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SIZE-BASED FINANCIAL PERFORMANCE PATTERNS OF GEORGIAN ENTERPRISES: EVIDENCE FROM FIRM-LEVEL DATA

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INTRODUCTION AND INTERNATIONAL CONTEXT

Firms differ systematically by size, and these differences shape how aggregate shocks propagate through the corporate sector. Large and small firms vary in their production technologies, cost structures, financing options, and ability to absorb adverse shocks. These differences become particularly important during periods of macroeconomic stress, when constraints on liquidity, access to finance, and cost flexibility can translate into sharply divergent performance outcomes.

The COVID-19 pandemic represents an unprecedented global shock that simultaneously disrupted demand, supply chains, and firm operations. While the pandemic affected nearly all sectors, a growing body of international evidence shows that its economic impact was highly uneven across firms, with size playing a critical role in shaping both vulnerability and recovery dynamics.

Using firm-level accounting data from a large cross-country sample, Athira et al. (2024) show that profitability measures, including return on assets, deteriorated significantly during the shock, while firms' balance-sheet positions adjusted more gradually. The magnitude of the impact depended on firms' pre-crisis financial strength, particularly liquidity and leverage, highlighting the role of balance-sheet resilience in shaping recovery dynamics. The role of firm size in shaping these outcomes is important. Evidence from developing and emerging economies indicates that small and medium-sized firms were more severely affected during the pandemic, experiencing larger sales declines and greater liquidity stress due to tighter financial constraints and more limited access to external finance (Amin et al., 2023). By contrast, cross-country evidence covering both advanced and emerging economies indicates that large firms did not uniformly outperform small firms during the pandemic. Franco et al. (2023) show that, conditional on country and sector, large firms often experienced revenue contractions comparable to or larger than those of small firms, particularly in sectors directly affected by mobility restrictions. These findings suggest that sectoral exposure and cost rigidity, rather than size alone, played a crucial role in determining short-term performance during the crisis.

Overall, the international evidence suggests that COVID-19 acted less as a uniform shock and more as an amplifier of pre-existing structural differences across firms.

Profitability, leverage, and liquidity responded differently depending on firm size and sectoral exposure. Importantly, several studies emphasize that post-COVID recovery trajectories are shaped not only by short-term shock absorption, but also by firms' capacity to rebuild profitability and internal financing over time.

Against this background, this research note examines firm-level financial performance in Georgia before, during, and after the COVID-19 shock, using comprehensive financial statement data covering the full distribution of firm sizes. By analyzing dynamics of indicators of profitability and efficiency, capital structure and internal financing capacity, and liquidity, the study documents differences in both the immediate impact of the shock and subsequent adjustment paths by firm size. In particular, the Georgian case offers insight into how size-based heterogeneity interacts with sectoral exposure, financial constraints, and post-crisis adjustment mechanisms in the aftermath of a global shock.

DATA SOURCE AND COVERAGE

This analysis is based on firm-level financial statement data obtained from the Service for Accounting, Reporting, and Auditing Supervision (SARAS) of Georgia. SARAS collects standardized financial statements from reporting firms, including balance sheets, profit and loss statements, and cash flow statements, prepared in accordance with Georgian accounting standards. The use of SARAS data ensures consistency in reporting formats and definitions across firms and overtime.

The target population of the study comprises all reporting companies in the Georgian business sector, spanning Category I, II, III, and Category IV enterprises as defined under Georgian accounting regulation. The dataset therefore captures firms across the entire size distribution, from large enterprises to micro firms, subject to differences in reporting obligations by category and year.

Firms are classified into four size categories based on statutory thresholds for total assets, revenue, and employment. Importantly, categories are not fixed across firm cohorts over time. Instead, in each year, firms are assigned to a category based on whether they meet at least two of the relevant criteria in that year. As a result, category-level averages in the following analysis, reflect the composition of firms belonging to a given category in a specific year, rather than the performance of a fixed set of firms tracked over time.

The categories are defined as follows: Category I enterprises meet at least two of the following criteria: (i) total assets exceed GEL 50 million; (ii) revenue exceeds GEL 100 million; (iii) average employment exceeds 250 persons. Category II enterprises meet at least two of the following criteria: (i) total assets do not exceed GEL 50 million; (ii) revenue does not exceed GEL 100 million; (iii) average employment does not exceed 250 persons. Category III enterprises meet at least two of the following criteria: (i) total assets do not exceed GEL 10 million; (ii) revenue does not exceed GEL 20 million; (iii) average employment does not exceed 50 persons. Category IV enterprises meet at least two of the following criteria: (i) total assets do not exceed GEL 1 million; (ii) revenue does not exceed GEL 2 million; (iii) average employment does not exceed 10 people.

