

# Assessing the Sources of Heterogeneity in Eurozone Response to Unconventional Monetary Policy

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## Abstract

Following the Global Financial Crisis and the euro area Sovereign Debt Crisis, several papers study the impact and effectiveness of the European Central Bank's Unconventional Monetary Policy. However, in most cases their attention was devoted to the reaction in the countries or sectors at the aggregate level. We assess the reaction at a more disaggregated level by looking at the impact on 17 sectors inside each country of the euro area. Adopting an event-study methodology coupled with an ordered probit regression, we explain the reaction of each sector with some bank-level and country-level variables. Our main findings show that variables related to the nature of banking industry (e.g. cost-to-income, return on assets, and credit risk), macroeconomic environment (e.g. gross debt) and macroprudential policy all contribute to observe diverging responses to ECB's monetary policies. While some sectors and countries responded more negatively than positively to the policies, the Unconventional Monetary Policy impacts the markets positively overall.

*Keywords:* Event-study, Ordered probit, Heterogeneity, Cross-country, Cross-sector, UMP

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## 1. Introduction

*‘[...] if we want to avoid overburdening monetary policy, then policymakers need to act more forcefully to reduce the major sources of euro area heterogeneity, that is, we need a better economic policy framework’ (Cœuré, 2019)*

The statement above by Benoît Cœuré, member of the Executive Board (2012-2019) of the European Central Bank (ECB), emphasises three important issues: heterogeneity in the euro area, its implication for responses to monetary policy, and corrective policy actions to address this heterogeneity<sup>1</sup>. Indeed, twenty years after the introduction of the single currency, convergence among the member states is still a concern. While substantial improvements were achieved in terms of nominal convergence (inflation, interest rates), real convergence, synchronous business and financial cycles, the magnitude of these cycles is still widening (Franks et al., 2018). This latter observation is particularly true with the advent of the Global Financial Crisis (GFC) (Oman, 2019), which revealed the inefficiency of conventional monetary tools to respond adequately to such a crisis (Mishkin, 2009). The banking sector in the euro area, impacted by the U.S. subprime crisis, posed a great challenge for access to financing among firms and households. The ECB thus resorted to additional non-standard (unconventional) measures to help ensure a return to growth in the euro area economy. The heterogeneity across member states, however, does not ease the conduct of a single monetary policy and could impair its uniform transmission. Beyer et al. (2017) confirm that *‘[...] heterogeneous cross country conditions in financial markets and banking sectors have been a challenge for the single monetary policy’*.

In this study, we aim to document the level of heterogeneity among the responses of sectors of euro area countries to Unconventional Monetary Policy (UMP), and then to

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<sup>1</sup>See, for example, Mandler et al. (2016) for a selected literature on heterogeneity in euro area monetary policy transmission

explain these heterogeneous responses with some country and sector characteristics. Beyond the above quotes, the question of heterogeneity among euro area economies and its implication for monetary policy revived in the academic literature in the aftermath of the European debt crisis. For instance, [Ricci \(2015\)](#) focuses on a similar question by looking exclusively at the banking sector, and explains that some capitalisation, liquidity and risk variables are determinants of the reaction to policy announcements. [Haitsma et al. \(2016\)](#) study heterogeneity at the sectoral level using Euro STOXX 50 Index components. They find contrasting responses among sectors, with durable goods sectors (construction & materials, real estate, automobiles & parts) responding more than non-durable sectors (personal & household goods, travel & leisure, media), but some non-durables like insurance and oil & gas also show very high responses. They explain their results by various firm characteristics (sorted by large, mid, and small cap for the size effect; and by high-, mid- and low-interest coverage, the current ratio, free cash flow, financial leverage and debt-to-equity), but for the unconventional surprises, these characteristics capture none or only little of the heterogeneity in the sectors' reactions. They also consider the aggregate (the euro area level) cross-sector heterogeneity, disregarding cross-country features. [Pacocco et al. \(2019\)](#), by focusing on cross-country heterogeneity, assess the markets reactions to conventional and unconventional ECB policies, and then analyse the possible determinants of the reactions. However, they limit their study to aggregate cross-country reactions by using national equity indices. This approach probably sets aside some cross-sector reactions to the policies. The sectors' responses could therefore neither be explored with the aggregate country data nor help to identify the extent to which industry composition influences cross-country heterogeneity.

