

Ram Thirukkonda, CFA
VP, SENIOR INVESTMENT STRATEGIST
Clifton Hill
VP, PORTFOLIO MANAGER
Charles V. Johnson
VP, ASSOCIATE PORTFOLIO MANAGER



Implications of the Coronavirus Outbreak

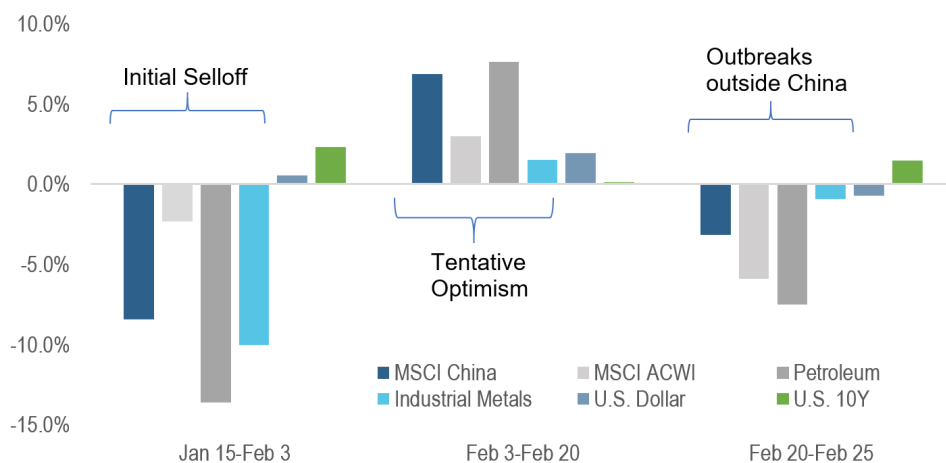
February 2020

- Reports of new coronavirus (COVID-19) infections outside China are forcing markets to revisit prior assumptions around the epidemic's impact on economic growth and earnings
- Despite lower mortality rates, investors should monitor COVID-19's exponential infection rate and the resulting containment measures, because they could have a material impact on global economic activity
- Portfolios that are overexposed to cyclical global growth could be challenged as the full extent of the economic damage is revealed

Major global equity indexes and commodities aggregates sold off over -3% on Monday, February 24th and suffered additional losses in following days as coronavirus (COVID-19) infection clusters appeared in South Korea, Iran, Italy, and Switzerland. Figure 1 shows that the sell-off has not only been broad-based but also that it has erased

gains from the end of January when many markets sold off in part due to the first wave of news about the virus. In contrast, safe-haven assets, such as U.S. 10-year Treasury bonds and the U.S. dollar, have held up relatively well over this period.

Figure 1: Returns of major asset classes



Returns in USD. For the U.S. dollar, a cap weighted aggregate of major DM currencies is used. For illustrative purposes only. It is not possible to invest in any index. Every investment program has the opportunity for losses as well as profits. Past performance is no guarantee of future results. Sources: Acadian calculations based on Bloomberg, (fixed income), MSCI (equity indexes). Index Source: MSCI Copyright MSCI 2020. All Rights Reserved. Unpublished. PROPRIETARY TO MSCI.

Global equities and commodities had rallied during the first three weeks of February. This reaction may have been founded on optimistic assumptions around the effectiveness of containment measures in China. The consensus expectation then was that global growth would rebound strongly after a weak Q1. This was consistent with ongoing PBoC guidance for a V-shaped recovery¹ and expectations of a supportive stance from global central banks.² We also suspect that investors were anchoring their expectations for coronavirus around SARS' muted impact on the global economy roughly 17 years ago.³

