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Corporate Vulnerabilities in the Middle East, North Africa, and Pakistan in the Wake of the Covid-19 Pandemic

By Nordine Abidi and Mohamed Belkhir

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WORKING PAPER

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Corporate Vulnerabilities in the Middle East, North Africa, and Pakistan in the Wake of the COVID-19 Pandemic

Prepared by Nordine Abidi and Mohamed Belkhir*

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ABSTRACT: This paper analyzes corporate vulnerabilities in the Middle East, North Africa and Pakistan (MENAP hereafter) in the wake of the COVID-19 pandemic shock. Using a sample of nearly 700 firms from eleven countries in MENAP, we assess the non-financial corporate (NFC) sector’s liquidity and solvency risk and viability over the medium term under different stress test scenarios. Our findings suggest that the health crisis has exacerbated vulnerabilities in the corporate sector, though the effects are heterogenous across the region. Small firms, which entered the pandemic in a more vulnerable position, would remain under high liquidity stress over the medium term, putting a substantial share of these firms’ debt at risk of default. Similarly, liquidity needs of firms in contact-intensive sectors have also worsened and would remain elevated in 2022-23. We also show that an adverse scenario of subdued growth and premature withdrawal of policy support would impair the capacity to service interest expenses, especially among small firms, resulting in higher insolvency risk. Overall, our results indicate that some segments of the MENAP corporate sector could remain reliant on policy support during the recovery phase and that structural reforms are critical to save distressed but viable firms from bankruptcy and ensure an efficient liquidation of “zombie” firms.

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WORKING PAPERS

Corporate Vulnerabilities in the Middle East, North Africa, and Pakistan in the Wake of the Covid-19 Pandemic¹

Prepared by Nordine Abidi and Mohamed Belkhir

¹ Some of the analyses and results presented in this paper have also been reported in chapter 3 of the October 2021 Regional Economic Outlook: Middle East and Central Asia.

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I. Introduction

Similar to other regions of the world, the non-financial corporate (NFC) sector in the Middle East, North Africa and Pakistan has been severely impacted by the COVID-19 shock, with revenues and profits declining at an unprecedented pace at the peak of the pandemic (World Bank, 2021; Middle East and Central Asia Regional Economic Outlook, October 2021). This is likely to exacerbate the sector's vulnerabilities, which if unaddressed could result in large-scale bankruptcies, with severe consequences on financial stability, employment, productivity, and economic growth. Going forward, an uncertain path of the pandemic and limited policy space in many of the region's countries could add to the woes of the corporate sector, which calls for close monitoring of developments therein. In this context, it is critical to assess the near- and medium-term impact of the pandemic, notably with respect to liquidity and solvency risks and the extent of viability and "zombification" in the region's corporate sector. Such an assessment is essential to inform the policy debate on the actions that would need to be taken to mitigate the impact of the pandemic shock on the corporate sector to support the recovery ahead.

This paper assesses the stress to the region's NFCs in the aftermath of the pandemic shock by projecting liquidity, solvency and viability indicators under different growth and policy support scenarios over the period 2021-23. To this end, we construct a comprehensive panel dataset of nearly 700 publicly listed companies from 6 oil-exporting and 5 oil-importing countries in the MENAP region over the 2002-2020 period. The group of oil-exporting countries (OE, henceforth) includes Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and United Arab Emirates whereas the group of oil-importing countries (OI, henceforth) covers Egypt, Jordan, Morocco, Pakistan, and Tunisia.

Using a multi-year dynamic scenario-based stress testing model developed by Tressel and Ding (2021) and adapted to the region's context, we simulate over the years the evolution of individual firms' financial indicators, including profitability, liquidity, equity, and capacity to service debt. The stress testing model makes use of firm-level panel data regressions where certain indicators are regressed on firm-level structural and time-varying factors, a macroeconomic variable (real GDP growth), and industry- and country-fixed effects. Our regressions are estimated in two separate subsamples of OEs and OIs to account for the heterogeneity in the characteristics of these two groups of countries. Complementing the NFC's stress-test model with accounting identities, we project firm-level cash balances, the interest coverage ratio (ICR) and equity positions to gauge liquidity and solvency risk.

Our projections are done under two scenarios: a baseline scenario and an adverse scenario. Under the baseline scenario, countries' real GDP are expected to grow at the rate forecast under the April 2021 IMF World Economic Outlook (WEO) baseline scenario. Under the adverse scenario, real GDP growth would be subdued relative to the baseline and policy support deployed during the pandemic would be withdrawn starting from 2022. For each year in 2021-23, we assume growth to be at one standard deviation (of the growth distribution) below the country's WEO baseline projection.² The withdrawal of policy support is captured by a return to pre-pandemic (2019) effective tax rates and effective interest rates that are 200 basis points higher than their 2020 levels. The design of our adverse scenario captures the potential anemic growth that may be recorded in many of the region's countries due to various factors, including a slow pace of progress on

² For each country in our sample, we consider the standard deviation of the distribution of real GDP growth over the 10 years preceding the COVID-19 crisis.

vaccinations against the coronavirus, supply bottlenecks and a slower than expected recovery in the rest of the world. The withdrawal of policy support is also a plausible scenario, especially considering the limited fiscal space and inflationary pressures in many countries and the faster-than-expected normalization of monetary policy by major advanced economies' central banks.

The forward-looking stress testing exercise provides interesting insights about the impact of the pandemic shock on firms' liquidity, solvency, and viability prospects in the MENAP region. First, the pandemic shock has adversely affected firms across the MENAP region, although unevenly, as firms' liquidity and solvency positions took a harder hit in oil-importing compared to oil-exporting countries. Second, the impact of the pandemic shock is also uneven across firm sizes and sectors. Specifically, small firms, which entered the pandemic in a more fragile liquidity and solvency position compared to large firms, are projected to remain under higher liquidity stress relative to their pre-pandemic levels, putting large amounts of debt at risk of default if liquidity risks materialize. Small firms' solvency risks would also be exacerbated under the adverse scenario. In addition, firms in high contact-intensity sectors would also see their liquidity positions deteriorate faster compared to those in low contact-intensity sectors, reflecting the severe impact of the pandemic on contact-sensitive activities. These findings imply that borrowing needs would remain large over the medium term, namely among small firms and those in high contact-intensity sectors, and that accommodative liquidity policies should remain in place to avert a widespread wave of defaults that could be triggered by liquidity dry ups. Third, a notable share of firms – 15 percent (baseline)-25 percent (adverse scenario) – would need either financial restructuring or liquidation over the medium term in both OIs and OEs. Our findings, further, suggest that small firms would particularly be vulnerable over the medium term, as between 18 percent (baseline) and 30 percent (adverse scenario) of these firms would require either restructuring or liquidation across the MENAP region.

Considering the main stress test results, this paper recommends that targeted liquidity support should continue to be provided to the vulnerable segment of the corporate sector, namely small firms, and those in high contact-intensive sectors until liquidity stress subsides. The reform process should also be expedited to save viable but insolvent firms from bankruptcy and ensure an efficient liquidation of “zombie” firms in the region.³ Targeted liquidity support and the upgrading of insolvency regimes and development of financial markets are critical, as they would allow to save viable but distressed firms from liquidation and preserve jobs and productive capacity, while ensuring the reallocation of resources into more competitive firms and sectors.

This paper makes three important contributions to the literature. To our knowledge, this is the first paper that stress tests NFCs in the MENAP region. While NFCs in many other regions were recently subject to liquidity and solvency stress testing exercises (e.g. IMF (2019); IMF (2020a; 2020c); Bank of England (2020); Button et al. (2020); Caceres et al. (2020); and Tressel and Ding (2021)), especially in the aftermath of the COVID-19 shock, those located in MENAP countries did not undergo the same systematic assessment. Therefore, our understanding of the individual and aggregate risks that NFCs face and pose to the broader economy is limited. This paper fills this gap in the literature by shedding light on how NFCs in MENAP are emerging from the pandemic and informing policy on the needed actions to ensure a robust and sustainable recovery going forward.