The analysis covers the period 2016 - 2022, though the effective time coverage differs by firm category due to the phased introduction of mandatory reporting requirements. Category I and II enterprises are observed continuously from 2016 to 2022. Category III enterprises are observed: from 2016 to 2022 for financial ratios calculated from balance sheet indicators, and from 2017 to 2022 for financial ratios calculated from profit and loss and cash flow indicators. Mandatory reporting for Category III firms was introduced in 2018, at which point firms were required to report profit and loss and cash flow data for the previous year, and balance sheet data for the previous two years. This backward reporting structure determines the effective data availability.

Category IV enterprises are observed only from 2019 onward. Mandatory reporting for these firms began in 2020, with backward reporting of earlier years. In principle, this backward reporting allows reconstruction of 2018 values as well for indicators calculated from balance sheet variables. However, in the 2020 submissions contain a high incidence of missing observations. While, 2019 and 2020 values can be reliably recovered from subsequent-year reporting, 2018 values are observed only in the initial 2020 reports and exhibit substantial number of missing values. To ensure data consistency and reliability, the analysis therefore restricts Category IV coverage to 2019–2022.

In merging financial statements across firm categories, the analysis focuses on variables that are common across reporting forms and widely reported, in order to minimize missing observations. In addition, a set of financial ratios is constructed to evaluate firm performance and financial structure. These ratios are not directly reported in the financial statements but are standard in firm-level analysis. To

structure the analysis, the resulting indicators are grouped into three analytical dimensions:

1. Profitability and efficiency: Return on assets (ROA) = Profit/Loss ÷ Total Assets; Profit margin = Profit/Loss ÷ Net Revenue; Asset turnover = Net Revenue ÷ Total Assets.
2. Leverage and internal financing capacity: Leverage = Total Liabilities ÷ Total Equity; Liabilities-to-assets ratio = Total Liabilities ÷ Total Assets; Retained earnings-to-equity ratio = Retained Earnings ÷ Total Equity.
3. Liquidity: Cash-to-assets ratio = Cash ÷ Total Assets

Together, these indicators capture firms' ability to generate profits, utilize assets, finance operations, accumulate internal buffers, and maintain short-term liquidity.

The descriptive analysis in this research note is conducted at the category-year level. For each year and firm size category, variables are averaged across all firms belonging to that category in a given year. As noted above, these averages reflect year-specific firm populations, rather than fixed panels.

To reduce the influence of extreme values and reporting errors, the data are cleaned of outliers prior to aggregation. Specifically, all variables are trimmed at the 10th and 90th percentiles within each year and category. This approach preserves the central tendency of the distributions while limiting the impact of extreme observations, which are particularly prevalent in firm-level financial data.

THE DYNAMICS OF GEORGIAN FIRMS' FINANCIAL PERFORMANCE BY SIZE AND THEIR COVID-RELATED ADJUSTMENT

The following chapter analyzes firm-level financial statement indicators across four size categories, using year-averaged data by category. The indicators are grouped around three analytical directions: i) profitability and efficiency, ii) Leverage and internal financing capacity, and iii) liquidity.

PROFITABILITY AND EFFICIENCY

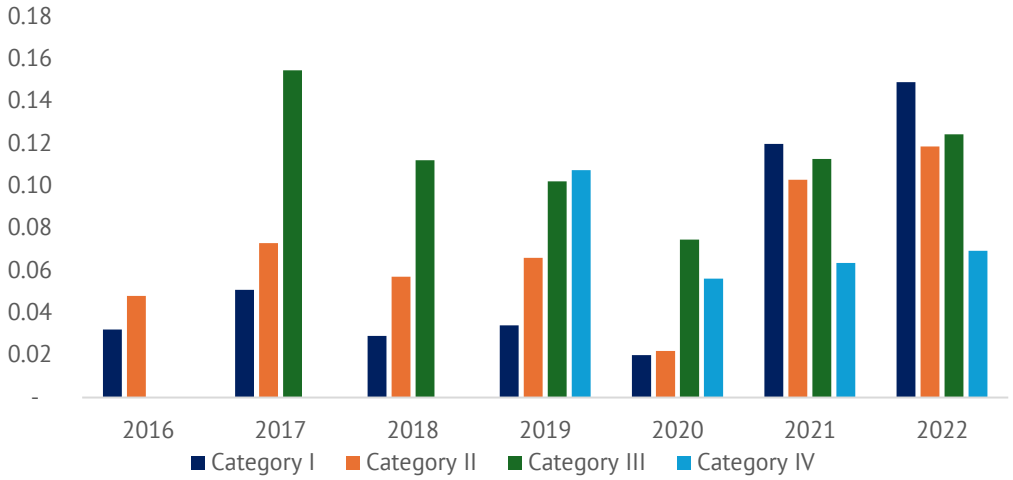
Within the profitability and efficiency dimension, firm performance is assessed using three standard indicators: i) return on assets (ROA), defined as profit or loss

relative to total assets; ii) profit margin, measured as profit or loss over net revenue; and iii) asset turnover, calculated as net revenue divided by total assets.