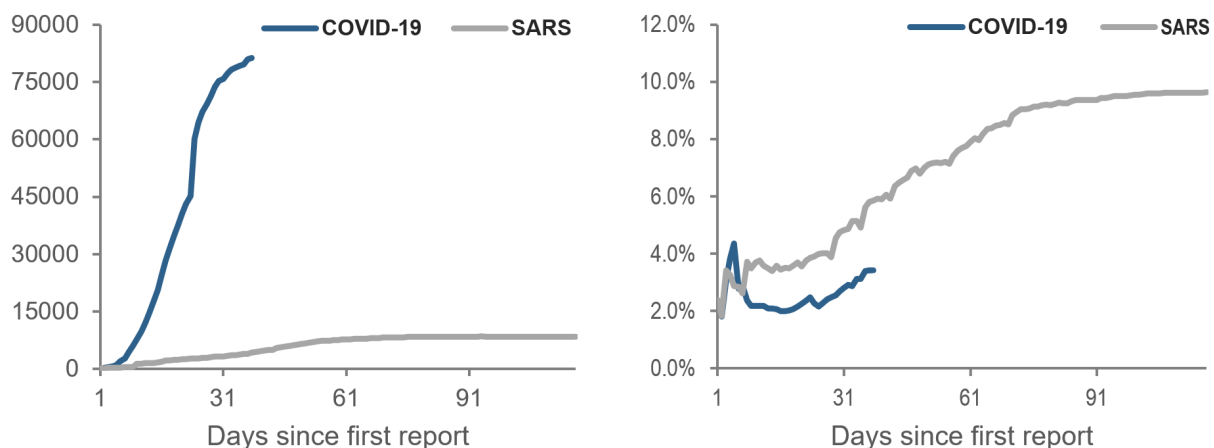
However, this episode underscores the risks of overgeneralizing from one particular past event in setting expectations regarding a circumstance like the present one.⁴ Relative to SARS, we have murkier understanding of coronavirus's trajectory owing to in part a lack of clarity around even rudimentary terms such as case identification, which has led to repeated revisions of case counts. In addition, coronavirus's particular epidemiological characteristics, including its contagiousness without symptoms and uncertain and possibly extended incubation period, are also likely contributing to unreliable case identification.⁵ Moreover, while coronavirus's mortality rate has been lower than for SARS, the infection rate has been substantially higher (Figure 2), prompting

extreme quarantine measures and adding to fears of reacceleration of infection if governments were to prematurely relax restrictions.

How individuals and governments react to the epidemic's progression will have a material impact on global economic activity particularly with respect to services, consumer discretionary, travel and transportation. From a macro perspective, China now has a more pivotal role in the global economy than when SARS struck. (Figure 3) Consequently, we would anticipate more material and protracted global impacts from disruptions in Chinese supply chains.

We would strongly encourage investors to avoid overreacting to emotionally evocative headlines in the face of the heightened uncertainty. Putting recent moves into context, although a single-day drop of more than 3% is uncommon for major equity indexes, such events do happen on average about 1-2 times a year.⁶ Over the short term, information out of China and other regions could continue to add to uncertainty and, hence, contribute to further volatility, as we've seen as the week has evolved. In addition, we may get conflicting/new evidence about the virus's characteristics from regions outside China as the infection spreads.

Figure 2: Cumulative Reported Cases (left) and Mortality Rates (right): Coronavirus versus SARS



Cumulative Reported Cases (left) and Mortality Rates (right) as of 02/26/2020. Sources: Acadian calculations based on World Health Organization (SARS), Bloomberg (COVID-19). For illustrative purposes only.

¹ "People's Bank of China will help the country recover quickly from coronavirus" - Chen Yulu, Vice-Governor, PBOC

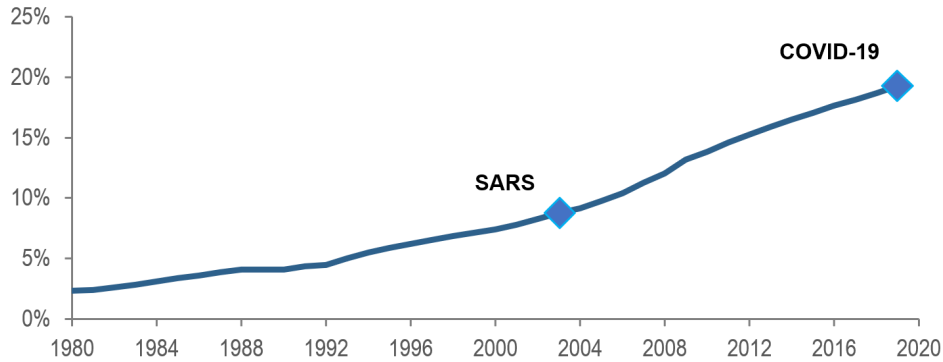
² "Minutes of the Federal Open Market Committee January 28-29, 2020"

