

## IMPORTANT INFORMATION

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## September 2020



#### **Overview**

The global economic recovery pushed many risk assets higher in the third quarter as markets extended their rebound from March lows brought on by the pandemic. Emerging markets (EM) equities, as measured by the Morgan Stanley Capital International Emerging Markets Index, returned 9.65% during the quarter despite a negative return of 1.62% for September. U.S equities were not far behind for the quarter, as the S&P 500 Index returned 8.93%, with a negative return of 3.80% in September. The easing of government-imposed shutdowns and statements from global central banks reiterating accommodative monetary policy added to optimism that the global economy could recover steadily. However, a global resurgence in COVID-19 cases in September, particularly in the U.S. and eurozone, caused risk assets to pare some gains. Market participants also grew increasingly concerned about the looming presidential election and ability of Congress to come to an agreement on an additional fiscal stimulus package. (Figure 1)

# September 2020 and Third Quarter 2020 Performance of Asset Classes | Denominated in U.S. dollars

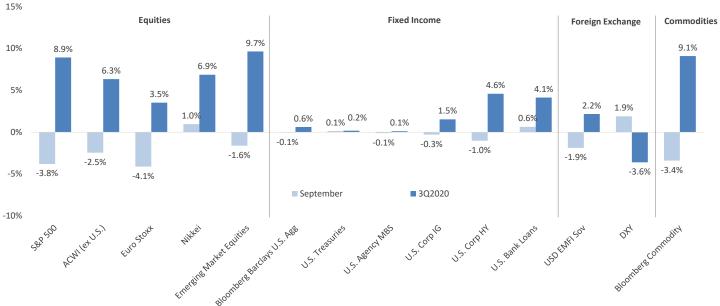


Figure 1
Source: Bloomberg, DoubleLine

Global GDP contracted less severely in the second quarter than forecast at the onset of the pandemic. As the market awaited the release of the advanced third quarter U.S. GDP print, the Federal Reserve Bank of Atlanta's GDPNow estimate registered an increase in quarterly GDP at an annualized rate of 30%. For the first time since January, world manufacturing signaled expansion in July and remained at expansionary levels through August and September, per J.P. Morgan Global Manufacturing Purchasing Managers' Index (PMI) data. U.S. employment also beat average survey expectations all three months of the quarter. Additionally, reported progress on a COVID-19 vaccine corroborated the potential for a faster recovery than initially anticipated. As of October 5, the world real GDP forecast for 2020 was negative 3.90%.

The economic recovery has largely been supported by a combination of unprecedented fiscal stimulus and continued accommodative monetary policy. Year-to-date fiscal stimulus packages totaled nearly \$3 trillion. In July, European leaders overcame internal disagreements and agreed to an additional 750 billion euro recovery package, bringing the total amount of fiscal stimulus to roughly 1.5 trillion euros. On the monetary policy front, global central banks kept interest rates low while simultaneously expanding their balance sheets via various asset purchase programs and lending facilities. As of September 30, the G4 central banks grew their balance sheets as a percent of GDP to 53.5% from 35.9% at the end of 2019.¹ Since March, the Fed has expanded its balance sheet from roughly \$4 trillion to over \$7 trillion as of September 30, or 34.1% of U.S. GDP.

<sup>&</sup>lt;sup>1</sup>Federal Reserve, Bank of England, Bank of Japan, and European Central Bank

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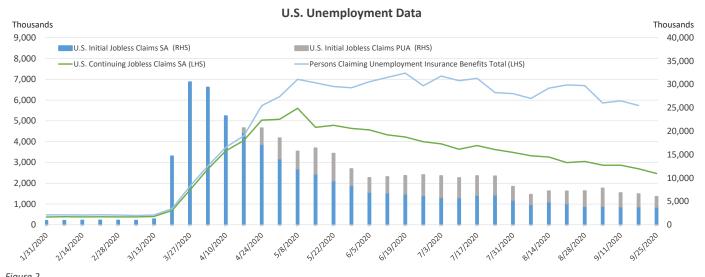
## Overview (cont'd)

During the quarter, the Federal Reserve kept the Federal Funds Rate unchanged, and Chairman Jerome Powell announced that the Fed expects to maintain this target "until (the Federal Open Market Committee (FOMC)) is confident that the economy has weathered recent events and is on track to achieve its maximum employment and price stability goals." At the annual Jackson Hole Economic Symposium in August, the FOMC announced updates to its Statement on Longer-Run Goals and Monetary Policy Strategy. Most noteworthy was a change that would allow inflation to run above the Fed's target of 2%: "Following periods when inflation has been running persistently below 2%, appropriate monetary policy will likely aim to achieve inflation moderately above 2%."

Measures of U.S. employment improved in the quarter. The U-3 unemployment rate dropped from a high of 14.7% in April to 7.9% in September. For the week ended Sept. 19, the total number of people claiming unemployment benefits, including Pandemic Unemployment Assistance, was 25.5 million. (Figure 2) Although initial and continuing claims were still multiples above prepandemic levels, the September employment report delivered more signs of improvement in the labor market, with payrolls rising 661,000.

The U.S. dollar was the weakest G-10 currency over the quarter, particularly in July and August. In September, the dollar rose as risk-on sentiment declined. In Europe, positive sentiment in July quickly dissipated as COVID-19 cases accelerated across the region in August and September. In Japan, Yoshihide Suga was installed as prime minister in September, replacing Shinzo Abe, who resigned due to health concerns. Mr. Suga emphasized broad policy continuity throughout the transition. The Bank of Japan maintained its monetary policy in September and turned more optimistic about the nation's economy given recent improvements in economic activity. The EM sector had a strong quarter but similarly deteriorated in September amid the aforementioned global market volatility. The deterioration was exemplified by a credit spread widening of 23 basis points in dollar-denominated EM high yield (HY) corporate credit, as measured by the J.P. Morgan Corporate EM Bond Index Broad Diversified HY.

Moving into the fourth quarter, investors will weigh the expected continuation of accommodative monetary policy against the uncertainty of the presidential election and additional fiscal stimulus from Congress. Adding to the uncertainty will be the potential for COVID-19 cases to accelerate as cooler temperatures force people indoors. A likely scenario in DoubleLine's view is that uncertainty will lead to volatility, punctuating the end of an already eventful year.



Source: Bloomberg, DoubleLine. SA indicates claims are seasonally adjusted. PUA indicates Pandemic Unemployment Assistance.

<sup>&</sup>lt;sup>2</sup> Federal Reserve Chairman Jerome Powell press conference, July 29, 2020

<sup>&</sup>lt;sup>3</sup> Federal Reserve Press Release, "Federal Open Market Committee announces approval of updates to its Statement on Longer-Run Goals and Monetary Policy Strategy," Aug. 27, 2020

# DoubleLine

# **Quarterly Market Commentary**

September 2020

### **U.S. Government Securities**

The U.S. Treasury market was again quiet in September. The 10-year Treasury stayed within an exceptionally narrow range of 65 basis points (bps) to 70 bps most of the month, with a few brief forays to as low as 60 bps and as high as 72 bps early in September. Yields across the curve behaved similarly, moving mostly sideways and ending the month very close to where they started. Much the same can be said of the yield performances in the third quarter. The 10-year Treasury, at 0.68% on Sept. 30, fell 2 bps over the month and rose 1 bp over the guarter. The yield curve was also largely unchanged over the quarter, with the twoyear yield falling 2 bps and the 30-year yield rising 1 bp. Realized volatility fell through September, and the ICE Bank of America MOVE Index of implied volatility set another all-time low at 36.6 late in the month. Trading volume was typical of recent months. Market behavior suggested investors were comfortable with the pace of the economic recovery and the progress toward a COVID-19 vaccine, and the behavior also reflected the steady and significant presence of the Federal Reserve. The Fed bought Treasuries at a pace of about \$80 billion per month for the past several months – well below the torrid pace of \$75 billion per day seen in March but still above the highest rate during any of the post-Global Financial Crisis quantitative easing episodes.

The Bloomberg Barclays US Treasury Index returned 0.14% for the month and 0.17% for the quarter, bringing the year-to-date (YTD) return to 8.90%. The Bloomberg Barclays Long US Treasury Index returned 0.38% in September and 0.12% for the quarter, bringing the YTD return to 21.35%.

September delivered little new information that might drive yields in either direction. Economic data was generally in line with expectations – a continuation of the V-shaped recovery with some hints of deceleration. A second stimulus package did not emerge from Congress. The only noteworthy event was the mid-September Federal Open Market Committee (FOMC) meeting. The FOMC ended up providing "powerful" forward guidance (to use Fed Chairman Jerome Powell's term) in its postmeeting statement, which reflected the Fed's new policy framework announced in August. The FOMC said it would not raise rates until the economy reached "maximum" employment and inflation reached 2% and inflation appeared to be on track to average 2% over a reasonable period. The statement set a high bar for future rate increases. Market expectations of a policy rate on hold through 2023 were confirmed. We expect the Fed to stay on hold through at least 2025 and likely longer.

