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Working Paper

Firm performance and the quality of the provincial government in the COVID-19 pandemic era: Evidence from listed companies in Viet Nam

ADBI Working Paper, No. 1475

Provided in Cooperation with:

Asian Development Bank Institute (ADBI), Tokyo

Suggested Citation: Duong Thi Chi; Nguyen Thu Hang (2024) : Firm performance and the quality of the provincial government in the COVID-19 pandemic era: Evidence from listed companies in Viet Nam, ADBI Working Paper, No. 1475, Asian Development Bank Institute (ADBI), Tokyo, <https://doi.org/10.56506/FZAH1777>

This Version is available at:

<https://hdl.handle.net/10419/305419>

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ADBI Working Paper Series

FIRM PERFORMANCE AND THE QUALITY OF THE PROVINCIAL GOVERNMENT IN THE COVID-19 PANDEMIC ERA: EVIDENCE FROM LISTED COMPANIES IN VIET NAM

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No. 1475
August 2024

Asian Development Bank Institute

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Suggested citation:

Chi, D. T. and N. T. Hang. 2024. Firm Performance and the Quality of the Provincial Government in the COVID-19 Pandemic Era: Evidence from Listed Companies in Viet Nam. ADBI Working Paper 1475. Tokyo: Asian Development Bank Institute. Available: <https://doi.org/10.56506/FZAH1777>

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Abstract

The main purpose of this article is to investigate whether firms experienced a decline in performance during the COVID-19 pandemic and the influence of the quality of local government on firm performance within the context of the pandemic, controlling for credit growth and firm characteristics variables. Firm performance was measured using return on equity (ROE), Tobin's Q, and firm growth while government quality was assessed through the proactivity of provincial leadership, business support services, and the growth of gross regional domestic product (GRDP). The findings reveal a significant difference in ROE, Tobin's Q, and firm growth before and during the pandemic, indicating that firm performance deteriorated during the COVID-19 pandemic. The lowest performance occurred in 2020, which showed the most significant influence of the pandemic. After controlling the dummy COVID-19 and interaction variables, we found that the proactivity of provincial leadership played an important role in mitigating the negative impact of the COVID-19 crisis on firm growth and ROE. Nevertheless, this study found no evidence of the impact of provincial governance measured by business support services and GRDP in the remaining regression models. It would seem that the proactive initiatives of local government can positively influence the market environment, leading to increased revenue (firm growth) and improved ROE. However, as the Tobin's Q index is determined by stock prices and linked to the stock market, the impact of local government is not substantial. Moreover, the current business support services provided by local government may not effectively meet firms' need to enhance performance, and changes in regional economic output (GRDP) during COVID-19 show no substantial influence on firm performance. Therefore, there is a need for broader support at the macro level, involving the active participation of the state and the Ministry of Finance.

Keywords: firm performance, proactivity of provincial leadership, business support policy, GRDP, COVID-19 pandemic

JEL Classification: L25, E02

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1. INTRODUCTION

The impact of COVID-19 has extended beyond addressing the disease itself and implementing measures to control it, affecting various aspects of life including social, business, and economic domains. All over the world, the impact of the COVID pandemic has been significantly harmful to the majority of businesses, beginning with the closure of borders, affecting international trade, and leading to the temporary or permanent shutdown of many businesses. Recently, a growing body of research has given increased attention to the effect of the COVID-19 pandemic on firm performance, which indicates that the pandemic has resulted in severe repercussions for capital markets and the worldwide economy. For example, Narayan, Phan, and Liu (2021) showed that lockdowns, travel restrictions, and economic stimulus measures led to a decline in the stock markets of G7 nations. Similarly, a more significant impact on the national economy in general, as well as on firm performance in particular, can be observed in other markets such as the People's Republic of China (PRC) (Shen et al. 2020), Middle Eastern and North African countries (Usman et al. 2020), the US (Gao, Ren, and Umar 2022; Cho and Saki 2022), India (Alsamhi et al. 2022), Romania (Achim et al. 2022), and Italy (Turkson et al. 2021).

To mitigate the impact of the pandemic, governments worldwide have opted to provide various forms of assistance to businesses to ensure the continuity of their operations. For example, in the US, a program has been designed to provide small businesses with the necessary resources to sustain their payroll, rehire employees who might have been laid off, and address relevant overhead expenses. EU member states have pledged to offer liquidity support to susceptible companies, including public guarantee schemes and postponed tax payments, amounting to approximately 16% of the EU's GDP. In Italy, the government introduced the "Liquidity Decree" to offer loan guarantees, take on non-market risks, and provide specific targeted tax relief. In Viet Nam, the Vietnamese government has issued another law supporting businesses by valuing or waiving corporate income tax, personal income tax, and value-added tax. Prompt responses have been essential to curb the spread of the virus, and assistance from the government has aided businesses in dealing with the economic shock. In addition, existing empirical evidence additionally supports the view that economic and political institutions matter in achieving performance (Almustafa H 2023, Turkson et al. 2021, Ahmed 2018). Scholars have acknowledged the significance of the business environment as a crucial factor influencing firms' overall performance. Hence, in addition to traditional factors such as firm characteristics, there is a substantial need to study the role of government in firm performance.

The Vietnamese economy has been affected by the ongoing worldwide COVID-19 pandemic. According to the report from the General Statistics Office, although GDP witnessed a growth of 2.91% in 2020, this represented the lowest increase in the period from 2011 to 2020. Similarly, the service sector in 2020 recorded its lowest growth rate within the 2011–2020 time frame (GSO 2020). In addition, the Vietnamese economy experienced a notable decrease in the number of individuals entering the labor market and in the amount of economically active people, marking the first time in a decade. By comparison, the third quarter of 2021 saw the most substantial decrease in GDP since the introduction of quarterly GDP calculations and announcements in Viet Nam. Economic activity in the third quarter of 2021 experienced a significant decline, primarily attributed to widespread and prolonged strict containment measures implemented under Directive 16 to manage the epidemic (GSO 2021). Nearly all stocks on the Vietnamese market observed a decrease in prices during the initial quarter of 2020. On 30 March 2020, the VN-Index experienced a significant drop of 28%

compared to 31 December 2019, leading to an approximate loss of USD37.4 billion in the capitalization of the Vietnamese stock market (Anh and Gan 2021).

