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Research on the Spillover Effects of Covid-19 in Global Economic Markets

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ABSTRACT
The spillover effect means that an organization will not only produce the expected effect of the activity but also have an impact on people or society outside the organization. In short, an activity should have external benefits, which the main body of the activity cannot get. The spillover effect can be divided into knowledge spillover effect, technology spillover effect, and economic spillover effect. With the continuous spread of COVID-19 around the world, the real economy has suffered a great impact, and the financial market is more and more important. According to the results, Covid-19 forced OPEC to issue a reduction initiative several times. The epidemic has led to the reduction of global production capacity, resulting in a significant decline in oil demand, which has a great impact on these stone exporting countries. In addition, for many countries with underdeveloped domestic commodity manufacturing, the epidemic has also affected their price factors, leading to rising prices and public discontent. As a major exporter, China has received a lot of benefits. Because of the financial market, the epidemic has led to multiple circuit breakers in U.S. stocks, a substantial decline in major stock markets, and structural differentiation in the future, which is worthy of investors' attention.

Keywords: *Spillover effects, Covid-19, Financial market*

1. INTRODUCTION

The widespread of the coronavirus (Covid-19) has caused an unprecedented impact on the global economy. Incidents such as the stock market crash, severe decline in global economic activity, and increased market volatility have been widespread worldwide. This article focuses on the impact of this crisis on the oil market, import market, and financial market. The research collects data from various reports published by different organizations and institutions around the world, as well as recent limited research literature on the subject. The conclusion that can be drawn from this paper is that the pandemic will have a major and long-term negative impact on the global economy, especially finance.

Baber confirmed that there is a systemic crisis risk spillover effect between global stock markets and individual stock markets in the countries most affected by COVID-19. Baber used Conditional Value at Risk (CoVaR) and Delta Conditional Value at Risk (ΔCoVaR) in his research to demonstrate the tail risk spillover effect between global financial markets. [1]. Fasanya studies the dynamic spillovers and connections between covid-19 and the global foreign exchange market. Fasenya uses the world's six most traded currency pairs to analyze the overflow from December 31, 2019, to April 10, 2020. Fasenya et al. also used rolling window analysis to capture long-term and cyclical changes in financial markets during the period under consideration. The results show that there is a high degree of interdependence between the global covid-19 event and the return fluctuations of major trading currency pairs [2]. Shahzad et al. applied the autoregressive distributed lag (ARDL) model and found that the economic and health crisis in the United States significantly disrupted investors' future expectations. In addition, the survey also analyzed the spillover effects of the global economic slowdown caused by the new crown pneumonia epidemic on the US financial turmoil. The financial instability caused by the US economy and health crisis lasted longer than the financial imbalances in other countries [3].

Ozili et al. analyzed the spillover effects of COVID-19 on the global economy and confirmed that the government's lockdown restrictions have harmed economic activity and stock market indexes. In contrast, restrictions on internal flows and higher fiscal policy expenditures have had a positive impact on the level of economic activity [4]. Shehzad et al. Study the impact of US and Chinese stock markets on global stock markets during the COVID-19 pandemic. The study found that during the COVID-19 period, the US and Chinese stock markets had a significant contagion effect. In addition, the research results show that the US and Chinese stock markets have a significant contagion effect on other stock markets in the world, but the contagion effect of the Chinese stock market is weaker than that of the US stock market [5]. Abuzayed highlighted different aspects of the pandemic, which are very important for understanding the economic impact of the pandemic. Abuzayed examined the impact of the crisis on financial markets, banks, hotels, and healthcare. The research collects data from various reports published by different organizations and institutions around the world and recent limited research literature. A painful fact can be drawn from this research that COVID-19 will have a major and long-term negative impact on the global economy, especially the finance and hotel industry [6].