This literature clearly identified that UMP had heterogeneous effects on sectors or countries at the aggregate level, but the effects at the disaggregated level, that is, in each country's different sectors, are less explored. This study aims to fill this gap on the heterogeneous responses to UMP by considering country-based as well as sector-based

heterogeneity, and using a large set of determinants related to the banking industry, macroeconomic environment and macroprudential regulation to explain why euro area countries responded differently. More specifically, we are interested in the reaction of various sectors inside each country (e.g. the bank sector in Italy, consumer durables sector in Germany, utilities sector in Spain), rather than the broad picture captured when working with aggregate country indices (e.g. CAC40, DAX30, IBEX35), or aggregate sector indices (e.g. Euro STOXX Banks, Euro STOXX Utilities). We can formulate the resulting research question as follows: how do the individual sectors' stock markets of euro area countries react to the ECB's unconventional policies, and what can explain the (heterogeneous) reaction?

For that purpose, we exploit disaggregated markets data at the sectoral level for each country. First, with more observations (in the disaggregated case compared to the aggregated one) and at a high frequency, we provide a more accurate assessment of the impact of the unconventional policies on the different sectors. This step is particularly interesting as it also identifies the heterogeneity in the sectors' responses. [Ehrmann and Fratzscher \(2004\)](#) showed that individual stocks display higher heterogeneous reactions to U.S. monetary policy than do aggregate stocks. Second, we aim to uncover the determinants of this heterogeneity by exploring the role of the banking system, as well as macroeconomic and regulatory indicators. A set of key ECB's UMP programmes are at the heart of this analysis: Securities Markets Programme (SMP), Outright Monetary Transaction (OMT) and Very-/Targeted-Longer Term Refinancing Operations (V/TLTRO). These asset purchase programmes and liquidity-providing operations were by far among the most important actions taken by the ECB to tackle the two mounting euro area crises ([Krishnamurthy et al., 2017](#); [Fratzscher et al., 2016](#)). Our empirical strategy is based on 2 steps. First, we estimate the markets impacts of ECB announcements using an event-study methodology. From this event-study, we retain only the Cumulative Abnormal Returns (CARs) that are significant to the policies to explain the heterogeneity. Second,

we rely on an ordered probit model to characterise the determinants of the heterogeneity.

We report the following main findings. We confirm that euro area countries (and their sectors) did not react uniformly to the ECB's UMP. Italian and Spanish stocks responded the most positively to the announcements. The two most effective announcements that pushed markets up are the extension of the SMP to Italy and Spain, and M. Draghi's 'Whatever it takes' London speech. The European banking sector led the total reaction from all sectors to the non-standard policies, followed by the Utilities, Retail trade and Communications sectors. Some sectors responded more negatively to the policies, but overall, the impact of these policies was significantly positive. Regarding the determinants of this heterogeneous reaction, our main findings point to evidence that an increase in certain variables characterising the banking industry (e.g. cost-to-income, return on assets (ROA), and credit risk), the macroeconomic environment (e.g. gross debt), and macroprudential index (MPI) leads to an increase in the probability of a positive response. The opposite effect happens with an increase in some other variables, e.g. bank concentration and tier 1 ratio (for bank-level variables), or primary balance (for macroeconomic indicators).

In the remainder of the paper, we review the previous studies on ECB policies and their limitations in section 2. We describe the data in section 3. In section 4, we lay out the empirical strategy. We present our results in section 5. Section 6 concludes.

## **2. Related literature**

Our study relates to many previous papers on the financial markets' reactions to the ECB's UMP. Many studies focused on the reaction of the banking sector or other sectors, either in a particular country or a group of euro area countries. We briefly review the three closest studies.

