Foreign investment in times of COVID-19: How strong is the flight to advanced economies?

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Foreign investment in times of COVID-19: how strong is the flight to advanced economies?

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Abstract

This paper investigates the extent of the flight to advanced economies by foreign investors at the onset of the COVID pandemic. Amid an overall decline of international positions, countries featuring higher GDP per capita, and belonging to the groups of advanced, G7, or Euro-area countries, appear to have been significantly less severely hit by the pandemic than developing countries. In particular, on comparing the growth rates of foreign liabilities at the end of the first quarter of 2020, the wedge between advanced and emerging countries is about 3%, and it is at least twice as large for G7 countries. This wedge is especially significant in the first quarter, and it is paired with the evidence of momentum trading by foreign investors. Our results are robust to the inclusion, as controls, of government stringency measures, alternative indicators of pandemic severity, sample specification and regression methods.

Keywords: International Investments, COVID-19, flight-to-quality, momentum trading, investor sentiment.

JEL Classifications: G11, G15, G30

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1 Introduction

The ongoing COVID-19 pandemic in the world is having a profound impact on the economic and financial system. The growing body of recent literature on the pandemic's effects on financial markets generally reports evidence of a significant impact of confirmed COVID infections or deaths on financial markets' volatility and liquidity (Chebbi et al. (2021); Albulescu (2021); Baig et al. (2021); Salisu and Vo (2020); Ashraf (2020); Li et al. (2021)).

Periods of exceptional uncertainty and crisis typically induce lenders to rebalance their portfolios either in favor of domestic borrowers, the so-called 'flight home' effect (Giannetti and Laeven (2012)), or in favor of safer assets, the so-called 'flight to quality' effect (Brière et al. (2012)). Papadamou et al. (2021), among others, identify flight-to-quality episodes when investigating the impact of the COVID-19 pandemic on the time-varying correlation between stock and bond returns in ten countries.

However, the flight-to-quality can occur not only among financial instruments but also among countries, towards economies featuring a higher degree of perceived 'quality'. The retrenchment in international capital flows during crisis periods is indeed a heterogeneous phenomenon among regions, with marked differences between emerging and developed economies (Lane and Milesi-Ferretti (2017)).

Belaid et al. (2021) find an increase in the interdependence between emerging and advanced economies, as a consequence of the COVID-19 spread, which suggests an increase in the transmission of stress and uncertainty among financial markets during the pandemic period. When considering the effects in terms of foreign investments, OECD (2020c) highlights the presence of a large cross-country variation in foreign direct investments and portfolio investments, reproducing the familiar pattern whereby international investors transfer capital back home or invest in safer assets during periods of uncertainty.

The stringent public health measures enacted by governments to limit the spread of the COVID-19 pandemic have induced recession, an erosion of confidence and greater uncertainty (OECD (2020b)). Moreover, they have caused severe economic disruptions, with a significant impact also on the foreign investment decisions of firms (OECD (2020a)). Saurav et al. (2020) highlight that the COVID-

19 crisis represents for international enterprises an unprecedented source of investor risk that is depressing investor confidence. This effect may be particularly important for emerging and developing economies, where alternative domestic sources of financing are scarce, so that the overall impact of the pandemic on emerging economies may be particularly severe. Financial markets in emerging economies are typically more vulnerable to global risk sentiment, Therefore, their funding conditions have historically proved to be much more volatile than those of advanced economies. As a predictable consequence, since the onset of the pandemic, developing financial markets experienced a sharp deterioration in investor sentiment, and risk appetite turned into a sudden and adverse reversal of capital flows (OECD (2021)). Recent reports have indeed documented a flight-to-quality away from emerging countries' liabilities as a consequence of the pandemic (Hevia and Neumeyer (2020); Levy Yeyati and Valdés (2020); Bolton et al. (2020)).

This paper empirically tests the extent of the flight of international investment to advanced economies, as a first response to the COVID outbreak in the first half of 2020.

Considering the growth in foreign liabilities as the dependent variable, and after partialling out the growth in the stock market, the severity of the crisis and the stringency of the public containment policies, we confirm the presence of this flight. Amid a generalized decline in foreign investment, we observe that countries featuring higher GDP per capita, belonging to the groups of advanced, G7, or Euro area countries, are significantly less severely hit by the pandemic than emerging countries. In particular, the wedge between advanced and emerging countries is about 3%, and it is at least twice as large for G7 countries, after the first quarter of 2020. Moreover, foreign investors appear to be momentum traders, since a higher (lagged) growth of the equity market index in one country is associated with a higher growth of foreign liabilities.

This paper is closely related to the recent work by Giofre' (2021): both of them rely on a similar dataset, and they both investigate the evolution of foreign liabilities at the onset of the COVID virus's spread. However, they differ in their objectives and their contributions to the literature. Giofre' (2021) investigates the different behavior of portfolio and direct investors in order to identify the impact of COVID-induced stringency measures on different categories of foreign investors. She finds that, at the end of the first quarter of 2020, while the stringency measures have no effect, their standard deviation is positively and significantly correlated with inward investments, but only when *portfolio* investors are considered.

Conversely, this paper considers total foreign liabilities, held by both portfolio and direct investors, because the objective is to detect the presence and magnitude of the flight–to–advanced–economies effect. Moreover, the paper contributes to the literature by testing the hypothesis of momentum trading by foreign investors, during the COVID crisis, thus providing results which can be interpreted in light of the abundant literature connecting investor sentiment with flight-to-quality.

These findings help shed light on the direction of foreign investment in periods of crisis, when cross-border liquidity dries up: in these moments of financial fragility, the emerging countries, which are more reliant on incoming capital are also the ones that suffer the most. Since foreign investors are mostly institutional investors, these results also add to the literature focussing on the behavior of institutional investors in times of crisis: they behave as momentum traders during the COVID pandemic's outbreak, as they have done in previous crises (Baltzer et al. (2019); Bijlsma and Vermeulen (2016)), and show a significant propensity to leave their positions in emerging economies in favour of advanced ones .

The rest of the paper is structured as follows. In Section 2, we frame our analysis within the literature. In Section 3, we describe the data and provide some descriptive statistics. In Section 4, we sketch the estimable equation. In Section 5, we report the results of the empirical analysis. Section 6 concludes.

2 A brief literature review

Investors typically engage in international investment to improve portfolio performance by reducing the risk of a loss. In times of financial distress, however, the benefits from diversification in different markets decrease because of a stronger interconnectedness among markets. For emerging economies, the lower attractiveness induced by the increased returns correlations with developed countries is paired with a greater institutional fragility and vulnerability to global risk sentiment driven by a spike in investor risk aversion.

This combination of factors makes the borrowing conditions of developing economies historically more volatile than those of advanced economies, so that, in times of crisis, they easily lead to a sudden reversal of capital flows.

This paper studies the evolution of international investment at the onset of the COVID pandemic, and therefore relates to two overlapping strands of the empirical finance literature.

The first strand deals with the first factor mentioned above: that is, interconnectedness and financial contagion among markets.

Over the past two decades, financial markets have experienced in general a surge of greater international integration (Gamba-Santamaria et al. (2019)).

The correlation between markets is not symmetric, because it is stronger during periods of high volatility than it is during periods of low volatility (Forbes and Rigobon (2002); Ang and Bekaert (2015); Kundu and Sarkar (2016)). According to the definitions in Forbes and Rigobon (2002), when a high co-movement is present but conditions are stable, we are in the presence of interdependence among markets; instead, contagion occurs if co-movement increases when a crisis arises.

The models and techniques adopted in the literature to explore interdependence and contagion range from dynamic conditional correlation models (Kenourgios et al. (2011)), through regime-switching models (Baele et al. (2007)) and copulas (Rodriguez (2007)), to wavelet-approaches (Gallegati (2012); Dimitriou et al. (2020); Amar and Carlotti (2021)).

Yarovaya et al. (2017) explore the concept of asymmetry in return and volatility spillovers across markets. They find that the transmission of negative return shocks and positive volatility shocks dominate, and that the strongest asymmetry occurs in the case of market pairs where the recipient is an emerging market.

The stronger financial integration and interdependence between markets documented in the literature has naturally exacerbated the cross-border effects of the COVID-19 pandemic.

Fassas (2020) investigates the connectedness in terms of investors' risk aversion and finds that spillovers exist not only in the returns and volatility of financial assets, but also in market participants' sentiment. In particular, he finds that while the USA was the largest transmitter of sentiment connectedness over the last decade, emerging markets have become powerful transmitter of spillovers, during the COVID pandemic.

Akhtaruzzaman et al. (2021) show a significant increase in dynamic conditional correlations in stock returns between China and G7 countries during the COVID period. They also show that optimal hedge ratios increase significantly in most cases, implying higher hedging costs during the period in question.

The second strand of literature is intertwined with the first, but it is mainly related to risk aversion and investor sentiment. The sharp deterioration in investor sentiment and risk appetite drives investors out of emerging financial markets into developed ones, thus fueling one of the many variants of the flight-to-quality effect.

In recent decades, measures of risk aversion and 'sentiment' (Baker and Wurgler (2007)) have received close attention as tools with which to monitor the volatile economic environment (Brière et al. (2012)). The role of investor sentiment in asset pricing has been widely investigated in the literature (Baker and Wurgler (2007); Da et al. (2014); Stambaugh et al. (2012)). Lee et al. (2002) show that excess returns in the US stock market are contemporaneously positively correlated with shifts in sentiment, and that the magnitude of bullish (bearish) changes in sentiment leads to higher (lower) future excess returns and downward (upward) revisions in volatility. Similar findings have been reported by Bandopadhyaya et al. (2006), who show that investor sentiment quickly captures relevant news events, and that this sentiment measure accounts for a significant proportion of the changes in the stock market index.