Return on assets (ROA)

ROA measures profitability relative to total assets, capturing how efficiently firms transform their asset base into profits. Across all size categories, ROA exhibits a clear structural break around the COVID-19 breakout in 2020, but the direction and magnitude of adjustment differ significantly by firm size (Figure 1).

Figure 1. Return on assets across company size categories, 2016-2022



Source: Service for Accounting, Reporting, and Auditing Supervision (SARAS), Author's calculations

Prior to COVID-19, relatively smaller firms (category III and category IV companies) exhibit higher ROA than larger firms. This pattern reflects structural factors rather than superior performance. According to the SARAS data, smaller firms operate with significantly lower asset bases which mechanically inflate ROA even when profits are modest. In contrast, large firms hold substantial assets, lowering observed ROA despite higher absolute profits.

Following the COVID shock, category I and category II firms experience a sharp and sustained increase in ROA in 2021–2022, reaching levels well above their pre-2020 average. In contrast, categories III and IV exhibit much weaker post-COVID dynamics. While ROA does not collapse permanently, recovery is incomplete and levels remain below those of larger firms. This divergence is reinforced by the compound annual growth rate (CAGR) values: over the observed period, ROA

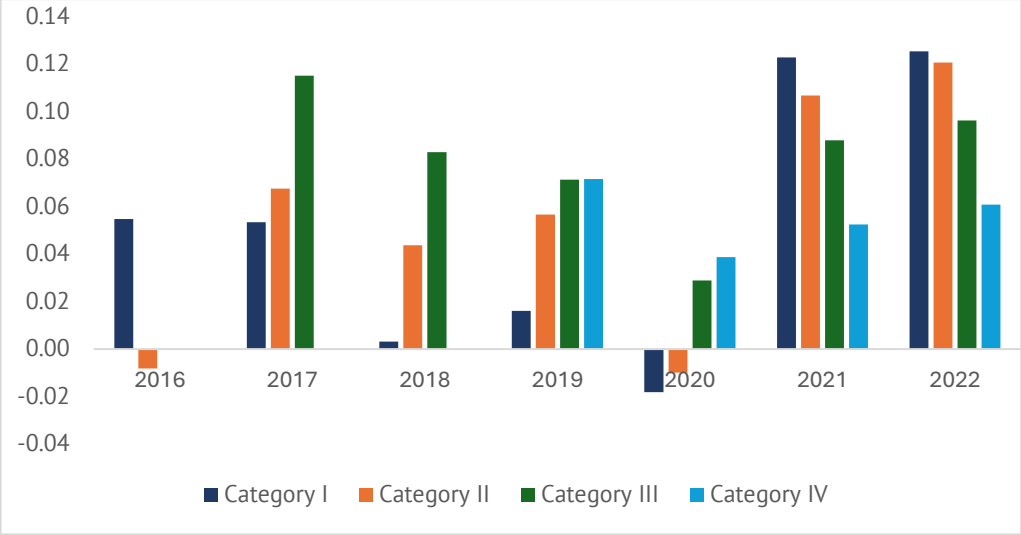
growth is positive for categories I and II, but negative for categories III and IV, indicating that over the full sample period, profitability improvements are concentrated among larger firms. Taken together, the ROA patterns suggest that larger firms were better able to restore or even improve asset-level profitability after COVID breakout, potentially reflecting stronger market power, better cost management, or greater ability to adjust business models during the recovery phase.

Profit Margin

Profit margin, defined as profit relative to net revenue, captures firms' ability to generate operating surplus from sales and is particularly sensitive to sudden revenue shocks and cost rigidities. Profit margins respond immediately to demand disruptions and inflexible costs, making them especially informative around the COVID period.

In the pre-COVID years (2016–2019), profit margins are systematically higher for smaller firms (categories III and IV) and lower for larger firms (Figure 2). This reflects structural differences in cost composition: smaller firms typically operate with leaner cost structures and greater short-term flexibility, while larger firms carry higher fixed costs, including wages, depreciation, and contractual obligations, which compress margins even in normal times.

