Morgan Stanley

INVESTMENT MANAGEMENT

Global Fixed Income Bulletin

Is the Tide Turning?

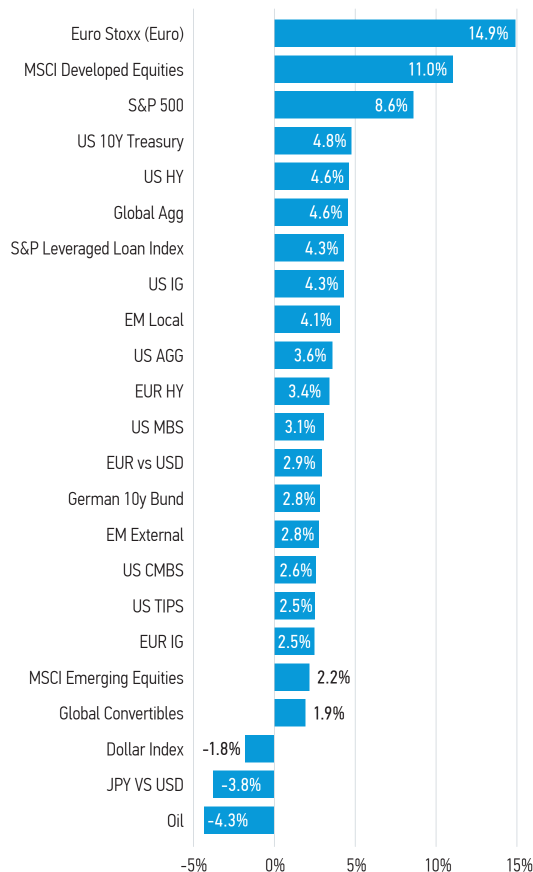
FIXED INCOME TEAM | MACRO INSIGHT | MAY 2023

After the woes of March, investors were gifted with a relatively mellow month in April. Markets were caught between two narratives over the month. The first was robust job growth and sticky core inflation due to the pressures from elevated service inflation. The second was concern around economic weakness from the fallout from First Republic and regional bank deposit runs with the potential for a credit crunch.

Volatility fell, with interest rate volatility retracing back to February levels and the VIX trading below 16 to end the month.[1] Developed market (DM) rates were mixed, with yields largely moving sideways in most economies. DM central banks continued with their rate hikes but made clear they were approaching the end of their hiking cycles, and that further hikes would be data dependent (again, moving further away from their previous rhetoric of forward guidance). Japan was the outlier, and continued with their dovish agenda. Central Bankers during their meetings in Washington D.C. also made clear that inflation was higher than any of them would like and that they expected to keep rates higher for longer.

DISPLAY 1

Asset Performance Year-to-Date



Note: USD-based performance. Source: Bloomberg. Data as of April 30, 2023. The indexes are provided for illustrative purposes only and are not meant to depict the performance of a specific investment. **Past performance is no guarantee of future results.** See pages 7-8 for index definitions.

[1] Source: Bloomberg, Data as of April 30, 2023.

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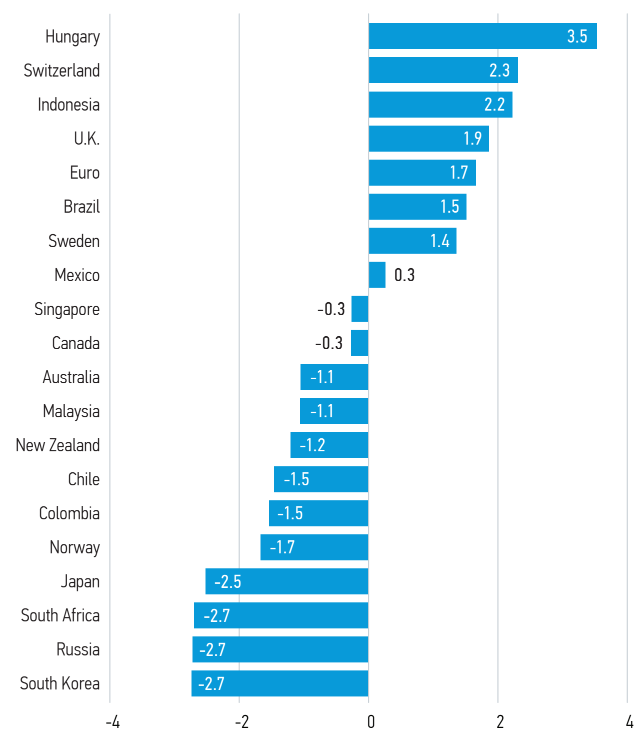
Emerging market (EM) debt performed well over the month, with yields falling across most countries. South Africa was an exception where the 10-year rose 33 basis points (bps) after the South African Reserve Bank (SARB) rose rates more than expected in their meeting at the end of March and projected higher inflation than previously anticipated. The USD fell over the month, which acted as a tailwind for EMD.

