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Financial Alternatives in the Ecuadorian Exchange Market during COVID-19

Alternativas financieras en el mercado de valores ecuatoriano durante el COVID-19

Valeria Anabel Garcés Padilla[1]
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Abstract

The COVID-19 pandemic triggered a set of policies implemented by the Ecuadorian Government such as the lockdown decreed in March 2020. The policy is exploited as an exogenous variation in a discontinuous regression in time design (RDiT) with administrative data, in order to evaluate its impact over the placements of non-public institutions and companies from March 2019 to March 2021 over the Ecuadorian Exchange Market. For instance, there is a significant increase in the amount of placements after the lockdown due to the companies' need of financial aid and liquidity outside the traditional corporate loans offered by the banking sector to maintain their operations.

Keywords: exchange market, stock exchange, lockdown, COVID-19, commercial paper, long-term corporate bonds, placements, financial instruments.

[1] Universidad San Francisco de Quito. E-mail: valegarcesp@gmail.com

Resumen

La pandemia de COVID-19 desencadenó un conjunto de políticas implementadas por el Gobierno Ecuatoriano, como el confinamiento decretado en marzo de 2020. La política es explotada como una variación exógena en un diseño de regresión discontinua en el tiempo (RDiT) con datos administrativos, con el fin de evaluar su impacto sobre las colocaciones de instituciones y compañías no-públicas desde marzo de 2019 hasta marzo de 2021 en el Mercado de Valores Ecuatoriano. Por lo tanto, se evidencia un aumento significativo en la cantidad de colocaciones después del decreto del confinamiento debido a la necesidad de ayuda financiera de las empresas fuera de los préstamos corporativos tradicionales ofertados por el sector bancario para mantener sus operaciones.

Palabras Clave: mercado de valores, bolsa de valores, confinamiento, COVID-19, papel comercial, obligaciones de largo plazo, colocaciones, instrumentos financieros.

I. Introduction

Since its first establishment in 1935, the Ecuadorian Exchange Market has evolved slowly relative to other exchange markets in Latin America such as the ones from Colombia or Peru. However, there is evidence that Ecuador's exchange market showed resilience and grew although the reduction of economic activity in 2020, as registered in the *Ecuindex* (the Ecuadorian Stock Index) (El Comercio, 2021). Even though the COVID-19 pandemic negatively influenced output and consumption during that year, operations within the Ecuadorian Exchange Market were positively affected. Months after the COVID-19 pandemic, stock indices in Latin American countries including Mexico, Brazil, Peru, and Colombia fell harshly since March 2020 and did not recover rapidly, whereas in Ecuador and Argentina this market increased its activity in comparison to their previous performance.

Ecuadorian Exchange Market

The Ecuadorian Exchange Market seeks to gather stock investors and issuers and its procedures and regulations are stated inside the law called "Ley de Mercado de Valores". Companies, investors, fund and trust administrators, houses and stock exchanges, financial institutions, public institutions, and risk rating companies participate in the exchange market. Moreover, the authorities in charge of controlling and supervising the legislation within the market are the "Superintendencia de Compañías, Valores y Seguros (SCVS)" and the "Junta de Política y de Regulación Monetaria y Financiera", the last one regulates the stock market according to the law of the "Código Monetario y Financiero".

In 1906, there was no further legislation than the "Código de Comercio" which did not encourage the development and establishment of an exchange market in Ecuador. Almost 30 years later, in 1935 the first stock exchange, called "Bolsa de Valores y Productos del Ecuador C.A." was created in Guayaquil, but it only lasted until 1936. A new commission called "Comisión Nacional de Valores – Corporación Financiera Nacional" was the next failed attempt to promote the national stock exchange in 1964. The institution of the first stock exchanges was approved in 1969 under the government of José María Velasco Ibarra as anonymous companies in Quito and Guayaquil, but it was not until 1993 that the exchange market became regulated under the first law, named "Ley de Mercado de Valores" and five years later, new mechanisms such as securitizations and the creation of fiduciary business were incorporated in it (Superintendencia de Compañías, Valores y Seguros, 2015). Thus, the Ecuadorian Exchange Market has had a recent history and a decelerate development, and the two institutions where the stock exchanges take place nowadays are "Bolsa de Valores Quito C.A." and "Bolsa de Valores Guayaquil C.A." (Superintendencia de Compañías, Valores y Seguros, 2015).