[Ricci \(2015\)](#) investigates the responses from 28 large European banks to ECB and other major central banks' policy announcements. The results indicate a strong heterogeneity in markets reactions, and that the reactions are more pronounced for non-conventional policies. The author also reports that some characteristics of the banks and financial system are important for the transmission of policies. Mainly, banks with high levels of capitalisation are less sensitive to expansionary measures, and with high liquidity conditions, the response is weak. A high level of risk is associated with high sensitivity to expansionary interventions. Being a profitable bank or having a high cost-to-income ratio leads to a positive response to expansionary policies. Nonetheless, the exclusive focus on the banking sector may show a narrow evidence of the impact of the UMP.

A substantial literature thus investigated the reaction of other sectors alongside the banking sector. [Haitsma et al. \(2016\)](#) use 19 sectoral indices from the Euro STOXX 50 index to study euro area markets' reactions to ECB conventional and unconventional policies since 1999. Their findings show that sectors are negatively impacted by UMP surprises and the magnitude of their responses is quite heterogeneous. The banking sector recorded the most significant reaction during UMP surprises. While their study analyses the reaction of various sectors to policies, they consider sectors aggregated at the euro area level. This approach implicitly assumes that all components of a given aggregate sector have homogeneous behaviour towards the policies. In other words, it assumes, for instance, that the utilities sector's reaction in Spain is similar to the one in Germany or in Netherlands. Another possible drawback is that the aggregate sector index will reflect mostly the dominant component's reaction.

Likewise, [Pacocco et al. \(2019\)](#) consider some euro area countries' national equity index in analysing the markets' reactions to UMP decisions. The results show that peripheral countries became more reactive only in the aftermath of the Sovereign Debt Crisis (SDC). Both cross-country and time heterogeneity are found for ECB actions during both

conventional and unconventional periods. This study relies on the global indices, disregarding industry composition effects on the response to monetary policy across countries. That is, that part of the heterogeneity is driven by the combination of heterogeneous response across sectors and unequal weight of such sectors in the global index. As the authors acknowledge themselves, the diverse composition of the indices can be a driver of the heterogeneity in the reaction. The authors rely on the within estimation to account for this factor, but the results yield a somewhat less heterogeneous pressure from the unconventional measures on the countries.

Therefore, accounting for the heterogeneity that characterises the aggregate sectoral or country indices appears to be a more accurate approach. We do so in this study by using disaggregated sector markets data for each country.

### 3. Data

We consider the 11 largest euro area countries in this study: Austria (AT), Belgium (BE), Germany (DE), Spain (ES), Finland (FI), France (FR), Greece (GR), Ireland (IE), Italy (IT), the Netherlands (NL) and Portugal (PT). For each, we collect the daily closing prices of 17 sectors, upon availability<sup>2</sup>. The data are provided by FactSet database and MacroBond database. Figure 1 shows the cumulative market capitalisation of each sector<sup>3</sup> expressed in percentage. It shows the relative size of each sector in the euro area, which is dominated by Bank, Health technology and Consumer non-durables as the top three.

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<sup>2</sup>Based on FactSet's Revere Business Industry Classification System (RBICS), 19 sectors are defined, but we did not have data for the Energy Minerals and Health Services sectors. Those two sectors are thus absent from the study. Moreover, because monetary policy transmission operates mainly via banks, we did not include the Financial sector as a whole, but only the Bank sub-sector. Data for this latter follow the FTSE's Industry Classification Benchmark (ICB) definition.

<sup>3</sup>Data are those from the Eurotop Sectors equity indices, as defined by the FTSE. Because those sectors are defined following the ICB scheme, we perform a matching of the sectors according to the RBICS scheme first. The Distribution Services sector is missing from this figure, but is part of the study.

