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MARKET REACTIONS TO GOVERNMENT SUPPORT PACKAGES DURING THE PANDEMIC IN NORTH MACEDONIA

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Abstract: The Covid-19 crisis put pressure on governments to design immediate support packages for alleviating the negative economic consequences for households and businesses. In this paper, we examine the stock market's reactions to the announcements of each of the four support packages designed by the Macedonian government during the pandemic year. We find that the magnitude, the target, and the extent of realisation of the support package mattered how investors reacted to the government interventions. The market positively reacted only around the second package which was mainly designed to support firms' liquidity. Once the market consumed the information about the poor realisation of the devised packages, investors remained restrained and uncertain for the upcoming support package. Our findings have important policy implications by showing the differential response to the different types of support packages.

Keywords: Stock market, Covid-19, event study, North Macedonia

JEL classification: G01, G12, G14

Introduction

COVID-19 crisis hit economies around the globe exacerbating global demand and halting global investments. North Macedonia did not remain immune to the pandemic's impact. The country's GDP dropped by 12.7% in the second quarter of 2020 with a widespread negative impact across all sectors. The magnitude of the impact was heterogenous. The manufacturing (together with trade), as well as transport (including leisure) sectors experienced the largest declines, 25.3% and 23.4%, respectively.[1] The governments around the world designed immediate and general (one-size-fits-all) support packages to alleviate the negative impact. Similarly, the Macedonian government had to respond immediately to instigate positive pressure on the domestic demand and stimulate agile recovery, especially in the private sector. The government devised four support packages for the economy during 2020.[2] Each package came with different magnitude and around periods with increasing uncertainty. But how the private sector reacted to the government's support packages? Did the stimulative packages bring back the confidence of investors?

In this paper, we examine the stock market's reactions to the announcements of each of the four government support packages. The government support packages included government financial assistance to firms and households, as well as relief in debt or other payments. The support packages are likely to lead to positive reaction by elevating the investors' confidence and reducing uncertainty. To assess the short-term impact of support packages during the pandemic, we employ an event study methodology and calculate abnormal (ARs) and cumulative abnormal returns (CARs) by constructing different portfolios in the sample. We tend to exploit the specificity and uncertainty around these events and observe stock return dynamics across the events to overcome the shortcomings of the limited sample of frequently traded stocks on the Macedonian Stock Exchange (MSE).

The results show that the magnitude, the target, and the extent of realisation of the support package mattered how investors reacted to the government interventions. The first support package was minimal in scale and the market continued its fall despite the initial intervention. The second package was larger in scale and mainly targeted towards the support of liquidity of businesses (with wage subsidies). The market positively reacted to the announcement of the second package anticipating the alleviating effects of the package. The third package was large in scale but mainly targeted towards the support of households and of the most affected sectors (trade and tourism). The market remained restrained around the announcement of the third package and uncertain about the positive spill-over effects of the package. Finally, the investors stayed cautious around the announcement of the fourth package which

[1] See, Finance Think (2020).

[2] Two additional support packages have been designed at the beginning of 2021, however the uncertainty around those events is lower due to the start of the vaccination process.

was the largest in scale but came after the market updated the low realisation prospects due to the poor government's completion of the previous packages.

Our paper is related to the growing literature on the stock market reactions to the disease outbreaks and to the government interventions during the Covid-19 pandemic. One group of studies exploit the market reactions to the Covid-19 outbreak to uncover the important characteristics which make firms more resilient during Covid-19. Acharya & Steffen (2020), Ding et al. (2021), Fahlenbrach et al. (2021) and Ramelli & Wagner (2020) highlight the role of liquidity constraints during Covid-19 and Albuquerque et al. (2020) and Ding et al. (2021) emphasize the importance of firms' CSR (corporate and social responsibility) policies in making firms more resilient during the pandemic. Another group of studies analyse the market reactions to the start of the pandemic to sort out the most from the least affected sectors (e.g., Alam et al., 2021; Alfaro et al., 2020; Davis et al., 2020; Ramelli & Wagner, 2020). These studies focus on developed markets. Our analysis differs from the others because it targets a less developed country with an underdeveloped financial market and a government's limited fiscal capacity to provide support to the affected households and businesses.

