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# Growing During a Global Crisis

*A Cross-Country Event-Study of the Effect of the Financial and Managerial Decisions on Firms Growth During the COVID-19 Pandemic*

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## **Abstract**

*Employing the data from the World Bank Enterprise surveys, we examine how the first shock of the COVID-19 pandemic has affected firm dynamics across the world. Our first group of robust models have tested the effect of internal firms' managerial decisions and other external factors on the sales' growth, where we found that the most important decisions are related to preserving and increasing liquidity levels, in addition to utilizing the workforce in giving more input to maintain and grow the firms' sales. Our second group of robust models have tested the firms' financial decisions and other external factors on the change of the firms' liquidity levels, where we found that the firms' liquidity levels are better protected by maintaining the relationships with financial institutions and government authorities, in addition to international firms through exporting. This paper adds to the literature through its focused examination of the immediate effect of the pandemic on firms during the months May to November 2020, while keeping a broad scope by covering 14,751 firms from 25 economies around the world*

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## I Introduction

What are the decisions that firms took when they were first shocked by the COVID-19 pandemic? How could firms be able to continue growing during such global crisis? And what are the financial decisions that firms took to maintain their financial health? These are the questions that we aim to address in this paper, employing the data provided by the World Bank's Enterprise Surveys, by following the example of other prominent researchers, and adding to the literature by addressing the questions above. Researchers such as Aga and Maemir (2021) found that the pandemic had a harsh impact on firms in Sub Saharan Africa, similar to what Karalashvili and Viganola (2021) found to be true in 40 other countries. On the other hand, Adian et al. (2020) found that the negative impact is much harsher on smaller firms in general, which is similar to the findings of Apedo-Amah et al. (2020) who added that this is also true for firms in less developed countries. Muzi et al. (2021) found that the pandemic caused less productive firms to be cleaned out of the market, which Miyakawa et al. (2021) found to be true in Japan as well. Banerjee and Kharroubi (2020) found that weak financial health will amplify a crisis' shock, and Bosio et al. (2020) noted that a prolonged crisis will dissipate the firms' liquidity, which Buera et al. (2021) have concurred in their model, where they found that prolonged crises lead to prolonged recovery periods. Fareed and Overvest (2021) warned that overdependence on government support would eventually harm everyone; hence, it would be better to maintain the firms' access to finance to endure the pandemic, according to both Haidar (2021) and Amin and Viganola (2021), or to preserve and increase their liquidity as found by Acharya and Steffen (2020).

These findings from the recent papers that discussed the effect of the pandemic on the firms' dynamics have led us to ask the questions that we listed above. Accordingly, we decided to study the determinants of growth during a global crisis by creating a quantitative variable to measure the sales' growth and use it as our main response variable. We found that the major management decisions were to preserve and increase liquidity levels, and to use the employees' size in increasing the efforts and hours in operations. These decisions were valid for firms across the world. Additionally, we found that some other decisions are helpful in lesser manner and depend on the type and the whereabouts of the firms. We also found that the government support was dedicated to the truly needy firms during the pandemic's first shock. We also decided to explore the determinants of change in liquidity levels in the same firms, where we found that firms tend to tighten the belt on any non-crucial spending during the same time period. Also, we found that maintaining open relationships with financial institutions and government authorities, in addition to international firms (via exporting)—are all helpful factors to protect the firms' liquidity levels and cash flows.

Our robust regression models that we will illustrate in the next sections is offering interesting results that provided us with new insights on the firms' dynamics during a first shock of a global crisis. The upcoming section will expand on our review of the relevant literature, followed by detail description of our data in section III, which we used to build and test our robust models as shown in section IV, moving

to listing our results in section V and discussing them in section VI, and ending with our conclusion in section VII and illustration of the limitation and our opinion on future research in section VIII. All the relevant tables are available in section X at the end of this paper.

## II Related Literature

In early 2020, the world faced the COVID-19 pandemic that caused financial and economic uncertainties. Researchers published various papers on the effect of the pandemic on firm dynamics using the *World Bank's Enterprise Surveys* and other datasets. These papers guide our study on the effect of the COVID-19 pandemic on firms' growth and access to finance.

Using the *World Bank's Enterprise Surveys* data, Aga and Maemir (2021) showed that the lack of proper economic environment before the pandemic has made the negative impact of the pandemic more painful on firms in the Sub-Saharan African countries. In addition, they documented that the Sub-Saharan firms were more open to modifying their operations and/or products to adapt to the crisis, in comparison with firms from other regions. This finding indicates that the lack of a good overall environment is not a death sentence to firms under macro-level crises, as it can resort to innovation in order to survive. In their study that covered firm-level data for 31 countries, Muzi et al. (2021) examined if the economic crisis induced by the COVID-19 pandemic exhibits a "Schumpeterian cleansing"<sup>2</sup> of less productive firms. They found that less productive firms have a higher probability of permanently closing during the crisis, suggesting that the process of cleansing out unproductive arrangements may be at work. They also uncovered a negative relationship between firm exit and innovation and digital presence, especially for small firms, confirming the relevance of the ability to adapt to market conditions as a determinant of firm survival. In addition, they highlighted a negative relationship between firm exit and a burdensome business environment, as well as between firm exit and age.

Looking at government support as means for survival during crises, Fareed and Overvest (2021) found that firms' exit, and bankruptcy rates are much lower than expected during the pandemic in comparison with the 2007-2009 global financial crisis. They argued that this is not a healthy sign. They explained their view by stating that although relief funds would currently prevent an increase in unemployment rate in the short run, firms' productivity, innovation, and growth would be harmed, due to the overdependence on government support, in the long run. Using data on nearly seven-thousand firms in a dozen high-income and middle-income countries, Bosio et al. (2020) found that firms will not maintain sufficient liquidity to survive the negative effect of the pandemic. In a scenario of extreme economic distress, and under the assumption that firms have no incoming revenues and cover only fixed costs, they found that the median survival time across industries ranges within 8 to 19 weeks, while on

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<sup>2</sup> Referring to *Joseph Schumpeter's* concept of "creative destruction"; i.e., the continuous improvement of economic processes by destroying old processes and creating new and improved ones

average firms have liquidity to survive between 12 and 38 weeks. Given that potential exit is not predicated on the size of firms, their age, or their productivity, the authors concluded that governments must intervene to help companies survive—a suggestion that was realized in many countries, where governments bailed out distressed businesses, and prevented key players from defaulting.

In a related line of research, Miyakawa et al. (2021) conducted a focused study on firms exit in Japan after suffering a decrease in sales due to the pandemic. They found that this phenomenon is heterogeneous across the industries and regions of Japan. Also, Amin and Viganola (2021) studied whether better access to finance in the period before the pandemic helps firms deal with the pandemic. They found that firms with better access to finance are significantly less likely to experience a decline in sales, and this relationship is highly heterogeneous. For instance, they observed that better access to finance reduces the likelihood of a decline in sales much more for firms that use more skilled relative to unskilled workers, firms in industries with a more complex network of input suppliers, and firms in countries where the cost of enforcing contracts with new input suppliers is high. Moreover, Buera et al. (2021) created a quantitative model to predict the effect of temporary shocks of any type and arrived at the conclusion that longer lockdowns lead to longer recovery periods, and that deeper lockdowns require deeper recovery processes. They also found that “young non-essential firms” are exposed to more damage during crises. Haidar (2021) used Egypt as an example of how countries could mitigate the negative effects the pandemic using fiscal and monetary policy tools. He described how the government injected emergency relief funds from both the country’s budget and international institutions to soften the impact of the pandemic on firms. He also found that Egyptian businesses still experienced easy to moderate access to finance during the pandemic as they did before its onset.

Acharya and Steffen (2020) found that in response to the pandemic, not only that firms hoarded their cash, but they also converted their credit lines into cash. This behavior had an effect on the other side of the cash supply, i.e., the banks, which suffered from severe shortness in liquidity that they had to use their equity to fulfill firms requests for liquidity. Acharya and Steffen argued that this imbalance is dangerous to the economy overall, and that concerned authorities should develop and implement more suitable policies for a better response to the demand of liquidity during crises. Also, Banerjee and Kharroubi (2020) stated in the conclusion of their paper on the financial determinants on firms’ exit that “*financial vulnerabilities*” have significant role in crises as “*shock amplifiers*”. Also, they estimated that the financial vulnerability of firms that were affected by the pandemic would probably continue after economies recover from the shock. Hence, setting regulatory preventive and protective measures is crucial to the financial endurance of firms, and subsequently, the country-specific and global economic stability.

In the same line of research, Adian et al. (2020) found that while all firms are affected by the pandemic, small and medium firms lose their liquidity faster and suffer from more negative growth in sales than large firms. Similarly, Apedo-Amah et al. (2020) also found that the negative financial impact on firms

is heterogeneous both within and across countries - that it is more severe in smaller firms and in less developed economies, respectively. They also concurred that the pandemic had a negative impact on sales volume in around 84% of firms across the world. Furthermore, they found that firms that had more decrease in sales volume had also similar decrease in count of full-time permanent employees.

Most recently, Karalashvili and Viganola (2021) looked at the evolving effects of the COVID-19 pandemic on the private sector in 40 countries. They found that firms from lower-income countries seem to have been hit harder across several measures, such as declines in sales and incidences of overdue financial obligations. Within countries, small and medium-sized enterprises “SMEs”, with 5 to 99 employees, seem to have fared more poorly than large firms.

This paper aims to contribute to this growing literature by studying the relationship between liquidity and growth of firms during the pandemic.

### III Data

This paper employ data from the World Bank Enterprise Surveys dataset<sup>3</sup>. The Enterprise Surveys (ES) are representative samples of firms across world economies. They have covered 171,000 formal sector firms from 149 countries since the 1990’s till 2021. The surveyed firms are privately held registered businesses with at least five employees, and they operate either in the manufacturing<sup>4</sup> or services<sup>5</sup> sectors. The surveys span various business environment topics including access to finance measures.

As the COVID-19 pandemic hit the world, ES initiated “follow-up surveys”. Follow-up Surveys (FS) are specially designed surveys to gather selected information on the changes in firms’ operation and performance, and what actions they took in response to the pandemic. At the time of writing this paper, the ES has completed the first round of FS in 46 countries, completed the second round for 30 countries, and completed the third round for 19 countries. The firms covered by FS are the same sample covered in ES. The earliest round of FS was in May 2020.

To study the immediate effect of the pandemic on firms, this paper uses the latest round of the ES and the first round of FS. Hence, the ES data spanned from July 2018 to June 2020 and named the “Baseline Surveys”<sup>6</sup>, and the FS data spanned from May 2020 to November 2020 and named the “Round 1 Surveys”. By doing so, the paper covers twenty-four sovereign countries<sup>7</sup> and the Cypriot Turkish Community, hence a total of twenty-five economies. Although the number of surveyed firms is 14,751; the sample of firms in this paper is 10,941. This is because out of the 14,751, only 11,488 responded to

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<sup>3</sup> <https://www.enterprisesurveys.org>

<sup>4</sup> International Standard Industrial Classification: ISIC Rev.3.1: 15-37

<sup>5</sup> ISIC Rev.3.1: 45, 50, 51, 52, 55, 60-64, 72

<sup>6</sup> Also mentioned as “Round 0 Surveys” in the variables’ names

<sup>7</sup> For South Africa: only the firms in “Gauteng” city were covered in the surveys

the FS, and out of the 11,488, only 10,941 were open and/or temporarily closed. The permanently closed firms have only answered Section H of the FS, “*Information on Permanently Closed Establishments*”, which is out of the scope of this paper; hence, they were excluded from the analysis. The 3,263 non-respondent firms are the majority of missing data points in the dataset.

Table 1 illustrates the dates of the Baseline and the Round 1 surveys, and the open status of the firms by country. Table 2 illustrates the count of surveyed firms, their size category (micro, small, medium, and large), and their sector (manufacturing, retail services, and other services), in addition to the region and income-level of each economy, according to the World Bank’s classification.

The twenty-five variables used in analysis were majorly from the FS questions (Round 1 Surveys), and few were from the ES (Baseline Surveys). For example, the variable “Change in Liquidity” is the response to the FS question “*COVe1a: Since the outbreak of COVID-19, did this establishment’s liquidity and/or cash flows increase, remain the same, or decrease?*”. The list of dependent variables and their definitions are illustrated in Table 3, including the codes of the questions used from the ES or FS surveys, for transparency and reproducibility purposes<sup>8</sup>. We created the variables *Sales Growth* “SGP” and *Direct Exporter Status* “EXP” using questions from the FS and created the variable *Age in Years* “AGE” using the ES.