By focusing on listed firms in Viet Nam, our study contributes to the literature review in several ways. First, while certain studies indicate that firms overall have suffered from financial constraints caused by the COVID-19 pandemic, the magnitude of this impact may vary among individual firms. Second, prior empirical studies have mainly focused on the influence of traditional factors such as audit quality, company size, debt, and age on firm performance, while little attention has been given to examining the impact of government quality. Finally, most previous research comprises cross-country studies exploring the relationship between government quality and firm performance on a global sample in developed countries, whereas our study examines the role of government at the provincial level by adding subnational institutional environments to the model. Moreover, within the framework of emerging markets, Viet Nam was selected for this research not only for being a developing nation with a growing capital market but also due to the presence of unique institutional contexts (Nguyen and Duong 2021).

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 Firm Performance and COVID

The global economic crisis caused by the COVID-19 pandemic has had major implications for health and has led to widespread economic challenges (Chen 2021). From a managerial standpoint, the behavioral theory of firms suggests that managers may encounter cognitive limitations in the face of an economic crisis. Higher levels of uncertainty during economic crises can impair managers' information-processing abilities and result in suboptimal decision-making (Elmarzouky, Albitar, and Hussainey 2021). Many countries have implemented pandemic control measures such as lockdown and social distancing restrictions that have affected practically every business sector and industry.

Many scholars have made various attempts to address the impact of the COVID-19 pandemic on firm performance in certain countries. According to Shen et al. (2020), COVID-19 has decreased the performance of listed firms in the Chinese market. Similarly, numerous studies have found that COVID-19 has had a considerable detrimental influence on firm performance, such as Elmarzouky, Albitar, and Hussainey (2021) in the UK, Alsamhi et al. (2022) in India, Turkson et al. (2021) in Italy, and D'Orazio and Dirks (2020) in the euro area. However, by using the data of Malaysian firms, Khatib and Nour (2021) found that there is no difference between ROE and ROA before and after the pandemic. A different investigation conducted by Yar (2020) examined the impact of COVID-19 on the performance of the Pakistani stock market. The study's results indicate that the performance of the index is only affected by COVID-19 recoveries, while the daily positive cases and fatalities are not significantly correlated with the performance.

However, in certain industries, we believe that firms are experiencing increased financial constraints as a result of the COVID-19 pandemic. Therefore, we posit the following hypothesis:

H1: Firms exhibit lower performance during the COVID-19 pandemic than before the pandemic.

2.2 Government Quality and Firm Performance

According to Hoskisson et al. (2000), institutional theory, with its focus on emerging economies, emphasizes the influence of the systems surrounding firms to explain firm behavior. Following the theory, many studies view governance quality as an explanatory variable that has an impact on firm performance (Almustafa H 2023, Turkson et al. 2021, Ahmed 2018). Prior studies document that governance quality factors such as property rights enforcement, national governance quality, corruption, government effectiveness, and regulatory quality can explain firm performance (Bülow 2015; Rajesh Raj and Sen 2017; Tran 2020; Williams 2014; Tuyen et al. 2016; Lourenço et al. 2020; Boamah, Ofori-Yeboah, and Appiah 2023). However, the studies have largely been able to attribute these differences in firm performance to cross-country variations. Unlike most other studies, this study aims to further develop the understanding of perceptions related to firm performance and to assess whether these perceptions may be influenced by the quality of provincial governance in the home country. Therefore, we propose a hypothesis that links national governance to the effects of the COVID-19 crisis on firm performance, as shown below:

H2: Provincial governance quality can improve low firm performance during the COVID-19 pandemic.

3. METHODOLOGY

3.1 Data Collection and Data Sources

In this study, the samples consist of the number of enterprises listed on the Ho Chi Minh Stock Exchange (Hose). This study covered the four-year period from 2018 to 2021 to assess the effectiveness of provincial governance quality (measured by the proactivity of provincial leadership and business support services) on firm performance in the context of COVID-19. Financial firms were excluded due to variations in reporting practices. Hence, our final sample of firms comprises 347 companies during the period from 2018 to 2021.

This research utilizes three primary data sources. The initial data are extracted from the annual report of the Provincial Competitiveness Index (PCI), a collaborative initiative between the Viet Nam Chamber of Commerce and Industry (VCCI) and the US Agency for International Development (USAID). The second source of GRDP data is collected from the Statistical Yearbook of Viet Nam, issued annually by the General Statistics Office of Viet Nam. The third source of financial data is derived from prospectuses and annual financial statements.

3.2 Variable Measures

Firm Performance

Some experts believe evaluating firm performance is crucial for effective management in any organization (Demirbag et al. 2006). However, defining and measuring firm performance remains an intricate task that challenges researchers. Despite decades of research attempting to identify suitable measures, there is no singular metric capable of assessing every dimension of performance. The literature on firm performance primarily revolves around two dimensions, namely market performance and accounting performance, leading to an implicit consensus on performance measurement (Rowe and Morrow 2009)

A series of empirical studies exploring firm market performance revealed that most prior studies focused on Tobin's Q and firm sales growth (Ataünal, Gürbüz, and Aybars 2016; Turkson et al. 2021; Almustafa H 2023). Moreover, following Rowe and Morrow (2009), Al-Matari et al. (2014), (Turkson et al. (2021), Nguyen and Thi Duong (2022), and Almustafa H (2023), return on equity (ROE) is the most popular accounting-based measure of firm performance. Furthermore, with regard to the regulation on listing registration in the Vietnamese stock market, ROE is one indicator of the profitability requirements.

Given these considerations, we used both market performance (Tobin's Q and firm sales growth) and accounting performance (ROE) for measuring firm performance in this study.