Additionally, our study is more closely related to the literature which analyses the market reactions to the government interventions during Covid-19. One group of researchers explore the differential market reaction to different types of government interventions, such as social distancing measures, containment and health response, and various stimulative policies (e.g., Ashraf, 2020; Baker et al., 2020; Yang & Deng, 2021). Another group of studies examine the market reaction to certain stimulative packages and policy events. For instance, Albuquerque et al. (2020) and Fahlenbrach et al. (2020) observe the stock market movements around President Trump's signing of the second Coronavirus Emergency Aid Package (March 18) or the stimulative measures of the Fed and Congress (passed on March 23). Moreover, Heyden & Heyden (2021) and Klose & Tillmann (2021) analyse the market response of international financial markets to various monetary, fiscal, or liquidity-assistance policy announcements. Both studies agree on the effectiveness of monetary policies in easing of financial pressures caused by the pandemic, however, they disagree over the effects of fiscal policies. Our study targets the latter and provides insights about the effectiveness of stimulative packages in reducing market uncertainty. Finally, our study relates to the more locally oriented literature on Covid-19 impact on different types of entities, such as insurers (Stojkoski et al., 2021), banks (Geogrieva et al., 2021), exporters (Srbinoski et al., 2022) or small and medium enterprises (Jolevski & Madzarevic-Sujster, 2022) in North Macedonia.

The paper is organised as follows: In the next section, we provide the timeline of announcements related to the government's support packages. In Section 3, we describe our experiment design and data. In Section 4, we present and discuss the empirical results. The last section is reserved for concluding remarks.

Support Packages and Announcement Dates

On **March 18th, 2020**, the Vice Prime Minister for Economic Affairs, Mila Tsarovska, announced the first support package for the domestic economy (Sloboden Pecat, 2020). The package included temporary and conditional contributions subsidies, interest-free loans for micro, small and medium enterprises from the Development Bank of North Macedonia amounting 5.5 million euros and recommendations for reorganisation of production and transport. The package was minimal in scale and announced in the wake of the pandemic when the number of infected was increasing.

On **March 31st, 2020**, the Prime Minister Oliver Spasovski announced the list of the second support package (Konstantinovic & Milosevski, 2020). This package was larger in scale including financial support for enterprises such as wage subsidies, additional interest-free loans, loans from the Development Bank, loan payments deferrals, loan reprogramming, unemployment benefits for those who lost their job during the crisis, as well as limitations for wage and other payments for certain citizen categories (members of the Parliament, members of the governing bodies etc.). The total amount of the first and second support package equaled 200 to 250 million euros or 2% of GDP.[3]

On **May 17th, 2020**, the Prime Minister presented the third support package, generally directed towards stimulating domestic demand (Petrushevska, 2020a). The third package was estimated to be 355 million euros and included payment cards for buying Macedonian products, vouchers for domestic tourism and co-financing training and other courses, interest-free loans and grants for stimulating digitalization and innovations, as well as financial support for agricultural and health workers.

Finally, on **September 27th, 2020**, the Prime Minister announced the fourth support package (Petrushevska, 2020b). It included 31 measures which were extensions to the existing measures such as, wage subsidies for businesses, payment cards for households, favorable-terms loans from the Development Bank, loan payment deferrals, and some new measures including lowering the import tariffs for some products, state guarantees and additional support for tourism and hospitality sector. The estimated value of the fourth package was 470 million euros.

In period of increasing uncertainty generated by the Covid-19 crisis, the announcement of each package represents a potential new information for investors which may update their current expectations how the pandemic and economic situation would evolve in the country. Since the pandemic put downward pressure on market's expectations, we assume that the announcements of the support packages should trigger price reversals if the investors raised their expectations after the announcements.

[3] More about the value of the support packages on https://koronavirus.gov.mk/merki/ekonomski-merki.

