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ANALYSIS

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COVID-19 Alternative Scenarios

Introduction

The COVID-19 virus continues to spread, and the economic damage is mounting. As of mid-February, well over 70,000 people have been infected by this strain of coronavirus and more than 1,700 have died. The virus has been largely contained to China, although people with the virus have shown up in approximately 25 other countries. COVID-19 is not especially easy to transmit compared with other illnesses, according to early estimates, nor is the mortality rate particularly high. Nonetheless, the spread of the virus has surpassed expectations and effectively shut down large parts of the Chinese economy. Given China's central role in the global economy—it is the second largest economy in the world, accounting for 16% of GDP—the economic fallout is spreading quickly around the globe.

COVID-19 Alternative Scenarios

BY MARK ZANDI, STEVEN G. COCHRANE AND XIAO CHUN XU

The COVID-19 virus continues to spread, and the economic damage is mounting. As of mid-February, well over 70,000 people have been infected by this strain of coronavirus and more than 1,700 have died. The virus has been largely contained to China, although people with the virus have shown up in approximately 25 other countries. COVID-19 is not especially easy to transmit compared with other illnesses, according to early estimates, nor is the mortality rate particularly high (see Chart 1). Nonetheless, the spread of the virus has surpassed expectations and effectively shut down large parts of the Chinese economy. Given China's central role in the global economy—it is the second largest economy in the world, accounting for 16% of GDP—the economic fallout is spreading quickly around the globe.

The trajectory of COVID-19 is highly uncertain. Variables include how long it will take for the virus to play out, how many people will be infected, how many will die, and whether the virus will spread in a significant way outside of China. We assess the global macroeconomic impact of two scenarios, although many others, each darker than the next, cannot be ruled out. This assessment is based on simulations of our global macroeconomic model, which captures linkages via international trade, immigration, foreign direct investment, and financial markets for more than 100 countries.

The first scenario is our current *Baseline* scenario, which we judge to be the most likely scenario and assumes:

- 100,000 to 150,000 people will ultimately be infected;
- The virus will be effectively contained to China;
- Infections will abate by mid-2020; and
- There will be a 2% to 3% mortality rate.

The second, alternative *Wider Contagion* scenario assumes:

- 250,000 to 300,000 people will ultimately be infected;
- The virus will be largely contained to China and parts of Southeast Asia, including Hong Kong, Singapore and Taiwan;
- Infections will abate by year-end 2020; and
- There will be a 3% to 4% mortality rate.

Baseline scenario (80% probability)

Under the *Baseline* scenario, China suffers an economic body blow, with real GDP falling in the first quarter, but growth rebounds strongly in the second half of the year, and the country's economy fully recovers by mid-2021. Real GDP for all of 2020 is now expected to grow by 5.4%, down from a forecast of 6.2% prior to when the virus struck.

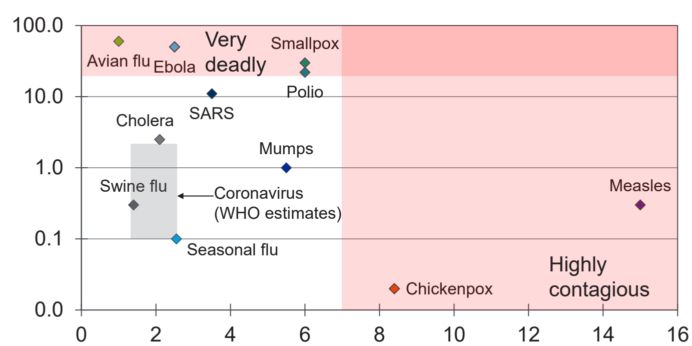
The economic hit to China has already been substantial. Based on an assessment of how badly the economy has been disrupted by the virus in 33 of China's largest prefectures and independent municipalities, output equal to approximately 1% of Chinese GDP has already been lost (see Chart 2). Under the *Baseline* scenario, we expect the Chinese economy to slowly ramp back up beginning in the next week or two, and to be back to more-or-less full strength by the end of April.