We add to the literature by using the FS to calculate a quantitative measure for the growth in sales, which is a precedence in the literature that use the *World Bank’s Enterprise Surveys* as source of data. To calculate the growth in sales between the Round 1 survey month and the same month in 2019, we use the following FS questions: (i) “*Comparing this establishment’s sales for the last completed month with the same month in 2019, did sales increase, remain the same, or decrease?*” (COVb2a); “*By what percentage did the sales increase?*” (COVb2a); and (iii) “*By what percentage did the sales decrease?*” (COVb2a). The responses to COVb2b were used as the positive growth values in the newly created variable “SGP”, and the responses to COVb2c were used as the negative growth values. The responses “unchanged<sup>9</sup>” in COVb2a were used as the zero values, i.e., 0% growth. *Sales Growth* is controlled by the variable “LTS”: the natural logarithm of the values of total sales at the end of the fiscal year prior to the Baseline survey, which corresponds to the ES question “d2”.

To determine the direct exporter status of each firm, we use the FS question: “*In the last completed month, what percentage of this establishment’s sales were direct exports?*” (COVb3c), in accordance with Aga and Maemir (2021). The response to this question represented the percentage of the sales that were directly exported to the total sales. Accordingly, the newly created binary variable “EXP” had the values 0 or 1. The value “0” is for non-exporter firms, where the percentage of direct exports is 0%, and the value “1” is for exporter firms, where the percentage of direct exports is at least 1%.

<sup>8</sup> The codes of questions from the FS are distinguished with the prefix “COV”. For example, COVe1a means question *e1a* in the FS

<sup>9</sup> The terms “unchanged”, “remained”, and “remained the same” are used interchangeably in this paper

Finally, the age of each firm was calculated using the ES question “b5” that states the year when establishment began operations. “AGE” is the difference between the year when the FS were conducted (2020) and the response (year) in the ES question above. We chose to calculate the ages of firms using the year of beginning of operations, rather than the year of formal registration, as it would be a better measure of the firms’ experience and presence in their markets.

All the variables that are based on the FS questions have more than 10,000 values. And all the variables that are based on the ES questions have more than 14,000 values. Table 5 shows that the dependent variable *Sales Growth* “SGP” enjoys good correlations with the independent variables *Change in Liquidity* “LIQ”, *Change in Hours Worked Weekly* “HWW”, *Change in Demand* “DEM”, *Change in Supply* “SUP”, and the control variable *Natural Logarithm of Total Annual Sales* “LTS”; with Pearson values: 55.9%, 49.8%, 61.8%, 56.0% and 14.9% respectively – all are significant at the 5% level. Additionally, the dependent variable *Change in Liquidity* “LIQ” enjoys good correlations with “DEM”, “SUP”, *Change in Sales on Credit* “SCR”, *Change in Purchase on Credit* “PCR”, *Delayed Paying Suppliers* “DPS”, *Delayed Paying Rent* “DPR”, and *Delayed Paying Tax* “DPT”; with Pearson values: 63.1%, 56.4%, 29.2%, 23.7%, -27.5%, -20.9%, and -19.0% – all at 5% significance level.

For the questions that were selected as variables, the original responses were either a scale (e.g., count of employees); yes/no; or, increased/remained/decreased. The responses in any questions also included the choices “Does not apply” and “Do not know”, which have the values “-7” and “-9” as responses, respectively. The “-7” and “-9” responses were removed from the analysis and treated as missing values instead. The first two columns in Table 4 show the count of data points and missing values for each variable. The categorical responses “yes/no” and “decreased/unchanged/increased” were changed from their original order in the ES and FS, as shown in the fourth column in Table 3, in order to use “no” and “unchanged” as the bases in the regression of the categorical variables. This will be discussed in further detail in the next section about this paper’s methodology.

#### IV Methodology

This section highlights how we assess the effect of financial and managerial decisions on growth at the firm level during the COVID-19 pandemic. Following Muzi et al. (2020), we use growth in sales as an indicator of firm-level growth. Our regression equations are:

$$\begin{aligned}
 SalesGrowth_{fsc} &= \beta_0 + \beta_1 LiquidityChange_{fsc} + \beta_2 ManagerialChoices_{fsc} \\
 &+ \beta_3 ExternalFactors_{fsc} + \beta_4 FirmControls\{1\}_{fsc} \\
 &+ SectorEffect_s + CountryEffect_c + \varepsilon
 \end{aligned}
 \tag{1}$$



$$\begin{aligned}
& \text{LiquidityChange}_{fsc} \\
& = \beta_0 + \beta_1 \text{FinancialChoices}_{fsc} \\
& + \beta_2 \text{ExternalFactors}_{fsc} + \beta_3 \text{FirmControls}\{2\}_{fsc} \\
& + \text{SectorEffect}_s + \text{CountryEffect}_c + \varepsilon \tag{2}
\end{aligned}$$

The subscripts  $f$ ,  $s$ , and  $c$  denote the *firm*, the firm's *sector*, and the firm's *country*, respectively. The dependent variable in equation {1}, *SalesGrowth*, is the variable “SGP”<sup>10</sup>. We created it from the Follow-up Surveys “FS” as discussed in section III above. It measures the positive, zero, or negative growth in total sales between the FS month and the same month in 2019. The dependent variable in equation {2}, which is also the main independent variable in equation {1}, *LiquidityChange*, is the variable “LIQ” that corresponds to the FS question “COVeIa”. It measures the level of change in a firm's liquidity or cash flows between the FS month and the outbreak of the pandemic. To include the changes that a firm's management chose in response to the pandemic, we added the variables *ManagerialChoices* and *FinancialChoices* to control for the operational changes, and the finance-related operational changes, respectively. *ExternalFactors* are the variables that illustrate the out-of-the-firm actions that either helped or hindered the firm's growth during the pandemic. *FirmControls{1}* and *FirmControls{2}* are the sets of control variables that illustrate firm-specific characteristics. All regression equations include sector-fixed effects and country-fixed effects. The term  $\varepsilon$  represents the Huber-White robust standard error clustered at the country level. The first equation is estimated using a linear regression, and the second equation is estimated using multinomial logistic regression because the dependent variable *LiquidityChange* is categorical. All the variables will be illustrated in detail in this section.

Our empirical methodology is focused on the firms that responded to both the first round of the FS in 2020 and to the last round of the Enterprise Surveys “ES” in 2018-2019 in order to measure the immediate impact of the first shock of the pandemic on the firms' dynamics. We did not include firms that had their last ES before 2018 because the impact on our variables of interest would have been distorted by any events that happened before the pandemic. Also, we did not include the responses to the second and third round of the FS because by that time the firms would have absorbed the first shock that we are attempting to analyze its effects in this paper.

Originally, there is no quantitative variable that directly measures growth in the FS; hence, we had to create a quantitative measure for the growth using the questions available in the FS and the ES. Based on the FS questions, we chose to use the sales as the measure of growth, as illustrated in section III above. We add to the literature by using the FS data to quantitatively measure the sales growth in a post-pandemic analysis. We also considered measuring growth using the available data on change in

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<sup>10</sup> The full list of variables abbreviations is available in Table 3

employees' count at the firm level. However, the only available information about the number of employees is their count in December 2019 and in the month before the FS month. Hence, as we do not have the information about at which month these employees were laid off, we cannot state in confidence that the percentage of reduction in employees is solely due to the effect of the pandemic. Also, the FS question “*COVD0a: Count of employees in December 2019*” that is needed to calculate the employees' growth was not available for Georgia, Italy, Moldova, and Russia, which meant that 3,024 firms of these four countries will be missing from the analysis<sup>11</sup>.

We used the categorical question about the change in liquidity for the variable *LiquidityChange*. According to the FS manual, this variable measures whether the firm has experienced a decrease, no change, or increase in its liquidity or cash flows since the outbreak of the pandemic, i.e., between March 2020 and the FS month. The manual did not differentiate between “liquidity” and “cash flows”, and it did not specify if the changes that the firm experienced were due to external factors (e.g., reduction in sales caused decrease in cash flows) or internal factors (e.g., opting to not pay dividends causing the liquidity, i.e., cash, to increase). Thus, we will consider both external and internal factors for change in liquidity or cash flows in our empirical analysis.

For the rest of the independent variables, we start by studying the internal factors, i.e., the managerial choices that the firm took in response or because of the pandemic. *ManagerialChoices* is a set of variables that measure whether the firm decreased, unchanged, or increased its total worked hours per week; whether the firm has (partially or fully) adjusted or converted its production or services in response to the pandemic; and, whether the firm has started or increased its online business activities, a delivery or carry out service, and a remote work arrangement. *FinancialChoices* is a set of variables that measure whether the firm decreased, unchanged, or increased its sales on credit and purchase on credit; whether the firm has delayed paying (for more than one week) its suppliers, landlords/rent, and the tax authorities; and, whether the firm has filed for insolvency or bankruptcy. All the variables in *ManagerialChoices* and *FinancialChoices* are from the FS, i.e., measured between the survey month in 2020 and the pandemic's outbreak in March 2020. Also, all the FS questions that correspond to the variables had the phrase “as/in response to the pandemic”, i.e., the responses to these questions are the actions that the firms have taken either due to or in response to the pandemic, which make them proper estimates of sales' growth.

After studying the internal factors above, we also study the external factors, i.e., the incidents, actions and/or activities that occurred outside the firm and/or out of its control. *ExternalFactors* is a set of variables that measure the change (decrease, no change, or increase) in the demand for the firm's products or services, and the firm's supply of inputs, raw material, or finished goods and material that are purchased to resell; and, whether the firm has received any national- or local-governmental support

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<sup>11</sup> Aga and Maemir (2021) created a new variable to measure the employees' growth, so this gap in the literature has been addressed as well

due to the pandemic. The first two variables are crucial to measure the impact on growth, as reduced demand would naturally lead to a negative growth in sales, and to a probable negative growth in employees. Receiving government aid is equally crucial, as the survival of the firm is synonym to continuing of operations. Firms that continue to operate would either enjoy growth or suffer from shrinkage, which makes *receiving government aid* an important external factor to include in the analysis.

In addition, in regression equation {1}, to estimate the effect of change in liquidity on sales' growth, we control for the percentage of the firm's employees that are working remotely; the exporter status of the firm, i.e., whether it directly exports at least 1% of its total sales; the firm's age in years at the FS year (2020); the natural logarithm of the count of full-time permanent employees in the FS month; the natural logarithm of the total annual sales in the fiscal year before the ES year; and, the category<sup>12</sup> of the firm's size. And, in regression equation {2}, we control for exporter status, age, firm size in employees, and category of firm size, as well as to whether the firm has a bank account; whether the firm has an overdraft facility agreement at any financial institution; and, whether the firm has a lone of credit at any financial institution.

For the *exporter status* variable, we specify that firms need to directly export 1% or more of the total sales in order to have an exporter status, and we controlled it by *firm size in total sales* and *category of firm size*. Also, we calculated the firms' age in 2020 to tie their years of experience in the market with how they handled the pandemic's shock. The variables *percentage of remote workers*, *exporter status*, and *firm size in employees* are all measured at the FS month to ensure using the most recent and relevant firm characteristics. We used *percentage of remote workers* to measure the impact of the absence of physical presence in the workplace on sales' growth. The *exporter status* sheds a light on firms' ability to grow if they had business relationships with firms outside of their country of operation. And *firm size in employees* support the estimating of sales' growth as one indicator of the firm's size. On the other hand, *firm size in total sales*, *having a bank account*, *enjoying an overdraft facility*, *being leveraged*, and *category of firm size* are all variables that are based on questions from the ES and not the FS, i.e., they capture characteristics that date before the onset of the pandemic. *Firm size in total sales* and *category of firm size* are the other indicators for the firms' size. It is also worth noting that we use *firm size in total sales* as a control for *SalesGrowth* to mitigate the fact that the values of the growth in sales that we have are percentages, i.e., as we do not have the actual initial and current values of total sales. However, given a 2% growth between sales values of \$1,000,000 and \$1,020,000 is higher in absolute terms than a 20% growth between sales values of \$10,000 and \$12,000. Hence, we resorted to the latest available information on the value of sales, which was available in the ES, in order to control for the firm size in terms of sales. Despite that the responses to *category of firm size* were acquired before the

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<sup>12</sup> Micro, small, medium, and large

pandemic; however, we assume that firms did not change their size category between the latest ES (2018-2019) and the first round of the FS (2020). The variables *having a bank account*, *enjoying an overdraft facility*, and *being leveraged* serve as the financial characteristics of firms, where they (respectively) represent a firm's financial inclusion, access to liquidity, and level of leverage.

