Topics: early signs of goods bottlenecks easing; the more persistent issue of US labor shortages; the US, Taiwan, China, treaty changes and semiconductor capacity; an update on the most over-indebted US states

“Help Wanted”. We expect semiconductor, vehicle and other goods bottlenecks to resolve themselves in the months ahead, and interpret declining business surveys as the result of a temporary supply shock and not a sign of inadequate demand. As a result, growth should rebound in 2022, and positions that benefit from reflation should benefit (energy, value and cyclicals). However, while goods bottlenecks will dissipate, the US will still face tight labor markets and rising wages that are at odds with current Fed policy

Our prior note looked at semiconductor, vehicle, goods, shipping and other physical bottlenecks that are leading to lower growth forecasts for the next 2 quarters. We’re starting to see signs of improvement: a small decline in anchored LA/Long Beach containerships, freight rates falling from peak levels, a decline in commercial rail delays from 14 days in August to 3.5 days and a 20% increase in Taiwanese production of 8-inch wafers typically used in automotive systems since January of this year. Bottlenecks should continue to gradually improve over the next few months. As a reminder, the fundamental catalyst for the current situation is the surge in goods spending in the US and Europe relative to services, an abnormal pandemic-related change that supply chains were not ready for. Combine the semiconductor intensity of Western goods imports with high levels of COVID restrictions in Asia, and you have the ingredients for a massive supply shock. As mRNA vaccination rates rise in Asia and community spread declines, a relaxation in worker density and other COVID protocols should follow.

A surge in US goods spending
Difference in rolling 5 quarter growth rates, goods - services

A surge in Europe goods spending
Difference in rolling 5-quarter growth rates, goods - services

Lockdown stringency vs vaccination rates
Lockdown strigency, index (100 = highest level of lockdown)

Container freight rate and anchored containerships
Freight rate, US$ / 40ft box
Number of containerships


In the US, in-person spending on pandemic-sensitive services is recovering alongside oil and airline spending; the outlier is white collar office utilization rates, the most vaccine-resistant variable of all. All things considered, we expect normalization of US and European goods spending relative to services in the months ahead, which should reduce physical bottlenecks further.

US labor markets, however, may not normalize so quickly. Company surveys show all-time peaks regarding plans to raise worker compensation since they’re having trouble filling jobs, and regarding plans to raise prices. Wage increases are now eating into overall business optimism; historically, the chart on the lower right tends to track changes in S&P margins reasonably well, although not all the time.
Where have all the workers gone? That's a good question. Let’s use estimates to add up all the workers missing from the labor force since the pandemic began¹.

- The impact of COVID unemployment (UI) benefits on labor force participation is still unclear. While benefit expiration in July and August led to an increased job finding rate among unemployed workers, it did not lead to higher labor force participation. In any case, let’s start with the estimated number of people receiving UI benefits as of September 1 that exceeded their prior salaries (2.7 million out of 5.3 million UI recipients).

- During the pandemic, 1.5 million more people retired than usual compared to what was a steady linear trend beforehand. There’s some research indicating that rising stock markets and housing prices boost retirement rates, but the sudden spike in retirements starting in March 2020 suggests that COVID is the main catalyst here.

- Visas granted to immigrants and non-immigrant temporary workers collapsed during the pandemic. While visas are starting to recover, the pandemic decline resulted in ~700,000 people missing from the labor supply. Visa shortfalls during the pandemic add to a backlog of around 1 million people waiting to receive employment-based visas. More immigration data: highly educated immigrants who qualify for green cards wait an average of 16 years before receiving them. Also: Trump cut the number of family preference green cards, which increased availability of employment-based green cards by 122k. But only 40k were granted by the September 30 deadline; the rest may be lost for good absent Congressional action.

- An increase in self-employment also plays a role. While such individuals are still in the labor force, self-employment spiked by 800,000 once the pandemic hit. The largest job switching categories: people leaving manufacturing and agriculture for construction and transportation (i.e., ride-hailing). So, the shortages you read about regarding goods and food production are in part attributable to this trend.