Data and Methodology

We collect daily data series for the period January 2019 – September 2020 from the Macedonian Stock Exchange (MSE). We extract the firms with more frequent trading and create a sample of 18 firms, ten of which constituted the MSE's main index MBI10. Banks have the dominant presence comprising half of the sample. The rest of the sample belongs to the Manufacturing (3), Oil (2), Construction (2), Communication (1), Pharmaceuticals (1), Tourism (1) and Other services (1). We take four events and perform event study methodology: 1) the announcement of the first support package (March 18, 2020); 2) the announcement of the second support package (March 31, 2020); 3) the announcement of the third support package (May 17, 2020); and 4) the announcement of the fourth support package (September 27, 2020).

We calculate the daily returns as the first natural logarithmic difference of the underlying stock price. We estimate the abnormal returns using a historical mean model (HMM), which approach differs from the common practice of using market models. The preference for HMM comparing to the market models relies on the following: 1) the sample is limited and mainly contains firms included in the MBI10 index; hence, the use of MBI10 as a market factor would significantly reduce the variance and generate unpredictable results; [4] 2) Dyckman et al. (1984) and Brown & Warner (1985) provide evidence that single market model and HMM produce comparable results; 3) to avoid the impact of divergence from the normality assumption of stock returns on the estimation results, we test the significance of the abnormal returns using the Kolari and Pynnonen (2011) non-parametric generalised rank test which does not suffer from a serial correlation of abnormal returns or event-induced volatility. We use the following equations to estimate abnormal returns (ARs) and cumulative abnormal returns (CARs): [5]

$$AR_{i,t} = R_{i,t} - \mu_i \tag{1}$$

$$CAR_i(t_1, t_2) = \sum_{t=t_1}^{t_2} AR_{i,t} \tag{2}$$

where $R_{i,t}$ is the raw stock return of firm i at time t, μ_i is the average return of firm i for the estimation period, t_1 is the lower bound and t_2 is the upper bound of the event window. Finally, we build three portfolios to evaluate the aggregate and group reaction to the event: 1) the sample portfolio consisted of 18 stocks, 2) a banking portfolio comprised of 7 banks, and 3) a non-banking portfolio composed of 11 non-

[4] We estimate a single factor market model using MBI10 as a factor. The model produces (significant) abnormal returns for some firms when daily trading was absent. See, also Srbinoski et al. (2021).
[5] The Estudy Command in STATA developed by Pacicco et al. (2018) was utilized to calculate the abnormal and cumulative abnormal returns.

banks.[6] Also, we analyse the movements of MBI10 index around the events. We select fixed estimation period January 31, 2019 – January 31, 2020, to avoid the influence of the pandemic-induced volatility on stock returns and the following set of event windows: [-5,0], [-1,0], [0,0], [0,1] and [0,5].[7]

Empirical Results

The announcement of the first support package corresponds to the announcement of the state of crisis by the President Stevo Pendarovski on March 18, 2020. Despite this announcement, the negative movements on stock market began at least one week before the announcement when most of the country neighbors announced the state of crisis. The negative shock is systematic and the cumulative abnormal returns five days before the announcement of the first support package equaled -17.1% for the sample portfolio (Table 1: Panel A). The fall continued after the announcement of the first support package. The CAR of the non-banking portfolio had permanent fall during whole week after the announcement, while the CAR of the banking portfolio had short-term fall, immediately after the announcement of the state of crisis and first support package. Therefore, we argue that the first packaged was perceived as a non-sufficient to generate confidence in investors for alleviating the negative consequences of the pandemic, especially for the non-banks.

We observe a significant market response one day before the announcement of the second support package which might be related to the pre-announcement of part of the package by the leader of ruling party, Zoran Zaev, on March 30, 2020. The market reaction is especially pronounced among the MBI10 stocks with the rise of CAR[-1,0] of 10.4%, and among the banks with the increase CAR[-1,0] of 7.7% (Table 1: Panel B). The next day after the announcement, we observe a small downward correction which may indicate an overly optimistic market reaction to the initial announcement. During the whole week after the announcement, there is a positive market reaction indicating improved prospects for the domestic economy facing the pandemic consequences. In summary, the size and the form of the second package was sufficient for the investors to be more confident in the upcoming period.