Spreads in credit markets receded in April following the widening that occurred in March as risk takers reentered the markets with a demand for credit. Investment grade corporates outperformed high yield corporates and Euro Investment Grade (IG) outperformed U.S.

DISPLAY 2

Currency Monthly Changes Versus U.S. Dollar

(+ = appreciation)



Note: Positive change means appreciation of the currency against the USD.
Source: Bloomberg. Data as of April 30, 2023.

DISPLAY 3

Major Monthly Changes in 10-Year Yields and Spreads

COUNTRY	10-YR YIELD LEVEL (%)	MONTH CHANGE (BPS)	10-YR SPREAD (BPS)	MONTH CHANGE (BPS)
			(Spread over USTs)	
United States	3.42	-5		
United Kingdom	3.72	+23	30	+27
Germany	2.31	+2	-111	+7
Japan	0.39	+4	-303	+9
Australia	3.34	+4	-9	+8
Canada	2.84	-6	-58	-1
New Zealand	4.09	-11	67	-6
EUROPE			(Spread over Bunds)	
France	2.89	+9	57	+7
Greece	4.18	-3	187	-6
Italy	4.18	+8	186	+6
Portugal	3.13	+1	82	-1
Spain	3.36	+6	105	+3
EM	**10-YR LOCAL YIELD (%)**	**MTD CHANGE (BPS)**	**SPREAD (BPS)**	**MTD CHANGE (BPS)**
EM External Spreads			444	-14
EM Corporate Spreads			393	+4
EM Local Yields	6.89	-23		
			(Spread over USTs)	
Brazil	12.34	-47	892	-43
Colombia	11.87	+11	844	+15
Hungary	7.75	-75	433	-70
Indonesia	6.51	-26	309	-21
Malaysia	3.71	-18	29	-14
Mexico	8.78	-6	536	-1
Peru	7.48	-7	406	-3
Poland	5.89	-16	247	-11
South Africa	11.37	+33	795	+37
CREDIT			**SPREAD (BPS)**	**MTD CHANGE (BPS)**
U.S. IG			136	-2
EUR IG			162	-8
U.S. HY			452	-3
EUR HY			489	+8
SECURITIZED				
Agency MBS			169	+17
U.S. BBB CMBS			698	+19

Positive Neutral Negative

Source: Bloomberg, JPMorgan. Data as of April 30, 2023

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Fixed Income Outlook

The challenge of bringing down inflation remains ongoing. The costs of that effort have become more evident with First Republic following Silicon Valley Bank (SVB) into FDIC receivership. While the Fed did raise rates another 25 bps in May, it emphasized that future rate hikes would be dependent on the data, signaling a strong probability of a pause in the hiking cycle, despite the fact that core inflation remains significantly higher than desired and is only showing mixed signs of ameliorating. Even the European Central Bank (ECB) slowed its pace of tightening to 25 bps in May, reflecting their belief that rate hikes to date are now being transmitted "forcefully" to financial markets and the economy. While it remains to be seen how much damage the blows to the banking system will be, there is no doubt the economy is slowing, raising more challenges to central banks to juggle financial market stability with a forceful commitment to bringing down inflation. And, ever in the minds of bond investors is the question about how banking issues will affect central bank's ability to lower inflation. Given the uncertainty, we recommend remaining flexible. Markets tend to over and under react. We hope to take advantage of this as the year progresses.