As anticipated, the recent run-up in breakeven inflation rates for Treasury inflation-protected securities (TIPS) ended, and breakevens fell back in September. The 10-year TIPS breakeven inflation rate peaked at 1.80% on Aug. 31, fell to 1.58% in late September and ended the month at 1.63%. We believe breakevens have returned to fair value. The Bloomberg Barclays US TIPS Index returned a negative 0.37% in September, bringing the YTD return to 9.22%. The index returned 3.03% for the quarter as breakevens recovered from their deep March troughs.

We expect yields to remain range bound through the approaching presidential election, albeit with the likelihood of increased volatility and the possibility of an occasional break of the established 50 bps-80 bps range for the 10-year Treasury yield. Likewise, we see real yields and TIPS breakevens as capable of moving modestly in either direction but unlikely to trend strongly over the near term.

#### **U.S. Treasury Yield Curve**

	8 /31/2020	9/30/2020	Change
3 month	0.09%	0.09%	0.00%
6 month	0.11%	0.10%	-0.01%
1 year	0.11%	0.12%	0.01%
2 year	0.13%	0.13%	0.00%
3 year	0.15%	0.16%	0.01%
5 year	0.27%	0.28%	0.01%
10 year	0.70%	0.68%	-0.02%
30 year	1.47%	1.46%	-0.01%

Source: Bloomberg

## **Agency Mortgage-Backed Securities**

September prepayment speeds generally increased in September, with 30-year Fannie Mae prepays increasing to 33.5 Conditional Prepayment Rate (CPR) from 31.5 CPR. Thirty-year Freddie Mac prepays increased to 33.2 CPR from 31.6 CPR, and 30-year Ginnie Mae II prepays were unchanged at 33.7 CPR. There were no major signs of prepay burnout among higher coupons as mortgage rates declined and originator capacity increased. Some collateral reached prepayment speeds north of 50 CPR. Among conventional bonds, it was primarily the 3.5% to 4.0% coupons with a 2018 vintage.

The Freddie Mac U.S. Mortgage Market Survey 30-Year Homeowner Commitment National Index reached an all-time low of 2.86% during the month but ended September at 2.88%. During July and August, turnover was a large driver of faster speeds. The September pickup in prepayment speeds for mortgages of a more-seasoned vintage suggested that quicker speeds were likely driven more by voluntary refinancings as opposed to higher turnover. The gradual increases in originator capacity over the past few months likely enabled lenders to expand their targeting to include seasoned borrowers as well.

For September, monthly gross issuance of Agency mortgage-backed securities (MBS) decreased to \$296 billion from \$322 billion in August. Net issuance decreased in tandem to \$36 billion from \$75 billion. The Federal Reserve purchased a gross \$111 billion in Agency MBS in September, bringing the total gross to \$1.11 trillion in the current round of quantitative easing (QE). For context, \$1.25 trillion was purchased by the Fed Reserve between January 2009 and March 2010, when the purchasing phase of the prior QE program concluded.

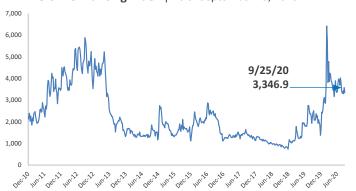
September 2020

## Agency Mortgage-Backed Securities (cont'd)

Aggregate 30-day delinquency rates decreased in September to 4.6% from 4.3% in August for 30-year Freddie Mac loans and to 4.8% from 4.5% for 30-year Fannie Mae loans. Although 30-day delinquency rates declined over the past few months, aggregate 120-day delinquency rates on 30-year Freddie Mac and Fannie Mae pools hit a high for 2020 of 2.6%.

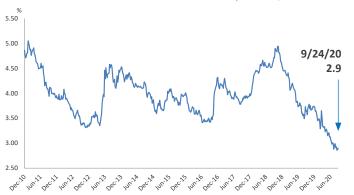
In September, the Bloomberg Barclays US MBS Index duration extended from 1.99 years to 2.12 years. As U.S. Treasury rates were relatively flat and Agency mortgage spreads moderately widened, Agency mortgages generally underperformed. The index's total return for the month was a negative 0.11% with an excess return of negative 0.14%, measured relative to maturity-matched Treasuries. For the quarter, the index's total return was 0.11%, and duration lengthened from 2.07 to 2.12.

MBA U.S. Refinancing Index | As of September 25, 2020



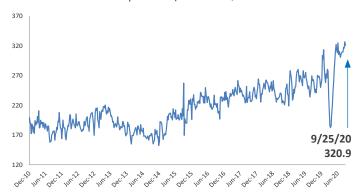
Source: Bloomberg. Base = 100 on 3/16/1990. Seasonally Adjusted.

Freddie Mac Commitment Rate - 30 Year | As of September 24, 2020



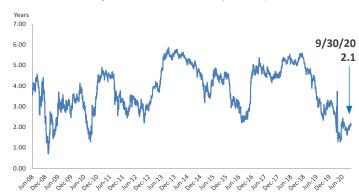
Source: Bloomberg, DoubleLine

MBA Purchase Index | As of September 25, 2020



Source: Bloomberg. Base = 100 on 1/14/2011. Seasonally Adjusted

**Duration of Barclays U.S. MBS Bond Index** | As of September 30, 2020



Source: Bloomberg. Base = 100 on 1/14/2011. Seasonally Adjusted

Conditional Prepayment Rates (CPR)												
2019-2020	October	November	December	January	February	March	April	May	June	July	August	September
Fannie Mae (FNMA)	20.2	16.5	16.5	14.5	16.1	22.3	28.0	27.5	30.8	31.2	31.5	33.5
Ginnie Mae (GNMA)	24.4	22.0	22.9	21.3	21.3	24.5	26.2	27.0	37.2	35.8	33.7	33.7
Freddie Mac (FHLMC)	20.6	16.7	16.6	14.6	16.4	23.0	28.8	28.8	32.0	31.8	31.6	33.2

Bloomberg Barclays U.S. MBS Index	7/31/2020	8/31/2020	9/30/2020	Change
Average Dollar Price	106.77	106.70	106.44	-0.26
Duration	1.68	1.99	2.12	0.13

<b>Bloomberg Barclays</b>			
U.S. Index Returns	7/31/2020	8/31/2020	9/30/2020
Aggregate	1.49%	-0.81%	-0.05%
MBS	0.18%	0.04%	-0.11%
Corporate	3.25%	-1.38%	-0.29%
Treasury	1.14%	-1.10%	0.14%

Source: eMBS, Barclays Capital.

FHLMC Commitment Rate Source: Bloomberg



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## Non-Agency Residential Mortgage-Backed Securities

Non-Agency residential mortgage-backed securities (RMBS) delivered positive returns in September, extending the August gains. Credit spreads tightened on the back of positive delinquency roll rates, continued strength in the overall housing market and mortgagors extending their forbearance agreements. Despite this progress, many subsectors' credit spreads remained above their prepandemic levels. The sector also delivered positive returns during the quarter, rebounding from the second quarter. The private-label mortgage forbearance rate was 7.3% as of Sept. 29, down 2.0% quarter-over-quarter, according to real estate lending data firm Black Knight.

For the third quarter, new issuance totaled \$23.7 billion in volume compared to the previous quarter's \$11.7 billion. The composition was diverse, comprising non-qualified mortgages, jumbo prime, single-family rentals and non-performing/re-performing loans. September issuance was the strongest performance for the month going back three years.

The most recent reading of home prices for the month of July showed an increase of 3.95% year-over-year and a rise of 12 basis points (bps) from the prior quarter, as measured by the S&P CoreLogic Case-Shiller 20-City Composite Home Price NSA Index. Since the start of the year, less densely populated and suburban areas have experienced higher and faster acceleration of home price appreciation than densely populated metropolitan areas. Existing-home sales increased 2.4% in August month-overmonth, as measured by the National Association of Realtors Existing-Home Sales Report. That follows July's jump of 24.7%, the biggest increase in the report's history. August housing inventory was down 18.6% from a year ago, with the unsold inventory sitting at a three months' supply.

The 30-year mortgage rate finished September at 2.90%, down 1 bp from August and 23 bps on a quarterly basis, as reported by the Freddie Mac Primary Mortgage Market Survey.

## **Commercial Mortgage-Backed Securities**

Issuance of private-label commercial mortgage-backed securities (CMBS) in September was relatively higher month-over-month (MoM), totaling \$4.1 billion. Three conduit deals totaling \$1.99 billion, three single-asset, single-buyer (SASB) deals totaling \$1.28 billion and two commercial real estate (CRE) collateralized loan obligations totaling \$738 million priced throughout the month. Private-label CMBS issuance in the third quarter totaled \$11.2 billion, a 23% increase over the second quarter. Issuance picked up in the last three months after coming to a halt in March as the nation and world went into lockdown. While only one deal priced from mid-March through April, September delivered eight

deals. Investors and issuers have become more comfortable with the macro environment as the market continues to see an increasing number of deals comprising loans issued after the lockdown. The new-issue pipeline is expected to remain busy, with more than \$6 billion slated to price in October, and the street projecting 2020 issuance to surpass \$60 billion. The credit curve flattened in September as spreads tightened. While technicals remained favorable across the stack, concern remained given the uncertainty associated with the political environment and increased risks of a COVID-19 second wave as cases spiked in Europe. The outstanding private-label CMBS universe increased 0.16% to \$584.7 billion, up 8.0% year-over-year (YoY).

