

# Stock Market Reactions to Covid-19

By

Tobias Dieler, Paula Hill and Ian Tonks<sup>1</sup>

March 2021

In late 2019 a city in China (Wuhan) reported the outbreak of a deadly new virus, and by March 2020 the spread of this coronavirus (COVID-19) virus across the globe was evident. There was no cure for this disease, albeit treatments improved across time, and throughout 2020 this global pandemic spread resulted in an increased demand for health-care and an increase in excess mortality, particularly in the elderly population. This pandemic represents a major macroeconomic demographic shock affecting the health of global citizens on a par with the Plague of Justinian (AD 540), the Black Death of the 14<sup>th</sup> century, 1918 Spanish Flu, and the modern-day HIV/AIDS pandemic.<sup>2</sup>

To prevent or slow down the transmission of the virus most countries imposed social distancing rules and lockdowns on economic activity at the start of the pandemic in March 2020. This policy response meant that two shocks hit the global economy. First a direct health shock on people and the workforce; and a second indirect shock from the policy response due to the closure of economic activities (pubs, travel, social activities, consumer demand).<sup>3</sup> In this article we will outline the effects that the pandemic and the lockdown policy responses have had on the corporate sector. We will be interested in the initial stock market response in March 2020 and the subsequent response in terms of patterns in share prices of firms throughout the remainder of 2020 as more information about the pandemic became available and policy responses evolved.

Macroeconomic activity is usually measured in terms of Gross Domestic Product: and by leading, contemporaneous and lagged indicators. An example of a leading indicator is stock prices because stock prices forecast future cash flows and corporate profits; an example of a contemporaneous indicator is retail sales because such sales represent the current realisation of consumer demand; and an example of a lagged indicator is unemployment, since firms may be constrained from immediately laying off workers. Economic activity is measured by GDP, but since non-market activities are not included in its calculation, the direct health condition of the population has relatively small effect on economic activity.<sup>4</sup> In any event, Covid-19 predominantly affects elderly people (in care homes) and since such people are retired the direct health shock is unlikely to have much effect on economic activity. Although there may have been an indirect health shock due to an increase in excess deaths from to other factors due to COVID taking up all the hospital beds, doctors and nurses. Any direct effects via workforce illness are likely to be small - through workforce illness which might lead to falls in productivity and a rise in background uncertainty through fear of catching the virus which might affect consumer confidence. But we would also anticipate substitution into other health related spending (vaccine centres and health-related jobs) which will also serve to reduce the direct effects. However, the policy response to contain the pandemic through lockdowns and social distancing rules

---

<sup>1</sup> School of Accounting and Finance, University of Bristol

<sup>2</sup> Harari (2021) argues that the 2021 pandemic is very different from previous plagues, because the virus was sequenced within days so that the scientific community knew how to combat it and a vaccine was produced within a year.

<sup>3</sup> According to Baker et al (2020) it is this “unprecedented stock market reaction to COVID-19” that is the distinguishing feature of the 2021 pandemic.

<sup>4</sup> Measuring economic well-being by alternatives to GDP such as happiness (Stiglitz et al, 2009) would lead to different conclusions

has had major effects on economies: reductions in national output, constraints on consumer demand, and transfers between individuals & firms (through taxes, subsidies, borrowing).

That stock market value is a leading indicator of economic activity is an implication of efficient markets: the share price of a company is the present value of expected future earnings or dividends of that company. If an economic shock affects economic activity, it will affect future corporate cash flows of (earnings/dividends) and perhaps discount rates. In an informationally efficient stock market these anticipated effects on future discounted cash flows are reflected quickly into current stock market values.

There will be different effects across companies depending on their corporate focus, structure and nature of their activities, and these different anticipated effects will affect the stock market values of firms listed on stock exchanges around the world. Stock market values may also be affected by increases in uncertainty and risk-aversion preferences which will affect discount rates applied to all firms. We might think that covid-effects will be short-term affecting no more than one-year ahead cash flows, with the expectation that the effects on corporate values will be small. On the other hand the shocks from the pandemic may highlight structural imbalances within the economy such as the role of the internet and changes in the ways that firms operate, which may have longer-term effects.

Building on our distinction between direct health effects from the pandemic and indirect effects through lockdown measures, we can first identify those companies that will experience a direct effect from exposure to the health effects of covid. There will be a number of channels through which these effects will operate. In the product market firms producing healthcare products will benefit at expense of community-orientated products such as professional sports venues due to reduced attendance at communal events and risks of infection.<sup>5</sup> If vaccines are a “cure for covid”, then pharmaceutical companies can anticipate increase in future revenues. Also, there will be supply chain effects: it’s not just the company selling the final product, but their suppliers of raw materials and these values will also be affected by investors’ expectations.

Another channel will be the nature of the firm’s assets, and whether firms are labor or capital intensive. We would expect larger negative stock market effects in more labour intensive companies, since it is the workforce that is at risk from the pandemic. Similarly, firms with an international workforce will be affected by the pandemic in the country where the workforce is located.