³ "Globalization and Disease: The Case of SARS" - Brookings Institute

⁴ Please see our prior research on how markets react to geopolitical shocks, including epidemics, "Geopolitical Shocks: What to Expect from the Unexpected," July 2017, which makes use of broad dataset. <https://www.acadian-asset.com/viewpoints/geopolitical-shocks>

⁵ "Healthcare Professionals: Frequently Asked Questions and Answers" cdc.gov

⁶ Using MSCI ACWI daily returns Jan 1,1988-Feb 20, 2020 and S&P500 daily returns Jan 1, 1951-Feb 20, 2020

Figure 3: China's share of global GDP

China's share of world GDP based on PPP. Sources: Acadian calculations based on IMF data. For illustrative purposes only.

Looking forward, earnings preannouncements point to a global slowdown.⁷ China PMI reports on February 28th and March 1st may offer further insight into the impact of coronavirus containment measures. Another near-term milestone event for investors to monitor is the WHO declaration of pandemic status for COVID-19, which could further dampen economic activity if it spawns additional containment measures although it would also unlock much needed aid to accelerate recovery efforts.

With respect to Acadian's investing activities, we are monitoring the situation and portfolio exposures closely. We have not intervened in our systematic process at this time, consistent with its underlying premise that discretionary management is prone to judgmental error. But we will review this stance as the particular circumstances warrant.

The dominant themes driving markets at the beginning of the year were deflation and global growth. Markets had bid up equities with strong earnings prospects resulting in more optimistic earnings expectations as observed in multiple expansion across global regions.⁸ As markets now price in greater likelihood of a protracted earnings slowdown, they have quickly reversed part of this multiple expansion. Unbalanced portfolios that are overexposed to cyclical global growth could continue to be challenged as the full extent of the economic damage is revealed. While it is too early to predict if, when, and how markets will recover, we would encourage investors to do their best to remain dispassionate in their investing activities and focus on distinguishing signal from the considerable noise related to this rapidly evolving story.

⁷ "Company Profit Warnings Signal Virus already a Global crisis" – Bloomberg 02/25

⁸ For a brief discussion on earnings expectations as of end of year 2019, please see our earlier work "A Multiple Expansion-Driven Rally" <https://www.acadian-asset.com/viewpoints/quick-take-a-multiple-expansion-driven-rally>

BIOGRAPHIES

Ram Thirukkonda, CFA

VP, SENIOR INVESTMENT STRATEGIST



Ram joined Acadian in 2018 and is a senior investment strategist on the Client Advisory Team, aligned closely with Acadian's Global Client Group and Investment Teams. Prior to joining Acadian, Ram was a quantitative research analyst on the Asset Allocation team at GMO LLC, focused on portfolio construction, risk models, and signals. Ram also previously worked as a quantitative analyst at Batterymarch Financial Management, where he conducted research on quantitative equity portfolios. Ram holds an M.S. in financial engineering from MIT; an M.S. in transportation engineering/operations research from MIT; and a B.Tech. in civil engineering from Indian Institute of Technology, India. He is a CFA charterholder and a member of CFA Society Boston.

Clifton Hill

VP, PORTFOLIO MANAGER



Clifton joined Acadian in 2018 and is a member of Acadian's Multi-Asset Class Team. Prior to joining Acadian, he was the head of global macro strategy and co-portfolio manager at Torrey Pointe Capital. He also previously worked in a number of roles at Tudor Investment Corporation, including as a global macro strategist and co-portfolio manager, and before that as a global macro analyst in the Flow of Funds group. Clifton started his career at the Federal bank of New York where he worked as a financial analyst in the Markets Group. Clifton earned a B.A. in political science from Brown University.

