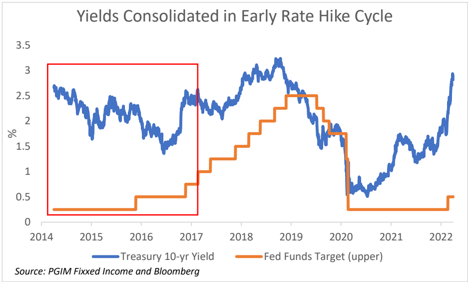
Putting a Rate Thesis to the Test

WEEKLY VIEW FROM THE DESK | April 25, 2022

QUICK LINK TO THE RETURNS TABLE

MACRO

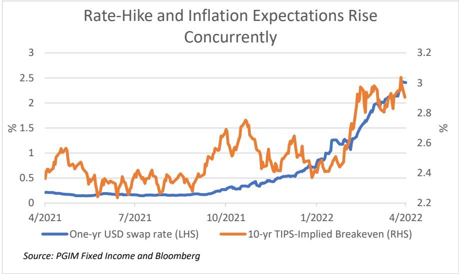
- Over the past three decades, demographic shifts and the arrival of the zero lower bound for policy rates spurred the long-running bull market, and our "lower for longer" interest-rate thesis provided a significant contribution to performance. But after decades of lingering below target, soaring inflation put our thesis to the test for the first time.
- In terms of the big economic picture, relentless inflation has led to a slowdown in consumer activities in real terms—not yet falling off a cliff, but a clear deceleration. Still, the slowdown has been well-anticipated, and so far, we aren't seeing real signs of inflation or the Fed's initial tightening denting activity. Monthly job gains have been a useful metric to gauge the progress of the economic rebound, but job openings have historically lagged the business cycle during downturns. Hence, our preferred economic indicator is household savings as consumers have accumulated a large buffer of cash given the fiscal and monetary stimulus that drove up individuals' wealth higher.



- In the short run, we think the rates market may follow historical trends (see chart) and consolidate as the Fed catches up to market pricing. But ultimately, our long-run outlook is highly dependent on the cycle peak on the Fed funds rate. We maintain the view that long rates will peak around current levels as the inflation outlook moderates with slower growth, and we wouldn't be surprised if the fed funds rate ends up undershooting market pricing. That said, we recognize that the economic reality has diverged from mainstream forecasts for quite some time. Still, we think it is unlikely that the Fed will raise rates as it did in the 1970s-80s or breach the 6.5% level reached in the 1990s tightening cycle given the current backdrop of maturing demographics, higher debt burdens, lower tax rates, and very little wage indexation—themes that are key to our "low for long" thesis.

RATES

- Curve flattening re-exerted itself across developed-market yield curves, with the 2- and 10-year curve flattening around 10-15 bps last week. Just before the backout period began, Fed official Mester tried to curtail the market's tightening expectations by emphasizing policymakers will be deliberative and international about their decisions, but the comments did little to temper hawkish sentiments. Over the course of April, OIS forwards have priced in 50 bp hikes for May, June, and July, with 3mx10y swaption implied volatility reaching 2013 taper tantrum levels.



- We see a problematic feedback loop potentially developing in the concurrent rise of interest-rate expectations and inflation expectations. Rather than feeling comforted by the prospect of more policy actions to tame inflation, the market seems to perversely take rising rate-hike expectations as signs of even worse inflation to come, which consequently drives the breakeven rate higher. This phenomenon is not limited to the U.S.: expectations for rate hikes and medium-term inflation have also moved up significantly in the euro area. EUR OIS has priced in 20 bps of hikes by July and almost 80 bps by the end of the year. Expectations for Canada have also moved up markedly, with the market expecting the target rate to peak at around 3%, which is the upper bound of the BOC's estimated neutral rate, early next year.
- Responding to lukewarm usage of its 20-year futures that were introduced in March, the Chicago Mercantile Exchange tweaked the contract by allowing some aged 30-year Treasuries to be eligible for delivery. The move should reduce volatility and increase visibility into deliverable bonds, which should be positive for increasing open interest in the sector.
- Agency MBS spreads continued to trade wider last week, as overseas investors, domestic real money, and convexity accounts drove the selling in lower coupons. We think MBS valuation is getting cheap on both OAS and zero-vol basis, especially considering negative convexity in the current market is minimal given the rapid increase in mortgage rates. We continue to reduce our short-term underweights at these levels.