Indirect effects (via lockdown policy responses) will also affect the stock market values of those companies that are exposed to the spillover effects of the pandemic through the consequences of lockdown. Food retailers will benefit since they have been allowed to remain open during lockdown, but fashion and clothes retailers will suffer. Online (internet) services and products will benefit as they may experience increases in demand, and there will be positive knock-on effects to delivery companies. Travel companies’ and firms in the hotel and leisure industry will suffer. The nature of the firm will also be important with respect to these indirect effects: The stock market response will depend on the value vs growth distinction of firms. If the share price of a growth-orientated firms was previously supported by their growth potential, and if lockdowns have curtailed these growth possibilities then we might anticipate a disproportionate effect on growth-orientated firms.

Some manufacturing firms may switch products: producers of plastic coffee cups may be able to switch to Personal Protective Equipment products such as face shields. Such switching will reduce the

---

<sup>5</sup> It is difficult to assess the counterfactual of self-imposed restrictions from responsible behaviour in the absence of governmental lockdown rules.

exposure of some firms to these shocks. Service providers may be able to move online seamlessly but manufacturing firms with the constraints of physical production facilities will be more affected.

Can we anticipate corporate winners and losers? Which companies are likely to gain or lose from the pandemic and lockdown responses; this is a game played on a regular basis by the \$200 trillion global fund management industry. The FTSE 100 is an index of 100 leading UK companies, and is divided into nine sectors. In the table below we highlight the sectors and some sub-sectors and illustrate with one of the companies that comprise that sub-sector. In the final column we make some predictions based on the arguments above as to whether the company is likely to win or lose in terms of their share price reaction during 2020, based on the type of company and the predicted effects of pandemic.

**Table 1: FTSE100 sectors and companies**

Sector	Benchmark (sub-sector)	Example company	Winner/loser: share price up/down?
Basic Materials	Mining	Rio Tinto	Loser
Consumer goods	Personal Goods	Unilever	Depends on product
Consumer services	Travel & Leisure	Flutter Entertainment	Loser
	Travel & Leisure	InterContinental Hotels Group	Loser
Financial	Banks	Barclays	Winner
Healthcare	Pharmaceuticals & Biotechnology	AstraZeneca	Winner
Industrials	Aerospace & Defence	Rolls-Royce Holdings	Loser
Oil & gas	Oil & Gas Producers	Royal Dutch Shell	Loser
Telecommunications	Mobile Telecommunications	Vodafone Group	Winner
Utilities	Gas, Water & Multi-utilities	National Grid plc	Depends on customer type

Hassan et al (2020) estimate individual firms' exposures to covid from a textual analysis of analyst conference calls. We might anticipate that old style heavy engineering and mining companies such as Rolls-Royce and Rio Tinto, airlines and oil companies such as Royal Dutch Shell will all suffer, but pharmaceutical and telecommunications companies such as AstraZeneca and Vodaphone will benefit. These are the predictions: what actually happened to stock prices of companies during the pandemic?

Figure 1 below shows the changes in stock market values of a number of large UK listed companies throughout 2020 (for comparison, all values have been indexed to 100 at the start of 2020). It can be seen that most of the selected companies have been affected by Covid-19, sometimes very dramatically, and there are two discernible patterns in the data. First, large falls in stock market values

at the outset of the pandemic in March 2020 across all firms, with some companies experiencing falls in value of over 50 per cent. Second, most firms experienced a subsequent volatile recovery throughout the remainder of 2020.

The two vertical lines in Figure 1 indicate (i) the first announcement of lockdown in the UK on 24th March 2020 and (ii) the announcement of successful trials of a vaccine on 9th November 2020. The response of share prices after the initial lockdown has varied across different sectors. Tech-companies, healthcare and online companies (retail, betting, pharmaceuticals) have performed well since the start of Covid-19; but other sectors have continued to underperform: oil, airlines, heavy engineering: possibly highlighting the underlying structural issues, such as environmental concerns. Stellar performers on the London stock exchange have been AO.com, an online supplier of white goods whose share price has tripled in value, and Flutter Entertainment plc, an online betting and gaming firm, which has almost doubled its value. Rolls-Royce and British Airways have both lost over three-quarters of their value during 2020. Surprisingly Astra-Zeneca, a pharmaceutical company, has recorded a relatively smooth movement in share price during 2020, and this is probably because investors were aware that pharmaceuticals would benefit from a demand for health products which protected the firm against the initial negative shock, and the subsequent realisation that vaccines would be sold with only a small mark-up.