Despite ongoing issues in banking and weaker than expected data (generally speaking), financial asset prices outside of banking were surprisingly calm. It is almost incredible to believe that in a month with the second largest bank failure in history, global asset prices were the least volatile since the beginning of the pandemic by the metric of percentage of assets moving less than 3% in either direction and by VIX, a measure of equity market volatility, returning to levels last seen in late 2021.

The Fed is now in wait and see mode and has made no indications it is ready to even think about cutting rates, while the market has other ideas. Financial market futures contracts are now anticipating about 100 bps in rate cuts in the second half of 2023. It should not be a surprise that given 500 bps of rate hikes in a little over a year, various leveraged business models, such as banks, might come under pressure, even if monetary policy tightening was well executed. But it could get worse and there are likely to be more casualties of the inflation fight. That does not mean there will be a crisis, but rather economic weakness and hopefully a faster drop in inflation, which would allow the Fed to reverse some of its tightening in 2024.

A key factor in understanding what comes next in the U.S. will be measuring how tight monetary/financial conditions have become. By the standard of short rates, they are at a minimum moderately tight or significantly tight if you use a long run inflation rate of 2% to calculate the real Fed funds rate. Bank credit conditions are clearly on a tightening trajectory, although by how much remains to be seen. However, if we look at government bond yields, credit spreads, the S&P 500 and energy prices, things are looking up, meaning that the movement in these variables does NOT suggest financial conditions are tightening.

The inability of government bond yields to fall in April post the March rally suggests that further movements in yields will necessitate, in our view, one of two events transpiring:

1) A crisis unfolds, the Fed cuts rates and yields fall; or
2) A crisis is avoided, inflation may or may not fall significantly, but bond yields rise.

Scenario two is bearish for risk-free bonds, but supportive of stable to tighter spreads on corporate bonds and securitized assets, and we would not expect a significant back-up in U.S. Treasury yields beyond their recent ranges. For example, 10-year U.S. Treasury yields have been in a broad 3.3% - 3.7% range for a while now. This is unlikely to break, barring scenario one coming to pass. German government bond yields are also probing the bottom of recent ranges in a market where inflation is in worse shape than in the U.S. Keep in mind that in scenario one, the market already has 100 bps of rate cuts this year and another 100 bps next year. Expectations would likely have to exceed this number to get bond yields meaningfully lower.

Where does this leave us? We are concerned about the global economy. While growth looked like it was accelerating through the first quarter, it decelerated towards the end, suggesting that in conjunction with banking sector woes and what the ECB characterized as "forceful" transmission of higher rates into the economy, second quarter growth may be weak. Moreover, there is no doubt in our minds that employment growth is slowing in the U.S. (less so outside the U.S.) and headline inflation is falling. This augurs well for no further Fed rate hikes.

But inflation is not beaten, neither in the U.S. nor in most other countries. Even though central banks are at or nearly at peak terminal rates, we believe they will be reluctant to cut rates simply because unemployment rates rise. The Fed and most other central banks need to see higher unemployment rates simply to stop hiking. But, to further complicate matters, central banks must also ensure financial market stability, which may constrain their ability to maintain moderately tight monetary conditions for a long time, pushing out success on the inflation front. Indeed, one risk investors must remain vigilant about is the possibility that worries about financial contagion and systemic financial sector risks are pushing out into the future the attainment of long-run inflation goals. If true, by design or by accident, this would steepen yield curves and add an inflation risk premium to longer maturity bonds.