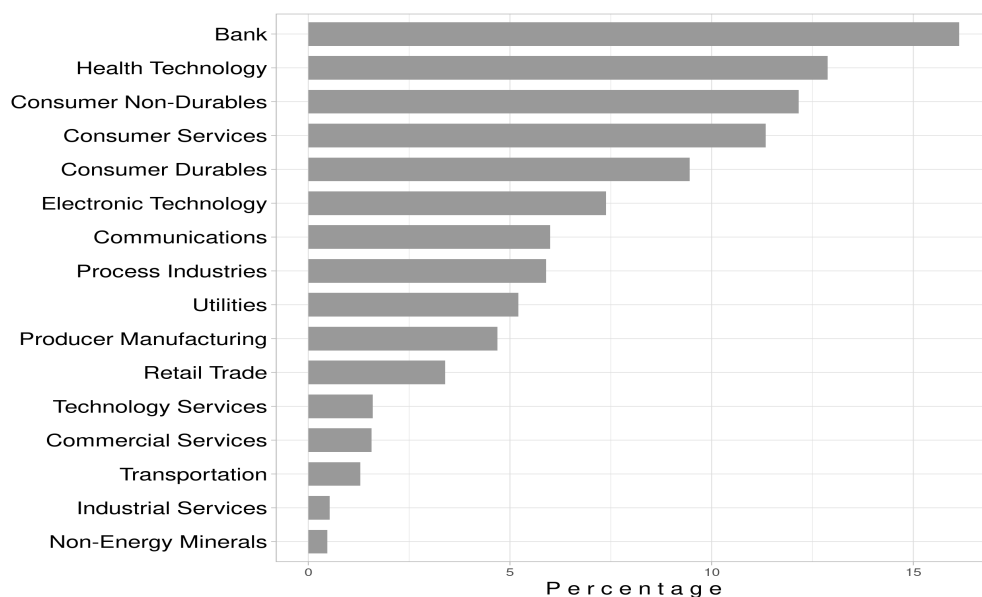


Figure 1: Cumulative market capitalisation (2010-2016)

Following the literature ([Krishnamurthy et al., 2017](#); [Fratzscher et al., 2016](#)), we focus on some key dates that represent the ECB’s UMP during the GFC and the SDC (Table 1). These ECB’s policies are the Securities Markets Programme (SMP), the Outright Monetary Transactions (OMT), the Very Longer-Term Refinancing Operations (VLTRO), and the Targeted Longer-Term Refinancing Operations (TLTRO).

The SMP (which is an asset purchase programme) was introduced on **10 May 2010**, under which the ECB would purchase the government bonds of distressed countries directly in secondary markets. In the first round, the ECB purchased Greek, Portuguese and Irish government bonds in the secondary markets. The securities bought during this phase amounted to EUR 75 billion. With further deteriorating economic conditions, a second round was announced on **4 August 2011** and the programme was extended to Spain and Italy. By early 2012, ECB holdings of sovereign bonds increased to approximately EUR 220 billion. Some important features of the SMP concerning the securities to be purchased, amounts involved and exact duration were not disclosed. The only clear



information to market participants was its announcement.

The OMT started on **26 July 2012** as a continuation of the SMP, when ECB President M. Draghi held his '*whatever it takes*' London speech. Its objective was to contain the redenomination risk growing among market participants with fears of a euro breakup. On **2 August 2012**, the ECB held a press conference detailing the implementation of the OMT, and on **6 September 2012**, the OMT was officially launched. The main difference between the OMT and SMP is the condition attached: countries applying to it must undertake fiscal adjustments. However, in practice, no bonds were purchased under this programme.

Lastly, to address the severe liquidity concerns in the money markets, two rounds of VLTROs were clearly announced on **8 December 2011**, but markets already had a hint on **1 December 2011** after M. Draghi's speech to the European Parliament. Under these liquidity-providing operations, the ECB provided banks with loans against collateral. Their differences with the regular main refinancing operation (MRO) concerned the length of the maturity of the loans (up to three years), the extended list of collateral, and their fixed-rate full allotment (FRFA) nature; that is, under this 'open bar' approach, the ECB provided unlimited credit to banks subject to their collateral, and at a fixed interest rate.

A few years later, the TLTROs were officially announced on **5 June 2014** for the first round, and on **10 March 2016** for the second round. These liquidity-providing operations, similar to VLTROs, extended the maturity of the refinancing operations up to 48 months.