IG CORPORATES

- Last week's widening in U.S. IG spreads placed them in reach of the YTD wides of 143 bps. Financials performed slightly better after a bout of underperformance, while yankee banks and cable underperformed last week. Money center banks led the $55.6B in issuance, and supply should remain heavy in May amid estimates for up to $150B in total issuance.
- While money center banks have underperformed recently, they continue to present compelling relative value considering the strength of their fundamentals and spread pickup. For example, J.P. Morgan's on-the-run A-rated 10-year issue trades at 163 bps over Treasuries, while a similarly rated utility, Duke Energy, trades at +112 bps, Home Depot trades in the +110 bps area, and Deere (slightly higher rated) trades at +87 bps. With that dynamic in place, we believe the banks could outperform the broader market in the second half of 2022.
- The widening in European IG spreads was led by the banking sector, specifically the yankee banks as mentioned above. The supply from U.S. banks required spread concessions of 10 bps or more, and the primary levels consequently pushed secondary spreads 15-20 bps wider last week. After disappointing retail data, the pound sterling fell to its lowest value in several years relative to the euro. Emmanuel Macron's election victory caused no noticeably positive effect on European markets on Monday as it appears investors had already priced in his re-election.

HIGH YIELD

- U.S. high yield spreads tightened modestly last week despite the volatility in equities and rates. Although high yield bond mutual funds saw another outflow, modest new supply, continued calls/tenders/maturities, and high cash balances have limited forced selling. That said, average yields rose to end the week at their highest level since June 2020. By quality, BBs underperformed, continuing their YTD trend of underperformance of Bs and CCCs.
- High yield bond funds posted outflows of $886M last week, which was a moderation from the prior week's $4B outflow. New issuance activity was muted, with just two deals pricing for $900M in proceeds. This week, CCC-rated Carvana will test the market with a $2.3B unsecured note sale to back its acquisition of ADESA Inc. from KAR Auction Services.
- By industry, air transportation held in the best last week, having traded up by as much as one point before Friday's selloff after both American and United released decent 1Q22 results and provided strong guidance for 2Q22. While we expect strong fundamentals to continue in the energy, lodging, and leisure industries, we expect to see some increased headwinds for the consumer products, retail, restaurants, and building materials industries. More generally, we remain cautious on U.S. high yield and have modestly lowered our short-term outlook given prevailing risks, with the expectation that spreads could widen over the coming month.
- While loan mutual funds saw another inflow, the pace moderated from the prior week's $1B+ pace. Still, it was the fifth consecutive week of positive flows, totaling $6.4B over that span. YTD, loans have now produced total returns of +0.46%—one of the few fixed income asset classes posting a positive return. Given the recent widening in AAA CLO tranches, we expect the technical backdrop for loans to become slightly less supportive over the short term and, as a result, have modestly reduced our outlook.
- In Europe, high yield posted negative total returns, and no new deals priced last week. However, this week brings the first high yield deal since February, and the forward pipeline once again appears to be building. Loans had another week of positive returns amid modest, but building, new supply. A few CLOs priced, which helped keep loan technicals intact.

EMERGING MARKETS

- Prices for EM hard-currency government bonds, EM hard-currency corporate bonds and EM local-currency government bonds weakened last week. The main challenges remained: a hawkish Fed, uncertainty about Chinese growth reinforced by draconian COVID measures, rising food prices, ramifications of Russia's invasion of Ukraine, and several local distressed situations, e.g., in Sri Lanka.
- EM currencies also weakened, relative to the U.S. dollar, as concerns about inflation seemed to pivot to concerns about growth, particularly growth in China. The Chinese renminbi (CNY)'s 2% deprecation last week was meaningful: its exchange rate is not free-floating but managed by the country's central bank, so a weaker CNY may indicate growth concerns. Even the currencies of commodity exporters weakened. But U.S.-dollar strength, relative to EM currencies, may also put a cap on EM local-currency interest rates. It could therefore offer support for EM local-currency bonds.
- Key points from the IMF's spring meetings in Washington D.C. last week include: 1) A focus on inflation and hawkish central banks. ECB President Christine Lagarde suggested that quantitative easing in Europe may end sooner than expected, i.e. before September. But investors generally appeared to consider that an ECB rate hike this year would be a policy error; 2) The IMF's current forecasts for world economic growth in 2022 increasingly looks optimistic; 3) Faltering growth in China remains a concern, with government stimulus thus far appearing mild; 4) A developing divide between opponents of Russia's invasion of Ukraine and the rest of the world. Secondary sanctions on China are a distinct possibility; 6) De-globalization is an emergent theme, with several countries keen to strengthen their self-sufficiency, e.g. in energy; and 7) EM-specific themes included concern about defaults and rising food prices in low-income countries, the combination of which might lead to social instability.