Provincial Governance Quality Measures

In line with Choi, Jiang, and Shenkar (2015), the quality of government in our study can be categorized into economic efficiency and public service.

For public service, to measure provincial governance quality, we adopted PCI provided by the Viet Nam Chamber of Commerce and Industry (VCCI) in collaboration with the United States Agency for International Development (USAID). The PCI index is a performance indicator that ranks and evaluates the institutional quality of provincial and business environments. The PCI is computed through a three-stage process as follows: (a) gathering data from business surveys and published sources; (b) computing ten subindices and normalizing them to a ten-point scale; and (c) establishing the composite PCI as the weighted average of the ten subindices, with a maximum score of 100 points (USAID 2020), which include ten component indicators. Nonetheless, scholars contend that these indicators exhibit a strong correlation (Almustafa H 2023), making their inclusion in a single regression challenging, while employing aggregated PCI index may introduce bias into the results. Hence, we used each of the single components, including the proactivity of provincial leadership and business support services to proxy provincial governance quality.

For economic efficiency, gross regional domestic product (GRDP) is a variable representing the economic output of a province and is related to provincial governance. Provincial governments are responsible for implementing economic policies and regulations that directly impact local businesses and industries; hence, GRDP, which is provided annually by the General Statistics Office of Viet Nam, has been added to our model as a proxy for provincial governance.

Control Variables

In line with previous studies (Bülow 2015, Nguyen and Thi Duong 2022, Duong Thi 2023, Cho and Saki 2022, Alsamhi et al. 2022), firm characteristics and audit quality were proxied by a set of control variables, including firm leverage, liquidity, size, age, market value, asset turnover, and loss.

Furthermore, it is believed that credit availability and the expansion of credit access are crucial elements for the growth and development of firms (Pham and Phan 2024). Access to external credit is vital for businesses, as internal funding or self-generated capital is frequently inadequate to support their operational needs. Hence, Viet Nam's credit growth has been used as an external control variable to capture the impact of external factors on firm performance in our models. In Viet Nam, the definition of credit growth is generally consistent with the global understanding. Accordingly, credit growth is the percentage change in outstanding credit at a specific point in time compared to the previous period among credit institutions (Tan 2012, Huu 2023). According to the

State Bank of Viet Nam, the outstanding credit balance of credit institutions and branches of foreign banks is the total balance in VND and foreign currencies at a specific point in time of credit grants by credit institutions and branches of foreign banks to resident legal entities and individuals in Viet Nam. This includes the nonfinancial institutional sector, household institutional sector, and nonprofit institutions serving the household sector in the form of loans, discounts, rediscounts of negotiable instruments and other valuable papers, financial leasing, factoring, payments made on behalf of customers in case the guaranteed customers fail to fulfill their obligations upon maturity, and other credit-granting transactions approved by the State Bank of Viet Nam. Consequently, based on the outstanding credit balances of each credit institution, the State Bank will calculate the overall index for the entire country, measured by the difference between the outstanding credit balance at the end of the reporting period and the balance of the previous year divided by the outstanding credit balance of the previous year.

3.3 Regression Model

This model is designed to figure out the impact of the proactivity of provincial leadership, business support services, and GRDP on firm performance in the COVID-19 context. We test the hypothesis as the following regressions:

$$\text{Model 1: } ROE_{i,t} = \alpha_0 + \beta_1 Liq_{i,t} + \beta_2 Lev_{i,t} + \beta_3 Lnage_{i,t} + \beta_4 Lnsize + \beta_5 Covid + \beta_6 Audittenure_{i,t} + \beta_7 Big4_{i,t} + \beta_8 Loss_{i,t} + \beta_9 LnMarket_{i,t} + \beta_{10} Assetturn_{i,t} + \beta_{11} Ind + \beta_{12} Proactive_{i,t} + \beta_{13} Support_{i,t} + \beta_{14} CovidProactive_{i,t} + \beta_{15} CovidSupport_{i,t} + \beta_{16} GRDP_{i,t} + \beta_{17} Creditgrowth_t + e_{i,t}$$

$$\text{Model 2: } \text{Tobin's } Q_{i,t} = \alpha_0 + \beta_1 Liq_{i,t} + \beta_2 Lev_{i,t} + \beta_3 Lnage_{i,t} + \beta_4 Lnsize + \beta_5 Covid + \beta_6 Audittenure_{i,t} + \beta_7 Big4_{i,t} + \beta_8 Loss_{i,t} + \beta_9 LnMarket_{i,t} + \beta_{10} Assetturn_{i,t} + \beta_{11} Ind + \beta_{12} Proactive_{i,t} + \beta_{13} Support_{i,t} + \beta_{14} CovidProactive_{i,t} + \beta_{15} CovidSupport_{i,t} + \beta_{16} GRDP_{i,t} + \beta_{17} Creditgrowth_t + e_{i,t}$$

$$\text{Model 3: } \text{Firmgrowth}_{i,t} = \alpha_0 + \beta_1 Liq_{i,t} + \beta_2 Lev_{i,t} + \beta_3 Lnage_{i,t} + \beta_4 Lnsize + \beta_5 Covid + \beta_6 Audittenure_{i,t} + \beta_7 Big4_{i,t} + \beta_8 Loss_{i,t} + \beta_9 LnMarket_{i,t} + \beta_{10} Assetturn_{i,t} + \beta_{11} Ind + \beta_{12} Proactive_{i,t} + \beta_{13} Support_{i,t} + \beta_{14} CovidProactive_{i,t} + \beta_{15} CovidSupport_{i,t} + \beta_{16} GRDP_{i,t} + \beta_{17} Creditgrowth_t + e_{i,t}$$

where:

t: four years, namely 2018, 2019, 2020, 2021.

ROE_{i,t}: return on equity of firm i in year t, measured by net income/total equity.

Tobin's Q: firm i in year t, measured by market enterprise value/total asset value.

Firmgrowth (%): firm in year t, measured by firm growth is measured by the rate of increase in the net sales revenues of the firm over its net sales revenues in the previous year.