Also known as the capital market, the exchange market mobilizes resources and finances directly, through the issuance (manufacture-creation) and negotiation (purchase-sale) of securities (titles), specially for long-term and short-term periods at a competitive cost (Superintendencia de Compañías, Valores y Seguros, 2015). Shares, commercial paper, government bonds, certificates of deposit, long-term corporate debt, and policies accumulation are the most common securities traded and they offer a higher interest rate and longer payment periods relative to traditional financial institutions. The authorized issuers in the market include public and private institutions, collective funds, and securitization trusts; meanwhile investors include public sector institutions, private and foreign investors, and fund administrators (Superintendencia de Compañías, Valores y Seguros, 2015).

Financial market and COVID-19 in Ecuador

This study analyzes the COVID-19 pandemic impact on the Ecuadorian Exchange Market, especially over private financial alternatives, and placements of the corporate sector in the stock market. After the first COVID-19 cases were detected in Ecuador's biggest cities (Quito and Guayaquil), on March 16th, 2020, the Executive Decree N°1017 was enforced and it declared a state of emergency and lockdown through the national territory. The decree limited mobility and this suspended most of the face-to-face work and economic transactions. Therefore, a regression discontinuity model of the amount of placements in the stock market is analyzed from March 2019 to March 2021, considering the date of the beginning of the lockdown as baseline and controlling by company size measured as their reported assets. The data was gathered from the "Superintendencia de Compañías Valores y Seguros (SVCS)" which presents daily reports of the stock exchange activity and administrative data of its participants.

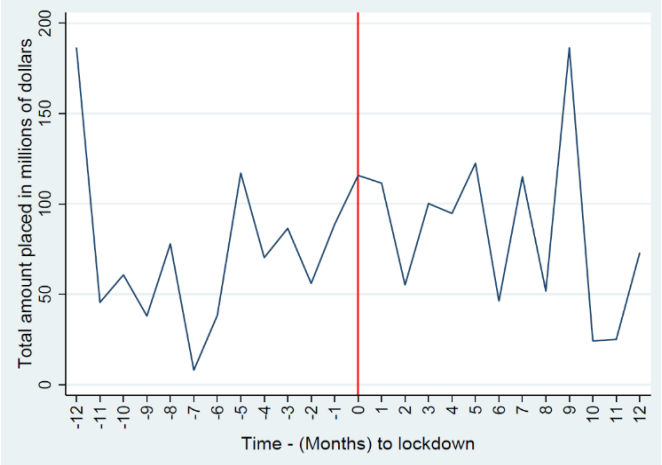
The scheme of this paper unfolds as follows. Section II accounts for the sources of information, final data, selected sample, and empirical strategy. Section III discusses the main results of the model and its specifications. Last, section IV concludes.