SECURITIZED PRODUCTS

- U.S. conduit AAA CMBS spreads widened 3 bps last week on continued geopolitical volatility. Two conduit deals are in the market this week. One deal had to widen from initial talk to clear both the LCF and the BBB- class. We expect new issue spreads to remain rangebound in the near term and recommend staying at the top of the capital structure as CRE fundamentals have increasing uncertainty from both monetary policy and geopolitical risk. SASB floater spreads widened 10 bps last week. SASB issuance remains steady, and a $1bn+ Class A+ Mall deal has had to widen to attract interest. A large multi-billion dollar Biomed office deal may be announced this week.
- Non-agency RMBS spreads were mixed WoW: Non-qualifying mortgage AAA spreads remain at LIBOR+185 bps. U.S. RMBS YTD issuance $61B with $2B issued the past week mostly in the Non-QM and SFR sectors. Net supply is expected to increase substantially to +$66B from +$6B in 2021. CRT, non-QM and SFR sectors have all seen record issuance totals YTD, which contributed to spread widening in 2022. New issue CRT and MI CRT is expected to be heavy in Q2, which should temper further spread tightening. Higher mortgage rates are expected to lower CRT supply later in the year as there is a lag between mortgage origination and CRT issuance. We maintain our positive view on fundamentals.
- Primary CLO spreads at the top of the capital structure were unchanged last week. Mezzanine tranches continued to tighten as demand, particularly lower in the capital structure, remains firm. We believe spreads for benchmark issuers in the U.S. are ~3M SOFR+142/200/225/350/695 for AAA/AA/A/BBB/BB, respectively for 5-year reinvestment period deals. Secondary spreads softened this week as the basis to primary is roughly 10-15 basis points. Away from benchmark issuers, we believe spreads will be under pressure as supply weighs on levels. We believe primary spreads continue to converge (wider) towards secondary levels in the near term. We believe that transactions will continue to print at varying levels in the near term as some profiles remain in price discovery mode. European primary spreads were firmer this week at the top of the capital structure. AAA primary spreads moved into the 3E+112-115 area as lack of supply has pushed some bids tighter. However, we continue to see deals pricing at varying spreads and tenors as managers look to take advantage of the term curve.

MUNICIPAL BONDS

- Muni technicals remained negative last week with $3.5B of outflows (the 15th consecutive week of outflows totaling $38.6B). Supply reached $13.4B, which was 175% and 190% of the average five-year tax-exempt and taxable supply, respectively. Performance also remained weak as munis lagged Treasuries five-years and longer on the curve with a parallel shift higher in yields. With cheaper valuations and more retail friendly dollar prices, institutional crossover buyers and retail investors started providing some support, but it has not been widespread enough to reverse the recent performance trend.