Everyone else. Another 1.7 million people left the labor force during the pandemic for reasons other than those stated above. This category includes:

- Some of the 3 million respondents to a September Census household survey saying that concerns about getting or spreading COVID are why they’re not working (this is around half the pre-vaccine level from late 2020, but still a large number)
- Some of the 4 million people citing child care constraints in the same survey, even after the reopening of schools (i.e., people not working due to providing care for children not in school or daycare). This figure declined by roughly half once schools opened in September

According to BLS surveys and our estimates, ~2 million people out of the 7.5 million missing workers intend to search for work again at some point, and we do expect increased labor supply by year-end. But it might not be enough to restore the pre-COVID balance of supply and demand in the labor market, which was already pretty tight. As a result, wage pressures and labor shortages may be an endemic feature of the post-COVID US economy and put pressure on the Fed by the middle of next year. Note: on the issue of job mismatches, the latest data suggest that this is more of a geographical problem than an industry problem right now, with the largest worker shortfalls relative to vacancies in North Carolina, Georgia, Indiana, and Wisconsin.

By the way, the Fed staff and FOMC participants revised up their near-term inflation forecasts but continue to expect inflation to moderate in 2022. The staff forecasts that inflation will fall back below 2% in 2022 and only return to 2% in 2024. I disagree with them. As a reminder, Fed forecasts for policy rates ended up being wrong for most of the last decade:

Fed projections vs actual Fed funds rate: Oops!
Fed funds rate, %
Help Wanted, Part 2: The era of a possible US defense umbrella over Taiwan has long since passed

The market cap of the World Semiconductor Index finally surpassed the market cap of the World Energy Index in 2020, an indication of a world that’s more reliant each year on technology. Taiwan has the largest global share of semiconductor capacity at 21%, including a 50% share of higher value added logic chip capacity; and Taiwan’s TSMC has a market cap that is more than double Intel. The likely US response to any actions by China that constrain Taiwanese semiconductor supply would be a lengthy and expensive effort to rebuild US semiconductor production capacity (now just a 12% share), rather than a defense of Taiwan itself.

A lot of clients have asked about Taiwan given increased sabre-rattling by China. The latest: China sent a record number of jets into Taiwanese air space, President Xi said that complete reunification of the motherland “must and will be fulfilled”, and also warned that the Chinese people have a glorious tradition in opposing separatism. Taiwan’s defense minister said that tensions with China are at their worst in 40 years.

To be clear, the US is not obligated by treaty to defend Taiwan from attack. A Sino-American Mutual Defense Treaty was put in place in 1955 and did oblige the US to defend Taiwan, but this treaty was abrogated permanently by the US in 1979 in exchange for China establishing diplomatic relations with the US, and Chinese support for American actions in Communist Afghanistan (when the US was arming the Afghan mujahideen). The Sino-US mutual defense treaty was replaced by the Taiwan Relations Act of 1979, which instead obligates the US to provide Taiwan with “sufficient defense capabilities”. While US arms sales to Taiwan of $11 billion in 2019 were the highest on record, this may not amount to much if a military conflict occurs.

After normalizing for wage differences and purchasing power, China’s military spending is ~90% of US levels. As part of a special section in this year’s Outlook, I spoke with the author of a RAND Corporation report on Chinese military capabilities. The RAND analysis indicates that China has changed the balance of power in the region, substantially eroding the ability of the US military to defend Taiwan even if it chose to.

The second chart below shows the evolution of US air superiority against Chinese surface to air missile systems. The area above and to the left of each curve represents RAND estimates of how often US forces would prevail as a function of US aircraft missile range and detectability. For example, in 1996, only highly detectable US aircraft with shorter range missiles would lose in battle. By 2017, US aircraft needed to be much less detectable and more weaponized due to improvements in Chinese air defense systems. Similar findings: the share of Chinese ships destroyed by US submarines in a 7 day campaign scenario fell from 100% in 1996 to 40% by 2017, and the estimated US air force fighter wing capacity required to defeat China in an attrition battle rose by 7x. Since the RAND publication was released, China has added more destroyers, cruisers, aircraft carriers and assault ships; hypersonic and intermediate range missiles; anti-submarine warfare; and long range bombers.

See Appendix for additional semiconductor facts and figures
Help Wanted, Part 3: Highly indebted states are still going to need help, even with improved solvency ratios

COVID has not turned into the municipal disaster that many feared a year ago. State revenues have been more resilient than expected, and according to the National Association of State Budget Officers, 38 states reported FY2021 general fund revenues above initial forecasts. The March 2020 CARES Act provided $150 billion to state and local governments; another $125 billion was authorized in December 2020; and in March 2021, Biden’s American Rescue Plan made another $350 billion available to states and local entities. From a big picture perspective, a lot of state and local financial burdens were shifted onto the Federal government. While less explicit than a Federal bailout of underfunded pensions, the 2020/2021 acts were still wealth transfers from citizens of less indebted states to citizens of highly indebted states.

