JPMorgan Chase Bank NA Michael Feroli (1-212) 834-5523 michael.e.feroli@jpmorgan.com Jesse Edgerton (1-212) 834-9543 jesse.edgerton@jpmchase.com Economic Research Global Data Watch March 25, 2020

J.P.Morgan

Economic Research Note US: Prediction? Pain

- In light of developments over the past week we are further reducing our growth outlook
- Widespread stay-at-home orders have broadened the scope of impaired economic activity
- Federal stimulus should provide only a partial offset to ongoing income losses
- Weakened balance sheets suggest a recovery more akin to the one after the GFC than after a weather disaster

When we revised down our growth outlook last week it was generally received as overly pessimistic. Now it looks somewhat optimistic; such is the pace of events. In light of those events we lower our forecast for real annualized GDP growth in 1Q to -10% (from -4%) and in 2Q to -25% (from -14%). This would leave the level of activity 10% below the pre-virus baseline, apparently similar to what is occurring in areas where the virus is on an earlier path, like Italy. We now expect the unemployment rate to peak near 8.5%. Whereas normally a downward revision to 1H would be expected to result in an upward revision to 2H, we are leaving our second-half forecast unrevised at 6%, incorporating financial headwinds that should dampen the pace of recovery.

Late last week several states—representing a large share of the economy—ordered residents to stay home from all nonessential workplaces. This underscores that the economic effects are broadening from activities that lack social distance in consumption—travel, theaters, etc.—to those that lack social distance in production—a much vaster swath of the economy.

The policy response has also evolved since our last revision. A growing rift between the federal and state approaches to containing or mitigating the spread of the virus suggests the Chinese experience may no longer be an appropriate comparison. At the very least it should further depress sentiment and confidence in the institutions on which the market economy relies. Our forecast continues to embed an assumption that the virus has run its course by June. We are also very close to a roughly \$2 trillion federal stimulus effort. This is a useful start and will help. However, much of the federal support will come in the form of loans rather than grants. Loans are better than nothing, but it will add to the debt overhang problem for the business sector.

The debt overhang issue is a useful reminder for economic forecasters that the most important lesson of the Global Financial Crisis (GFC) was the importance of financial factors.

Many have made the observation that in the GFC problems in the financial sector transmitted to the real economy whereas now problems in the real economy are transmitting to the financial sector. While the course of the two crises is different, the end point may be the same: weakened balance sheets of households, businesses, financial institutions, and state and local governments. This is exacerbated by the fact that at least for the business sector we entered this crisis with already high debt burdens and pressured profit margins. This makes it more likely that the recovery from the current crisis looks more like the one that followed the GFC, rather than the sharp snapback that usually ensues after natural disasters like hurricanes and earthquakes.

Another take

Economic activity is measured in three separate ways that should be equivalent: the expenditure approach, the value added by industry approach, and the income approach. So far, most of our analysis has relied on the expenditure approach: how much spending for travel, tourism, etc., will decline. The large number of states issuing stay-at-home orders highlights the usefulness of attacking the problem from the value-added approach.

Figure 1: Percentage of total workers who could work at home (%) (2017-18)



The Bureau of Labor Statistics produces data on the ability to work from home (Figure 1). Weighted by industry this would suggest if everyone worked from home value added would be 35% of normal. This could be higher, because in an emergency situation like now more people could find a way to work from home, or lower, because productivity is likely lower when working from home (otherwise it would make economic sense to do it in normal times). In any event, 41% of GDP is in stay-at-home states, 14% in partial stay-at-home states. Assuming that remains the case for the remainder of the month, and assuming the BLS numbers are roughly correct, would imply that these stay-at-home orders take 12.7%-pts off 1Q annualized GDP growth.

1

JPMorgan Chase Bank NA Michael Feroli (1-212) 834-5523 michael.e.feroli@jpmorgan.com Jesse Edgerton (1-212) 834-9543 jesse.edgerton@jpmchase.com

As COVID-19 continues to progress, it also seems more difficult to imagine the stay-at-home orders being lifted soon enough in enough places to produce the May bounce in activity that underlies our current forecast. We thus make a further downward revision to -25% for 2Q growth as well. This would be consistent with these stay-at-home orders remaining in place for the first three weeks of April. Economy-watchers are by now well aware of the massive uncertainty pertaining to projections, but we are quite confident that we will see a historic decline in output in 2Q.

