Allspring

Trend Setters:
How Time-Series Momentum Works Across Market Cycles

+ Trend is a time-series, momentum-based alternative risk premia strategy.
+ It has provided a consistent and diversifying source of return across varying market conditions, even during periods of high inflation.
+ We enhance the risk-adjusted return profile of our trend strategy using machine-learning techniques.

EDDIE CHENG, CFA

+ Head of International Portfolio Management

CHENFEI MA, CFA

+ Portfolio Manager

BRIAN JACOBSEN, PH.D., CFA, CFP®, CAIA

+ Senior Investment Strategist

SOPHIE CAREFORD, CFA

+ Product Specialist

Where to turn in times of market stress

The first half of 2022 has hinted at a year that keeps on giving. Unfortunately, what the year has given so far is pain to investors. It is rare to see two back-to-back quarters in which both stocks and bonds lose money. Persistently high inflation has helped commodities offset stock and bond losses, but even the commodity rally has lost traction as central bankers pivot to tightening.

Traditional long-only exposures to bonds, stocks, and commodities can expose investors to macroeconomic risks:

- Bonds have done well when growth falters but not when inflation has been rising.
- Equities may hold up to mild inflation, but extreme inflation or slowing growth could threatened profits.
- Commodities may rise with inflation, but slow growth could be a strong headwind to gains.

These exposures to traditional economic risks are why investors have sought out other sources of returns from alternative risk premia (ARP) strategies. ARP strategies have their own risks, but these risks tend to diversify traditional economic risks. One particular ARP that has performed very well so far this year is trend. Here we explain trend, how we use machine learning to enhance the trend signal, and how we use it to diversify portfolios.

How trend can help

Trend following, or time-series momentum, is a rules-based investment strategy that uses both long and short positions to generate returns. It is based on the assumption that a trend (positive or negative) is likely to persist — that winning assets are more likely to continue gaining while losing assets are more likely to continue to underperform.

Equities and bonds are expected to compensate investors for bearing systematic risk directly linked to economic cycles. Equity investors are exposed to growth risks, and bond investors are exposed to inflation risks. The drivers for this trend strategy are somewhat different. They can largely be categorized as behavioral biases existing in financial markets such as the anchoring effect and herding phenomenon. Anchoring happens when markets underreact to news, while herding occurs when markets eventually overreact to news beyond a level

justified by fundamentals. Because these behavioral biases are not necessarily synced with growth and inflation cycles, we expect trend to deliver robust performance regardless of the economic environment.

Consistency across environments

To illustrate how traditional long-only stocks, bonds, and commodities expose investors to growth and inflation risks while trend may cut through these different risks, we classified each month from February 1965 through June 2022 into one of four different economic regimes:

- High inflation, high growth
- High inflation, low growth
- Low inflation, high growth
- Low inflation, low growth

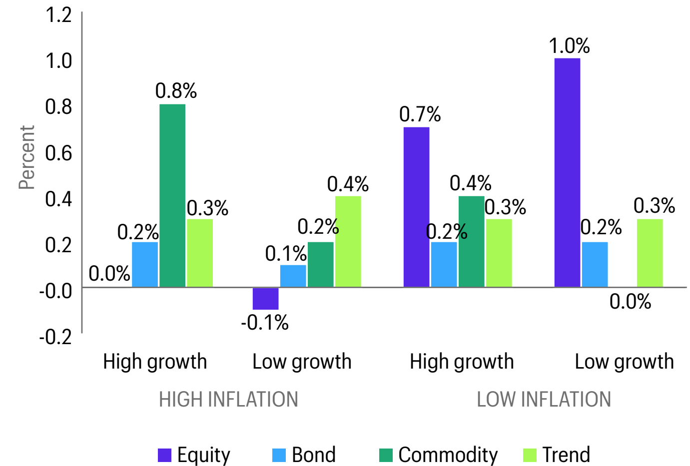
The regimes were determined in a simple and consistent way, looking at the most recent period of year-over-year U.S. Consumer Price Index and year-over-year U.S. real gross domestic product (GDP). If the year-over-year CPI was above (below) the period median (2.9% year over year), we consider the period to be high (low) inflation. For GDP, the period median was 3.2% year over year.