That said, we wanted to take a look at the most indebted states right before COVID began (which is the latest data available from state consolidated annual financial reports). As a reminder, our IPOD ratio looks at the share of state revenues required to service bonded debt and to amortize all unfunded pension and retiree healthcare obligations over the next 30 years assuming a discount rate/investment return of 6%. As you can see below, most ratios improved since our last analysis in 2017, some substantially.

The reasons for improved ratios differ by state and include rising asset values, tax increases, reductions in retiree healthcare plan coverage, a cap on salaries used for pension accruals and contributions to underfunded plans (see Appendix for more details). The Illinois improvement is impressive; but how many times can you increase state taxes on companies and individuals? In 2020, Illinois recorded its 7th straight year of population loss, the most since World War II and the second largest of any state in raw numbers or % of population. Illinois is the only state whose population loss accelerated each year for the past seven years.

The bottom line: highly indebted states (most of which are controlled by DEM legislatures and governors) still have to dedicate almost a third of state revenues to unfunded pension and retiree healthcare obligations², despite the best of all possible market environments to drive asset values higher. While financial repression and Federal transfers have given these states a reprieve, a diversified municipal portfolio is still recommended for residents of these states, even at the expense of paying state taxes on out-of-state bonds.

2017 vs 2020: The cost of unfunded pensions and retiree healthcare as a % of state revenues
% of state revenues required to pay the sum of interest on net direct debt, the state’s share of unfunded pension and retiree healthcare liabilities, and defined contribution plan payments


---

² While unfunded pensions are not explicitly cross-defaulted with general obligation bonds, our research indicates that in almost every case when pensions or retiree healthcare obligations were restructured by cities, bondholders suffered writedowns that were just as large or even greater. Examples include Central Falls RI, Harrisburg PA, Vallejo CA, Jefferson County AL, San Bernardino CA, Stockton CA and Detroit MI.
Appendix

Semiconductor facts and figures [SIA Semiconductor Factbook, IC Semiconductor Research, TrendForce]

- Semiconductor categories include microprocessor and logic devices (42% of sales); memory storage devices (25% of sales); devices that translate light, voice and touch analog signals into digital signals (13% of sales); and discrete optoelectronics and sensors generally used to generate or detect light.
- While the US has 47% market share of global semiconductor revenues, only ~40% of US production capacity is located in the US. The rest is located in Singapore, Taiwan, China, Europe and Japan.
- Taiwan has the highest share of semiconductor capacity at 21%, followed by Korea at 20%, Japan and China at 15% and the US at 12%. Taiwan also has a 50% share of higher value added logic chip capacity.
- Taiwan also controls 60% of the semiconductor foundry market by revenue, which refers to outsourced semiconductor production (for companies like AMD, Apple, Qualcomm, Nvidia and Huawei).

**Semiconductor manufacturing capacity by region**

![Semiconductor manufacturing capacity by region chart](chart.jpg)

Source: SIA, Bloomberg. February 2021. Dotted lines represent estimates.

**TSMC vs Intel market capitalization**

![TSMC vs Intel market capitalization chart](chart2.jpg)


State specific catalysts for changes in municipal IPOD ratios, FY2017 to FY2020

- Illinois: a state personal tax increase from 3.75% to 4.95% and a corporate tax increase from 5.25% to 7.00% helped propel revenues higher by 44%. Furthermore, pension service costs declined due to a cap on the salary used for state pension accruals.
- New Jersey: large decline in current pension service costs due to changes in benefit terms (interest credited for first two years of time period from termination to retirement instead of the entire period); reduced health care plan coverage terms.
- Hawaii: Revenues increased by 10% annually, more than the median state and much faster than pension payments growth.
- Kentucky: Large decline in current period service costs for the Kentucky Teachers Plan (for reasons that are not entirely clear).
- Pennsylvania: Faster revenue growth than pension payments growth, and reductions in OPEB plan coverage.
- West Virginia: A State Senate bill now requires the state to make a large annual contribution to the state retiree healthcare plan (which boosted the funding ratio from 21% to 38%).

---

*Access our full coronavirus analysis web portal [here](#).*
IMPORTANT INFORMATION
This report uses rigorous security protocols for selected data sourced from Chase credit and debit card transactions to ensure all information is kept confidential and secure. All selected data is highly aggregated and all unique identifiable information, including names, account numbers, addresses, dates of birth, and Social Security Numbers, is removed from the data before the report’s author receives it. The data in this report is not representative of Chase’s overall credit and debit cardholder population.