Given these features of the unconventional policies, what are their potential channels of transmission to stock markets? The SMP and OMT policies targeted the bond mar-

Table 1: **The ECB’s Unconventional Monetary Policy**

Date	Policy description
<b>10 May 2010</b>	<i>Securities Markets Programme (SMP) announcement</i>
<b>4 August 2011</b>	<i>SMP covers Spain and Italy</i>
<b>1 December 2011</b>	<i>Draghi’s speech to the European Parliament</i>
<b>8 December 2011</b>	<i>Two 3-year LTROs (VLTROs) announcement</i>
<b>26 July 2012</b>	<i>Draghi’s “Whatever it takes” London speech</i>
<b>2 August 2012</b>	<i>Outright Monetary Transactions (OMT) press conference</i>
<b>6 September 2012</b>	<i>OMT details released</i>
<b>5 June 2014</b>	<i>First round of TLTROs announcement</i>
<b>10 March 2016</b>	<i>Second round of TLTROs announcement</i>

kets, but we expect their announcements to produce effects beyond the targeted markets. Indeed, through the *confidence channel*, market participants should perceive these announcements as a commitment to restore a proper transmission mechanism of monetary policy. Equity prices did indeed respond favourably to the announcements (Fratzscher et al., 2016). Another channel that should be at work with the liquidity-providing operations is the *bank credit risk channel*: with easy conditions and (unlimited) access to liquidity for banks, market participants should consider that the credit risk is reduced, and that firms and households may have access to funding again with less constraints. Bank equity prices and other sectors’ equity prices should show a positive impact. Notwithstanding the suspected heterogeneity, we expect that the effect of these policies across countries and sectors is subject to some macroeconomic, regulations, financial and banking conditions. Beyer et al. (2017) show that the heterogeneity in financial markets and banking sector conditions challenged the transmission of the single monetary policy. We then explain the cross-country pattern with the banking industry infrastructure, financial markets characteristics, fiscal policy and macroprudential policy indicators in the second part of the analysis.

Accordingly, we collect from Cihak et al. (2012) data on banks’ cost-to-income ratio and ROA (after tax), as well as bank concentration (compiled in the World Bank’s

Global Financial Development Database). Additionally, banking data on credit risk, market risk and tier 1 ratio are gathered from the ECB’s Consolidated Banking Data and Banking Structural Financial Indicators. Fiscal indicators (primary balance and gross debt (expressed as a percentage of GDP)) come from the IMF’s Fiscal Monitor database, and the MPI is computed by [Cerutti et al. \(2017\)](#). Table [A.1](#) in the appendix gives the definition of these variables.

#### 4. Empirical strategy

Following [Ricci \(2015\)](#) and [Pacocco et al. \(2019\)](#), we rely on an event-study approach to measure the markets’ responses to the ECB’s UMP. We describe its implementation in subsection [4.1](#). After this step, we run a panel regression with the objective to explain the results from the event-study analysis. Subsection [4.2](#) presents the model for this regression.

##### *4.1. Event-study description*

Among the estimation methods to obtain predicted returns, we favour the standard market model<sup>4</sup>. The intuition behind this model is the following: we can obtain the fraction of the return of a stock that reacts to a particular event as the forecast error from the observed returns and the predicted returns. While the former are readily available, we must estimate the latter.

We begin by computing the daily log-returns of the stock prices to estimate the model:  $R_{i,t}^j = \ln(P_{i,t}^j / P_{i,t-1}^j)$ , where  $P_{i,t}^j$  is the closing price of the stock of sector  $i$  at day  $t$  in country  $j$ . With the computed returns, we estimate the following market model using

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<sup>4</sup>Financial econometric models, of which this is one, look principally on the impact of a policy on financial markets returns, and usually rely on the event-study framework to measure the impact via the abnormal returns the policy generated. This approach is better for capturing the immediate, short-term impact of the policy. Our choice of this methodology is logical given the objectives of our study.

an OLS regression:

$$R_{i,t}^{j,\tau'} = \alpha_i^j + \beta_i^j R_{m,t}^{\tau'} + \varepsilon_{i,t}^j \quad (1)$$

with  $R_{m,t}$  the daily return of the markets and  $E[\varepsilon_{i,t}] = 0$ ,  $Var[\varepsilon_{i,t}] = \sigma_{\varepsilon_i}^2$ . We estimate Equation (1) for each country and each sector over the estimation window  $\tau'$ , which ranges from 271 days to 20 days (252 days) before the event.