Figure 2. Profit margins across company size categories, 2016-2022



Source: Service for Accounting, Reporting, and Auditing Supervision (SARAS), Author's calculations

In 2020, profit margins turn negative for larger firms (categories I and II companies), while remaining positive for category III and IV companies. Importantly, this divergence is not explained by a collapse in revenues for the largest firms. Net revenue for category I actually increases in 2020, and category II revenues decline only moderately. The negative margins therefore stem from the profit side of the ratio, reflecting a sharp deterioration in profitability despite relatively resilient revenues. This pattern points to a cost-driven shock. Large firms faced substantial increases in operating costs during 2020, potentially including expenses related to maintaining employment, absorbing supply-chain disruptions, and servicing fixed contractual obligations. These costs could not be adjusted quickly, even as operations were disrupted. As a result, profits for categories I and II fall sharply in 2020, pushing profit margins into negative territory. For categories III and IV, profits decline more moderately, preventing margins from turning negative.

Sectoral distributions for 2020 further supports the interpretation that large firms experienced a disproportionately severe profitability shock during COVID.

When profit margins are examined within size categories and across sectors in 2020, the largest negative margins (below -0.20) are observed in Agriculture, forestry and fishing, Water supply; sewerage, waste management and remediation activities, and Accommodation and food service activities for category I firms and in Accommodation and food service activities, Real estate activities, and Arts, entertainment and recreation for category II companies.

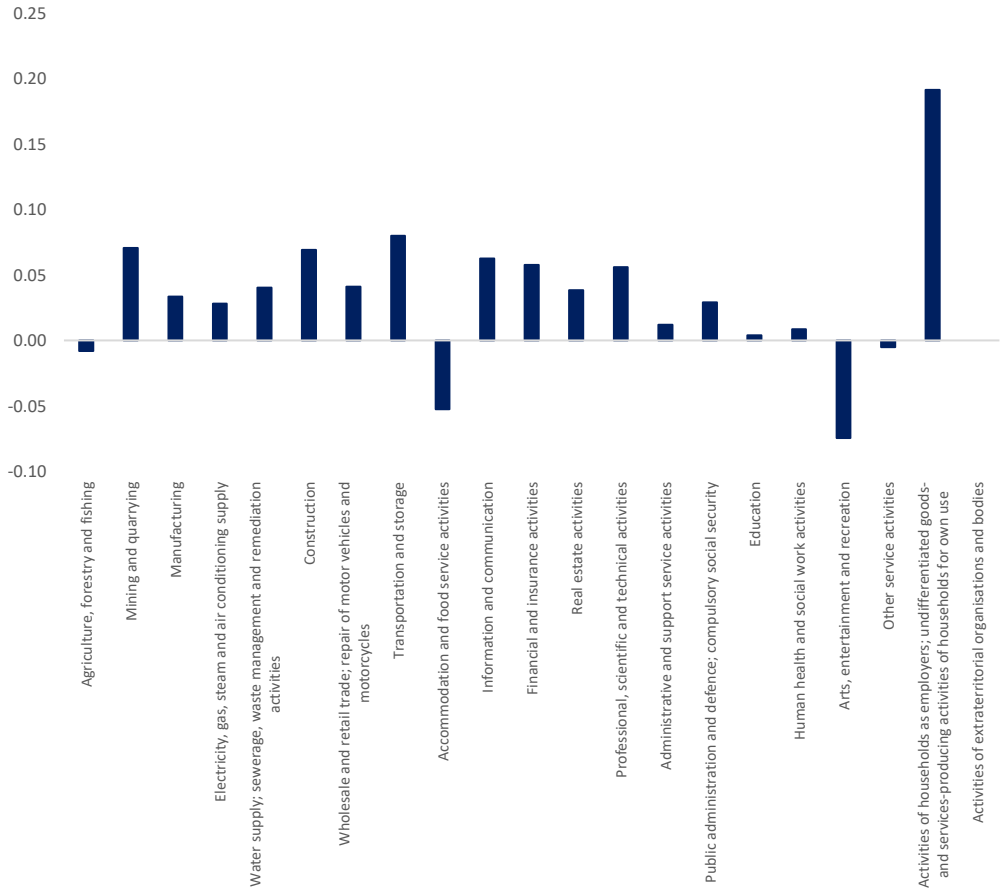
These sectors - with the partial exception of Water supply; sewerage, waste management and remediation activities, where the transmission mechanisms are less clear - are plausibly affected by a combination of rigid cost structures and pandemic-related mobility restrictions, lockdown measures, and reduced consumer demand. Together, these factors resulted in sharp cost-revenue mismatches, pushing profit margins into negative territory for category I and II companies.

By contrast, categories III and IV do not exhibit similarly large negative sectoral margins in 2020. Smaller firms may operate at scales that allow faster cost adjustment, including more flexible labor arrangements and operating expenses, thereby limiting the extent of margin deterioration during the shock. Importantly,

sectoral revenue concentration amplifies these patterns. According to the data, in the above-mentioned sectors, which exhibited the largest negative margins, category I and II firms together account for more than 90 percent of total sectoral net revenue.