CRE price growth continued to be impacted, with the RCA U.S. All-Property Commercial Property Price Index slowing to 1.6% YoY in August, the smallest rate of annual growth since 2011, and falling 0.02% MoM. Industrial properties posted positive price growth, gaining 0.62% MoM and 7.39% YoY, while multifamily properties gained 0.46% MoM and 3.17% YoY. Retail and hotel continued to be the most-affected property types in the cohort, with retail property prices falling 0.63% MoM and 4.12% YoY. Smith Travel Research reported hotel occupancy at the national level at 48.7% during September, nearly 30% lower YoY. CRE transaction volume marked its fifth consecutive month of high double-digit YoY declines, with August totaling \$13.9 billion, 68% lower YoY. Multifamily sales accounted for 39% of transaction volume, \$5.4 billion, a decline of 65% YoY. Hotel properties, which continued to feel the impact from the shutdowns in travel and tourism, posted the lowest level of transaction volume with \$300 million.

CMBS secondary market cash spreads marched tighter across the stack in September due to strong demand for both duration and yield amid what is expected to be a sustained low-rate environment. AAA last cash flows (LCFs) tightened by 12 basis points (bps) in September and 26 bps in the quarter to swaps +84 bps. BBB- LCFs tightened by 10 bps in September and 220 bps in the quarter to swaps +515 bps. Given the month's increase in new issuance, secondary trading volume fell as investors focused on the new-issue market. Money managers were the most-consistent buyers, with sales largely coming from investors monetizing purchases made earlier this year. The lower-forlonger sentiment held by many investors resulted in a reach for yield, pushing spreads tighter for many SASB transactions and select conduit mezzanine tranches.



September 2020

## Commercial Mortgage-Backed Securities (cont'd)

The CMBX market marked an uptick in the month and quarter coming off the typical summer lull. CMBX was more impacted by macro volatility than cash bonds. 2012-2018 AAA reference indexes tightened by 9 bps in the month and 2 bps in the quarter. 2012-2018 BBB- reference indexes widened by 172 bps in the month and 194 bps in the quarter. AAA liquidity was challenged in September. BBB- leaked wider throughout the month, a result of negative macro sentiment coupled with a pickup in supply as some hedge fund investors rotated out of broader structured products risk.

Delinquencies among conduit loans continued to stabilize, with loans delinquent 30 days or longer falling 10 bps to 8.0%. However, the percentage of conduit loans in special servicing increased 30 bps to 8.5%, and the percentage of loans delinquent 90 days or longer increased 10 bps to 4.5%. Hotel loans within conduit deals continued to have the highest concentration of loans delinquent 90 days or longer (13.4%) and loans in special servicing (23.2%).

#### **Asset-Backed Securities**

Asset-backed securities (ABS) generated another month of solid outperformance in September, with the Bloomberg Barclays US ABS Index returning 0.13% and the ICE Bank of America U.S. Fixed-Rate Miscellaneous ABS Index returning 0.54%. The Bloomberg Barclays US Aggregate Bond and US Corporate indexes experienced negative total returns in September, and U.S. yield curve changes were minimal. As a result, most of the ABS outperformance came from carry and moderate spread tightening. The main story in the market was the heavy newissue calendar, which featured over 40 different transactions pricing for \$30 billion in new supply. Despite the busy calendar, the market seemed to absorb bond offerings in stride, and there was little spread widening or market fatigue.

ABS performance was also positive across the third quarter on a relative basis, with the Bloomberg Barclays ABS index returning 0.80% and the ICE BofA ABS index returning 2.20%. This resulted in some modest outperformance when compared to the bond index's return of 0.62%. In terms of new issuance, gross ABS supply was about \$70 billion, bringing the 2020 total to \$158 billion.

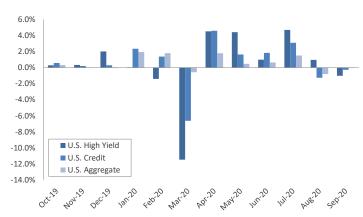
#### **Investment Grade Credit**

The U.S. investment grade (IG) corporate market took a breather in September after rallying since the end of March. U.S. presidential election uncertainty, the lack of a second major fiscal stimulus package and negative COVID-19 headlines contributed to marginally wider credit spreads in September. As measured by the Bloomberg Barclays US Credit Index, IG credit spreads

widened by 6 basis points (bps) to 128 bps, underperforming duration-matched U.S. Treasuries by 38 bps. For the third quarter, IG credit spreads tightened by 14 bps, outperforming duration-matched Treasuries by 136 bps. The total return for the month was a negative 0.27%, bringing the quarter's total return to 1.50%.

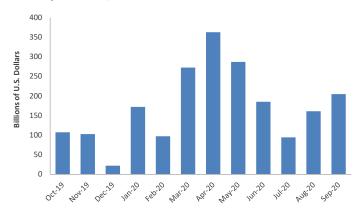
## **Performance of Select Barclays Indices**

Last 12 Months



### **Total Fixed-Rate Investment Grade Supply**

As of September 30, 2020



Source: Barclays Live

The best-performing sectors on a total return basis in September were airlines, finance companies, paper, transportation services and building materials, sectors that tend to do well amid improving economic growth prospects. The worst-performing sectors were oil field services, refining, independent energy, midstream and sovereigns. Energy-related sectors underperformed as lower crude prices weighed further on earnings expectations. The best-performing sectors for the quarter were independent energy, transportation services, packaging, airlines and paper. The worst-performing sectors were refining, leisure, supranationals, pharmaceuticals, wirelines and foreign agency.



September 2020

### Investment Grade Credit (cont'd)

At the ratings level, bonds rated AA outperformed in September, posting a negative total return of 0.13% versus a negative total return of 0.29% for bonds rated A and a negative total return of 0.34% for bonds rated BBB. For the quarter, bonds rated BBB notably outperformed, posting a total return of 2.10% versus 1.14% for bonds rated A and 0.86% for bonds rated AA.

Across the curve, short duration credit outperformed in September, posting a negative total return of 0.03% versus a negative total return of 0.14% for intermediate duration and a negative total return of 0.50% for long duration. For the quarter, long duration notably outperformed, posting a total return of 1.97% versus 1.24% for intermediate duration and 0.52% for short duration.

Supply continued to be a big theme as U.S. dollar-denominated, IG new issuance recorded \$204.5 billion of gross issuance and \$101 billion of net issuance in September. For the quarter, gross issuance was \$459.6 billion and net issuance was \$208.2 billion. Year-to-date (YTD), gross new issuance stood at \$1.835 trillion, 41.5% higher than all of 2019 and 25% higher than the full-year record of \$1.468 trillion set in 2017.

IG funds' inflows were \$25.8 billion in September, extending cumulative inflows to \$302.3 billion since March. YTD, inflows stood at \$197.3 billion in September.

## **Collateralized Loan Obligations**

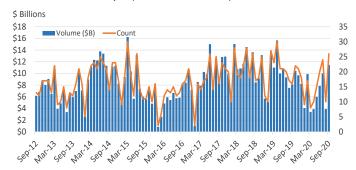
September marked the busiest month of new issuance for U.S. collateralized loan obligations (CLOs) since April 2019, with \$11.5 billion pricing across 26 transactions. The flurry in activity was fueled by improving arbitrage and market sentiment. Since the start of the year, \$60 billion has priced via 139 CLOs, down from \$91 billion via 185 CLOs in the same period in 2019, which represents a 33% decline by volume and 25% decline by deal count. The trend of fixed-rate tranche repricing and refinancing transactions continued, with 15 such transactions settling over the month.

Amid a bustling primary market, September posted the lowest monthly secondary volume of the year, per the Financial Industry Regulatory Authority's Trade Reporting and Compliance Engine data. The supply of CLO bids wanted in competition stayed relatively flat month-over-month (MoM).

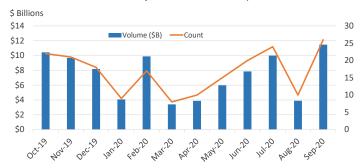
CLO fundamentals were mixed. Weighted average rating factor worsened, while weighted average spread and minimum overcollateralization cushion rose. While CCC-rated concentrations varied between Moody's and S&P, the median percentage exposure of CLOs to collateral rated CCC and below by Moody's remained below the standard threshold of 7.5% for U.S. broadly syndicated loan CLOs. The last 12-month (LTM) U.S. leveraged loan default

rate by principal amount continued its upward climb, increasing 9 basis points from 4.1% to 4.2% MoM and increasing nearly 30% in the third quarter. Similarly, the LTM U.S. leveraged loan default rate by issuer count rose from 4.3% to 4.6% in September, the highest reading since August 2010.