**Figure 1: UK stock market reaction to coronavirus by company**

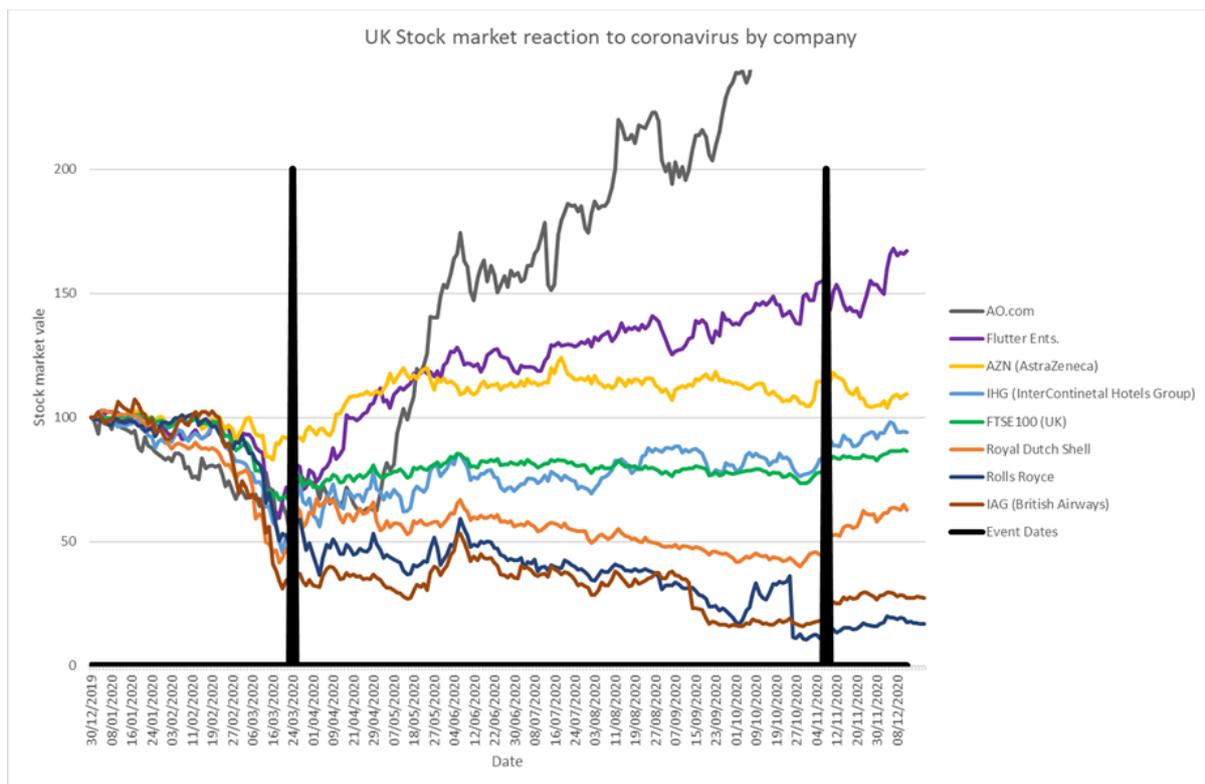
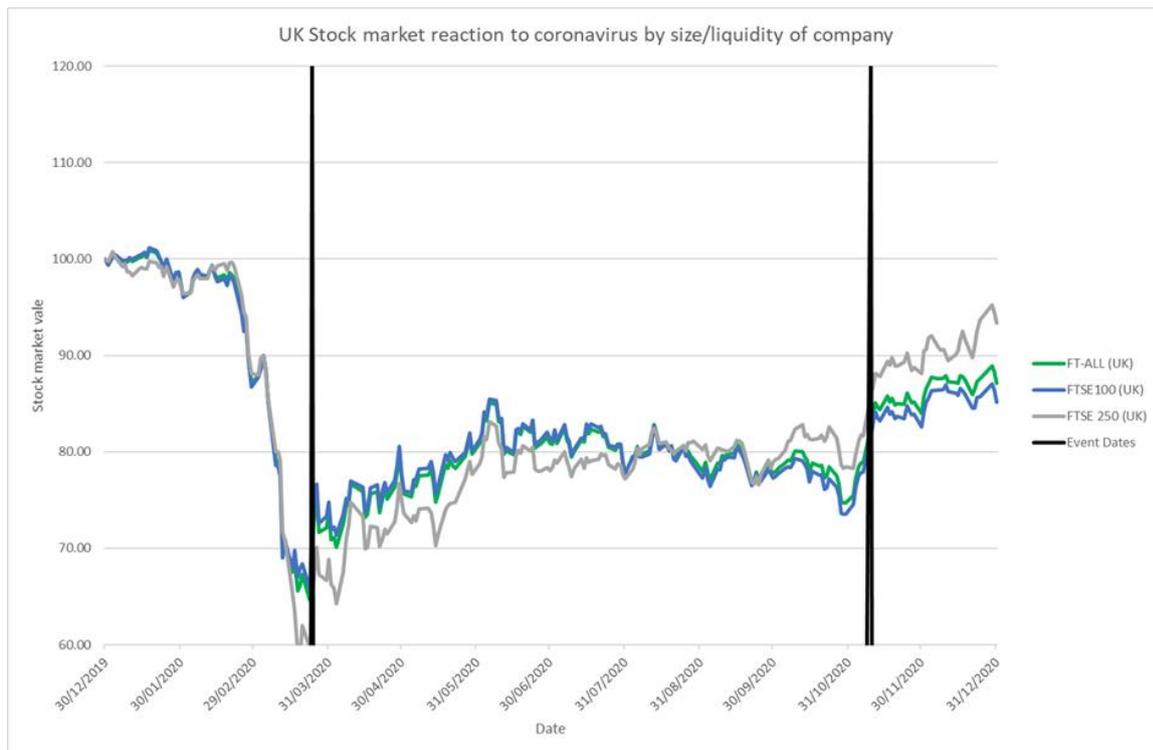