Baker et al. (2012) study the international time-series of the cross-section of stock returns. They indicate that these findings are not limited to the USA but extend to the international context, and that sentiment is contagious across markets. On studying differences in investor sentiment between developed and emerging markets, Wang et al. (2021) document that investor sentiment has a more immediate impact in emerging markets, but a more enduring impact in developed ones. Investors in different markets, developed or emerging, may have different distributions of misperceptions, so that the impacts of investor sentiment on stock returns are also likely to be different.

When dramatic unexpected events occur, investor sentiment immediately reacts, and Knightian uncertainty induces investors to shed risky assets in favor of safer claims: that is, it induces a flight-to-quality (Caballero and Krishnamurthy (2008)).

Baele et al. (2019) document, on daily data for 23 countries, specific flights to both quality and liquidity in international equity markets which mainly consist of a flight-to-quality in the US corporate bond market. Bayraci et al. (2018) document a positive co-movement between stock returns and changes in 10-year government bond yields, which signals a flight-to-quality behavior in G7 countries as a result of dramatic changes in investor sentiment and risk aversion at times of market stress. Dimitriou et al. (2020), by means of a Wavelet Coherence Analysis, find that investors and portfolio managers should search for 'new' safe haven assets during periods of turmoil, such as the global financial crisis and the Eurozone sovereign debt crisis, in order to improve their portfolio diversification strategies.

Another variant of the flight-to-quality phenomenon can be observed across countries, rather than across instruments.

Cho et al. (2016) show that, in global down markets, capital tends to move from emerging to developed countries. In regard to the COVID pandemic, Papadamou et al. (2021) study the time-varying correlation between stock and bond returns for ten countries during the first quarter of 2020, and they find flight-to-quality episodes. Gupta et al. (2021) focus on the impact of infectious diseases-related uncertainty on the safe-haven characteristic of various assets, and find evidence supporting the hypothesis that the US treasury securities have been used as a safe-haven during the COVID-19 outbreak. Finally, a collection of recent reports provides evidence of flight-to-quality away from Latin America and other emerging economies (Hevia and Neumeyer (2020); Levy Yeyati and Valdés (2020); Bolton et al. (2020)). Specifically, Hevia and Neumeyer (2020) document that between 24 February and 30 March 2020, institutional and retail money funds in the US increased their assets by 19%, as a consequence of a fast and huge flight-to-quality and sudden capital outflows from emerging economies.

Our paper reports a systematic and rigorous analysis of the flight to advanced economies during the COVID pandemic, as suggested by the above-reported anecdotal evidence, and provides a quantitative assessment of this effect, within a multivariate framework.

3 Data and descriptive statistics

The growth of foreign liabilities, our dependent variable, relies on quarterly data on 53 countries (International Investment Position Statistics, IMF).

The main regressor is a binary variable associated with the status of a country as a member of the 'advanced countries', G7 and Euro groups, following the *Economy grouping* classification of the Fiscal Monitor database, released by the IMF's Fiscal Affairs Department. An alternative proxy for economic development adopted is the high GDP per capita dummy, a time-invariant binary variable equal to 1 if the GDP per capita is larger than the sample median, and 0 otherwise, based on data collected from the CEIC database.

From the same database, we also drew the monthly equity market index data (1-month lagged), which captures the multiple drivers of demand and supply in the recipient stock market.

The NEER (Nominal effective exchange rate, broad index), released by the Bank for International Settlements, is also included in the analysis, since its change might affect foreign investment.

Finally, the source of COVID-related data is a Github ongoing repository of data on coronavirus, the Coronavirus Open Citations Dataset. We drew from this dataset the stringency index (SI), which represents a proxy for the severity of the containment policy measures adopted, and the data on new COVID-deaths and cases per million of inhabitants. These data are originally reported at a daily frequency, but in order to match the quarterly frequency of the dependent variable, we constructed quarterly averages.

In Figure 1, we report the distribution and main descriptive statistics of the dependent variable, the growth in foreign liabilities (in %), at the end of the first quarter (panel a) and first semester (panel b): we observe that in panel a), the average growth measure is about -4%, with a median of -6%, while, in panel b), the median and mean are about -3%.

In Figure 2, we report a similar graphical representation for the growth of the equity market index (in %): in the first quarter (panel a), the mean is -7%, while in the first semester as a whole the drop is almost twice as large (-13% on average).

4 Estimable equation

Our objective is to identify the presence and extent of a flight of foreign investment to advanced economies, at the onset of the COVID-19 outbreak.

We define the growth of liabilities (ΔL) in the first quarter ($q1$) of 2020 as $\Delta q1$: this is the difference between the liabilities at the end of the first quarter of 2020 (March 2020, L_{03_20}) and the liabilities at the end of 2019 (December 2019, L_{12_19}), scaled by the liabilities at the end of 2019:

$$\Delta L = \Delta q1 \equiv (L_{03\_20} - L_{12\_19})/L_{12\_19} \tag{1}$$

Analogously, for the first semester of 2020, we compute:

$$\Delta L = \Delta s1 \equiv (L_{06\_20} - L_{12\_19})/L_{12\_19} \tag{2}$$

To address potential concerns about investment seasonality, we consider the dependent variable $diff\Delta L$. For the first quarter of 2020, $diff\Delta q1$ is the difference between the 2020 measure, as defined in equation (1), and the corresponding measure in 2019:

$$diff\Delta q1 \equiv \Delta q1_{2020} - \Delta q1_{2019} \tag{3}$$

Analogously, for the first semester of 2020, we compute:

$$diff\Delta s1 \equiv \Delta s1_{2020} - \Delta s1_{2019} \tag{4}$$

To estimate if and to what extent the growth in foreign liabilities, $diff\Delta L$, differs for advanced economies, we run the following regression:

$$diff\Delta L = \alpha + \beta(D\_Adv) + controls + \varepsilon \tag{5}$$

where (D_Adv) is a binary variable taking value 1 if the recipient country considered belongs to the group of advanced economies, and 0 otherwise.

As far as the covariates falling within the residual group of '$controls$' are concerned, to be noted is that, unfortunately, the low number of observations forced us to state a parsimonious specification. However, luckily, the definition of the dependent variable in difference form allowed us to ignore any country-specific fixed effects, because these were removed by construction.

To estimate the parameters in equation (5), we adopted a Robust Least Squares estimation, which is a regression method specifically designed to be robust, or less sensitive, to outliers.[1] In the robustness check section, we subject our results to a standard OLS model and a Quantile regression at the median.

5 Empirical analysis

5.1 Main findings

To investigate the presence and magnitude of the flight of international investment to advanced economies, we regress the growth of foreign liabilities on the binary variables capturing the 'advanced' dummy, and on a bunch of control covariates, which are progressively added to the econometric specification: we aim to test the flight-to-quality hypothesis, according to which foreign investors, as a consequence of the COVID outbreak, would deviate their investments to more stable and developed economies.

We first consider countries with a high GDP per capita, i.e., a GDP per capita larger than the

[1] Among Robust Least Squares, we adopt the M-estimation developed by Huber (1973), with Huber Type III standard errors (Huber (1981), pp.173) Our results are robust to other alternative Robust Least Squares methods, such as the S-estimation and the MM-estimation.

median; then the 'advanced economies' as defined by the *Economy grouping* classification of the IMF, and, finally, two sub-groups, G7, and Euro area, to detect possible differential effects for the top advanced economies (G7), and for one specific developed area (Euro area countries).

We perform a regression analysis under a Robust Least Squares estimation, relative to the end of the first quarter (columns (#a)), and first semester of 2020 (columns (#b)).

5.1.1 Basic specification

The basic specification, in Table 1, includes two control variables besides the 'advanced' dummy. The first is the growth in the Nominal Effective Exchange Rate (NEER), a measure of the appreciation of the economy's currency against a broad basket of currencies, because its change may affect foreign investment.[2] The second control variable is the number of new COVID-deaths per million of inhabitants, a direct health indicator of the epidemic. Indeed, the growing number of recent studies on the impact of the COVID event on financial markets generally finds evidence of a significant impact of confirmed COVID cases or deaths on financial markets' volatility and liquidity (Albulescu (2021); Baig et al. (2021); Salisu and Vo (2020); Ashraf (2020)).

We observe a significant negative coefficient of the constant term. When the advanced dummy is included, the constant's coefficient represents the average dynamic of the dependent variable for the excluded 'non-advanced' group. The size and significance of the constant's coefficient is then consistent with the average decrease in foreign investment after the COVID outbreak, as already observed in Figure 1.

Depending on the grouping dummy considered, this general decrease ranges from -6% to -10% in the first quarter, and from -4% to -7%, in the semester as a whole, thus showing a slow recovery in the second quarter of 2020. This evidence is also consistent with the literature documenting the general decline in international investment during crisis periods (Milesi-Ferretti and Tille (2011); Cetorelli and Goldberg (2011); Raddatz and Schmukler (2012); Haas and Horen (2013)). The coefficients of the developed economies' dummy are all positive and statistically significant in the first quarter

[2] We include its one-month lagged value, to avoid endogeneity issues. See Appendix A, for a definition of this covariate.

(columns (#a)): recipient countries with a GDP per capita higher than the median experience a 4.4% larger growth in foreign liabilities, while for countries classified as 'advanced' the percentage is 3.4. When the two sub-groups, G7 and Euro area, are considered the percentages are 5.2 and 3.8.

The other control covariates do not display any statistically significant impact on the dependent variable. In the first semester (columns (#b)), the results are instead non systematic, with a significant coefficient only for the Euro area dummy (2.8%) and for the appreciation of the exchange rate.

5.1.2 Stock market growth

The recent literature has emphasized, during crisis periods, a distinctive momentum trading behavior of financial institutions and foreign investors, with a substantial increase in sales of past loser stocks during the market decline (Bijlsma and Vermeulen (2016); Baltzer et al. (2019)). In particular, Baltzer et al. (2019) document that foreign investors, which are predominantly institutional investors, increased their momentum trading in correspondence to the volatile periods connected with the evolution of the financial crisis 2007-2008. Bijlsma and Vermeulen (2016) more specifically analyze the behavior of insurers, which are among the largest global investors, and which typically have relatively large foreign asset positions. They find that, whereas insurers are generally contrarian or neutral traders, they may turn into momentum traders during a flight-to-quality related to a crisis, such as the European sovereign bond one.