³ “Zombification” refers to a state in which a firm's profits become insufficient to cover its cost of capital. Banerjee and Hoffman (2020) define “zombie” firms as those that are unprofitable but remain in the market rather than exiting through takeover or bankruptcy.

Second, this paper also adds to a scarce literature assessing the financial health of the corporate sector in the MENAP region and the hurdles it faces in the course of its operations and development. Assessing the robustness of this key sector of the real economy is a critical pillar of any diagnosis aiming at understanding the factors impairing a better macroeconomic performance in the region's countries. This paves the way for better policymaking aiming at strengthening economic growth and job creation. Awartani et al. (2016) and Belkhir et al. (2016) show that weak institutional frameworks in some of the region's countries complicate firms' access to long-term debt and may thus result in lower than desired investment by NFCs. Rocha et al. (2011) point to the underdevelopment of financial systems as a major obstacle preventing firms from getting funding for their operations and investments, which translates into poor economic performance in the region. Herrala and Turk-Ariss (2016) and Belkhir et al. (2017) show, respectively, that political instability tightens borrowing constraints and raises the cost of equity for the region's firms, which impedes capital accumulation, thereby adversely affecting economic growth. By documenting evidence of persistent vulnerabilities in some segments of the corporate sector, we draw policymakers' attention to the need for remedial policies to address such fragilities and prevent them from having a persistent effect on economic activity – scarring.

Finally, we contribute to a nascent literature assessing the stress caused by the COVID-19 health crisis to the corporate sector. For instance, Caceres et al. (2020) conduct liquidity and solvency stress tests of US publicly listed firms in a Covid-19 pandemic forward looking macroeconomic scenario while Greenwood et al. (2020) use a regression of loan charge-off rates on unemployment rates to perform forward-looking projections of corporate loan defaults in the US due to the pandemic. IMF (2020c) assesses liquidity and solvency risks of European NFCs during the 2020 COVID-19 shock and the role that policy support may have played. The Bank of England (2020) and Button et al. (2020) estimate the cash flow deficits that mid-size and large UK companies would face for the 2020-21 financial year. We add to this literature by providing stress test projections of liquidity, solvency, and viability risks from the MENAP region where corporates operate under different economic conditions and institutional frameworks compared to those in advanced economies, which are the focus of the above-cited literature.

The paper is organized as follows. Section II describes our data and sample. Section III details our empirical strategy and presents the regression results underlying the solvency and liquidity forward-looking stress tests. Our assessment of liquidity and solvency vulnerabilities is presented in Section IV. Section V is dedicated to the triage of firms into sound, viable and “zombie” firms. Finally, Section VI concludes and presents policy recommendations.

II. Data and Sample

To conduct our analysis of the NFC sector in the MENAP region, we rely on firm-level data drawn from the S&P Capital IQ (Compustat) database. Data from historical financial statements are collected for the 2002-20 period. We perform an extensive series of cleaning and filtering exercises to the initial data in order to derive a comprehensive dataset of much higher quality than the raw Capital IQ data. The final sample includes more than 660 publicly listed firms that have information available for a wide range of balance sheet and income statement variables. The micro-level dataset covers firms from 11 countries and spans a variety of industries based on the Fama-French classification system (see Table 1 for country and industry coverage). The analysis is performed at the firm-level and the results are then aggregated by country groups (oil-importing and oil-exporting countries), sectors (high- and low-contact-intensive) and firm size (small and large firms).

Table 1. Country and Industry Coverage of the Final Sample.

Country	Oil Importing (OI)	Oil Exporting (OE)	Number of Firms in 2019
Egypt	X		123
Jordan	X		13
Morocco	X		42
Pakistan	X		252
Tunisia	X		28
Bahrain		X	5
Kuwait		X	27
Oman		X	15
Qatar		X	10
Saudi Arabia		X	121
UAE		X	31
Total			667
Industry (based on Fama-French)	Low-contact-intensity	High-contact-intensity	
Consumer Non-Durables: Food, Tobacco, Textiles, Apparel, Leather, Toys.	X		177
Consumer Durables: Cars, TV's, Furniture, Household Appliances.	X		19
Manufacturing: Machinery, Trucks, Planes, etc.	X		156
Energy: Oil, Gas, and Coal Extraction and Products	X		15
Chemicals and Allied Products	X		56
Business Equipment: Computers, Software, and Electronic Equipment	X		17
Telecom Companies: Telephone and Television Transmission	X		15
Utilities	X		17
Shops, Wholesale, Retail		X	29
Healthcare, Medical Equipment, and Drugs		X	32
Services		X	43
Transportation		X	18
Others			73
Total			667

III. Empirical Strategy and Projections

3.1. Empirical Strategy

To project firm-level financial indicators and derive vulnerability measures over a 3-year horizon (2021-23), we adapt Tressel and Ding's (2021) scenario-based stress testing tool to the MENAP region. This tool relies on a

set of firm-level regressions, which we estimate in two separate samples: oil-exporting and oil-importing countries. Data used to estimate the regression models ends in 2019 to ensure that the estimated coefficients are not affected by the COVID-19 shock. Our model is also completed by accounting identities to project indicators that are not directly obtained through regression-based projections.

Specifically, the empirical framework is based on firm-level panel data regressions of sales growth and profitability (measured by the return on assets, ROA). In each of these regression models, the dependent variable is either the annual rate of sales growth or the ROA and the independent variables include a large set of firm-level controls, a macroeconomic variable (real GDP growth) and a set of industry- and country-fixed effects.

The dependent variables are then projected dynamically using firm-level cyclical variables' values in the previous year, firm-level structural variables' values pre-pandemic (2019) and current year forecasted real GDP growth. The dynamic OLS panel-data regression model is represented as follows:

$$Y_{i,j,c,t} = \alpha_c + \alpha_j + \beta_1 Y_{i,j,c,t-1} + \Gamma_1 X_{i,j,c,t-1} + \delta_1 G_{c,t} + \epsilon_{i,j,c,t}$$

where the dependent variable to be projected for firm i , in industry j , in country c , and year t , $Y_{i,j,c,t}$, can be either the ROA or annual sales growth. $X_{i,j,c,t-1}$ is a vector of lagged firm-level control variables, including firm size, asset tangibility, sales turnover, leverage, sales growth, and ROA (see Table 2 for a description of the variables used in the regression analysis). $G_{c,t}$ represents annual real GDP growth in country c , in year t . α_c and α_j represent country- and industry-fixed effects, respectively. $\epsilon_{i,j,c,t}$ is a residual term.

Table 2. Variable description and sources

Variable	Description	Source
Real GDP Growth	Country-level annual growth in real GDP.	IMF World Economic Outlook.
ROA	Pre-tax income to total assets	Capital IQ and IMF Staff calculations.
Leverage	Total debt to total assets	As above
Sales Growth	Annual growth rate of sales revenues.	As above
Firm Size	The natural logarithm of total assets.	As above
Asset Tangibility	Fixed assets to total assets, a measure of firm efficiency in using assets to generate sales.	As above
Asset Turnover	Annual sales revenues to total assets.	As above

In projecting ROA and sales growth, the pre-crisis values (that is, 2019 values) of firm-level structural characteristics – firm size, leverage, asset tangibility and turnover – are used.