In terms of strategy, we continue to run longer duration than pre-SVB and buy additional duration on any setbacks in yields. We look for ways to intelligently upgrade credit quality,

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minimizing give-ups in expected returns. We think credit markets look modestly undervalued but, in the investment grade space, come predominantly from bonds issued by financial institutions. Spreads are above average but not materially so, making credit a carry game with limited opportunities for spread compression. Given that we expect an economic slowdown but no big recession this year, shorter-dated high yield bonds look fair and, if chosen carefully, can potentially generate an attractive return. Securitized credit continues to look more attractive than any other sector. We think the credit risk of residential and selective commercial mortgage-backed securities (MBS) like multi-family housing is attractive given the strong starting point for household and corporate balance sheets, and strong household income growth. Our favorite category of securitized credit remains non-agency residential mortgages, despite expectations that U.S. home prices will likely fall in 2023. Recent events continue to be negative for the U.S. dollar. U.S. growth is likely to weaken more than in many other countries, supporting the idea of monetary policy tightening further outside the U.S. If the Fed holds policy rates unchanged to combat inflation in the face of weaker data and/or banking sector stresses, it is likely to be negative for the dollar. If the Fed cuts rates while inflation is still too high in response to economic weakness or financial stability concerns, it is likely to be negative for the U.S. dollar. We continue to like being underweight the dollar versus a basket of developed and emerging market currencies. We also continue to like emerging market local government bonds versus hard currency debt.

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	MONTHLY REVIEW	OUTLOOK
Developed Market Rate/ Foreign Currency	Developed market rates were mixed in April, with yields largely moving sideways in most economies, and falling slightly in the U.S. Volatility continued a slight decline following March's banking sector stress. As the immediate issues in the banking sector cooled, the market shifted to interpreting new economic data and trying to gauge whether there would be a credit crunch and how significant one could be. While the labor market data, Employment Cost Index, and PCE inflation data came in stronger than expected, ISM Manufacturing data and JOLTS labor market data came in weaker than expected. Elsewhere, in New Zealand, yields fell as CPI data came in softer than expected, while in contrast, yields in the UK rose on the back of stronger inflation data. In terms of central bank meetings, the Reserve Bank of New England surprised markets, hiking by 50 bps versus the 25 bps expected. The Reserve Bank of Australia and Bank of China kept rates the same, as expected. The Riksbank raised rates by 50 bps as anticipated. Finally, the BoJ, in Ueda's first meeting as governor, kept policy the same, including the YCC policy.[2]	While the stress from the banking sector issues have mitigated, the problems have not fully gone away, and it will still affect the economy going forward. The magnitude of the economic influence is still unclear, but credit conditions are likely to tighten even further as a result. As a read on lending standards following the banking stress, we will be closely watching the upcoming quarterly Senior Loan Officer Opinion Survey (SLOOS) data in the U.S. At this point, it seems the market is pricing out the scenarios where the Fed goes much higher (i.e., taking rates to 5.75% - 6%), while pricing in a greater likelihood of a recession. Unfortunately for the Fed, while the banking issues will likely be disinflationary, CPI, ECI, and PCE data again confirmed that inflation and wages are still elevated and sticky. Given the uncertainty, it is difficult to concretely express an outright view on interest rates. We recommend patience, awaiting further clarification while taking advantage of more relative dislocations. In terms of foreign exchange, coming into this situation, we thought the U.S. dollar could weaken, which it has continued to do. We still believe that U.S. dollar weakness could continue.
Emerging Market Rate/ Foreign Currency	Emerging market debt delivered positive returns for the month. Many emerging market currencies strengthened during the month. Spreads tightened for the EM corporate index (J.P. Morgan CEMBI Broad Diversified Index), and spreads were flat for the hard currency sovereign index (J.P. Morgan EMBI Global Diversified Index), but the rally in U.S. Treasury yields contributed to performance. The International Monetary Fund met for their annual spring meeting in Washington, D.C. The general outlook was uncertain due to distress in the financial sector and high inflation levels. Central banks will continue to be higher for longer as inflation is becoming more entrenched. While US mutual fund flows year-to-date are positive for the asset class, outflows continued in April, with local currency fund outflows moderating.[3]	The volatility stemming from banking stresses in developed markets has put a damper on the macro picture to some degree. That said, we remain constructive on the asset class. The U.S. Fed is near the end of its tightening cycle which may relieve pressure on the U.S. dollar strength and could put some emerging market central banks in a position to consider easing policy. Growth, inflation, and policy are quite differentiated among countries and credits within the emerging markets universe, so bottom-up analysis is critical to uncover value.

