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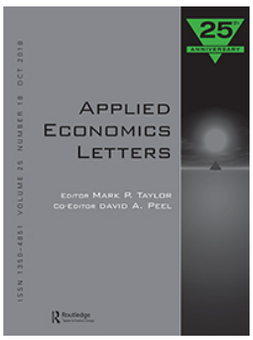

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ARTICLE

Abnormal stock returns of Greek banks during COVID-19: an event study

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ABSTRACT

This paper aims to disentangle the impact of the COVID-19 crisis on four major Greek bank stocks that were traded in the Athens Stock Exchange during the period the pandemic begun. To this end we employ an event study methodology and estimate Cumulative Abnormal Returns (CARs) that stem from three key announcement dates. These dates include two monetary policy and a major health news announcement. The four banks we focus on are the National Bank of Greece, Eurobank, Alpha Bank and Piraeus Bank. We calculate abnormal stock returns in windows of ±10, ±5, ±2, ±1 and day of the announcements, and report that monetary policy announcements either do not affect stock performance or their effect is only mild, while health news have a positive impact on stock returns.

KEYWORDS

COVID-19; banks; stock market; health news

JEL CLASSIFICATION

G10; G14; E58

I. Introduction

In an effort to combat the spread of the novel COVID-19 pandemic, the Greek government implemented a set of strict social distancing policies that included a nationwide quarantine and the ephemeral termination of business activity. This abrupt halt to an economy that was only just beginning to show signs of life, led to one of the largest shocks the Greek corporate sector has experienced in recent years, and left businesses scrambling for cash to cover their costs. In these conditions, the Greek banking sector has a pivotal role to play in securing that credit lines remain intact for as long as the effects of the crisis are felt (Acharya and Steffen 2020), and irregardless of the fact that Greek banks have faced a decade of fiscal austerity.

In this uncertain period the European Central Bank (ECB), revitalized its Quantitative Easing (QE) program through the introduction of the Pandemic Emergency Purchase Programme (hereafter PEPP). Since non-standard monetary policies have been heavily criticized in the past regarding their effectiveness, it is important to assess whether the most recent programme managed to alleviate pressure from the market. To this end we conduct an event study to detect abnormal returns and quantify what was the stock market reaction of Greek banks to monetary policy and health announcements. Specifically, we identify three important events (two monetary policy and one health-related announcement) in the examined time period that play an important role in the performance of Greek bank stock returns. The motivation behind the dates chosen is that monetary policy announcements should restore market security, while major health-related announcements are of the outmost importance in times of major health crises and play a pivotal role on bank performance (Salisu and Vo 2020).

The contribution of this paper is threefold. First, we identify abnormal stock returns of Greek banks in a period of extreme volatility and turbulence. Second, our results indicate that monetary policy announcements, in most cases, only manage to slow down negative stock returns, while health announcements lead to excess positive returns, signifying their increased importance in times of a global health emergency. Third, as Greece was not previously eligible to participate in QE programmes, this is the first attempt at assessing how its bank stocks performed during this announcement window.

There is a plethora of literature selection that investigates the effects of COVID-19 on stock market returns (Alexakis, Eleftheriou, and Patsoulis 2021; Hung, Hue, and Duong 2021; Ramelli and Wagner 2020) and its growing by the day. Since the scale and swiftness of the crisis was unpresented, it is of outmost

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importance to quantify the effect of the shock on bank stock returns and how certain monetary policy and health announcements affected them. To this end, we consider the case of Greek banks, since it offers us the ability to study a banking system that has been restructured (to the four systemic banks of today) and was, up until recently, experiencing a long period of depression with a considerable amount of non-performing loans and corporate defaults (Pasiouras and Tsagkarakis 2021). Greek banks offer a unique opportunity to better understand the performance of a strained banking sector under conditions of extreme uncertainty. Additionally, the fact that all four banks have a strong international presence, is an opportunity to better understand how multinational banks with internal capital markets handle risk shifting operations amongst the main institution and their foreign entities (Campello 2002; Jeon, Olivero, and Wu 2013).

This work falls to the growing segment of literature that attempts to disentangle the effects of how an exogenous shock such as COVID-19 has affected bank performance (Berger and Demirgüç-Kunt 2021; Demirgüç-Kunt, Pedraza, and Ruiz-Ortega 2021; Duan et al. 2021; Harjoto, Rossi, and Paglia 2021) and to the best of the authors' knowledge, this is the first attempt to empirically assess the effects of monetary policy and health-related announcements on the stock market returns of Greek banks.