#### **CLO New Issuance** | September 2012 to September 2020



Last 12 Months Issuance | October 2019 to September 2020



Source: Bloomberg, DoubleLine

CLO market-based metrics, including the distressed ratio (loans bid below 80% of par), net asset value and market value overcollateralization, continued to improve alongside the S&P/LSTA Leveraged Loan Price Index. The index rose 0.36% despite experiencing some weakness toward the end of the month, contributing to a 3.67% increase in the quarter

CLO spreads in the secondary market were mixed, as senior tranches tightened, and lower mezzanine tranches were unchanged to wider MoM. The J.P. Morgan CLO Total Return Level Index gained 0.09% in September, contributing to a total return of 2.11% for the quarter. The year-to-date total return at the end of September was 0.94%, with investment grade tranches leading the way.

Following the flood of rating watch announcements in the second quarter, ratings agencies had almost completed their reviews, with an estimated 2% of the U.S. CLO universe on credit watch. While roughly 8% of the total U.S. CLO universe was affirmed after being placed on watch, approximately 10% experienced downgrades.

# DoubleLine

# **Quarterly Market Commentary**

September 2020

## **Collateralized Loan Obligations** (cont'd)

These downgrades were concentrated in junior tranches of oldervintage deals, which carried lower overcollateralization cushions, and higher CCC and defaulted concentrations prior to the onset of additional COVID-19 stressors.

### **Bank Loans**

The bank loan market returned 0.63% in September, marking the sixth straight month of positive returns following the drawdown in March. Risk markets generally showed signs of fatigue as uncertainty about the looming election moved to the foreground, and the S&P 500 Index and Bloomberg Barclays US High Yield (HY) Corporate Index posted negative returns. However, bank loans benefited from a strong bid for discount paper from newly created collateralized loan obligations (CLOs). The weighted average bid price of the S&P/LSTA Leveraged Loan Index rose to 93.18 from 92.85 in August. As had been the case in recent months, the outer edges of the risk spectrum marked the strongest demand: Loans rated CCC were up 2.28%, loans rated B increased 0.63%, and loans rated BB rose 0.24%. September returns capped a very robust third quarter in which the market rose 4.14% driven by strength in discount paper and CCC loans. On a year-to-date (YTD) basis, bank loan returns briefly turned positive midmonth before settling at a negative 0.66%.

The default rate continued to inch higher in September, rising to 4.64% from 4.31% the prior month and 3.70% at the start of the third quarter. After rising significantly in the early days of the pandemic, new default activity slowed markedly in recent months. Defaults this year have been most heavily concentrated in oil and gas, which has accounted for 28% of YTD defaults, followed by retail at 13%. As had been widely expected, recoveries upon default have been moving lower due to the aggressive lending conditions that preceded the recession. While the default rate is likely to continue moving higher, the significant rally in the bank loan and HY markets from March levels has allowed many companies to issue new debt to pad liquidity or push out maturities. Moreover, second quarter earnings generally came in ahead of very low expectations, suggesting that more companies than expected might be able to weather a period of economic softness. These factors are likely to lower the peak default rate for this cycle.

After anemic new-issue volume in the second quarter, each month of the third quarter marked a rise in supply. In September, \$42.6 billion of new issues launched, the second-strongest month of the year after January. However, much of the September volume was related to refinancing of existing debt, so the net new supply to the market was manageable. On the demand side, CLO issuance rose to \$10.3 billion, the highest tally of the year, while outflows from retail loan funds totaled \$856 million, according to financial data firm Leveraged Commentary & Data.

With three-month LIBOR at 23 basis points (bps), bank loan coupons have contracted substantially from the start of the year, when three-month LIBOR was around 190 bps. At this point, the impact of a further fall in interest rates would be limited given that almost all loans have LIBOR floors of 0% or above. The market still trades at a reasonable discount to par, offering some upside convexity in the event that risk assets continue to rebound. The S&P/LSTA index ended the month with a yield to maturity of 5.73% and a spread to maturity of 4.93%, providing reasonable compensation in a world of anemic interest rates.

## **High Yield**

High yield (HY) experienced a down September, with the Bloomberg Barclays US HY Yield Corporate Index returning a negative 1.03%. The benchmark index ended the third quarter up 4.60%. Index yield rose 42 basis points (bps) for the month to 5.77% while spreads widened 40 bps to 517 bps. For the quarter, yield declined 110 bps while spreads narrowed by 109 bps. September returns were primarily impacted by global economic concerns and declining odds of another stimulus package in the U.S.

By rating, bonds rated CCC outperformed for the month, increasing 0.33%, and quarter, rising 7.35%. Bonds rated B followed, rising 0.29% in September and 4.53% in the quarter. Bonds rated BB lagged slightly for the month with a gain of 0.28% while increasing 4.02% in the quarter. The three best-performing sectors in September were aerospace/defense (+1.43%), airlines (+0.93%) and other industrial (+0.68%). The worst performers were all energy-related, led by oil field services (-6.10%), independent (-5.14%) and midstream (-2.36%).

The par-weighted 12-month default rate, as reported by J.P. Morgan, ended the quarter at 5.80%, up 3 bps from August and a rise of 317 bps from 2.63% at the end of 2019. The energy sector continued to account for a substantial portion of defaults, with a sector rate of 17.25% (ex energy the HY default rate is 3.79%). The HY default rate at the end of September compares to a 25-year average of 2.90%.

Downgrades continued to outweigh upgrades for the month, as reported by J.P. Morgan, both within HY and between investment grade and HY. The U.S. HY market registered \$47.3 billion of downgrades compared to \$34.2 billion of upgrades for a trailing 12-month upgrade-to-downgrade ratio of 0.4x. On a year-to-date (YTD) basis, downgrades total \$748.8 billion compared to \$202.7 billion of upgrades. For comparison, the upgrade-to-downgrade ratio ended 2019 at 0.8x, 2018 at 1.3x and 2017 at 1.4x. As for fallen angel volume, September was more muted than recent months, totaling \$12.4 billion, which brought the third quarter mark to \$20.4 billion, a substantial decline from \$47.6 billion in the second quarter and \$149.4 billion in the first. YTD, fallen angels totaled \$217.4 billion, exceeding the prior full-year record of \$150.2 billion set in 2009.



September 2020

## High Yield (cont'd)

Issuance remained very strong in September, as reported by J.P. Morgan, with the HY market pricing \$50.9 billion of deals, the fifth-highest monthly total. In the quarter, the market priced \$131.9 billion, the second-highest quarterly total, following the second quarter's all-time record. YTD, issuance was up 68% to \$350.3 billion while net issuance of refinancings was up 78% to \$121.1 billion. For comparison, primary activity increased 52% in 2019 to \$286.6 billion (+28% net issuance of refinancings), though that mark came against a 2018 whose full-year activity was the lightest since 2009 (2018 volume was a 43% decline compared to 2017).

HY funds reported an outflow in September of \$4.3 billion, their first outflow since March, according to Lipper data as reported by J.P. Morgan. Despite the monthly performance, HY funds marked an inflow of \$10.7 billion for the quarter. YTD, inflows stood at \$39.3 billion, compared to an inflow of \$18.8 billion in full-year 2019 and an outflow of \$46.9 billion in full-year 2018.

#### **Commodities**

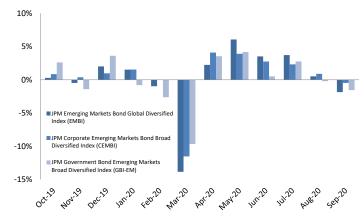
The broad commodity market declined 3.65% as measured by the S&P GSCI and 3.36% by the Bloomberg Commodity (BCOM) Index in September. The performance marked a weak finish to an otherwise positive third quarter in which the broad market rallied 4.57% (S&P GSCI) and 9.04% (BCOM). Agriculture was the strongest-performing sector for the month and quarter, with the sector up 4.04% in September, on the back of soybeans (+7.34%), and 11.20% for the guarter. Industrial metals declined 2.25% for the month, with lead (-7.97%) dropping the most, but still managed to close the quarter positive. Industrial metals rebounded 9.75% in the quarter, with zinc (+16.44%), nickel (+13.03%) and copper (+11.08%) the best performers. Precious metals experienced volatility in September, with silver declining 17.84% and gold falling 4.20%. The month capped an uncertaintydriven rally in the quarter in which the sector increased 5.35% as silver jumped 25.06% and gold appreciated 3.60%. Energy was the weakest sector in September, falling 8.04% on the back of poor performances by natural gas (-19.94%), Brent crude (-7.95%) and WTI crude (-6.50%). The sector gave back all of the gains from July and August to close the quarter down 0.54%.

## **Emerging Markets Fixed Income**

Emerging markets (EM) sovereign bonds and corporate external bonds posted positive performances in the third quarter, driven by credit spread tightening and accrued interest. External EM debt posted negative returns in September, with credit spreads widening.