[2] Source: Bloomberg. Data as of April 30, 2023.

[3] Source: Bloomberg. Data as of April 30, 2023. EM corporates represented by The **JP Morgan CEMBI Broad Diversified Index.**

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	MONTHLY REVIEW	OUTLOOK
Corporate Credit	Euro investment grade (IG) spreads outperformed U.S. IG spreads this month amidst elevated credit market volatility driven by several factors. First, the U.S. regional banking volatility continues to be an issue and may potentially lead to tighter lending standards. Second, U.S. economic data was weaker with both the ISM and PMI manufacturing surveys signalling a slowing economy. While European data remained more robust, reflecting the reduced impact of supply chain disruption and the continued support of fiscal programs like the European Recovery Fund. Similarly global labour markets remain strong supporting consumption and labour price inflation leading to continued rate hike expectations/tighter monetary policy. First quarter reporting mostly outperformed expectations with Financials benefitting from higher net interest margin, while non-financials highlighted continued pricing power, the benefits of the re-opening (airlines) and the impact of prior cost cutting (cyclicals).[4] Volatility in the U.S. and global high yield markets receded in April and the demand for credit risk generally improved amid lackluster secondary trading volume and renewed capital markets activity. Monthly issuance increased month-over-month and U.S. high yield retail funds experienced a net-inflow during the month after experiencing a net-outflow in the first quarter. Investors took advantage of still historically attractive yields and the higher-beta segments of the high yield market generally outperformed.[5] Global convertibles turned lower in April, impacted by both the U.S. regional banking crisis and investor concern of a potential recession. Accordingly, financial and technology sectors fared the worst during the month, while defensive sectors such as Utilities and Healthcare performed better. Convertibles lagged both equities and credits for the second month in a row. MSCI global equities rose 1.27% and Bloomberg Global Aggregate Credit climbed 1.18%, while the Refinitiv Global Convertibles Focus Index fell 1.00%. Supply did pick up in April, led by two deals over $1 bn as a total of $5.6 bn came to market, bringing the year-to-date total over $25 bn.[6]	Our base case view remains that we are compensated to own credit as we view corporate fundamentals to be resilient and the macro backdrop to likely improve as monetary policy tightening pauses and China re-opens. We view companies as having built liquidity in recent quarters and implemented cost efficiencies under the COVID. We expect profit margins to be pressured by increased costs (although first quarter reporting suggests companies are protecting margins in the short term) and top line revenue to be challenging. However, given the starting point we believe corporates will be able to manage a slowdown without significant downgrades or defaults (base case low default and low growth). Supportive for the IG Credit market is demand for high quality fixed income assets at absolute yields not seen for a number of years. We remain cautious on the high yield market as we progress through the second quarter of 2023. Episodic weakness accompanied by volatile spread movement seems to be the most likely path forward due to several factors, starting with clear evidence of existing cracks in the U.S. economy and what we view as the increasing likelihood of a hard economic landing. With regards to Convertibles, a bright spot looking forward is valuation, as recent convertibles underperformance and investor outflows have led all three regions to cheap valuations of circa 2-3%. This of course adds to potential return looking forward.
Securitized Products	After the volatility and spread widening in March, the securitized markets stabilized in April, although spreads remain materially wider over the past two months. We have moved up in credit over the past few months, reducing credit risk while taking advantage of wider spreads for highly rated securities. We slightly reduced our European securitized holdings in April, and we have meaningfully reduced our European holdings over the past year. We continue to believe that the fundamental credit conditions of residential housing loan markets remain sound, but also believe that higher risk premiums are warranted across all credit assets given projected economic weakness. Securitized yields remain at historically wide levels, and we believe these wider spreads offer more than sufficient compensation for current market risks. U.S. home prices have fallen ~6% from the peak in June.[7]	We remain concerned about global economic conditions, and we expect employment rates to decline and households to experience greater stress. We expect home prices to fall another 5-10% for the remainder of 2023. U.S. residential credit remains our favorite sector, despite our expectations of home price declines, with a strong preference for seasoned loans (originated in 2020 or earlier) due to the sizable home price appreciation over the past few years. We remain more cautious of commercial real estate, especially office, which continues to be negatively impacted in the post-pandemic world.