Since we focus precisely on the flight-to-quality of foreign investment during the COVID crisis, we need to account for momentum trading.

In Table 2, we include the 1-month lagged growth of the stock market index in order to check for the presence of this momentum trading behavior.[3]

To be noted is that, on the one hand, this index is related only to the stock market, while our dependent variable includes all types of financial liabilities; on the other hand, this is a country index, while the dependent variable refers only to foreign holdings, thus excluding domestic ones.

[3] For consistency, we include this variable in growth terms, as the dependent variable, to ensure the absence of seasonality effects. See Appendix A, for a definition of this covariate.

However, because of the spillover among financial instruments and across borders, this index can reflect the global investor sentiment towards the country, which is driven by both fundamental and behavioral factors. The inclusion of this covariate, therefore, besides making it possible to control for momentum trading, also partially alleviates the problem of omitted variables connected with our parsimonious specification, because it captures a synthesis of the drivers of investors' decisions, also those of the foreign investors.[4]

The results indeed provide evidence of the momentum trading behavior of foreign investors: the coefficient of the growth of the equity index is positive and statistically significant, at the end of the first quarter, in all specifications; the effect is also economically significant: a 1% increase in the growth of the equity index induces an increase in the growth of total liabilities ranging from 16.2% to 19.3%. After partialling out the growth of the stock index, the effect of the 'developed countries' dummy is still positive and significant, with a reduction of the coefficient of the 'advanced' dummy (from 3.4% to 2.4%) and of the Euro area dummy (from 3.8% to 3.2%). As far as the first semester results are concerned, we observe that the Euro area dummy slightly increases (from 2.8% to 3.1%) and the 'advanced' dummy becomes significant (4.6%).

5.1.3 Stringency measures

As a consequence of global COVID pandemic, governments have been forced to introduce restriction policies, differing in terms of severity and timing. On the one hand, some countries imposed very harsh measures immediately after the outbreak of the crisis, and then removed them after the evidence of a reduction in contagion; on the other hand, other countries chose to react to the epidemic's spread with moderate increases and reductions of containment measures (Hale et al. (2020)).

[4] In Table 9 of Appendix B, we report the results of a regression where the growth of the equity market index (in current rather than lagged values) is the dependent variable, and the regressors are the ones included in Table 1. Given the correlation between stock market prices and investor sentiment established in the literature, this table provides some evidence on the evolution of investor sentiment in the COVID crisis period. It is negatively correlated with the pandemic indicator, as largely shown in the literature. Within a global general decline, captured by the negative constant's coefficient, advanced economies and countries with higher GDP per capita display a higher growth in stock market indexes (investor sentiment), while no difference is detected for Euro or G7 countries with respect to the excluded economies.

Ahmed et al. (2020) emphasize that the access of emerging economies to international capital markets is strongly influenced by the health of global financial markets, but also by the extent of the spread of the COVID virus, and by the restrictive measures that it has prompted.

We therefore include the Stringency Index (SI), a measure of the severity of the containment policy measures adopted by different governments to react to the COVID virus's spread. We also add its standard deviation, since Giofre' (2021) finds that a higher within-country standard deviation in the stringency index positively affected foreign portfolio investors, at the end of the first quarter of 2020.[5]

In Table 3, we add the stringency index (SI) and its standard deviation (σSI) to the econometric specification; we also add the standard deviation of the number of new COVID deaths per mn, for consistency and to allow comparability with Giofre' (2021).

We observe that the stringency index and its standard deviation do not affect inward investment, while both the growth of equity market index and the grouping dummies show positive, statistically significant, and economically relevant coefficients.

5.2 Robustness checks

In Tables 4 to 8, we subject our findings to several sensitivity analyses. In Table 4, we add the pandemic indicator 'number of new COVID cases per mn' to the one referred to COVID deaths. Tables 5 and 6 consider different country sample specifications, excluding, respectively, China and offshore countries. The last two tables consider alternative estimation methods, such as OLS (Table 7) and Quantile regression (Table 8).

5.2.1 Additional regressor: new COVID cases per million of inhabitants

In Table 4, we add another pandemic indicator – the variable 'new COVID-cases per mn of inhabitants' (and, for consistency, its standard deviation) – besides the one relative to the number of

[5] To be emphasized is that the significant coefficients associated with σSI in Giofre' (2021) are mainly.relative to the growth in *portfolio* liabilities. Results on *total* liabilities, which are object of analysis in the present paper, are present but less systematic.

new COVID deaths per mn. Ashraf (2020) finds that stock markets reacted more proactively to the growth in the number of confirmed cases as compared to the growth in the number of COVID deaths. The two indicators are, predictably, quite correlated ($\rho = 0.57$ in the first quarter and $\rho = 0.30$ in the first semester). The coefficients of the grouping variables and the momentum trading are qualitatively unchanged for the first quarter, whilst in the first semester, only the coefficient of the Euro area is confirmed as significant.[6]

5.2.2 Sample specification: exclusion of China and offshore countries

In Table 5 and 6, we test whether our findings are robust to the exclusion from the sample of some countries that may have driven the results.

In Table 5, we exclude China from the sample of countries. China was the first country to be hit by COVID, several weeks before other countries. Our findings may therefore be distorted by China's asynchronous timing of lockdown and loosening measures in the first and second quarter of 2020.

In Table 6, adopting the classification proposed by Damgaard et al. (2018), we exclude from the sample potential offshore financial centers, to ensure that our results are not driven by economies distorting investors' decisions for reasons that are hard to control in our analysis. From our original sample, Hong Kong, Ireland, Luxembourg, the Netherlands and Singapore are excluded.

The exclusion of China and offshore centers confirms our findings, both qualitatively and quantitatively.[7] Interestingly, under these specifications the coefficients of the standard deviation of the stringency index become statistically significant. This finding is consistent with the results of Giofre' (2021), where, in the restricted samples, the coefficient of the standard deviation of the stringency index was positive and significant, not only for the growth in portfolio liabilities, but also for the growth in total liabilities, our dependent variable.

[6] In Table 10 in Appendix B, we report the results of the regression in which the 'new COVID-cases per mn of inhabitants' is included as an alternative to 'new COVID-deaths per mn of inhabitants'. The coefficients of the variables of interest remain substantially unchanged.

[7] Alternative offshore classifications are adopted in Tables 11 and 12 of Appendix B, and the associated regressions deliver similar results. See Appendix A, for details on the countries excluded in various sample specifications.

5.2.3 Econometric specification: OLS and Quantile regression

In Tables 7 and 8, we run the same regression specification of Table 3, but using alternative estimation techniques.

The results under the OLS specification in Table 7 are similar to the benchmark, with the exception of the coefficient of the 'advanced' economies in column (2a), which loses statistical significance.

Table 8 reports the results of a Quantile regression. The quantile regression estimates the conditional median, rather than the conditional mean of the response variable as in the method of least squares, and therefore, similarly to the Robust Least Squares method adopted in the main specification, it is more robust against outliers in the response measurements. The results are similar to the standard ones, with the exception of the coefficient of the 'high GDP' binary variable, which loses statistical significance.

6 Conclusions

This paper tests the existence and extent of the flight to advanced economies by foreign investors in the aftermath of the COVID outbreak. Amid a generalized decline in international investment typical of distress periods, we observe that advanced countries with a higher GDP per capita, belonging to the G7 group, or to the Euro area have been significantly less severely hit by the pandemic than emerging countries. In particular, comparing the growth in foreign liabilities at the end of the first quarter of 2020, the wedge between advanced and emerging countries is about 3%, and it is at least twice as large for G7 countries. This wedge is statistically significant in the first quarter horizon, and it is paired with systematic momentum trading by foreign investors. Our results are robust to the inclusion, as controls, of government stringency measures, alternative measures of pandemic severity, sample specification and regression methods.

Our findings also provide information to regulators and market participants on how foreign investors behave during periods of financial turmoil: understanding the drivers and the directions of investors' sentiment is not only of interest for asset pricing, but it has important implications for portfolio diversification and investment strategies. The flight-to-quality occurs in periods of high volatility, and this phenomenon is strictly monitored both by portfolio managers for trading strategies and by investors for its effects on the overall stability of the financial system.

Finally, the reported evidence suggests that policymakers should continue to provide liquidity to developing economies. This is because in moments of financial fragility, when cross-border liquidity dries up, the emerging countries – which are more reliant on incoming capital – are the ones that suffer the harshest reversal of capital flows.

The availability of a longer time span may stimulate further future research on the topic addressed by this paper, and provide a thorough overview on the evolution of international investment during and after the COVID pandemic.

References

Ahmed, S., J. Hoek, S. Kamin, B. Smith, and E. Yoldas (2020). The impact of covid-19 on emerging markets economies' financial conditions. *FEDS Notes 2020-10-07-1, Board of Governors of the Federal Reserve System.*

Akhtaruzzaman, M., S. Boubaker, and A. Sensoy (2021). Financial contagion during covid̋Ű19 crisis. *Finance Research Letters 38*, 101604.

Albulescu, C. (2021). COVID-19 and the united states financial markets' volatility. *Finance Research Letters 38.*

Amar, A. and J. Carlotti (2021). Who drives the dance? further insights from a time-frequency wavelet analysis of the interrelationship between stock markets and uncertainty. *International Journal of Finance and Economics 26*, 1623–1636.

Ang, A. and G. Bekaert (2015). International Asset Allocation With Regime Shifts. *The Review of Financial Studies 15(4)*, 1137–1187.

Ashraf, B. (2020). Stock markets reaction to covid-19: Cases or fatalities? *Research in International Business and Finance 54.*

Baele, L., G. Bekaert, and K. Inghelbrecht (2007). The determinants of stock and bond return comovements. *Review of Financial Studies 23.*

Baele, L., G. Bekaert, K. Inghelbrecht, and M. Wei (2019). Flights to Safety. *The Review of Financial Studies 33*(2), 689–746.