## V Empirical Results

We present in this section the regression results of the models presented in the methodology section. We introduced the independent variables in a sequential manner to see the effect of each variable and to observe how these effects changing in terms of magnitudes and signs as we add more variables. We ran 35 regression models in total. Models [1] to [13] studied the effects of the firms' managerial choices and external related factors on the growth in sales, where we performed a linear regression on equation {1}. Models [14] to [35] studied the firms' financial choices and external related factors on the change in liquidity, where we performed a multinomial logistic regression on equation {2}. The reason behind choosing a multinomial logistic regression is because the dependent variable in that equation is a categorical variable. This type of regression generates values for Pseudo  $R^2$  and Chi<sup>2</sup>-Probability, instead of Adjusted  $R^2$  and F-Probability as we get in a linear regression. The categorical variables (including binary variables) were regressed by category, where one category is considered the reference, and the other categories are regressed based on that. The values of the resulted coefficients represent the difference in the effect on the dependent variable between the regressed category and the reference category. The second regression equation had liquidity change, i.e., a categorical variable, as the dependent variable. Hence, the regression is repeated for each of the categories of that variable. Our analysis shows that ours results are statistically significant at 5 percent level with few exceptions that we will specify below. Tables 6-a to 7-d show the details of all regression models.

### 5.1 Sales' Growth

Starting with the internal factors, i.e., firms' decisions, we notice that the "change of a firm's liquidity or cash flows" is the most impactful and highly significant internal factor on sales growth. As mentioned in the previous section, the FS manual did not specify if the variable *LiquidityChange* is a decision that the firm took or if it is an incident that the firm experienced; hence, our decision to interpret the results as either. Looking at the coefficients, we see that based on the instances where the firms chose or did not experience any change in liquidity, the instances where the liquidity decreased resulted in a large negative impact on sales growth, with a marginal effect of -11.197. On the other hand, the instances where the liquidity increased resulted to a large positive impact on sales growth, with a marginal effect of 6.779. We see that a firm's decision and/or incident of lowering the liquidity level result in a harsh shrinkage of sales. Also, a decision and/or incident of raising the liquidity level resulted in a lucrative increase in sales, but in a slightly lower level. This observation held across all models, including the

comparison across country income-levels and comparison across geographic regions<sup>13</sup>. However, the effect of liquidity decrease is only statistically significant at the 10% level in the lower-middle income-level countries, and the effect of liquidity increase is not statistically significant in the same model. We also notice that difference between the marginal effects of decreasing and increasing liquidity is much wider in the upper-middle income-level countries. The firm's decision to "change the number of worked hours per week" enjoy a similar analogy to the liquidity change, where the marginal effect of decreasing the hours is -8.787, and the marginal effect of increasing the hours is 2.464. The results also held in the comparison of income-levels and regions. However, the effect of increasing the hours is not significant anywhere except in high income-level countries, and countries in Europe, Asia, and the Pacific. Overall, both decisions to change the liquidity levels and the number of worked hours affect sales growth significantly. Deciding to decrease any of these two factors resulted in a steep reduction in sales and increasing them resulted in a clear rise in sales.

For the remaining of the internal factors, the decisions to "adjust the operations (production or offered service)" and to "introduce or increase online business activities" are both not significant. On the other hand, based on the incidents where firms chose not to take the following decisions, the incidents where firms decided to "introduce or increase delivery or carry-out service" and to "introduce or increase the scope of a remote-work arrangement" are both statistically significant at the 10% level, with positive marginal effects on sales growth of 1.796 and 1.192, respectively. However, in contrast with the homogeneous results of the previous variables, the three out of the remaining four decisions show heterogeneous outcomes across income-levels and regions. For the decision to adjust operations, the results held as insignificant across all models, indicating that this decision is not important for sales growth. Introducing or increasing online business activities is only statistically significant at the 10% level in the high-income level countries, but with a negative marginal effect on sales growth of -1.461. Introducing or increasing delivery service is not significant in the lower-middle income-level countries, and in countries in the Middle East and Africa. The decision to introduce or increase a remote-work arrangement is interestingly not significant in any of the comparison models. Hence, the effect of this decision is statistically significant only at the 10% level when studying the whole sample. Overall, the decisions to introduce or increase delivery service and remote-work arrangement had a slightly positive impact on sales growth.

Moving to the external factors, i.e., the results for the "change in demand of products" and "change in supply of material" are consistent with our initial expectations. For firms that did not experience change in any of these factors, we see that the instances where the demand/supply decreased have a negative correlation with sales growth, with a marginal effect of -14.406 for demand change and -5.917 for supply change. On the other hand, the instances where the demand/supply increased have a positive

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<sup>13</sup> For sales growth, "comparison models" are models [9] to [13]

relationship with sales' growth, with a marginal effect of 12.328 for demand change and 5.213 for supply change. We notice that the difference of the marginal effect is similar in value in both directions, indicating that the incidents of "decreasing" would not penalize the sales growth much, as we saw in change of liquidity levels and change of worked hours. Also, similar to "liquidity" and "worked hours", the results of the external factors "demand" and "supply" have held across income-levels and regions, with few exceptions. The incidents of increase in "demand" are not statistically significant in lower-middle income level countries, and both incidents of decrease and increase are significant at the 10% level in countries in the Middle East and Africa. Also, the incidents of increase in "supply" are statistically insignificant in the high-income level countries, and statistically significant at the 10% in all regions. We notice that the difference between decreasing and increasing "demand" is wider and giving more advantage for the incidents of increased "demand" in the upper-middle income-level countries and in the Middle East and Africa. Hence, increase in "demand" has a larger positive relationship with sales in firms in these countries. These results confirm that external changes can have a significant association with sales growth.

The last external factor that we control for is the effect of "government financial support/aid". The models show a strong heterogeneous relationship between receiving government support and sales growth. Based on the incidents where firms did not receive any government support, we see that in both the incidents where firms are expecting to receive the government support within 3 months (at the month of the follow-up survey) and where the firm has already received that support, firms suffer a negative growth in sales. The marginal effects are -7.136 and -2.077, respectively. Moreover, the marginal effects are volatile in values across the comparison models and completely insignificant in countries in the Middle East and Africa. However, the effects are consistently negative in value across all models. These results indicate that receiving financial aid or support from the government is tied with firms that suffer decline in sales, i.e., in firms in distress and prone to failure.

Moreover, we controlled for additional firm characteristics, such as whether the firm has an "exporter status", the "percentage of employees working remotely", and the "firm's age". These firm characteristics did not affect sales growth. However, looking into the comparison models, we find that the "exporter status" is strongly heterogeneous in effect but holds its insignificance in all models. The "percentage of remote employees" is slightly heterogeneous and is only significant in the upper-middle income level countries and countries in Europe, Asia, and the Pacific, with very low negative marginal effects of -0.054 and -0.036, respectively. And for the "age", it is almost homogeneous in effect and hold its statistical insignificance across all models.

Finally, we control for "firm size as measured by number employees" and "firm size as measured by total sales". The results show that the coefficients are statistically significant and have a positive relationship with sales growth, with "size by employees" having the larger marginal effect of 3.512 in contrast to 0.389 for "size by total sales". Contrarily, the "size as category" is only statistically

significant for the “large firms” category, and it has a high negative relationship with sales’ growth with a marginal effect of -7.605. Looking at the comparison models, we find that “size by employees” is homogeneous across models, except that it is statistically insignificant in the lower-middle income-level countries. In contrast, the effect of “firm size as measured by total sales” on sales growth is slightly heterogeneous across the models, and it is only statistically significant in the lower-middle income level countries with a marginal effect of 0.798. And for the “size as category”, it shows a strong heterogeneous effects across the models, where it is significant in the following models: (i) in the high income-level countries, both “medium” and “large” firms suffer from a significant and high negative relationship with sales growth, with marginal effects of -7.418 and -10.606, respectively; (ii) in Europe, Asia, and the Pacific, only “large” firms suffer from a significant and high negative relationship with sales’ growth, with marginal effect of -7.776; and, (iii) in the Middle East and Africa, only “small” firms enjoy a significant and low positive relationship with sales’ growth, with a marginal effect of 1.141.

So, looking on the entire sample, we see that firms that employ a large number of employees enjoy a positive sales’ growth; however, firms that are categorized as “large firms” suffer from a sharp decline in sales during the pandemic’s first shock. And looking on specific groups, we see that the “percentage of remote employees” has a meager negative relationship with sales in countries in the upper-middle income level and in Europe and Asia (regions 1 and 2). The sales of firms in countries in the lower-middle income level is only related with the volume of the total sales in previous years. And, only the firms that are categorized as “small firms” in the Middle East and Africa (regions 3 and 4) enjoy positive sales’ growth in contrast to “large firms” in both high income-level countries and countries in Europe and Asia, and “medium firms” in high-income level countries.

## 5.2 Liquidity Change

After understanding the factors that affect the sales’ growth of firms during the pandemic’s first shock, we extend our analysis to understand the factors that affect the main financial aspect in this paper, i.e., the change in liquidity or cash flows. As mentioned in the beginning of this section, *LiquidityChange* is a categorical variable; hence, the multinomial logistic regression is performed for the categories of the instances where the “liquidity decreased” and the instances where the “liquidity increase”. The category of the instances where the “liquidity unchanged” is the base of the regression, and the marginal effects are the differences from that category.

Beginning with the external factors, which are the same factors that were discussed in sales’ growth, we see that a “decreased demand” has a significant positive relationship with “liquidity decrease”. We interpret this result as follows: a decrease in demand is tied with a decrease in liquidity. Similarly, we see that an “increased demand” has a significant positive relationship with “liquidity increase”, i.e., an increase in demand is tied with an increase in liquidity. The same analogy is applicable on “supply”.

Comparing the results across income levels and regions<sup>14</sup>, we see that “demand” is homogeneous across the models, and “supply” is almost homogeneous except for conflicting results in countries in the lower middle-income countries and in the Middle East and Africa. “Receiving government support” has a consistent negative relationship with liquidity increase. To elaborate, for the instances where the “liquidity decreased”, the marginal effect of both expecting and already received government support is positive-yet-small. And for the instances where the “liquidity increased”, having received government support has a negative small marginal effect. We interpret these results as follows: firms with decreased liquidity will or have received government support, and firms with increased liquidity will not or did not receive government support. The comparison models show that “receiving government support” is somehow homogeneous, with exception to being insignificant in the instances of “liquidity decrease” in the lower-middle income level countries, in addition to being statistically insignificant in the instances of “liquidity increase” in the upper-middle income level countries and countries in Europe and Asia. In a nutshell, the results inform us that a decline in favorable external conditions is tied with a decline in firm liquidity.

Moving to the internal factors, i.e., firms’ financial decisions, and starting with the firm’s choices to “change its sales on credit” and “change its purchase on credit”. Both factors exhibit similar results, where in the instances of “liquidity decrease” the marginal effects of the “decrease” in both “selling on credit” and “purchasing on credit” is statistically significant and positive. And where in the instances of “liquidity increase” the marginal effects of the “increase” in both “selling on credit” and “purchasing on credit” is statistically significant and positive. We interpret these results as follows: firms with decreased liquidity choose to decrease selling and/or purchasing on credit, and firms with increased liquidity choose to increase selling and/or purchasing on credit. The results hold and are almost homogeneous in the comparison models, with the exception where in the instances of “liquidity decrease”, the “selling on credit” is statistically insignificant in the upper-middle income level countries; and, where in the instances of “liquidity increase”, the “selling on credit” is statistically insignificant in countries in the Middle East and Africa.

Continuing with the firms’ financial decisions, we find that in the instances where the “liquidity decrease”, there is a statistically significant and positive marginal effect of both “delay<sup>15</sup> paying suppliers” and “delay paying landlord”. We interpret this results as follows: firms with decreased liquidity choose to delay paying their obligations to their suppliers and landlord. This is not the case with “delay paying tax”, where the results were statistically insignificant. The results of “delay paying suppliers” have held and are homogeneous across the comparison models. For “delay paying landlord”, and in the instances where “liquidity decrease”, the results are only significant in the upper-middle income level countries and in countries in Europe, Asia, and the Pacific. Interestingly, in the instances

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<sup>14</sup> For liquidity change, “comparison models” are models [26] to [35]

<sup>15</sup> The delay in three variables is for “more than one week”, as specified in the FS manual



where “liquidity decrease”, “delay paying tax” has a significant positive marginal effect in the high income-level countries and countries in Europe and Asia. Moreover, in the instances where “liquidity increase”, “delay paying tax” has a significant negative marginal effect in the countries in the Middle East and Africa. We interpret these results as follows: firms in upper-middle income countries in any world region choose to delay paying taxes. Our results show a positive relationship between decreased liquidity and choosing to delay paying obligations.