The projected ROA for 2021, for example, is calculated using the regression estimated coefficients ($\beta_1, \hat{\Gamma}_1, \hat{\Gamma}_2, \hat{\delta}_1$), pre-crisis values of structural firm-level variables (size, asset tangibility, leverage and asset turnover), the 2020 actual values of cyclical firm-level variables, the forecast real GDP growth for 2021, and the estimated country- and industry-fixed effects ($\hat{\alpha}_c, \hat{\alpha}_j$):

$$\widehat{ROA}_{i,j,c,2021} = \hat{\alpha}_c + \hat{\alpha}_j + \beta_1 \widehat{ROA}_{i,j,c,2020} + \hat{\Gamma}_1 X_{i,j,c,2019} + \hat{\Gamma}_2 X_{i,j,c,2020} + \hat{\delta}_1 G_{c,2021}$$

As for 2022, $\widehat{ROA}_{i,j,c,2022}$ is calculated using the regression estimated coefficients, the 2021 projected ROA ($\widehat{ROA}_{i,j,c,2021}$), the 2019 values of the structural firm-level variables ($X_{i,j,c,2019}$), the 2021 projected values of sales growth ($X_{i,j,c,2021}$) and the 2022 projected real GDP growth ($G_{c,2022}$). We then feed the 2022 ROA

projections into the same model to generate 2023 projections.

Having projected ROA and annual sales growth over 2021-23, we exploit the following accounting identities to generate projections for cash (liquidity) needs, the change in debt, the interest coverage ratio, and firms' equity positions under both the baseline and adverse scenarios:

Cash Balance($t+1$) = EBIT ($t+1$) – Interest Expenses ($t+1$) - Taxes($t+1$) + Cash Balance(t), where a projected negative value indicates that the firm would have a liquidity shortage and need to rely on external credit to meet its scheduled cash outflows.

Debt($t+1$) = Debt(t) - Cash Balance($t+1$) if projected cash balance is negative; equal to Debt(t) otherwise.

Interest Coverage Ratio(t) = EBIT(t)/Interest Expenses(t)

Equity($t+1$) = Equity(t) + Retained Earnings($t+1$), where retained earnings equal net income under the assumption that firms raise no new equity and pay no dividends during the years of the analysis.

Under the baseline scenario.

The projected (EBIT – Interest Expenses) is obtained by multiplying the projected ROA by the 2019 total assets. Taxes are projected by multiplying the 2020 effective tax rate on sales by the projected sales revenues obtained based on projections of sales growth. For instance, 2021 sales revenues are projected by multiplying 2020 sales revenues by the projected sales growth in 2021. The 2020 effective tax rate on sales is calculated by dividing 2020 tax payments by 2020 sales revenues. To project equity, retained earnings are calculated as the difference between projected pre-tax income (ROA multiplied by 2019 total assets) and projected taxes.

Under the adverse scenario.

This scenario is characterized by a subdued recovery and policy support that is withdrawn symmetrically across firms (for simplification) starting from 2022. Real GDP growth is assumed at one standard deviation below the World Economic Outlook forecast. Withdrawal of policy support is modeled as a return to pre-crisis effective income tax rates and a rise in the effective interest rate by 200 basis points relative to 2020 rates.

3.2. Vulnerability Indicators

The assessment of firms' vulnerabilities is carried out using a range of indicators selected based on various policy reports and academic literature, including the IMF FSAPs (summarized in IMF (2021)), Tressel and Ding (2021), the April 2021 Global Financial Stability Report, Acharya et al. (2020) and Banerjee and Hoffman (2020).

Liquidity needs are measured based on cash balances. In our framework, firms with negative cash balances will have to borrow or make other adjustments to avoid defaulting on their liabilities. Insolvency is measured based on firms' equity positions. A negative equity position suggests that a firm's liabilities are larger than its assets, which under some jurisdictions legally binds a firm to file for bankruptcy.

The projected cash balances and equity positions are used to estimate the share of "firms at risk" (firms with cash balances or equity below zero) and "debt at risk" (the debt of firms at risk as a fraction of total non-financial corporate debt) at the country and industry levels as well across oil-importing and oil-exporting

countries and firm sizes. For instance, “firm at risk” and “debt at risk” metrics for firms with negative cash balances are calculated as follows:

$$Firm\ at\ Risk_{g,t} = \frac{\sum_{i=1}^{i=N_g} 1(L_{i,t} < 0)}{N_g}$$

$$Debt\ at\ Risk_{g,t} = \frac{\sum_{i=1}^{i=N_g} 1(L_{i,t} < 0) * D_{i,t}}{\sum_{i=1}^{i=N_g} D_{i,t}}$$

where N_g is the number of firms in group g , i denotes individual firms and $1(\cdot)$ is an indicator variable which equals one if the liquidity (or solvency) risk indicator L is negative and zero otherwise. The $Firm\ at\ Risk_{g,t}$ is defined as the number of firms that are “at risk” in group g in year t according to the liquidity and/or solvency indicators. The $Debt\ at\ Risk_{g,t}$ is defined as the share of debt associated with companies that are “at risk” in group g in year t in their total debt, according to the liquidity and/or solvency indicators.

3.3. Regression results

Before turning to the results of the regression analysis, Table 3 (panels A and B) presents summary statistics of the variables used in the empirical analysis across the two subsamples of oil-importing and oil-exporting countries in 2019.

Table 3, Panel A. 2019 Summary statistics for the variables used in the empirical analysis in the OI subsample

Variables	Observations	1 st Quartile	Median	3 rd Quartile	Mean	Standard Deviation
ROA (%)	456	0.25	5.31	10.33	5.5	9.66
Sales Growth	446	-5.41	6.89	20.11	7.88	26.73
Size	456	6.539	8.14	9.42	7.88	2.11
Leverage (%)	449	7.48	25.35	40.82	26.34	20.59
Asset Tangibility (%)	455	23.63	38.87	55.35	40.62	22.26
Asset Turnover	454	0.479	0.8	1.11	0.854	0.54
Real GDP Growth (%)	5	1.91	1.91	5.55	2.89	1.65

Table 3, Panel B. 2019 Summary statistics for the variables used in the empirical analysis in the OE subsample

Variables	Observations	1 st Quartile	Median	3 rd Quartile	Mean	Standard Deviation
ROA (%)	209	-0.388	3.13	7.57	3.22	8.08
Sales Growth (%)	209	-10.47	1.12	12.43	2.68	24.56
Size	209	5.54	7.18	8.27	6.949	2.09

Leverage (%)	209	7.448	21.57	36.22	24.22	18.6
Asset Tangibility (%)	209	27.118	46.44	60.57	44	22.35
Asset Turnover	209	0.26	0.43	0.75	0.53	0.39
Real GDP Growth (%)	6	0.33	0.33	0.43	0.52	0.64

Table 4 reports the results of OLS regressions of ROA and sales growth on firm- and country-level variables in both oil-exporting and oil-importing countries' samples. As expected, the findings suggest that real GDP growth is positively and significantly associated with both ROA and annual sales' growth across the two country groups. A one percentage point increase in real GDP growth is associated with a rise in firm profits by 0.14 and 0.25 percentage point in oil exporters and oil importers, respectively. Likewise, a one percentage point rise in real GDP growth is associated with an additional growth in sales of 1.6 and 1 percentage points in oil exporters and oil importers, respectively. The results also point to a large persistence of shocks to ROA, as the coefficient estimate on lagged ROA is about 0.7 in both sub-samples. This implies that shocks to firms' profitability tend to be persistent over time and feed-through future profits. Other firm-level controls have expected signs and are statistically significant.

Table 4. Panel data regression results.

Dependent variable Sample	ROA		Sales Growth	
	OE	OI	OE	OI
Real GDP Growth	0.139*** (4.71)	0.246*** (4.08)	1.55*** (11.08)	1.074*** (4.96)
Lagged ROA	0.723*** (35.54)	0.663*** (38.45)		
Lagged Sales Growth	0.011** (2.33)	-0.003 (-0.81)		
Lagged Leverage	-0.022** (-2.55)	-0.037*** (-5.87)		
Lagged Size	0.133 (1.32)	0.410*** (4.7)	-1.390*** (-2.96)	-0.933*** (-3.62)
Lagged Turnover	1.588*** (4.08)	0.855*** (3.74)	-3.47*** (-2.72)	-3.417*** (-4.26)
Lagged Tangibility	0.018*** (3.25)	-0.0009 (-0.17)	0.02 (0.7)	0.018 (0.83)
Country Fixed Effects	yes	Yes	yes	Yes
Industry Fixed Effects	yes	Yes	yes	Yes
Observations	2,593	5,378	2,817	5,991
R-squared	0.637	0.568	0.077	0.02

Notes: t-statistics are in parentheses. ***, **, * indicate statistical significance at the 1, 5 and 10 percent level, respectively.

