7%	-4.0%	-3.9%	-3.7%
Jan Avg	3,279.16	318.39	362.11	563.61	441.10	740.06	2,190.60	724.19	677.26	641.40	638.73	1,410.21
Feb Avg	3,331.09	319.88	364.54	571.79	445.60	760.04	2,192.65	723.78	677.11	641.72	638.85	1,430.45
Feb/Jan	1.6%	0.5%	0.7%	1.5%	1.0%	2.7%	0.1%	-0.1%	0.0%	0.1%	0.0%	1.4%
Mar Avg	3,139.65	314.77	356.07	544.29	430.23	700.17	1,944.24	654.32	602.88	566.30	565.95	1,215.34
Mar/Jan	-4.3%	-1.1%	-1.7%	-3.4%	-2.5%	-5.4%	-11.2%	-9.6%	-11.0%	-11.7%	-11.4%	-13.8%
Apr Avg	3,230.30	317.68	360.22	554.42	436.58	731.84	1,960.64	646.20	600.18	573.99	569.16	1,239.88
Apr/Jan	-1.5%	-0.2%	-0.5%	-1.6%	-1.0%	-1.1%	-10.5%	-10.8%	-11.4%	-10.5%	-10.9%	-12.1%
May Avg	3,278.41	321.78	365.98	566.75	444.77	736.65	2,020.47	657.28	615.12	594.58	586.78	1,294.13
May/Jan	0.0%	1.1%	1.1%	0.6%	0.8%	-0.5%	-7.8%	-9.2%	-9.2%	-7.3%	-8.1%	-8.2%

Source: Bloomberg, SIFMA estimates





Source: Bloomberg (Jan 2 to Jun 15)

Looking at CDX spreads[6], a measure of corporate credit risk, during the analysis time period of January 2 to June 15, we highlight:

- Spreads were +171% on average at their peaks (max spread widening)
  - The 5-year was the worse off, +216% at the peak
- Spreads remain +50% on average from the start of the year
  - The 2-year has recovered the most, now only +22% from the start of the year

CDX Spreads	1 Year	2 Year	5 Year
Jan 2	44.29	88.80	275.93
Peak	138.08	165.50	871.44
Peak Date	3/18	3/19	3/23
Peak/Jan 2	211.8%	86.4%	215.8%
Jun15	71.13	108.16	458.91
Jun15/Jan 2	60.6%	21.8%	66.3%
1Q20	68.58	108.15	404.73
1Q20/Jan 2	24.297	19.350	128.799
Jan Avg	45.73	91.23	286.36
Feb Avg	48.79	95.65	304.42
Feb/Jan	3.061	4.418	18.065
Mar Avg	107.49	135.10	604.35
Mar/Jan	61.760	43.867	317.989
Apr Avg	97.76	121.03	646.79
Apr/Jan	52.029	29.803	360.437
May Avg	88.59	115.76	629.91
May/Jan	42.863	24.526	343.552

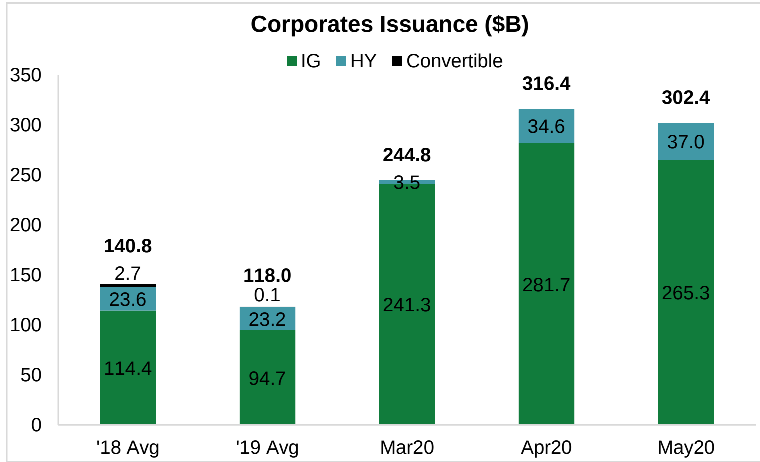
Source: Bloomberg, SIFMA estimates

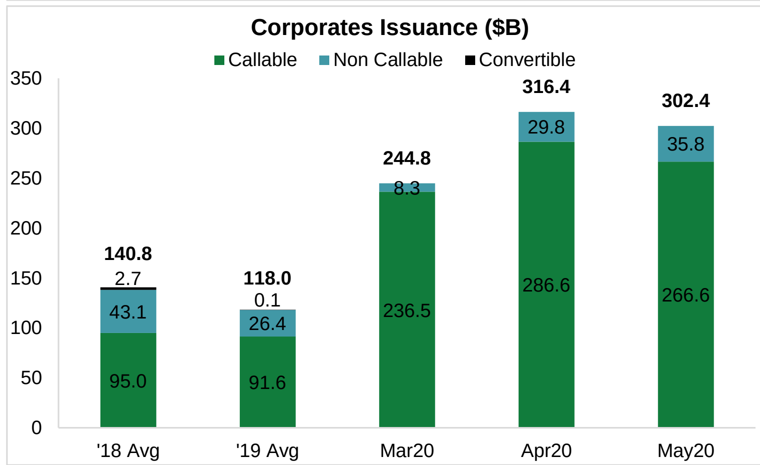
[6] A credit default swap (CDS) is a derivative contract offering one counterparty protection against a credit event, such as the default or bankruptcy of an issuer. The credit default swap index (CDX) is a benchmark index that tracks a basket of U.S. single-issuer CDS. It helps to hedge risk by protecting investors against default, and traders use it to speculate about potential changes in issuers' credit quality.