The last financial decision is “filed for bankruptcy”, which is insignificant in the general model. In the comparison models, and in the instances where “liquidity decrease”, “filed for bankruptcy” has a significant and positive marginal effect in the lower-middle income-level countries. Also, in the instances where “liquidity increase”, it has a positive marginal effect in the high-income level countries, and a very strong negative effect in countries in the Middle East and Africa. We interpret this result as follows: for firms in the lower-middle income countries and in countries in the Middle East and Africa, there is a positive relationship between decreased liquidity and choosing to file for bankruptcy. And, for firms in the high-income countries, there is a positive relationship between increased liquidity and choosing to file for bankruptcy.

And closing with the control variables, we find that in the instances where the “liquidity decreased”, there is a significant and positive marginal effects for “having a bank account”. However, there is a statistically significant and negative marginal effect for “enjoying an overdraft facility”, “having an exporter status”, and “size by employees”. We note that “being leveraged”, “firm’s age”, and “size as category” are all insignificant factors in estimating the change in liquidity. Looking at the comparison models, we find that results for “having a bank account” are holding and are somehow homogeneous across the models. The exception is in the instances where the “liquidity decrease”, “having a bank account” is insignificant for firms in countries in the Middle East and Africa, but it is only significant (and contrastingly positive) in these countries in the instances where “liquidity increase”. The results of “enjoying an overdraft facility” has held and are homogeneous across the models, except in the instances where the “liquidity decrease”; it is insignificant for firms in the lower-middle income level countries. Moreover, the results of “exporter status” has held, but is only statistically significant in the lower-middle income countries and countries in the Middle East and Africa, in the instances where the “liquidity decrease”. That, and it showed a significant and positive marginal effect in the high-income countries, in the instances where there was “liquidity increase”. In other words, the results of “size by employees” are heterogeneous across the comparison models, rather it is significant in all of them. We see that “size by employees” has a negative relationship with “liquidity decrease” in all models, except the lower-middle income level countries and countries in the Middle East and Africa, where it rather has a negative relationship with “liquidity increase”. Compared to the main model, “age” is showing heterogeneous results across the models. Finally, and interestingly, also “size as category” is showing different results than the main model, where it has a significant and very high positive marginal effects

under all firm sizes, in the instances where “liquidity increase” in all comparison models, except in high income-level countries and countries in Europe, Asia, and the Pacific.

We can summarize the interpretation of the control variables as follows: there is a positive relationship between when a firm has a bank account and when its liquidity decreases, except for firms in the middle east and Africa, where the relationship is reversed. Also, in general, there is a negative relationship between enjoying an overdraft facility, being an exporter, and the number of employees hired— on one side, and the decrease in the firm’s liquidity on the other side. That, and we argue that the results where the firms of all size categories have shown a positive relationship between them and liquidity increase— are statistically irrelevant, because the results mean that all firms are increasing their liquidity without regarding the other factors.

### 5.3 Robustness of the estimations

To assure that our results are robust and reliable estimation of the sales’ growth and liquidity change in the 25 economies that we tested, we continued to follow the example of literature by estimating all of our models using Huber-White robust standard error, clustered at the country level. We found that the number of tested cases out of the total valid cases of 10,941 were reduced only slightly and not too much due to the missing responses, which was better than our first impression. Also, the models enjoyed healthy values of Adjusted  $R^2$  and F-Probability for the first equation, and McFadden’s Pseudo  $R^2$  and  $\text{Chi}^2$ -Probability for the second equation. For example, model [1] that tested the effect of the change on liquidity alone (without the sector- and country-fixed effects) on the growth of sales has covered 10,390 cases and enjoyed an Adjusted  $R^2$  value of 32.00%. On the other hand, model [8] that tested all the variables as shown in equation {1} (including the sector- and country-fixed effects) with the growth in sales has covered 8,475 cases and enjoyed an Adjusted  $R^2$  value of 55.75%. Similarly, models [14] and [17] that tested the effect of the *external factors* alone (without the sector- and country-fixed effects) on the change in liquidity has covered 10,482 cases and enjoyed an Adjusted  $R^2$  value of 31.97%. On the other hand, models [22] and [25] that tested all the variables as shown in equation {2} (including the sector- and country-fixed effects) with the change in liquidity has covered 8,828 cases and enjoyed an Adjusted  $R^2$  value of 41.80%. It is noteworthy that the regression results did hold as we added more variables, and the results continued to hold when we removed the very few outlier cases in the dataset.

## **VI Discussion**

### 6.1 Sales’ Growth

In our attempt to understand what are the decisions that a firm should take to maintain its growth when it is faced with a global crisis, our results in the previous section are providing the literature with interesting insights.

The most important and highly impactful decisions that helped in maintaining the growth were (a) either keeping or increasing the liquidity levels, and (b) getting your employees to work for longer hours per week. We stated in section IV that the FS manual did not specify if the variable *LiquidityChange* is a decision that the firm took or if it is an incident that the firm experienced. In our discussion here, we will explore the interpretation of this variable as a decision that a firm took. Hence, seeing the high impact of this decision, we argue that hoarding the firm's cash and not spending it in any non-operation-related activities would help that firm in absorbing the first shock of a global crisis, and it would also help it enjoy a continuing growth as well. We also noticed that firms that decided otherwise have been punished with a severe shrinkage instead of growth. The same analogy is applicable for pushing and encouraging the firm's employees to work for extra hours every week. Hence, we can also argue that a firm decision to increase the amount of effort that it puts in its operations would also be rewarded with growth during a time of crisis. Our results show that making these decisions is helpful to firms across the world, and not limited to a specific country or region.

Other helpful decisions were the decision to either to introduce or increase the scope of a firm's delivery service, and to the decision to introduce a remote-work policy for the firm's employees. However, these decisions have only contributed meagerly to the firm's growth, i.e., they do not carry the same importance during a crisis as the first two decisions above. We also found that offering a delivery service is not actually helpful in less developed countries, such the ones in the Middle East and in Africa. We hypothesize that this could be either due to insufficient level of health awareness and/or the lack of government enforcement of social distancing. Both factors take away any deterrence of customers to physically get their desired products and services, eventually leading to the unimportance of introducing a delivery service in these countries. Another factor could be that the country's infrastructure does not help in effectively delivering the products and services to customers. For the remote-work arrangement, we were surprised that this decision was only statistically significant when studying the sample as a whole, and this significance was not present when separately studying each region. Additionally, we found that the percentage of employees working remotely was also statistically insignificant to the firms' growth<sup>16</sup>. Hence, we argue that moving a firm's employees to work remotely will not help nor hinder that firm's growth when it is facing a crisis that requires adherence to social distancing. We estimate that this result could be based on the nature of the surveyed firms. The sectors that were covered by the Enterprise Surveys team are: manufacturing, retail services, and other services. Evidently, these sectors are either not affected by moving the employees to work remotely, or they are highly dependent on the physical presence of employees, e.g., factories and supermarkets. This finding could change if we had access to data on firms from all types, arguably. Also interestingly, the decision to make changes to the offered products and/or services, or the decision to make changes in the operations themselves—

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<sup>16</sup> This is valid for all regions, except Europe and Asia, where there is a very small negative relationship, which we chose to not take into consideration for its very low impact

are both not needed to help a firm grow during a global crisis. The decision to start or increase the firm's online activities, e.g., utilizing the social media platforms, was only helpful to firms in the high-income level countries. Accordingly, we argue that it would not help a firm to maintain its growth during a crisis if that firm abandoned its already established product/service portfolio. Additionally, utilizing the online activities are only beneficial in countries where there is a wide culture of using the internet to acquire products and services, and where there is a solid infrastructure to support that.

As we initially expected, the decrease of supplied operation inputs and demand of generated outputs would naturally hinder the firms' growth. Hence, we argue that firms should give attention to its relationships with both ends of the supply chain, in order to assure availability of supply and continual of demand during a global crisis. And for the very interesting negative relationship between government support, we argue in our interpretation that the lack of support was not the cause of the firms' shrinkage, rather a consequence. We argue that the data is informing us that the firms that suffered during the pandemic were the ones that received government support, as it should be the case in similar situations. Government support, in our argument, should be dedicated to the firms that are in actual distress.

Furthermore, the firm's age and exporter status are not important factors to the firm's growth during a global crisis, which is confirmed by the results that the negative impact of the pandemic is evident in almost all the firms across the world. On the other hand, the size of employees is a crucial factor; hence, we argue that for a firm to maintain its overall growth, it shall look at its manpower as one of its core strengths to endure the first shock of a global crisis. This again could be due the nature of the firms that were covered in the surveys; as a factory, for example, would definitely benefit from having extra hands working on making more products. Additionally, the size of previous sales is only relevant in firms in the lower-middle income level countries; hence, we argue that utilizing the track-of-record and maintaining the established history and/or relationship with customers is a crucial factor that will help firms in the lower-middle income level countries to maintain their growth during a global crisis.

Finally, in an interest contrast, firms that are categorized as "large" and "medium" in Europe and Asia were the ones that suffered severely from the pandemic, while the firms that are categorized as "small" in the Middle East and Africa have enjoyed growth during the pandemic's first shock. We argue that the negative impact of the pandemic across the world has slowed and/or hindered the growth of the world's major companies, which is typically located in more developed countries. We hypothesize that the pandemic's negative impact could have also provided an opportunity to the smaller firms in the less developed countries to pick up the slack by the larger ones, and to fill the much needed gap in the market at that time. This would require further investigation in future research.

## 6.2 Liquidity Change

As we established in this paper that the change in liquidity levels is the major factor that is affecting the growth of sales; we will discuss in here the factors that are affecting the change in liquidity levels as

well. The results show that the same analogy of the effects of supply, demand, and government support on sales' growth (as we discussed above) is applicable on the change in liquidity levels. Hence, we continue to have the same argument that maintaining the firm's relationship with both ends of the supply chain would assure the continuous flow of cash. Moreover, it is consistent that the government support is dedicated to firms in actual distress and need. For the firms' financial decisions, we see that firms with decreased liquidity have opted to decrease selling and buying on credit, in addition to delay paying their suppliers and landlords; however, they kept paying their taxes without delays. We argue that this indicates that when firms are in distress due to a global crisis, they tend to slow down all activities that would drain their cash. It appears also that being in a crisis is not an excuse to not pay the taxman his rightful dues, unless -as we argue- that the government would give a tax-break for firms that are in need. Moreover, firms in the Middle East and Africa chose to file for bankruptcy when they are facing severe cash shortage; hence, we argue that at the times of severe cash shortages, firms in these countries prefer to be dissolved or terminated over struggling to get back on their feet. Contrarily, firms in the high-income level countries have shown that they tend to fight longer when they are faced with low levels of cash shortages.

We notice that securing an overdraft facility with a financial institution (in more developed countries) and having an exporter status (in less developed countries) are factors that would meagerly help firms at a time of low cash. Hence, we argue that a firm in any country should always maintain an open line of support with financial institutions and an open line of business with international firms; however, the firm should not mainly rely on these relationships at a time of crisis. Additionally, we also noticed that having a large size of employees has a negative relationship with liquidity, but we argue that this relationship does not mean that the employees' size would help in cash shortages, rather it means that having a large employees' size would require the firm to drain its cash in paying their salaries.

Finally, the firm's age, its size category, and the fact whether it is leveraged- are factors that do not contribute to the change in liquidity. Hence, we argue that at a time of global crisis, the change in liquidity is not tied to a specific age or size characteristics, nor it is tied with having an obligation with a financial institution.

## **VII Conclusion**

Withstanding global crises is a tasking journey on any firm. Growing during such events is even harder and requires skillful management and sound decisions. In this paper, we utilized the World Bank's Enterprise Surveys to study 14,751 firms from 25 economies across the world, during the pandemic's first shock (between May and November 2020), in order to understand how the pandemic has affected firms' growth, using sales' growth as our main response variable. Our robust models have generated insightful results that would add to the literature.

Based on our analysis, we conclude that the first and most important managerial decision for a firm to take when it is faced with crisis of a global scale, is to slow down its non-operation spending and to work on preserving and increasing its cash reserves. The next step would be to capitalize on the firm's manpower; first, by maintaining their size, and second, by encouraging them to clock more working hours to help the firm to grow during the crisis, which will consequently save both the firm and their jobs. Our results show that these decisions are valid to firms in any country across the world.

Additional managerial decisions depend on the type, size, and location of the firm. Offering a delivery service, using online platforms, and introducing a remote-work policy— are all helpful in more developed countries, where there is both a culture and supporting infrastructure of using technology. Also, we conclude that firms should adhere to their established offerings and capitalize on their relationships with all stakeholders, either along the supply chain or outside of the supply chain, such as government authorities and financial institutions.

Maintaining the relationships with the firm's stakeholders will also benefit in preserving and increasing its cash reserves, as we find that maintaining the relationship with financial institutions is helpful for liquidity for firms in more developed countries; and maintaining the relationship with international firms (through exporting) is helpful to liquidity in less developed countries.