II. Methodology and data

This study follows an event study approach which is rooted back to the seminal work of Fama et al. (1969) and Fama (1970) on the efficient market hypothesis. For a market to be considered efficient, all available information to market participants is depicted on prices. Here we have to make an important assumption that capital markets are efficient enough to react and incorporate new information on future profits.

Exogenous shocks to the financial system, such as pandemics, stress market participants and pressure financial markets, leading to the irrational behaviour of investors. In this study we will assess three distinct events that should alleviate market pressure, with an event study approach. Two of these events take place on March 18 and April 7 of 2020 (monetary policy responses),[1] while the last one takes place on 9 November 2020 (health announcement).

To calculate abnormal returns, we apply the market model to four major Greek commercial banks traded in the Athens Stock Exchange during the COVID-19 period and estimate CARs. The banks included in the model are National Bank of Greece, Eurobank, Alpha Bank and Piraeus Bank. The dataset begins on the 21 September 2019 and ends 23 November 2020. All data on stock prices were collected from investing.com and returns were calculated as relative changes (as depicted in Figures 1–3).

The Athens Stock Exchange Index represents the typical example of a 'weak form' efficiency index, since events are not incorporated in stock prices immediately (Kavussanos and Dockery 2001; Siourounis 2002). To this end the bank's beta is estimated on a period of 100 days before each one of the event dates takes place. We continue our analysis by defining Day 0 as the day of one of the three announcements (PEPP, Greek debt acceptance and vaccine announcements). We also include event windows of ±10, ±5, ±2, ±1 and the day of the announcement in order to further extend our robustness tests.

The residuals of the estimated market model are tested with the nonparametric generalized rank (GRANK) test of Kolari and Pynnonen (2011). The events tested include the announcement of PEPP (18 March 2020), the acceptance of Greek bonds as collateral from the ECB (7 April 2020) and finally the discovery of effective vaccines against COVID-19 (9 November 2020). In all cases abnormal returns were calculated against the Athens Stock Exchange.

III. Results and discussion

The first event was the announcement of PEPP on 18 March 2020. Table 1 reports CARs for the event, on a ten-day prior, to a ten-day after the event window, for all the banks considered in the

[1]An additional important monetary policy announcement considered in the analysis was January 22, 2015 (announcement of the first ECB asset purchase programme). Applying the model on that date reveals significant negative impact on Greek banks stock returns, as Greek debt was not eligible based on the criteria of the programme. Results for that particular date are not included for reasons of parsimony and are available upon reasonable request.