Covid: is a dummy variable. The value will be 1 if the year is 2020 or 2021 and 0 otherwise.

Proactive_{i,t}: proactive and creative provincial leadership of firm i in year t.

Support_{i,t}: high-quality business support services of firm i in year t.

$GRDP_{i,t}$: growth rate of gross regional domestic product of province i in year t . GRDP is an important indicator to measure the economic growth of a region.

Creditgrowth: credit growth in year t .

$LEV_{i,t}$: leverage ratio of firm i in year t (total debt/ total assets)

$Liq_{i,t}$: liquidity ratio of firm i in year t (total current assets/ total current liabilities)

$Lnage_{i,t}$: the log of firm age of firm i in year t .

Loss: a dummy variable that is equal to 1 for firms suffering loss and 0 otherwise.

$LnMarket_{i,t}$: the nature log of the market value of firm i in year t .

$Assetturn(i,t)$: total asset turnover ratio, measured by dividing net sales or revenue by the total assets.

Ind_i : dummy variable firm i belongs to an industry.

Auditquality is measured by Big4 and Audit tenure. While Big4 is a dummy variable that is equal to 1 for firms hiring a member of Big4 and 0 otherwise, $Audittenure_{i,t}$ is calculated as the number of consecutive years of experience for which the current auditing firm was hired by firm i in year t .

To examine whether the influence of proactive and creative provincial leadership and business support services on firm performance differs before and during the COVID period, we extend the model by adding two dummy variables: $CovidProactive_{i,t}$ and $CovidSupport_{i,t}$. These interactions are necessary to evaluate any differences in the effect of provincial government quality between the periods before and during COVID-19.

4. RESULTS

4.1 Descriptive Statistics

Table 1 describes descriptive statistics for all variables. The mean and median values of ROE for all sample firms are higher than 0, suggesting that on average all firms can generate greater profits during the sample period, with a value of mean 0.1095, a minimum of -4.0820 , and a maximum of 1.586. Table 1 also reveals that Tobin's Q and Firmgrowth exhibit positive mean and median values, with an average Tobin's Q of 0.8937 and Firmgrowth of 27.4949.

With regard to auditor quality, the average for the Big4 is 0.3876, indicating that 38.76% of the sampled firms were audited by one of the Big4 auditing firms. Moreover, the average auditor tenure suggests that these sampled firms have maintained their partnerships with auditors for over five years on average.

For provincial government quality, the average scores for support and proactive are 6.835 and 6.3433, respectively. The median scores of both variables are less than the mean, suggesting that firms generally perceive support levels close to the average, and half of the provinces are less proactive than this value. Moreover, the average growth rate of GRDP is 0.050478, with a median of 0.0692. This indicates that economic growth varies across regions, with some experiencing contraction (minimum -0.1052) and others experiencing robust growth (maximum 0.1715).

Table 1: Descriptive Statistics

Variables	Mean	Median	Min	Max	Std. Deviation
ROE	0.1095	0.1095	-4.0820	1.586	0.1960
Tobin's Q	0.8937	0.5991	0.0370	17.346	1.0498
Firmgrowth	27.4949	5.51	-217.38	7,746.98	299.8113
lev	1.5499	0.9100	-4.8314	140.032	5.3963
liq	2.68	1.48	0.03	47.77	4.188
Inage	1.3611	1.3802	1.09	3.40	0.2731
Insize	28.44196	28.211	23.844	34.039	1.5469
covid	0.5	0.5	0	1	0.5002
audittenure	5.6484	4	0	9	4.277
Big4	0.3876	0	0	1	0.4873
loss	0.05979	0	0	1	0.2371
Inmarket	7.1465	6.9695	3.5793	12.4815	1.6572
assetsturn	8.9577	2.13	-66.93	618.08	29.8935
Proactive	6.3433	6.07	4.23	65.82	3.2249
Support	6.835	6.75	4.82	8.54	0.8240
GRDP	0.050478	0.0692	-0.1052	0.1715	0.05026
Creditgrowth	0.1335	0.1365	0.122	0.139	0.0067

Table 2: Variables Before and During the Pandemic

Before Pandemic							
Variable	Obs	Mean	25%	50%	75%	Min	Max
ROE	694	0.1262	0.06271	0.11267	0.18350	−4.082	1.5868
Tobin's Q	694	0.9166	0.34365	0.60553	1.1706	0.0370	17.346
Firmgrowth	694	19.3004	−4.89	7.275	22.37	−89.38	2216.17
lev	694	1.6388	0.4823	0.94187	1.7588	−4.3959	140.0325
liq	694	2.7841	1.11	1.485	2.53	0.03	47.77
Insize	694	28.3076	27.310	28.151	29.148	24.3065	33.6317
Inmarket	694	7.0767	5.7901	6.9049	5.7901	3.5793	12.2979
assetsturn	694	9.5596	−1.06	2.71	14.93	−54.95	618.08
proactive	694	5.9948	5.45	5.57	5.99	4.23	65.82
support	694	6.8773	6.41	6.88	7.39	4.85	7.64
GRDP	694	0.084179	0.0746	0.083	0.0832	0.011	0.1715
Creditgrowth	694	0.138	0.122	0.129	0.136	0.137	0.139

During Pandemic						
Variable	Mean	25%	50%	75%	Min	Max
ROE	0.0929	0.04005	0.09286	0.16337	−2.53314	0.5052
Tobin's Q	0.87074	0.36401	0.5959	1.0983	0.0411	12.924
Firmgrowth	35.689	−15.57	3.13	20.58	−217.38	7746.98
lev	1.4609	0.43880	0.8844	1.7696	−4.8314	119.2909
liq	2.576	1.13	1.48	2.6	0.1	45.39
Insize	28.576	27.5381	28.2736	29.5087	23.844	34.039
Inmarket	7.2164	5.9264	7.0100	8.13286	4.0188	12.481
assetsturn	8.3558	−2.02	1.53	11.69	−66.93	225.68
proactive	6.6918	6.07	6.23	6.92	5.09	65.75
support	6.7932	6.2	6.55	7.49	4.82	8.54
GRDP	0.016776	0.0139	0.0262	0.0398	−0.1052	0.1238
Creditgrowth	0.129	0.137	0.138	0.139	0.122	0.136