Finally, as governments are crucial players during global crises, we also concluded that governmental financial aid should be directed to the firms in true financial distress and in dire need for the aid to survive. We argue that governments should adopt a balanced approach in supporting their overall economy, in order to maintain a healthy economy during and after the passing of the crisis.

## **VIII Limitations and Future Research**

This paper covered 14,751 firms from 25 economies, using the World Bank's Enterprise Surveys (ES). Although the firms surveyed are a representative sample in each country; however, the ES team has only surveyed non-listed privately held businesses in the sectors: manufacturing, retail services, and other services— as we described earlier in section III. Hence, due to (a) the nature of these firms, (b) the focus on certain sectors, and (c) that the 21 out of the 25 economies in this paper are located in Europe— are all factors that would limit a global generalization of our earlier discussion in section VI.

Future research on the same topic could expand the analyzed data in several ways. For example, researchers could include more countries once they are available by the ES team; or they could base their research on this paper and directly collect data from more countries. Researchers could also include listed-firms and/or more sectors than that was covered by the ES. Furthermore, future research could explore our note in section VI on how we found that smaller firms in less developed economies have enjoyed growth, in contrast with larger firms in more developed economies. Finally, future research could explore how firms' dynamics were in play after the first shock that we have covered in this paper.

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Table 1: List of the dates of the baseline (round 0) and round 1 surveys, with the firms' open status in round 1

Country and Region	Baseline Survey		Round 1 Survey		Open Status			Count of Open and Temp. Closed
	Earliest	Latest	Earliest	Latest	Open	Temp. Closed	Perm. Closed	
<i>Europe and Central Asia</i>	<i>October 2018</i>	<i>June 2020</i>	<i>May 2020</i>	<i>November 2020</i>	8241	411	317	8652 Firms
Albania	December 2018	May 2019	June 2020	June 2020	300	44	3	<b>344</b>
Bulgaria	February 2019	March 2020	July 2020	September 2020	511	10	38	<b>521</b>
Croatia	December 2018	November 2019	September 2020	September 2020	340	2	9	<b>342</b>
Cyprus	November 2018	June 2019	June 2020	June 2020	161	6	4	<b>167</b>
Cyprus North	January 2019	May 2019	June 2020	June 2020	91	1	4	<b>92</b>
Czechia	November 2018	February 2020	September 2020	October 2020	398	0	7	<b>398</b>
Estonia	December 2018	December 2019	October 2020	October 2020	270	1	1	<b>271</b>
Georgia	March 2019	January 2020	June 2020	June 2020	390	111	13	<b>501</b>
Hungary	December 2018	April 2020	September 2020	September 2020	616	3	11	<b>619</b>
Italy	November 2018	October 2019	May 2020	June 2020	367	52	34	<b>419</b>
Latvia	November 2018	December 2019	October 2020	November 2020	228	12	4	<b>240</b>
Lithuania	November 2018	December 2019	October 2020	October 2020	213	0	1	<b>213</b>
Moldova	April 2019	November 2019	May 2020	May 2020	245	38	3	<b>283</b>
North Macedonia	December 2018	October 2019	October 2020	November 2020	283	8	1	<b>291</b>
Poland	January 2019	December 2019	July 2020	August 2020	912	63	30	<b>975</b>
Portugal	October 2018	January 2020	September 2020	October 2020	736	7	77	<b>743</b>
Romania	November 2018	June 2020	August 2020	September 2020	513	1	18	<b>514</b>
Russia	December 2018	July 2019	June 2020	June 2020	1096	49	46	<b>1145</b>
Slovakia	January 2019	April 2020	September 2020	October 2020	324	1	13	<b>325</b>
Slovenia	December 2018	November 2019	July 2020	August 2020	247	2	0	<b>249</b>
<i>East Asia and Pacific</i>	<i>December 2018</i>	<i>June 2019</i>	<i>August 2020</i>	<i>August 2020</i>	257	27	30	284 Firms
Mongolia	December 2018	June 2019	August 2020	August 2020	257	27	30	<b>284</b>
<i>Middle East and North Africa</i>	<i>July 2018</i>	<i>January 2020</i>	<i>July 2020</i>	<i>August 2020</i>	1186	93	158	1279 Firms
Jordan	April 2019	October 2019	July 2020	August 2020	471	27	66	<b>498</b>
Morocco	July 2018	January 2020	July 2020	August 2020	715	66	92	<b>781</b>
<i>Sub-Saharan Africa</i>	<i>July 2019</i>	<i>April 2020</i>	<i>June 2020</i>	<i>November 2020</i>	610	116	42	726 Firms
South Africa	July 2019	October 2019	August 2020	November 2020	168	25	12	<b>193</b>
Zambia	October 2019	April 2020	June 2020	July 2020	442	91	30	<b>533</b>
<b>Total: 25 Economies</b>	July 2018	June 2020	May 2020	November 2020	10294	647	547	<b>10941 Firms</b>

*Temp. Closed* = firms that were temporarily closed during round 1 and answered the survey. *Perm. Closed* = firms that were permanently closed by round 1, and did not answer the survey

Table 2: List of countries with geographic and income level classification, and the count of firms by size and sector

Country and Region	Country Income Level	Count of Surveyed Firms	Firm Size				Sector		
			Micro	Small	Medium	Large	Manufacturing	Retail Services	Other Services
<i>Europe and Central Asia</i>		<i>11764</i>	<i>136</i>	<i>5191</i>	<i>3822</i>	<i>2615</i>	<i>6489</i>	<i>2059</i>	<i>3216</i>
Albania	Upper Middle	377	5	162	110	100	146	77	154
Bulgaria	Upper Middle	772	5	333	242	192	428	138	206
Croatia	High	404	6	143	137	118	146	97	161
Cyprus	High	240	16	121	67	36	80	67	93
Cyprus North	High	120	10	54	44	12	41	25	54
Czechia	High	502	2	230	157	113	291	62	149
Estonia	High	360	3	155	149	53	135	82	143
Georgia	Upper Middle	581	17	269	210	85	203	123	255
Hungary	High	805	8	412	252	133	481	138	186
Italy	High	760	0	354	232	174	461	127	172
Latvia	High	359	21	121	126	91	130	99	130
Lithuania	High	358	5	150	116	87	127	110	121
Moldova	Upper Middle	360	22	124	140	74	134	113	113
North Macedonia	Upper Middle	360	6	133	131	90	133	112	115
Poland	High	1369	8	692	397	272	1000	111	258
Portugal	High	1062	0	485	349	228	775	121	166
Romania	Upper Middle	814	0	339	271	204	520	128	166
Russia	Upper Middle	1323	0	511	422	390	889	152	282
Slovakia	High	429	2	237	98	92	192	103	134
Slovenia	High	409	0	166	172	71	177	74	158
<i>East Asia and Pacific</i>		<i>360</i>	<i>9</i>	<i>186</i>	<i>107</i>	<i>58</i>	<i>121</i>	<i>88</i>	<i>151</i>
Mongolia	Lower Middle	360	9	186	107	58	121	88	151
<i>Middle East and North Africa</i>		<i>1697</i>	<i>0</i>	<i>776</i>	<i>518</i>	<i>403</i>	<i>757</i>	<i>278</i>	<i>662</i>
Jordan	Upper Middle	601	0	367	164	70	294	89	218
Morocco	Lower Middle	1096	0	409	354	333	463	189	444
<i>Sub-Saharan Africa</i>		<i>930</i>	<i>20</i>	<i>422</i>	<i>314</i>	<i>174</i>	<i>340</i>	<i>216</i>	<i>374</i>
South Africa	Upper Middle	329	1	131	126	71	165	58	106
Zambia	Lower Middle	601	19	291	188	103	175	158	268
<b>Total: 25 Economies</b>		<b>14751</b>	<b>165</b>	<b>6575</b>	<b>4761</b>	<b>3250</b>	<b>7707</b>	<b>2641</b>	<b>4403</b>

Table 3: Definition of the variables used in regression and analysis

Variable Code	Variable Name	ES/FS <sup>[1]</sup> Questions	Measure <sup>[2]</sup>	Definition
SGP <sup>[3]</sup>	Sales Growth as Percentage	COVb2a, COVb2b, COVb2c	Percentage	Percentage of positive or negative growth of the firm's total sales in the Round 1 survey month, compared to the same month in 2019
LIQ	Change in liquidity or cash flows	COVe1a	0= Unchanged, 1= Decrease, 2= Increased	Change in the firm's liquidity or cash flows since the pandemic's outbreak
HWW	Change in total hours worked per week	COVc2a	0= Unchanged, 1= Decrease, 2= Increased	Change in the firm's total hours worked per week in the survey month, compared to the same month in 2019
ADJ	Adjusted production or services due to the pandemic	COVc3	0= No, 1= Yes	Did the firm adjust or convert (partially or fully) its production or the services it offers in response to the COVID-19 outbreak?
OBA	Started or increased online business activity	COVc4a	0= No, 1= Yes	Did the firm start or increase online business activity in response to the COVID-19 outbreak?
DEL	Started or increased delivery or carry-out	COVc4b	0= No, 1= Yes	Did the firm start or increase delivery or carry-out of its goods and/or services in response to the COVID-19 outbreak?
RWA	Started or increased remote work arrangement	COVc4c	0= No, 1= Yes	Did the firm start or increase a remote work arrangement/policy for its employees in response to the COVID-19 outbreak?
DEM	Change in demand for products/service	COVc2b	0= Unchanged, 1= Decrease, 2= Increased	Change in the demand on the firm's products and/or services in the Round 1 survey month, compared to the same month in 2019
SUP	Change in supply of raw material	COVc2c	0= Unchanged, 1= Decrease, 2= Increased	Change in the supply of the firm's inputs, raw material, and/or finished goods and material purchased to resell in the Round 1 survey month, compared to the same month in 2019
AID	Support: Received government aid	COVf1	0= No, 1= No but expect to receive them within 3 months, 2= Yes	Did the firm receive any financial support from a national- and/or a local-government in response to the pandemic?
EXP	Direct Exporter Status	COVb3c	0= No, 1= Yes	Does the firm directly export 1% or more of its sales? (Captured in the Round 1 survey month)
RWP	Percentage of Employees Working Remotely	COVc6	Percentage	Percentage of employees working remotely in the Round 1 survey month
AGE	Age in Years by Round 1	b5	Number	Age at the Round 1 survey month, since the year of beginning of operations
LEM	Size as Ln(Count of Employees by Round 1)	COVd1	Number	Natural logarithm of the count of the firm's full-time permanent employees in the Round 1 survey month
LTS	Size as Ln(Total Annual Sales in the fiscal year before Round 0)	d2	Number	Natural logarithm of the amount of the firm's total sales in US Dollars in the fiscal year prior to the year of Baseline survey
SIZ	Size as Category	a6b	0= Micro, 1= Small, 2= Medium, 3= Large	Firm's size category, as classified in the ES
SCR	Change in sales on credit	COVe1b	0= Unchanged, 1= Decrease, 2= Increased	Change in the firm's ability to sell on credit since the pandemic's outbreak
PCR	Change in purchase on credit	COVe1c	0= Unchanged, 1= Decrease, 2= Increased	Change in the firm's ability to buy on credit since the pandemic's outbreak
DPS	Delayed paying the suppliers for more than 1 week?	COVe3a	0= No, 1= Yes	Did the firm delay paying its suppliers for more than one week, due to the negative effect of the pandemic?
DPR	Delayed paying the landlords for more than 1 week?	COVe3b	0= No, 1= Yes	Did the firm delay paying its landlords for more than one week, due to the negative effect of the pandemic?
DPT	Delayed paying the tax authority for more than 1 week?	COVe3c	0= No, 1= Yes	Did the firm delay paying the tax authorities for more than one week, due to the negative effect of the pandemic?
FAL	Failure: Filed for insolvency or bankruptcy	COVe5	0= No, 1= Yes	Did the firm file for insolvency and/or bankruptcy since the pandemic's outbreak?
ACC	Financial Inclusion: Has a checking and/or savings account?	k6	0= No, 1= Yes	Does the firm own a checking and/or a savings account at any financial institution?
DRF	Access to Liquidity: Has an overdraft facility at Round 0?	k7	0= No, 1= Yes	Does the firm enjoy an overdraft facility at any financial institution at the time of the Baseline survey?
LEV	Leverage: Has a line of credit or loan in Round 0?	k8	0= No, 1= Yes	Did the firm get any loan from financial institutions at the time of the Baseline survey?