THE RETURNS TABLE As of April 22, 2022

Sovereign Rates	Duration	YTM	OAS	Yield/ OAS Change (BPS) WTD	QTD	YTD	Prior Year	Total Return (%) WTD	QTD	YTD	Prior Year
U.S. 2-Year	1.9	2.67	---	21	33	194	252	-0.46	-0.67	-3.15	-3.66
U.S. 5-Year	4.6	2.86	---	15	47	167	214	-0.79	-2.26	-7.17	-8.23
U.S. 10-Year	8.8	2.83	---	7	56	139	136	-0.78	-4.85	-11.27	-9.67
U.S. 10-Year Breakeven	--	2.98	---	7	16	39	65	---	---	---	---
U.S. 10-Year TIPS	4.8	-0.08	---	0	40	102	71	0.09	-3.32	-6.66	0.75
U.S. 20-Year	15.3	3.09	---	5	55	121	104	-0.86	-8.05	-17.47	-13.28
U.S. 30-Year	20.8	2.90	---	3	50	104	73	-0.50	-9.82	-20.11	-12.81
UK 10-Year	8.3	1.96	---	7	35	99	122	-0.57	-2.82	-7.51	-7.97
Germany 10-Year	9.7	0.97	---	13	42	115	122	-1.25	-4.02	-9.82	-9.82
Switzerland 10-Year	9.8	0.87		5	30	103	115	-0.46	-2.89	-9.38	-10.52
Japan 10-Year	9.7	0.25	---	1	4	18	18	-0.08	-0.04	-0.04	-0.04
Australia 10-Year	9.2	3.13	---	16	29	146	143	-1.41	-2.45	-12.03	-10.53
Canada 10-Year	8.7	2.87	---	11	46	144	135	-0.87	-3.83	-11.09	-8.95
MAJOR FI MS INDICES											
Global Aggregate Unhedged	7.2	2.55	47	3	5	11	15	-1.36	-4.56	-10.44	-12.12
Global Aggregate Hedged	7.2	2.55	47	3	5	11	15	-0.78	-2.65	-7.50	-7.02
U.S. Aggregate	6.7	3.46	50	5	9	13	18	-1.04	-3.78	-9.49	-8.71
Euro-Aggregate (Unhedged)	7.2	1.36	73	-1	3	17	26	-0.85	-3.06	-8.31	-9.06
Japanese Aggregate	9.4	0.29	1	0	0	0	0	-0.40	-0.57	-2.11	-2.23
MAJOR FI CREDIT INDICES											
Mortgage-Backed (Agency)	6.2	3.62	46	11	23	15	37	-1.37	-3.89	-8.67	-9.16
Global IG Corporate Bonds	6.8	3.67	133	5	9	37	39	-1.35	-4.87	-11.95	-12.12
U.S. IG Corporate Bonds	7.9	4.21	128	6	12	35	37	-1.43	-5.08	-12.38	-10.31
European IG Corporate	5.0	1.93	137	3	8	42	51	-0.97	-2.30	-7.15	-7.59
U.S. High Yield Bonds	4.7	6.64	345	-4	20	62	44	-0.88	-2.67	-7.37	-4.07
European High Yield Bonds	3.8	4.91	406	-4	11	88	102	-0.46	-1.34	-5.42	-3.82
U.S. Leveraged Loans	0.3	7.30	447	6	-2	8	-2	0.02	0.49	0.39	3.31
European Leveraged Loans	0.3	3.94	471	-3	0	59	56	0.03	0.29	-0.27	2.52
EM Hard Currency Sovs.	7.2	7.06	412	8	12	43	70	-1.43	-4.31	-13.90	-13.53
EM Corporates	4.6	6.10	317	0	-13	6	12	-0.57	-1.58	-10.26	-9.21
EM Currencies	---	5.16	---	84	60	83	254	-1.13	-1.77	-7.20	-8.92
EM Local Rates	4.9	6.65	7	0	0	1	2	-0.69	-1.86	-9.84	-12.32
CMBS	4.9	3.72	83	2	-2	15	17	-0.75	-2.18	-7.65	-7.63
ABS	2.3	3.35	69	5	12	31	38	-0.41	-0.80	-3.65	-4.00
CLOs	---	1.27	127	0	-3	19	19	-0.02	0.05	-0.51	-0.56
Municipal Bonds	5.4	3.10	---	21	50	199	209	-1.17	-2.52	-8.59	-7.79

Equity/Volatility	Level	Total Return (%) WTD	QTD	YTD	Prior Yr
S&P 500 Index	9,041	-2.7	-5.6	-10.0	4.8
DAX	13,924	-0.2	-1.9	-11.0	-7.7
Stoxx 600	239	-0.7	-0.3	-6.1	4.8
Nikkei 225	26,591	0.0	-2.6	-5.1	-5.5
Shanghai Comp.	2,929	-3.9	-5.1	-15.2	-9.0
MSCI ACWI	348	-2.7	-5.5	-10.6	-2.4
FTSE 100	7,381	-1.2	0.3	3.2	12.4
MOVE Index	132	7.1	19.9	66.2	114.9
VIX Index	27.02	24.3	37.2	63.8	50.8

FX/Commodities	Spot	% Change WTD	QTD	YTD	Prior Year
EUR/USD	1.08	-0.2	-2.5	-5.1	-10.2
USD/JPY	128.5	1.6	5.6	11.7	19.0
GBP/USD	1.3	-1.7	-2.3	-5.1	-7.2
USD/CHF	1.0	1.5	3.8	4.9	4.4
USD (DXY)	101.2	0.7	3.0	5.8	10.8
Oil	77.0	-3.6	2.8	33.9	67.7
Gold	1931.6	-2.4	-0.3	5.6	8.3

Past performance is not a guarantee or a reliable indicator of future results. See Notice for important disclosures and full index names. All investments involve risk, including possible loss of capital.

Sources: Bloomberg except EMD (J.P. Morgan), HY (ICE BofAML), Bank Loans (Credit Suisse), and CLOs (Palmer Square). European returns are unhedged in euros unless otherwise indicated. An investment cannot be made directly in an index.