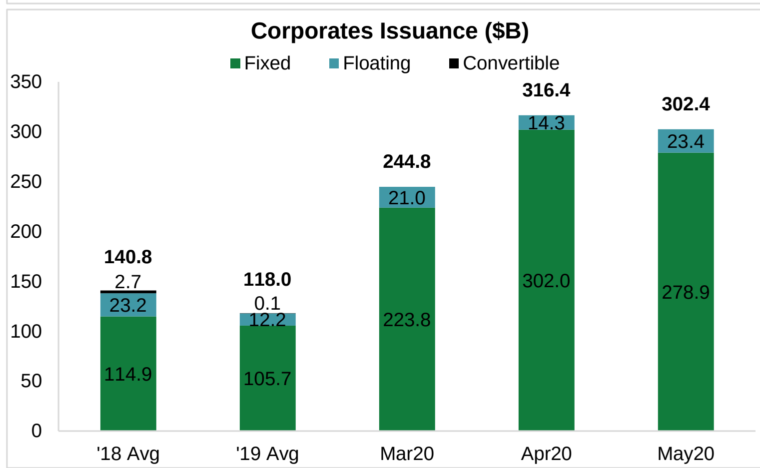
Issuance Trends

We highlight the following, as compared to 2019 monthly averages:

- **Total**: April $316B, +168%;
  May $302B, +156%
- **Credit Quality**:
  - IG April $282B, +198%; May $265B, +180%
  - HY April $35B, +49%; May $37B, +60%
- **Call Feature**:
  - Callable April $287B, +213%; May $267B, +191%
  - Non-callable April $30B, +13%; May $36B, +36%
- **Rate Type**:
  - Fixed April $302, +186%; May $279B, +164%
  - Floating March $21B, +72%; May $23B, +92%
- **Convertible**: 2018 monthly average $2.7B, 2029 $0.1B; no issuance in March to May







Source: SIFMA Research

Municipal Securities

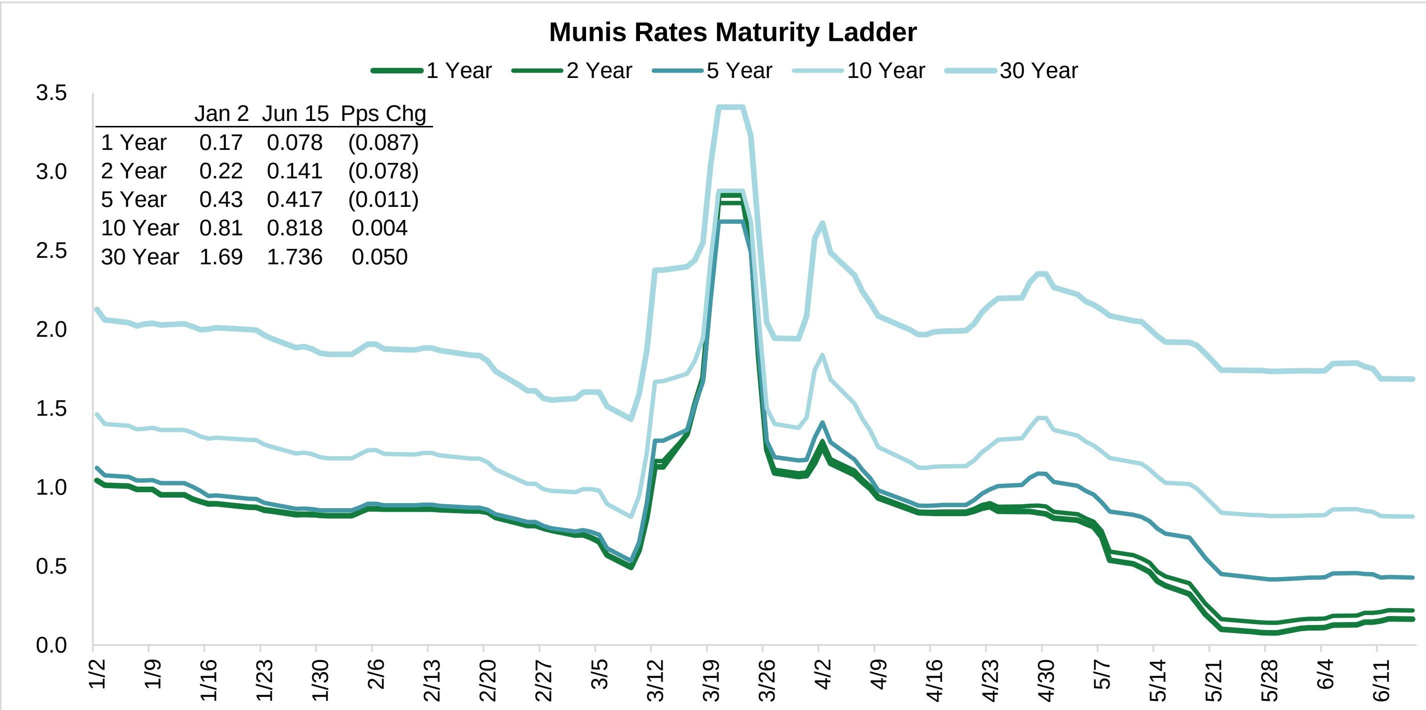
Market Analysis

Moving through the analysis time period of January 2 to June 15, we highlight:

- **Short-End**: The short-end of the curve spiked on March 20, with the 1-year at 2.854, +1.810 from the start of the year
- **Middle**: The middle tenor rates also spiked on March 20; the 2-year moved to 2.802 (+1.756) and the 5-year moved to 2.684 (+1.561)
- **Long-End**: Long dated rates also peaked on March 20, with the 10-year to 2.880 (+1.417) and the 30-year to 3.411 (+1.284)
- All tenors are now well below start of year levels, -0.698 on average

Muni Rates	1 Year	2 Year	5 Year	10 Year	30 Year
Jan 2	1.044	1.046	1.123	1.463	2.127
Peak	2.854	2.802	2.684	2.880	3.411
Peak Date	3/20	3/20	3/20	3/20	3/20
Peak/Jan 2	1.810	1.756	1.561	1.417	1.284
Jun15	0.165	0.219	0.428	0.814	1.686
Jun15/Jan 2	(0.879)	(0.827)	(0.695)	(0.649)	(0.441)
1Q20	1.027	1.025	1.062	1.365	2.005
1Q20/Jan 2	(0.017)	(0.021)	(0.061)	(0.098)	(0.122)
Jan Avg	0.912	0.909	0.965	1.311	1.985
Feb Avg	0.824	0.823	0.849	1.148	1.789
Feb/Jan	(0.088)	(0.086)	(0.117)	(0.163)	(0.196)
Mar Avg	1.311	1.310	1.340	1.605	2.211
Mar/Jan	0.399	0.402	0.374	0.294	0.227
Apr Avg	0.926	0.949	1.038	1.342	2.200
Apr/Jan	0.014	0.040	0.072	0.031	0.215
May Avg	0.397	0.453	0.704	1.057	1.959
May/Jan	(0.515)	(0.456)	(0.262)	(0.254)	(0.025)