Baig, A., H. A. Butt, O. Haroon, and S. Rizvi (2021). Deaths, panic, lockdowns and us equity markets: The case of COVID-19 pandemic. *Finance Research Letters 38.*

Baker, M. and J. Wurgler (2007). Investor sentiment in the stock market. *Journal of Economic Perspectives 21*(2).

Baker, M., J. Wurgler, and Y. Yuan (2012). Global, local, and contagious investor sentiment. *Journal of Financial Economics 104*(2), 272–287.

Baltzer, M., S. Jank, and E. Smajlbegovic (2019). Who trades on momentum? *Journal of Financial Markets 42*, 56–74.

Bandopadhyaya, A., A. Jones, and A. Leah (2006). Measuring investor sentiment in equity markets. *Journal of Asset Management 7.*

Bayraci, S., S. Demiralay, and H. Gencer (2018). Stock-bond co-movements and flight-to-quality in G7 countries: a time-frequency analysis. *Bulletin of Economic Research 70*(1), 29–49.

Belaid, F., A. Ben Amar, S. Goutte, and K. Guesmi (2021). Emerging and advanced economies markets behaviour during the COVID-19 crisis era. *International Journal of Finance and Economics.*

Bijlsma, M. and R. Vermeulen (2016). Insurance companiesŠ trading behaviour during the european sovereign debt crisis: Flight home or flight to quality? *Journal of Financial Stability 27*, 137–154.

Bolton, P., L. Buchheit, P.-O. Gourinchas, M. Gulati, C.-T. Hsieh, U. Panizza, and B. Weder di Mauro (2020). COVID-19 in Latin America: How is it different than in advanced economies? *In: Djankov S. and Panizza U. (eds) COVID-19 in Developing Economies. A VoxEU.org Book; CEPR Press*, 315–328.

Brière, M., A. Chapelle, and A. Szafarz (2012). No contagion, only globalization and flight to quality. *Journal of International Money and Finance 61(6)*, 1729–1744.

Caballero, R. and A. Krishnamurthy (2008). Collective risk management in a flight to quality episode. *Journal of Finance 63*(5), 2195–2230.

Cetorelli, N. and L. Goldberg (2011). Global banks and international shock transmission: Evidence from the crisis. *IMF Economic Review 59*, 41–76.

Chebbi, K., M. Ammer, and A. Hameed (2021). The COVID-19 pandemic and stock liquidity: Evidence from S&P 500. *The Quarterly Review of Economics and Finance 81*, 134–142.

Cho, J.-W., J. H. Choi, T. Kim, and W. Kim (2016). Flight-to-quality and correlation between currency and stock returns. *Journal of Banking and Finance 62*, 191–212.

Da, Z., J. Engelberg, and P. Gao (2014). The sum of all fears investor sentiment and asset prices. *The Review of Financial Studies 28(1)*, 1–32.

Damgaard, J., T. Elkjaer, and N. Johannesen (2018). Piercing the veil. *International Monetary Fund: Finance and Development Quarterly 55(2)*, 50–53.

Dimitriou, D., D. Kenourgios, and T. Simos (2020). Are there any other safe haven assets? evidence for ŞexoticŤ and alternative assets. *International Review of Economics and Finance 69*, 614–628.

Fassas, A. (2020). Risk aversion connectedness in developed and emerging equity markets before and after the covid-19 pandemic. *Heliyon 6*(12), e05715.

Forbes, K. and R. Rigobon (2002). No contagion, only interdependence: Measuring stock market comovements. *Journal of Finance 57(5)*, 2223–2261.

Gallegati, M. (2012). A wavelet-based approach to test for financial market contagion. *Computational Statistics and Data Analysis 56(11)*, 3491–3497.

Gamba-Santamaria, S., J. Gomez-Gonzalez, J. Hurtado-Guarin, and L. Melo-Velandia (2019). Volatility spillovers among global stock markets: measuring total and directional effects. *Empirical Economics 56(5)*, 1581–1599.

Giannetti, M. and L. Laeven (2012). The flight home effect: Evidence from the syndicated loan market during financial crises. *Journal of Financial Economics 104(1)*, 23–43.

Giofre', M. (2021). COVID-19 stringency measures and foreign investment: an early assessment. *North American Journal of Economics and Finance 58*.

Gupta, R., S. Subramaniam, E. Bouri, and Q. Ji (2021). Infectious disease-related uncertainty and the safe-haven characteristic of us treasury securities. *International Review of Economics and Finance 71*, 289–298.

Haas, R. D. and N. V. Horen (2013). Running for the exit? international bank lending during a financial crisis. *The Review of Financial Studies 26(1)*, 244–285.

Hale, T., T. Phillips, A. Petherick, B. Kira, N. Angrist, K. Aymar, S. Webster, S. Majumdar, L. Hallas, H. Tatlow, and E. Cameron-Blake (2020). Risk of openness index: When do government responses need to be increased or maintained? *Research note, University of Oxford and Blavatnik School of Government , September.*

Hevia, C. and A. Neumeyer (2020). A perfect storm: COVID-19 in emerging economies. *In: Djankov S. and Panizza U. (eds) COVID-19 in Developing Economies. A VoxEU.org Book; CEPR Press*, 9–25.

Huber, P. (1973). Robust regression: Asymptotics, conjectures and monte carlo. *Annals of Statistics 1(5)*, 799–821.

Huber, P. (1981). Robust statistics. *New York: Wiley.*

Kenourgios, D., A. Samitas, and N. Paltalidis (2011). Financial crises and stock market contagion in a multivariate time-varying asymmetric framework. *Journal of International Financial Markets, Institutions and Money 21*, 92–106.

Kundu, S. and N. Sarkar (2016). Return and volatility interdependences in up and down markets across developed and emerging countries. *Research in International Business and Finance 36*, 297–311.

Lane, P. and G. Milesi-Ferretti (2017). International financial integration in the aftermath of the global financial crisis. *IMF Working Papers 17/115.*

Lee, W., C. Jiang, and D. Indro (2002). Stock market volatility, excess returns, and the role of investor sentiment. *Journal of Banking and Finance 26(12)*, 2277–2299.

Levy Yeyati, E. and R. Valdés (2020). COVID-19 in latin america: How is it different than in advanced economies? *In: Djankov S. and Panizza U. (eds) COVID-19 in Developing Economies. A VoxEU.org Book; CEPR Press*, 101–111.

Li, C., C. Su, M. Altuntas, and X. Li (2021). COVID-19 and stock market nexus: evidence from Shanghai stock exchange. *Economic Research-Ekonomska Istraživanja*, 1–14.

Milesi-Ferretti, G. and C. Tille (2011). The great retrenchment: international capital flows during the global financial crisis. *Economic Policy 26*, 289–346.

OECD (2020a). Foreign direct investment flows in the time of covid-19. *Tackling Coronavirus (COVID-19): contributing to a global effort, May 2020.*

OECD (2020b). Global financial markets policy responses to covid-19. *WP, OECD Directorate for Financial and Enterprise Affairs, March 2020.*

OECD (2020c). OECD investment policy responses to covid-19. *Tackling Coronavirus (COVID-19): contributing to a global effort, June 2020.*

OECD (2021). The impact of the covid-19 crisis on emerging market borrowing. *OECD Sovereign Borrowing Outlook*.

Papadamou, S., A. Fassas, D. Kenourgios, and D. Dimitriou (2021). Flight-to-quality between global stock and bond markets in the covid era. *Finance Research Letters 38.*

Raddatz, C. and S. Schmukler (2012). On the international transmission of shocks: Micro-evidence from mutual fund portfolios. *Journal of International Economics 88(2)*, 357–374.

Rodriguez, J. (2007). Measuring financial contagion: A copula approach. *Journal of Empirical Finance 14*, 401–423.

Salisu, A. and X. Vo (2020). Predicting stock returns in the presence of covid-19 pandemic: The role of health news. *International Review of Financial Analysis 71.*

Saurav, A., P. Kusek, and R. Kuo (2020). The impact of covid-19 on foreign investors: early evidence from a global pulse survey. *Global Investment Climate, World Bank Group April 2020.*

Stambaugh, R., J. Yu, and Y. Yuan (2012). The short of it: Investor sentiment and anomalies. *Journal of Financial Economics 104(2)*, 288–302.

Wang, W., C. Su, and D. Duxbury (2021). Investor sentiment and stock returns: Global evidence. *Journal of Empirical Finance 63*, 365–391.

Yarovaya, L., J. Brzeszczynski, and C. Lau (2017). Asymmetry in spillover effects: Evidence for international stock index futures markets. *International Review of Financial Analysis 53*, 94–111.

Zoromé, A. (2007). Concept of offshore financial centers: In search of an operational definition. *IMF Working Paper WP/07/87.*

Figures

Figure 1. Growth in foreign liabilities

This figure reports the main statistics and the distribution of the growth rates in foreign liabilities (%) at the end of the first quarter (panel a) or first semester (panel b) of 2020.