We thus generate the abnormal returns due to the UMP on date  $t$ :

$$AR_{i,t}^{j,\tau} = R_{i,t}^{j,\tau} - \hat{\alpha}_i^j - \hat{\beta}_i^j R_{m,t}^{\tau} \quad (2)$$

$\tau$  represents the event window (5-day window), ranging from one day before the event to three days after the event for each announcement. Next, we obtain the CARs by summing up the ARs:  $CAR_{i,t}^{j,\tau} = \sum_{\tau} AR_{i,t}^{j,\tau}$

To close the event-study, we perform a Student test on the CARs to obtain their significance:  $T_i = CAR_{i,t}^{j,\tau} / \tau \hat{\sigma}_{\varepsilon_i}$ , with  $\hat{\sigma}_{\varepsilon_i}^2 = (1/(N - d)) \sum_{\tau'} AR_{\tau',i}^2$ , where  $N$  is the number of observations in the estimation window  $\tau'$  and  $d$  the degrees of freedom of Equation (2) estimated over  $\tau'$ . The  $T$  statistic above has a Student distribution with  $N - 2$  degrees of freedom.

We represent the markets,  $R_m$ , by the FTSE Europe All Cap index. The alternative indices<sup>5</sup> appear in the appendix A.2. For the purpose of inference, we need sufficient data in the estimation window. However, some stock prices were missing or frozen (same price level) for certain periods. We choose to discard those data using the following filtering rules: there should be less than 10% continuous zero returns (the number amounts to 25 returns) in the estimation window, and no more than one zero return in the event

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<sup>5</sup>We think a good index that represents the markets should be as unaffected as possible by ECB interventions. We compare the returns of the MSCI index, STOXX index and FTSE index. Data for the MSCI are incomplete for this study and the FTSE index showed one of the weakest reactions towards the policies.

window. Otherwise, we do not perform the event-study. This event-study approach may suffer from small bias, but outperforms [Rigobon and Sack \(2004\)](#)'s heteroscedasticity-based estimator ([Rosa, 2011](#)). The endogeneity concern between monetary policy and stock price reactions in this context is also of less importance because we use daily data ([Kontonikas et al., 2013](#)).

#### 4.2. Regression analysis

With the step described above, for each event, we compute the CARs by sector and country and obtain their statistical significance. To explain the heterogeneous response of euro area countries to UMP, we transform these CARs into discrete variables taking  $-1$  for negative and significant coefficients at the 5% level,  $1$  for positive and significant coefficients at 5% level, and  $0$  for non-significant coefficients at the 5% level. This methodology does not reflect the simple amplitude of the response, but rather its significance to UMP. Using a panel data approach, we investigate the role of different variables as plausible determinants of the heterogeneous response. We rely on existing literature ([Ricci, 2015](#); [Haitsma et al., 2016](#); [Pacocco et al., 2019](#)) to select the most relevant variables. In particular, we focus on some banking sector characteristics, financial system variables and fiscal and regulatory indicators.

We estimate the following model:

$$Response_{i,e,t} = f\left(\beta_{1,k}BANK_{k,t}; \beta_{2,l}FINANCIAL_{l,t}; \beta_{3,m}FISC_{m,t}\right) \quad (3)$$

where the explained variable  $Response_{i,e,t}$  is the ordinal variable coded as  $-1 < 0 < +1$  and indicating whether the CAR of sector  $i$  is significant (whether positively or negatively) or not to event  $e$ .  $BANK_{k,t}$  is a matrix with a  $k$ -vector of banking sector characteristics,  $FINANCIAL_{l,t}$  a matrix with an  $l$ -vector of financial system characteristics and  $FISC_{m,t}$  a matrix with an  $m$ -vector of fiscal and macroprudential indicators.  $f()$  is a nonlinear link function. We estimate the model at the quarterly frequency.