IV. Results of Scenario-based NFC Stress Tests

Figures 1 to 6 report the results of the scenario-based stress tests aggregated across oil-importing and oil-exporting countries, small and large firms as well as low and high contact-intensive sectors. Figure 1 presents the scenario results regarding firms' liquidity needs and solvency situations across oil-importing and oil-exporting countries. Panels 1 and 2 show that firms' cash positions have deteriorated across the two country groups because of the pandemic shock, and that liquidity needs would remain higher than their pre-pandemic levels over the medium term. By 2022-23, under the baseline scenario, nearly 28 percent (24 percent) of firms in oil-importing (oil-exporting) countries would face liquidity shortages and must rely on additional borrowing to meet their various financial obligations compared to 15 percent (11 percent) pre-pandemic. Under the adverse scenario of subdued growth and premature withdrawal of policy support, the share of firms facing liquidity problems in 2023 would rise to about 34 and 28 percent in oil-importing and oil-exporting countries, respectively.

Panels 3 and 4 of Figure 1 suggest that firms' capacity to service their interest expenses has been severely affected by the pandemic shock in both oil-importing and oil-exporting countries. However, after rising from about 25 percent in 2019 in both country groups to nearly 40 and 29 percent in oil importing and oil-exporting countries, respectively, in 2021, the share of firms facing problems in servicing their interest expenses is projected to fall to its pre-pandemic levels by 2023 under the baseline scenario, reflecting regained profitability amid recovery in economic growth. Under the adverse scenario, the share of firms with insufficient earnings to cover interest expenses would remain higher than pre-pandemic levels in both oil-importing and oil-exporting countries by 2023, reflecting the impact of lower growth on profitability and higher interest rates on firms' interest charges.

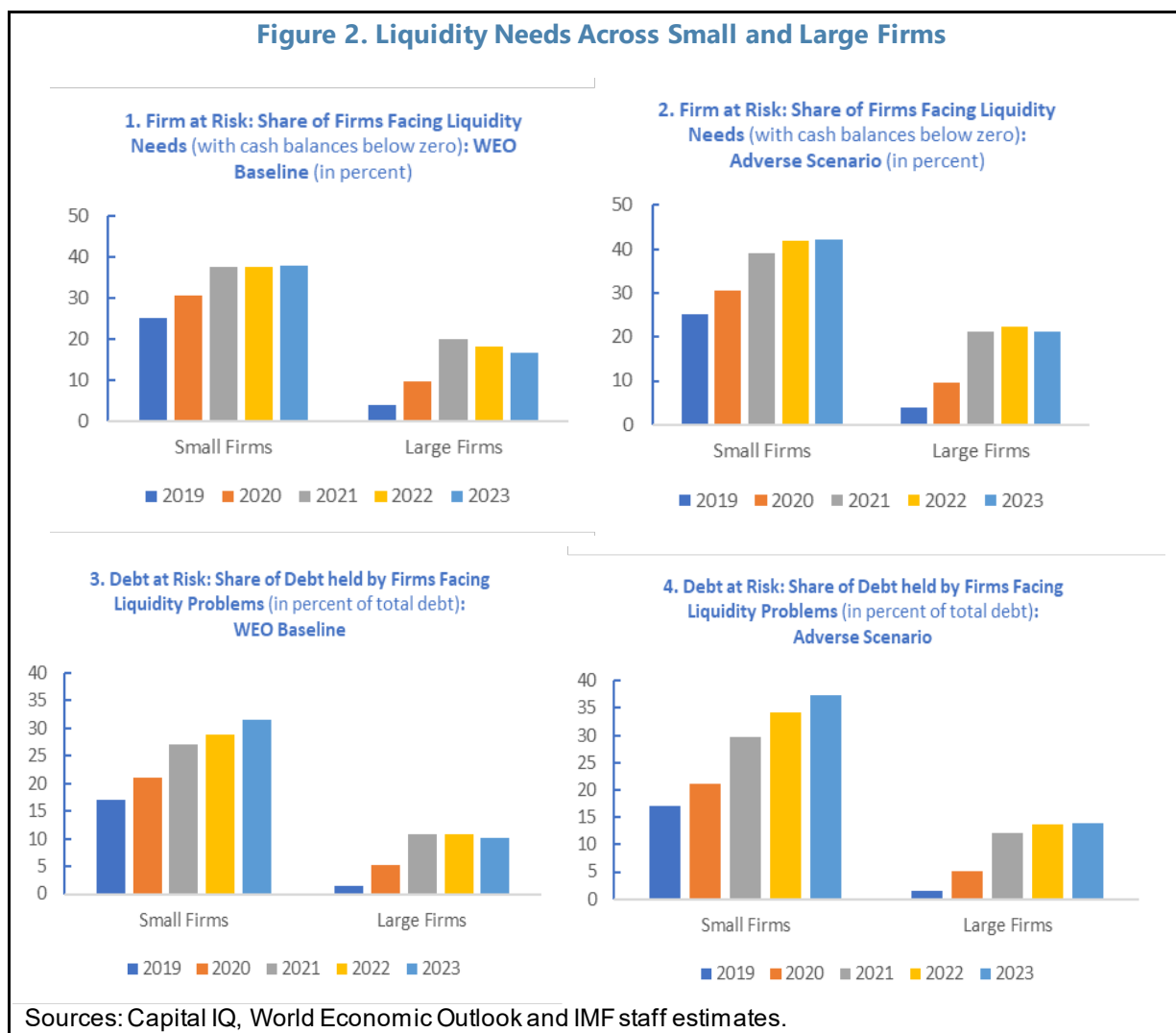
The last two panels (5 and 6) of Figure 1 indicate that solvency concerns would remain contained in the NFC sector under the baseline scenario but could be exacerbated under an adverse scenario of subdued growth and premature withdrawal of policy support. After a slight increase in 2020, the share of firms with negative equity is projected to remain at (baseline scenario) or somewhat above (adverse scenario) its pre-pandemic levels in oil importing countries. While entering the pandemic with a very low corporate insolvency rate (1 percent), oil-exporting countries would experience a rise in their share of insolvent firms, especially under the adverse scenario. By 2023, the share of insolvent firms would increase to 3 and 5 percent under the baseline and adverse scenarios, respectively, but would still be below the corporate insolvency rate projected for oil-importing countries (6 percent under the baseline and 8 percent under the adverse scenario). The increase in the share of insolvent firms, particularly under the adverse scenario, suggests that some firms would accumulate losses in the wake of the pandemic shock to the point of eroding their equity positions and falling into insolvency.