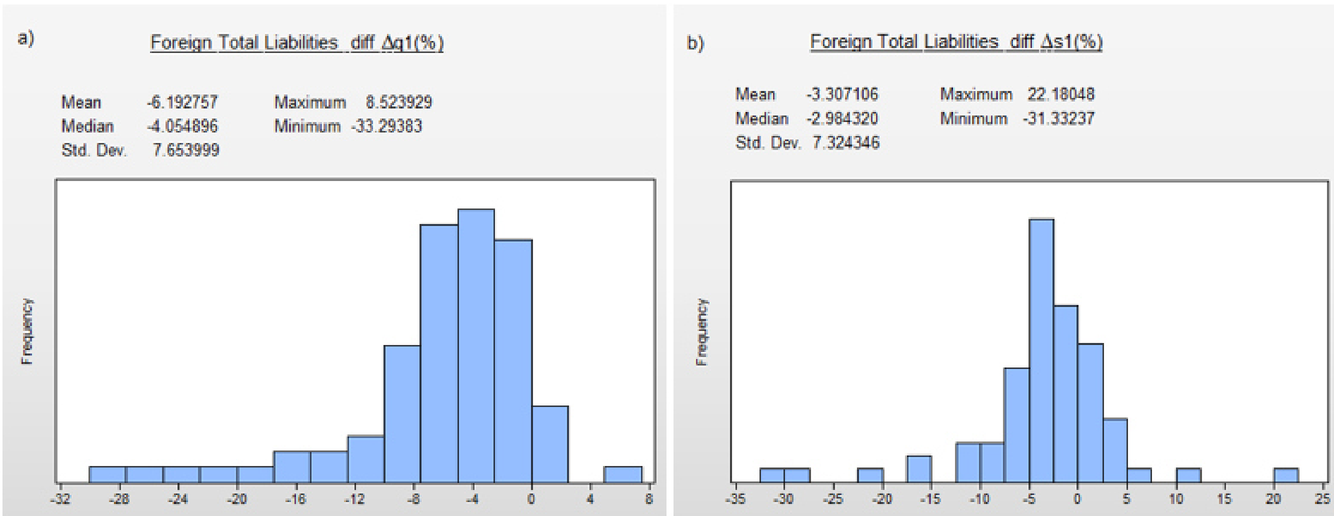
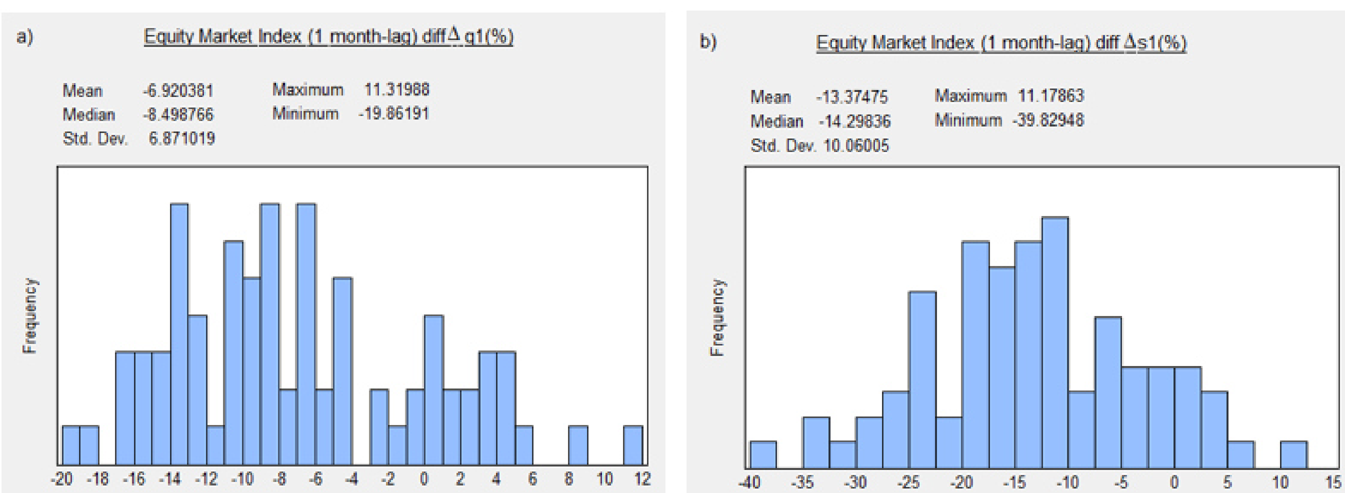


Figure 2. Growth in (1-month lagged) stock market index

This figure reports the main statistics and the distribution of the growth rate in equity market index (1-month lagged, %) at the end of the first quarter (panel a) or first semester (panel b) of 2020.



Tables

Table 1. Basic findings

This table reports the results of a Robust Least Squares regression (M-estimation), following equation (5). The dependent variable is the growth in foreign liabilities, corrected for seasonality, $diff\Delta L$. In columns (#a), $diff\Delta q1$ refers to the end of the first quarter of 2020, as defined in equation (3); in columns (#b), $diff\Delta s1$ refers to the end of the first semester of 2020, as defined in equation (4). ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

	Dependent variable: **Total liabilities' growth**							
	Basic findings							
	diffΔq1 *[(Mar 2020-Dec 2019)/Dec 2019 - (Mar 2019-Dec 2018)/Dec 2018]*				**diffΔs1** *[(Jun 2020-Dec 2019)/Dec 2019 - (Jun 2019-Dec 2018)/Dec 2018]*			
	H_GDPcap	advanced	G7	Euro area	H_GDPcap	advanced	G7	Euro area
	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)
constant	-0.096 ***	-0.085 ***	-0.059 ***	-0.075 ***	-0.055 **	-0.067 ***	-0.036 ***	-0.047 ***
	(0.019)	(0.015)	(0.007)	(0.010)	(0.025)	(0.024)	(0.009)	(0.009)
H_GDPcap	0.044 **				0.024			
	(0.021)				(0.029)			
advanced		0.034 **				0.043		
		(0.017)				(0.028)		
G7			0.052 **				-0.001	
			(0.023)				(0.022)	
Euro area				0.038 ***				0.028 **
				(0.014)				(0.013)
new COVID deaths per mn	0.009	0.008	-0.006	-0.003	-0.006	-0.006	-0.006	-0.007 **
	(0.016)	(0.018)	(0.015)	(0.017)	(0.004)	(0.004)	(0.004)	(0.004)
diff Δ NEER (1-month lag)	0.266	0.270	0.076	0.268	1.045 ***	0.784 *	1.122 ***	1.060 ***
	(0.392)	(0.421)	(0.446)	(0.444)	(0.331)	(0.455)	(0.211)	(0.185)
#obs	54	54	54	54	52	52	52	52
R^2	0.08	0.07	0.06	0.09	0.15	0.19	0.15	0.17

Table 2. Control for growth in equity market index (1-month lagged)

This table follows the same structure as Table 1, with an additional covariate: the growth in the equity market index (diffΔequity market index).

	Dependent variable: **Total liabilities' growth**							
	+ Equity market indexes' growth (1-month lag)							
	diffΔq1 *[(Mar 2020-Dec 2019)/Dec 2019 - (Mar 2019-Dec 2018)/Dec 2018]*				**diffΔs1** *[(Jun 2020-Dec 2019)/Dec 2019 - (Jun 2019-Dec 2018)/Dec 2018]*			
	H_GDPcap	advanced	G7	Euro area	H_GDPcap	advanced	G7	Euro area
	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)
constant	-0.079 ***	-0.059 ***	-0.043 ***	-0.055 ***	-0.055	-0.070 **	-0.031 **	-0.040 ***
	(0.020)	(0.014)	(0.009)	(0.011)	(0.040)	(0.027)	(0.014)	(0.013)
H_GDPcap	0.043 **				0.023			
	(0.020)				(0.036)			
advanced		0.024 *				0.046 *		
		(0.014)				(0.025)		
G7			0.053 **				-0.001	
			(0.024)				(0.023)	
Euro area				0.032 ***				0.031 **
				(0.012)				(0.013)
diff Δ equity mkt index (1-month lag)	0.193 *	0.171 *	0.180 **	0.162 **	0.015	-0.006	0.030	0.048
	(0.105)	(0.093)	(0.089)	(0.081)	(0.075)	(0.067)	(0.060)	(0.055)
new COVID deaths per mn	0.015	0.011	-0.002	-0.001	-0.003	-0.006	-0.005	-0.008 **
	(0.017)	(0.015)	(0.016)	(0.014)	(0.003)	(0.004)	(0.004)	(0.004)
diff Δ NEER (1-month lag)	0.218	0.025	0.024	0.004	1.031 ***	0.756 **	1.095 ***	1.039 ***
	(0.372)	(0.390)	(0.429)	(0.397)	(0.393)	(0.347)	(0.224)	(0.192)
#obs	54	54	54	54	52	52	52	52
R^2	0.13	0.08	0.10	0.11	0.13	0.21	0.16	0.17

Table 3. Control for stringency measures

This table follows the same structure as Table 2, with two additional regressors: the Stringency Index (SI_j) and the standard deviation of the stringency index (σSI_j).

	Dependent variable: **Total liabilities' growth**							
	+ Stringency measures							
	diffΔq1 *[(Mar $_{2020}$-Dec $_{2019}$)/Dec $_{2019}$ - (Mar $_{2019}$-Dec $_{2018}$)/Dec $_{2018}$]*				**diffΔs1** *[(Jun $_{2020}$-Dec $_{2019}$)/Dec $_{2019}$ - (Jun $_{2019}$-Dec $_{2018}$)/Dec $_{2018}$]*			
	H_GDPcap	advanced	G7	Euro area	H_GDPcap	advanced	G7	Euro area
	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)
constant	-0.141 ***	-0.115 **	-0.080	-0.076	-0.058 ***	-0.075	-0.053	-0.069 **
	(0.045)	(0.049)	(0.057)	(0.059)	(0.044)	(0.047)	(0.048)	(0.033)
H_GDPcap	0.049 **				0.019			
	(0.021)				(0.069)			
advanced		0.031 **				0.038		
		(0.015)				(0.025)		
G7			0.066 **				0.000	
			(0.030)				(0.021)	
Euro area				0.032 **				0.026 *
				(0.014)				(0.014)
diff Δ equity mkt index (1-month lag)	0.187 *	0.144 *	0.163 *	0.154 *	0.022 ***	0.008	0.047	0.067
	(0.106)	(0.088)	(0.087)	(0.082)	(0.169)	(0.080)	(0.076)	(0.076)
new COVID deaths per mn	0.003	0.035	-0.054	0.044	-0.015	-0.014	-0.014	-0.012
	(0.088)	(0.077)	(0.085)	(0.075)	(0.010)	(0.011)	(0.010)	(0.009)
st.dev. new COVID deaths per mn	0.000	-0.016	0.021	-0.022	0.011	0.011	0.011	0.005
	(0.040)	(0.035)	(0.036)	(0.035)	(0.009)	(0.010)	(0.009)	(0.009)
stringency index$_j$ (**SI**)	0.001	0.000	-0.001	0.000	0.000	0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
st.dev. stringency index$_j$ (**σSI**)	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001
	(0.001)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
diff Δ NEER (1-month lag)	-0.005	-0.177	-0.047	-0.033	0.955	0.763 **	1.070 ***	1.047 ***
	(0.420)	(0.363)	(0.378)	(0.386)	(0.710)	(0.344)	(0.196)	(0.155)
#obs	53	53	53	53	51	51	51	51
R^2	0.15	0.10	0.12	0.10	0.18	0.22	0.16	0.16

Table 4. Sensitivity analysis - Additional regressor: 'new COVID-cases per mn'

This table replicates Table 3, with an additional covariate: 'new cases of COVID per mn' (and its standard deviation).