Cushioning the fallout on the Chinese economy is the expectation of a substantial increase in monetary and fiscal stimulus. Chinese authorities have significant room to lower interest rates and stimulate credit growth, particularly via state-owned enterprises. They also have plenty of fiscal space to cut taxes and increase government spending. They are expected to do all of the above.

The global economy will feel the ill effects from China's economic problems

Chart 1: How Widespread, How Virulent?

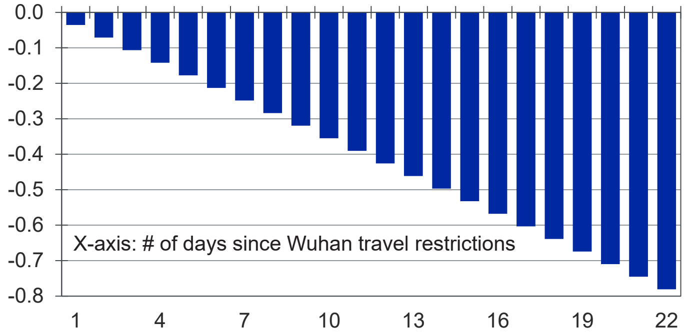
X-axis: Contagiousness (R0), Y-axis: Mortality rate (%, log scale)



Sources: CDC, WHO, Various studies, Moody's Analytics

Chart 2: Body Blow to China

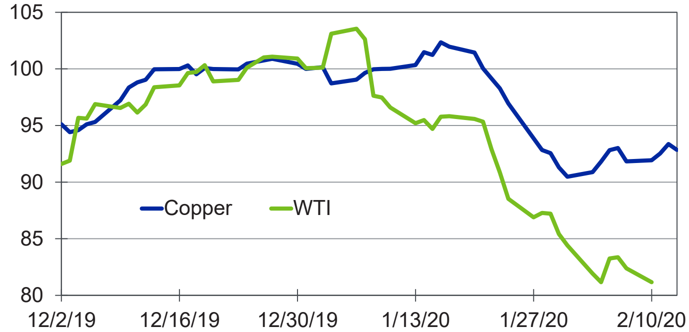
Cumulative lost output, % of China GDP, ppt



Source: Moody's Analytics

Chart 3: Prices Take It on the Chin

Commodity prices, Dec 31, 2019=100



Sources: EIA, LME, Moody's Analytics

through three principal channels. Chinese tourism and business travel to the rest of the world have already stopped. Major tourism destinations across the globe are feeling the effects, although they are most pronounced throughout Asia. Second, the global manufacturing supply chain is disrupted, as China is at the end of many of those chains. Southeast Asia is especially vulnerable to this disruption, although manufacturers throughout the world, including in the U.S. and Europe, will be affected. Shortages of some goods will likely result this spring. Finally, emerging markets, particularly in Latin America and Africa, will also soon feel the ill effects of the slump in commodity markets since China will purchase less oil, copper, soybeans and other commodities (see Chart 3). Global real GDP growth is expected to throttle back to 2.4% in 2020, down from a forecast of over 2.6%—the global economy's estimated growth potential—prior to the virus.

The U.S. economy is more insulated from the impact of the virus, but it is not immune. Some 3 million Chinese tourists travel to the U.S. each year, and each spends nearly 50% more than the typical foreign visitor. Most U.S. multinationals (such as Apple, General Motors and Starbucks) have big operations in China, either as a place to produce their goods or as a large market for sale of their products. COVID-19 is expected to cut 0.3 percentage point annualized from first-quarter real GDP growth, and reduce growth in 2020 to 1.7%, not quite 0.2 percentage point less than previously projected and just below the economy's potential.

Wider Contagion scenario (20% probability)

Under the *Wider Contagion* scenario, the Chinese economy effectively stalls out in 2020. Real GDP growth for the year comes in at 1.7% but is close to zero on a fourth-quarter to fourth-quarter basis (see Chart 4). This would be China's worst economic performance in 30 years.