[4] Source: Bloomberg Indices: U.S. Corporate Index and the European Aggregate Corporate Index. Data as of April 30, 2023.

[5] Source: J.P. Morgan and Bloomberg US Corporate High Yield Index. Data as of April 30, 2023.

[6] Source: Bloomberg and Refinitiv Global Convertibles Focus Index. Data as of April 30, 2023.

[7] Source: Bloomberg. Data as of April 30, 2023.

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Risk Considerations

Diversification neither assures a profit nor guarantees against loss in a declining market.

There is no assurance that a portfolio will achieve its investment objective. Portfolios are subject to **market risk**, which is the possibility that the market values of securities owned by the portfolio will decline and that the value of portfolio shares may therefore be less than what you paid for them. Market values can change daily due to economic and other events (e.g. natural disasters, health crises, terrorism, conflicts and social unrest) that affect markets, countries, companies or governments. It is difficult to predict the timing, duration, and potential adverse effects (e.g. portfolio liquidity) of events. Accordingly, you can lose money investing in a portfolio. **Fixed-income securities** are subject to the ability of an issuer to make timely principal and interest payments (credit risk), changes in interest rates (interest rate risk), the creditworthiness of the issuer and general market liquidity (market risk). In a rising interest-rate environment, bond prices may fall and may result in periods of volatility and increased portfolio redemptions. In a declining interest-rate environment, the portfolio may generate less income. **Longer-term securities** may be more sensitive to interest rate changes. Certain **U.S. government securities** purchased by the strategy, such as those issued by Fannie Mae and Freddie Mac, are not backed by the full faith and credit of the U.S. It is possible that these issuers will not have the funds to meet their payment obligations in the future. **Public bank loans** are subject to liquidity risk and the credit risks of lower-rated securities. **High-yield securities (junk bonds)** are lower-rated securities that may have a higher degree of credit and liquidity risk. **Sovereign debt securities** are subject to default risk. **Mortgage- and asset-backed securities** are sensitive to early prepayment risk and a higher risk of default, and may be hard to value and difficult to sell (**liquidity risk**). They are also subject to credit, market and interest rate risks. The **currency market** is highly volatile. Prices in these markets are influenced by, among other things, changing supply and demand for a particular currency; trade; fiscal, money and domestic or foreign exchange control programs and policies; and changes in domestic and foreign interest rates. Investments in **foreign markets** entail special risks such as currency, political, economic and market risks. The risks of investing in **emerging market** countries are greater than the risks generally associated with foreign investments. **Derivative instruments** may disproportionately increase losses and have a significant impact on performance. They also may be subject to counterparty, liquidity, valuation, and correlation and market risks. **Restricted and illiquid securities** may be more difficult to sell and value than publicly traded securities (liquidity risk). Due to the possibility that prepayments will alter the cash flows on **collateralized mortgage obligations (CMOs)**, it is not possible to determine in advance their final maturity date or average life. In addition, if the collateral securing the CMOs or any third-party guarantees are insufficient to make payments, the portfolio could sustain a loss.

DEFINITIONS

Basis point: One basis point = 0.01%.

INDEX DEFINITIONS

The indexes shown in this report are not meant to depict the performance of any specific investment, and the indexes shown do not include any expenses, fees or sales charges, which would lower performance. The indexes shown are unmanaged and should not be considered an investment. It is not possible to invest directly in an index.