The views, opinions and estimates expressed herein constitute Michael Cembalest’s judgment based on current market conditions and are subject to change without notice. Information herein may differ from those expressed by other areas of J.P. Morgan. This information in no way constitutes J.P. Morgan Research and should not be treated as such.

The views contained herein are not to be taken as advice or a recommendation to buy or sell any investment in any jurisdiction, nor is it a commitment from J.P. Morgan or any of its subsidiaries to participate in any of the transactions mentioned herein. Any forecasts, figures, opinions or investment techniques and strategies set out are for information purposes only, based on certain assumptions and current market conditions and are subject to change without prior notice. All information presented herein is considered to be accurate at the time of production. This material does not contain sufficient information to support an investment decision and it should not be relied upon by you in evaluating the merits of investing in any securities or products. In addition, users should make an independent assessment of the legal, regulatory, tax, credit and accounting implications and determine, together with their own professional advisers, if any investment mentioned herein is believed to be suitable to their personal goals. Investors should ensure that they obtain all available relevant information before making any investment. It should be noted that investment involves risks, the value of investments and the income from them may fluctuate in accordance with market conditions and taxation agreements and investors may not get back the full amount invested. Both past performance and yields are not reliable indicators of current and future results.

Non-affiliated entities mentioned are for informational purposes only and should not be construed as an endorsement or sponsorship of J.P. Morgan Chase & Co. or its affiliates.

For J.P. Morgan Asset Management Clients:
J.P. Morgan Asset Management is the brand for the asset management business of JPMorgan Chase & Co. and its affiliates worldwide.

To the extent permitted by applicable law, we may record telephone calls and monitor electronic communications to comply with our legal and regulatory obligations and internal policies. Personal data will be collected, stored and processed by J.P. Morgan Asset Management in accordance with our privacy policies at https://am.jpmorgan.com/global/privacy.

ACCESSIBILITY
For U.S. only: If you are a person with a disability and need additional support in viewing the material, please call us at 1-800-343-1113 for assistance.

This communication is issued by the following entities:
In the United States, by J.P. Morgan Investment Management Inc. or J.P. Morgan Alternative Asset Management, Inc., both regulated by the Securities and Exchange Commission; in Latin America, for intended recipients’ use only, by local J.P. Morgan entities, as the case may be; in Canada, for institutional clients’ use only, by JPMorgan Asset Management (Canada) Inc., which is a registered Portfolio Manager and Exempt Market Dealer in all Canadian provinces and territories except the Yukon and is also registered as an Investment Fund Manager in British Columbia, Ontario, Quebec and Newfoundland and Labrador. In the United Kingdom, by JPMorgan Asset Management (UK) Limited, which is authorized and regulated by the Financial Conduct Authority; in other European jurisdictions, by JPMorgan Asset Management (Europe) S.à r.l. In Asia Pacific (“APAC”), by the following issuing entities and in the respective jurisdictions in which they are primarily regulated: JPMorgan Asset Management (Asia Pacific) Limited, or JPMorgan Funds (Asia) Limited, or JPMorgan Asset Management Real Assets (Asia) Limited, each of which is regulated by the Securities and Futures Commission of Hong Kong; JPMorgan Asset Management (Singapore) Limited (Co. Reg. No. 197601586K), which this advertisement or publication has not been reviewed by the Monetary Authority of Singapore; JPMorgan Asset Management (Taiwan) Limited; JPMorgan Asset Management (Japan) Limited, which is a member of the Investment Trusts Association, Japan, the Japan Investment Advisers Association, Type II Financial Instruments Firms Association and the Japan Securities Dealers Association and is regulated by the Financial Services Agency (registration number “Kanto Local Finance Bureau (Financial Instruments Firm) No. 330”); in Australia, to wholesale clients only as defined in section 761A and 761G of the Corporations Act 2001 (Commonwealth), by JPMorgan Asset Management (Australia) Limited (ABN 55143832080) (AFSL 376919). For all other markets in APAC, to intended recipients only.

For J.P. Morgan Private Bank Clients:
ACCESSIBILITY
J.P. Morgan is committed to making our products and services accessible to meet the financial services needs of all our clients. Please direct any accessibility issues to the Private Bank Client Service Center at 1-866-265-1727.