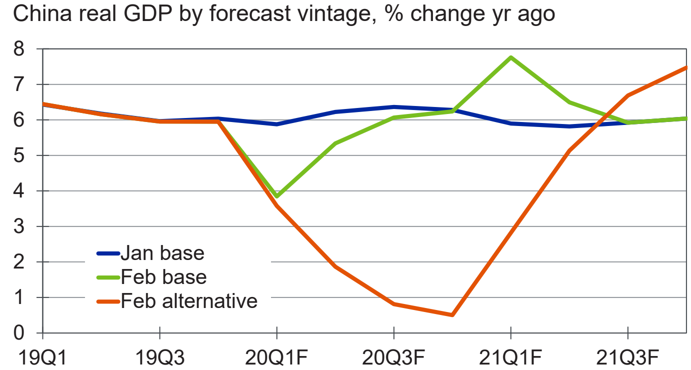
In this scenario, much of China remains locked down through April and slowly ramps up, getting back to full strength only by year's end. Complicating any start-up of the economy is that many Chinese were never able to return home after the Lunar New Year, and even when they are able to return home, they will be under quarantine for some time longer. Many schools are also closed, and it will be difficult for workers to get back on the job until those schools reopen, which will take time. Also, Chinese officials will most certainly prefer to err on the side of caution when reopening schools and other facilities rather than risk reigniting the outbreak. This will further delay the recovery of global supply chains (especially for autos and tech products) and the resumption of pre-virus trade flows. As of mid-February, the quarantines were getting tighter rather than looser. For example, a ban on traffic in Wuhan prefecture was expanded to include the entire Hubei province in which it is located.

This is a severe downside scenario, but it could easily be even more severe if the economic downturn results in a significant increase in business loan and bond defaults. Corporate leverage is high and has grown rapidly in recent years, and bankruptcies and defaults have been on the rise. There will be greater credit problems in this scenario, but we are assuming that Chinese regulators and banking authorities will show significant forbearance and forestall a serious credit crisis.

The global economy also suffers significantly in this *Wider Contagion* scenario, with real GDP growth in 2020 cut in half to

Chart 4: China's Economic Outlook

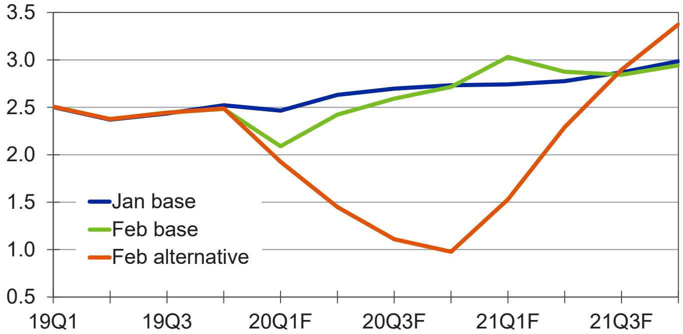
China real GDP by forecast vintage, % change yr ago



Sources: Government of China, Moody's Analytics

Chart 5: Global Economic Outlook

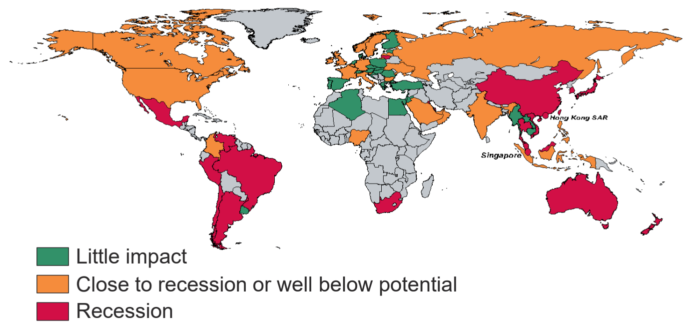
Global real GDP by forecast vintage, % change yr ago



Source: Moody's Analytics

Chart 6: *Wider Contagion* Scenario

Feb 2020



Source: Moody's Analytics

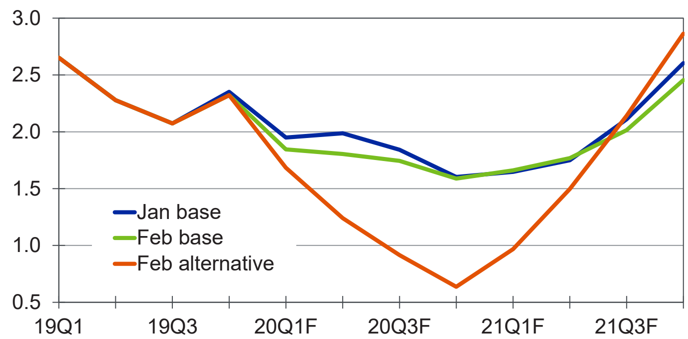
1.1% (see Chart 5). This is the weakest performance since the financial crisis, although the economy is able to avoid an outright recession. Southeast Asia and other emerging economies are hit hardest in the risk-off environment as their currencies come under pressure (see Chart 6). Even weaker commodity prices—the price of West Texas Intermediate falls to below $40 per barrel—inflict a severe blow.