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The **Bloomberg Euro Aggregate Corporate Index (Bloomberg Euro IG Corporate)** is an index designed to reflect the performance of the euro-denominated investment-grade corporate bond market.

The **Bloomberg Global Aggregate Corporate Index** is the corporate component of the Bloomberg Global Aggregate index, which provides a broad-based measure of the global investment-grade fixed income markets.

The **Bloomberg US Corporate High Yield Index** measures the market of USD-denominated, non-investment grade, fixed-rate, taxable corporate bonds. Securities are classified as high yield if the middle rating of Moody's, Fitch, and S&P is Ba1/BB+/BB+ or below. The index excludes emerging market debt.

The **Bloomberg US Corporate Index** is a broad-based benchmark that measures the investment grade, fixed-rate, taxable, corporate bond market.

The **Bloomberg US 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. Introduced in 1985, the GNMA, FHLMC and FNMA fixed-rate indexes for 30- and 15-year securities were backdated to January 1976, May 1977 and November 1982, respectively. In April 2007, agency hybrid adjustable-rate mortgage (ARM) pass-through securities were added to the index.

Consumer Price Index (CPI) is a measure that examines the weighted average of prices of a basket of consumer goods and services, such as transportation, food and medical care.

Euro vs. USD—Euro total return versus U.S. dollar.

German 10YR bonds—Germany Benchmark 10-Year Datastream Government Index; **Japan 10YR government bonds**—Japan Benchmark 10-Year Datastream Government Index; and **10YR US Treasury**—US Benchmark 10-Year Datastream Government Index.

The **ICE BofAML European Currency High-Yield Constrained Index (ICE BofAML Euro HY constrained)** is designed to track the performance of euro- and British pound sterling-denominated below investment-grade corporate debt publicly issued in the eurobond, sterling

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The **ICE BofAML US Mortgage-Backed Securities (ICE BofAML US Mortgage Master) Index** tracks the performance of US dollar-denominated, fixed-rate and hybrid residential mortgage pass-through securities publicly issued by US agencies in the US domestic market.

The **ICE BofAML US High Yield Master II Constrained Index (ICE BofAML US High Yield)** is a market value-weighted index of all domestic and Yankee high-yield bonds, including deferred-interest bonds and payment-in-kind securities. Its securities have maturities of one year or more and a credit rating lower than BBB-/Baa3, but are not in default.

The **ISM Manufacturing Index** is based on surveys of more than 300 manufacturing firms by the Institute of Supply Management. The ISM Manufacturing Index monitors employment, production inventories, new orders and supplier deliveries. A composite diffusion index is created that monitors conditions in national manufacturing based on the data from these surveys.

Italy 10-Year Government Bonds—Italy Benchmark 10-Year Datastream Government Index.

The **JP Morgan CEMBI Broad Diversified Index** is a global, liquid corporate emerging markets benchmark that tracks US-denominated corporate bonds issued by emerging markets entities.

The **JPMorgan Government Bond Index**—emerging markets (**JPM local EM debt**) tracks local currency bonds issued by emerging market governments. The index is positioned as the investable benchmark that includes only those countries that are accessible by most of the international investor base (excludes China and India as of September 2013).

The **JPMorgan Government Bond Index Emerging Markets (JPM External EM Debt)** tracks local currency bonds issued by emerging market governments. The index is positioned as the investable benchmark that includes only those countries that are accessible by most of the international investor base (excludes China and India as of September 2013).

The **JP Morgan Emerging Markets Bond Index Global (EMBI Global)** tracks total returns for traded external debt instruments in the emerging markets and is an expanded version of the EMBI+. As with the EMBI+, the EMBI Global includes US dollar-denominated Brady bonds, loans and eurobonds with an outstanding face value of at least $500 million.

The **JP Morgan GBI-EM Global Diversified Index** is a market-capitalization weighted, liquid global benchmark for US-dollar corporate emerging market bonds representing Asia, Latin America, Europe and the Middle East/Africa.