Around the corner

Looking further ahead than 2Q gets much trickier. One might expect a rapid bounceback in activity after a sharp and concentrated shock like the virus, much like we often see after natural disasters. And policymakers are acting quickly to do everything they can to produce an outcome like this. The Federal Reserve has already added a few new tricks to the playbook developed during the GFC, and fiscal policymakers are crafting a package of stimulus checks, bailout loans, assistance to state and local governments, and other programs as we write. There are many details of these programs that will become clearer over time, but we pencil in deficits greater than \$2 trillion and 10% of GDP in both fiscal 2020 and 2021 (Table 1).

	FY2020	FY2021
Pre-COVID-19 CBO forecast	1,073	1,002
+ Revenue effects of downturn	250	400
+ Automatic spending effects	150	200
+ Fiscal stimulus	900	400
Total	2,373	2,002
JPM deficit forecast	2,400	2,000
As % of GDP	12%	10%
Source: CBO, J.P. Morgan		

Still, we think even this Herculean stimulus effort is unlikely to overcome the effects of the COVID-19 shock and its interaction with existing vulnerabilities in the economy. Indeed, well before the virus sprang to life, we characterized vulnerability to recession in the US as "<u>ample, but not glaring</u>." Over the last few years, an unemployment rate near 50-year lows has produced solid wage growth, leaving business margins at their thinnest levels since 2009 (Figure 2). Meanwhile, businesses have borrowed at low interest rates over the last 10 years, leaving the ratio of business debt to GDP at all-time highs (Figure 3). To be fair, general growth in the size of the corporate sector has also led to growth in income and assets, but more carefully constructed corporate leverage metrics are still near the peaks seen around recent recessions (Figure 4). Economic Research US: Prediction? Pain March 25, 2020

J.P.Morgan

Even with the credit support promised to various sectors of the economy from the Fed and the Treasury department, we suspect businesses will find themselves constrained by tight financing in the coming months, limiting the rapidity of the bounceback that we can expect in hiring and capital expenditures. The hit to consumer sentiment, labor markets, and net worth is also likely to prove long-lasting in our view.

Net operating surplus as % of gross value added, nonfinancial corporate sector









Finally, we don't want the income approach to measuring activity to feel neglected. Measuring capital income at a high frequency can be challenging, but jobless claims can provide a weekly snapshot of the state of the jobs market, and hence of the largest component of national income—labor compensation.

Figure 2: Nonfinancial corporate business margins

Economic Research Global Data Watch March 25, 2020

3

Analysts' Compensation: The research analysts responsible for the preparation of this report receive compensation based upon various factors, including the quality and accuracy of research, client feedback, competitive factors, and overall firm revenues.

Other Disclosures

J.P. Morgan is a marketing name for investment banking businesses of JPMorgan Chase & Co. and its subsidiaries and affiliates worldwide.

Any data discrepancies in this report could be the result of different calculations and/or adjustments.

Any long form nomenclature for references to China; Hong Kong; Taiwan; and Macau within this research report are Mainland China; Hong Kong SAR, China; Taiwan, China; Macau SAR, China.

Private Bank Clients: Where you are receiving research as a client of the private banking businesses offered by JPMorgan Chase & Co. and its subsidiaries ("J.P. Morgan Private Bank"), research is provided to you by J.P. Morgan Private Bank and not by any other division of J.P. Morgan, including but not limited to the J.P. Morgan corporate and investment bank and its research division.

Legal entity responsible for the production of research: The legal entity identified below the name of the Reg AC research analyst who authored this report is the legal entity responsible for the production of this research. Where multiple Reg AC research analysts authored this report with different legal entities identified below their names, these legal entities are jointly responsible for the production of this research.