Looking across the entire economy, Figure 3 shows that Agriculture, forestry and fishing, Accommodation and food service activities, Arts, entertainment and recreation, and Other services recorded negative average profit margins during the pandemic breakout year - 2020.

Figure 3. Profit margins across sectors, 2020



Source: Service for Accounting, Reporting, and Auditing Supervision (SARAS), Author's calculations

Overall, the sector evidence indicates that negative profit margins for large firms in 2020 were driven by concentrated sectoral shocks, rather than economy-wide

revenue collapse, and that sectoral exposure played a key role in amplifying size-based differences in profitability during COVID breakout.

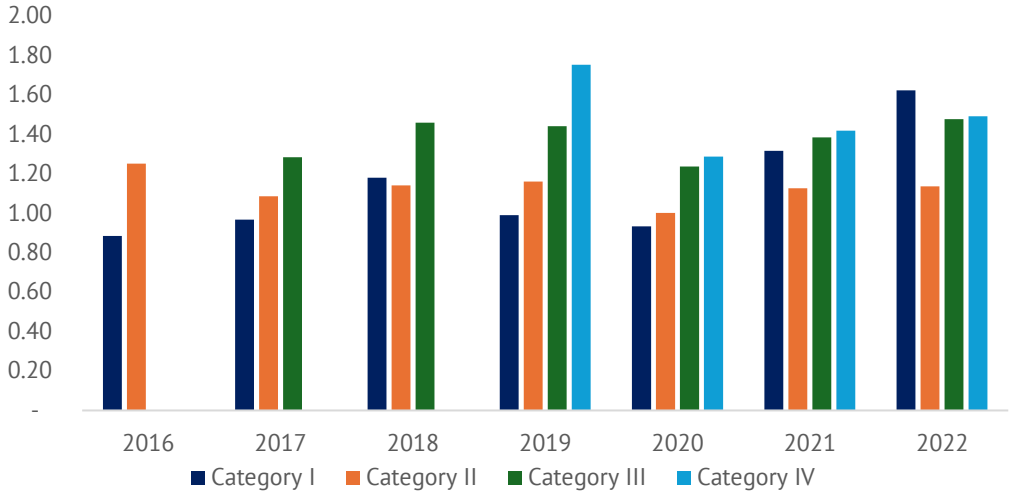
Importantly, changes in firm size classification after 2020 further affect the interpretation of post-2020 profit margins, particularly for categories III and IV. Some firms that were classified as category I or II in 2020 moved into smaller size categories (III or IV) in 2021 and 2022, reflecting contraction in scale following the shock. This reclassification implies a composition effect: the average profit margins observed for categories III and IV in the post-2020 period partly reflect the inclusion of formerly larger firms, which may have higher productivity, more formalized operations, or stronger recovery capacity than firms that were persistently small. As a result, post-2020 averages for smaller size categories (category III and category IV) may be mechanically increased, even if the underlying performance of continuously small firms did not improve to the same extent.

The post-2020 period nevertheless shows a rapid margin recovery for larger firms. In 2021–2022, profit margins for categories I and II rebound strongly, surpassing pre-COVID levels. Consequently, category I and II companies show significant CAGR in the entire observable period, with category II recording the highest profit margin CAGR (around 60%), pointing to a significant positive trend. By contrast, categories III and IV exhibit weaker long-run dynamics, with negative CAGRs in the corresponding observable periods, suggesting gradual margin compression over the full period despite temporary post-COVID stabilization.

Asset Turnover

Asset turnover, measured as net revenue divided by total assets, provides an indicator of how effectively firms convert their asset base into sales and is commonly used as an efficiency metric. The asset-turnover graph reveals both structural size differences and important post-COVID breakout dynamics (Figure 4).

Figure 4. Asset turnover across company size categories, 2016-2022



Source: Service for Accounting, Reporting, and Auditing Supervision (SARAS), Author's calculations

Throughout the pre-2020 period, asset turnover is relatively stable across all size categories. The largest firms (category I) consistently display slightly lower asset turnover levels, reflecting their more capital-intensive balance sheets, while smaller firms exhibit higher ratios consistent with lighter asset structures. Around 2020, asset turnover declines modestly across most categories. In the post-2020 period, however, a clear divergence emerges. Category I firms experience a noticeable rebound in asset turnover in 2021–2022, exceeding pre-2020 levels. This suggests that revenues grew faster than assets, pointing to improved utilization of existing capacity. In contrast, categories II–IV show moderate improvement in post-COVID period, with the weakest performance observed among the smallest firms.