<sup>[1]</sup> ES = Enterprise Survey (Baseline), FS = Follow-up Survey (Round 1). This column shows the original codes of the variables in the Round 0 (Baseline) and Round 1 surveys

<sup>[2]</sup> The values 0/1, and 0/1/2 were created to match the original values in the ES surveys

<sup>[3]</sup> This variable is not present in the original ES variables, and we calculated it using the ES variables illustrated in the third column of this table

Table 4: Descriptive Statistics

	<b>Valid</b>	<b>Missing*</b>	<b>Median</b>	<b>Mean</b>	<b>Std. Dev</b>
Sales Growth as Percentage	10,457	4,294	-25	-27.435	32.586
Change in liquidity or cash flows	10,837	3,914	1	0.759	0.553
Change in total hours worked per week	10,852	3,899	0	0.507	0.569
Adjusted production or services due to the pandemic	10,898	3,853	0	0.338	0.473
Started or increased online business activity	10,886	3,865	0	0.242	0.428
Started or increased delivery or carry-out	10,882	3,869	0	0.215	0.411
Started or increased remote work arrangement	10,882	3,869	0	0.310	0.462
Change in demand for products/service	10,839	3,912	1	0.805	0.581
Change in supply of raw material	10,663	4,088	1	0.696	0.597
Support: Received government aid	10,837	3,914	0	0.726	0.929
Direct Exporter Status	10,515	4,236	0	0.268	0.443
Percentage of Employees Working Remotely	10,526	4,225	0	6.593	17.592
Age in Years by Round 1	14,554	197	19	21.460	15.280
Size as Ln(Count of Employees by Round 1)	10,643	4,108	3.045	3.261	1.373
Size as Ln(Total Annual Sales in year before Round 0)	13,178	1,573	15.607	15.858	2.736
Firm Size Category	14,751	0	2	1.752	0.806
Change in sales on credit	10,272	4,479	0	0.480	0.677
Change in purchase on credit	10,302	4,449	0	0.451	0.673
Delayed paying the suppliers for more than 1 week?	10,817	3,934	0	0.315	0.464
Delayed paying the landlords for more than 1 week?	10,732	4,019	0	0.180	0.384
Delayed paying the tax authority for more than 1 week?	10,827	3,924	0	0.170	0.376
Failure: Filed for insolvency or bankruptcy	10,876	3,875	0	0.029	0.167
Financial Inclusion: Has a checking and/or savings account?	14,662	89	1	0.928	0.259
Access to Liquidity: Has an overdraft facility at Round 0?	14,398	353	0	0.429	0.495
Leverage: Has a line of credit or loan in Round 0?	14,423	328	0	0.408	0.491

\* Missing out of a total of 14,751

Table 5: Correlations Table

Variable	SGP	LIQ	HWW	ADJ	OBA	DEL	RWA	DEM	SUP	AID	EXP	RWP	AGE	LEM	LTS	SIZ	SCR	PCR	DPS	DPR	DPT	FAL	ACC	DRF	LEV	
SGP	1																									
LIQ	0.559**	1																								
HWW	0.498**	0.452**	1																							
ADJ	-0.014	-0.045**	-0.033**	1																						
OBA	-0.008	-0.014	-0.031**	0.160**	1																					
DEL	0.039**	0.027**	-0.009	0.200**	0.432**	1																				
RWA	0.068**	0.034**	-0.015	0.113**	0.297**	0.203**	1																			
DEM	0.618**	0.631**	0.522**	-0.030**	-0.004	0.051**	0.036**	1																		
SUP	0.560**	0.564**	0.496**	-0.033**	-0.044**	0.014	0.035**	0.716**	1																	
AID	-0.026**	-0.089**	-0.033**	0.026**	-0.003	-0.014	0.037**	-0.064**	-0.045**	1																
EXP	0.136**	0.118**	0.079**	-0.012	-0.001	-0.073**	0.136**	0.102**	0.116**	0.080**	1															
RWP	0.023*	0.043**	-0.001	0.092**	0.202**	0.137**	0.388**	0.036**	0.036**	-0.069**	0.093**	1														
AGE	0.069**	0.039**	0.034**	-0.054**	-0.044**	-0.051**	0.061**	0.025*	0.022*	0.060**	0.133**	-0.010	1													
LEM	0.223**	0.139**	0.109**	0.057**	0.082**	0.049**	0.250**	0.107**	0.106**	0.054**	0.306**	0.092**	0.222**	1												
LTS	0.149**	0.088**	0.024*	0.060**	0.088**	0.070**	0.210**	0.042**	0.043**	-0.018	0.121**	0.053**	0.101**	0.516**	1											
SIZ	0.113**	0.082**	0.042**	0.053**	0.063**	0.030**	0.216**	0.053**	0.046**	0.037**	0.264**	0.065**	0.200**	0.774**	0.511**	1										
SCR	0.311**	0.292**	0.228**	0.034**	0.009	0.042**	0.048**	0.251**	0.258**	-0.005	0.066**	-0.006	0.026**	0.090**	0.130**	0.040**	1									
PCR	0.244**	0.237**	0.176**	0.049**	0.010	0.060**	0.037**	0.180**	0.196**	-0.002	0.034**	0.000	0.002	0.084**	0.142**	0.040**	0.590**	1								
DPS	-0.289**	-0.275**	-0.206**	0.050**	0.064**	0.083**	0.024*	-0.233**	-0.238**	0.080**	-0.081**	-0.003	-0.041**	-0.038**	-0.022*	-0.015	-0.099**	-0.035**	1							
DPR	-0.257**	-0.209**	-0.181**	0.070**	0.075**	0.090**	0.021*	-0.184**	-0.201**	0.020*	-0.089**	0.026**	-0.077**	-0.085**	-0.061**	-0.044**	-0.129**	-0.072**	0.475**	1						
DPT	-0.252**	-0.190**	-0.168**	0.014	0.018	0.041**	-0.027**	-0.165**	-0.180**	0.045**	-0.077**	-0.021*	-0.056**	-0.079**	-0.068**	-0.042**	-0.117**	-0.075**	0.426**	0.395**	1					
FAL	-0.131**	-0.076**	-0.103**	0.010	0.018	0.038**	0.008	-0.073**	-0.083**	0.031**	-0.055**	0.053**	-0.070**	-0.047**	0.083**	-0.023*	-0.064**	-0.038**	0.156**	0.157**	0.217**	1				
ACC	0.071**	0.011	0.015	0.004	-0.008	-0.003	0.033**	0.015	0.036**	0.020*	0.017	0.001	0.073**	0.054**	0.131**	0.052**	0.061**	0.050**	-0.033**	-0.029**	-0.073**	0.001	1			
DRF	0.075**	0.071**	0.050**	-0.001	-0.028**	-0.025**	0.020*	0.050**	0.057**	0.091**	0.103**	-0.035**	0.125**	0.152**	0.140**	0.138**	0.039**	0.041**	-0.015	-0.040**	-0.046**	-0.057**	0.177**	1		
LEV	0.080**	0.046**	0.041**	-0.007	-0.018	-0.015	0.040**	0.063**	0.077**	0.086**	0.106**	-0.037**	0.073**	0.141**	0.126**	0.141**	0.054**	0.044**	0.016	-0.008	-0.010	0.020*	0.148**	0.345**	1	

SGP Sales Growth as Percentage  
 LIQ Change in liquidity or cash flows  
 HWW Change in total hours worked per week  
 ADJ Adjusted production or services due to the pandemic  
 OBA Started or increased online business activity  
 DEL Started or increased delivery or carry-out  
 RWA Started or increased remote work arrangement  
 DEM Change in demand for products/service  
 SUP Change in supply of raw material

AID Support: Received government aid  
 EXP Direct Exporter Status  
 RWP Percentage of Employees Working Remotely  
 AGE Age in Years by Round 1  
 LEM Size as Ln(Count of Employees by Round 1)  
 LTS Size as Ln(Total Annual Sales in the fiscal year before Round 0)  
 SIZ Size as Category  
 SCR Change in sales on credit  
 PCR Change in purchase on credit

DPS Delayed paying the suppliers for more than 1 week?  
 DPR Delayed paying the landlords for more than 1 week?  
 DPT Delayed paying the tax authority for more than 1 week?  
 FAL Failure: Filed for insolvency or bankruptcy  
 ACC Financial Inclusion: Has a checking and/or savings account?  
 DRF Access to Liquidity: Has an overdraft facility at Round 0?  
 LEV Leverage: Has a line of credit or loan in Round 0?

Table 6-a: Regression models of the dependent variable “Sales Growth as Percentage”

Variables	[1]		[2]		[3]		[4]		[5]		[6]		[7]		[8]	
	Coefficient	p Value	Coefficient	p Value	Coefficient	p Value	Coefficient	p Value	Coefficient	p Value	Coefficient	p Value	Coefficient	p Value	Coefficient	p Value
Constant	-6.899 ***	0.000	-6.193 ***	0.002	-2.849 **	0.020	-25.569 ***	0.001	-25.900 ***	0.000	-23.180 ***	0.000	-19.071 ***	0.000	-36.126 ***	0.000
Change in liquidity or cash flows																
Decreased	-34.211 ***	0.000	-25.702 ***	0.000	-13.978 ***	0.000	-12.752 ***	0.000	-28.853 ***	0.000	-21.958 ***	0.000	-11.795 ***	0.000	-11.197 ***	0.000
Increased	18.074 ***	0.000	14.030 ***	0.000	5.769 ***	0.003	6.403 ***	0.002	18.905 ***	0.000	15.439 ***	0.000	6.381 ***	0.000	6.779 ***	0.000
Change in total hours worked per week																
Decreased			-18.689 ***	0.000	-11.194 ***	0.000	-9.836 ***	0.000			-16.596 ***	0.000	-10.041 ***	0.000	-8.787 ***	0.000
Increased			12.855 ***	0.000	4.113 ***	0.002	3.918 ***	0.004			10.175 ***	0.000	2.079 *	0.067	2.464 *	0.064
Adjusted production or services due to the pandemic?																
Yes			0.630	0.755	0.659	0.725	0.198	0.923			0.346	0.816	0.323	0.809	0.540	0.721
Started or increased online business activity?																
Yes			-1.326	0.423	-0.341	0.845	-0.161	0.925			0.156	0.857	0.328	0.672	0.255	0.739
Started or increased delivery or carry-out?																
Yes			2.614	0.133	1.671	0.273	1.622	0.256			2.770 **	0.050	1.693	0.131	1.796 *	0.093
Started or increased remote work arrangement?																
Yes			4.308 ***	0.001	3.513 ***	0.000	1.870 *	0.088			3.362 ***	0.002	2.968 ***	0.002	1.192 *	0.065
Change in demand for products/service																
Decreased					-15.500 ***	0.000	-15.243 ***	0.000					-14.727 ***	0.000	-14.496 ***	0.000
Increased					11.757 ***	0.000	12.308 ***	0.000					11.690 ***	0.000	12.328 ***	0.000
Change in supply of raw material																
Decreased					-8.647 ***	0.000	-8.213 ***	0.000					-6.149 ***	0.000	-5.917 ***	0.000
Increased					3.203	0.151	3.312	0.120					5.284 **	0.023	5.213 **	0.018
Received government aid?																
Within 3 months					-3.561	0.119	-6.238 ***	0.004					-5.314 ***	0.001	-7.136 ***	0.000
Yes					1.619	0.369	0.702	0.685					-1.268	0.229	-2.077 *	0.067
Firm has a direct exporter status?																
Yes							1.347	0.189							-1.287	0.187
Percentage of Employees Working Remotely							-0.041 *	0.051							-0.015	0.390
Age in Years by Round 1							0.029	0.359							0.011	0.435
Size as Ln(Count of Employees by Round 1)							3.527 ***	0.000							3.512 ***	0.000
Size as Ln(Total Annual Sales in the fiscal year before Round 0)							0.717	0.136							0.389 **	0.022
Size as Category																
Small							1.725	0.684							-1.176	0.699
Medium							-1.382	0.760							-3.489	0.274
Large							-6.953	0.194							-7.605 **	0.042
Sector Fixed Effects	No		No		No		No		Yes		Yes		Yes		Yes	
Country Fixed Effects	No		No		No		No		Yes		Yes		Yes		Yes	
Number of Cases	10,390		10,266		10,015		8,475		10,390		10,266		10,015		8,475	
Adjusted R <sup>2</sup>	32.00%		39.92%		48.07%		49.75%		42.16%		47.99%		54.68%		55.75%	

All regressions are robust with 29 clustered standard errors at the country (COU) level. \*\*\* for  $p \leq 0.010$ , \*\* for  $0.010 < p \leq 0.050$ , \* for  $0.050 < p \leq 0.100$

For the variables with “Decreased” and “Increased”; the regression’s reference is “Unchanged”. For the variables with “Yes”; the regression’s reference is “No”. For the variable “Size as Category”; the regression’s reference is “Micro”.