The J.P. Morgan EM Bond Index (EMBI) Global Diversified credit spread tightened by 42 basis points (bps) in the quarter after tightening 152 bps in the second quarter. The U.S. Treasury yield curve steepened, with two-year Treasury yields falling 2 bps and 10-year Treasury yields rising 3 bps. For September, the credit spread widened by 10 bps, while two-year Treasury yields were essentially flat, and 10-year Treasury yields rose 2 bps.

# **J.P. Morgan Emerging Markets Bond Index Performance** October 31, 2019 to September 30, 2020



Source: J.P. Morgan

Performance across all regions was positive for the quarter in the EMBI Global Diversified, which tracks sovereign performance, and the J.P. Morgan Corporate Emerging Markets Bond Index Broad Diversified, which tracks corporate performance. Latin America was the best-performing region in both indexes. Africa was the lowest-performing region in the sovereign index, and Europe was the best performer in the corporate index. In September, performance was negative across all regions in both indexes, led by Africa, which was the worst performer in both indexes.

The corporate index outperformed the sovereign index in September and the quarter, with the corporate high yield (HY) subindex significantly outperforming its sovereign counterpart over the month and quarter. The HY subindex outperformed the investment grade subindex in the corporate index but underperformed in the sovereign index over the quarter.

Risk appetite for the last quarter of 2020 will likely be driven by the effectiveness of measures to contain the COVID-19 outbreak and reopen economies from lockdown, and the November election. Other risk-appetite factors include escalating U.S.-China tensions, regional geopolitical tensions and rising social unrest.



September 2020

## **International Sovereign**

Global government bonds, as measured by the FTSE World Government Bond Index, posted slightly negative performance in September and positive performance for the third quarter. The quarterly performance was driven by foreign currency appreciation against the U.S. dollar during July and August.

The dollar, as measured by the U.S. Dollar Index, weakened against all G-10 peers over the quarter. The dollar sold off in July and August amid signs of progress toward the development of a COVID-19 vaccine. In September, the dollar reversed as risk sentiment deteriorated amid a rebound in global virus cases. The Federal Reserve kept rates unchanged at near zero in the quarter and signaled that rates would remain lower for longer. The Fed also adopted a "flexible" form of average inflation targeting that would allow temporary increases above 2% following periods when that target is undershot. The outlook for further fiscal support remained uncertain after Congress failed to pass a new relief package before boosted federal jobless benefits expired at the end of July. The U.S. Treasury curve moderately steepened over the quarter.

The euro gained against the dollar during the quarter. Risk sentiment improved as European countries took steps to reopen their economies and European leaders agreed to a fiscal support program in July. The pickup in economic activity in July decelerated in August and September as virus cases rose across the region. The European Central Bank (ECB) kept the deposit rate at negative 0.5% and left its bond purchase program unchanged but expressed concern about a potential spike in unemployment once government-subsidized furloughs are wound down later this year. ECB President Christine Lagarde said the strengthening euro would be monitored but that the ECB does not target a particular exchange rate. Inflation turned negative in August for the first time in over four years. Meanwhile, some governments began to reinstate some activity restrictions in September amid rising virus cases.

The Japanese yen was the best-performing G-10 currency in the month of September and appreciated versus the dollar over the quarter. Yoshihide Suga was installed as prime minister in September, signaling broad policy continuity after long-serving leader Shinzo Abe resigned for health reasons. The Bank of Japan maintained its monetary policy in September and turned more optimistic about the nation's economy given recent improvements in economic activity.

Emerging markets (EM) currencies generally appreciated versus the dollar in the quarter. EM countries benefited from improved risk sentiment in July and August as some quarantine restrictions eased, commodity prices recovered, and capital flows stabilized. Sentiment deteriorated in September amid increases in global market volatility and virus cases. Investors remain concerned that many of these countries lack the fiscal and monetary space to offset the economic impact of the pandemic.

### Infrastructure

Infrastructure assets in September posted their sixth consecutive month of outperformance relative to the Bloomberg Barclays US Aggregate Bond Index. With minimal changes to the U.S. yield curve or benchmark credit spreads, infrastructure investments were able to outcarry the index despite heavy new issuance in both securitized and nonsecuritized debt. The primary markets marked a massive \$3.4 billion in container asset-backed securities (ABS) issuance and \$470 million in solar ABS issuance across seven transactions that were relatively well-received by investors.

In the third quarter, infrastructure performance was positive in relative and absolute terms as the bond index returned just 0.62%. From a strategic standpoint, investors increasingly focused on the presidential election, after which there could be more clarity on prospects for a large federal infrastructure spending initiative in 2021 or beyond. Partisanship in Washington has broadly kept an infrastructure bill on the sidelines, but the victorious party, whether Democratic or Republican, could bring infrastructure spending back into the spotlight.

## **U.S. Equities**

U.S. equities pared gains in September, with the S&P 500 Index falling 3.80%. Even with this decline, the index was up 8.93% in the third quarter and 5.57% for the year. The two best-performing sectors for the month were materials (+1.41%) and utilities (+1.13%), while the worst was energy, down 14.57%. The technology sector also gave back some gains, declining 5.37%. However, on a quarterly basis, technology stocks were up 11.95%, capping off a stellar year-to-date performance (+28.69%). In the quarter, the three best sectors were consumer discretionary (+15.29%), materials (+13.45%) and industrials (+12.48%). The three worst were energy (-19.58%), real estate (+1.20%) and financials (+4.45%).



September 2020

## **Global Equities**

Global equities took a breather in September from the ferocious rally marked since late March. The Morgan Stanley Capital International All Country World Index declined 3.20% but was still up 8.24% for the quarter. U.S. equities outperformed for the month, with the S&P 500 Index down 3.80% and the Nasdaq Composite Index down 5.11%. The S&P 500 was up 8.93% and the Nasdaq up 11.23% for the quarter. The Dow Jones Industrial Average declined 2.18% in September but was up 8.22% for the quarter. The Russell 2000 Index declined 3.34% in September but was up 4.93% for the quarter.

European equities performed in line with the broader market for the month but underperformed the market during the quarter. In September, the Euro Stoxx 50 Index declined 2.30%, with the DAX of German blue chips falling 1.43% and the French CAC 40 dropping 2.70%. On the periphery, Italian stocks declined 2.85%, as measured by the FTSE Milano Indice di Borsa, while Spain's IBEX was down 3.81%. U.K. equities declined 1.54%, as measured by the FTSE 100. For the quarter, the Euro Stoxx 50 fell 0.70%. Core European equities delivered a mixed bag, with the DAX returning 3.65% and the French CAC 40 down 2.03%. Italian stocks declined 1.41%, and Spain's IBEX was down 6.63%. U.K. equities fell 4.02%.

Asian equities had mixed results for September and modestly outperformed the broad market during the quarter. For the month, Japanese equities were up 0.68%, as measured by the Nikkei. As measured by the Shanghai Stock Exchange Composite Index, Chinese equities declined 5.17%. Hong Kong's Hang Seng Index was down 6.44%, South Korea's KOSPI was up 0.08%, and Taiwan's TAIEX declined 0.73%. In the quarter, Japanese equities increased 6.19%. Chinese equities rose 9.26%, but Hong Kong equities declined 3.39%. Korean equities rose 10.42%, and Taiwanese equities increased 9.88%.

Equities in emerging markets slightly outperformed the broader market for the month and quarter. In September, the Morgan Stanley Capital International Emerging Markets Index (MSCI EMI) declined 1.62%. Indian equities, as measured by MSCI India, were up 0.87%. Brazil's Ibovespa was down 4.80%, while Chilean equities were down 4.06%, as measured by MSCI Chile. Russian equities dropped 7.37%, as measured by MSCI Russia. For the quarter, the MSCI EMI returned 9.65%. Indian equities were up 12.48%. Brazilian equities were down 0.48%. Chilean equities declined 4.18%. Russian equities fell 4.31%.



**ADP Research Institute** – ADP generates data-driven discoveries about the world of work and derives economic indicators from these discoveries. Its two primary areas of focus are labor market trends, and issues related to people and performance at work.

AUD - Australian dollar

Basis Points (BPS) – Basis points (or basis point (bp)) refer to a common unit of measure for interest rates and other percentages in finance. One basis point is equal to 1/100th of 1%, or 0.01% or 0.0001, and is used to denote the percentage change in a financial instrument. The relationship between percentage changes and basis points can be summarized as: 1% change = 100 basis points; 0.01% = 1 basis point.

**Bid Wanted in Competition (BWIC)** – Formal request for bids on a package of securities that is submitted by an institutional investor to a number of securities dealers. The dealers are being invited to submit bids on the listed securities.

**Bloomberg Agriculture Subindex (BCOMAG:IND)** – This index, formerly known as the Dow Jones-UBS Agriculture Subindex (DJUBSAG), is a commodity group subindex of the Bloomberg Commodity Index. It comprises futures contracts on coffee, corn, cotton, soybeans, soybean oil, soybean meal, sugar and wheat. It reflects the return of underlying commodity futures price movements only and is quoted in U.S. dollars.