To calculate a long-term illustrative trend proxy starting in 1965, we applied a naïve return-based trend signal to a simple universe consisting of S&P 500 futures, U.S. 10-year Treasury futures, and the Bloomberg Commodity Index.[1]

Exhibit 1 shows the average monthly excess returns for both trend and the underlying assets grouped by the four regimes. It is obvious that the profitability of trend is pervasive regardless of the regime we are in (light green bars). This is a stark contrast to the economic sensitivity for the underlying assets which the trend signal is based on. For example, commodities are very profitable in the high growth and high inflation regime, but not so effective when both growth and inflation are low (dark green bars). Equities performed poorly when inflation was high (violet bars), while bonds did not fare well when inflation was high and growth was low (light blue bars).

EXHIBIT 1: TREND DELIVERED CONSISTENT RETURNS ACROSS EACH REGIME

AVERAGE MONTHLY EXCESS RETURNS UNDER DIFFERENT REGIMES FOR TREND AND ITS UNDERLYING ASSETS



For illustrative purposes only.

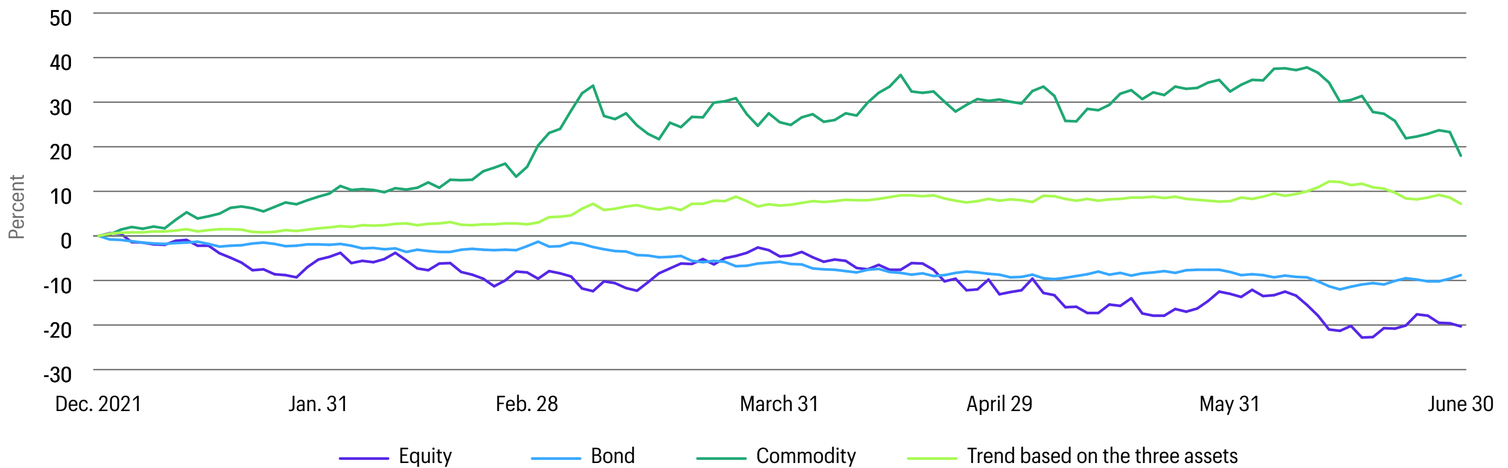
Sources: Bloomberg, Federal Reserve Economic Data, and Allspring Global Investments calculations, February 1965 to June 2022. We use S&P 500 futures returns to represent equity, U.S. 10-year Treasury futures returns to represent bonds, and the Bloomberg Commodity Index (BCOM) excess return to represent commodities. Proxy calculations were used for periods before the futures returns data became available for S&P 500 futures and U.S. 10-year Treasury futures. The trend strategy is constructed by running the Allspring proprietary trend signal based on price momentum over the short-to-medium term on the above universe.

In the most recent period in 2022, which has seen high inflation and low growth, equities and bonds had a meaningful drawdown for the first six months while commodities gained. Trend provided a robust positive return in the same period (Exhibit 2).

1. The return for S&P 500 futures prior to its trading was proxied by subtracting the total return of S&P 500 Index with the three-month cash rate; the return for U.S. 10-year Treasury futures prior to its trading was proxied internally by a combination of the U.S. 10-year yield, three-month cash rate, and the duration of the U.S. 10-year bond.

EXHIBIT 2: TREND PERFORMED WELL IN THE RECENT MARKET ENVIRONMENT

RECENT PERFORMANCE OF TRADITIONAL ASSET CLASSES AND TREND



For illustrative purposes only.