We briefly recall the framework for ordered response models (Wooldridge, 2010) and apply it to our case of 3 ordered responses. Let  $y^*$  be a latent variable defined by

$$y^* = \mathbf{x}\beta + e; \quad e \mid \mathbf{x} \sim \mathcal{N}(0, 1)$$

and  $\alpha_1 < \alpha_2$  be two unknown cut points such that

$$\begin{cases} y = -1 & \text{if } y^* \leq \alpha_1 \\ y = 0 & \text{if } \alpha_1 < y^* \leq \alpha_2 \\ y = 1 & \text{if } y^* > \alpha_2 \end{cases}$$

The conditional distribution of  $y \mid \mathbf{x}$  is

$$\begin{cases} P(y = -1 \mid \mathbf{x}) &= P(e \leq \alpha_1 - \mathbf{x}\beta \mid \mathbf{x}) = \Phi(\alpha_1 - \mathbf{x}\beta) \\ P(y = 0 \mid \mathbf{x}) &= P(\alpha_1 - \mathbf{x}\beta < e \leq \alpha_2 - \mathbf{x}\beta \mid \mathbf{x}) = \Phi(\alpha_2 - \mathbf{x}\beta) - \Phi(\alpha_1 - \mathbf{x}\beta) \\ P(y = 1 \mid \mathbf{x}) &= P(e > \alpha_2 - \mathbf{x}\beta \mid \mathbf{x}) = 1 - \Phi(\alpha_2 - \mathbf{x}\beta) \end{cases}$$

where  $\Phi$  is the c.d.f. of a normal distribution.

We estimate  $\alpha$  and  $\beta$  by maximum likelihood, the log-likelihood function being

$$\begin{aligned} \mathcal{L}_i(\alpha, \beta) &= 1_{[y_i=-1]} \log[\Phi(\alpha_1 - \mathbf{x}_i\beta)] \\ &\quad + 1_{[y_i=0]} \log[\Phi(\alpha_2 - \mathbf{x}_i\beta) - \Phi(\alpha_1 - \mathbf{x}_i\beta)] \\ &\quad + 1_{[y_i=1]} \log[1 - \Phi(\alpha_2 - \mathbf{x}_i\beta)] \end{aligned}$$

for each  $i$ .

Given that  $\Phi$  represents the c.d.f. of a normal distribution,  $f(\cdot)$  is thus an ordered probit model. Because of the nonlinear form of Equation (3), we cannot interpret the estimated

coefficients  $\hat{\beta}$  directly and instead discuss their signs and statistical significance.

## 5. Results

We discuss the results obtained from the estimation of the models presented in sections 4.1 and 4.2 in the following subsections.

### 5.1. Significance of announcements

We examine the significant reactions following the policy announcements at the 5% level. When considering the set of 9 announcements related to UMP, we find that sectors in Spain and Italy responded (positively) the most to the ECB's policies (Table 2). These results are not surprising given that some of the policies mainly targeted these two distressed countries (announcement of 4 August 2011). We also observe that the so-called GIIPS countries responded to the policies more than did the core countries. These first results are in line with previous empirical findings (Krishnamurthy et al., 2017; Fratzscher et al., 2016; Pacicco et al., 2019).

A detailed analysis of the reaction by type (whether positive or negative) shows that all countries except Finland, Austria and Germany displayed more positive reactions than negative ones (Figure 2).

By looking specifically at each policy (Table 3), some interesting facts stand out. Overall, the announcement of the extension of the SMP to Italy and Spain yielded the largest reaction. The second largest announcement is the introduction of the three-year LTRO. Given the hints about this announcement a week before, in contrast to the other events, the fact that this is one of the weakest events shows that the markets were actually very cautious or were expecting it. We also observe that M. Draghi's speech on and the official launch of the OMT triggered significant markets reactions. The first announcement related to SMP induced a non-negligible significant reaction from the sectors while the