Charles V. Johnson

VP, ASSOCIATE PORTFOLIO MANAGER



Chuck joined Acadian in 2005 and is an associate portfolio manager on the Portfolio Research and Oversight Team. He previously worked in Acadian's Portfolio Construction Group and began his career with the firm as an operations specialist in the Investment Operations Group. Prior to Acadian, Chuck was with State Street Bank and Boston Partners. Chuck received an M.S. in finance from Northeastern University; an M.B.A. from Northeastern University; and a B.S. in business finance from the University of Massachusetts at Dartmouth.

GENERAL LEGAL DISCLAIMER

Acadian provides this material as a general overview of the firm, our processes and our investment capabilities. It has been provided for informational purposes only. It does not constitute or form part of any offer to issue or sell, or any solicitation of any offer to subscribe or to purchase, shares, units or other interests in investments that may be referred to herein and must not be construed as investment or financial product advice. Acadian has not considered any reader's financial situation, objective or needs in providing the relevant information.

The value of investments may fall as well as rise and you may not get back your original investment. Past performance is not necessarily a guide to future performance or returns. Acadian has taken all reasonable care to ensure that the information contained in this material is accurate at the time of its distribution, no representation or warranty, express or implied, is made as to the accuracy, reliability or completeness of such information.

This material contains privileged and confidential information and is intended only for the recipient/s. Any distribution, reproduction or other use of this presentation by recipients is strictly prohibited. If you are not the intended recipient and this presentation has been sent or passed on to you in error, please contact us immediately. Confidentiality and privilege are not lost by this presentation having been sent or passed on to you in error.

Acadian's quantitative investment process is supported by extensive proprietary computer code. Acadian's researchers, software developers, and IT teams follow a structured design, development, testing, change control, and review processes during the development of its systems and the implementation within our investment process. These controls and their effectiveness are subject to regular internal reviews, at least annual independent review by our SOC1 auditor. However, despite these extensive controls it is possible that errors may occur in coding and within the investment process, as is the case with any complex software or data-driven model, and no guarantee or warranty can be provided that any quantitative investment model is completely free of errors. Any such errors could have a

negative impact on investment results. We have in place control systems and processes which are intended to identify in a timely manner any such errors which would have a material impact on the investment process.

Acadian Asset Management LLC has wholly owned affiliates located in London, Singapore, Sydney, and Tokyo. Pursuant to the terms of service level agreements with each affiliate, employees of Acadian Asset Management LLC may provide certain services on behalf of each affiliate and employees of each affiliate may provide certain administrative services, including marketing and client service, on behalf of Acadian Asset Management LLC.

Acadian Asset Management LLC is registered as an investment adviser with the U.S. Securities and Exchange Commission. Registration of an investment adviser does not imply any level of skill or training.

Acadian Asset Management (Japan) is a Financial Instrument Operator (Discretionary Investment Management Business). Register Number Director-General Kanto Local Financial Bureau (Kinsho) Number 2814. Member of Japan Investment Advisers Association.

Acadian Asset Management (Singapore) Pte Ltd, (Registration Number: 199902125D) is licensed by the Monetary Authority of Singapore.

Acadian Asset Management (Australia) Limited (ABN 41 114 200 127) is the holder of Australian financial services license number 291872 ("AFSL"). Under the terms of its AFSL, Acadian Asset Management (Australia) Limited is limited to providing the financial services under its license to wholesale clients only. This marketing material is not to be provided to retail clients.

Acadian Asset Management (UK) Limited is authorized and regulated by the Financial Conduct Authority ('the FCA') and is a limited liability company incorporated in England and Wales with company number 05644066. Acadian Asset Management (UK) Limited will only make this material available to Professional Clients and Eligible Counterparties as defined by the FCA under the Markets in Financial Instruments Directive.



GLOBAL AFFILIATES

Boston London Singapore Sydney Tokyo

ACADIAN-ASSET.COM