NOTICE: IMPORTANT INFORMATION

Source(s) of data (unless otherwise noted): PGIM Fixed Income as of April 2022

PGIM Fixed Income operates primarily through PGIM, Inc., a registered investment adviser under the U.S. Investment Advisers Act of 1940, as amended, and a Prudential Financial, Inc. ("PFI") company. Registration as a registered investment adviser does not imply a certain level or skill or training. PGIM Fixed Income is headquartered in Newark, New Jersey and also includes the following businesses globally: (i) the public fixed income unit within PGIM Limited, located in London; (ii) PGIM Netherlands B.V., located in Amsterdam; (iii) PGIM Japan Co., Ltd. ("PGIM Japan"), located in Tokyo; (iv) the public fixed income unit within PGIM (Hong Kong) Ltd. located in Hong Kong; and (v) the public fixed income unit within PGIM (Singapore) Pte. Ltd., located in Singapore ("PGIM Singapore"). PFI of the United States is not affiliated in any manner with Prudential plc, incorporated in the United Kingdom or with Prudential Assurance Company, a subsidiary of M&G plc, incorporated in the United Kingdom. Prudential, PGIM, their respective logos, and the Rock symbol are service marks of PFI and its related entities, registered in many jurisdictions worldwide.

These materials are for informational or educational purposes only. The information is not intended as investment advice and is not a recommendation about managing or investing assets. In providing these materials, PGIM is not acting as your fiduciary. Clients seeking information regarding their particular investment needs should contact their financial professional. These materials represent the views and opinions of the author(s) regarding the economic conditions, asset classes, securities, issuers or financial instruments referenced herein. Distribution of this information to any person other than the person to whom it was originally delivered and to such person's advisers is unauthorized, and any reproduction of these materials, in whole or in part, or the divulgence of any of the contents hereof, without prior consent of PGIM Fixed Income is prohibited. Certain information contained herein has been obtained from sources that PGIM Fixed Income believes to be reliable as of the date presented; however, PGIM Fixed Income cannot guarantee the accuracy of such information, assure its completeness, or warrant such information will not be changed. The information contained herein is current as of the date of issuance (or such earlier date as referenced herein) and is subject to change without notice. PGIM Fixed Income has no obligation to update any or all of such information; nor do we make any express or implied warranties or representations as to the completeness or accuracy or accept responsibility for errors. **All investments involve risk, including the possible loss of capital. These materials are not intended as an offer or solicitation with respect to the purchase or sale of any security or other financial instrument or any investment management services and should not be used as the basis for any investment decision. No risk management technique can guarantee the mitigation or elimination of risk in any market environment. Past performance is not a guarantee or a reliable indicator of future results and an investment could lose value. No liability whatsoever is accepted for any loss (whether direct, indirect, or consequential) that may arise from any use of the information contained in or derived from this report. PGIM Fixed Income and its affiliates may make investment decisions that are inconsistent with the recommendations or views expressed herein, including for proprietary accounts of PGIM Fixed Income or its affiliates.**

The opinions and recommendations herein do not take into account individual client circumstances, objectives, or needs and are not intended as recommendations of particular securities, financial instruments or strategies to particular clients or prospects. No determination has been made regarding the suitability of any securities, financial instruments or strategies for particular clients or prospects. For any securities or financial instruments mentioned herein, the recipient(s) of this report must make its own independent decisions.

Conflicts of Interest: PGIM Fixed Income and its affiliates may have investment advisory or other business relationships with the issuers of securities referenced herein. PGIM Fixed Income and its affiliates, officers, directors and employees may from time to time have long or short positions in and buy or sell securities or financial instruments referenced herein. PGIM Fixed Income and its affiliates may develop and publish research that is independent of, and different than, the recommendations contained herein. PGIM Fixed Income's personnel other than the author(s), such as sales, marketing and trading personnel, may provide oral or written market commentary or ideas to PGIM Fixed Income's clients or prospects or proprietary investment ideas that differ from the views expressed herein. Additional information regarding actual and potential conflicts of interest is available in Part 2A of PGIM Fixed Income's Form ADV.