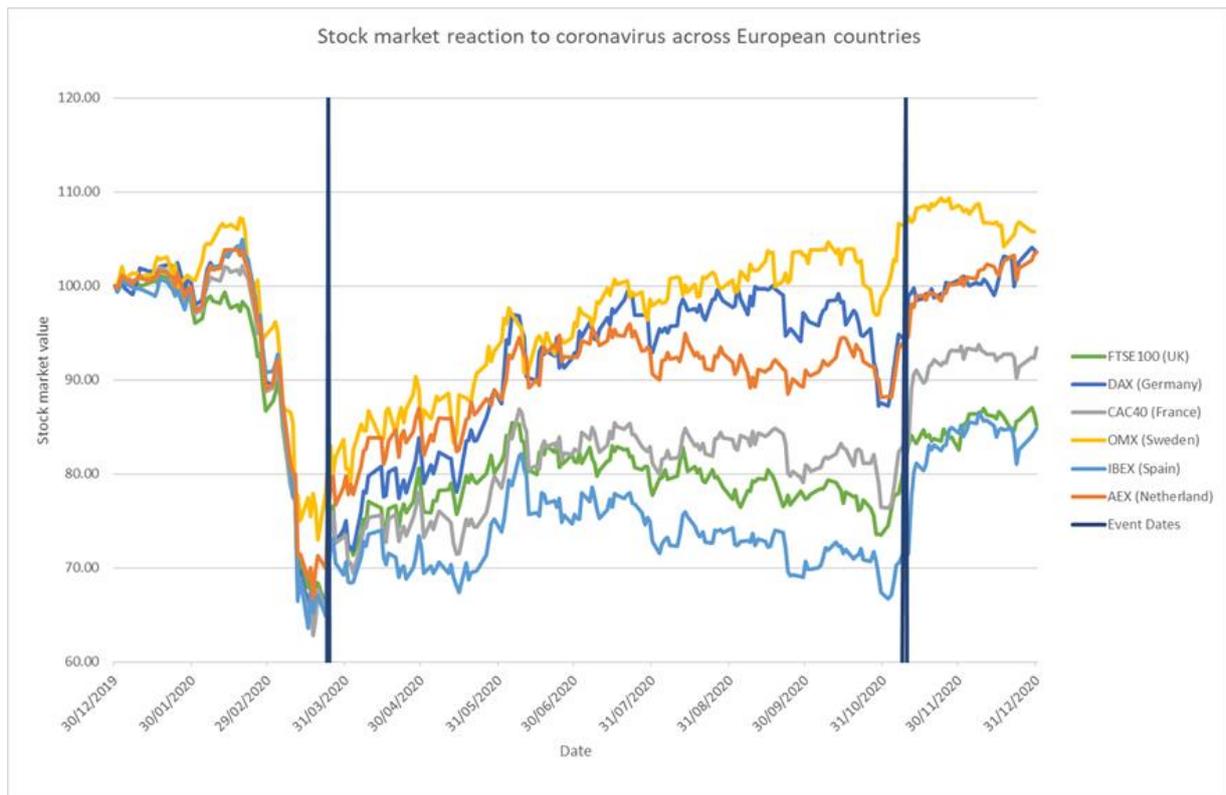
Figure 2 shows that smaller FTSE250 companies after initial negative returns have performed better than larger FTSE100 companies.

**Figure 2: UK stock market reaction by size/liquidity of firms**



The pandemic has been a global phenomenon and firms across the globe have experienced a turbulent year. In Figure 3 we document the stock market reaction across European countries measured by the headline stock market index for that country (a stock market index is an “average” of stock market values of companies that make up the index). All countries in the sample have been affected by Covid-19, with same stock market patterns shown for the individual companies in Figure 1: an initial fall in stock prices: January to end-March 2020, and a subsequent recovery: April to December 2020.

**Figure 3: Stock market reaction to coronavirus across European countries**



A striking aspect of Figures 3 and 4 are the wide differences across countries: is this due to health responses and preparedness for the pandemic and/or policy responses? For example, European economies have recovered - but not as rapidly as other global regions. It is well documented that the severity of lockdowns has varied across countries; to what extent have severe lockdowns impacted stock markets by reducing the spread of COVID-19? Have European markets been affected by the contaminating effects of Brexit?

Panel B in Figure 4 reports all values in US dollars and hence adjusts the domestic returns reported in the Panel A by changes in the exchange rate. It can be seen that the performance of the Brazilian stock market is significantly affected by this adjustment with the implication that the performance of the IBOVESPA index has been reduced from the perspective of a US investor by a depreciation of the Brazilian Lira relative to the US dollar.

What are the factors that might have explained these cross-country stock market returns? We can usefully distinguish between the factors that affected first quarter 2020 initial returns, and factors that affected the subsequent recovery (Ramelli and Wagner, 2020).