Legal Entities Disclosures

U.S.: JPMS is a member of NYSE, FINRA, SIPC and the NFA. JPMorgan Chase Bank, N.A. is a member of FDIC. Canada: J.P. Morgan Securities Canada Inc. is a registered investment dealer, regulated by the Investment Industry Regulatory Organization of Canada and the Ontario Securities Commission and is the participating member on Canadian exchanges. U.K.: JPMorgan Chase N.A., London Branch, is authorised by the Prudential Regulation Authority and is subject to regulation by the Financial Conduct Authority and to limited regulation by the Prudential Regulation Authority. Details about the extent of our regulation by the Prudential Regulation Authority are available from J.P. Morgan on request. J.P. Morgan Securities plc (JPMS plc) is a member of the London Stock Exchange and is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority. Registered in England & Wales No. 2711006. Registered Office 25 Bank Street, London, E14 5JP. Germany: This material is distributed in Germany by J.P. Morgan Securities plc, Frankfurt Branch which is regulated by the Bundesanstalt für Finanzdienstleistungsaufsich and also by J.P. Morgan AG (JPM AG) which is a member of the Frankfurt stock exchange and is regulated by the Federal Financial Supervisory Authority (BaFin), JPM AG is a company incorporated in the Federal Republic of Germany with registered office at Taunustor 1, 60310 Frankfurt am Main, the Federal Republic of Germany. South Africa: J.P. Morgan Equities South Africa Proprietary Limited is a member of the Johannesburg Securities Exchange and is regulated by the Financial Services Board. Hong Kong: J.P. Morgan Securities (Asia Pacific) Limited (CE number AAJ321) is regulated by the Hong Kong Monetary Authority and the Securities and Futures Commission in Hong Kong and/or J.P. Morgan Broking (Hong Kong) Limited (CE number AAB027) is regulated by the Securities and Futures Commission in Hong Kong. JP Morgan Chase Bank, N.A., Hong Kong is organized under the laws of U.S.A. with limited liability. China: J.P. Morgan Securities (China) Company Limited has been approved by CSRC to conduct the securities investment consultancy business. Korea: This material is issued and distributed in Korea by or through J.P. Morgan Securities (Far East) Limited, Seoul Branch, which is a member of the Korea Exchange(KRX) and is regulated by the Financial Services Commission (FSC) and the Financial Supervisory Service (FSS). Australia: J.P. Morgan Securities Australia Limited (JPMSAL) (ABN 61 003 245 234/AFS Licence No: 238066) is regulated by ASIC and is a Market, Clearing and Settlement Participant of ASX Limited and CHI-X. Taiwan: J.P. Morgan Securities (Taiwan) Limited is a participant of the Taiwan Stock Exchange (company-type) and regulated by the Taiwan Securities and Futures Bureau. India: J.P. Morgan India Private Limited (Corporate Identity Number - U67120MH1992FTC068724), having its registered office at J.P. Morgan Tower, Off. C.S.T. Road, Kalina, Santacruz - East, Mumbai - 400098, is registered with Securities and Exchange Board of India (SEBI) as a 'Research Analyst' having registration number INH000001873. J.P. Morgan India Private Limited is also registered with SEBI as a member of the National Stock Exchange of India Limited and the Bombay Stock Exchange Limited (SEBI Registration Number - INZ000239730) and as a Merchant Banker (SEBI Registration Number - MB/INM000002970). Telephone: 