Sources: Bloomberg, Federal Reserve Economic Data, and Allspring Global Investments calculations, December 2021 to June 2022. We use S&P 500 futures returns to represent equity, U.S. 10-year Treasury futures to represent bonds, and the Bloomberg Commodity Index (BCOM) excess return to represent commodities. The trend strategy is constructed by running the Allspring proprietary trend signal based on price momentum over the short-to-medium term on the above universe.

Resolving trend-specific challenges

Managing a trend strategy has its own unique challenges. The biggest challenge may be in how to calibrate the signal as to which assets to hold long and which to hold short, so the strategy can balance between reactivity and stability. Setting the trend signal to calibrate at a rate that is fast tends to make the strategy reactive during turning points, but a fast signal is also more likely to react to noise instead of capturing the true trend that may persist in the future. The opposite is equally true; while calibrating the trend signal at a slower rate can filter out abnormal price movements that are deemed to be noise, it can result in failing to react as quickly if the noise turns out to be an actual signal of a change in the trend.

A dynamic approach using machine-learning techniques

Sometimes the trade-off between reactivity and stability is dealt with by a static weighting between fast and slow signals. A dynamic approach is based on some conditioning variables that allow the weights to change with time and conditions.

While the simplicity of the static approach is attractive, we find the dynamic approach more appealing and also more intuitive: When markets are more volatile, we believe investors tend to be more short-sighted and the shorter-term signal should be overweighted. When markets are calmer, investors may be prone to just letting their winners run and the longer-term signal should be overweighted.

We use a machine-learning technique to help us identify regimes in which fast or slow trend are likely to outperform. We found that using the trailing one-month volatility of equity markets has been useful in adjusting weights to the fast and slow signals. (For detailed analysis, see "Trending Fast and Slow," *The Journal of Portfolio Management* 48, no. 3, February 2022.)

Dynamic trend approach

INTUITION

Trend is a powerful concept to capture complex human behavior exhibited by the herding phenomenon and anchoring effect.

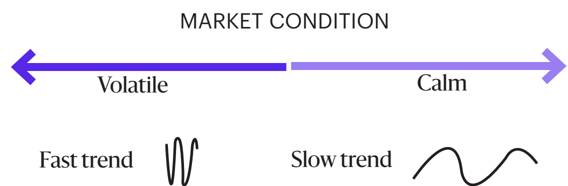
CHALLENGE

The speed of the signal matters.

Different signals work in different market environments.

How do we define market volatility?

MARKET CONDITION



POTENTIAL BENEFITS

Machine learning helps identify the level of volatility.

Using an advanced statistical toolbox helps gain insight from investor behavior.

RESULT

The strategy can dynamically move between fast and slow trend signals, depending on the market environment.

A dynamic approach may improve risk-adjusted returns.

Still using the previous three-asset universe and with the same time period, we further explore the value of applying the dynamic approach between fast and slow trend in Exhibit 3. Two sets of simulated results are shown here:

- **Static allocation:** Gives an equal weight to the fast signal and to the slow signal.
- **Dynamic allocation:** Uses the volatility-based regime identification technique to adjust the weights, giving more weight to the fast signal in a high-volatility regime and more weight to the slow signal in a low-volatility regime.

EXHIBIT 3: THE DYNAMIC APPROACH IMPROVES RISK-ADJUSTED RETURNS

STATISTICS FOR STATIC AND DYNAMIC ALLOCATION TREND

	STATIC ALLOCATION: EQUAL WEIGHTS FOR FAST AND SLOW	DYNAMIC ALLOCATION: VOLATILITY-BASED WEIGHTING	IMPROVEMENT
Annual return	3.7%	4.0%	+0.3%
Annual volatility	5.5%	5.5%	–
Sharpe ratio	0.68	0.72	+0.04

For illustrative purposes only.

Sources: Bloomberg, Federal Reserve Economic Data, and Allspring Global Investments calculations, February 1965 to June 2022. The trend strategy is constructed by running the Allspring proprietary trend signal based on price momentum over the short-to-medium term on the S&P 500 futures, U.S. 10-year Treasury futures, and the Bloomberg Commodity Index (BCOM) excess return to represent commodities. Proxy calculations were used before the futures returns data became available for S&P 500 futures and U.S. 10-year Treasury futures.