Bloomberg Barclays US Aggregate Bond Index – This index represents securities that are SEC registered, taxable and dollar denominated. It covers the U.S. investment grade, fixed-rate bond market, with components for government and corporate securities, mortgage pass-through securities and asset-backed securities. These major sectors are subdivided into more specific indexes that are calculated and reported on a regular basis.

**Bloomberg Barclays US Aggregate Credit Average OAS Index** – This index gauges the option-adjusted spread on the Bloomberg Barclays US Aggregate Bond Index.

Bloomberg Barclays US Asset-Backed Securities (ABS) Index – This index is the ABS component of the Bloomberg Barclays US Aggregate Bond Index. The ABS index has three subsectors: credit and credit cards, autos and utility.

Bloomberg Barclays US Corporate High Yield (HY) Index — This index measures the U.S. dollar-denominated HY fixed-rate corporate bond market. Securities are classified as HY if the respective middle ratings of Moody's, Fitch and S&P are Ba1, BB+ or BB+ or below. The Bloomberg Barclays US HY Long Index, including bonds with maturities of 10 years or greater, and the Bloomberg Barclays US HY Intermediate Index, including bonds with maturities of 1 to 9.999 years, are subindexes of the Bloomberg Barclays US Corporate HY Index.

**Bloomberg Barclays US Corporate Index** – This index measures the investment grade, fixed-rate taxable corporate bond market. It includes U.S. dollar-denominated securities publicly issued by U.S. and non-U.S. industrial, utility and financial issuers.

Bloomberg Barclays US Government/Credit Index – This index is a broad-based flagship benchmark that measures the nonsecuritized component of the Bloomberg Barclays US Aggregate Bond Index. It includes investment grade, U.S. dollar-denominated, fixed-rate U.S. Treasuries, and government-related and corporate securities.

Bloomberg Barclays US Mortgage-Backed Securities (MBS) Index — This index measures the performance of investment grade, fixed-rate mortgage-backed pass-through securities of the government-sponsored enterprises (GSEs): Federal Home Loan Mortgage Corp. (Freddie Mac), Federal National Mortgage Association (Fannie Mae) and Government National Mortgage Association (Ginnie Mae).

**Bloomberg Barclays US Treasury Index** – This index measures U.S. dollar-denominated, fixed-rate nominal debt issued by the U.S. Treasury with a remaining maturity of one year or more. Treasury bills are excluded by the maturity constraint but are part of a separate Short Treasury Index.

**Bloomberg Barclays US Treasury Inflation-Protected Securities (TIPS) Index** – This index comprises all publicly issued U.S. Treasury inflation-protected securities (TIPS) denominated in U.S. dollars and traded intraday.

**Bloomberg Barclays US Treasury Total Return Unhedged Index** – This index measures the performance of the Bloomberg Barclays US Treasury Index on a total return unhedged basis.

**Bloomberg Commodity (BCOM) Index** – This index is calculated on an excess return basis and reflects the price movements of commodity futures. It rebalances annually, weighted two-thirds by trading volume and one-third by world production, and weight caps are applied at the commodity, sector and group levels for diversification. The roll period typically occurs from the sixth to 10th business day based on the roll schedule.

**Brent Crude Oil** – Major trading classification of sweet light crude oil that serves as a benchmark price for purchases of oil worldwide. Brent is known as a light, sweet oil because it contains 0.24% sulfur, making it "sweet," and has a low density, making it "light."

**Broadly Syndicated Loans (BSL)** – Any loan to an obligor issued as part of a loan facility with an original loan size (including any first and second lien loans in the facility) greater than \$250 million.

**CBOE Volatility Index (VIX)** – This real-time market index represents the market's expectation of 30-day forward-looking volatility and is derived from the price inputs of S&P 500 Index options. Calculated and published by the Chicago Board Options Exchange (CBOE), the index is also known by such names as the "Fear Gauge" or "Fear Index."

**CMBX Index** – This index, or, more accurately, this series of indexes, is designed to reflect the creditworthiness of commercial mortgage-backed securities (CMBS).

Collateralized Loan Obligation (CLO) - Single security backed by a pool of debt.

**Conference Board Consumer Confidence Index (CCI)** – This index (published the last Tuesday of every month) measures U.S. consumers' optimism in the economy based on their saving and spending activity.

**Conference Board Leading Economic Index (LEI)** – This index tracks a group of composite indexes (manufacturers' orders, initial unemployment insurance claims, et al.) as a means of gauging the strength of a particular industry or the economy.

Conference Board Measure of CEO Confidence – This quarterly report, based on a survey of approximately 100 CEOs in a wide variety of industries, details chief executives' attitudes and expectations regarding the overall state of the economy as well as their own industry.

Consumer Price Index (CPI) – This index examines the weighted average of the prices of a basket of consumer goods and services, such as transportation, food and medical care. It is calculated by averaging price changes for each item in the basket. Changes in the CPI are used to assess price changes associated with the cost of living. The CPI is one of the most frequently used statistics for identifying periods of inflation or deflation.

Core Personal Consumption Expenditure (PCE) Price Index — This index, published by the U.S. Bureau of Economic Analysis, measures prices paid by consumers for goods and services, excluding the volatility of food and energy prices, to gauge underlying inflation trends. It is the Federal Reserve's preferred index for tracking inflation.

**Cotation Assistee en Continu (CAC) 40** – This stock market index tracks the 40 largest French stocks based on Euronext Paris market capitalization.

Credit Default Swap Index (CDX) — Formerly the Dow Jones CDX, this is a financial instrument made up of credit securities that have been issued by North American or emerging markets (EM) companies. The CDX is itself a tradable security — a credit market derivative.

**Deutsche Aktien Index (DAX)** – This blue-chip stock market index comprises the 30 major German companies trading on the Frankfurt Stock Exchange.

**Dot Plot** – Simple statistical chart that consists of data points plotted as dots on a graph with x- and y-axes. Dot plots are well known as the method that the U.S. Federal Reserve uses to convey its benchmark Federal Funds Rate outlook at certain Federal Open Market Committee (FOMC) meetings.

**Dow Jones Industrial Average (DJIA)** – This index tracks 30 large publicly owned companies trading on the New York Stock Exchange and the Nasdaq.

EUR – Euro

**EUR/USD** – The currency pair EUR/USD is the shortened term for the euro and U.S. dollar pair or cross for the currencies of the European Union and the United States. The currency pair indicates how many dollars (the quote currency) are needed to purchase 1 euro (the base currency).

**Euro Stoxx 50 Index** – This index of 50 eurozone stocks provides a blue-chip representation of supersector leaders in the eurozone.

**FactSet** – FactSet Research Systems provides computer-based financial data and analysis for financial professionals, including investment managers, hedge funds and investment bankers. It consolidates data on global markets, public and private companies, and equity and fixed-income portfolios.

Fannie Mae (FNMA) – The Federal National Mortgage Association (Fannie Mae) is a government-sponsored enterprise (GSE) chartered by Congress in 1938 during the Depression to stimulate home ownership and provide liquidity to the mortgage market. Its purpose is to help moderate- to low-income borrowers obtain financing for a home.



**Federal Family Education Loan Program (FFELP)** – System (which was discontinued) of private student loans that were subsidized and guaranteed by the U.S. government.

**Federal Funds Rate** – Target interest rate, set by the Federal Reserve at its Federal Open Market Committee (FOMC) meetings, at which commercial banks borrow and lend their excess reserves to each other overnight. The Fed sets a target Federal Funds Rate eight times a year, based on prevailing economic conditions.

**FICO Score** – This credit score, created by the Fair Isaac Corp., is used by lenders along with other details on a borrower's credit report to assess credit risk and determine whether to extend credit.

**Freddie Mac (FHLMC)** – The Federal Home Loan Mortgage Corp. (Freddie Mac) is a stockholder-owned, government-sponsored enterprise (GSE) chartered by Congress in 1970 to keep money flowing to mortgage lenders in support of homeownership and rental housing for middle-income Americans. Freddie Mac purchases, guarantees and securitizes mortgages to form mortgage-backed securities (MBS).

Freddie Mac Primary Mortgage Market Survey (PMMS) – This weekly national survey tracks the most-popular 30- and 15-year fixed-rate mortgages, and 5-1 hybrid amortizing adjustable-rate mortgage products among a mix of lender types. The survey is compiled Monday through Wednesday and released (as average rates and points) on Thursday.

Freddie Mac U.S. Mortgage Market Survey 30-Year Homeowner Commitment National Index – This index tracks the 30-year, fixed-rate mortgages component of the Freddie Mac Primary Mortgage Market Survey (PMMS).

FTSE Milano Indice di Borsa (FTSE MIB) – This benchmark index for the Borsa Italian, the Italian stock exchange, comprises the 40-most traded stock classes on the exchange.

**FTSE 100 Index** – This index tracks the 100 companies with the highest market capitalization on the London Stock Exchange.

FTSE World Government Bond Index (WGBI) — This broad index measures the performance of fixed-rate, local-currency, investment grade sovereign bonds. It is a widely used benchmark that comprises sovereign debt from more than 20 countries that is denominated in a variety of currencies.