LEGAL ENTITY, BRAND & REGULATORY INFORMATION
In the United States, bank deposit accounts and related services, such as checking, savings and bank lending, are offered by JPMorgan Chase Bank, N.A. Member FDIC.

JPMorgan Chase Bank, N.A. and its affiliates (collectively “JPMC”) offer investment products, which may include bank-managed investment accounts and custody, as part of its trust and fiduciary services. Other investment products and services, such as brokerage and advisory accounts, are offered through J.P. Morgan Securities LLC (“JPM”), a member of FINRA and SIPC. Annuities are made available through Chase Insurance Agency, Inc. (CIA), a licensed insurance agency, doing business as Chase Insurance Agency Services, Inc. in Florida. JPMCB, JPMMS and CIA are affiliated companies under the common control of JPM. Products not available in all states.

In Luxembourg, this material is issued by J.P. Morgan Bank Luxembourg S.A. (JPMBL), with registered office at European Bank and Business Centre, 6 route de Treves, L-2633, Senningerberg, Luxembourg. R.C.S Luxembourg B10.958. Authorized and regulated by Commission de Surveillance du Secteur Financier (CSSF) and jointly supervised by the European Central Bank (ECB) and the CSSF. J.P. Morgan Bank Luxembourg S.A. is authorized as a credit institution in accordance with the Law of 5th April 1993. In the United Kingdom, this material is issued by J.P. Morgan Bank Luxembourg S.A., London Branch, registered office at 25 Bank Street, Canary Wharf, London E14 5JP. Authorised and regulated by Commission de Surveillance du Secteur Financier (CSSF) and jointly supervised by the European Central Bank (ECB) and the CSSF. Deemed authorised by the Prudential Regulation Authority. Subject to regulation by the Financial Conduct Authority and limited regulation by the Prudential Regulation Authority. Details of the Temporary Permissions Regime, which allows EEA-based firms to operate in the UK for a limited period while seeking full authorisation, are available on the Financial Conduct Authority’s website. In Spain, this material is distributed by J.P. Morgan Bank Luxembourg S.A., Sucursal en España, with registered office at Paseo de la Castellana, 31, 28046 Madrid, Spain. J.P. Morgan Bank Luxembourg S.A., Sucursal en
España is registered under number 1516 within the administrative registry of the Bank of Spain and supervised by the Spanish Securities Market Commission (CNMV). In Germany, this material is distributed by J.P. Morgan Bank Luxembourg S.A., Frankfurt Branch, registered office at Taunustor 1 (TaunusTurm), 60310 Frankfurt, Germany, jointly supervised by the Commission de Surveillance du Secteur Financier (CSSF) and the European Central Bank (ECB), and in certain areas also supervised by the Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin). In Italy, this material is distributed by J.P. Morgan Bank Luxembourg S.A– Milan Branch, registered office at Via Cordusio 3, 20123 Milano, Italy and regulated by Bank of Italy and the Commissione Nazionale per le Società e la Borsa (CONSOB). In the Netherlands, this material is distributed by J.P. Morgan Bank Luxembourg S.A., Amsterdam Branch, with registered office at World Trade Centre, Tower B, Strawinskylaan 1135, 1077 XX, Amsterdam, The Netherlands. J.P. Morgan Bank Luxembourg S.A., Amsterdam Branch is authorized and regulated by the Commission de Surveillance du Secteur Financier (CSSF) and jointly supervised by the European Central Bank (ECB) and the CSSF in Luxembourg; J.P. Morgan Bank Luxembourg S.A., Amsterdam Branch is also authorized and supervised by De Nederlandsche Bank (DNB) and the Autoriteit Financiële Markten (AFM) in the Netherlands. Registered with the Kamer van Koophandel as a branch of J.P. Morgan Bank Luxembourg S.A. under registration number 71651845. In Denmark, this material is distributed by J.P. Morgan Bank Luxembourg, Copenhagen Br, filial af J.P. Morgan Bank Luxembourg S.A. with registered office at Kalvebod Brygge 39-41, 1560 København V, Denmark. J.P. Morgan Bank Luxembourg, Copenhagen Br, filial af J.P. Morgan Bank Luxembourg S.A. is authorized and regulated by Commission de Surveillance du Secteur Financier (CSSF) and jointly supervised by the European Central Bank (ECB) and the CSSF. J.P. Morgan Bank Luxembourg, Copenhagen Br, filial af J.P. Morgan Bank Luxembourg S.A. is also subject to the supervision of Finanstilsynet (Danish FSA) and registered with Finanstilsynet as a branch of J.P. Morgan Bank Luxembourg S.A. under code 29009. In Sweden, this material is distributed by J.P. Morgan Bank Luxembourg S.A., Stockholm Bankfilial, with registered office at Hamngatan 15, Stockholm, 11147, Sweden. J.P. Morgan Bank Luxembourg S.A., Stockholm Bankfilial is authorized and regulated by Commission de Surveillance du Secteur Financier (CSSF) and jointly