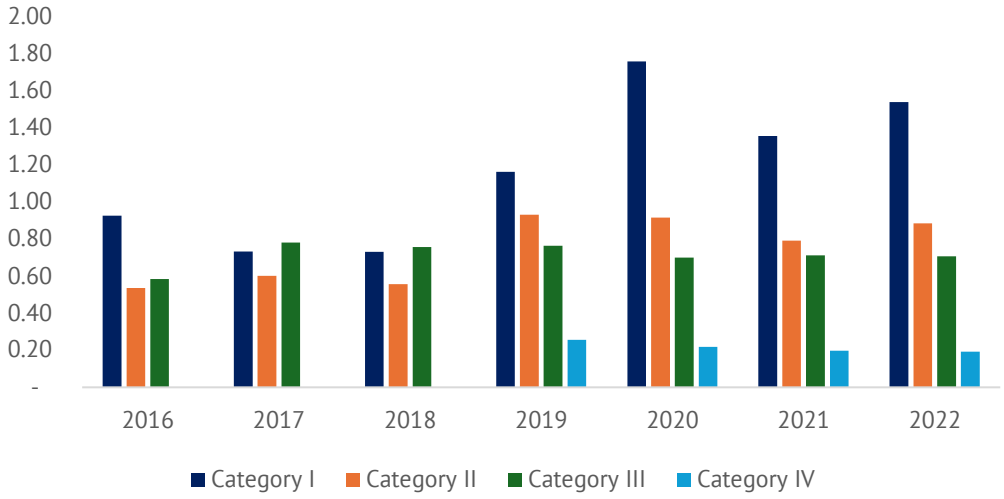
LEVERAGE AND INTERNAL FINANCING CAPACITY

This subsection examines firms' use of external and internal financing, focusing on leverage, balance-sheet structure, and retained earnings. Together, these indicators shed light on how firms finance assets, how exposed they are to financial risk, and how resilient they are to shocks such as COVID.

Leverage

The leverage ratio, defined as total liabilities divided by total equity, captures the extent to which firms rely on borrowed funds relative to own capital. In principle, higher leverage implies greater financial risk but may also reflect better access to external finance.

Figure 5. Leverage across company size categories, 2016-2022



Source: Service for Accounting, Reporting, and Auditing Supervision (SARAS), Author's calculations

According to Figure 5, leverage exhibits substantial variation across firm size and overtime. Prior to COVID, leverage levels are higher for category I firms, reflecting their greater reliance on liabilities as a financing instrument. In contrast, smaller firms (categories III and IV) exhibit substantially lower levels of both equity and liabilities in the entire observed period.

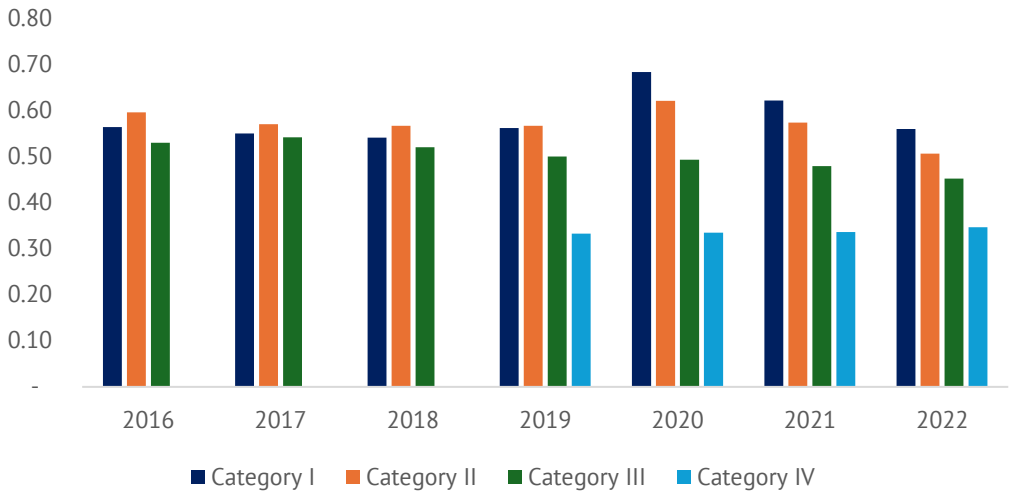
During the period of 2019-2022, leverage dynamics diverge sharply by size. Notably, category I firms display a substantial increase in leverage in 2020 and afterwards, consistent with greater use of liabilities during the shock and recovery period. This may reflect stronger access to credit, policy-supported lending, or strategic borrowing to smooth operations and investment. Category II, III and IV firms show more moderate changes and consistently lower leverage after 2020, compared to category I companies. Lower leverage values together with significantly lower liabilities in absolute terms could indicate lower access to

external borrowing opportunities for smaller companies, and higher dependance for internal financing.

Balance-sheet leverage (liabilities-to-assets)

The liabilities-to-assets ratio measures the share of assets financed through liabilities, offering additional indicator of leverage across firms.