	Dependent variable: **Total liabilities' growth**							
	Sensitivity analysis: + ***new COVID cases per mn***							
	diffΔq1 *[(Mar 2020-Dec 2019)/Dec 2019 - (Mar 2019-Dec 2018)/Dec 2018]*				**diffΔs1** *[(Jun 2020-Dec 2019)/Dec 2019 - (Jun 2019-Dec 2018)/Dec 2018]*			
	H_GDPcap	advanced	G7	Euro area	H_GDPcap	advanced	G7	Euro area
	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)
constant	-0.147 ***	-0.134 ***	-0.112	-0.082	-0.073 *	-0.091 **	-0.062	-0.077 **
	(0.045)	(0.046)	(0.113)	(0.077)	(0.042)	(0.041)	(0.046)	(0.036)
H_GDPcap	0.044 **				0.018			
	(0.019)				(0.025)			
advanced		0.032 *				0.032		
		(0.017)				(0.022)		
G7			0.082 **				0.007	
			(0.038)				(0.023)	
Euro area				0.025 *				0.029 *
				(0.013)				(0.015)
diff Δ equity mkt index (1-month lag)	0.007 **	0.006 **	0.008 ***	0.005 *	-0.001	-0.001	-0.005	-0.008
	(0.003)	(0.003)	(0.002)	(0.003)	(0.001)	(0.001)	(0.015)	(0.013)
new COVID deaths per mn	-0.137	-0.134	-0.225 **	-0.064	0.002	0.003	-0.001	-0.001
	(0.104)	(0.111)	(0.100)	(0.097)	(0.016)	(0.016)	(0.001)	(0.001)
st.dev. new COVID deaths per mn	0.061	0.060	0.089 **	0.026	-0.007	-0.009	0.001	-0.001
	(0.049)	(0.052)	(0.039)	(0.047)	(0.015)	(0.015)	(0.016)	(0.014)
new COVID cases per mn	0.007 **	0.006 **	0.008 ***	0.005 *	-0.001	-0.001	-0.005	-0.008
	(0.003)	(0.003)	(0.002)	(0.003)	(0.001)	(0.001)	(0.015)	(0.013)
st.dev. new COVID cases per mn	-0.003	-0.003	-0.004 ***	-0.002	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
stringency index$_j$ (**SI**)	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
st.dev. stringency index$_j$ (σ**SI**)	0.002	0.002	0.002	0.000	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.004)	(0.003)	(0.001)	(0.001)	(0.001)	(0.001)
diff Δ NEER (1-month lag)	-0.013	-0.058	0.107	0.021	1.005 ***	0.928 ***	1.039 ***	1.043 ***
	(0.409)	(0.441)	(0.380)	(0.457)	(0.231)	(0.276)	(0.218)	(0.178)
#obs	53	53	53	53	51	51	51	51
R^2	0.18	0.16	0.21	0.13	0.18	0.20	0.18	0.19

Table 5. Sensitivity analysis - Sample specification: no China

This table replicates Table 3, but the country sample excludes China.

	Dependent variable: **Total liabilities' growth**							
	Sensitivity analysis - Sample specification: ***no China***							
	diffΔq1 *[(Mar $_{2020}$-Dec $_{2019}$)/Dec $_{2019}$ - (Mar $_{2019}$-Dec $_{2018}$)/Dec $_{2018}$]*				**diffΔs1** *[(Jun $_{2020}$-Dec $_{2019}$)/Dec $_{2019}$ - (Jun $_{2019}$-Dec $_{2018}$)/Dec $_{2018}$]*			
	H_GDPcap	advanced	G7	Euro area	H_GDPcap	advanced	G7	Euro area
	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)
constant	-0.140 ***	-0.108 **	-0.068	-0.070	-0.082 *	-0.079 *	-0.052	-0.068 **
	(0.051)	(0.048)	(0.043)	(0.062)	(0.049)	(0.048)	(0.048)	(0.033)
H_GDPcap	0.058 **				0.054			
	(0.024)				(0.037)			
advanced		0.034 **				0.042		
		(0.016)				(0.028)		
G7			0.074 **				0.000	
			(0.030)				(0.022)	
Euro area				0.032 **				0.028 **
				(0.014)				(0.014)
diff Δ equity mkt index (1-month lag)	0.183 *	0.143	0.158 *	0.151 *	-0.032	0.002	0.045	0.061
	(0.109)	(0.094)	(0.085)	(0.081)	(0.098)	(0.085)	(0.076)	(0.084)
new COVID deaths per mn	0.021	0.042	-0.039	0.053	-0.013	-0.014	-0.014	-0.012
	(0.091)	(0.083)	(0.077)	(0.077)	(0.010)	(0.011)	(0.010)	(0.009)
st.dev. new COVID deaths per mn	-0.008	-0.018	0.016	-0.025	0.009	0.011	0.011	0.005
	(0.040)	(0.038)	(0.033)	(0.035)	(0.010)	(0.010)	(0.010)	(0.010)
stringency index $_j$ (**SI**)	0.000	-0.001	-0.002	0.000	0.000	0.000	0.000	0.000
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
st.dev. stringency index $_j$ (σ**SI**)	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
diff Δ NEER (1-month lag)	-0.034	-0.131	0.038	-0.010	0.718 **	0.755 **	1.064 ***	1.047 ***
	(0.435)	(0.374)	(0.337)	(0.410)	(0.295)	(0.370)	(0.198)	(0.154)
#obs	52	52	52	52	50	50	50	50
R^2	0.17	0.11	0.14	0.10	0.20	0.22	0.16	0.16

Table 6. Sensitivity analysis - Sample specification: no offshore

This table replicates Table 3, but the country sample excludes offshore countries (according to the classification in Damgaard et al. (2018))

	Dependent variable: **Total liabilities' growth**							
	Sensitivity analysis - Sample specification: ***no offshore***							
	diffΔq1 *[(Mar 2020-Dec 2019)/Dec 2019 - (Mar 2019-Dec 2018)/Dec 2018]*				**diffΔs1** *[(Jun 2020-Dec 2019)/Dec 2019 - (Jun 2019-Dec 2018)/Dec 2018]*			
	H_GDPcap	advanced	G7	Euro area	H_GDPcap	advanced	G7	Euro area
	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)
constant	-0.162 ***	-0.154 ***	-0.123 ***	-0.139	-0.059	-0.076	-0.053	-0.064 **
	(0.048)	(0.049)	(0.044)	(0.097)	(0.043)	(0.047)	(0.042)	(0.032)
H_GDPcap	0.041 **				0.008			
	(0.018)				(0.024)			
advanced		0.033 **				0.040		
		(0.016)				(0.027)		
G7			0.071 ***				-0.010	
			(0.026)				(0.021)	
Euro area				0.039 **				0.030 **
				(0.016)				(0.013)
diff Δ equity mkt index (1-month lag)	0.148	0.142	0.159 *	0.130 *	0.039	0.009	0.046	0.066
	(0.093)	(0.098)	(0.087)	(0.075)	(0.087)	(0.083)	(0.083)	(0.079)
new COVID deaths per mn	-0.060	-0.060	-0.127	-0.035	-0.020 **	-0.022 **	-0.020 **	-0.018 **
	(0.097)	(0.100)	(0.088)	(0.086)	(0.010)	(0.010)	(0.009)	(0.008)
st.dev. new COVID deaths per mn	0.029	0.028	0.053	0.011	0.018 **	0.020 **	0.018 **	0.013 **
	(0.046)	(0.048)	(0.039)	(0.044)	(0.009)	(0.010)	(0.008)	(0.008)
stringency index$_j$ **(SI)**	0.000	0.000	-0.001	0.000	0.000	0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
st.dev. stringency index$_j$ **(σSI)**	0.003 **	0.004 **	0.004 **	0.003	0.001	0.001	0.001	0.001
	(0.002)	(0.002)	(0.002)	(0.003)	(0.001)	(0.001)	(0.001)	(0.001)
diff Δ NEER (1-month lag)	-0.186	-0.233	-0.119	-0.162	1.078 ***	0.786 **	1.138 ***	1.056 ***
	(0.391)	(0.400)	(0.373)	(0.542)	(0.212)	(0.349)	(0.174)	(0.145)
#obs	49	49	49	49	47	47	47	47
R^2	0.16	0.15	0.18	0.16	0.19	0.26	0.18	0.21

Table 7. Sensitivity analysis - Econometric specification: OLS

This table replicates Table 3, but the model is estimated through standard OLS techniques.