Figure 1. Firm at Risk: Share of Firms Facing Liquidity and Solvency Problems



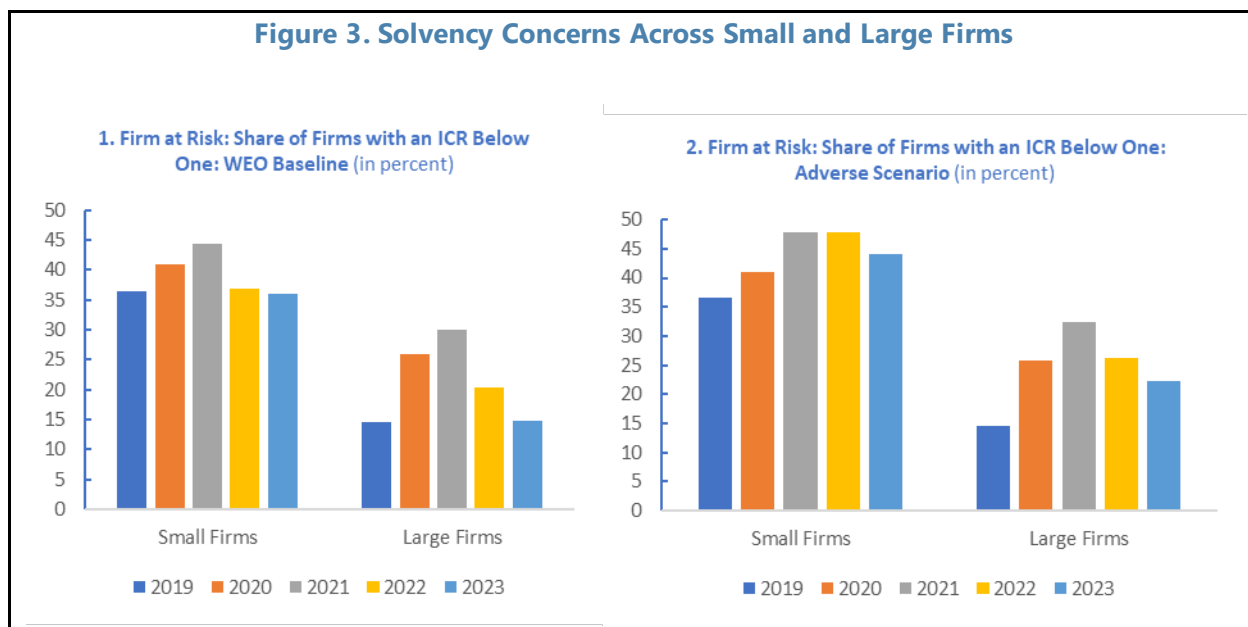
Sources: Capital IQ, World Economic Outlook and IMF staff estimates.

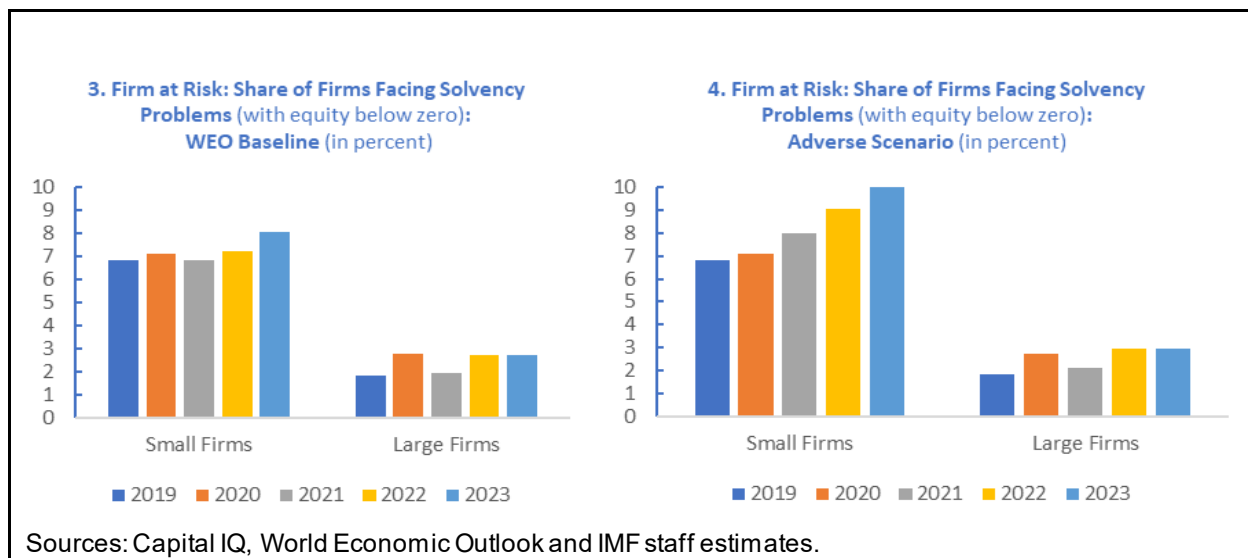
An analysis across firm sizes also yields interesting insights about the liquidity and solvency outlook of small versus large firms. In particular, it suggests that not all firms were equally hit by the pandemic shock and that the recovery would be heterogenous across small and large firms. In Figure 2, panels 1 and 2 report the share of small and large firms facing liquidity needs under the baseline and adverse scenarios, while panels 3 and 4 show the share of total debt held by those firms. Small firms, which entered the pandemic in a worse liquidity position than their large peers, would particularly remain under high liquidity stress over the medium term and must rely on additional borrowing to cope with cash shortages, especially if the adverse scenario materializes. Under the baseline (adverse) scenario, the share of small firms with negative cash balances would increase from 25 percent pre-pandemic to 38 and 42 percent under the baseline and adverse scenarios, respectively. This would put about 31 (baseline) and 37 (adverse scenario) percent of small firms' debt at risk of default by 2023 if liquidity risks materialize (Figure 2, panels 1 and 2). By contrast, large firms' liquidity outlook is more favorable, relative to small firms, reflecting stronger pre-pandemic cash positions. Nearly 17 and 21 percent of large firms would face liquidity problems over the medium term under the baseline and adverse scenarios, respectively.



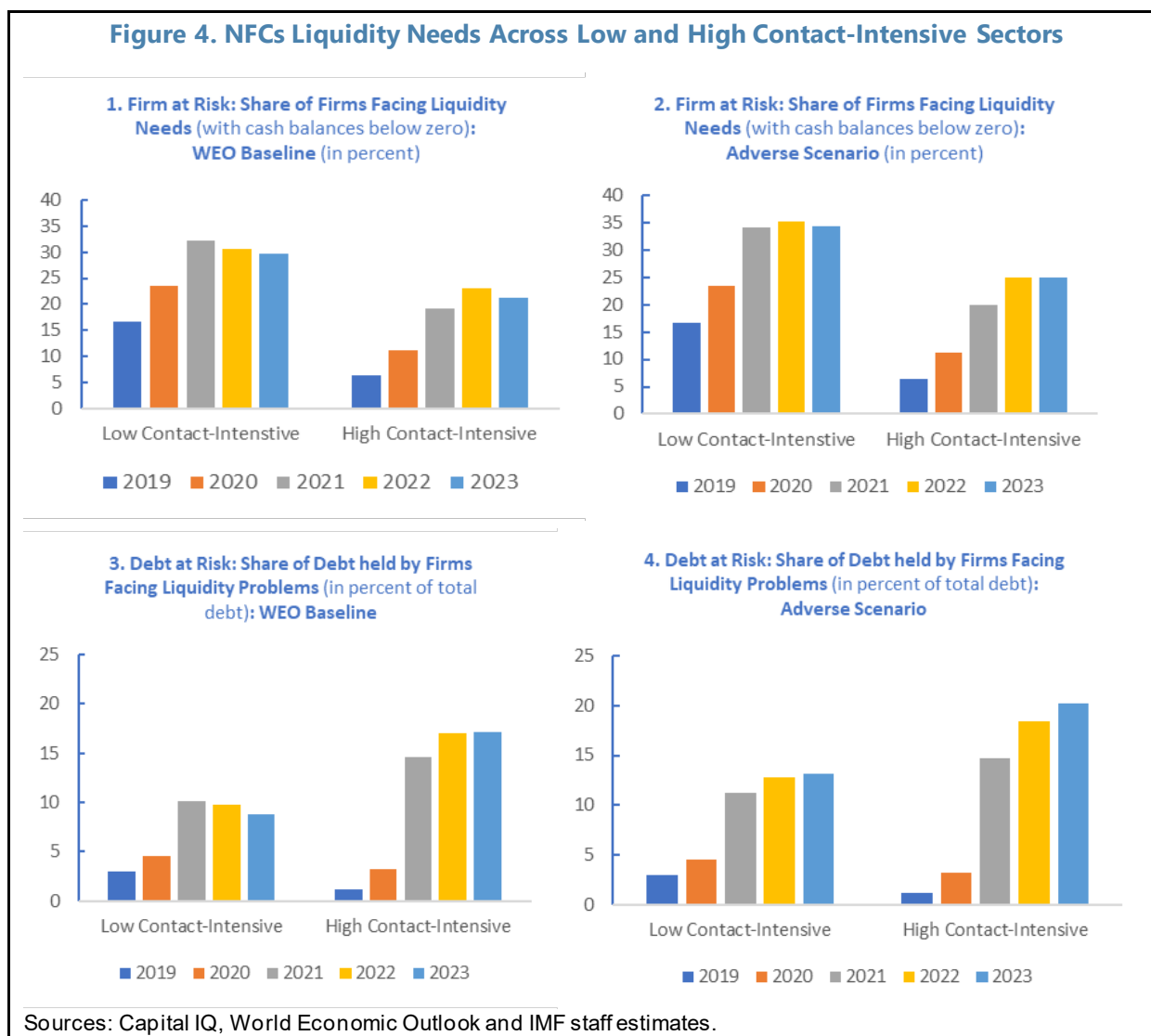
Turning to solvency, overall, Figure 3 suggests that small firms entered the pandemic with a substantially higher insolvency risk compared to their large peers and are projected to remain in this position over the medium term, whether insolvency is assessed based on ICR or the equity position. Further, panel 1 of Figure 3 shows that the share of both small and large firms with insufficient earnings to meet interest payments initially increased because of the pandemic shock but is projected to revert to its pre-pandemic levels over the medium term, amid recovery in economic growth under the baseline scenario. Panel 2 of Figure 3 suggests, however, that an adverse scenario of subdued growth and premature withdrawal of policy support would result in a rise in the share of both small and large firms with insufficient earnings to service interest expenses to higher than their pre-pandemic levels, reflecting depressed profitability and higher interest payments that firms would experience under such a scenario. By 2023, nearly 44 and 22 percent of small and large firms would, respectively, face problems in covering interest expenses using their earnings compared to 36 and 15 percent pre-pandemic.