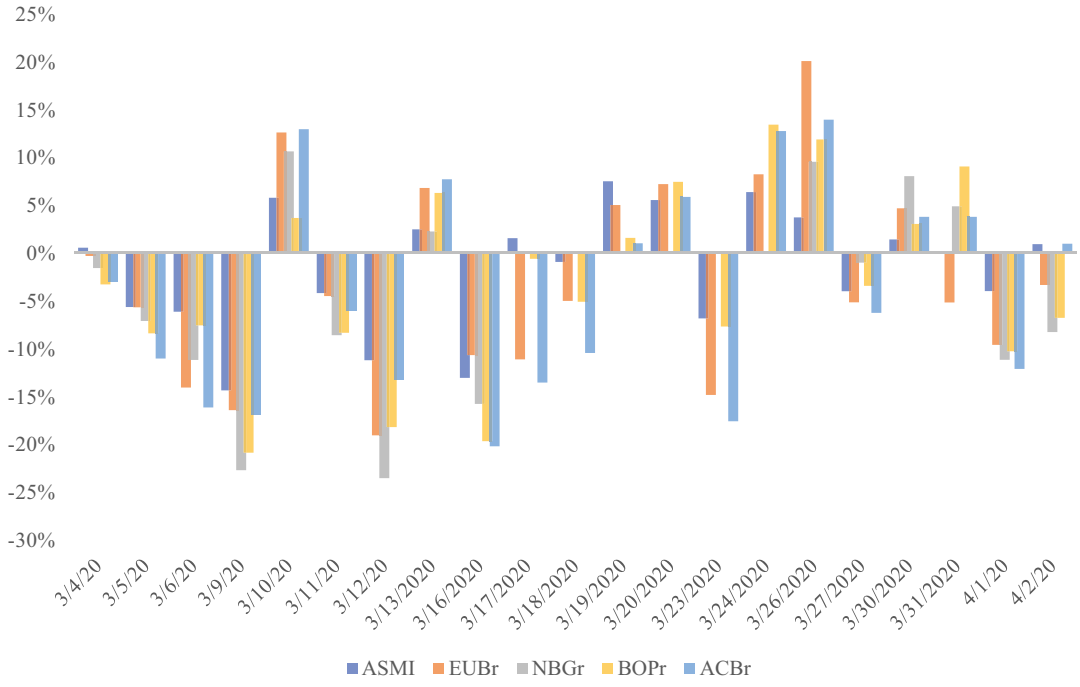

Figure 1. Daily stock Returns (PEPP announcement). *Notes*: Stock returns for all four Greek systemic and the Athens Stock Exchange Index (March 4, 2020 to April 2, 2020).

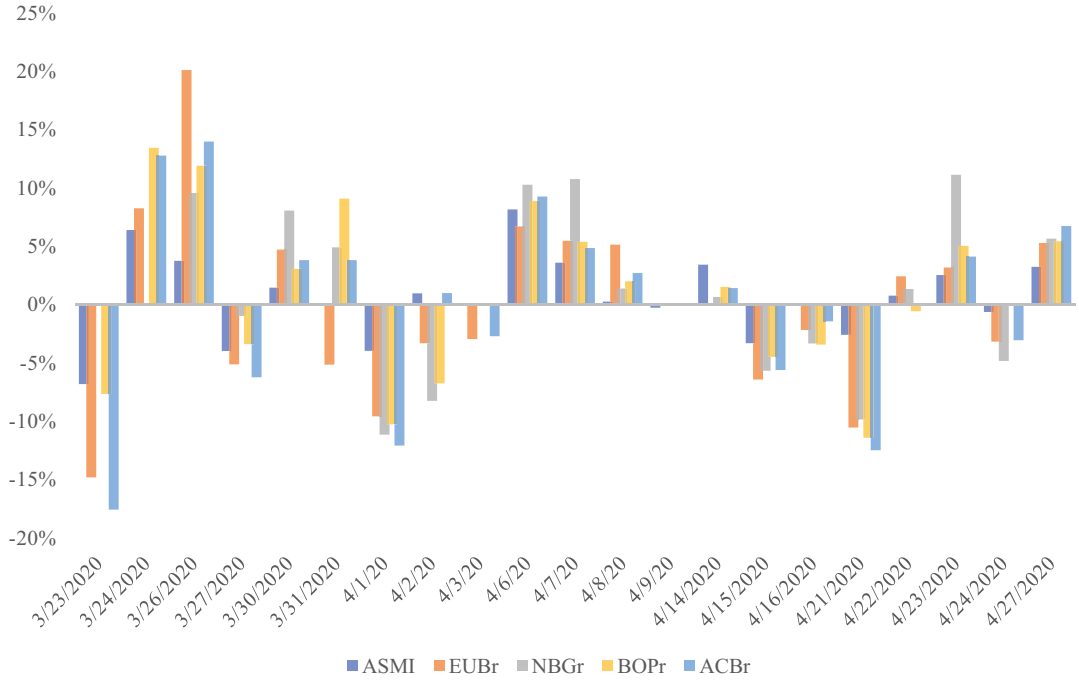

Figure 2. Daily stock returns (Greek debt acceptance from ECB). *Notes*: Stock returns for all four Greek systemic banks and the Athens Stock Exchange Index (March 23, 2020 to April 27, 2020).

model. In this time period findings indicate that Alpha Bank is the only bank that is systematically affected by the event with negative and statistically significant CARs at the 1% confidence level. Piraeus Bank is affected two days before the event and two days after it, something that is true also about Eurobank, which is also affected ten days after the event as well. As for the stock of the