In the **United Kingdom**, information is issued by PGIM Limited with registered office: Grand Buildings, 1-3 Strand, Trafalgar Square, London, WC2N 5HR. PGIM Limited is authorised and regulated by the Financial Conduct Authority ("FCA") of the United Kingdom (Firm Reference Number 193418). In the **European Economic Area** ("EEA"), information is issued by PGIM Netherlands B.V., an entity authorised by the Autoriteit Financiële Markten ("AFM") in the Netherlands and operating on the basis of a European passport. In certain EEA countries, information is, where permitted, presented by PGIM Limited in reliance of provisions, exemptions or licenses available to PGIM Limited under temporary permission arrangements following the exit of the United Kingdom from the European Union. These materials are issued by PGIM Limited and/or PGIM Netherlands B.V. to persons who are professional clients as defined under the rules of the FCA and/or to persons who are professional clients as defined in the relevant local implementation of Directive 2014/65/EU (MiFID II). In certain countries in **Asia-Pacific**, information is presented by PGIM (Singapore) Pte. Ltd., a Singapore investment manager registered with and licensed by the Monetary Authority of Singapore. In **Japan**, information is presented by PGIM Japan Co. Ltd., registered investment adviser with the Japanese Financial Services Agency. In **South Korea**, information is presented by PGIM, Inc., which is licensed to provide discretionary investment management services directly to South Korean investors. In **Hong Kong**, information is provided by PGIM (Hong Kong) Limited, a regulated entity with the Securities & Futures Commission in Hong Kong to professional investors as defined in Section 1 of Part 1 of Schedule 1 (paragraph (a) to (i) of the Securities and Futures Ordinance (Cap.571). In **Australia**, this information is presented by PGIM (Australia) Pty Ltd ("PGIM Australia") for the general information of its "wholesale" customers (as defined in the Corporations Act 2001). PGIM Australia is a representative of PGIM Limited, which is exempt from the requirement to hold an Australian Financial Services License under the Australian Corporations Act 2001 in respect of financial services. PGIM Limited is exempt by virtue of its regulation by the FCA (Reg: 193418) under the laws of the United Kingdom and the application of ASIC Class Order 03/1099. The laws of the United Kingdom differ from Australian laws. In **South Africa**, PGIM, Inc. is an authorised financial services provider – FSP number 49012. In **Canada,** pursuant to the international adviser registration exemption in National Instrument 31-103, PGIM, Inc. is informing you that: (1) PGIM, Inc. is not registered in Canada and is advising you in reliance upon an exemption from the adviser registration requirement under National Instrument 31-103; (2) PGIM, Inc.'s jurisdiction of residence is New Jersey, U.S.A.; (3) there may be difficulty enforcing legal rights against PGIM, Inc. because it is resident outside of Canada and all or substantially all of its assets may be situated outside of Canada; and (4) the name and address of the agent for service of process of PGIM, Inc. in the applicable Provinces of Canada are as follows: in **Québec:** Borden Ladner Gervais LLP, 1000 de La Gauchetière Street West, Suite 900 Montréal, QC H3B 5H4; in **British Columbia:** Borden Ladner Gervais LLP, 1200 Waterfront Centre, 200 Burrard Street, Vancouver, BC V7X 1T2; in **Ontario:** Borden Ladner Gervais LLP, 22 Adelaide Street West, Suite 3400, Toronto, ON M5H 4E3; in **Nova Scotia:** Cox & Palmer, Q.C., 1100 Purdy's Wharf Tower One, 1959 Upper Water Street, P.O. Box 2380 - Stn Central RPO, Halifax, NS B3J 3E5; in **Alberta:** Borden Ladner Gervais LLP, 530 Third Avenue S.W., Calgary, AB T2P R3.

U.S. Investment Grade Corporate Bonds: Bloomberg Barclays U.S. Corporate Bond Index: The Bloomberg Barclays U.S. Investment Grade Corporate Bond Index covers U.S.D-denominated, investment-grade, fixed-rate or step up, taxable securities sold by industrial, utility and financial issuers. It includes publicly issued U.S. corporate and foreign debentures and secured notes that meet specified maturity, liquidity, and quality requirements. Securities included in the index must have at least 1 year until final maturity and be rated investment-grade (Baa3/ BBB-/BBB-) or better using the middle rating of Moody's, S&P, and Fitch.

European Investment Grade Corporate Bonds: Bloomberg Barclays European Corporate Bond Index (unhedged): The Bloomberg Barclays Euro-Aggregate: Corporates bond Index is a rules-based benchmark measuring investment grade, EUR denominated, fixed rate, and corporate only. Only bonds with a maturity of 1 year and above are eligible.

U.S. High Yield Bonds: ICE BofAML U.S. High Yield Index: The ICE BofAML U.S. High Yield Index covers US dollar denominated below investment grade corporate debt publicly issued in the US domestic market. Qualifying securities must have a below investment grade rating (based on an average of Moody's, S&P and Fitch), at least 18 months to final maturity at the time of issuance, and at least one year remaining term to final maturity as of the rebalancing date.