The global economy would likely suffer a recession in this scenario if not for substantial monetary and fiscal stimulus, but the ability of some emerging market economies to release further monetary stimulus is limited by the threat of igniting capital outflows in the risk averse environment. As an aside, within the global model the stimulus is endogenously determined and thus may underestimate the amount of overall stimulus (including discretionary stimulus) that would be provided in such a scenario. However, it is important to remember that central banks and governments in much of the developed world are hamstrung by negative interest rates and little fiscal space.

The U.S. economy also barely skirts recession in this scenario, with real GDP growth in 2020 of 1.1% (see Chart 7). Adding to the economy's woes are the hit to stock prices and the widening in credit spreads that occur. Financial market reaction to the virus has been relatively muted so far, and in the *Baseline* scenario there is only a modest impact on markets as investors largely look through the temporary disruption to economic activity. However, under the *Wider Contagion* scenario investors are unable to ignore the impact on corporate profitability, and there is a significant correction in stock prices. Growth is weak enough in this scenario that unemployment begins to rise, recession risks become uncomfortably high, and if anything else goes awry, recession will be unavoidable.

Chart 7: U.S. Economic Outlook

U.S. real GDP by forecast vintage, % change yr ago



Sources: BEA, Moody's Analytics

Conclusion

COVID-19 poses a significant threat to the global economy. Much depends on how severe a pandemic ultimately ensues. Under the most likely, *Baseline* scenario, the contagion causes only a temporary hit to the global economy, which navigates through reasonably gracefully. However, alternative, darker scenarios are not difficult to envisage. The *Wider Contagion* scenario is only one of those many others. We will continue to monitor events and update our scenarios accordingly.

About the Authors

Mark Zandi is chief economist of Moody's Analytics, where he directs economic research. Moody's Analytics, a subsidiary of Moody's Corp., is a leading provider of economic research, data and analytical tools. Dr. Zandi is a cofounder of Economy.com, which Moody's purchased in 2005.

Dr. Zandi's broad research interests encompass macroeconomics, financial markets and public policy. His recent research has focused on mortgage finance reform and the determinants of mortgage foreclosure and personal bankruptcy. He has analyzed the economic impact of various tax and government spending policies and assessed the appropriate monetary policy response to bubbles in asset markets.

A trusted adviser to policymakers and an influential source of economic analysis for businesses, journalists and the public, Dr. Zandi frequently testifies before Congress on topics including the economic outlook, the nation's daunting fiscal challenges, the merits of fiscal stimulus, financial regulatory reform, and foreclosure mitigation.

Dr. Zandi conducts regular briefings on the economy for corporate boards, trade associations and policymakers at all levels. He is on the board of directors of MGIC, the nation's largest private mortgage insurance company, and The Reinvestment Fund, a large CDFI that makes investments in disadvantaged neighborhoods. He is often quoted in national and global publications and interviewed by major news media outlets, and is a frequent guest on CNBC, NPR, Meet the Press, CNN, and various other national networks and news programs.

Dr. Zandi is the author of *Paying the Price: Ending the Great Recession and Beginning a New American Century*, which provides an assessment of the monetary and fiscal policy response to the Great Recession. His other book, *Financial Shock: A 360º Look at the Subprime Mortgage Implosion, and How to Avoid the Next Financial Crisis*, is described by the New York Times as the "clearest guide" to the financial crisis.

Dr. Zandi earned his BS from the Wharton School at the University of Pennsylvania and his PhD at the University of Pennsylvania. He lives with his wife and three children in the suburbs of Philadelphia.

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