Source: Bloomberg, SIFMA estimates

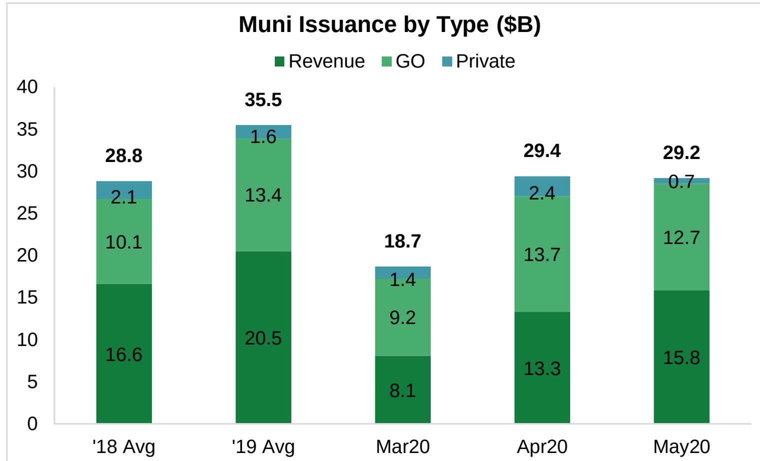


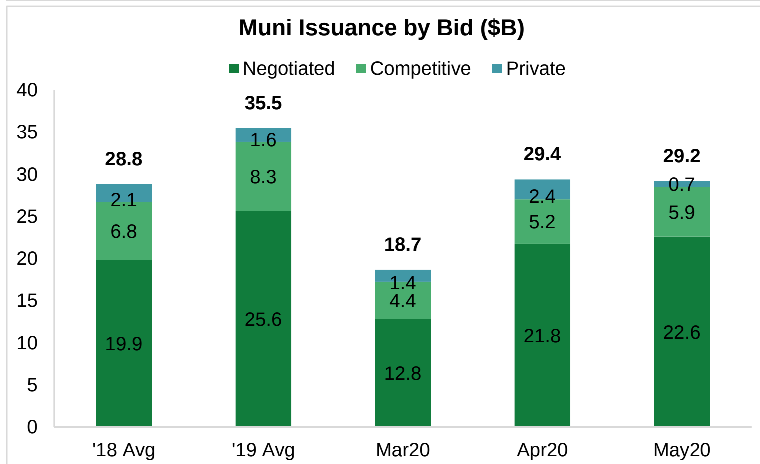
Source: Bloomberg (Jan 2 to Jun 15)

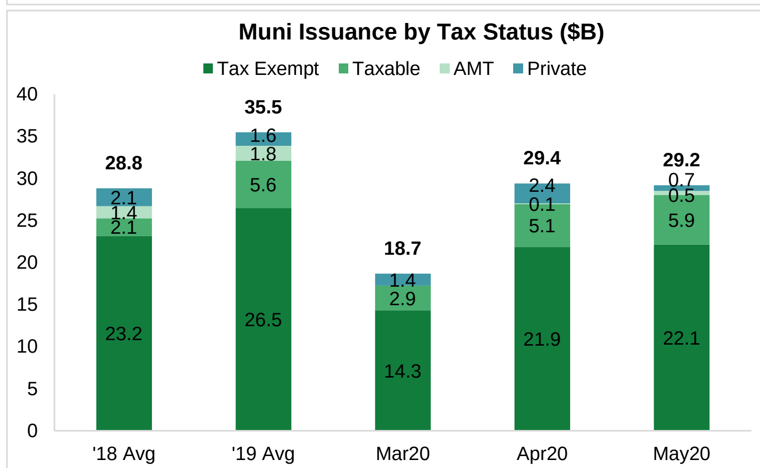
Issuance Trends

We highlight the following, as compared to 2019 monthly averages:

- **Total**: April $29.4B, -17%; May $29.2B, -18%
- **Revenue**: April $13.3B, -35%; May $15.8B, -23%
- **GO**: April $13.7B, +3%; May $12.7B, -5%
- **Negotiated**: April $21.8B, -15%; May $22.6B, -12%
- **Competitive**: April $5.2B, -36%; May $5.9B, -28%
- **Tax exempt**: April $21.9B, -17%; May $22.1B, -16%
- **Taxable**: April $5.1B, -9%; May $5.9B, +5%
- **AMT**: April $0.1B, -96%; May $0.5B, -74%
- **Private placement**: March $1.4B, -10%; April $2.4B, +49%





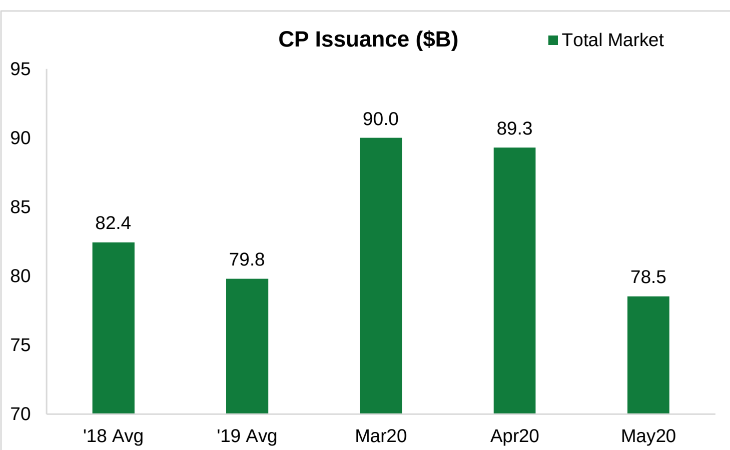


Source: SIFMA Research (GO = general obligation)