II. Data and Empirical Strategy

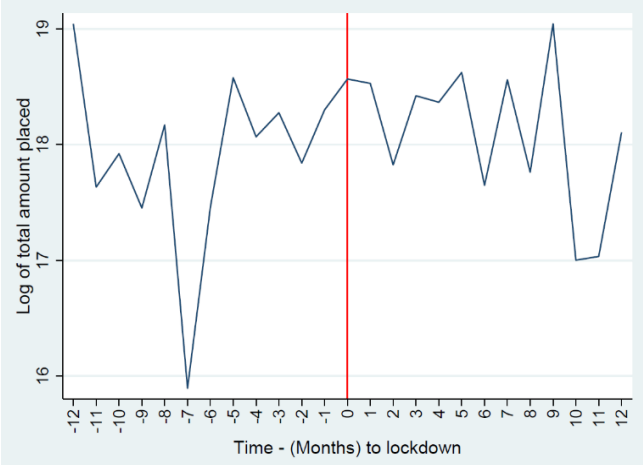
Data Overview

A firm-level balanced dataset with 197 observations, which include the total amount placed in the Ecuadorian Exchange Market per month was constructed with data from March 2019 to March 2021. It contains information of anonymous societies, financial institutions, limited liability companies, and nonprofit organizations. The amount placed of public institutions was excluded due to the high bond emissions and debt negotiations of the government during the pandemic year, as well as the data of four institutions (including nonprofit associations and a trust fund) that did not have their administrative reports submitted. The financial instruments considered are commercial paper, ordinary shares, long-term bonds, bonds convertible into shares, and securitizations.

Real-time data of the exchange market transactions is updated daily to the "Superintendencia de Compañías Valores y Seguros (SCVS)" and administrative data is reported by the participant firm every year to this institution. In order to evaluate the impact of COVID-19 over financing alternatives present in this market, the database contains the daily amount of placements of every firm and socio-demographic characteristics. One of those is the city where the firm is located with the objective of controlling for possible heterogeneity among the quantity of companies, in small vs. large cities, searching for financing in the two main stock markets. Another control accounts for industry divergence of firms which had greater financial need during the pandemic time, this one-digit code comes from the ISIC Rev 4.0 classification. Moreover, the assets of the firms are used as a dummy which controls over firm size. Finally, the amount placed is transformed to a logarithmic scale to reduce volatility and atypical values.



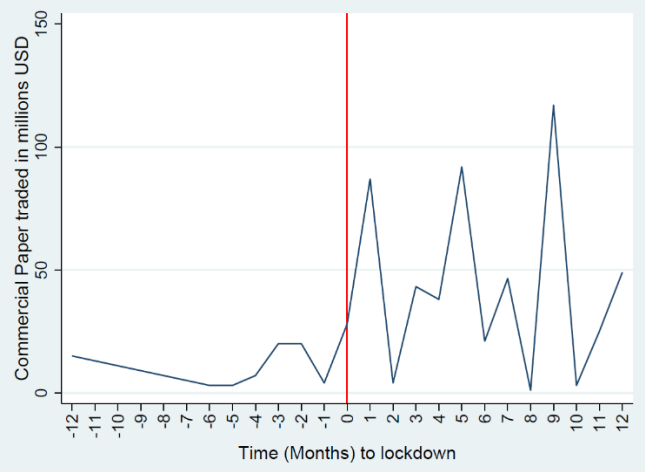
a) Total placements in millions of dollars



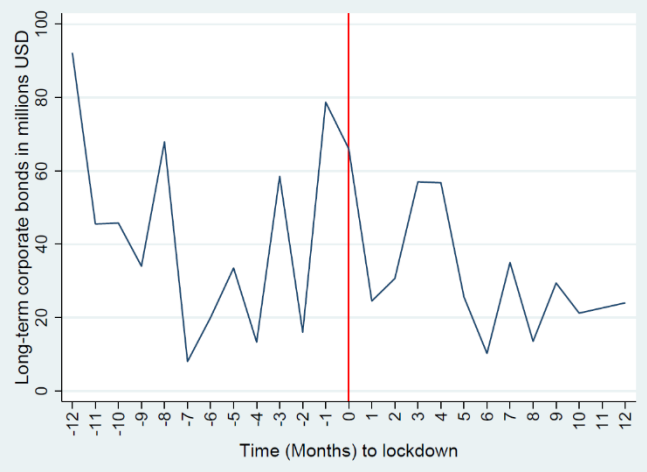
b) Total placements in logarithmic scale

Figure 1: Total amount of placements in the stock exchanges of Quito and Guayaquil, before and after the COVID-19 lockdown Executive Decree.
Source: Superintendencia de Compañías, Valores y Seguros (SCVS).