**G-10 (Group of Ten)** – The G10 comprises 11 industrialized nations that meet on an annual basis, or more frequently as needed, to consult each other, debate and cooperate on international financial matters. The member countries are: Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, the United Kingdom and the United States.

**G-20 (Group of 20)** – The G20 comprises the European Union leadership and 19 countries that look to cooperate on international financial matters. The member countries are: Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Turkey, the United Kingdom and the United States.

GBP – British pound

Gilt – Bond issued by the U.K., India and other Commonwealth countries. Gilts are the equivalent of U.S. Treasury securities in their respective countries. The term "gilt" is often used informally to describe any bond that has a very low risk of default and a correspondingly low rate of return.

**Ginnie Mae (GNMA)** – The Government National Mortgage Association (Ginnie Mae) is a federal government corporation that guarantees the timely payment of principal and interest on mortgage-backed securities (MBS) issued by approved lenders. Ginnie Mae's guarantee allows mortgage lenders to obtain a better price for MBS in the capital markets.

Ginnie Mae (GNMA) — Ginnie Mae I is composed of mortgages that pay principal and interest on the 15th of every month while Ginnie Mae II mortgages do the same on the 20th. Another difference between the two pools is the maturity, with Ginnie Mae I having a maximum of 30 years for single family and 40 years for multifamily; Ginnie Mae II is 30 years max as it doesn't include multifamily project or construction loans.

Ginnie Mae II – This class of pass-through investments is issued by the Government National Mortgage Association (GNMA), known as Ginnie Mae, and draws income from pools of Federation Housing Administration and Department of Veterans Affairs mortgages. Ginnie Mae II securities pay principal and interest on the 20th every month (in contrast to the 15th for Ginnie Mae I) and have a maximum maturity of 30 years.

Hang Seng Index — This free-float-capitalization-weighted index tracks a selection of companies on the Stock Exchange of Hong Kong. The index has four subindexes: finance, utilities, properties, finance, and commerce and industry.

**Ibovespa Index** – This gross-return index is weighted by trade volume and comprises the most-liquid stocks on Brazil's Sao Paulo Stock Exchange.

ICE Bank of America (BofA) MOVE Index – This index is a measure of U.S. interest-rate volatility that tracks the movement in U.S. Treasury yield volatility implied by current prices of one-month over-the-counter options on two-, five-, 10- and 30-year Treasuries.

ICE Bank of America (BofA) U.S. Fixed-Rate Asset-Backed Securities (ABS) Index – This index tracks the performance of U.S. dollar-denominated, investment grade (IG) asset-backed securities publicly issued in the U.S. domestic market. Qualifying securities must have an IG rating (based on an average of Moody's, S&P and Fitch).

ICE Bank of America (BofA) U.S. Fixed-Rate Miscellaneous Asset-Backed Securities (ABS) Index – A subset of the ICE BofA U.S. Fixed-Rate ABS Index, including all ABS collateralized by anything other than auto loans, home equity loans, manufactured housing, credit card receivables and utility assets.

IHS Markit/CIPS U.K. Manufacturing Purchasing Managers' Index (PMI) — This index is based on data compiled from monthly surveys of purchasing executives at over 600 industrial companies. The PMI is based on five individual indexes: new orders (30%), output (25%), employment (20%), suppliers' delivery times (15%) and stock of items purchased (10%), with the delivery times index inverted to move in a comparable direction. A reading above 50 indicates an expansion of the sector, a reading below 50 represents a contraction, and 50 indicates no change.

IHS Markit CMBX Index – This synthetic tradable index references a basket of 25 commercial mortgage-backed securities (CMBS).

IHS Markit Eurozone Manufacturing Purchasing Managers' Index (PMI) — This index measures the performance of the manufacturing sector derived from a survey of 3,000 manufacturing firms and includes national data for Germany, France, Italy, Spain, the Netherlands, Austria, the Republic of Ireland and Greece. The PMI is based on five individual indexes: new orders (30%), output (25%), employment (20%), suppliers' delivery times (15%) and stock of items purchased (10%), with the delivery times index inverted to move in a comparable direction. A reading above 50 indicates an expansion of the sector, a reading below 50 represents a contraction, and 50 indicates no change.

Indice Bursatil Espanol (IBEX) – This official index of the Spanish Continuous Market comprises the 35 most-liquid stocks traded on the market.

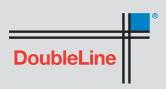
**ISM Manufacturing PMI** – This index is compiled by the Institute for Supply Management and tracks the economic health of the manufacturing sector. The index is based on five major indicators: new orders, inventory levels, production, supplier deliveries and employment environment.

**ISM New Orders Index** – This index is compiled by the Institute for Supply Management and is one of the major indicators used by the ISM Manufacturing PMI to gauge the economic health of the manufacturing sector.

**ISM Services Index** – This index (which used to be called the ISM Non-Manufacturing Purchasing Managers Index (PMI)) is compiled by the Institute for Supply Management and tracks the economic health of the services (formerly nonmanufacturing) sector.

- **J.P. Morgan Collateralized Loan Obligation Index (CLOIE)** This index a market value-weighted index consisting of U.S. dollar-denominated collateralized loan obligations (CLOs).
- J.P. Morgan Collateralized Loan Obligation (CLO) Total Return Level Index This index is a total return subindex of the J.P. Morgan Collateralized Loan Obligation Index (CLOIE), which is a market value-weighted index consisting of U.S. dollar-denominated CLOs.
- J.P. Morgan Corporate Emerging Markets Bond Index (CEMBI) This index is a market capitalization-weighted index consisting of U.S. dollar-denominated emerging markets corporate bonds. CEMBI is a liquid global corporate benchmark representing Asia, Latin America, Europe and the Middle East/Africa.
- J.P. Morgan Corporate Emerging Markets Bond Index (CEMBI) Broad Diversified This index is a uniquely weighted version of the CEMBI, which is a market capitalization-weighted index consisting of U.S. dollar-denominated emerging markets corporate bonds. It limits the weights of index countries with larger debt stocks by only including specified portions of those countries' eligible current face amounts of debt outstanding.
- **J.P. Morgan Emerging Markets Bond Index (EMBI)** This index tracks emerging markets (EM) bonds and comprises sovereign debt and EM corporate bonds.
- J.P. Morgan Emerging Markets Bond Index (EMBI) Global Diversified This index is a uniquely weighted version of the EMBI, which tracks emerging markets (EM) bonds and comprises sovereign debt and EM corporate bonds. It limits the weights of index countries with larger debt stocks by only including specified portions of those countries' eligible current face amounts of debt outstanding.

JPY – Japanese yen



**Korean Composite Stock Price Index (KOSPI)** – This index comprises all common stocks traded on the stock market division of the Korea Exchange. It is the representative stock market index in South Korea, like the S&P 500 Index in the U.S.

Last Cash Flow (LCF) - Last revenue stream paid to a bond over a given period.

**Leveraged Commentary & Data (LCD)** – A unit of S&P Global Market Intelligence, LCD provides in-depth coverage of the leveraged loan market through real-time news, analysis, commentary and proprietary loan data.

**Loan-to-Value Ratio (LTV)** – Assessment of lending risk that financial institutions and other lenders examine before approving a mortgage. Typically, loan assessments with high LTV ratios are considered higher-risk loans. Therefore, if the mortgage is approved, the loan has a higher interest rate.

LTM - Last 12 months

**Major Markets** – Defined by Real Capital Analytics as Boston; Chicago; Washington, D.C.; Los Angeles, New York City; and San Francisco. All markets outside of the major markets are nonmajor markets.

Morgan Stanley Capital International All Country World Index (MSCI ACWI) – This market capitalization-weighted index is designed to provide a broad measure of stock performance throughout the world. It comprises stocks from 23 developed countries 24 and emerging markets.

Morgan Stanley Capital International Emerging Markets Index (MSCI EMI) — This index captures large- and mid-cap representation across 26 emerging markets (EM) countries. With 1,385 constituents, the index covers approximately 85% of the free-float-adjusted market capitalization in each country.

Morgan Stanley Capital International (MSCI) India Index — This index measures the performance of the large- and mid-cap segments of the Indian market. The index covers approximately 85% of the Indian equity universe.

Morgan Stanley Capital International (MSCI) Russia Index — This index measures the performance of the large- and mid-cap segments of the Russian market. The index covers approximately 85% of the free-float-adjusted market capitalization in Russia.

Mortgage Bankers Association (MBA) Purchase Index – This index, a component of the MBA's Weekly Application Survey, includes all mortgage applications for purchases of single-family homes. The index covers the entire market, including all products, and conventional and government loans.

Mortgage Bankers Association (MBA) Refinance Index – This index, a component of the MBA's Weekly Application Survey, tracks the number of mortgage refinance applications. The index is used to help predict mortgage activity and loan prepayments based on the number of mortgage refinance applications submitted.

Nasdaq Composite Index – This index ("the Nasdaq") comprises the more than 3,000 common stocks and similar securities (e.g., American depository receipts (ADRs), tracking stocks, limited-partnership interests) listed on the Nasdaq exchange. The index, which includes U.S. and non-U.S. companies, is highly followed in the U.S. as an indicator of the stock performance of technology companies and growth companies.