91-22-6157 3000, Facsimile: 91-22-6157 3990 and Website: www.jpmipl.com. For non local research reports, this material is not distributed in India by J.P. Morgan India Private Limited. Thailand: This material is issued and distributed in Thailand by JPMorgan Securities (Thailand) Ltd., which is a member of the Stock Exchange of Thailand and is regulated by the Ministry of Finance and the Securities and Exchange Commission and its registered address is 3rd Floor, 20 North Sathorn Road, Silom, Bangrak, Bangkok 10500. Indonesia: PT J.P. Morgan Sekuritas Indonesia is a member of the Indonesia Stock Exchange and is regulated by the OJK a.k.a. BAPEPAM LK. Philippines: J.P. Morgan Securities Philippines Inc. is a Trading Participant of the Philippine Stock Exchange and a member of the Securities Clearing Corporation of the Philippines and the Securities Investor Protection Fund. It is regulated by the Securities and Exchange Commission. Brazil: Banco J.P. Morgan S.A. is regulated by the Comissao de Valores Mobiliarios (CVM) and by the Central Bank of Brazil. Mexico: J.P. Morgan Casa de Bolsa, S.A. de C.V., J.P. Morgan Grupo Financiero is a member of the Mexican Stock Exchange and authorized to act as a broker dealer by the National Banking and Securities Exchange Commission. Singapore: This material is issued and distributed in Singapore by or through J.P. Morgan Securities Singapore Private Limited (JPMSS) [MCI (P) 058/04/2019 and Co. Reg. No.: 199405335R], which is a member of the Singapore Exchange Securities Trading Limited and/or JPMorgan Chase Bank, N.A., Singapore branch (JPMCB Singapore) [MCI (P) 070/09/2019], both of which are regulated by the Monetary Authority of Singapore. This material is issued and distributed in Singapore only to accredited investors, expert investors and institutional investors, as defined in Section 4A of the Securities and Futures Act, Cap. 289 (SFA). This material is not intended to be issued or distributed to any retail investors or any other investors that do not fall into the classes of "accredited investors," "expert investors" or "institutional investors," as defined under Section 4A of the SFA. Recipients of this document are to contact JPMCB Singapore in respect of any matters arising from, or in connection with, the document. Japan: JPMorgan Securities Japan Co., Ltd. and JPMorgan Chase Bank, N.A., Tokyo Branch are regulated by the Financial Services Agency in Japan. Malaysia: This material is issued and distributed in Malaysia by JPMorgan Securities (Malaysia) Sdn Bhd (18146-X) which is a Participating Organization of Bursa Malaysia Berhad and a holder of Capital Markets Services License issued by the Securities Commission in Malaysia. Pakistan: J. P. Morgan Pakistan Broking (Pvt.) Ltd is a member of the Karachi Stock Exchange and regulated by the Securities and Exchange Commission of Pakistan. Dubai: JPMorgan Chase Bank, N.A., Dubai Branch is regulated by the Dubai Financial Services Authority (DFSA) and its registered address is Dubai International Financial Centre - Building 3, Level 7, PO Box 506551, Dubai, UAE. Russia: CB J.P. Morgan Bank International LLC is regulated by the Central Bank of Russia. Argentina: JPMorgan Chase Bank Sucursal Buenos Aires is regulated by Banco Central de la República Argentina ("BCRA"- Central Bank of Argentina) and Comisión Nacional de Valores ("CNV"- Argentinian Securities Commission")