[6] The limited sample does not allow to create sectoral portfolios, large enough to result in diversified portfolios. The largest sector in terms of number of entities in the sample is the banking sector. We decide to build a separate portfolio for the banking sector and an alternative portfolio comprised of non-financial entities.

[7] Generally, the trading year on the MSE consists of 245 trading days. If the event falls on Sunday then the event window [0,0] has no results and the event day is considered [0,1].

Table 1: Cumulative abnormal returns around four government announcements

Table 1 presents the cumulative abnormal returns (CARs) for the following event windows: [-5, 0], [-1, 0], [0, 0], [0, 1] и [0, 5] where $t = 0$ is the event date. CARs are calculated based on the historical mean model $AR_{i,t} = R_{i,t} - \mu_i$. There are three portfolios and the MBI10 index: 1) a sample portfolio consisted of 18 stocks, 2) a banking portfolio comprised of 7 banks, and 3) a non-banking portfolio composed of 11 non-banks and 4) MBI10 Index. The significance of the CAR is evaluated using the Kolari and Pynnonen (2011) non-parametric generalised rank test. ***, **, * denote 1%, 5% and 10% significance levels, respectively

Panel A: First support package (March 18, 2020)					
	CAR[-5,0]	CAR[-1,0]	AR[0,0]	CAR[0,1]	CAR[0,5]
Sample	-17.1%***	-5.2%***	-2.7%***	-5.2%***	-6.2%***
Non-banks	-15.7%***	-5.1%***	-2.5%***	-4.9%***	-8.3%***
Banks	-19.2%***	-5.3%***	-2.9%***	-5.8%***	-2.9%**
MBI10	-26.6%***	-7.4%***	-4.5%***	-7.9%***	-4.8%***
Panel B: Second support package (March 31, 2020)					
Sample	-1.6%	5.5%***	4.2%***	2.0%***	11.8%***
Non-banks	-2.4%*	4.0%***	3.0%***	0.9%	10.6%***
Banks	-0.4%	7.7%***	6.1%***	3.7%***	13.7%***
MBI10	2.9%**	10.4%***	6.7%***	3.9%***	17.2%***
Panel C: Third support package (May 17, 2020)					
Sample	-2.4%**	-1.0%**	Sunday	-0.2%	0.3%
Non-banks	-2.8%**	-1.6%***	Sunday	-0.3%	0.2%
Banks	-1.8%	-0.1%	Sunday	-0.1%	0.3%
MBI10	-1.4%	-0.8%	Sunday	-0.7%	-0.7%
Panel D: Fourth support package (September 27, 2020)					
Sample	-0.5%	0.4%	Sunday	-0.2%	1.6%
Non-banks	-0.2%	0.3%	Sunday	0.2%	2.5%
Banks	-1.1%	0.5%	Sunday	-0.7%	0.1%
MBI10	-1.3%	0.4%	Sunday	-0.6%	0.1%

Source: Authors' calculations

The third support package came a month and half after the announcement of the second support package. It was gradually communicated within one week before the official announcement. In the same week, the Plan for reducing the restrictive

measures imposed by the government was adopted. Investors negatively responded to the announcements and restructured their portfolios away from the non-banking sectors. The CAR[-5,0] before the announcement of the third support package equaled -2.8% for the non-banking portfolio (Table 1: Panel C). After the announcement of the third package, we observed no abnormal movements indicating that the market remained restrained and waited for further development of the pandemic and implementation of the previous support measures. The last result suggests that the market uncertainty did not decrease with the announcement, although the third support package was the largest in scale and mainly oriented towards stimulating domestic demand.

The announcement of the fourth support package came after the initial assessment of the implementation of the previous three support packages which showed slow and poor realisation of the planned actions. The fourth package was combination and extension to the second and third package and it was largest in scale, but the announcement of the same did not cause any market reaction. The fourth package did not bring back the investors' confidence in the face of the autumn wave of Covid-19 spread (Table 1: Panel D). The investors remained cautious considering the slow implementation of the planned actions and waiting for the pandemic development in the upcoming period.