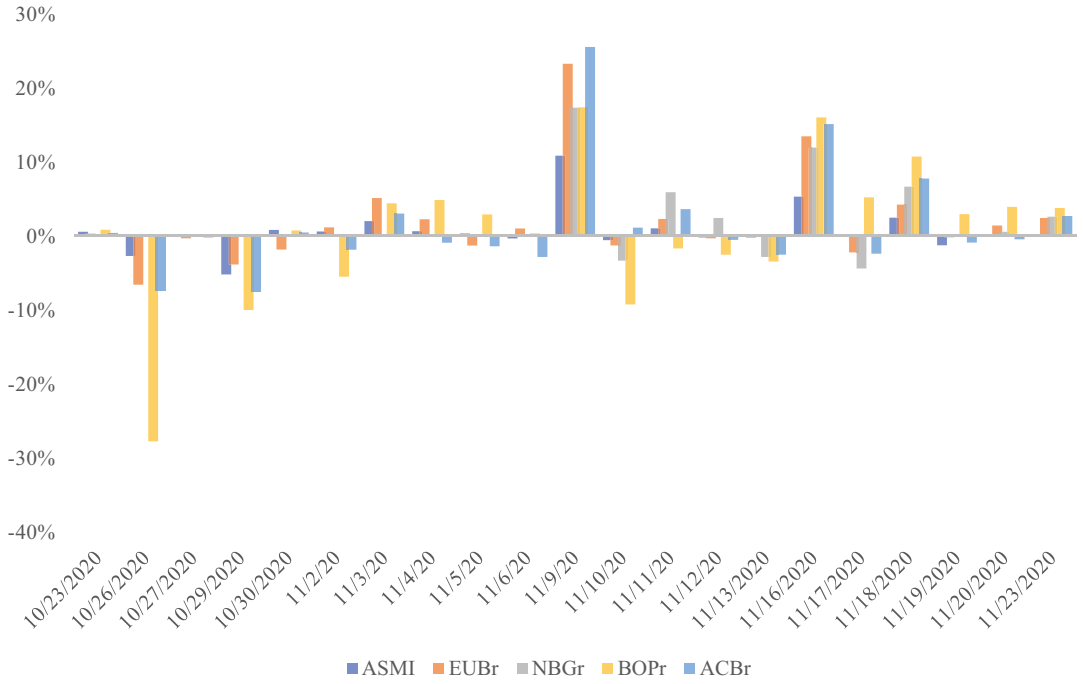

Figure 3. Daily stock returns (Vaccine announcement). *Notes*: Stock returns for all four Greek systemic banks and the Athens Stock Exchange Index (October 23, 2020 to November 23, 2020.

Table 1. ECB announcement of PEPP.

Event Window/ Bank	11 days (-10; 0)	6 days (-5; 0)	2 days (-1; 0)	1 day (0; 0)	2 days (0; 1)	6 days (0; 5)	11 days (0; 10)
Eurobank (EUBr)	0.085	−0.001	−0.168***	−0.033**	−0.104***	−0.035	−0.119**
	(−0.113)	(−0.797)	(0.000)	(−0.032)	(0.000)	(−0.361)	(−0.027)
National Bank of Greece (NBGr)	−0.100**	−0.077**	−0.007	0.015	−0.095***	−0.125***	−0.111**
	(−0.034)	(−0.023)	(−0.71)	(−0.272)	(0.000)	(0.000)	(−0.019)
Piraeus Bank (BOPr)	−0.008	−0.001	−0.064***	−0.033**	−0.147***	−0.040	−0.018
	(−0.870)	(−0.987)	(−0.002)	(−0.022)	(0.000)	(−0.228)	(−0.717)
Alpha Bank (ACBr)	−0.242***	−0.189***	−0.248***	−0.091***	−0.188***	−0.163***	−0.176***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(−0.02)

Notes: CARs of the Pandemic Emergency Purchase Programme. ***, ** and * are the nonparametric generalized rank (GRANK) test results of Kolari and Pynnonen (2011) at the 1%, 5% and 10% level of significance respectively.

National Bank of Greece, it seems unaffected by the date of the announcement, but it is affected ten days prior and ten days after the announcement. It is also important to note that while all CARs are negative, the day of the announcement banks reported their lowest losses, indicating a positive effect of PEPP on their stock prices.

Moving on to the second major announcement (inclusion from the ECB of Greek debt as collateral), 7 April 2020, we report (Table 2) no

Table 2. ECB announces the acceptance of Greek debt instruments as collateral.