Table 6-b: Regression models of the dependent variable “Sales Growth as Percentage” by Country Income Level and Region

Variables	By Income Level						By Region [Footnote]								
	Lower Middle		Upper Middle		High		Regions 1 and 2		Regions 3 and 4						
	[9]		[10]		[11]		[12]		[13]						
	Coefficient	p Value	Coefficient	p Value	Coefficient	p Value	Coefficient	p Value	Coefficient	p Value					
Constant	-18.857	**	0.020	-47.600	***	0.001	0.195	0.938	-34.907	***	0.000	-30.266	***	0.003	
Change in liquidity or cash flows															
Decreased	-12.650	*	0.087	-13.728	***	0.000	-9.293	***	0.000	-11.197	***	0.000	-11.336	**	0.012
Increased	11.072		0.154	5.524	**	0.017	6.175	***	0.005	6.324	***	0.000	9.178	**	0.049
Change in total hours worked per week															
Decreased	-9.403	**	0.022	-9.050	***	0.000	-8.115	***	0.000	-8.444	***	0.000	-10.156	***	0.000
Increased	10.981		0.471	2.779		0.199	3.648	**	0.027	3.443	***	0.007	2.884		0.831
Adjusted production or services due to the pandemic?															
Yes	3.865		0.451	-2.474		0.164	0.573		0.531	-0.527		0.571	3.924		0.419
Started or increased online business activity?															
Yes	3.040		0.311	0.600		0.660	-1.461	*	0.096	-0.451		0.605	0.885		0.700
Started or increased delivery or carry-out?															
Yes	1.103		0.512	2.689	***	0.003	2.093	**	0.018	2.709	***	0.000	0.070		0.966
Started or increased remote work arrangement?															
Yes	1.864		0.314	1.070		0.260	1.423		0.181	0.945		0.188	2.607		0.183
Change in demand for products/service															
Decreased	-14.049	**	0.011	-11.813	***	0.001	-16.708	***	0.000	-14.536	***	0.000	-10.931	*	0.056
Increased	9.750		0.127	13.526	***	0.003	12.074	***	0.000	11.639	***	0.000	18.892	*	0.073
Change in supply of raw material															
Decreased	-11.759	**	0.018	-5.612	***	0.004	-4.056	***	0.007	-5.006	***	0.000	-12.933	***	0.002
Increased	15.223	**	0.042	6.934	***	0.001	1.746		0.577	3.919	*	0.064	14.604	*	0.053
Received government aid?															
Within 3 months	-6.854	**	0.044	-6.484	***	0.002	-8.571	**	0.018	-7.862	***	0.000	-3.342		0.245
Yes	-5.199	*	0.090	-1.320		0.547	-1.732		0.104	-2.064	*	0.055	-2.042		0.668
Firm has a direct exporter status?															
Yes	-7.936		0.125	1.287		0.218	-0.628		0.458	-0.454		0.570	-4.016		0.144
Percentage of Employees Working Remotely	-0.035		0.430	-0.054	**	0.032	0.002		0.959	-0.036	*	0.076	-0.005		0.875
Age in Years by Round 1	0.034		0.378	-0.001		0.976	0.014		0.257	0.003		0.802	0.032		0.314
Size as Ln(Count of Employees by Round 1)	2.651		0.121	4.608	***	0.001	2.764	***	0.000	3.836	***	0.000	2.708	**	0.049
Size as Ln(Total Annual Sales in the fiscal year before Round 0)	0.798	**	0.038	0.395		0.276	-0.099		0.570	0.223		0.187	0.537		0.124
Size as Category															
Small	-3.661		0.582	8.173		0.184	-5.636		0.120	-0.742		0.842	1.141	**	0.046
Medium	-5.073		0.447	5.107		0.450	-7.418	**	0.038	-3.179		0.414	-1.303		0.135
Large	-8.162		0.434	-0.079		0.992	-10.606	**	0.011	-7.776	*	0.087	-3.439		0.387
Sector Fixed Effects	Yes			Yes			Yes			Yes			Yes		
Country Fixed Effects	Yes			Yes			Yes			Yes			Yes		
Number of Countries	3			9			13			21			4		
Number of Cases	1,379			3,110			3,986			7,073			1,402		
Adjusted R <sup>2</sup>	44.30%			53.77%			54.34%			54.69%			43.52%		

All regressions are robust with 30 clustered standard errors at the country (COU) level. \*\*\* for  $p \leq 0.010$ , \*\* for  $0.010 < p \leq 0.050$ , \* for  $0.050 < p \leq 0.100$

For the variables with “Decreased” and “Increased”; the regression’s reference is “Unchanged”. For the variables with “Yes”; the regression’s reference is “No”. For the variable “Size as Category”; the regression’s reference is “Micro”.

**Footnote:** Regions 1, 2, 3, and 4 are respectively: East Asia and Pacific; Europe and Central Asia; Middle East and North Africa; and, Sub-Saharan Africa. The regions were grouped as shown in models [12] and [13] due to the low count of countries in Regions 1 (1 country), 3 (2 countries), and 4 (2 countries). Region 2 contains most the countries in the dataset (20 countries). Regions were grouped [1 and 2 together; and, 3 and 4 together] as these are the most similar groups to each other.

Table 7-a: Regression models of the dependent variable “Change in Liquidity or Cash Flows” without sector- nor country-fixed effects

Variables	The cases where liquidity or cash flows decreased						The cases where liquidity or cash flows increased						
	[14]		[15]		[16]		[17]		[18]		[19]		
	Coefficient	p Value	Coefficient	p Value	Coefficient	p Value	Coefficient	p Value	Coefficient	p Value	Coefficient	p Value	
Constant	-1.121 ***	0.000	-1.618 ***	0.000	-1.248 ***	0.005	-2.750 ***	0.000	-2.979 ***	0.000	-2.877 ***	0.000	
Change in demand for products/service	Decreased	1.996 ***	0.000	2.017 ***	0.000	2.051 ***	0.000	0.306	0.170	0.338	0.119	0.385 *	0.084
	Increased	-0.070	0.610	0.003	0.977	0.009	0.940	2.236 ***	0.000	2.224 ***	0.000	2.235 ***	0.000
Change in supply of raw material	Decreased	1.277 ***	0.000	0.833 ***	0.000	0.851 ***	0.000	0.372 **	0.026	0.288	0.125	0.327	0.114
	Increased	0.203	0.104	-0.024	0.866	-0.028	0.867	1.386 ***	0.000	1.186 ***	0.000	1.224 ***	0.000
Received government aid?	Within 3 months	0.274	0.311	0.042	0.897	0.206	0.492	0.082	0.780	0.039	0.906	0.150	0.620
	Yes	0.232	0.127	0.174	0.252	0.228	0.167	-0.575 ***	0.004	-0.508 ***	0.008	-0.459 **	0.013
Change in sales on credit	Decreased			1.129 ***	0.000	1.032 ***	0.000			0.299	0.525	0.167	0.690
	Increased			0.480 **	0.015	0.400 **	0.020			0.775 ***	0.000	0.673 ***	0.001
Change in purchase on credit	Decreased			0.884 ***	0.000	0.982 ***	0.000			-0.325	0.416	-0.114	0.739
	Increased			0.544 ***	0.006	0.572 ***	0.003			1.341 ***	0.000	1.305 ***	0.000
Delayed paying the suppliers for more than 1 week?	Yes			0.759 ***	0.000	0.798 ***	0.000			0.002	0.995	-0.010	0.968
	Yes			0.403 *	0.073	0.386 *	0.071			-0.036	0.848	0.046	0.832
Delayed paying the tax authority for more than 1 week?	Yes			0.253	0.263	0.258	0.223			-0.083	0.738	-0.025	0.926
	Yes			0.110	0.828	-0.054	0.904			0.135	0.656	0.108	0.715
Financial Inclusion: Has a checking and/or savings account?	Yes					0.553 ***	0.000					0.124	0.608
	Yes					-0.268 ***	0.000					0.169	0.298
Leverage: Has a line of credit or loan in Round 0?	Yes					0.095	0.236					-0.090	0.565
	Yes					-0.138	0.171					0.092	0.428
Age in Years by Round 1	Yes					-0.004	0.200					-0.007	0.153
	Yes					-0.172 ***	0.000					0.063	0.391
Size as Category	Small					-0.240	0.568					-0.438	0.533
	Medium					-0.083	0.847					-0.407	0.578
	Large					-0.001	0.998					-0.333	0.661
Sector Fixed Effects	No		No		No		No		No		No		
Country Fixed Effects	No		No		No		No		No		No		
Number of Cases	10,482		9,637		8,828		10,482		9,637		8,828		
McFadden’s Pseudo R <sup>2</sup>	31.97%		38.66%		39.38%		31.97%		38.66%		39.38%		

All regressions are robust with 3 clustered standard errors at the country (COU) level. \*\*\* for  $p \leq 0.010$ , \*\* for  $0.010 < p \leq 0.050$ , \* for  $0.050 < p \leq 0.100$

For the variables with “Decreased” and “Increased”; the regression’s reference is “Unchanged”. For the variables with “Yes”; the regression’s reference is “No”. For the variable “Size as Category”; the regression’s reference is “Micro”.



Table 7-b: Regression models of the dependent variable “Change in Liquidity or Cash Flows” with sector- and country-fixed effects

Variables	The cases where liquidity or cash flows decreased						The cases where liquidity or cash flows increased					
	[20]		[21]		[22]		[23]		[24]		[25]	
	Coefficient	p Value	Coefficient	p Value	Coefficient	p Value	Coefficient	p Value	Coefficient	p Value	Coefficient	p Value
Constant	-0.633	*** 0.000	-1.806	*** 0.000	-1.061	** 0.040	-1.248	*** 0.000	-1.849	*** 0	-1.906	** 0.011
Change in demand for products/service												
	Decreased	1.954 *** 0.000	1.975 *** 0.000	2.009 *** 0.000	0.283	0.252	0.302	0.212	0.360	0.150		
	Increased	-0.121 0.331	-0.065 0.622	-0.028 0.830	2.284 *** 0.000	2.251 *** 0	2.277 *** 0.000					
Change in supply of raw material												
	Decreased	1.196 *** 0.000	0.896 *** 0.000	0.886 *** 0.000	0.334 ** 0.028	0.273 0.165	0.308 0.144					
	Increased	0.117 0.358	-0.012 0.935	-0.048 0.785	1.381 *** 0.000	1.222 *** 0	1.252 *** 0.000					
Received government aid?												
	Within 3 months	0.627 *** 0.004	0.351 0.187	0.472 * 0.081	0.293 0.307	0.249 0.429	0.324 0.339					
	Yes	0.577 *** 0.000	0.451 *** 0.000	0.502 *** 0.000	-0.363 ** 0.027	-0.311 * 0.054	-0.296 * 0.095					
Change in sales on credit												
	Decreased		1.218 *** 0.000	1.110 *** 0.001		0.390 0.374	0.282 0.504					
	Increased		0.391 ** 0.030	0.333 ** 0.043		0.824 *** 0	0.733 *** 0.001					
Change in purchase on credit												
	Decreased		0.948 *** 0.000	1.013 *** 0.000		-0.193 0.626	-0.007 0.985					
	Increased		0.515 *** 0.005	0.548 *** 0.003		1.414 *** 0	1.381 *** 0.000					
Delayed paying the suppliers for more than 1 week?												
	Yes		0.758 *** 0.000	0.781 *** 0.000		-0.168 0.472	-0.174 0.431					
Delayed paying the landlords for more than 1 week?												
	Yes		0.435 * 0.064	0.427 ** 0.043		-0.114 0.601	-0.011 0.968					
Delayed paying the tax authority for more than 1 week?												
	Yes		0.265 0.149	0.246 0.178		-0.040 0.882	-0.012 0.969					
Failure: Filed for insolvency or bankruptcy?												
	Yes		-0.062 0.873	-0.139 0.713		0.553 * 0.088	0.485 0.276					
Financial Inclusion: Has a checking and/or savings account?												
	Yes			0.330 ** 0.036			0.228 0.425					
Access to Liquidity: Has an overdraft facility at Round 0?												
	Yes			-0.170 *** 0.001			-0.006 0.964					
Leverage: Has a line of credit or loan in Round 0?												
	Yes			-0.009 0.891			0.022 0.884					
Firm has a direct exporter status?												
	Yes			-0.203 * 0.064			0.118 0.233					
Age in Years by Round 1												
							-0.002 0.659					
Size as Ln(Count of Employees by Round 1)												
							-0.177 *** 0.000					
Size as Category												
	Small			-0.113 0.815			-0.416 0.569					
	Medium			-0.016 0.975			-0.360 0.634					
	Large			0.070 0.898			-0.273 0.726					
Sector Fixed Effects		Yes	Yes	Yes		Yes	Yes	Yes				
Country Fixed Effects		Yes	Yes	Yes		Yes	Yes	Yes				
Number of Cases		10,482	9,637	8,828		10,482	9,637	8,828				
McFadden's Pseudo R <sup>2</sup>		35.33%	41.47%	41.80%		35.33%	41.47%	41.80%				

All regressions are robust with 32 clustered standard errors at the country (COU) level. \*\*\* for  $p \leq 0.010$ , \*\* for  $0.010 < p \leq 0.050$ , \* for  $0.050 < p \leq 0.100$

For the variables with “Decreased” and “Increased”; the regression’s reference is “Unchanged”. For the variables with “Yes”; the regression’s reference is “No”. For the variable “Size as Category”; the regression’s reference is “Micro”.