JPY vs. USD—Japanese yen total return versus US dollar.

The **Markit ITraxx Europe Index** comprises 125 equally weighted credit default swaps on investment grade European corporate entities, distributed among 4 sub-indices: Financials (Senior & Subordinated), Non-Financials and HiVol.

The **Nikkei 225 Index (Japan Nikkei 225)** is a price-weighted index of Japan's top 225 blue-chip companies on the Tokyo Stock Exchange.

The **MSCI AC Asia ex-Japan Index (MSCI Asia ex-Japan)** captures large- and mid-cap representation across two of three developed markets countries (excluding Japan) and eight emerging markets countries in Asia.

The **MSCI All Country World Index (ACWI, MSCI global equities)** is a free float-adjusted market capitalization weighted index designed to measure the equity market performance of developed and emerging markets. The term "free float" represents the portion of shares outstanding that are deemed to be available for purchase in the public equity markets by investors. The performance of the Index is listed in US dollars and assumes reinvestment of net dividends.

MSCI Emerging Markets Index (MSCI emerging equities) captures large- and mid-cap representation across 23 emerging markets (EM) countries.

The **MSCI World Index (MSCI developed equities)** captures large and mid-cap representation across 23 developed market (DM) countries.

Purchasing Managers Index (PMI) is an indicator of the economic health of the manufacturing sector.

The **Refinitiv Convertible Global Focus USD Hedged Index** is a market weighted index with a minimum size for inclusion of $500 million (US), 200 million (Europe), 22 billion Yen, and $275 million (Other) of Convertible Bonds with an Equity Link.

The **Russell 2000® Index** is an index that measures the performance of the 2,000 smallest companies in the Russell 3000 Index.

The **S&P 500® Index (US S&P 500)** measures the performance of the large-cap segment of the US equities market, covering approximately 75 percent of the US equities market. The index includes 500 leading companies in leading industries of the U.S. economy.

S&P CoreLogic Case-Shiller US National Home Price NSA Index seeks to measure the value of residential real estate in 20 major US metropolitan areas: Atlanta, Boston, Charlotte, Chicago, Cleveland, Dallas, Denver, Detroit, Las Vegas, Los Angeles, Miami, Minneapolis, New York, Phoenix, Portland, San Diego, San Francisco, Seattle, Tampa and Washington, D.C.

The **S&P/LSTA US Leveraged Loan 100 Index (S&P/LSTA Leveraged Loan Index)** is designed to reflect the performance of the largest facilities in the leveraged loan market.

The **S&P GSCI Copper Index (Copper)**, a sub-index of the S&P GSCI, provides investors with a reliable and publicly available benchmark for investment performance in the copper commodity market.

The **S&P GSCI Softs (GSCI soft commodities) Index** is a sub-index of the S&P GSCI that measures the performance of only the soft commodities, weighted on a world production basis. In 2012, the S&P GSCI Softs Index included the following commodities: coffee, sugar, cocoa and cotton.

Spain 10-Year Government Bonds—Spain Benchmark 10-Year Datastream Government Index.

The **Thomson Reuters Convertible Global Focus USD Hedged Index** is a market weighted index with a minimum size for inclusion of $500 million (US), 200 million euro (Europe), 22 billion yen, and $275 million (Other) of convertible bonds with an equity link.

U.K. 10YR government bonds—U.K. Benchmark 10-Year Datastream Government Index. For the following Datastream government bond indexes, benchmark indexes are based on single bonds. The bond chosen for each series is the most representative bond available for the given maturity band at each point in time. Benchmarks are selected according to the accepted conventions within each market. Generally, the benchmark bond is the latest issue within the given maturity band; consideration is also given to yield, liquidity, issue size and coupon.

The **US Dollar Index (DXY)** is an index of the value of the United States dollar relative to a basket of foreign currencies, often referred to as a basket of US trade partners' currencies.

The **Chicago Board Options Exchange (CBOE) Market Volatility (VIX) Index** shows the market's expectation of 30-day volatility.

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