supervised by the European Central Bank (ECB) and the CSSF. J.P. Morgan Bank Luxembourg S.A., Stockholm Bankfilial is also subject to the supervision of Finansinspektionen (Swedish FSA). Registered with Finansinspektionen as a branch of J.P. Morgan Bank Luxembourg S.A. in France, this material is distributed by JPMorgan Chase Bank, N.A. ("JPMCB"), Paris branch, which is regulated by the French banking authorities Autorité de Contrôle Prudentiel et de Résolution and Autorité des Marchés Financiers. In Switzerland, this material is distributed by J.P. Morgan (Suisse) SA, which is regulated in Switzerland by the Swiss Financial Market Supervisory Authority (FINMA). In Hong Kong, this material is distributed by JPMorgan Chase Bank, Hong Kong branch. JPMCB, Hong Kong branch is regulated by the Hong Kong Monetary Authority and the Securities and Futures Commission of Hong Kong. In Hong Kong, we will cease to use your personal data for our marketing purposes without your request. In Singapore, this material is distributed by JPMCB, Singapore branch. JPMCB, Singapore branch is regulated by the Monetary Authority of Singapore. Dealing and advisory services and discretionary investment management services are provided to you by JPMCB, Hong Kong/Singapore branch (as notified to you). Banking and custody services are provided to you by JPMCB Singapore Branch. The contents of this document have not been reviewed by any regulatory authority in Hong Kong, Singapore or any other jurisdictions. You are advised to exercise caution in relation to this document. If you are in any doubt about any of the contents of this document, you should obtain independent professional advice. For materials which constitute product advertisement under the Securities and Futures Act and the Financial Advisers Act, this advertisement has not been reviewed by the Monetary Authority of Singapore. JPMorgan Chase Bank, N.A. is a national banking association chartered under the laws of the United States, and as a body corporate, its shareholder’s liability is limited. With respect to countries in Latin America, the distribution of this material may be restricted in certain jurisdictions. We may offer and/or sell to you securities or other financial instruments which may not be registered under, and are not the subject of a public offering under, the securities or other financial regulatory laws of your home country. Such securities or instruments are offered and/or sold to you on a private basis only. Any communication by us to you regarding such securities or instruments, including without limitation the delivery of a prospectus, term sheet or other offering document, is not intended by us as an offer to sell or a solicitation of an offer to buy any securities or instruments in any jurisdiction in which such an offer or a solicitation is unlawful. Furthermore, such securities or instruments may be subject to certain regulatory and/or contractual restrictions on subsequent transfer by you, and you are solely responsible for ascertaining and complying with such restrictions. To the extent this content makes reference to a fund, the Fund may not be publicly offered in any Latin American country, without previous registration of such fund’s securities in compliance with the laws of the corresponding jurisdiction. Public offering of any security, including the shares of the Fund, without previous registration at Brazilian Securities and Exchange Commission—the Brazilian Securities and Investment Commission and the Australian Prudential Regulation Authority. Material provided by JPMCBNA in Australia is to “wholesale clients” only. For the purposes of this paragraph the term “wholesale client” has the meaning given in section 761G of the Corporations Act 2001 (Cth). Please inform us if you are not a Wholesale Client now or if you cease to be a Wholesale Client at any time in the future.

JPMorgan Chase Bank, N.A. (JPMCBNA) [ABN 43 074 112 011/AFS Licence No: 238367] is regulated by the Australian Securities and Investment Commission and the Australian Prudential Regulation Authority. Material provided by JPMCBNA in Australia is to “wholesale clients” only. For the purposes of this paragraph the term “wholesale client” has the meaning given in section 761G of the Corporations Act 2001 (Cth). Please inform us if you are not a Wholesale Client now or if you cease to be a Wholesale Client at any time in the future.

This material has not been prepared specifically for Australian investors. It:

- May contain references to dollar amounts which are not Australian dollars;
- May contain financial information which is not prepared in accordance with Australian law or practices;
- May not address risks associated with investment in foreign currency denominated investments; and
- Does not address Australian tax issues.