Table 7-c: Regression models of the dependent variable “Change in Liquidity or Cash Flows” (decrease case) by Country Income Level and Region

<i>The cases where liquidity or cash flows decreased</i>																				
<i>Variables</i>	<i>By Income Level</i>									<i>By Region [Footnote]</i>										
	<i>Lower Middle</i>			<i>Upper Middle</i>			<i>High</i>			<i>Regions 1 and 2</i>		<i>Regions 3 and 4</i>								
	<b>[26]</b>			<b>[27]</b>			<b>[28]</b>			<b>[29]</b>		<b>[30]</b>								
	Coefficient	p Value	Coefficient	p Value	Coefficient	p Value	Coefficient	p Value	Coefficient	p Value	Coefficient	p Value								
<i>Constant</i>	-0.234	0.807	-1.664	*	0.054		-1.414	**	0.015		-1.259	**	0.023		-0.286		0.629			
Change in demand for products/service																				
Decreased	2.018	***	0.000		1.883	***	0.000		2.157	***	0.000		2.031	***	0.000		1.812	***	0.000	
Increased	0.522		0.271		0.006		0.971		-0.207		0.246		-0.068		0.605		0.434		0.511	
Change in supply of raw material																				
Decreased	0.538	*	0.061		1.124	***	0.000		0.782	***	0.000		0.906	***	0.000		0.848	***	0.000	
Increased	-0.186		0.825		-0.069		0.820		-0.015		0.943		-0.011		0.951		-0.608		0.421	
Received government aid?																				
Within 3 months	-0.009		0.981		0.486	***	0.009		0.540		0.291		0.477		0.102		0.374	***	0.007	
Yes	0.003		0.985		0.569	*	0.074		0.562	***	0.000		0.544	***	0.000		0.041		0.692	
Change in sales on credit																				
Decreased	1.633	***	0.000		0.385		0.465		1.370	***	0.000		1.006	**	0.013		1.440	***	0.000	
Increased	0.527		0.256		-0.029		0.919		0.524	***	0.001		0.246		0.146		1.053	***	0.001	
Change in purchase on credit																				
Decreased	0.865	***	0.000		1.203	***	0.000		1.078	***	0.000		1.086	***	0.000		0.810	***	0.000	
Increased	0.259		0.577		0.812	***	0.001		0.497	***	0.001		0.667	***	0.000		0.000		1.000	
Delayed paying the suppliers for more than 1 week?																				
Yes	0.457	***	0.008		0.758	***	0.000		0.932	***	0.000		0.822	***	0.000		0.584	***	0.000	
Delayed paying the landlords for more than 1 week?																				
Yes	0.289		0.459		0.537	**	0.034		0.430		0.305		0.501	**	0.034		0.240		0.585	
Delayed paying the tax authority for more than 1 week?																				
Yes	0.179		0.641		0.190		0.493		0.484	**	0.016		0.319	*	0.055		0.142		0.733	
Failure: Filed for insolvency or bankruptcy?																				
Yes	0.963	**	0.027		-0.564		0.215		-0.591		0.158		-0.286		0.493		0.742		0.585	
Financial Inclusion: Has a checking and/or savings account?																				
Yes	0.125	***	0.000		0.497	*	0.071		0.601	***	0.008		0.465	**	0.012		0.261		0.206	
Access to Liquidity: Has an overdraft facility at Round 0?																				
Yes	-0.208		0.257		-0.245	**	0.036		-0.139	*	0.066		-0.167	***	0.004		-0.300		0.103	
Leverage: Has a line of credit or loan in Round 0?																				
Yes	0.097		0.604		-0.138		0.185		0.036		0.676		0.001		0.985		-0.115		0.519	
Firm has a direct exporter status?																				
Yes	-0.527	*	0.081		-0.141		0.279		-0.212		0.110		-0.149		0.147		-0.653	***	0.002	
Age in Years by Round 1	0.010	***	0.000		-0.001		0.680		-0.005	*	0.091		-0.004	*	0.091		0.009	**	0.047	
Size as Ln(Count of Employees by Round 1)	-0.200		0.146		-0.141	**	0.012		-0.187	**	0.027		-0.180	***	0.001		-0.182		0.157	
Size as Category																				
Small	-0.165		0.873		0.400		0.665		-0.303		0.563		-0.144		0.784		0.305	**	0.046	
Medium	-0.198		0.857		0.539		0.556		-0.234		0.702		-0.039		0.944		0.374		0.297	
Large	0.273		0.800		0.339		0.722		-0.036		0.960		0.010		0.987		0.697	***	0.001	
Sector Fixed Effects	Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Country Fixed Effects	Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Number of Countries	3		9		13		13		21		4		21		4		21		4	
Number of Cases	1,351		3,174		4,303		4,303		7,475		1,353		7,475		1,353		7,475		1,353	
McFadden's Pseudo R <sup>2</sup>	38.85%		39.53%		42.37%		42.37%		41.35%		40.73%		41.35%		40.73%		41.35%		40.73%	

All regressions are robust with 33 clustered standard errors at the country (COU) level. \*\*\* for  $p \leq 0.010$ , \*\* for  $0.010 < p \leq 0.050$ , \* for  $0.050 < p \leq 0.100$

For the variables with “Decreased” and “Increased”; the regression’s reference is “Unchanged”. For the variables with “Yes”; the regression’s reference is “No”. For the variable “Size as Category”; the regression’s reference is “Micro”.

**Footnote:** Regions 1, 2, 3, and 4 are respectively: East Asia and Pacific; Europe and Central Asia; Middle East and North Africa; and, Sub-Saharan Africa. The regions were grouped as shown in models [29] and [30] due to the low count of countries in Regions 1 (1 country), 3 (2 countries), and 4 (2 countries). Region 2 contains most the countries in the dataset (20 countries). Regions were grouped [1 and 2 together; and, 3 and 4 together] as these are the most similar groups to each other.

Table 7-d: Regression models of the dependent variable “Change in Liquidity or Cash Flows” (increase case) by Country Income Level and Region

		<i>The cases where liquidity or cash flows increased</i>											
		<i>By Income Level</i>						<i>By Region [Footnote]</i>					
		<i>Lower Middle</i>		<i>Upper Middle</i>		<i>High</i>		<i>Regions 1 and 2</i>			<i>Regions 3 and 4</i>		
		<b>[31]</b>		<b>[32]</b>		<b>[33]</b>		<b>[34]</b>			<b>[35]</b>		
<i>Variables</i>		Coefficient	p Value	Coefficient	p Value	Coefficient	p Value	Coefficient	p Value	Coefficient	p Value	Coefficient	p Value
<i>Constant</i>		-17.935 ***	0.000	-16.037 ***	0.000	-2.279 ***	0.003	-1.335 **	0.036	-17.921 ***	0.000		
Change in demand for products/service													
	Decreased	1.014 *	0.054	0.515 **	0.036	-0.095	0.853	0.282	0.302	0.837 *	0.064		
	Increased	2.962 ***	0.000	2.060 ***	0.000	2.391 ***	0.000	2.255 ***	0.000	3.004 ***	0.000		
Change in supply of raw material													
	Decreased	1.313 *	0.074	0.075	0.832	0.323	0.391	0.206	0.362	1.013 **	0.013		
	Increased	1.659	0.300	1.503 ***	0.000	1.160 ***	0.000	1.250 ***	0.000	1.534	0.241		
Received government aid?													
	Within 3 months	0.088	0.866	0.292	0.471	0.415	0.461	0.406	0.244	-0.352	0.474		
	Yes	-0.874 *	0.094	-0.007	0.989	-0.362 ***	0.003	-0.248	0.162	-0.916 ***	0.008		
Change in sales on credit													
	Decreased	1.142 *	0.071	-0.906	0.112	0.784 ***	0.005	0.063	0.885	1.019	0.195		
	Increased	1.471 ***	0.000	0.710 **	0.034	0.381	0.237	0.706 ***	0.001	0.791	0.309		
Change in purchase on credit													
	Decreased	-0.605	0.195	0.535 *	0.097	-0.106	0.847	0.158	0.641	-0.401	0.300		
	Increased	0.837 *	0.081	1.425 ***	0.000	1.702 ***	0.000	1.413 ***	0.000	1.050 *	0.088		
Delayed paying the suppliers for more than 1 week?													
	Yes	-0.167	0.862	-0.379	0.428	-0.116	0.679	-0.180	0.455	-0.136	0.835		
Delayed paying the landlords for more than 1 week?													
	Yes	0.555	0.536	-0.368	0.131	0.212	0.662	-0.187	0.504	0.803	0.139		
Delayed paying the tax authority for more than 1 week?													
	Yes	-0.147	0.889	0.145	0.647	-0.287	0.558	0.128	0.709	-0.777 ***	0.000		
Failure: Filed for insolvency or bankruptcy?													
	Yes	0.138	0.907	-0.233	0.618	1.406 ***	0.000	0.595	0.181	-13.678 ***	0.000		
Financial Inclusion: Has a checking and/or savings account?													
	Yes	1.301 ***	0.000	-0.053	0.849	-0.103	0.643	-0.146	0.384	1.434 ***	0.000		
Access to Liquidity: Has an overdraft facility at Round 0?													
	Yes	-0.155	0.861	-0.159	0.494	0.108	0.508	0.010	0.941	-0.209	0.729		
Leverage: Has a line of credit or loan in Round 0?													
	Yes	0.308	0.755	-0.046	0.873	0.025	0.840	0.010	0.945	0.028	0.973		
Firm has a direct exporter status?													
	Yes	-0.197	0.265	-0.100	0.595	0.293 **	0.032	0.148	0.169	-0.170	0.350		
Age in Years by Round 1		0.029 *	0.099	-0.014	0.266	-0.004	0.424	-0.004	0.395	0.021	0.242		
Size as Ln(Count of Employees by Round 1)		-0.131 ***	0.010	0.047	0.748	0.056	0.589	0.051	0.544	-0.136 **	0.045		
Size as Category													
	Small	11.275 ***	0.000	14.702 ***	0.000	-1.139	0.167	-0.640	0.358	13.414 ***	0.000		
	Medium	11.168 ***	0.000	14.644 ***	0.000	-1.020	0.249	-0.626	0.388	13.668 ***	0.000		
	Large	11.033 ***	0.000	14.710 ***	0.000	-0.843	0.412	-0.479	0.541	13.189 ***	0.000		
Sector Fixed Effects		Yes		Yes		Yes		Yes		Yes		Yes	
Country Fixed Effects		Yes		Yes		Yes		Yes		Yes		Yes	
Number of Countries		3		9		13		21		4			
Number of Cases		1,351		3,174		4,303		7,475		1,353			
McFadden’s Pseudo R <sup>2</sup>		38.85%		39.53%		42.37%		41.35%		40.73%			

All regressions are robust with 34 clustered standard errors at the country (COU) level. \*\*\* for  $p \leq 0.010$ , \*\* for  $0.010 < p \leq 0.050$ , \* for  $0.050 < p \leq 0.100$

For the variables with “Decreased” and “Increased”; the regression’s reference is “Unchanged”. For the variables with “Yes”; the regression’s reference is “No”. For the variable “Size as Category”; the regression’s reference is “Micro”.

**Footnote:** Regions 1, 2, 3, and 4 are respectively: East Asia and Pacific; Europe and Central Asia; Middle East and North Africa; and, Sub-Saharan Africa. The regions were grouped as shown in models [34] and [35] due to the low count of countries in Regions 1 (1 country), 3 (2 countries), and 4 (2 countries). Region 2 contains most the countries in the dataset (20 countries). Regions were grouped [1 and 2 together; and, 3 and 4 together] as these are the most similar groups to each other.

## **XI Compliance with Ethical Standards**

Ahmad Ehab Shahin declare that he has no conflict of interest. This paper does not contain any studies with human participants or animals performed by the author.