Conclusion

Each government needed an immediate response to the unprecedented economic turmoil caused by the pandemic. The government of North Macedonia initially devised four support packages to support domestic demand and private sector, while facing significant fiscal and borrowing constraints. Each package came with different magnitude and around periods with increasing uncertainty. We examine the stock market's reactions to the announcements of each of the four government support packages by using event study methodology.

We find that the magnitude, the target, and the extent of realisation of the support package mattered how investors reacted to the government interventions. The first support package was minimal in scale and the market continued its fall despite the initial intervention. The second package was larger in scale and mainly targeted towards the support of liquidity of businesses (with wage subsidies). The market positively reacted to the announcement of the second package anticipating the alleviating effects of the package. The third package was large in scale but mainly targeted towards the support of households and of the most affected sectors (trade and tourism). The market remained restrained around the announcement of the third package and uncertain about the positive spill-over effects of the package. Finally, the investors stayed cautious around the announcement of the fourth package which was the largest in scale but came after the market updated the low realization prospects due to the poor government's completion of the previous packages.

Our study has several policy implications. During systemic events, governments need to prepare immediate and sizable actions to alleviate the downward pressures on domestic economy. The systemic nature of the pandemic event did not leave time and space for governments to design targeted economic measures. In such situation, the size of the support was crucial in bringing back the investors' confidence. Additionally, the government's interventions directed towards businesses (such as wage subsidies) instigated positive market reaction, while the support directed towards stimulating demand did not cause any reaction. Presumably, the effects of the direct liquidity-assistance programs are easily anticipated and understood rather than indirect demand-driven effects. Finally, the slow implementation of the government interventions may reduce their effectiveness. The second and the fourth package were similar in scope and in scale, however the market positively reacted only on the second. The investors learned the implementation issues of the previous packages and remained restrained around the following announcements.

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REAKCIJE TRŽIŠTA NA PAKETE PODRŠKE VLADE TOKOM PANDEMIJE U SEVERNOJ MAKEDONIJI

Apstrakt: Kriza izazvana virusom Covid-19 izvršila je pritisak na vlade zemalja da osmisle hitne pakete podrške za ublažavanje negativnih ekonomskih posledica po domaćinstva i preduzeća. U ovom radu ispitujemo reakcije berze na najave svakog od četiri paketa podrške koje je osmislila makedonska vlada tokom pandemijske godine. Smatramo da su veličina, cilj i obim realizacije paketa podrške bili važni s obzirom na to kako su investitori reagovali na intervencije vlade. Tržište je pozitivno reagovalo samo povodom drugog paketa mera, koji je uglavnom bio dizajniran tako da podrži likvidnost preduzeća. Kada je tržište prihvatilo informacije o lošoj realizaciji zamišljenih paketa, investitori su ostali uzdržani i nesigurni povodom predstojećeg paketa podrške. Rezultati našeg istraživanja imaju važne implikacije na politiku jer prikazuju različit odgovor na različite vrste paketa podrške.

Ključne reči: berza, Covid-19, studija događaja, Severna Makedonija.

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Stevco Meceski is an Assistant Professor at the Faculty of Tourism and Hospitality – Ohrid, University St. Kliment Ohridski – Bitola, where he obtained all his academic titles and has been working since 2004. His main areas of scientific interest are marketing management, marketing research, channels of distribution, insurance operations and management in insurance. He teaches the following courses: Marketing Research, Insurance Operations, Agricultural Insurance, Insurance in Tourism and Hospitality, Channels of Distribution (basic academic level); Reinsurance, Organization and Management of Life and Health Insurance Companies, Consumer Behavior, Marketing Research (master's academic level); Contemporary Insurance Distribution Channels (doctoral academic level). He is the author of many papers published in conference proceedings and international relevant journals. He has participated in several scientific, professional and research projects.

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