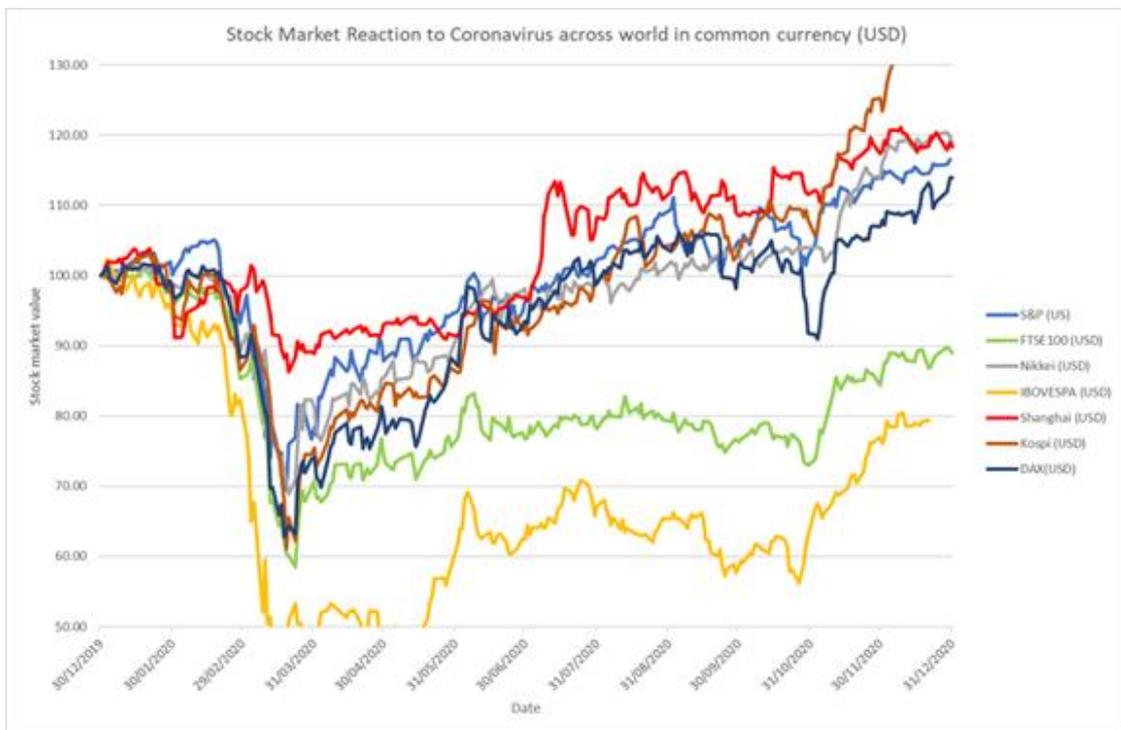
We might conjecture that the reason that initial returns (Jan-Mar 2020) differ across countries was because some countries were prepared for pandemic and it was anticipated that the more severe initial policy responses would curtail their duration. Perhaps the extent of the health service infrastructure in a country can explain the cross-country distribution of returns. Subsequent returns (Apr-Dec 2020) will depend on how stock markets have reacted to news about the country-specific spread of pandemic, the effects of lockdown measures, estimated effects on economic activities in a country and the likely take-up and effects of a vaccine.