	Dependent variable: **Total liabilities' growth**							
	Sensitivity analysis - Econometric specification: *OLS*							
	diffΔq1 *[(Mar $_{2020}$-Dec $_{2019}$)/Dec $_{2019}$ - (Mar $_{2019}$-Dec $_{2018}$)/Dec $_{2018}$]*				**diffΔs1** *[(Jun $_{2020}$-Dec $_{2019}$)/Dec $_{2019}$ - (Jun $_{2019}$-Dec $_{2018}$)/Dec $_{2018}$]*			
	H_GDPcap	advanced	G7	Euro area	H_GDPcap	advanced	G7	Euro area
	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)
constant	-0.149 ***	-0.144 ***	-0.099 **	-0.088 *	-0.064	-0.042	-0.016	-0.020
	(0.051)	(0.051)	(0.048)	(0.046)	(0.064)	(0.068)	(0.063)	(0.063)
H_GDPcap	0.055 **				0.053 **			
	(0.022)				(0.026)			
advanced		0.048 **				0.024		
		(0.021)				(0.025)		
G7			0.030				0.004	
			(0.029)				(0.032)	
Euro area				0.042 *				0.013
				(0.022)				(0.027)
diff Δ equity mkt index (1-month lag)	0.263 *	0.241 *	0.311 **	0.281 *	-0.022	-0.013	-0.011	-0.002
	(0.139)	(0.142)	(0.145)	(0.141)	(0.092)	(0.095)	(0.096)	(0.099)
new COVID deaths per mn	-0.040	-0.024	-0.097	-0.045	-0.012	-0.013	-0.012	-0.010
	(0.129)	(0.131)	(0.136)	(0.132)	(0.014)	(0.014)	(0.015)	(0.015)
st.dev. new COVID deaths per mn	0.024	0.014	0.053	0.024	0.008	0.010	0.011	0.008
	(0.057)	(0.059)	(0.059)	(0.059)	(0.014)	(0.014)	(0.014)	(0.015)
stringency index$_j$ (**SI**)	0.001	0.001	0.001	0.001	0.000	0.000	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
st.dev. stringency index$_j$ (σ**SI**)	0.001	0.002	0.001	0.000	0.000	0.001	0.001	0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
diff Δ NEER (1-month lag)	0.203	0.211	0.440	0.566	0.701 ***	0.723 ***	0.781 ***	0.748 ***
	(0.473)	(0.479)	(0.487)	(0.469)	(0.198)	(0.211)	(0.205)	(0.216)
#obs	53	53	53	53	51	51	51	51
R^2	0.06	0.06	0.06	0.06	0.07	0.07	0.07	0.07

Table 8. Sensitivity analysis - Econometric specification: Quantile regression (median)

This table replicates Table 3, but the model is estimated through a Quantile regression (at the median).

	Dependent variable: **Total liabilities' growth**							
	Sensitivity analysis - Econometric specification: ***Quantile regression (median)***							
	diffΔq1 *[(Mar $_{2020}$-Dec $_{2019}$)/Dec $_{2019}$ - (Mar $_{2019}$-Dec $_{2018}$)/Dec $_{2018}$]*				**diffΔs1** *[(Jun $_{2020}$-Dec $_{2019}$)/Dec $_{2019}$ - (Jun $_{2019}$-Dec $_{2018}$)/Dec $_{2018}$]*			
	H_GDPcap	advanced	G7	Euro area	H_GDPcap	advanced	G7	Euro area
	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)
constant	-0.152 *	-0.189 **	-0.131	-0.134	-0.052	-0.083	-0.058	-0.048
	(0.091)	(0.088)	(0.085)	(0.104)	(0.072)	(0.076)	(0.063)	(0.082)
H_GDPcap	0.041				0.018			
	(0.026)				(0.035)			
advanced		0.041 *				0.028		
		(0.023)				(0.034)		
G7			0.078 *				0.005	
			(0.042)				(0.032)	
Euro area				0.037 *				0.033
				(0.020)				(0.028)
diff Δ equity mkt index (1-month lag)	0.283 *	0.086	0.243	0.098	0.007	0.076	0.055	0.078
	(0.162)	(0.144)	(0.174)	(0.120)	(0.125)	(0.146)	(0.141)	(0.149)
new COVID deaths per mn	-0.004	0.003	-0.134	0.039	-0.013	-0.007	-0.011	-0.004
	(0.120)	(0.122)	(0.148)	(0.112)	(0.015)	(0.019)	(0.014)	(0.020)
st.dev. new COVID deaths per mn	-0.004	-0.011	0.049	-0.025	0.011	0.005	0.009	0.001
	(0.054)	(0.056)	(0.063)	(0.051)	(0.014)	(0.017)	(0.014)	(0.019)
stringency index$_j$ (**SI**)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
st.dev. stringency index$_j$ (σ**SI**)	0.003	0.004	0.003	0.003	0.002	0.002	0.002	0.001
	(0.003)	(0.003)	(0.003)	(0.004)	(0.002)	(0.002)	(0.002)	(0.002)
diff Δ NEER (1-month lag)	-0.603	-0.450	-0.282	-0.162	0.833 **	0.558	0.895 **	0.556
	(0.598)	(0.634)	(0.622)	(0.576)	(0.331)	(0.737)	(0.372)	(0.817)
#obs	53	53	53	53	51	51	51	51
R^2	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07

A Data appendix

A.1 Dependent variables

Foreign liabilities

The growth in foreign liabilities (L), follows equation (3) for the first quarter of 2020:
$diff\Delta q1 \equiv (L_{03\_20} - L_{12\_19})L_{12\_19} - (L_{03\_19} - L_{12\_18})/L_{12\_18}$
and equation (4) for the first semester of 2020:
$diff\Delta s1 \equiv (L_{06\_20} - L_{12\_19})/L_{12\_19} - (L_{06\_19} - L_{12\_18})/L_{12\_18}$
Source: International Investment Position Statistics (IMF)

Baseline sample

Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, China, Colombia, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hong Kong, Hungary, Iceland, India, Indonesia, Ireland, Israel, Italy, Japan, Latvia, Lithuania, Luxembourg, Malaysia, Netherlands, New Zealand, Norway, Peru, Philippines, Poland, Portugal, Romania, Russia, Saudi Arabia, Singapore, Slovakia, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Thailand, Turkey, United Kingdom, United States.

Offshore countries

In Tables 6, we restrict the sample to exclude potential offshore countries, following the classification specified in Damgaard et al. (2018). From our original sample, Hong Kong, Ireland, Luxembourg, the Netherlands and Singapore are excluded. Damgaard et al. (2018) report that ‹‹ *the eight major pass-through economies -the Netherlands, Luxembourg, Hong Kong SAR, the British Virgin Islands, Bermuda, the Cayman Islands, Ireland, and Singapore- host more than 85 percent of the world's investment in special purpose entities, which are often set up for tax reasons* ››.

In Appendix B, we report results under alternative classification of offshore centres: Table 11 refers to the classification specified in Zoromé (2007), which excludes, from our original sample, Cyprus, Hong Kong, Ireland, Latvia, Luxembourg, Malta, Singapore, Switzerland and United Kingdom; Table 12 refers instead to the classification specified in Lane and Milesi-Ferretti (2017), which excludes, from our original sample, Belgium, Cyprus, Hong Kong, Ireland, Luxembourg, Malta, the Netherlands, Singapore, Switzerland and the United Kingdom.

A.2 Regressors

Main regressor

High GDP per capita

The regressor included is a binary variable equal to 1 if the GDP per capita is larger than the sample median, and 0 otherwise.

GDP per capita (year: 2019, or latest available data).

Source: CEIC data

Advanced, G7, Euro area

The regressor included is a binary variable equal to 1 if the country belongs to the 'advanced', 'G7', or 'Euro area' group, respectively, and 0 otherwise, according to the *Economy grouping* classification of the Fiscal Monitor database (IMF).

Source: Fiscal Monitor database, IMF's Fiscal Affairs Department.

Other controls

Equity market index

The equity market index (EMI) regressor is the equity market index computed at month end. The EMI regressor is included with the same structure as the dependent variable (1-month lagged, to avoid endogeneity issues). For instance, if the dependent variable is the growth of foreign total liabilities, $diff\Delta q1$, as defined in equation (3), then the regressor included is the growth of the equity market index in the same time span, i.e., $diff\Delta\ EMI\_q1 = (EMI_{03\_20} - EMI_{12\_19})/EMI_{12\_19} - (EMI_{03\_19} - EMI_{12\_18})/EMI_{12\_18}$

Source: CEIC data

New COVID death per mn

This is a daily variable, reported by the countries' authorities. In our analysis, we consider its quarterly average, for consistency with the dependent variable's frequency.

Source: https://github.com

New COVID cases per mn

This is a daily variable, reported by the countries' authorities. In our analysis, we consider its quarterly average, for consistency with the dependent variable's frequency.

Source: https://github.com

Stringency index

The Stringency Index is a daily aggregate measure of the overall stringency of containment and closure policies. It is calculated by taking the ordinal value and adding a weighted constant if the policy is general rather than targeted, if applicable, which are then re-scaled by their maximum value to create a score between 0 and 100. More information can be found at Oxford's Government Response Tracker, https://www.bsg.ox.ac.uk/research/research-projects/coronavirus-government-response-tracker

In our analysis, we consider and report as regressor the quarterly overall mean of the daily stringency index (SI_j) and its standard deviation (σSI_j) computed within each country over the corresponding period.

Source: https://github.com/OxCGRT/covid-policy-tracker

Nominal Effective Exchange Rate

BIS Nominal Effective Exchange Rate (Broad Indices Monthly averages; 2010=100). The NEER regressor is included with the same structure as the dependent variable (1-month lagged to avoid endogeneity issues). For instance, if the dependent variable is the growth of foreign total liabilities, $diff\Delta q1$, as defined in equation (3), then the regressor included is the growth of the $NEER$ regressor in the same time span, i.e., $diff\Delta NEER = (NEER_{03\_20} - NEER_{12\_19})/NEER_{12\_19} - (NEER_{03\_19} - NEER_{12\_18})/NEER_{12\_18}$

Source: Bank for International Settlements

B Additional tables

Table 9. Growth in equity market indexes (contemporaneous values)

This table reports the results of a regression, similar to Table 1, with the growth in the equity market index (diffΔemi_q1 or diffΔemi_s1) as a dependent variable.