Figure 1 presents the total amount of financing placed in the stock exchanges by different firms and institutions 12 months before and 12 months after the Executive Decree N°1017 of March 2020. It is shown that the COVID-19 shock did not reflected negatively over the demand and supply of the stock exchange, in fact, it remained constant, and six months after it began to scale and reached over $186 million at the end of the year, almost recovering the same volume of trade as the one registered in March 2019. From April to December the registered trade increased in 238%. The raise of financing alternatives that firms placed in December 2020 probably occurred due to credit limitations from financial institutions due to the agreement to reschedule unpaid installments of debts (including credit cards) for natural individuals and small businesses stated in the law known as "Ley Orgánica de Apoyo Humanitario" – Art. 12 (Ley Orgánica de Apoyo Humanitario, 2020).



a) Total commercial paper traded in millions of dollars



b) Total long-term corporate bonds in millions of dollars

Figure 2: 87% of the total amount of the main placements in the stock exchanges of Quito and Guayaquil, before and after the COVID-19 lockdown Executive Decree.
Source: Superintendencia de Compañías, Valores y Seguros (SCVS).

According to Figure 2, the two main financial instruments traded in the stock exchange before and after the exogenous shock were commercial paper (short-term debt) and long-term corporate bonds. More than $578 millions of commercial paper was traded after the lockdown announcement in March 2020, this represented a 318% increase in December 2020. Commercial paper trading was decreasing and after the cut date, this tendency clearly reversed. On the other hand, long-term corporate bonds transactions dropped in April 2020 and six months later they decreased in 140%. This financial instrument did not recover rapidly (it accumulated $327,8 millions) and did not rise as much as commercial paper ($526,6 millions) during the same months.

Empirical Strategy

The prompt lockdown decree, due to the COVID-19 pandemic, is exploited as the threshold of a regression discontinuity in time (RDiT) model, as in previous research from Burbano (2021), Camino-Mogro & Armijos (2021), Camino-Mogro (2021) and Orellana (2021). This quasi-experimental impact evaluation method assesses the effect that the government policy had over the accumulated placements in the Ecuadorian Exchange Market, considering a (+/- 12 months) bandwidth before and after the Executive Decree took place. Moreover, the impact is also evaluated for the two main placements traded in the market: commercial paper and long-term corporate bonds and the model employs time of the isolation as its running variable (Ito, 2015).

Regarding the RDiT design, its two main conditions are fulfilled, the 197 placements of the sample are continuous from March 2019 until March 2021 and the cutoff of the design is clearly defined by the public policy executed. A Sharp Discontinuity Design (SRD) is considered and assigns every observation in its respective treatment group and control group. Thus, as stated by Imbens and Lemieux (2007) and resembling Camino-Mogro (2020), the estimated treatment effect (TE) that captures change in the exchange market, before and after March 2020, is the following:

$$TE = \lim_{\varepsilon \downarrow 0} E[Y|month = 0 + \varepsilon] - \lim_{\varepsilon \uparrow 0} E[Y|month = 0 + \varepsilon] \quad (1)$$

In addition, under the RDiT model, the main specification is represented as:

$$\ln(total\ amount\ placed)_{it} = B_0 + \beta_1 AfterLockdown + \beta_2 Months + \beta_3 Months * AfterLockdown + \beta_4 Assets_i + \gamma_t + \delta_i + \alpha_i + \varepsilon_{it} \quad (2)$$

Where $\ln(total\ amount\ placed)_{it}$ is the dependent variable that accounts for the amount of financial placements of firm i given at month t. β_0 represents the constant term in the specification. β_1 is the parameter of interest that measures the impact of the lockdown policy over the total amount of financing placed after the intervention. The variable $AfterLockdown$ is a dummy variable that takes the value of 1 for the months after the government executive decree became official and the value of 0 for the preceding months. $Months$ is the running variable of time that stands for twelve months for each side of the threshold and the effect is measured as β_2. An interaction between $Months$ and $AfterLockdown$ is evidenced in the parameter β_3 and it estimates the variation in time trend for the period after the COVID-19 lockdown.