**Figure 4: Stock market reaction to coronavirus across the globe**

**Panel A**



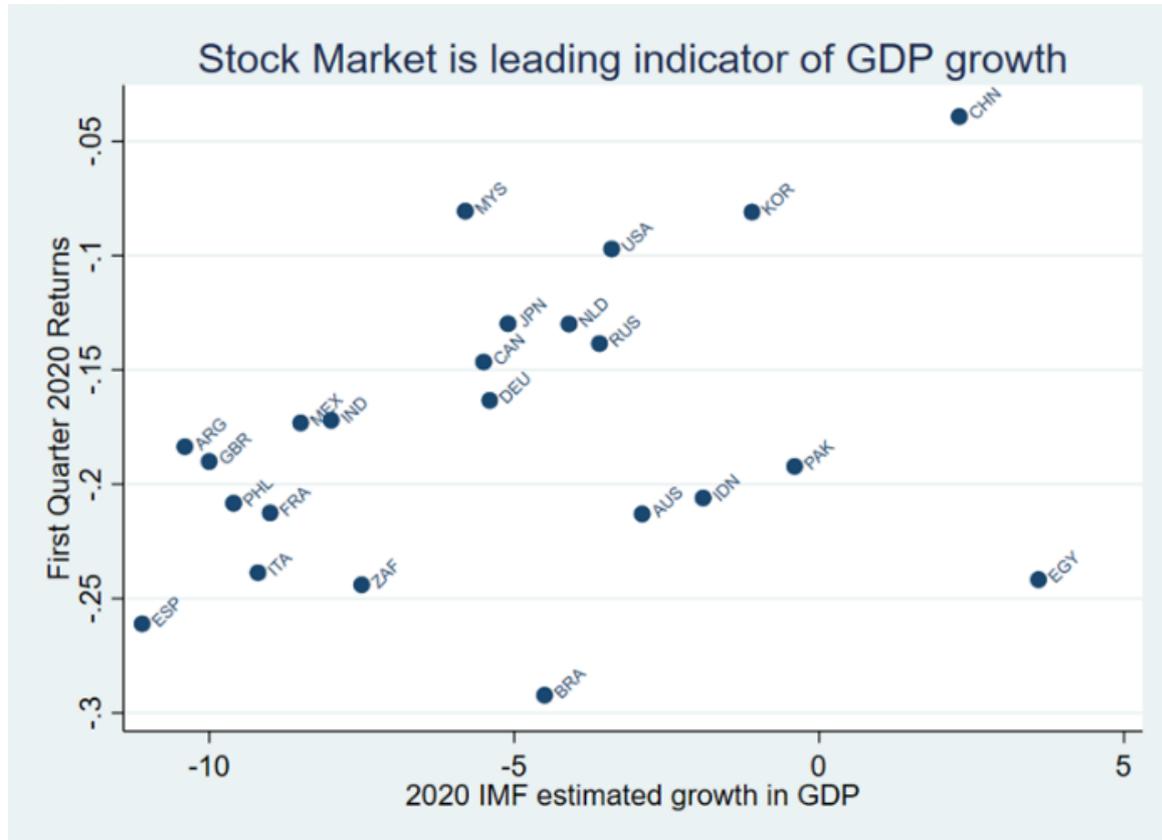
**Panel B**



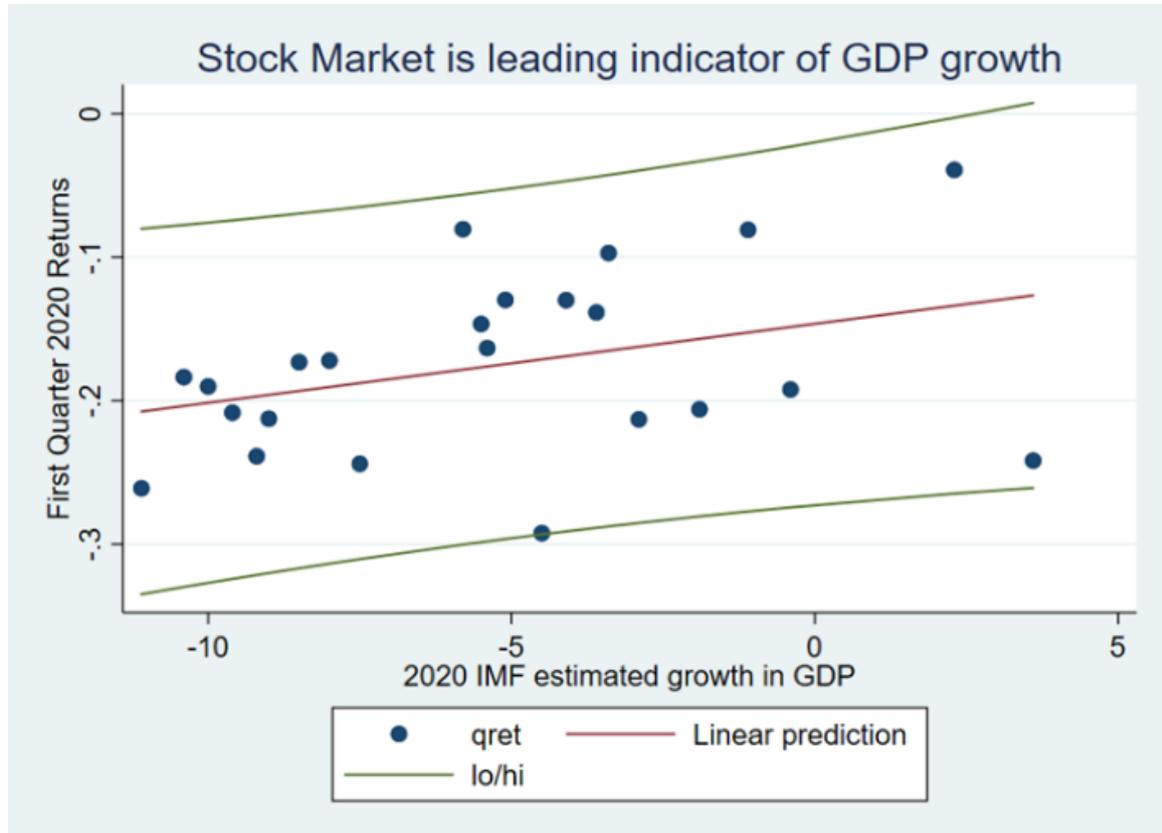
In order to examine these conjectures, we have collected data on stock market returns from yahoo.finance.com for 36 countries that have both a stock market and a relatively large population.

Figure 5: Plot of First quarter index returns and GDP growth estimates by country