European High Yield Bonds: ICE BofAML European Currency High Yield Index: This data represents the ICE BofAML Euro High Yield Index value, which tracks the performance of Euro denominated below investment grade corporate debt publicly issued in the euro domestic or eurobond markets. Qualifying securities must have a below investment grade rating (based on an average of Moody's, S&P, and Fitch). Qualifying securities must have at least one year remaining term to maturity, a fixed coupon schedule, and a minimum amount outstanding of €100 M. ICE Data Indices, LLC, used with permission. ICE DATA INDICES, LLC IS LICENSING THE ICE DATA INDICES AND RELATED DATA "AS IS," MAKES NO WARRANTIES REGARDING SAME, DOES NOT GUARANTEE THE SUITABILITY, QUALITY, ACCURACY, TIMELINESS, AND/OR COMPLETENESS OF THE ICE DATA INDICES OR ANY DATA INCLUDED IN, RELATED TO, OR DERIVED THEREFROM, ASSUMES NO LIABILITY IN CONNECTION WITH THEIR USE, AND DOES NOT SPONSOR, ENDORSE, OR RECOMMEND PGIM FIXED INCOME OR ANY OF ITS PRODUCTS OR SERVICES.

U.S. Senior Secured Loans: Credit Suisse Leveraged Loan Index: The Credit Suisse Leveraged Loan Index is a representative, unmanaged index of tradable, U.S. dollar denominated floating rate senior secured loans and is designed to mirror the investable universe of the U.S. dollar denominated leveraged loan market. The Index return does not reflect the impact of principal repayments in the current month.

European Senior Secured Loans: Credit Suisse Western European Leveraged Loan Index: All Denominations EUR hedged. The Index is a representative, unmanaged index of tradable, floating rate senior secured loans designed to mirror the investable universe of the European leveraged loan market. The Index return does not reflect the impact of principal repayments in the current month.

Emerging Markets U.S.D Sovereign Debt: JP Morgan Emerging Markets Bond Index Global Diversified: The Emerging Markets Bond Index Global Diversified (EMBI Global) tracks total returns for U.S.D-denominated debt instruments issued by emerging market sovereign and quasi-sovereign entities: Brady bonds, loans, and Eurobonds. It limits the weights of those index countries with larger debt stocks by only including specified portions of these countries' eligible current face amounts of debt outstanding. To be deemed an emerging market by the EMBI Global Diversified Index, a country must be rated Baa1/BBB+ or below by Moody's/S&P rating agencies. Information has been obtained from sources believed to be reliable, but J.P. Morgan does not warrant its completeness or accuracy. The Index is used with permission. The Index may not be copied, used, or distributed without J.P. Morgan's prior written approval. Copyright 2021, J.P. Morgan Chase & Co. All rights reserved.

Emerging Markets Local Debt (unhedged): JPMorgan Government Bond Index-Emerging Markets Global Diversified Index: The Government Bond Index-Emerging Markets Global Diversified Index (GBI-EM Global) tracks total returns for local currency bonds issued by emerging market governments.

Emerging Markets Corporate Bonds: JP Morgan Corporate Emerging Markets Bond Index Broad Diversified: The CEMBI tracks total returns of U.S. dollar-denominated debt instruments issued by corporate entities in Emerging Markets countries.

Emerging Markets Currencies: JP Morgan Emerging Local Markets Index Plus: The JP Morgan Emerging Local Markets Index Plus (JPM ELMI+) tracks total returns for local currency–denominated money market instruments.

Municipal Bonds: Bloomberg Barclays Municipal Bond Indices: The index covers the U.S.D-denominated long-term tax-exempt bond market. The index has four main sectors: state and local general obligation bonds, revenue bonds, insured bonds, and pre-refunded bonds. The bonds must be fixed-rate or step ups, have a dated date after Dec. 13, 1990, and must be at least 1 year from their maturity date. Non-credit enhanced bonds (municipal debt without a guarantee) must be rated investment grade (Baa3/BBB-/BBB- or better) by the middle rating of Moody's, S&P, and Fitch.

U.S. Treasury Bonds: Bloomberg Barclays U.S. Treasury Bond Index: The Bloomberg Barclays U.S. Treasury Index measures U.S. dollar-denominated, fixed-rate, nominal debt issued by the U.S. Treasury. Treasury bills are excluded by the maturity constraint but are part of a separate Short Treasury Index.

Mortgage Backed Securities: Bloomberg Barclays U.S. MBS - Agency Fixed Rate Index: The Bloomberg Barclays U.S. Mortgage Backed Securities (MBS) Index tracks agency mortgage backed pass-through securities (both fixed-rate and hybrid ARM) guaranteed by Ginnie Mae (GNMA), Fannie Mae (FNMA), and Freddie Mac (FHLMC). The index is constructed by grouping individual TBA-deliverable MBS pools into aggregates or generics based on program, coupon and vintage.