Table 2 reports descriptive statistics of all variables before and during the pandemic. The results in Table 2 show that all values of mean, 25th, 50th, and 75th percentiles of ROE and Tobin's Q before the pandemic are higher than the values during the pandemic. Interestingly, the mean of Firmgrowth before the pandemic reveals a higher amount than that during the pandemic, but all percentiles of Firmgrowth before the pandemic outstrip those during it. It is believed that the given data have some skewed values, which can make the data nonnormal and outlier values may make the mean value move away from the central position. Hence, the percentile method is suitable in such a situation. The findings suggest that the firms have experienced a decline in performance amid the pandemic, attributable to the lockdown measures implemented by the Vietnamese government. Furthermore, provincial governments have taken on an increasingly crucial role in mitigating the devastating impact of COVID-19, helping firms navigate the pandemic waves with minimal disruptive effects. The results indicate that the score of the proactivity of provincial leaders during the pandemic is higher than before it in all percentiles. In contrast, the ranking of business support services at the 25th and 50th percentiles before the pandemic is higher than during COVID-19. It can be inferred that the COVID-19 quarantine has disrupted the progress made in streamlining administrative support.

Additionally, GRDP before the pandemic was higher than during it at all percentiles, indicating that due to the direct and indirect impacts of the pandemic, the economic growth rate has declined, reflecting a slowdown in economic activities. Notably, a negative growth rate can be observed during the pandemic period.

4.2 Empirical Evidence

Testing Firm Performance Before and During the COVID Pandemic

A normality test (t-statistics) was employed to assess the normal distribution of the data. Determining normality guides the choice between parametric and nonparametric methods. The normality tests for firm performance variables indicate that the data exhibit a normal distribution, given that the p-values for all variables were below 0.05. Hence, the appropriate tests are the nonparametric Wilcoxon signed-rank test and the Kruskal-Wallis equality-of-populations rank test. The former examines mean differences between two periods before and during the pandemic, while the latter examines median differences by year during all periods.

The result in Panel A of Table 3 indicates that, prior to the COVID-19 pandemic, the medians of firm performance measured by ROE, Tobin's Q, and Firmgrowth were higher than those during the COVID-19 period, with statistical significance at the 1% level. In addition, in Panel A of Table 2, negative signed ranks imply that the medians of ROA, Tobin's Q, and Firmgrowth variables are greater before the pandemic than during it. The opposite holds true for positive ranks. In general, there are fewer positive than negative ranks in all models.

It can be observed from Panel B of Table 3 (results of Kruskal-Wallis equality-of-populations rank test) that significant differences between the medians are at conventional 1% levels in both ROE and Firmgrowth variables across all four years, with the highest rank sum in 2018 and the lowest in 2020. To be specific, the median ROE in 2018 surpasses all those in 2019, 2020, and 2021, while 2019 exhibits a higher ROE than in 2020 and 2021. Interestingly, the figure of ROE in 2020 is lower than that in 2021 at a significance level of 10%. By comparison, in the case of Firmgrowth, it is evident from Panel B that the median Firmgrowth in 2018 is significantly greater than medians in both 2019 and 2020 at the 1% level. Additionally, the median in 2019 is

greater than that in 2020 at the 1% level. However, a trend of increase in Firmgrowth can be seen in 2021, as the median of Firmgrowth in 2019 and 2020 is surpassed by the median in 2021. In contrast, results show no significant difference in Tobin's Q before and during the pandemic.

Overall, the results from the Wilcoxon signed-rank test reported in Panel A are consistent with the results from the Kruskal-Wallis test presented in Panel B. In line with previous studies, the results obtained from testing H1 suggest that firm performance has deteriorated during the COVID-19 pandemic compared to before it. Moreover, the most significant influence of the pandemic on firm performance can be observed in 2020.

Table 3: Comparison of Firm Performance Based on Rank Test

A. Comparison between two periods based on Wilcoxon signed-rank test					
Variables	Testing Period	Positive Rank	Negative Rank	P-value	Z-score
1. ROE	During and before the pandemic	268	426	0.0000	-7.079
2. Tobin's Q	During and before the pandemic	316	378	0.0005	-3.486
3. Firmgrowth	During and before the pandemic	296	398	0.0001	-3.975
B. Comparison between four years, Kruskal-Wallis equality-of-populations rank test					
Variables					
1. ROE					
Year	Rank Sum	Year by Year	2018	2019	2020
2018(obs 347)	268444				
2019(obs 347)	249115	2019	0.0336		
2020(obs 347)	216039	2020	0.0000	0.0009	
2021(obs 347)	230368	2021	0.0002	0.0379	0.0874
2. Tobin's Q					
Year	Rank Sum	Year by Year	2018	2019	2020
2018(obs 347)	243304				
2019(obs 347)	240561	2019	0.3975		
2020(obs 347)	239408	2020	0.3561	0.4565	
2021(obs 347)	240693	2021	0.4023	0.4950	0.4516
3. Firmgrowth					
Year	Rank Sum	Year by Year	2018	2019	2020
2018(obs 347)	270611				
2019(obs 347)	240186	2019	0.002		
2020(obs 347)	195449	2020	0.0000	0.0000	
2021(obs 347)	257719	2021	0.1111	0.0484	0.0000

4.3 Test for Provincial Governance Quality and Firm Performance

The results show that the Breusch-Pagan (LM) test is significant in both the ROE and Tobin's Q models, with a probability value of 1%. These findings indicate a preference for either the random-effects (RE) or fixed-effects (FE) model. Subsequently, the Hausman test is employed to determine whether the FE or RE model is more appropriate. Following this, the Wooldridge test is conducted to identify potential autocorrelation issues in panel data. If autocorrelation problems are detected, the data are addressed using FE or RE (within) regression with AR(1) disturbances.