Figure 6. Liabilities-to-asset ratio across company size categories, 2016-2022



Source: Service for Accounting, Reporting, and Auditing Supervision (SARAS), Author's calculations

As Figure 6 shows, before COVID breakout, liabilities-to-assets ratios were relatively stable across size categories, with larger firms generally exhibiting higher but steady leverage levels, reflecting established borrowing relationships and capital-market access. Since 2020, category I firms have increased their liabilities-to-assets ratio, indicating expanded use of liabilities during the shock and recovery phase. Category II companies also depicted slight increase in their borrowings relative to their assets in 2020 compared to previous years.

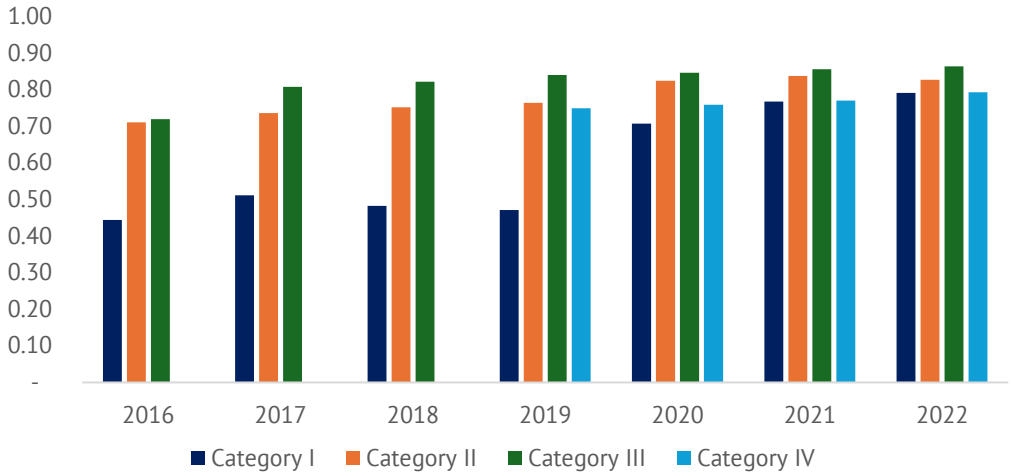
Category III companies show lightly declining liability-to-assets ratios over time, suggesting cautious balance-sheet adjustment. In contrast, category IV displays broadly stable dynamics of balance-sheet leverage ratio with minimal increase after 2020, reflected in a positive CAGR (1.4%), indicating slightly increasing reliance on liabilities among the smallest firms over time.

Taken together, the observed leverage dynamics point to heterogeneous balance-sheet responses across firm sizes. Larger firms appear to have adjusted their use of liabilities more actively during the shock and recovery period, consistent with their broader access to financing instruments and established creditor relationships. By contrast, changes in leverage among smaller firms are more gradual and limited in magnitude, which may reflect a combination of tighter financing conditions, risk aversion, and balance-sheet constraints rather than a clear expansion in funding opportunities.

Internal financing capacity (retained earnings-to-equity)

The retained earnings-to-equity ratio captures the accumulation of internal funds relative to the firm's capital base, reflecting the capacity to finance investment and absorb shocks without external borrowing.

Figure 7. Retained earnings-to-equity ratio across company size categories, 2016-2022



Source: Service for Accounting, Reporting, and Auditing Supervision (SARAS), Author's calculations

As seen in Figure 7, the retained earnings-to-equity ratio displays an **upward trend across all firm size categories** over the period 2016–2022. This increase coincides with the **2017 corporate income tax reform**, which shifted taxation from distributed to retained profits and thereby strengthened incentives for earnings retention across the corporate sector. The rise in retained earnings observed from

2017 onward is therefore consistent with this institutional change, although its magnitude varies notably by firm size.