Over our sample period, we have found that even with this basic setup, the dynamic allocation method outperformed the static approach. Not only did it improve the return from 3.7% to 4.0% but, more importantly, this was achieved without taking extra risk, which improved the Sharpe ratio from 0.68 to 0.72.

Setting the trend

Financial assets are typically sensitive to economic cycles. In a high-inflationary environment, equities and bonds tend to underperform. On the contrary, the drivers for ARP strategies such as trend are less tied to economic cycles and may provide good diversification across different regimes.

Managing a trend strategy does come with the unique challenge of balancing signal reactivity and robustness. We find that investors may achieve a better outcome through machine learning–based techniques by dynamically allocating the trend signal weight between fast and slow signals.

To learn more

We want to help clients build for successful outcomes, defend portfolios against uncertainty, and create long-term financial well-being. To learn more, investment professionals can contact us.

Contact details

FOR U.S. INVESTORS ONLY

- To reach our U.S.-based investment professionals, contact your existing client relations director, or contact us at **AllspringInstitutional@allspringglobal.com**.
- To reach our U.S.-based intermediary sales professionals, contact your dedicated regional director, or call us at **1-888-877-9275**.
- To reach our U.S.-based retirement professionals, contact Nathaniel Miles, head of Retirement at Allspring Global Investments, at **nathaniel.s.miles@allspringglobal.com**.
- To discuss sustainable investing solutions, contact Hannah Skeates or Christopher McKnett, co-heads of Sustainable Investing at Allspring Global Investments, at **hannah.skeates@allspringglobal.com** or **christopher.mcknett@allspringglobal.com**.

FOR NON-U.S. INVESTORS ONLY

- To reach our non-U.S.-based investment professionals, contact us at **AllspringInternational@allspringglobal.com.**

CFA® and Chartered Financial Analyst® are trademarks owned by CFA Institute.

This information is a Marketing Communication, unless stated otherwise, for professional, institutional or qualified clients/investors (as defined by the local regulation in the respective jurisdiction). Not for retail use.

THIS MATERIAL DOES NOT CONSTITUTE AN OFFER OR SOLICITATION IN ANY JURISDICTION OR TO ANY PERSON WHERE IT WOULD BE UNAUTHORISED OR UNLAWFUL TO DO SO.

Past performance is not a guarantee or reliable indicator of future results. Any past performance, forecast, projection, simulation or target is indicative and not guaranteed. All investments contain risk. The value, price or income of investments or financial instruments can fall as well as rise and is not guaranteed. You may not get back the amount originally invested. Your capital may be at risk.

Allspring Global Investments™ (Allspring) is the trade name for the asset management companies of Allspring Global Investments Holdings, LLC (Allspring Holdings), a holding company indirectly owned by certain private funds of GTCR LLC and Reverence Capital Partners, L.P. Unless otherwise stated, Allspring is the source of all data (which is current or as of the date stated); content is provided for informational purposes only with no representation regarding its adequacy, accuracy or completeness and should not be relied upon; views, opinions, assumptions or estimates are not necessarily that of Allspring Holdings, Allspring or their affiliates and are subject to change without notice; and this communication does not contain investment advice, an investment recommendation or investment research, as defined under local regulation of the respective jurisdiction.

Distribution in the United States: Allspring companies include, but are not limited to, Allspring Global Investments, LLC, and Allspring Funds Management, LLC. Certain products managed by Allspring entities are distributed by Allspring Funds Distributor, LLC (a limited-purpose broker-dealer and Member FINRA/SIPC). Associated with Allspring is Galliard Capital Management, LLC (an investment advisor that is not part of the Allspring trade name/GIPS company).

Distribution in the United Kingdom (UK), European Economic Area (EEA) and Switzerland: Allspring companies include, but are not limited to, Allspring Global Investments (UK) Limited (Allspring UK), an investment management company authorised and regulated by the UK Financial Conduct Authority (FCA), and Allspring Global Investments Luxembourg S.A. (Allspring Luxembourg), authorised and regulated by the Commission de Surveillance du Secteur Financier. Allspring Luxembourg has branches in Frankfurt, Paris and Milan and is allowed to provide services on a cross-border basis in the EEA. This material has been approved for distribution in the UK by Allspring UK for the purposes of Section 21 of the Financial Services and Markets Act 2000 (FSMA). Allspring UK does not provide services to retail clients, the FSMA rules for retail clients will not apply and the United Kingdom Financial Services Compensation Scheme is not available. Unless otherwise stated, information does not contain investment advice, an investment recommendation or investment research as defined under FCA regulations or the Markets in Financial Instruments Directive (Directive 2014/65/EU (MiFID II) and therefore does not comply with the requirements for the provision of such services. For professional investors only. Recipients who do not wish to be treated as professional should notify their Allspring contact immediately.