Furthermore, the outcomes of the Breusch-Pagan (LM) test in the Firmgrowth model indicate that the pooled ordinary least squares (POLS) approach is more dependable. Robust standard errors were employed in the pooled ordinary least squares (POLS) models to manage heteroskedasticity. Strikingly, the presence of outliers in the pooled OLS model can significantly alter substantive conclusions regarding the relationships among variables (Aguinis, Gottfredson, and Joo 2013). Outliers have the potential to reduce the likelihood of detecting significant differences, potentially leading to the incorrect acceptance or rejection of hypotheses (Cousineau and Chartier 2010, Bollen and Jackman 1985). Therefore, it is imperative to define, identify, and address outliers within this research. To identify influential observations that collectively affect all regression coefficients, the DFIT value is predicted through modeling to evaluate sensitivity to excluding outliers. This procedure is carried out without altering the direction, magnitude, or statistical significance of the effects. As a result, specific observations were excluded from the dataset to mitigate the influence of extreme values (Osborne and Overbay 2004, Behmiri and Manera 2015, Blažková and Dvouletý 2018). Our research introduces the final chosen model following the completion of all tests.

The FE and POLS estimations for proactivity of provincial leadership, business support services, and GRDP that influence firm performance before and during the COVID-19 pandemic are presented in Table 4.

For the ROE model, the results show that provincial business support policy and the proactivity of provincial leadership showed no significant impact directly on ROE in either period. However, the interaction of the proactivity of provincial leadership with COVID-19 has a significantly positive impact on ROE, partly explaining the better performance amid the COVID-19 crisis. The estimates show a possibility that firms located in zones with a high level of stability and consistency of the local business environment have higher levels of ROE, leading to better firm performance during the crisis period. By comparison, Firmgrowth measured by growth of sales shows a positive and insignificant relationship with provincial business support services. However, the moderating role of the proactivity of provincial leadership in association with COVID-19 indicates that a firm experienced a significantly increasing growth in revenue when receiving help from the provincial government in handling difficulties. The findings prove that being proactive and innovative in solving new problems of provincial leadership can create a business-friendly environment and then strongly promote initiatives to increase sales revenues. In contrast, an insignificant relationship was observed between the proactivity of provincial leadership, business support services, and Tobin's Q in all models. This suggests that these government mechanisms are weak in influencing firm performance in the market-based aspect.

GRDP (gross regional domestic product) has no impact on firm sales growth, ROE, and Tobin's Q, which suggests that the regional economic performance does not significantly influence these particular aspects of firm performance.

Table 4: Proactivity of Provincial Leadership, Business Support Service, Gross Regional Domestic Product, and Firm Performance

Variables	ROE	Tobin's Q	Firmgrowth
	Fixed Effects (Within) Regression	FE (Within) Regression with AR(1) Disturbances	POLS (Excluded Outliers)
Lev	-0.0247*** [0.0052]	0.0002 [0.0012]	0.1016 [0.1617]
Liq	0.0004 [0.0009]	0.0006 [0.0010]	-0.0583 [0.1747]
Lnage	-0.3738** [0.1898]	-0.7893 [1.0104]	-15.1792*** [4.7354]
Lnsiz	0.0009 [0.0051]	0.0058 [0.0053]	0.9389 [0.9045]
Covid	-0.0118 [0.0146]	0.0283 [0.0309]	2.9677 [3.5574]
Auditenure	-0.0014 [0.0013]	0.0002 [0.0031]	-0.1292 [0.2515]
Big4	0.0226** [0.0106]	-0.0352 [0.0332]	-5.4845** [2.5940]
Loss	-0.1812*** [0.0401]	0.0041 [0.0194]	-24.8593*** [4.2102]
Lnmarket	-0.0373 [0.0244]	0.2622*** [0.0293]	1.0241 [0.8269]
assetsturn	0.0005* [0.0003]	-0.0004* [0.0002]	0.4788*** [0.0882]
ind	yes	yes	yes
proactive	0.0078 [0.0078]	-0.0024 [0.0132]	0.0055 [0.1493]
support	0.0052 [0.0095]	0.0086 [0.0183]	2.9100 [2.7145]
covidproactive	0.0026*** [0.0004]	-0.0048 [0.0032]	0.6802*** [0.2191]
covidsupport	-0.0053 [0.0096]	-0.0304 [0.0218]	-2.1137 [3.4907]
GDPR	-0.1355 [0.1035]	0.0936 [0.1888]	9.3575 [34.5694]
creditgrowth	0.9770 [0.8143]	1.8908 [1.4476]	775.2213*** [282.5260]
_cons	0.6901* [0.4037]	-0.4177 [0.5977]	-127.1628*** [46.6301]
N	1388	1041	1375
adj. R-sq	0.610	0.1302	0.120
p	0.0000	0.0000	0.0000
Hausman test	0.0000	0.0000	1
Breusch and Pagan Lagrangian multiplier test	0.0000	0.0000	

*** significant at $p < 0.01$, ** significant at $p < 0.05$, and * significant at $p < 0.10$.

While Creditgrowth is insignificant in the models of ROE and Tobin's Q, it has a positive impact on the Firmgrowth model at the 1% level. This finding indicates that credit growth implies that firms have greater access to external financing. This additional capital can be used to invest in inventory, expand production, enhance marketing efforts, and improve distribution channels, all of which can lead to increased sales. With more credit available, firms can undertake expansion projects, open new outlets, or enter new markets, thereby boosting their sales figures. While credit growth leads to higher sales, it also increases interest expenses and debt repayments, which can offset the positive impact on profitability. Higher sales do not necessarily translate to higher profits if the costs of financing are substantial. Hence, if the additional sales from credit growth come with thin profit margins or increased operational inefficiencies, the impact on ROE may be insignificant. Moreover, ROE and Tobin's Q are influenced by a mix of factors, including profit margins, cost of debt, market conditions, and investor perceptions, which may dilute the direct impact of credit growth. The insignificance of credit growth in these metrics suggests that while access to credit can drive sales, it does not necessarily enhance profitability (ROE) or market valuation (Tobin's Q).