Panels 3 and 4 of Figure 3, respectively, report the shares of small and large firms with negative equity positions under the baseline and adverse scenarios. They suggest that while insolvency risk is projected to remain at or slightly above its pre-pandemic levels across firm sizes under the baseline scenario, it would be exacerbated for small firms under adverse conditions. The share of insolvent small firms (those with negative equity) would rise from 7 percent pre-pandemic to 8 and 11 percent in 2023 under the baseline and adverse scenarios, respectively. The share of large firms with negative equity is projected to remain low (2-3 percent) and stable over the medium term, reflecting stronger pre-pandemic equity positions and capacity to generate profits relative to small firms.



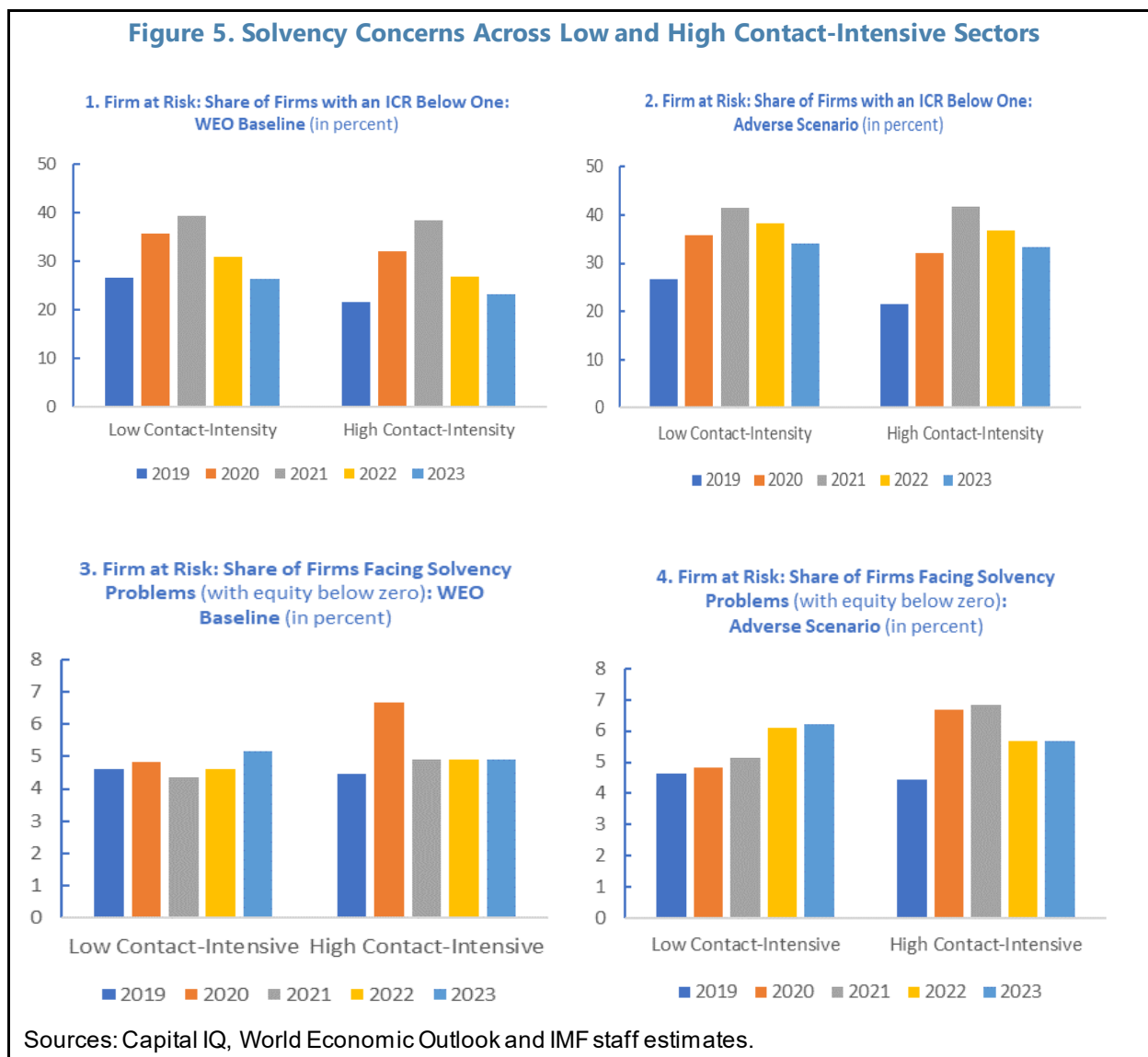


While the pandemic has adversely affected most sectors of the economy, it has, however, had a more severe impact on activity in contact-intensive ones, such as retail, tourism and transportation. It is thus of interest to assess the liquidity and solvency prospects of NFCs across low- and high-contact-intensive sectors under our two stress test scenarios. Figure 4, panels 1 and 2, suggest that liquidity needs are projected to remain above pre-pandemic levels in both low and high contact-intensive sectors. However, reflecting the pandemic's heavy toll on contact-sensitive activities, the share of firms in high contact-intensive sectors facing liquidity shortages would rise more than threefold (fourfold) to 21 percent (25 percent) by 2023 from a low pre-pandemic level of 6 percent under the baseline (adverse) scenario. By comparison, the share of firms in low contact-intensive sectors facing liquidity shortages would rise less (slightly more) than twofold under the baseline (adverse) scenario from a pre-pandemic level of 17 percent. Further, panels 3 and 4 of Figure 4 indicate that the increase in the share of firms with negative cash balances in high contact-intensive sectors would lead to a sharp rise in these sectors' debt at risk to, respectively, 17 and 20 percent of their overall debt under the baseline and adverse scenarios, from a very low level of 1 percent pre-pandemic. This reflects the rapid rise in liquidity needs and borrowing of some high contact-intensive firms hit hard by the pandemic shock.