2. SPILLOVER TO OIL-DEPENDENT COUNTRIES

2.1.The economic status of oil countries

The impact of COVID-19 on oil-dependent countries is very serious. The decline in global oil prices, coupled with the demand for petroleum products from oil-dependent countries, has led to significant gaps in the international market, and there are often phenomena such as increased fiscal deficits and worsening of the balance of payments. Many oil-dependent countries such as Venezuela, Angola, Nigeria, and other countries are also facing increasing pressure on their foreign exchange reserves, causing their currencies to depreciate. Because of the drop in oil prices, countries like Kenya, Nigeria, and South Africa have seen gasoline prices at local gas stations drop, so the national budget has also been affected. COVID-19 has led to a continuous decline in international oil prices. For most oil-dependent countries, the current national oil budget is far from reaching, and because the budget price has increased since 2019, it has failed to reflect the current economic reality, so it had to be re-evaluated. As a result, some oil-dependent countries have encountered huge national budget deficits, forcing some countries to seek foreign loans from the International Monetary Fund, the World Bank, and other lenders to finance the budget deficit or create a new budget, using the current low oil prices to set prices at Global Market.

Net oil exporters are experiencing an unprecedented double whammy; COVID-19 has led to global economic contraction and the collapse of the oil market, and the U.S. crude oil benchmark price West Texas Intermediate (West Texas Intermediate) briefly fell for the first time in history. Based on the oil price of US$30 per barrel, the International Energy Agency (IEA) project, many important producers of oil and gas revenues will fall by 50 to 85% in 2020. Compared with 2019, however, the loss will be greater. Future market development [7]. The current crisis is taking place against the backdrop of a structural decline in the fossil fuel market, which is driven by the decarbonization commitments of some countries and broader technological changes, which are gradually making renewable energy the energy source of choice. [8].

2.2.The impact of the oil crisis on developing countries

At present, the oil crisis caused by COVID-19 has a particularly obvious impact on developing countries that rely on oil exports. There are two main reasons for this:

First of all, many developing countries that rely on oil exports have monotonous export and import products and rely on a single commodity, which makes them extremely vulnerable to market fluctuations. Although the largest share of global commodity-dependent countries is in sub-Saharan Africa, in a series of developing countries such as Algeria, the Islamic Republic of Iran, Iraq, Libya, and East Timor, oil and natural gas account for the majority of total commodity exports (more than 60%). %)[9].

During the period 2011-2013, the top ten oil-exporting countries in Sub-Saharan Africa accounted for more than 50% of their total government revenue from crude oil sales and more than 75% of their export revenue [10]. The United Nations Conference on Trade and Development reports that despite the global focus on the energy transition and repeated calls for economic diversification, some countries are paying more attention to commodities than ever before [9]. Other developing countries are still seeking to expand the oil sector as a source of future economic growth.

Secondly, many of these countries were already in a weak position in the oil market before the COVID-19 crisis, and the existing vulnerabilities have been exacerbated after the crisis. More than half of low-income and low-middle-income countries rely solely on the import and export of oil and natural gas, and these countries are classified as "fragile" countries. Compared with developed countries, in developing countries with abundant oil resources, social services are often insufficient to take care of human well-being such as education, medical care, and elderly care. Although in these countries, more capable and resource-rich national institutions often exist, these institutions tend to focus on extracting additional resources rather than providing public goods that improve collective welfare. In the context of these increasing pressures, there are opportunities for hybrid financing, using new or clean energy to help oil-producing developing countries transition to a cleaner, more diverse, and more resilient future.

3. SPILLOVER TO IMPORT-DEPENDENT COUNTRIES

3.1.Shortage of import and export supply chain caused by COVID-19.

Due to travel restrictions and national or regional bans during COVID-19, many countries that rely on imports have been severely affected during COVID-19. worldwide merchandise trade flows decreased by 7% in 2020. Before the crisis, many countries mainly imported basic commodities from major producing countries such as China, India, and Japan, and depended to a large extent on the consumption of basic commodities in these countries. However, after the crisis, the number of commodities circulating in the global supply chain has decreased, and many exporting countries have closed many export factories due to COVID-19, resulting in a supply shortage in countries that rely on imports. This has led to an increase in the price of surplus import inventories in import-dependent countries and has also triggered inflationary pressures on the prices of basic commodities. After the shortage of global export supply chains, it is difficult to find alternative imported products because many countries have partially or completely closed their borders, which inhibited international trade at that time.

As shown in Table 1, compared to the situation before the pandemic, the country with the highest number of deaths per 1,000 in a month in our sample (Slovenia in December 2020) will reduce its imports from China by 13% in that month. Similarly, in the sample, Honduras' imports from China, which had never been blocked to the highest level (April and May), decreased by 17.6%. This shows that the government's measures to restrict economic activities often have a greater impact on importing countries than the health impact of the epidemic. If one considers each additional standard deviation in these variables, imports will decrease by 1.5 and 4.2%, respectively.