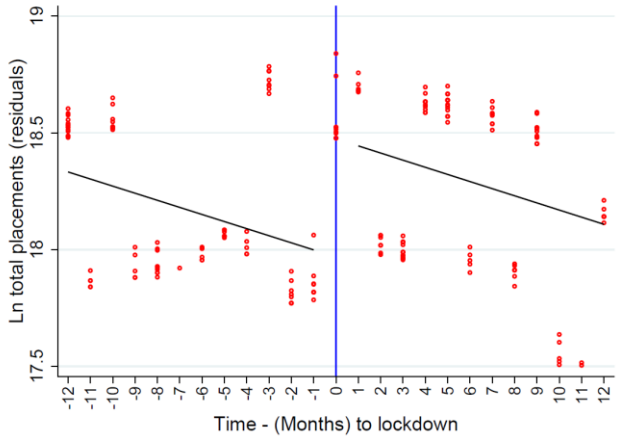
Additionally, $Assets_i$ is a dummy variable that controls for firm size as a fixed effect, and it is equal to 1 when the total assets are equal or greater than the median of the distribution of the assets and equal to 0 if

otherwise. γ_t is a month fixed effect, δ_i is a city fixed effect, α_i is an industry fixed effect and ε_{it} is the error term. Robust standard errors to heteroscedasticity are reported. Furthermore, for the analysis of the amount placed in commercial paper and long-term corporate debt, a triangular Kernel is implemented.

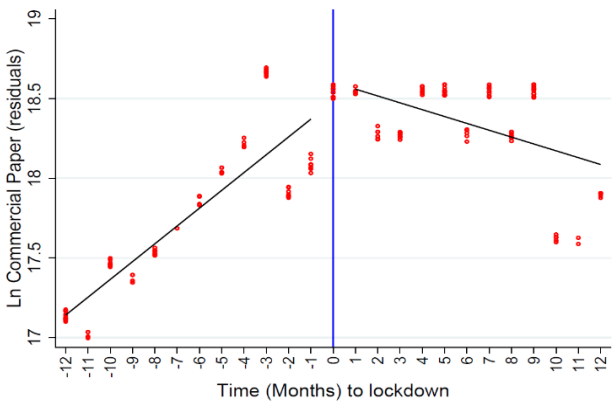
III. Results

Figure 3 includes the RDiT graphs regarding the total amount of placements within a 12-month bandwidth and for specifications (2) and (3) which focus on the same dependent variable, classified by the main financial instruments placed in the stock exchange: commercial paper and long-term corporate bonds, respectively. After a month of the policy implementation, there is a significant increase in the amount of total placements traded by companies in the stock exchange, relative to the preceded period. Although the effect decreases at the final bandwidths, the discontinuity increase is evident.

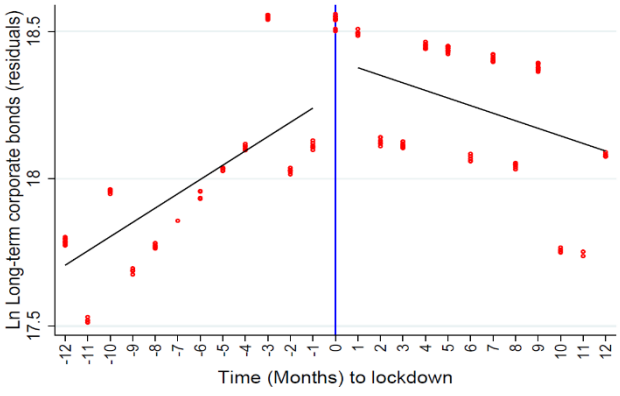
Furthermore, when disaggregating the effect by commercial paper and long-term corporate bonds, the regression discontinuity model, does not change notably. Commercial paper presents an upward trend after the lockdown and has a positive effect certainly because it is a financial instrument of short-term, which allowed companies to gain liquidity during the months when their economic activity was interrupted. On the other hand, long-term corporate bonds report almost the same tendency that this instrument had before March 2020 and even a minor reduction of its trade at the market.



a) RDiT graph of the amount of total placements



b) RDiT graph of the placements of commercial paper



c) RDiT graph of the placements of long-term corporate bonds

Figure 3: Regression discontinuity plot for the main specifications.
Source: Superintendencia de Compañías, Valores y Seguros (SCVS).