The analysis of solvency risk across low and high contact-intensity sectors confirms that corporate solvency concerns remain mitigated in the region, except under adverse conditions, where the share of firms with insufficient earnings to cover their interest payments and of those with negative equity would rise above pre-pandemic levels. The findings also point to a more severe effect of the pandemic shock on the solvency position of firms in high contact-intensive activities. Figure 5, panel 1, suggests that, under the baseline scenario, the share of firms with an ICR below one would, respectively, increase by about 12 and 17 percentage points in low and high contact-intensive firms between 2019 and 2021, reflecting the more severe impact of the pandemic on contact-sensitive sectors. By 2023, the share of firms with an ICR below one would return to its pre-pandemic level in low contact-intensive firms but would remain somewhat above its pre-pandemic level in high contact-intensive firms under the baseline scenario. Under the adverse scenario, in 2023, the share of firms facing interest servicing problems would be higher than its pre-pandemic levels by 7 and 12 percentage points in low and high contact-intensive sectors, respectively. Panels 3 and 4 of Figure 5 suggest that the COVID-19 shock to firms' equity was uneven across sectors, as the share of high contact-intensive firms with negative equity increased by more than two percentage points

between 2019 and 2020 while there was almost no change in the share of such firms in low contact-intensive sectors. Under the adverse scenario, both sectors would see a slight increase in the share of firms with negative equity, reflecting the depletion of an increased number of firms' equity due to accumulated losses.



V. Triage of Firms

In this section, we assess the extent of the region's needs for corporate restructuring and liquidation in the aftermath of the COVID-19 crisis. To this end, we perform a viability assessment for the firms in our sample. This exercise determines whether a firm may continue to operate or not, and if it continues to operate, whether a financial restructuring is required to address its debt overhang problem. Consistent with prior work on corporate vulnerabilities (GFSSR, April 2021; Tressel and Ding, 2021; Banerjee and Hoffman, 2020), in our analysis, a firm is considered viable if it has the capacity to generate earnings that more than cover its interest

expenses ($ICR > 1$) under “normal economic conditions”.⁴ For the sake of this analysis, we consider the two years preceding the COVID-19 shock – 2018-19 – and 2022-23 as, respectively, periods of “normal economic conditions” pre- and post-pandemic. The starting of the post-pandemic period of “normal economic conditions” in 2022 rather than 2021 allows for the impact of the pandemic shock on earnings to dissipate and the recovery to firm up in many economic activities. This also allows us to anchor our policy analysis in the medium term, which is the horizon over which policies aimed at strengthening the processes of corporate restructuring and liquidation can take effect. While making the viability assessment, a caveat is, however, worth bearing in mind. This assessment of viability relies on the assumption that once the pandemic recedes, economic activity and structures will return to their pre-pandemic state. In other words, there will be no structural changes in economies, which would make otherwise profitable firms permanently unprofitable. This may not be the case for several economic activities.

Firms are classified into three groups according to their pre- and post-pandemic ICR.

- I. “Sound”: Firms that used to have an ICR above one pre-pandemic (2018 and 2019) and are projected to remain in this situation post-pandemic (2022-23).
- II. “Viable”: Firms that used to have an ICR above one pre-pandemic but have become distressed post-pandemic ($ICR < 1$). These firms will need some form of financial restructuring to overcome the debt overhang problem and continue to operate.
- III. “Zombies”: Firms that suffered from low profitability pre-pandemic ($ICR < 1$) and are projected to remain in this situation post-pandemic. These firms may need to be liquidated to pave the way for the entry of more competitive ones and ensure a better allocation of resources in the economy.⁵

In addition to the classification of firms, we also quantify the share of overall corporate debt held by each category of firms. This allows us to get a sense of the share of corporate debt that is safe, the one that needs restructuring and the one that can undergo liquidation. Using the forward-looking stress test simulations, the triage of firms is done under the baseline and adverse scenarios. The results are averaged over the next two years (2022-23) across oil-importing and oil-exporting countries as well as small and large firms. The estimations provide important insights.

⁴ Consistent with Blanchard et al. (2020) and Tressel and Ding (2021), we do not base our assessment of viability on firms' post-pandemic equity positions. Blanchard et al. (2020) highlight the difference between viability and solvency, as some firms may experience sharp declines in their earnings and become insolvent due to the pandemic but remain viable due to their capacity to return to profitability once conditions normalize.

⁵ Recent studies, such as Hong et al. (2021) define zombies as firms with an ICR below one and above a certain age to ensure that start-ups, which are yet to generate profits, are not classified as zombies. The present analysis uses the ICR only to identify zombies because it is based on a sample of publicly listed firms, which have typically been operating for several years.