Distribution in the United Arab Emirates (excluding Dubai International Financial Centre and Abu Dhabi Global Market): Allspring companies include, but are not limited to, Allspring Global Investments (UK) Limited (Allspring UK), an investment management company authorised and regulated by the UK Financial Conduct Authority; Allspring Global Investments Luxembourg S.A. (Allspring Luxembourg), authorised and regulated by the Commission de Surveillance du Secteur Financier; and Allspring Global Investments, LLC. This material is intended for professional clients (defined by DFSA). This material and the information contained herein do not (intend to) constitute a public offer in the United Arab Emirates (UAE) and should not be construed as such. The material is offered to a limited number of exempt investors in the UAE who fall under one of the following categories of non-natural qualified investors: 1. an investor that is able to manage its investments on its own, namely the federal government, local governments, government entities and authorities or companies wholly owned by any such entities; international entities and organisations; or a person licensed to carry out a commercial activity in the UAE, provided that investment is one of the objects of such person, or 2. an investor who is represented by an investment manager licensed by the Securities and Commodities Authority (SCA), each a non-natural qualified investor. The materials have not been approved by or licensed or registered with the UAE Central Bank, the SCA, the DFSA, the Financial Services Regulatory Authority or any other relevant licensing authorities or governmental agencies in the UAE (the authorities). The authorities assume no liability for any investment that the named addressee makes as a non-natural qualified investor.

Distribution in Australia: Allspring Global Investments (UK) Limited (Allspring UK) is exempt from the requirements to hold an Australian financial services license under the Corporations Act 2001 in respect of the financial services it provides to wholesale clients in Australia. Allspring UK is regulated and supervised by the Financial Conduct Authority under the laws of the United Kingdom, which differ from Australian laws. Allspring Global Investments, LLC (Allspring Investments), is exempt from the requirements to hold an Australian financial services license under the Corporations Act 2001 in respect of the financial services it provides to wholesale clients in Australia. Allspring Investments is regulated by the United States Securities and Exchange Commission under US laws, which differ from Australian laws.

Distribution in New Zealand: this information does not constitute an offer of financial products for issue requiring disclosure to an investor under Part 3 of the Financial Markets Conduct Act 2013 (N.Z.) (the Financial Markets Conduct Act (N.Z.)) or an offer of any other financial services requiring disclosure under the Financial Markets Conduct Act (N.Z.). Allspring is not offering or selling any financial products or financial services to any persons in New Zealand other than from offshore and other than to a person who is an “investment business” within the meaning of clause 37 of Schedule 1 of the Financial Markets Conduct Act (N.Z.), or meets the “investment activity” criteria specified in clause 38 of Schedule 1 of the Financial Markets Conduct Act (N.Z.), or is “large” within the meaning of clause 39 of Schedule 1 of the Financial Markets Conduct Act (N.Z.), or is a “government agency” within the meaning of clause 40 of Schedule 1 of the Financial Markets Conduct Act (N.Z.).

Distribution in South Korea: this document is distributed in the Republic of Korea by Allspring Global Investments, LLC, which is registered with the Financial Services Commission pursuant to the Financial Investment Services and Capital Markets Act (the act) to conduct investment advisory and discretionary investment business with qualified professional investors (as defined in the act). This document is not intended for, and should not be relied on by, any person other than qualified professional investors.

Distribution in Japan: this material and the information contained herein do not constitute and are not intended to constitute investment advice or an offer of securities and accordingly should not be construed as such. Any products or services referenced in this material may not be licensed or registered in all jurisdictions and, unless otherwise indicated, no regulator or government authority has reviewed this material or the merits of the products and services referenced herein. This material and the information contained herein have been made available in accordance with the restrictions and/or limitations implemented by any applicable laws and regulations. This material is directed at and intended for “professional” or “institutional” investors (as such term is defined under the laws of each applicable jurisdiction). This material is provided on a confidential basis for informational purposes only and may not be reproduced in any form. Allspring does not provide tax, legal or accounting advice, and this material does not take an investor’s personal investment objectives or financial situation into account. Before acting on any information in this material, prospective investors should inform themselves of and observe all applicable laws, rules and regulations of any relevant jurisdictions and obtain independent advice if required. This material is for the use of the named addressee only and should not be given, forwarded or shown to any other person (other than employees, agents or consultants in connection with the addressee’s consideration thereof).