4.4 Robustness Checks

Endogeneity

In order to address the endogeneity issue, recent research employed an econometric technique – lag structure analysis (Haniffa and Hudaib 2006, Sayyar 2015, Renders, Gaeremynck, and Sercu 2010). In line with prior studies, this study adopts the time lag structure in firm performance (Sayyar 2015), including L.ROE, L. Tobin's Q, and L. Firmgrowth. This implies that government quality may be associated with next year's performance. Hence, we utilize lag analysis to ascertain the consistency and robustness of our primary findings.

Table 5 presents the findings of lagged regression for firm performance models. Across all lagged models, the quality of governance, including the proactivity of provincial leadership and business support services, and the interaction of these variables with COVID and GRDP, are insignificantly related to firm performance. Therefore, in these regression models, the potential endogeneity problem does not appear to negatively impact the results based on the lagged structure test.

Additional Analysis for Accounting Performance

First, in addition to ROE, in accounting-based measurement, ROA is another commonly used indicator to assess firms' short-term profitability in recent years. ROA measures the effectiveness of asset utilization for the benefit of shareholders (Al-Matari, Al-Swidi, and Hanim 2014). This study performs additional tests to check the robustness of our main findings by using another indicator of accounting-based measurement – ROA (see results in Table 6).

Second, in empirical studies in accounting, ROA and ROE are typically confined within the unit interval, as highlighted by Liu and Xin (2014) and Nguyen and Thi Duong (2022). Moreover, Gallani and Krishnan (2017) argued that bounded dependent variables are naturally constrained by the response scale options commonly encountered in accounting research. Consequently, linear estimation methods such as ordinary least squares (OLS) or RE and FE may become inadequate, leading to biased estimations lying beyond these thresholds (Papke and Wooldridge 1996). A solution for bounded dependent variables – the fractional regression model (FRM) – was

developed by Papke and Wooldridge (1996) to address several limitations of linear approaches.

Table 5: Endogeneity Test

Variables	L.ROE	L.Tobin's Q	L.Firmgrowth
	FE	FE	POLS
Lev	−0.0145*** [0.0018]	−0.0021 [0.0019]	0.1340 [0.3386]
Liq	0.0023 [0.0017]	−0.0001 [0.0018]	−0.3477 [0.2488]
Lnage	−0.9267** [0.4098]	−2.3836*** [0.4292]	−26.1616*** [9.1616]
Lnsize	0.0036 [0.0071]	−0.0241*** [0.0074]	0.1976 [1.7656]
Covid	−0.0268 [0.0360]	0.0354 [0.0377]	−17.0017** [7.6723]
Auditenure	0.0034 [0.0041]	0.0064 [0.0043]	−0.0700 [0.5898]
Big4	0.0120 [0.0455]	−0.0059 [0.0476]	1.6321 [8.0165]
Loss	−0.0519* [0.0310]	0.0004 [0.0324]	−17.9906*** [6.7443]
Lnmarket	0.0205 [0.0374]	−0.0116 [0.0391]	0.6875 [2.3748]
assetsturn	0.0005 [0.0003]	0.0005 [0.0003]	0.0194 [0.0957]
ind	yes	yes	yes
proactive	0.0110 [0.0210]	0.0097 [0.0220]	−0.3400 [0.4107]
support	−0.0263 [0.0275]	−0.0077 [0.0288]	−3.0903 [3.8205]
covidproactive	0.0018 [0.0037]	−0.0063 [0.0039]	0.0977 [0.3338]
covidsupport	0.0275 [0.0284]	0.0297 [0.0298]	6.7228 [5.2511]
GDPR	−0.1828 [0.2791]	0.0352 [0.2923]	36.2084 [58.7981]
creditgrowth	−2.2760 [1.8044]	0.3820 [1.8895]	−846.0582* [341.5806]
_cons	1.5602*** [0.5589]	4.8266*** [0.5853]	206.6577*** [76.6898]
N	1,041	1,041	1,041
R-sq	0.113	0.1029	0.026
p	0.0000	0.0000	0.0000

*** significant at $p < 0.01$, ** significant at $p < 0.05$, and * significant at $p < 0.10$.

Table 6: Testing Robustness Using ROA and Fractional Logit Regression Results

Variables	Testing Robustness Using ROA		Testing Robustness Using ROA	
	ROA		ROE	ROA
	FE		dy/dx	
Lev	−0.0009** [0.0004]		0.0022 [0.0065]	−0.4213*** [0.0332]
Liq	−0.0003 [0.0003]		−0.0005 [0.0053]	0.0025 [0.0057]
Lnage	−0.1438* [0.0849]		0.1309 [0.1020]	0.0483 [0.1091]
Lnsize	−0.0025 [0.0018]		−0.0356* [0.0185]	−0.0466** [0.0201]
Covid	−0.0047 [0.0081]		−0.1571* [0.0846]	−0.1924** [0.0822]
Auditenure	−0.0011 [0.0008]		−0.0008 [0.0056]	−0.0076 [0.0063]
Big4	0.0124* [0.0066]		0.1747*** [0.0511]	0.1573*** [0.0528]
Loss	−0.0950*** [0.0135]		−0.2229 [0.3379]	−0.3864 [0.3113]
Lnmarket	−0.0070 [0.0076]		0.0889*** [0.0145]	0.0866*** [0.0148]
assetsturn	0.0003* [0.0001]		0.0021** [0.0010]	0.0023* [0.0013]
ind	Yes		Yes	Yes
proactive	0.0010 [0.0034]		−0.0005 [0.0042]	−0.0027 [0.0046]
support	0.0001 [0.0053]		0.0438 [0.0629]	0.0983 [0.0711]
covidproactive	0.0006*** [0.0002]		0.0167*** [0.0053]	0.0209*** [0.0057]
covidsupport	−0.0011 [0.0055]		−0.0148 [0.0746]	−0.0431 [0.0832]
GDPR	−0.0572 [0.0597]		0.1701 [0.7044]	−0.3315 [0.6712]
creditgrowth	0.4042 [0.4814]		3.0325 [5.8561]	0.6572 [6.2252]
_cons	0.3271** [0.1322]		−2.6603** [1.0517]	−2.4457** [1.1111]
N	1,388		1,314	1,314
P value	0.0000		0.0000	0.0000