	Dependent variable: **Equity market indexes' growth**							
	diffΔemi_q1 *[(Mar 2020-Dec 2019)/Dec 2019 - (Mar 2019-Dec 2018)/Dec 2018]*				**diffΔemi_s1** *[(Jun 2020-Dec 2019)/Dec 2019 - (Jun 2019-Dec 2018)/Dec 2018]*			
	H_GDPcap	advanced	G7	Euro area	H_GDPcap	advanced	G7	Euro area
	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)
constant	-0.360 ***	-0.348 ***	-0.310 ***	-0.317 ***	-0.234 ***	-0.243 ***	-0.219 ***	-0.222 ***
	(0.030)	(0.019)	(0.014)	(0.014)	(0.043)	(0.027)	(0.020)	(0.021)
H_GDPcap	0.062 *				0.019			
	(0.032)				(0.046)			
advanced		0.060 **				0.037		
		(0.024)				(0.031)		
G7			-0.019				-0.023	
			(0.027)				(0.033)	
Euro area				0.019				0.008
				(0.031)				(0.031)
new COVID deaths per mn	-0.070 ***	-0.079 ***	-0.053 **	-0.070 **	-0.010 *	-0.012 *	-0.008	-0.010 *
	(0.021)	(0.025)	(0.025)	(0.031)	(0.006)	(0.007)	(0.006)	(0.006)
diff Δ NEER (1-month lag)	-1.033 *	-1.026 *	-0.598	-0.675	-0.151	-0.162	-0.092	-0.122
	(0.533)	(0.550)	(0.662)	(0.637)	(0.339)	(0.254)	(0.289)	(0.293)
#obs	55	55	55	55	55	55	55	55
R^2	0.13	0.15	0.08	0.08	0.04	0.05	0.04	0.04

Table 10. 'New COVID cases per mn' as alternative to 'New COVID deaths cases per mn'

This table replicates Table 3 but the covariate 'new COVID deaths per mn' (and its standard deviation) is replaced by the covariate 'new COVID cases per mn' (and its standard deviation).

	Dependent variable: **Total liabilities' growth**							
	Sensitivity analysis: ***new COVID cases (as alternative to deaths) per mn***							
	diffΔq1 *[(Mar 2020-Dec 2019)/Dec 2019 - (Mar 2019-Dec 2018)/Dec 2018]*				**diffΔs1** *[(Jun 2020-Dec 2019)/Dec 2019 - (Jun 2019-Dec 2018)/Dec 2018]*			
	H_GDPcap	advanced	G7	Euro area	H_GDPcap	advanced	G7	Euro area
	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)
constant	-0.130 ***	-0.117 ***	-0.073 *	-0.074	-0.069	-0.082 **	-0.058	-0.072 *
	(0.042)	(0.041)	(0.041)	(0.056)	(0.043)	(0.040)	(0.044)	(0.043)
H_GDPcap	0.041 ***				0.025			
	(0.015)				(0.054)			
advanced		0.031 **				0.025		
		(0.015)				(0.023)		
G7			0.059 **				0.001	
			(0.025)				(0.021)	
Euro area				0.026 **				0.015
				(0.012)				(0.014)
diff Δ equity mkt index (1-month lag)	0.121	0.111	0.127	0.125	0.020	0.040	0.051	0.068
	(0.080)	(0.086)	(0.087)	(0.082)	(0.137)	(0.083)	(0.076)	(0.085)
new COVID cases per mn	0.004 **	0.004 **	0.005 **	0.004 *	-0.001	-0.001 **	-0.001 *	-0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.000)	(0.001)	(0.001)
st.dev. new COVID cases per mn	-0.002 **	-0.002 **	-0.002 **	-0.002 *	0.001	0.001 **	0.001 *	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
stringency index$_j$ (**SI**)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
st.dev. stringency index$_j$ (σ**SI**)	0.002	0.002	0.001	0.000	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
diff Δ NEER (1-month lag)	-0.073	-0.095	0.138	0.035	0.875 *	0.901 ***	1.006 ***	1.003 ***
	(0.348)	(0.371)	(0.378)	(0.428)	(0.530)	(0.295)	(0.205)	(0.213)
#obs	53	53	53	53	51	51	51	51
R^2	0.16	0.14	0.16	0.13	0.21	0.19	0.18	0.15

Table 11. Alternative classification of offshore centers (Zoromé (2007))

This table replicates Table 6 but the offshore classification follows Zoromé (2007), rather than Damgaard et al. (2018).

	Dependent variable: **Total liabilities' growth**							
	Sensitivity analysis - Sample specification: ***no offshore 2***							
	diffΔq1 *[(Mar $_{2020}$-Dec $_{2019}$)/Dec $_{2019}$ - (Mar $_{2019}$-Dec $_{2018}$)/Dec $_{2018}$]*				**diffΔs1** *[(Jun $_{2020}$-Dec $_{2019}$)/Dec $_{2019}$ - (Jun $_{2019}$-Dec $_{2018}$)/Dec $_{2018}$]*			
	H_GDPcap	advanced	G7	Euro area	H_GDPcap	advanced	G7	Euro area
	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)
constant	-0.192 ***	-0.203 ***	0.000 ***	-0.182 ***	-0.065	-0.093 *	-0.056	-0.083 **
	(0.041)	(0.043)	(0.000)	(0.039)	(0.045)	(0.050)	(0.050)	(0.033)
H_GDPcap	0.029 *				0.010			
	(0.015)				(0.024)			
advanced		0.031 **				0.041 *		
		(0.015)				(0.023)		
G7			0.040				-0.007	
			(0.044)				(0.025)	
Euro area				0.043 ***				0.035 ***
				(0.011)				(0.013)
diff Δ equity mkt index (1-month lag)	0.150 *	0.156 *	0.078	0.136 *	0.032	0.003	0.043	0.060
	(0.087)	(0.095)	(0.084)	(0.075)	(0.086)	(0.077)	(0.079)	(0.083)
new COVID deaths per mn	-0.162	-0.124	0.005 ***	-0.200 *	-0.033 **	-0.038 ***	-0.030 **	-0.028 ***
	(0.130)	(0.131)	(0.001)	(0.115)	(0.013)	(0.014)	(0.015)	(0.010)
st.dev. new COVID deaths per mn	0.081	0.058	-0.172 **	0.092 *	0.027 **	0.032 **	0.026 **	0.020 **
	(0.065)	(0.066)	(0.159)	(0.057)	(0.012)	(0.013)	(0.013)	(0.009)
stringency index$_j$ (**SI**)	-0.001	0.000	0.040	0.000	0.000	0.000	0.000	0.001
	(0.001)	(0.001)	(0.044)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
st.dev. stringency index$_j$ (σ**SI**)	0.005 ***	0.005 ***	0.000	0.005 ***	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
diff Δ NEER (1-month lag)	-0.602 **	-0.634 **	-0.184 ***	-0.424	1.045 ***	0.759 ***	1.095 ***	1.025 ***
	(0.304)	(0.322)	(0.042)	(0.262)	(0.208)	(0.241)	(0.208)	(0.156)
#obs	45	45	45	45	43	43	43	43
R^2	0.21	0.22	0.00	0.28	0.28	0.37	0.27	0.29

Table 12 Alternative classification of offshore centers (Lane and Milesi-Ferretti (2017))

This table replicates Table 6 but the offshore classification follows Lane and Milesi-Ferretti (2017), rather than Damgaard et al. (2018).

	Dependent variable: **Total liabilities' growth**							
	Sensitivity analysis - Sample specification: ***no offshore 3***							
	diffΔq1 *[(Mar $_{2020}$-Dec $_{2019}$)/Dec $_{2019}$ - (Mar $_{2019}$-Dec $_{2018}$)/Dec $_{2018}$]*				**diffΔs1** *[(Jun $_{2020}$-Dec $_{2019}$)/Dec $_{2019}$ - (Jun $_{2019}$-Dec $_{2018}$)/Dec $_{2018}$]*			
	H_GDPcap	advanced	G7	Euro area	H_GDPcap	advanced	G7	Euro area
	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)
constant	-0.192 ***	-0.205 ***	-0.173 ***	-0.178 ***	-0.068	-0.092 *	-0.063	-0.082 **
	(0.040)	(0.042)	(0.036)	(0.040)	(0.043)	(0.048)	(0.045)	(0.032)
H_GDPcap	0.033 **				0.009			
	(0.015)				(0.024)			
advanced		0.034 **				0.040 *		
		(0.014)				(0.024)		
G7			0.059 **				-0.007	
			(0.024)				(0.019)	
Euro area				0.044 ***				0.034 ***
				(0.012)				(0.012)
diff Δ equity mkt index (1-month lag)	0.158 *	0.158 *	0.180 *	0.153 **	0.034	0.005	0.045	0.054
	(0.084)	(0.092)	(0.092)	(0.077)	(0.090)	(0.078)	(0.084)	(0.087)
new COVID deaths per mn	-0.031	-0.028	-0.107	-0.030	-0.031 **	-0.038 ***	-0.028 **	-0.028 ***
	(0.075)	(0.074)	(0.081)	(0.069)	(0.012)	(0.013)	(0.013)	(0.009)
st.dev. new COVID deaths per mn	0.012	0.007	0.040	0.004	0.026 **	0.032 ***	0.024 **	0.020 **
	(0.034)	(0.034)	(0.035)	(0.032)	(0.012)	(0.012)	(0.012)	(0.009)
stringency index$_j$ (**SI**)	-0.001	0.000	-0.001	0.000	0.000	0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
st.dev. stringency index$_j$ (σ**SI**)	0.005 ***	0.005 ***	0.005 ***	0.005 ***	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
diff Δ NEER (1-month lag)	-0.630 **	-0.654 **	-0.514	-0.404	1.064 ***	0.777 ***	1.120 ***	1.027 ***
	(0.303)	(0.315)	(0.322)	(0.285)	(0.208)	(0.264)	(0.193)	(0.152)
#obs	47	47	47	47	45	45	45	45
R^2	0.19	0.21	0.21	0.26	0.27	0.35	0.26	0.28