Panel A



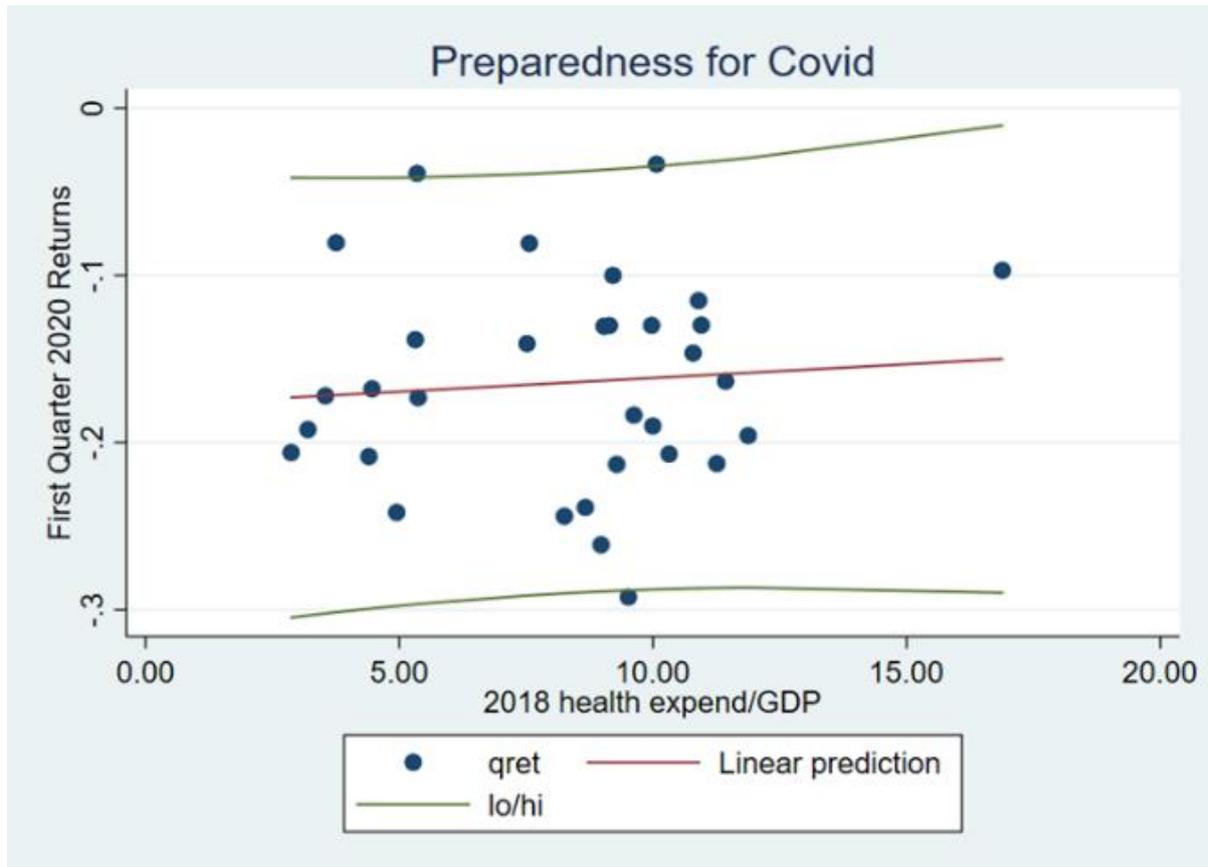
Panel B



Data on international health spending and demographics is available from World Health Organisation: <http://apps.who.int/nha/database>; and data on the international spread of covid (cases and deaths) is available from European Centre for Disease Prevention and Control <https://www.ecdc.europa.eu/en/covid-19/data-collection>. Data on 2020 GDP estimates for 25 economies from IMF: <https://www.imf.org/en/Publications/WEO>. We can ask a number of questions about this data. For example did the initial stock market reaction predict subsequent GDP growth? Panel A of Figure 5 reports a scatter plot, and Panel B plots a regression line with an estimated slope coefficient of 0.0055 (p-value=0.103), meaning that there is some evidence that the initial first quarter return in 2020 did indeed predict subsequent economic growth.

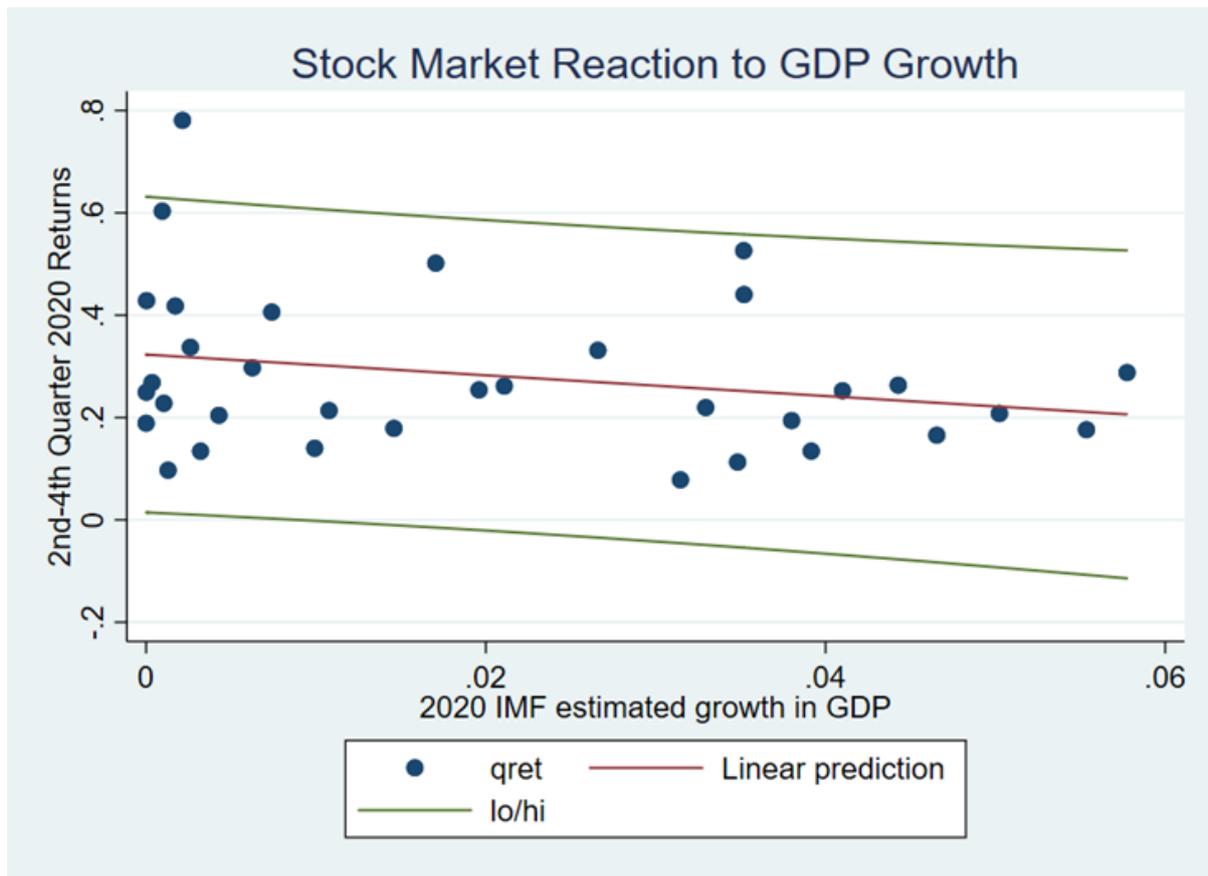
Did initial stock market reaction reflect “preparedness” of countries, where one measure of preparedness is per capita health spending in a country? Figure 6 reports the results of a simple regression of health spending on first quarter index returns. However, the regression slope is not significantly different from zero. Other potential measures of “Preparedness” include whether a country had to deal with a more recent pandemic such as SARS.