Nasdaq 100 Index – This index comprises the 100 largest U.S. and non-U.S. nonfinancial securities based on market capitalization listed on the Nasdaq stock exchange. The index reflects companies across major industry groups including computer hardware and software, telecommunications, biotechnology and retail/wholesale trade.

National Association of Realtors Existing-Home Sales Report – This report tracks sales and prices of existing single-family homes for the nation overall, and gives breakdowns for the West, Midwest, South and Northeast regions of the country. These figures include condos and co-ops in addition to single-family homes.

**Net Asset Value (NAV)** – Net value of an entity calculated as the total value of the entity's assets minus the total value of its liabilities. Most commonly used in the context of a mutual fund or an exchange-traded fund (ETF), the NAV represents the per share/unit price of the fund at a specific date or time.

**NFIB Small Business Optimism Index** – This index compiled by the National Federation of Independent Business (NFIB) provides a monthly picture of small-business activity in the U.S. Analysts use the report to gauge domestic demand and extrapolate hiring and wage trends in the broader economy.

Nikkei 225 Index – This price-weighted index ("the Nikkei") comprises Japan's top 225 bluechip companies on the Tokyo Stock Exchange. The Nikkei is equivalent to the Dow Jones Industrial Average Index in the U.S. **On-the-Run Treasuries** – Most-recently issued U.S. Treasury bonds or notes of a particular maturity. "On-the-run" Treasuries are the opposite of "off-the-run" Treasuries, which refer to Treasury securities that have been issued before the most-recent issue and are still outstanding.

**Overcollateralization (OC)** – Provision of collateral that is worth more than enough to cover potential losses in cases of default.

**Qualified Mortgage (QM)** – Mortgage that meets certain requirements for lender protection and secondary market trading under the Dodd-Frank Wall Street Reform and Consumer Protection Act.

RCA Commercial Property Price Index (CPPI) – This index describes various nonresidential property types for the U.S. (10 monthly series from 2000). It is a periodic same-property, round-trip investment, price-change index of the U.S. commercial investment property market. The dataset contains 20 monthly indicators.

RCA U.S. All-Property Commercial Property Price Index (CPPI) – This index is a component of the suite of price indexes that comprise the RCA CPPI.

Russell 1000° Growth Index – This index measures the performance of the large-cap value segment of the U.S. equity universe. It includes Russell 1000° Index companies with higher price-to-book ratios and higher forecasted growth values.

Russell 1000® Index – This index typically comprises approximately 92% of the total market capitalization of all listed stocks in the U.S. equity market and is considered a bellwether index for large-cap investing.

Russell 1000° Value Index – This index measures the performance of the large-cap value segment of the U.S. equity universe. It includes Russell 1000° Index companies with lower price-to-book ratios and lower expected growth values.

**Russell 2000® Index** – This market capitalization-weighted index comprises 2,000 small-cap U.S. companies and is considered a bellwether index for small-cap investing.

**S&P CoreLogic Case-Shiller National Home Price Index** – This index tracks the value of single-family housing within the United States and is a composite of single-family price indexes for the nine Census Bureau divisions.

**S&P CoreLogic Case-Shiller 20-City Composite Home Price NSA Index** – This index measures the value of residential real estate in 20 major U.S. metropolitan areas: Atlanta; Boston; Charlotte; Chicago; Cleveland; Dallas; Denver; Detroit; Las Vegas; Los Angeles; Miami; Minneapolis; New York City; Phoenix; Portland, Oregon; San Diego; San Francisco; Seattle; Tampa; and Washington, D.C.

**S&P 500 Index** – This unmanaged capitalization-weighted index of the stocks of the 500 largest publicly traded U.S. companies is designed to measure performance of the broad domestic economy through changes in the aggregate market value of the 500 stocks, which represent all major industries.

**S&P Global Market Intelligence** – Provider of multi-asset class and real-time data, research, news and analytics to institutional investors, investment and commercial banks, investment advisers, wealth managers, corporations and universities.

S&P GSCI- This index (formerly the Goldman Sachs Commodity Index) measures investment in the commodity markets and commodity market performance over time.

**S&P/LSTA Leveraged Loan Index** – This index tracks the market-weighted performance of institutional weighted loans based on market weightings, spreads and interest payments.

**S&P/LSTA** Leveraged Loan **100** Index – This index tracks the market-weighted performance of the 100 largest institutional leveraged loans based on market weightings, spreads and interest payments.

Secured Overnight Financing Rate (SOFR) – Influential interest rate that banks use to price U.S. dollar-denominated derivatives and loans. The daily SOFR is based on transactions in the U.S. Treasury repurchase market, where investors offer banks overnight loans backed by their bond assets.

**Shanghai Stock Exchange Composite Index** – This capitalization-weighted index, developed in December 1990 with a base value of 100, tracks the daily performance of all A shares and B shares listed on the Shanghai Stock Exchange.

**Spread** – Difference between yields on differing debt instruments, calculated by deducting the yield of one instrument from another. The higher the yield spread, the greater the difference between the yields offered by each instrument. The spread can be measured between debt instruments of differing maturities, credit ratings or risk.



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**Spread to Maturity (STM)** – Measure of return from a floating-rate note relative to that from its index or reference rate, such as the London interbank-offered rate (LIBOR), calculated by discounting future cash flows on a bond basis.

TAIEX Index – This index tracks companies traded on the Taiwan Stock Exchange. The index covers all listed stocks excluding preferred, full-delivery and newly listed stocks, which are listed for less than one calendar month.

**Term Asset-Backed Securities Loan Facility (TALF)** – Program created by the U.S. Federal Reserve in November 2008 to boost consumer spending in order to help jumpstart the economy. TALF did this by issuing loans to banks using asset-backed securities (ABS) as collateral. A new version of the program, TALF 2.0, was started in 2020 to purchase ABS during the economic disruption of the COVID-19 crisis.

**Trade Reporting and Compliance Engine (TRACE)** – Financial Industry Regulatory Authority (FINRA)-developed vehicle that facilitates the mandatory reporting of over-the-counter secondary market transactions in eligible fixed-income securities.

TTM - Trailing 12 months

**U-3 Unemployment Rate** – Officially recognized rate of unemployment, compiled and released monthly by the U.S. Bureau of Labor Statistics, measuring the number of unemployed people as a percentage of the labor force.

**Uniform Mortgage-Backed Securities (UMBS)** - Single-class securities backed by mortgage loans purchased by either Freddie Mac or Fannie Mae.

University of Michigan Consumer Sentiment Index – This index rates the relative level of current and future economic conditions through monthly surveys of about 500 U.S. households (ex Alaska and Hawaii). There are two versions of this data released two weeks apart, preliminary and revised. The preliminary data tends to have greater impact. A higher-than-expected reading should be taken as positive/bullish for the U.S. dollar; a lower-than-expected reading should be taken as negative/bearish.

U.S. Dollar Index (DXY) – A weighted geometric mean of the U.S. dollar's value relative to a basket of six major foreign currencies: the euro, Japanese yen, British pound, Canadian dollar. Swedish krona and Swiss franc.

**U.S. National All-Property Price Index** – This transaction-based index, a component of the RCA Commercial Property Price Index (CPPI) suite, measures commercial real estate price movement in the United States using repeat-sales regression methodology.

U.S. Treasuries (UST) – Commonly used for references to the Treasury debt that the U.S. issues.

**USD/JPY** – The currency pair USD/JPY is the shortened term for the U.S. dollar and yen pair or cross for the currencies of the United States and Japan. The currency pair indicates how many Japanese yen (the quote currency) are needed to purchase one dollar (the base currency).

Weighted Average Cost of Capital (WACC) – Calculation of a firm's cost of capital in which each category of capital is proportionately weighted. All sources of capital, including common and preferred stock, bonds and any other long-term debt, are included in a WACC calculation.

Weighted Average Life (WAL) – Average number of years for which each dollar of unpaid principal on a loan, mortgage or bond remains outstanding.

West Texas Intermediate Crude Oil (WTI) – Specific grade of crude oil and one of the main three benchmarks, along with Brent and Dubai Crude, in oil pricing. WTI is known as a light sweet oil because it contains 0.24% sulfur, making it "sweet," and has a low density, making it "light." It is the underlying commodity of the New York Mercantile Exchange's (NYMEX) oil futures contract and is considered a high-quality oil that is easily refined.

World Interest Rate Probabilities (WIRP) – Analyzes the probabilities of various interest rate level outcomes as implied by the futures, options and overnight indexed swap (OIS) markets to quantify to what extent the markets are "pricing in" future central bank interest rate changes.

**Z-Score** – Numerical measurement used in statistics of a value's relationship to the mean (average) of a group of values, measured in terms of standard deviations from the mean. If a Z-score is 0, it indicates that the data point's score is identical to the mean score. A Z-score of 1.0 would indicate a value that is one standard deviation from the mean. Z-scores might be positive or negative, with a positive value indicating the score is above the mean and a negative score indicating the score is below the mean.



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