Commercial Paper Markets

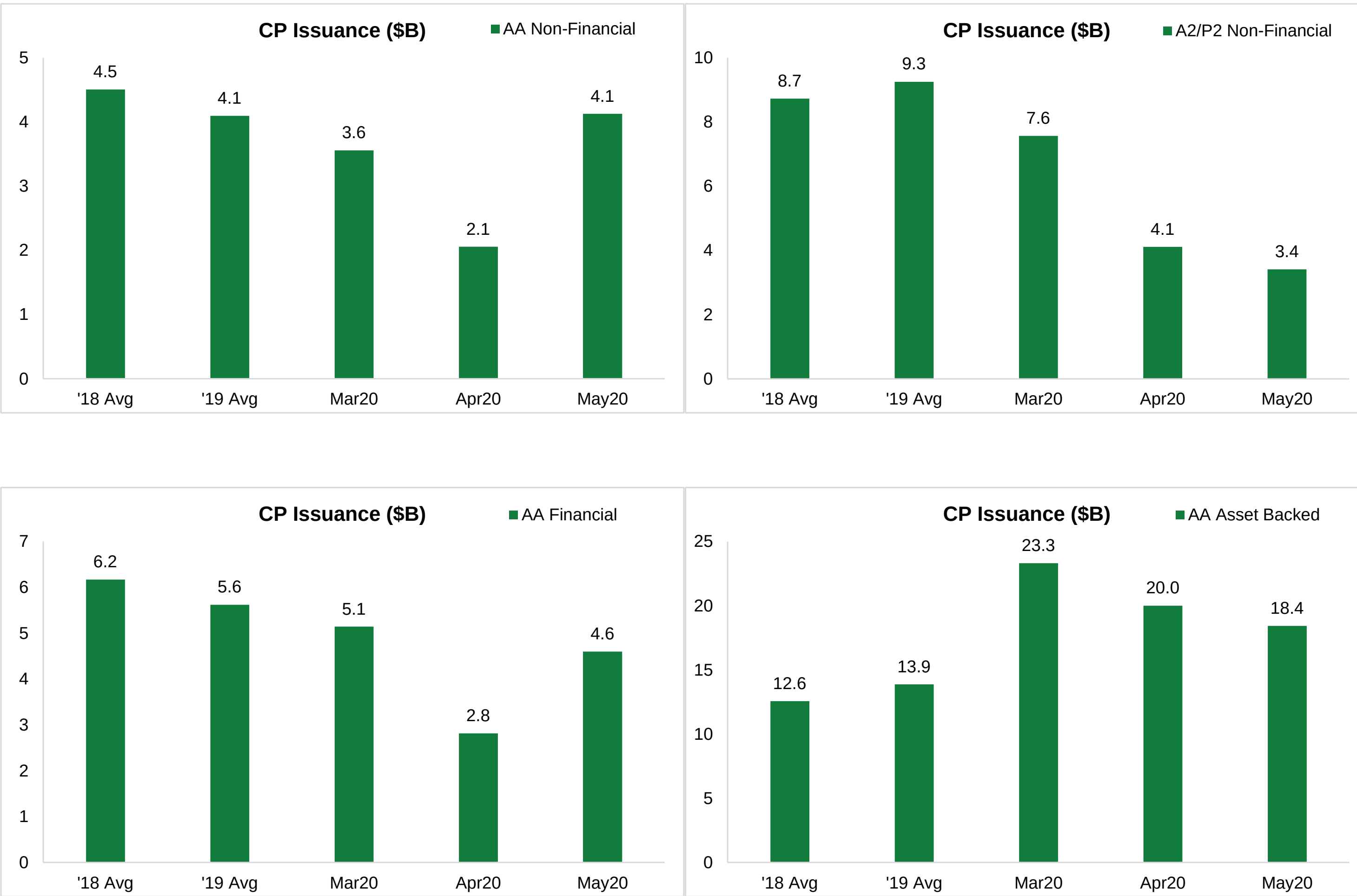
Commercial paper (CP) is an attractive funding source for corporations to meet short-term liquidity needs. It is often preferred to other sources, such as revolving credit facilities or other bank lines of credit, as CP programs are relatively quick to set up and easy to roll over, meaning firms can utilize proceeds on an uninterrupted basis. CP markets weathered the market turmoil with different trends across rating, days to maturity and sector. For some segments and the total market, issuance spiked in March with the announcement of the Fed program in mid-March. Other segments saw later troughs, as companies were downgraded by credit rating agencies[7] and questions arose around balance sheet strength and earnings power. We highlight the following trends:

- **Total Market[8]**: Issuance spiked in March to $90.0 billion, +13% to 2019 monthly average; by May, issuance settled back down to more normal levels, at $78.5 billion
- **AA Non-Financial**: Issuance troughed in April at $2.1 billion (-50% to 2019 monthly average); levels returned to normal by May, at $4.1 billion
- **A2/P2 Non-Financial**: Issuance was still below historical levels in May, at 3.4 billion (-63% to 2019 levels)
- **AA Financial**: Issuance troughed in April at $2.8 billion (-50% to 2019 monthly average); levels began to normalize by May, at $4.6 billion (-18% to 2019 levels)
- **Asset Backed**: Issuance spiked in March to $23.3 billion, +68% to 2019 monthly average; May issuance was still above average at $18.4 billion (+33% to 2019 levels)



Source: Federal Reserve

[7] CP ratings are directly tied to a company's long-term issuer rating (see ratings scales in Appendix)
[8] Total market is not the sum of the four rate categories broken out in the Fed data, as there is issuance that does not fall into these categories



Source: Federal Reserve

Concerns around Potential Defaults

The extreme volatility and market stress seen in March was followed by an onslaught of corporate bond ratings put on review by credit ratings agencies. Companies in highly impacted sectors have experienced credit rating downgrades, which increases a company's cost of borrowing at a time when many are already facing liquidity stresses. As questions remain about the future of earnings potential and balance sheet strength for many sectors and companies, market participants continue to monitor the potential for corporate bankruptcies and defaults on bonds. This would create another pressure point on the country's already stressed economy.

Below we recap our estimates of outlook[9] reviews and ratings changes throughout 2020. (Please see the Appendix for ratings scale by agency.)

S&P Ratings

As a percent of total estimated ratings actions:

- Outlooks placed on negative review peaked in March at 81%; April and May remained elevated at 76% and 80% respectively, settling at 58% in June
- Downgrades represented almost all of the ratings actions in March and April, 97% and 94% respectively, settling at 63% in June

Rating Outlook

	Negative	Positive	Stable	Developing
Jan	27.8%	3.7%	68.5%	0.0%
Feb	25.3%	8.1%	66.7%	0.0%
Mar	81.0%	0.3%	18.2%	0.5%
Apr	75.7%	0.2%	23.0%	1.1%
May	79.7%	0.0%	20.3%	0.0%
Jun	57.6%	5.9%	35.3%	1.2%

Long-Term Rating Change

	Downgrade	No Change	Upgrade
Jan	59.3%	17.8%	22.9%
Feb	56.7%	7.9%	35.5%
Mar	96.8%	1.2%	2.0%
Apr	94.2%	1.1%	4.6%
May	80.4%	3.2%	16.4%
Jun	62.6%	6.6%	30.8%