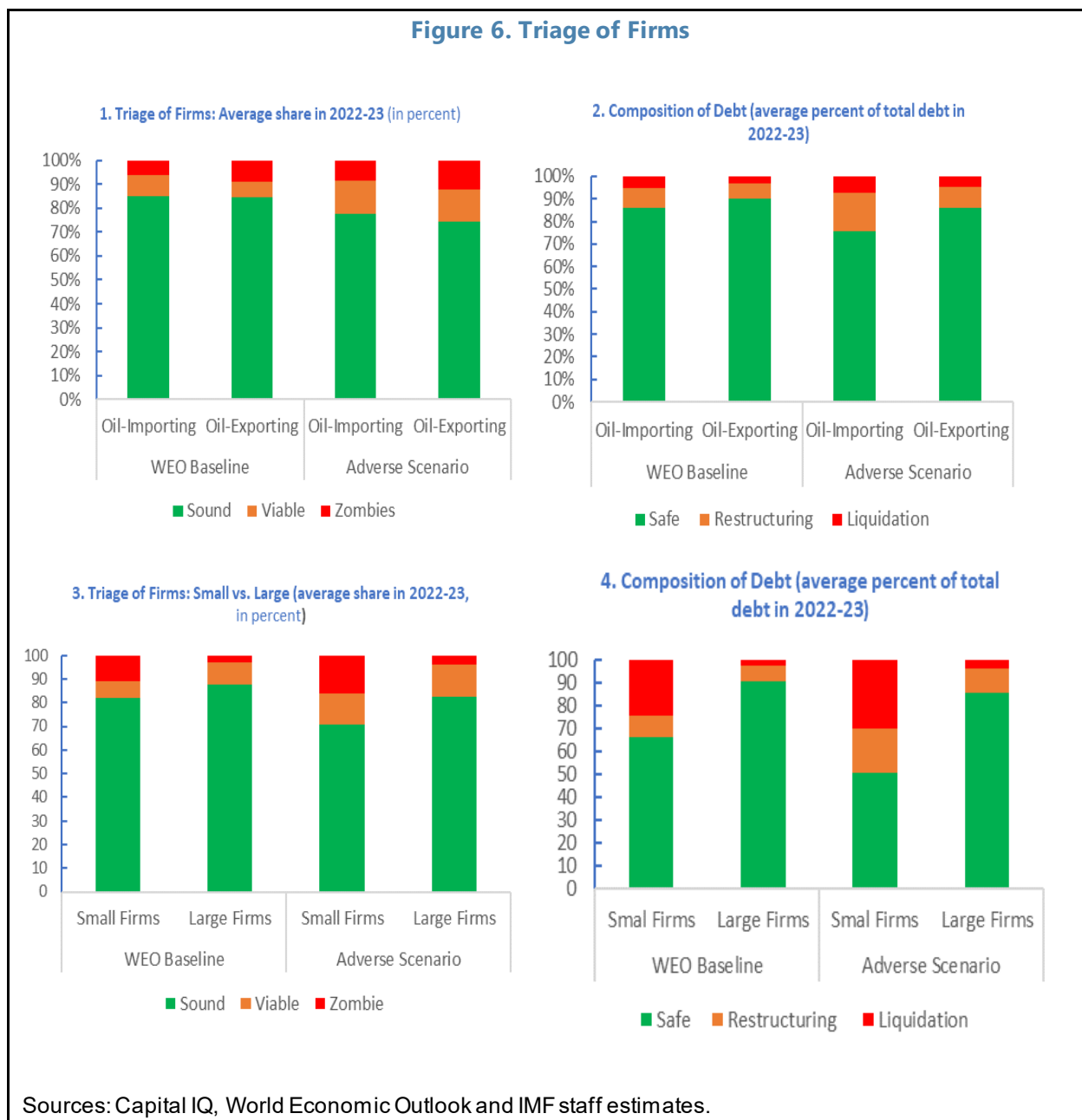


Figure 6 reports the results of the triage of firms into three groups of “sound”, “viable” and “zombies” as well as the share of overall debt held by each of these firm groups. The results are averaged over the period 2022-23 and presented across oil-importing and oil-exporting as well as small and large firms under the baseline and adverse scenarios. The findings suggest that: (i) debt restructuring needs would be significant by 2023, namely under an adverse scenario of poor economic growth and withdrawal of policy support; (ii) “zombification” would be pervasive among small firms and could be exacerbated under the adverse scenario; and (iii) between a third and a half of small firms’ debt would need to be either restructured or liquidated.

As shown in panel 1 of Figure 6, under the baseline scenario, about 85 percent of firms in both oil-importing

and oil-exporting countries would be “sound” on average, implying that, in spite of the pandemic shock, their profitability would recover over the next two years and at least enable them to service their interest expenses. Under the adverse scenario of a weaker growth and less policy support, the share of “sound” firms would decrease to about 78 and 75 percent in oil-importing and oil-exporting countries, respectively. As for debt, Figure 6, panel 2, shows that under the baseline scenario, about 86 percent and 90 percent of corporate debt appears to be safe – with low credit risk – on average in oil-importing and oil-exporting countries, respectively. Under the adverse scenario, the share of safe debt declines to about 75 and 86 percent in oil-importing and oil-exporting countries, respectively.

Focusing on “viable” firms, in oil-importing countries, on average, nearly 9 percent of firms, accounting for 9 percent of NFC debt, would require a financial restructuring under the baseline scenario. Under the adverse scenario, these firms represent 14 percent of firms, accounting for 17 percent of debt in the adverse scenario. In oil-exporting countries, some 6 percent (13 percent) of firms would require a debt restructuring under the baseline scenario (adverse scenario), accounting for 7 percent (10 percent) of total NFC debt.

Further, we find that a notable share of firms are “zombies” and may thus need to be liquidated. About 6 percent (baseline) and 9 percent (adverse) of all firms in oil-importing countries are “zombies”. In oil-exporting countries, a higher share of firms is assessed as “zombies”; 9 percent under the baseline scenario and 12 percent under the adverse scenario. The debt of “zombies” to be liquidated would represent some 5-7 percent of total NFC debt in oil importing countries, and some 3-5 percent in oil exporting countries. A further unreported analysis suggests that the lower share of debt at risk of liquidation in oil-exporting countries reflects the fact that most of “zombies” in this country group are small ones where debt represents only a limited fraction of overall NFC debt.

Differentiating the viability assessment across firm sizes suggests that a large share of small firms would need either restructuring or liquidation over the medium term, particularly if the adverse scenario materializes. Figure 6, panel 3, shows that under the baseline (adverse) scenario, 7 (13) percent of small firms would need debt restructuring while 11 (16) percent may need liquidation. 9 percent (14 percent) of large firms would need restructuring while 3 percent (4 percent) may need liquidation. Turning to debt, about one third and one half of small firms’ debt would need to be either restructured or liquidated under the baseline and adverse scenarios, respectively. Under the baseline scenario, 24 percent of small firms’ debt would be held by “zombies” (to be liquidated) and 10 percent would be held by “viable” firms in need of restructuring. Under adverse conditions, 30 percent of all small firms’ debt would be held by “zombie” firms in need of liquidation while nearly 20 percent would be held by firms in need of financial restructuring.

VI. Conclusions and Policy Recommendations

This paper analyzes liquidity and solvency stress and viability prospects of the NFC sector in the MENAP region in the aftermath of the COVID-19 shock. Using a dynamic stress testing model and a comprehensive sample of publicly listed firms in the region, the paper documents evidence of elevated liquidity and viability concerns in some segments of the MENAP corporate sector. Small firms and those in high contact-intensive sectors are emerging from the pandemic with elevated liquidity stress relative to pre-pandemic levels. This would put substantial amounts of these firms’ debt at risk of default if liquidity risk materializes. Our analysis also suggests that a notable share of firms across the region, particularly small firms, will also need either to be restructured or liquidated. Liquidity, solvency, and viability concerns would be exacerbated under an adverse

scenario of subdued economic growth and premature withdrawal of policy support. While our results should be interpreted with cautious due to data availability constraints, they can, nevertheless, be indicative of the likely near- and medium-term impact of the pandemic shock on the corporate sector in the region. In fact, our estimates of liquidity, solvency and viability concerns may be considered as a lower bound of NFCs vulnerabilities post-pandemic to the extent that the health crisis might be milder on publicly listed corporates compared to smaller unlisted firms whose resources and access to product and financial markets are more limited.

The findings of the paper point to the importance of continued monitoring of vulnerabilities in the NFC sector beyond the initial COVID-19 shock to minimize scarring and ensure a structural shift towards stronger and more sustainable economies in the region. If unaddressed, persistent liquidity stress may morph into a wave of insolvencies, which could threaten financial stability, jobs, productive capacity, and growth. Viable but insolvent firms suffering from debt overhang will be unable to invest and hire, putting a drag on the post-pandemic recovery. “Zombie” firms, that continue to operate only thanks to continued policy support, prevent the entry of more competitive firms and the reallocation of resources to more sustainable firms and sectors. They, further, put a drag on scarce fiscal resources in many of the region’s countries, namely oil-importing ones.

Going forward, policymakers in the region should embrace a targeted approach to policy support. Countries, especially those with limited policy space, should gradually withdraw support to large firms emerging from the pandemic in good standing and those with easy access to capital markets and bank credit. However, continued liquidity support remains critical to the survival and smooth functioning of small firms and those in high contact-intensive sectors, as they (firms) continue to face liquidity stress. Access to liquidity should remain easy and at reasonable terms for these firms until their recovery becomes at full speed.

Viable but insolvent firms would need to be restructured and put on sound financial footing to continue to operate, recover profitability, invest and hire. “Zombie” firms that were unprofitable before the pandemic stroke and which are projected to remain so would need to be liquidated as efficiently as possible. To this end, many countries in the region will need to modernize and strengthen their insolvency frameworks. Reforms are needed to simplify bankruptcy procedures and increase the expertise and capacity of courts and insolvency administrators. Considering the limited capacity of formal bankruptcy regimes and the potential increase in the number of firms in need of restructuring and liquidation, reforms are also needed to allow for hybrid and out-of-court restructurings, which could particularly be useful to expedite the process of saving viable but distressed firms from bankruptcy and liquidation (Liu et al., 2020). Prior country experiences suggest that out-of-court corporate restructurings can be an effective solution to deal with large numbers of defaults, which tend to occur during systemic crises (Araujo et al., 2021). The region’s countries can draw on the experiences of South Korea and Malaysia in the wake of the Asian financial crisis, Turkey after its 2001 economic crisis and Spain post-global financial crisis in their reliance on out-of-court workouts.

In the medium term, policies aimed at fostering the depth and liquidity of financial markets, including bond, stock, and distressed credit markets, would be key to ease firms’ access to finance, enhance corporate monitoring and transparency and facilitate market-based takeover and restructuring of distressed but viable firms.

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