3.2.Supply and demand of import and export in COVID-19

Although the epidemic is expected to hurt trade, the impact on supply and demand can also be positive. As Baldwin pointed out at the beginning of the epidemic, the epidemic has brought shocks to both the supply and demand sides. [11]. The production of the supply side is restricted and the number of goods produced decreases. The lack of supply of goods on the demand side causes a shortage of goods in short supply. Since both are negative, the impact on a country's import demand is defined as the difference between domestic demand and domestic demand. China has trade relations with all other economies and is the world's largest exporter. According to China's monthly trade data in December 2020, it can be known that in the first quarter of 2020, China will be most affected by the new crown pneumonia, while the rest of the world has just begun to experience the consequences of the new crown pneumonia. Starting from the second quarter, when the variables are concerned about began to show greater changes, the situation has reversed, and China's economy has recovered rapidly, with an increase of 2.3% in 2020. From April to December, the main obstacles to trade with China related to COVID-19 mainly came from the impact of the epidemic in other countries on China's trade. Because China's economy as the supply side has turned around, the impact of the epidemic on China's import and export trade is mainly reflected in the demand side countries, so this avoids the mixing of exporting and importing countries and factors related to the pandemic.

Table 1. The economic significance of the estimates

Variable	Impact of each variable on imports from China (%)		
	1 std. dev. increase	0 to sample mean	0 to sample max.
Stringency	-4.2	-10.6	-17.6
Covid deaths per capital	-1.5	-0.7	-13.0
Covid deaths per capital (ROW)	1.8	1.5	19.7
Total effect (in percentages)	-3.9	-9.8	-10.9

The Covid-19 pandemic has drastically affected lives and livelihoods. In the process, it has also disrupted economic activities throughout the world. In particular, worldwide merchandise trade flows decreased by 7% in 2020. There are several dimensions

4. SPILLOVER TO FINANCIAL MARKETS

4.1.The impact of COVID-19 on global stock markets

The most obvious impact of COVID-19 on financial markets is the impact on global stock markets. According to the Standard & Poor's Dow Jones Index, from February 23 to 28, global stock markets lost $6 trillion in value in six days. From February 20 to March 19, the S&P 500 Index fell 28% (from 3373 to 2409), the FTSE 250 Index fell 41.3% (from 21,866 to 12,830), and the Nikkei Index fell 29% (from 23,479) To 16,552). During the same period, the stock prices of major international banks plummeted. For example, Citigroup's stock price fell 49% (from 78.22 US dollars to 39.64 US dollars), JPMorgan Chase's stock price fell 38% (from 137.49 US dollars to 85.30 US dollars), and Barclays shares fell 52% (from 181.32 pounds to 86.45 pounds).

4.2.The shrinkage of the foreign exchange market caused by COVID-19

According to a research report by Zaidan, some developed countries have spent more than US$9 trillion to deal with the economic impact of COVID-19 [12]. The government will spend more money on maintenance to ensure that economic operations return to normal after the pandemic. Financial market. The losses are expected to exceed those of the financial crisis, and may even exceed the Great Depression, known as the worst economic crisis in the past 70 years. The impact of the new crown pneumonia epidemic on the world market is also reflected in the foreign exchange market. Emerging markets bear the brunt of the dollar fever. For example, the pound depreciated by more than 10%, the Indonesian rupiah has depreciated by nearly 14% since the beginning of the year, the Russian ruble and the Mexican peso have depreciated by about 20%, and so on. In addition, technological advancement has intensified the improvement of the level of global financial integration and has significantly improved the processing capacity of global financial services. Although this is conducive to trade between countries, its associated risks and uncertainties are also a major issue. More importantly, when financial markets become more internationalized, the possibility of spillover effects or contagion effects becomes more obvious [13].

5. CONCLUSION

When it comes to the subprime mortgage crisis in 2008, it believes those who have experienced it still have lingering fears. However, pale into insignificance by comparison with the COVID-19 that now rages around the world, the financial crisis in 2008 can be seen as a great mystery. Based on the spillover effect, this paper studies the oil export, commodity import, and financial market respectively, and obtains the conclusion that it is helpful to investors and countries.

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