Our research indicates that the majority of ROE and ROA values, approximately 95%, range from 0 to 1, displaying positive net income during the period. To focus on firms with good performance before and during the pandemic and examine the impact of governance quality on these firms, fractional logit models are utilized, effectively handling extreme values of 0 and 1. In this study, we initially employ FE estimation and then compare the results with a model estimated using the fractional logit approach (see results in Table 6).

Table 6 presents the results of the additional test of ROA and fractional logit regression for both ROE and ROA, which align with the ROE regression results in Table 4. Accordingly, the findings show that covidproactive positively affects accounting firm performance, as measured by a different proxy (ROA). Similarly, in line with RE regression results, empirical findings from fractional logit regression indicate that ROE and ROA are significantly affected by covidproactive at the 1% level.

5. DISCUSSION AND CONCLUSION

In line with previous international studies (Alsamhi et al. 2022) in India (Achim et al. 2022), Romania (Cho and Saki 2022), the US (Turkson et al. 2021), and Italy, our findings provide empirical evidence from the Vietnamese context that firm performance has deteriorated during the COVID-19 pandemic. Both market-based measures (Tobin's Q, firm growth) and accounting-based measures (ROE) indicate that sampled listed firms experienced a significant decrease in performance compared to the period before the pandemic. Furthermore, to explore the role of government in this context, our study investigates the impact of the proactivity of provincial leadership, business support services, and gross regional domestic product on firm performance, with the mediating role of the COVID-19 pandemic.

In line with Turkson et al. (2021) and Almustafa H (2023), we found that the quality of governance measured by the proactivity of provincial leadership plays a crucial role in alleviating the adverse effects of the COVID-19 crisis on firm growth and ROE. These findings align with our argument that the quality of provincial governance contributes to fostering a positive business environment and mitigating economic shocks. The findings prove that being proactive and innovative in solving new problems of provincial leadership can create a business-friendly environment and then strongly promote initiatives to increase sales revenues. Conversely, in the case of Tobin's Q, the coefficient lacks statistical significance, indicating that higher-quality governance is not associated with an increased Tobin's Q level. It would seem that the proactive initiatives of local government can positively influence the market environment, leading to heightened revenue (firm growth) and improved operational efficiency (ROE). However, as the Tobin's Q index is determined by stock prices and linked to the stock market, the impact of local government is not substantial. Therefore, there is a need for broader support at the macro level, involving the active participation of the state and the Ministry of Finance.

Interestingly, the positive impact of credit growth can be found in only the Firmgrowth model, indicating that as credit availability or access increases, firms tend to experience higher sales growth.

An insignificant relationship was observed between business support services, gross regional domestic product, and firm performance in all models. The lack of a significant impact suggests that changes in the economic output of the region (GRDP) during COVID-19 have not substantially influenced financial performance. Moreover, the current action of business support services provided by the local government may not be effectively tailored to meet the specific needs of firms to enhance their performance.

Unlike most previous research, which consists of cross-country studies examining the impact of government support on firm performance using a global sample on a national level, this study explores the influence of provincial government in redefining the relationship with firm performance. It does so by incorporating subnational institutional environments into the model during the COVID-19 pandemic era.

The findings shown in this study have implications for policymakers, stockholders, and managers of firms. For shareholders and managers who face a big challenge in combating COVID-19, listed firms with low performance should adopt the necessary policy and take the required action to enhance their operational efficiency by establishing strong connections with local government and political agencies, allowing them to easily access more valuable resources. As mentioned earlier, local governments have significant control over resources, particularly in emerging economies.

For policymakers, as listed companies have grappled with diminished business opportunities resulting from the COVID outbreak, the perceived effectiveness of government response policies, along with firms' responsive strategies, larger resource allocations, and substantial financial assets, have significantly influenced these businesses' evaluations of their future prospects. The proactivity and advisory services of local government can create a favorable business environment and provide the necessary information to address newly emerging issues, including the COVID-19 pandemic. Moreover, according to a survey (USAID 2020), companies acknowledge that their problems have been addressed through business dialogues and meetings with provincial authorities. Therefore, the more positive the perceptions of provincial leadership proactivity, the more benefits firms can obtain. We recommend that local governments should exhibit greater flexibility within the legal framework to establish a favorable business environment. Additionally, they should respond promptly to central policy documents and address in a timely manner the difficulties raised by firms in dialogues. For the national government, while credit policy has a positive impact on firm sales growth, the lack of impact on ROE and Tobin's Q suggests that firms might not be using the additional credit efficiently enough to generate profits or enhance market value. Hence, the government can develop programs to help firms utilize credit more effectively, such as financial management training, advisory services, and best-practice guidelines. An integrated support framework can help firms leverage credit more effectively to improve not only sales but also profitability and market valuation.

In a nutshell, by the end of 2021, Viet Nam had engaged in 15 free trade agreements (FTAs) with significant partners like the European Union and the UK. As Viet Nam continues to integrate into the global economy, both national- and provincial-level agencies need to intensify their efforts to familiarize the business community with the details of Viet Nam's FTA commitments. State agencies should take a more proactive approach in expediting the drafting process to meet issuance requirements. In general, state agencies, and specifically provincial governments, should establish and sustain mechanisms to receive and address challenges encountered by firms in implementing FTA commitments. Moreover, the national government should focus on ensuring that credit access is accompanied by measures that promote its efficient and productive use, thereby enhancing overall firm performance and long-term value.

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