Source: Bloomberg, SIFMA estimates

[9] A rating is under review for a potential change in the next 1-2 years; the result can be an upgrade, downgrade or rating affirmation

Moody's Ratings

As a percent of total estimated ratings actions:

- Outlooks placed on negative review peaked in March at 80%; April remained elevated at 78%, settling at 65% in June
- Downgrades and no changes were more balanced, with downgrades on 46% of rating actions in March, settling at 18.5% in June

Rating Outlook

	Negative	Positive	Stable	Developing
Jan	14.9%	10.4%	74.6%	0.0%
Feb	28.8%	9.6%	61.6%	0.0%
Mar	79.6%	1.7%	18.7%	0.0%
Apr	78.1%	0.5%	21.4%	0.0%
May	69.8%	0.5%	29.3%	0.5%
Jun	65.2%	2.2%	32.6%	0.0%

Long-Term Rating Change

	Downgrade	No Change	Upgrade
Jan	13.1%	75.4%	11.4%
Feb	19.9%	66.9%	13.3%
Mar	45.7%	53.5%	0.7%
Apr	33.7%	65.1%	1.2%
May	21.3%	73.1%	5.6%
Jun	18.5%	68.0%	13.5%

Source: Bloomberg, SIFMA estimates

Fitch Ratings

As a percent of total estimated ratings actions:

- Outlooks placed on negative review peaked in April at 85%; May remained elevated at 81%, settling at 28% in June
- Downgrades represented almost all of the ratings actions in March and April, 88.5% and 88% respectively, settling at 37% in June

Rating Outlook

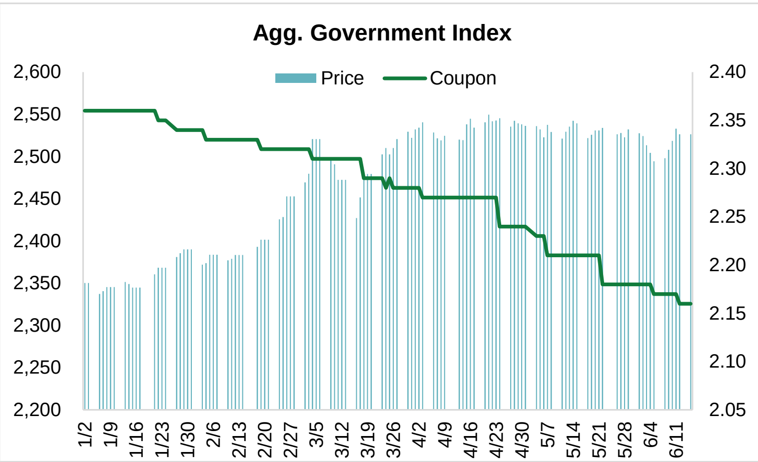
	Negative	Positive	Stable	Developing
Jan	0.0%	0.0%	100.0%	0.0%
Feb	22.7%	2.3%	75.0%	0.0%
Mar	46.8%	5.2%	48.1%	0.0%
Apr	84.5%	0.4%	15.1%	0.0%
May	80.9%	0.0%	17.6%	1.5%
Jun	27.6%	10.3%	62.1%	0.0%

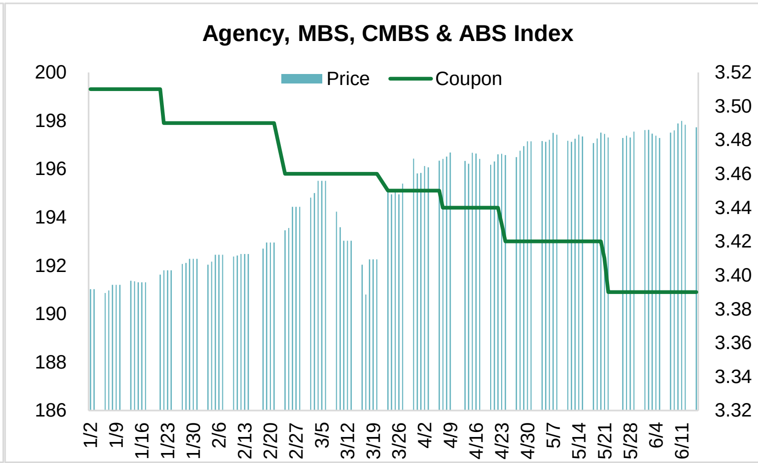
Long-Term Rating Change

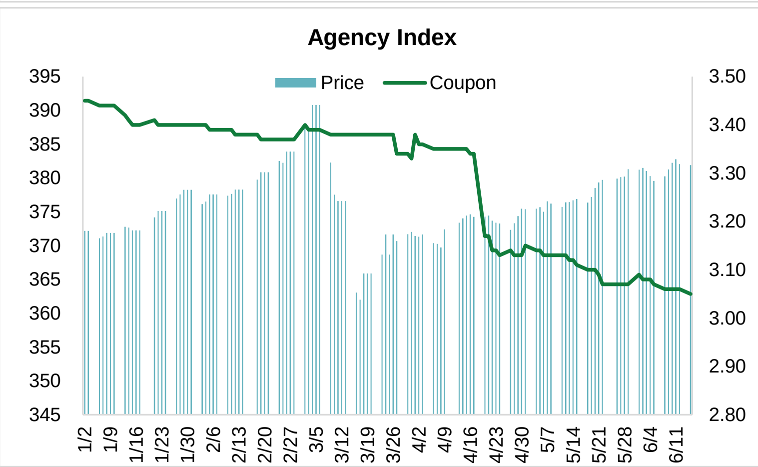
	Downgrade	No Change	Upgrade
Jan	60.9%	21.7%	17.4%
Feb	61.5%	23.1%	15.4%
Mar	88.5%	3.4%	8.0%
Apr	88.2%	4.4%	7.4%
May	59.0%	9.8%	31.1%
Jun	36.8%	36.8%	26.3%