Michael Feroli (1-212) 834-5523 michael.e.feroli@jpmorgan.com Jesse Edgerton (1-212) 834-9543 jesse.edgerton@jpmchase.com **Economic Research** US: Prediction? Pain March 25, 2020

J.P.Morgan

Country and Region Specific Disclosures

U.K. and European Economic Area (EEA): Unless specified to the contrary, issued and approved for distribution in the U.K. and the EEA by JPMS plc. Investment research issued by JPMS plc has been prepared in accordance with JPMS plc's policies for managing conflicts of interest arising as a result of publication and distribution of investment research. Many European regulators require a firm to establish, implement and maintain such a policy. Further information about J.P. Morgan's conflict of interest policy and a description of the effective internal organisations and administrative arrangements set up for the prevention and avoidance of conflicts of interest is set out at the following link https://www.jpmorgan.com/jpmpdf/1320742677360.pdf. This report has been issued in the U.K. only to persons of a kind described in Article 19 (5), 38, 47 and 49 of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (all such persons being referred to as "relevant persons"). This document must not be acted on or relied on by persons who are not relevant persons. Any investment or investment activity to which this document relates is only available to relevant persons and will be engaged in only with relevant persons. In other EEA countries, the report has been issued to persons regarded as professional investors (or equivalent) in their home jurisdiction. Australia: This material is issued and distributed by JPMSAL in Australia to "wholesale clients" only. This material does not take into account the specific investment objectives, financial situation or particular needs of the recipient. The recipient of this material must not distribute it to any third party or outside Australia without the prior written consent of JPMSAL. For the purposes of this paragraph the term "wholesale client" has the meaning given in section 761G of the Corporations Act 2001. J.P. Morgan's research coverage universe spans listed securities across the ASX All Ordinaries index, securities listed on offshore markets, unlisted issuers and investment products which Research management deem to be relevant to the investor base from time to time. J.P. Morgan seeks to cover companies of relevance to the domestic and international investor base across all GIC sectors, as well as across a range of market capitalisation sizes. Germany: This material is distributed in Germany by J.P. Morgan Securities plc, Frankfurt Branch which is regulated by the Bundesanstalt für Finanzdienstleistungsaufsicht. Korea: This report may have been edited or contributed to from time to time by affiliates of J.P. Morgan Securities (Far East) Limited, Seoul Branch. Singapore: As at the date of this report, JPMSS is a designated market maker for certain structured warrants listed on the Singapore Exchange where the underlying securities may be the securities discussed in this report. Arising from its role as designated market maker for such structured warrants, JPMSS may conduct hedging activities in respect of such underlying securities and hold or have an interest in such underlying securities as a result. The updated list of structured warrants for which JPMSS acts as designated market maker may be found on the website of the Singapore Exchange Limited: http://www.sgx.com. In addition, JPMSS and/or its affiliates may also have an interest or holding in any of the securities discussed in this report - please see the Important Disclosures section above. For securities where the holding is 1% or greater, the holding may be found in the Important Disclosures section above. For all other securities mentioned in this report, JPMSS and/or its affiliates may have a holding of less than 1% in such securities and may trade them in ways different from those discussed in this report. Employees of JPMSS and/or its affiliates not involved in the preparation of this report may have investments in the securities (or derivatives of such securities) mentioned in this report and may trade them in ways different from those discussed in this report. Taiwan: Research relating to equity securities is issued and distributed in Taiwan by J.P. Morgan Securities (Taiwan) Limited, subject to the license scope and the applicable laws and the regulations in Taiwan. According to Paragraph 2, Article 7-1 of Operational Regulations Governing Securities Firms Recommending Trades in Securities to Customers (as amended or supplemented) and/or other applicable laws or regulations, please note that the recipient of this material is not permitted to engage in any activities in connection with the material which may give rise to conflicts of interests, unless otherwise disclosed in the "Important Disclosures" in this material. India: For private circulation only, not for sale. Pakistan: For private circulation only, not for sale. New Zealand: This material is issued and distributed by JPMSAL in New Zealand only to "wholesale clients" (as defined in the Financial Advisers Act 2008). The recipient of this material must not distribute it to any third party or outside New Zealand without the prior written consent of JPMSAL. Canada: This report is distributed in Canada by or on behalf of J.P.Morgan Securities Canada Inc. The information contained herein is not, and under no circumstances is to be construed as an offer to sell securities described herein, or solicitation of an offer to buy securities described herein, in Canada or any province or territory thereof. The information contained herein is under no circumstances to be construed as investment advice in any province or territory of Canada and is not tailored to the needs of the recipient. Dubai: This report has been distributed to persons regarded as professional clients or market counterparties as defined under the DFSA rules. Brazil: Ombudsman J.P. Morgan: 0800-7700847 / ouvidoria.jp.morgan@jpmorgan.com.

General: Additional information is available upon request. Information has been obtained from sources believed to be reliable but JPMorgan Chase & Co. or its affiliates and/or subsidiaries (collectively J.P. Morgan) do not warrant its completeness or accuracy except with respect to any disclosures relative to JPMS and/or its affiliates and the analyst's involvement with the issuer that is the subject of the research. All pricing is indicative as of the close of market for the securities discussed, unless otherwise stated. Opinions and estimates constitute our judgment as of the date of this material and are subject to change without notice. Past performance is not indicative of future results. This material is not intended as an offer or solicitation for the purchase or sale of any financial instrument. The opinions and recommendations herein do not take into account individual client circumstances, objectives, or needs and are not intended as recommendations of particular securities or financial instruments or strategies to particular clients. The recipient of this report must make its own independent decisions regarding any securities or financial instruments mentioned herein. JPMS distributes in the U.S. research published by non-U.S. affiliates and accepts responsibility for its contents. Periodic updates may be provided on companies/industries based on company specific developments or announcements, market conditions or any other publicly available information. Clients should contact analysts and execute transactions through a J.P. Morgan subsidiary or affiliate in their home jurisdiction unless governing law permits otherwise.

"Other Disclosures" last revised March 08, 2020.

Copyright 2020 JPMorgan Chase & Co. All rights reserved. This report or any portion hereof may not be reprinted, sold or redistributed without the written consent of J.P. Morgan.

Disseminated 25 Mar 2020 11:32 PM EDT

This document is being provided for the exclusive use of ERIC ZELLWEGER at JPMorgan Chase & Co. and clients of J.P. Morgan.