Figure 6: Plot of first quarter index returns and health spending as a percentage of GDP by country



Did stock market recovery, including the three quarters Q2-Q4 in 2020, reflect countries' response to the spread of pandemic measured by the cumulative case rate? In Panel A of Figure 7 we reports a scatter plot, and in Panel B we plot the regression line, which reveals a slight negative relationship in the point estimate of the slope coefficient, although its value is not significantly different from zero.

Figure 7: Plot of Q2-Q4 index returns and cumulative covid case rate by country



In response to the negative economic consequences of the pandemic many governments and supranational organizations have laid out substantial investment plans. The EU’s “Recovery plan for Europe” is worth EUR 1.8 trillion.<sup>6</sup> The UK chancellor announced in early March 2021 a multi-billion recovery plan for the UK.<sup>7</sup> In part these plans are used to support existing businesses through the crisis. Another part however is used for investments. And this is the exciting part. Going forward, it gives policy makers and entrepreneurs the opportunity to create something from scratch in a post-covid world. Indeed, the EU’s recovery plan has a clear focus on renewable energy and digitalization. In terms of stock returns there will be no immediate effects from these recovery plans but in the medium and long term, they have the potential to disrupt entire industries. Some commentators argue that without the pandemic, public investment would have been smaller in size and slower in the rollout.<sup>8</sup> In general, as long as public money (taxpayers’ money) is invested in an efficient manner, the return will outweigh the capital cost and thus promote economic growth.

In this article we have Identified the 2020 pandemic caused by Covid-19 as incorporating two major global economic shocks: direct shock to health of the population and an indirect shock due to policy responses to the pandemic. Stock market values, as a leading indicator, anticipated these shocks in March 2020 through a combination of changes to company cash flows, and changes to discount rates.

<sup>6</sup> [https://ec.europa.eu/info/strategy/recovery-plan-europe\\_en](https://ec.europa.eu/info/strategy/recovery-plan-europe_en)

<sup>7</sup> <https://www.gov.uk/government/news/budget-2021-what-you-need-to-know>

<sup>8</sup> <https://www.ft.com/content/a37d0ddf-8fb1-4b47-9fba-7ebde29fc510>

We have emphasised that the direct health shock is likely to have had a smaller effect on stock market values than the lockdown policy responses, although the effect of covid-19 clogging up health systems will have had a subsidiary impact. We identified two phases to stock market patterns in 2020: an initial negative shock followed by volatile recovery. We have seen that there were differential effects across companies and countries: with both winners & losers. Trying to understand the factors explaining these differential effects will occupy much research in the years ahead.

### **References**

Baker, S. R., Bloom, N., Davis, S. J., Kost, K., Sammon, M., & Viratyosin, T. (2020) "The unprecedented stock market reaction to COVID-19", *The Review of Asset Pricing Studies*, 10(4), 742-758.

Harari, Y. N. (2021) "Lessons from a year of Covid" *Financial Times*, 27<sup>th</sup> February 2021, ft.com

Hassan, T. A., Hollander, S., Van Lent, L., Schwedeler, M., & Tahoun, A. (2020) "Firm-level exposure to epidemic diseases: Covid-19, SARS, and H1N1", (No. w26971). National Bureau of Economic Research.

Ramelli, S. and A. F. Wagner (2020) "Feverish stock price reactions to COVID-19." *The Review of Corporate Finance Studies* 9.3 (2020): 622-655.

Stiglitz, J. E., A. Sen, and J-P. Fitoussi (2009) "Report by the commission on the measurement of economic performance and social progress".