Table 1 presents the three main results of the RDiT model. The total amount placed registered a 23,9% increase with a 1% level of significance after the cutoff relative to the amount traded on the twelve previous months. For this model, the interaction term and the dummy variable of the assets are also significant at a 1% level and corroborates the assumption that bigger firms had higher financial needs after the shock. The month fixed effect has a 5% level of significance. Thus, the evidence matches the reports of the Ecuadorian Stock Exchange which affirmed that this market did not fell in 2020. The effective value negotiated reached $23.775 million although the greatest financial instruments traded belonged to the public sector, specially, government bonds which are not included within this sample (Bolsa de Valores Quito, 2021). Different from the negative impact over other economic sectors and aggregate consumption, the financial sector did not stop operating during this time.

Variables	(1) +/-12 months Total amount placed	(2) +/- 12 months Commerical Paper	(3) +/- 12 months Long-term corporate bonds
AfterLockdown	0.239***	0.0382	-0.0428
	(0.0895)	(0.121)	(0.118)
Months	0.000756	-0.116	-0.0636***
	(0.0102)	(0.0710)	(0.0128)
Interaction	-0.0509***	0.0601	0.0282
	(0.0146)	(0.0654)	(0.0268)
Assets	0.667***	0.282***	0.353***
	(0.0595)	(0.0942)	(0.0607)
Month FE	0.0209**	0.0541**	0.0209*
	(0.00943)	(0.0247)	(0.0108)
City FE	0.00632	-0.00160	0.00132
	(0.00552)	(0.00734)	(0.00690)
Industry FE	-0.00669	-0.00727	0.00179
	(0.00998)	(0.0204)	(0.0117)
Constant	17.79***	18.15***	18.11***
	(0.112)	(0.177)	(0.117)
Observations	197	53	99
R-squared	0.447	0.485	0.377

Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table 1: Effect of the COVID-19 lockdown over the Ecuadorian Exchange Market Placements
Source: Superintendencia de Compañías, Valores y Seguros (SCVS).

In the case of the commercial paper negotiated at the stock exchange, there is a 3,82% not significant increase succeeding the lockdown. The company's assets and the month fixed effects of the model are significant at 1% and 5% levels, respectively. Nevertheless, long-term corporate bonds have a negative non-

significant effect of 4,28% the months after the application of the lockdown decree. The distance of the cutoff and the company's assets are significant at 1%, while the month fixed effect has a 10% level of significance.

The global result proves that the COVID-19 crisis urged companies to search for financial alternatives besides traditional loans from the banking sector and this led to an increase of operations at the Ecuadorian Stock Exchange. Non-public institutions were considered in this article and their need of liquidity and immediate financing generated a rise in commercial paper placements, however, the long-term corporate bonds tendency abated after the intervention. Individually, the two main financial instruments did not contrast importantly after March 2020, but their joint impact allowed an increase in the placements negotiated by the biggest companies in the country at the stock exchange.

IV. Conclusions

Even though the COVID-19 lockdown policy of the Ecuadorian government lead to negative impacts over the real sector, the financial sector such as the stock exchange continued its growth and activity overcoming uncertainty during this period. An RDiT design with a bandwidth of +/- 12 months is implemented based on real-time and administrative data provided by the regulatory institution for listed companies "Superintendencia de Compañías Valores y Seguros (SCVS)". The empirical analysis suggests that after March 2020, the amount of placements from non-public companies increased significantly the period after the discontinuity. The recent history and evolution of the Ecuadorian Stock Exchange makes it difficult to identify long-term effects, yet in the short-term companies demanded other financial alternatives that did not suspended their activities. In addition, further research might be assessed with a larger time window to evaluate long-term effects of the placements over the stock exchange.

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