Distribution in China: this material may not be provided, sold, distributed or delivered, or provided or sold or distributed or delivered to any person for forwarding or resale or redelivery, in any such case directly or indirectly, in the People’s Republic of China (the PRC, excluding Hong Kong, Macau and Taiwan) in contravention of any applicable laws. This material does not constitute an offer to sell or the solicitation of an offer to buy anything referred to in the material, expressly or implied, in the PRC (excluding Hong Kong, Macau and Taiwan) to any person to whom it is unlawful to make the offer or solicitation in the PRC.

Distribution in Taiwan: any investment management and advisory services will be provided by Allspring, which does not hold the required licences under the law of the Republic of China (Taiwan). The provision of any investment management and advisory services has not been and will not be approved by the Financial Supervisory Commission of Taiwan. Any transaction will be consummated outside of Taiwan. The clients within the territory of Taiwan may be required to comply with certain qualification requirements and restrictions as set forth in the relevant laws and regulations of the jurisdiction where Allspring is registered.

Distribution in Indonesia: investment management and advisory services will be provided to Indonesian clients from an Allspring office located outside the territory of Indonesia. No services are provided in the territory of Indonesia. Allspring is not licensed under Indonesian laws or supervised by the OJK.

Distribution in Thailand: this material, when distributed in Thailand, is intended only for institutional investors, as defined in the Notification of the Office of the Securities and Exchange Commission No. KorNor. 43/2549 Re: Investment management not considered as private fund management dated 27 December 2006 (as may be amended). It is solely for the use of such investors and shall not be distributed, forwarded, passed on or disseminated to any other person.

Distribution in Singapore: this advertisement has not been reviewed by the Monetary Authority of Singapore. This material and the information contained herein is for general information only. Nothing in this material is to be construed as an offer, solicitation or recommendation to buy or sell or subscribe for any security, unit in a fund or any other financial product or instrument or to enter into any transaction or to participate in any particular trading or investment strategy. This material does not constitute a prospectus, information memorandum, offering document or any other document required to be approved by, registered with or lodged with the Monetary Authority of Singapore. This material and the information contained herein does not constitute investment advice nor take into account the specific investment objectives, financial situation or particular needs of any person. Please seek advice from your professional advisor(s) before making any financial or investment decision. This material and the information contained herein is directed only at, and intended only for, institutional investors and accredited investors (both as defined under the Securities and Futures Act 2001 of Singapore) and other classes of investors for which Allspring Global Investments (Singapore) Pte. Ltd. (Allspring Singapore), a capital markets services license holder for fund management regulated by the Monetary Authority of Singapore, is licensed to serve. This material and the information contained herein is not intended for, and should be disregarded by, any retail investor.

Distribution in Canada: Allspring Global Investments, LLC (Allspring Investments), is not registered as an investment advisor in any of the Canadian provinces, is only authorised to provide investment advisory services in Canada pursuant to an exemption available to foreign investment advisors under Canada’s National Instrument 31-103 (NI 31-103) and can provide such services only to permitted clients as defined under NI 31-103. Allspring Investments is registered as an investment advisor with the United States Securities & Exchange Commission. Its head office is located at 525 Market St. 12th Floor, San Francisco, CA 94105 and, thus, substantially all of its assets are situated outside of Canada. As a result, there may be difficulty enforcing legal rights against Allspring because of the above, and investors are directed to Blakes Vancouver Services, Inc., Allspring Investments’ agent for service of process, in the event of any disputes at the following address, phone number and email address: Blakes Vancouver Services, Inc., 595 Burrard Street, Suite 2600, Three Bentall Centre, Vancouver, BC V7X 1L3; tel: +604-631-3300; e-mail lisa.marchese@blakes.com.

FOR PROFESSIONAL INVESTOR USE ONLY.

© 2022 ALLSPRING GLOBAL INVESTMENTS HOLDINGS, LLC. ALL RIGHTS RESERVED.