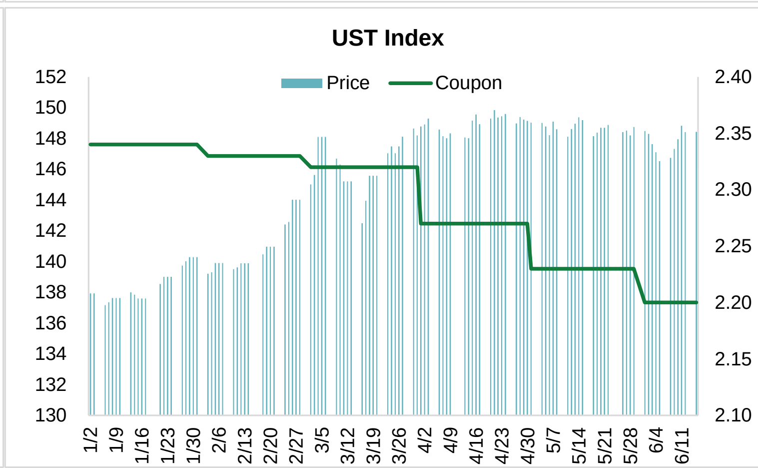
Source: Bloomberg, SIFMA estimates

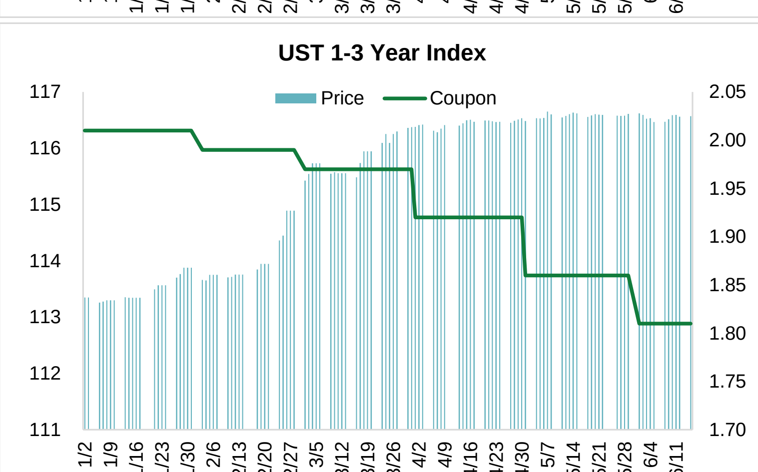
Appendix: Additional Charts

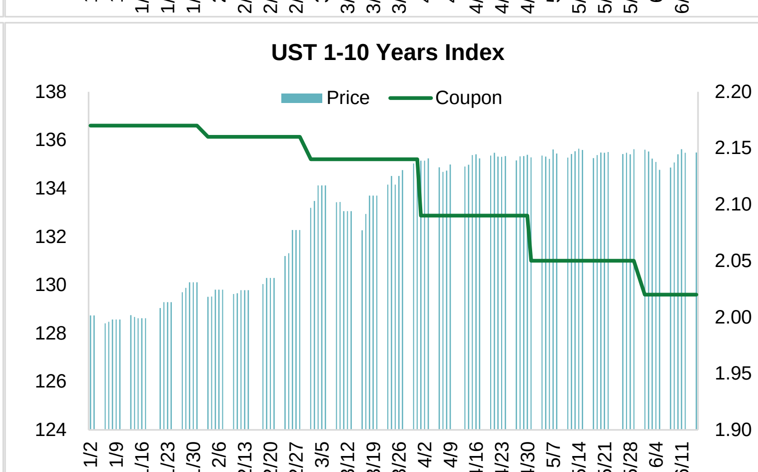


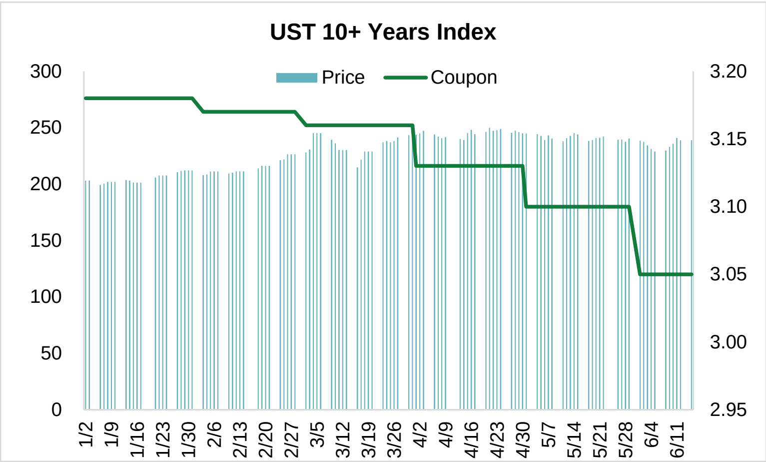


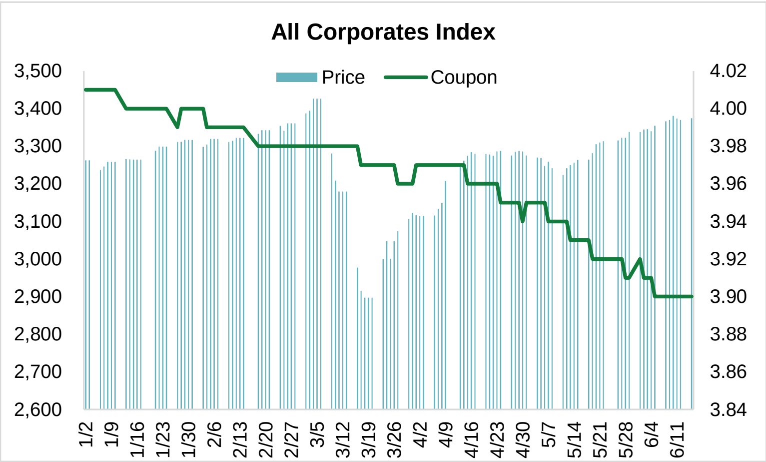


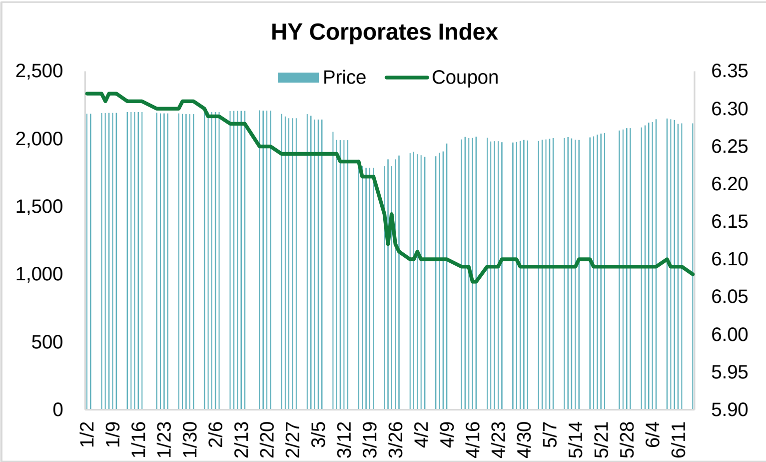


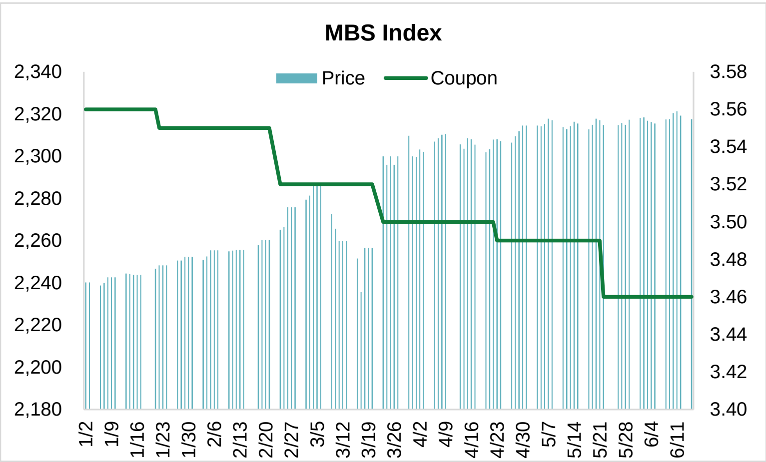


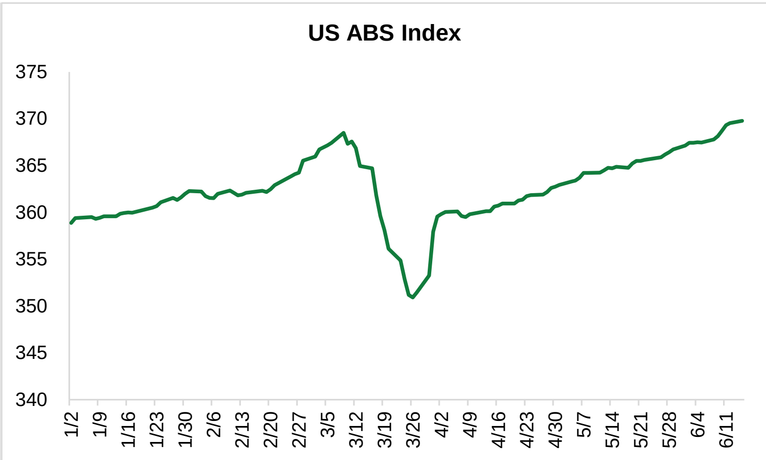


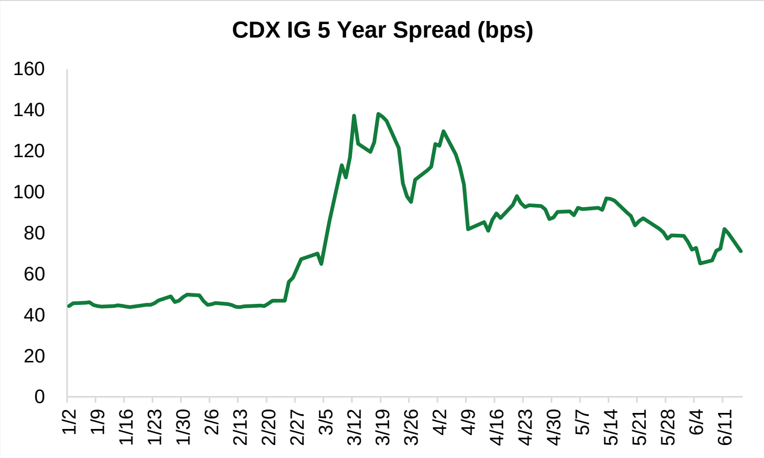

UST 10+ Years Index
Price
Coupon
300
250
200
150