Commercial Mortgage-Backed Securities: Bloomberg Barclays CMBS: ERISA Eligible Index: The index measures the performance of investment-grade commercial mortgage-backed securities, which are classes of securities that represent interests in pools of commercial mortgages. The index includes only CMBS that are Employee Retirement Income Security Act of 1974, which will deem ERISA eligible the certificates with the first priority of principal repayment, as long as certain conditions are met, including the requirement that the certificates be rated in one of the three highest rating categories by Fitch, Inc., Moody's Investors Services or Standard & Poor's.

Palmer Square AAA CLO DM Index represents the discount margin of CLO AAA rated tranches in the Palmer Square CLO Senior Index, which is designed to reflect the investable universe of U.S CLO senior original rated AAA and AA debt issued after Jan 1, 2011.

Global Aggregate Bond Index is a measure of global investment grade debt from twenty four local currency markets. This multi-currency benchmark includes treasury, government-related, corporate and securitized fixed-rate bonds from both developed and emerging markets issuers.

U.S. Aggregate Bond Index: Bloomberg Barclays U.S. Aggregate Bond Index: The Bloomberg Barclays U.S. Aggregate Index covers the U.S.D-denominated, investment-grade, fixed-rate or step up, taxable bond market of SEC-registered securities and includes bonds from the Treasury, Government-Related, Corporate, MBS (agency fixed-rate and hybrid ARM passthroughs), ABS, and CMBS sectors. Securities included in the index must have at least 1 year until final maturity and be rated investment-grade (Baa3/ BBB-/BBB-) or better using the middle rating of Moody's, S&P, and Fitch.

Euro Aggregate Bond Index is a broad-based flagship benchmark that measures the investment grade, euro-denominated, fixed rate bond market, including treasuries, government-related, corporate and securitized issues. Inclusion is based on currency denomination of a bond and not country of risk of the issuer.

Japanese Aggregate Bond Index The Japanese Aggregate Index contains fixed-rate investment-grade securities denominated in Japanese yen and registered as domestic bonds. The index is composed primarily of local currency sovereign debt but also includes government-related, corporate, and securitized bonds.

The S&P 500® is widely regarded as the best single gauge of large-cap U.S. equities. There is over U.S.D 9.9 trillion indexed or benchmarked to the index, with indexed assets comprising approximately U.S.D 3.4 trillion of this total. The index includes 500 leading companies and captures approximately 80% coverage of available market capitalization.

The DAX Index is a total return index of 30 selected German blue chip stocks traded on the Frankfurt Stock Exchange. The equities use free float shares in the index calculation. The DAX has a base value of 1,000 as of December 31, 1987. As of June 18, 1999 only XETRA equity prices are used to calculate all DAX indices.

The STOXX 600 Index is derived from the STOXX Europe Total Market Index (TMI) and is a subset of the STOXX Global 1800 Index. With a fixed number of 600 components, the STOXX Europe 600 Index represents large, mid and small capitalization companies across 17 countries of the European region.

The Nikkei 225 Index is a price-weighted average of 225 top-rated Japanese companies listed in the First Section of the Tokyo Stock Exchange. The Nikkei Stock Average was first published on May 16, 1949.

Shanghai Composite Index is a capitalization-weighted index. The index tracks the daily price performance of all A-shares and B-shares listed on the Shanghai Stock Exchange. The index was developed on December 19, 1990.

MSCI ACWI is a free-float weighted equity index. It was developed with a base value of 100 as of December 31 1987. MXWD includes both emerging and developed world markets.

FTSE 100 is a capitalization-weighted index of the 100 most highly capitalized companies traded on the London Stock Exchange. The equities use an investibility weighting in the index calculation. The index was developed with a base level of 1000 as of December 30, 1983.

MOVE Index is a yield curve weighted index of the normalized implied volatility on 1-month Treasury options. It is the weighted average of volatilities on the CT2, CT5, CT10, and CT30. (weighted average of 1m2y, 1m5y, 1m10y and 1m30y Treasury implied vols with weights 0.2/0.2/0.4/0.2, respectively).

VIX Index is a financial benchmark designed to be an up-to-the-minute market estimate of the expected volatility of the S&P 500® Index, and is calculated by using the midpoint of real-time S&P 500 Index (SPX) option bid/ask quotes.

Bloomberg Commodity Index Bloomberg Commodity Index (BCOM) is calculated on an excess return basis and reflects commodity futures price movements. The index rebalances annually weighted 2/3 by trading volume and 1/3 by world production and weight-caps are applied at the commodity, sector and group level for diversification. Roll period typically occurs from 6th-10th business day based on the roll schedule.

The U.S. Dollar Index indicates the general international value of the USD. The USDX does this by averaging the exchange rates between the USD and major world currencies. The ICE US computes this by using the rates supplied by some 500 banks.

2022-2908