Event Window/ Bank	11 days (-10; 0)	6 days (-5; 0)	2 days (-1; 0)	1 day (0; 0)	2 days (0; 1)	6 days (0; 5)	11 days (0; 10)
Eurobank (EUBr)	0.004	−0.182***	−0.03	0.01	0.062*	−0.005	−0.059
	(0.641)	(0.006)	(0.422)	(0.696)	(0.092)	(0.941)	(0.512)
National Bank of Greece (NBGr)	0.154*	−0.024***	0.063*	0.064***	0.079**	0.014	0.026
	(0.061)	(0.690)	(0.061)	(0.007)	(0.020)	(0.812)	(0.757)
Piraeus Bank (BOPr)	0.153**	−0.033	−0.017	0.007	0.028	−0.015	−0.054
	(0.025)	(0.505)	(0.553)	(0.717)	(0.310)	(0.768)	(0.422)
Alpha Bank (ACBr)	0.045	−0.043	−0.01	0.005	0.035	0.005	−0.059
	(0.670)	(0.572)	(0.821)	(0.875)	(0.419)	(0.954)	(0.574)

Notes: CARs of ECB accepting Greek debt (specifically bonds) announcement. ***, ** and * are the nonparametric generalized rank (GRANK) test results of Kolari and Pynnonen (2011) at the 1%, 5% and 10% level of significance respectively.

Table 3. Announcement of Covid-19 vaccine.

Event Window/ Bank	11 days (-10; 0)	6 days (-5; 0)	2 days (-1; 0)	1 day (0; 0)	2 days (0; 1)	6 days (0; 5)	11 days (0; 10)
Eurobank (EUBr)	0.076	0.074**	0.06***	0.042***	0.041*	0.097***	0.137***
	(0.142)	(0.048)	(0.005)	(0.005)	(0.055)	(0.01)	(0.009)
National Bank of Greece (NBGr)	0.043	−0.1**	−0.035	−0.044***	−0.064***	−0.002	0.035
	(0.453)	(0.015)	(0.131)	(0.008)	(0.006)	(0.971)	(0.543)
Piraeus Bank (BOPr)	−0.207***	0.007	−0.012	−0.026	−0.104***	−0.113**	0.152**
	(0.002)	(0.897)	(0.679)	(0.177)	(0.000)	(0.020)	(0.024)
Alpha Bank (ACBr)	−0.036	−0.017	0.05**	0.07***	0.093***	0.155***	0.208***
	(0.517)	(0.674)	(0.032)	(0.000)	(0.000)	(0.000)	(0.000)

Notes: CARs related to the announcement of effective vaccines against Covid-19. ***, ** and * are the nonparametric generalized rank (GRANK) test results of Kolari and Pynnonen (2011) at the 1%, 5% and 10% level of significance respectively.

statistically significant effect for Alpha Bank and only one statistically significant date for Piraeus Bank (ten days prior to the event with a CAR of 0.153). Eurobank is also affected on two different dates from the event (negatively five days prior and positively two days after the event) and finally the National Bank of Greece is systematically affected by the event with a maximum estimated CAR value of 0.154, ten days before the announcement and statistically significant at the 10% confidence level.

Table 3 reports the impact of the newly discovered COVID-19 vaccine, which was announced on 9 November 2020. This event is the only one to consistently affect stock returns positively, with Alpha Bank reporting the highest CARs ten days after the event, Piraeus Bank on a similar note reports its highest CARs also ten days after the event, while the National Bank of Greece is the only bank either not affected at all or negatively affected by the announcement. Finally, Eurobank is positively affected by the event for five out of the six specified event window dates.

The fact that this type of announcement outperforms monetary policy announcements, indicates that in times of health emergencies, major health news play a pivotal role in investor confidence, something that policymakers should acknowledge and consider when designing monetary policy responses to health emergencies. This also offers new insights on how markets perceive bank related risk during periods of elevated uncertainty. To alleviate this increased economic uncertainty Greek banks require reaffirming actions from the side of regulators and inventive survival tactics from their leadership in order to avoid the destabilization of the sector. This could be expressed through ephemeral favourable policies from the former and increased digitalization (Ben Ali 2022) from the latter.

IV. Conclusions

This paper attempted to disentangle the impact of the COVID-19 crisis on four major systemic bank stocks traded in the Athens Stock Exchange. To this end, we employed an event study methodology to examine the derived bank stock returns from three major announcements (two financial and one health announcement).

The four banks included in this study were the National Bank of Greece, Eurobank, Alpha Bank and Piraeus Bank and abnormal stock returns were calculated for a maximum of ten-day prior and ten-day afterwards period, for each one of the specified events (PEPP, Greek debt acceptance and vaccine announcements). An interesting contribution of this study is that during the estimation period only the health-related announcement managed to consistently produce positive results, while monetary policy announcements, either had little or no affect at all.

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