100
50
0
3.20
3.15
3.10
3.05
3.00
2.95
1/2
1/9
1/16
1/23
1/30
2/6
2/13
2/20
2/27
3/5
3/12
3/19
3/26
4/2
4/9
4/16
4/23
4/30
5/7
5/14
5/21
5/28
6/4
6/11

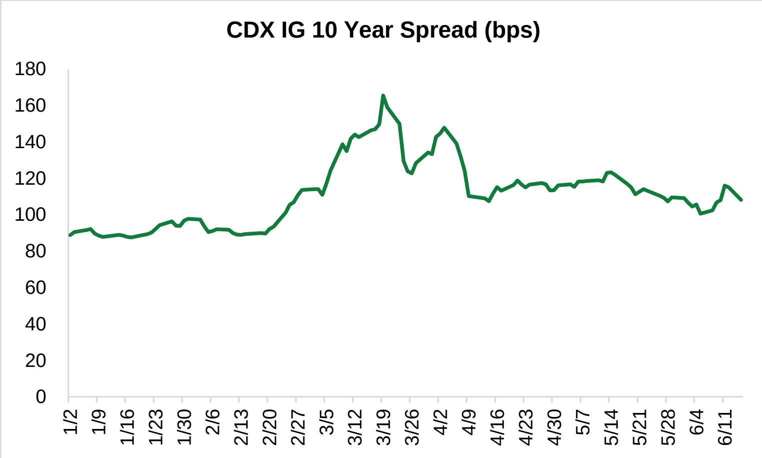

All Corporates Index
Price
Coupon
3,500
3,400
3,300
3,200
3,100
3,000
2,900
2,800
2,700
2,600
4.02
4.00
3.98
3.96
3.94
3.92
3.90
3.88
3.86
3.84

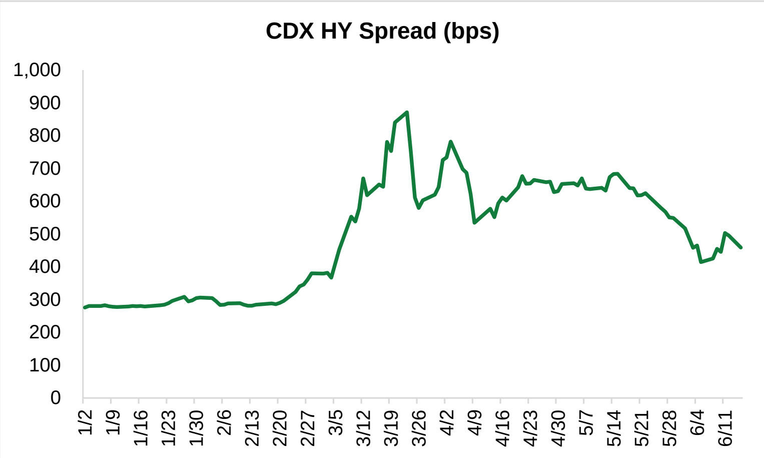

HY Corporates Index
Price
Coupon
2,500
2,000
1,500
1,000
500
0
6.35
6.30
6.25
6.20
6.15
6.10
6.05
6.00
5.95
5.90