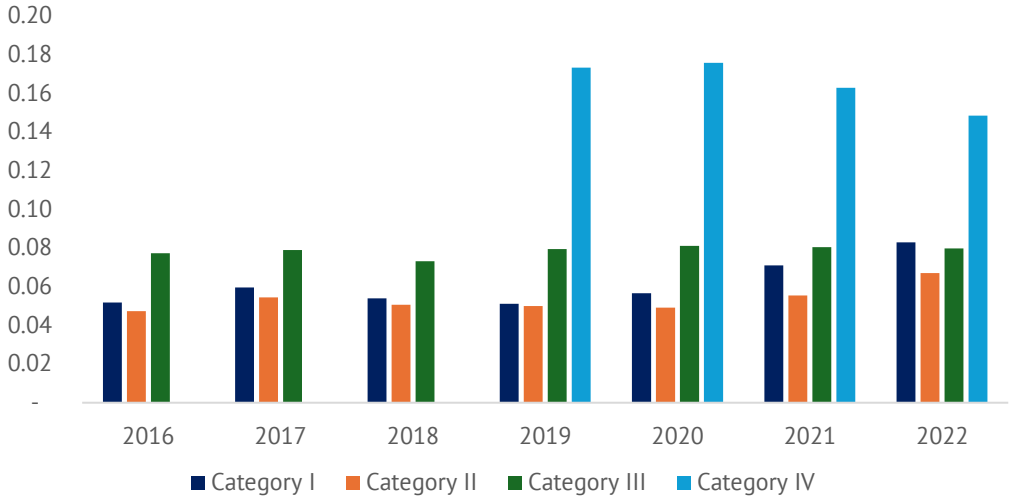
The largest firms (category I) exhibit relatively lower retained earnings-to-equity ratios prior to 2019, followed by a marked increase beginning in 2020, which narrows the gap with other size categories. This pattern suggests a strengthening of internal capital buffers during the COVID shock and recovery phase. Category II, III, and IV firms show a steady and moderate increase throughout the period, maintaining consistently higher ratios than Category I firms. While these categories also experience an increase following the 2017 reform, the subsequent dynamics are more gradual, with relatively stable ratios after 2019. This suggests that smaller firms' ability to expand retained earnings further may be constrained by lower profitability and limited scale.

The contrast between retained earnings and leverage dynamics is informative. Larger firms appear able to combine external financing with internal accumulation, strengthening overall resilience. Smaller firms, by contrast, rely more heavily on gradual internal adjustment, with limited scope to expand either leverage or retained earnings rapidly.

LIQUIDITY

The cash-to-assets ratio measures short-term liquidity buffers and firms' ability to meet immediate obligations.

Figure 8. Cash-to-assets ratio across company size categories, 2016-2022



Source: Service for Accounting, Reporting, and Auditing Supervision (SARAS), Author's calculations

As Figure 8 shows, throughout the sample period, smaller firms (category III and category IV) consistently hold higher cash ratios, reflecting precautionary liquidity management and limited access to external finance.

The COVID shock, however, leads to some divergent liquidity dynamics. Categories I and II companies have increased their cash-to-assets ratios since 2020, with positive CAGRs indicating sustained buffer accumulation. This suggests that larger firms actively strengthened liquidity positions during and after the shock, potentially in response to heightened uncertainty.

In contrast, category IV shows a decline in cash-to-assets after 2020, accompanied by a negative CAGR. This pattern could suggest that the smallest firms drew down liquidity buffers during the shock and struggled to rebuild them during recovery, highlighting persistent vulnerability. Category III lies between these extremes, with relatively stable liquidity level during 2016-2022.

CONCLUSION

This research note provides a comprehensive analysis of firm-level financial dynamics across size categories in the period surrounding the COVID-19 shock. Using accounting-based indicators of profitability, efficiency, capital structure,

internal financing, and liquidity, the analysis documents pronounced and persistent size-based heterogeneity in both shock exposure and recovery capacity.

The results show that in the Georgian context, larger firms were better positioned to absorb the COVID shock and to transform post-crisis recovery into sustained financial improvement. After a sharp profitability decline in 2020, the larger firms (category I and II companies) experienced a rapid rebound in ROA, profit margins, and asset utilization, ultimately surpassing pre-COVID performance levels. These firms combined increased leverage with accelerated accumulation of retained earnings, strengthening both external and internal financing capacity.

Smaller firms, by contrast, exhibited greater fragility. While they often displayed higher pre-COVID margins and asset turnover ratios - reflecting leaner operations and smaller asset bases - these advantages did not translate into durable post-2020 gains. Categories III and IV showed weaker long-term profitability dynamics, limited leverage expansion, and slower accumulation of retained earnings. The smallest firms (category IV firms), in particular, drew down liquidity buffers during the shock and struggled to rebuild them during recovery, underscoring persistent vulnerability.

The analysis also highlights that some financial indicators adjusted in level, while others adjusted primarily in interpretation. Profitability measures responded sharply to the shock, revealing underlying cost structures and sectoral exposure, especially among large firms. By contrast, liquidity ratios remained comparatively stable for most categories, reflecting joint adjustment of cash and assets and the role of policy support in stabilizing short-term financing conditions. Internal financing indicators show an increase in retained earnings following the 2017 corporate income tax reform, with the largest firms exhibiting a more pronounced rise during the COVID shock and afterwards.

Overall, the findings suggest that COVID did not fundamentally alter the structure of firm heterogeneity but instead reinforced pre-existing disparities, in line with evidence from other countries. Larger firms demonstrated greater capacity to adjust both externally and internally, while smaller firms relied on slower internal adjustment with limited scope to expand buffers. These patterns align with international evidence and underscore the importance of firm size in shaping financial resilience, not through uniform effects, but through differences in balance-sheet flexibility, cost structure, and recovery capacity.

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