MBS Index
Price
Coupon
2,340
2,320
2,300
2,280
2,260
2,240
2,220
2,200
2,180
3.58
3.56
3.54
3.52
3.50
3.48
3.46
3.44
3.42
3.40


US ABS Index
375
370
365
360
355
350
345
340


CDX IG 5 Year Spread (bps)
160
140
120
100
80
60
40
20
0
1/2
1/9
1/16
1/23
1/30
2/6
2/13
2/20
2/27
3/5
3/12
3/19
3/26
4/2
4/9
4/16
4/23
4/30
5/7
5/14
5/21
5/28
6/4
6/11


CDX IG 10 Year Spread (bps)
180
160
140
120
100
80
60
40
20
0
1/2
1/9
1/16
1/23
1/30
2/6
2/13
2/20
2/27
3/5
3/12
3/19
3/26
4/2
4/9
4/16
4/23
4/30
5/7
5/14
5/21
5/28
6/4
6/11


CDX HY Spread (bps)
1,000
900
800
700
600
500
400
300
200
100
0
1/2
1/9
1/16
1/23
1/30
2/6
2/13
2/20
2/27
3/5
3/12
3/19
3/26
4/2
4/9
4/16
4/23
4/30
5/7
5/14
5/21
5/28
6/4
6/11

Appendix: Credit Rating Agency Rating Scales

		Moody's		S&P		Fitch	
		LT	ST	LT	ST	LT	ST
Investment Grade	Prime	Aaa	P-1	AAA	A-1+	AAA	F1+
	High Grade	Aa1		AA+		AA+	
		Aa2		AA		AA	
		Aa3		AA-		AA-	
	Upper Medium Grade	A1		A+	A-1	A+	F1
		A2		A		A	
		A3	P-2	A-	A-2	A-	F2
	Lower Medium Grade	Baa1		BBB+		BBB+	
		Baa2	P-3	BBB		BBB	F3
		Baa3		BBB-	A-3	BBB-	
Non Investment Grade	Speculative	Ba1	Not Prime	BB+	B	BB+	B
		Ba2		BB		BB	
		Ba3		BB-		BB-	
	Highly Speculative	B1		B+		B+	
		B2		B		B	
		B3		B-		B-	
	Substantail Risk	Caa1		CCC+	C	CCC	C
	Extremely Speculative	Caa2		CCC			
	Default Imminent	Caa3		CCC-			
		Ca		CC		CC	
				C		C	
	In Default	C		RD	D	DDD	D
		/		SD		DD	
		/		D		D	

Appendix: Terms to Know

Fed	Federal Reserve System
FIMSAC	Fixed Income Market Structure Advisory Committee
SEC	Securities and Exchange Commission

UST	U.S. Treasury Securities
Mortgage	Mortgage-Related Securities (GNMA, FNMA & FHLMC MBS & CMOs; private-label MBS & CMOs)
Corporates	Corporate Bonds
Munis	Municipal Securities
Agency	Federal Agency Securities (FNMA, FHLMC, FAMC, FHLB, FCS, TVA, etc.)
ABS	Asset-Backed Securities (auto, credit card, home equity, manufacturing, student loans, etc.; CDOs)
MM	Money Markets (CP, bankers acceptances, large time deposits)

FRN	Floating Rate Note
T-Bill	U.S. Treasury Bill
T-Note	U.S. Treasury Note
T-Bond	U.S. Treasury Bond
TIPS	Treasury Inflation Protected Securities

ABS	Asset-Backed Security
CMO	Collateralized Mortgage Obligation
MBS	Mortgage-Backed Security
CMBS	Commercial MBS
RMBS	Residential MBS

HY	High Yield Bond
IG	Investment Grade Bond

GO	General Obligation Bond
Revenue	Revenue Bond

ADV	Average Daily Trading Volume
Algo	Algorithm (algorithmic trading)
AUM	Assets Under Management
BPS	Basis Points
CAGR	Compound Annual Growth Rate
CUSIP	Committee on Uniform Securities Identification Procedures; a nine character security identifier
ETF	Exchange-Traded Fund
FICC	Fixed Income, Currencies and Commodities
FI	Fixed Income
OTC	Over-the-Counter
TRS	Total Return Swap

D2C	Dealer-to-Client
D2D	Dealer-to-Dealer
CLOB	Central Limit Order Book
ECN	Electronic Communications Network
ETP	Electronic Trading Platforms
IDB	Inter-Dealer Broker
OTC	Over-the-Counter

FAMC	Farmer Mac/Federal Agricultural Mortgage Corporation
FCS	Farm Credit System
FHLB	Federal Home Loan Banks
FHLMC	Freddie Mac/Federal Home Loan Mortgage Corporation
FNMA	Fannie Mae/Federal National Mortgage Association
GNMA	Ginnie Mae/Government National Mortgage Association
TVA	Tennessee Valley Authority

CD	Certificate of Deposit
CDO	Collateralized Debt Obligation
CP	Commercial Paper
ABCP	Asset-Backed Commercial Paper
MMF	Money Market Mutual Funds

Appendix: SIFMA Insights Research Reports

SIFMA Insights Market Structure Primers: www.sifma.org/primers

- Global Capital Markets & Financial Institutions
- Electronic Trading
- US Capital Formation & Listings Exchanges
- US Equity
- US Multi-Listed Options
- US ETF
- US Fixed Income
- SOFR: The Transition from LIBOR

SIFMA Insights: www.sifma.org/insights

- COVID-19 Related Market Turmoil Recap: Part I (Equities, ETFs, Listed Options & Capital Formation)
- A Deeper Look at US Multi-Listed Options Volumes
- NYSE Goes All Electronic – What Does It Mean?
- Spotlight: The VIX's Wild Ride
- Spotlight: The 10th Anniversary of the Flash Crash
- The Evolution of the Fintech Narrative

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