Table 2: Significant reactions by country

Total reactions		Positive and negative reactions			
Country	Total (in %)	Country	Positive (in %)	Country	Negative (in %)
Spain	13.99	Spain	11.89	Finland	7.19
Finland	11.11	Italy	7.19	Greece	4.67
Italy	9.80	Portugal	6.45	Austria	4.63
Greece	9.35	France	5.23	Ireland	4.21
Portugal	8.60	Greece	4.67	Germany	3.92
Ireland	8.42	Ireland	4.21	Italy	2.61
France	6.54	Belgium	4.20	Portugal	2.15
Austria	6.48	Finland	3.92	Spain	2.10
Belgium	6.29	Austria	1.85	Belgium	2.10
Germany	4.58	Netherlands	1.56	France	1.31
Netherlands	2.34	Germany	0.65	Netherlands	0.78

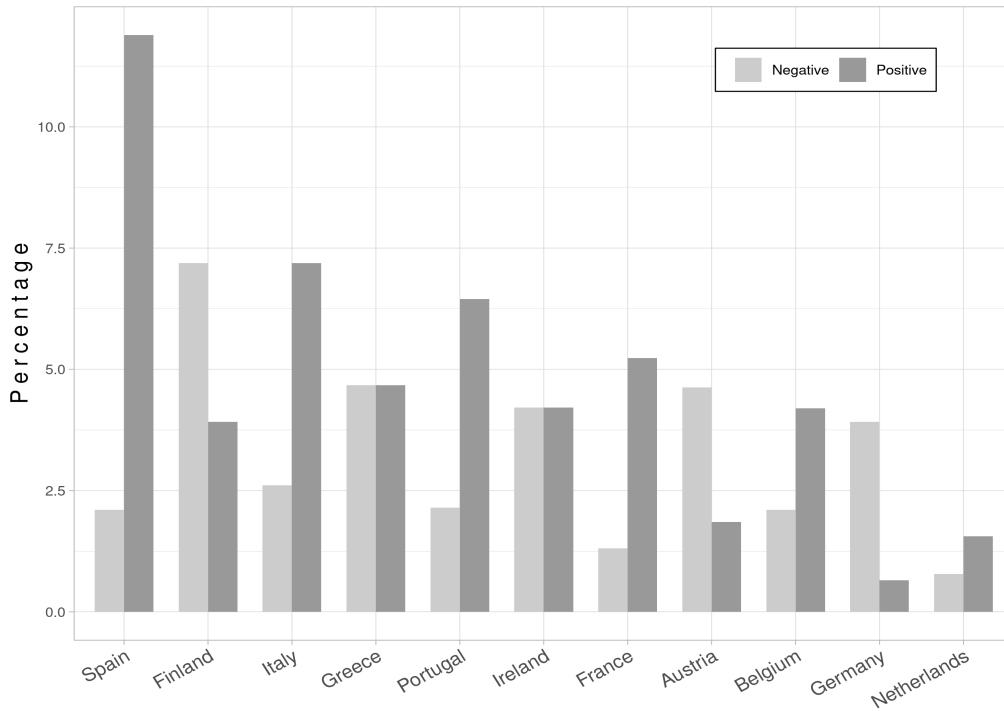


Figure 2: Significant reactions to policy announcements by country across all sectors



2 four-year maturity TLTROs produced weak reaction.

Table 3: Significant reactions by policy

Total reactions		Positive and negative reactions			
Policy	Total (in %)	Policy	Positive (in %)	Policy	Negative (in %)
SMP-extension	24.07	SMP-extension	16.67	VLTRO	11.95
VLTRO	12.58	OMT-whatever_it_takes	7.69	SMP-extension	7.41
OMT-whatever_it_takes	8.97	OMT	7.64	SMP	4.24
OMT	7.64	TLTRO2	3.18	OMT-press_conf	1.92
SMP	6.06	TLTRO1	2.50	OMT-whatever_it_takes	1.28
TLTRO2	3.82	SMP	1.82	VLTRO-hint	1.27
OMT-press_conf	3.21	OMT-press_conf	1.28	TLTRO2	0.64
VLTRO-hint	2.55	VLTRO-hint	1.27	OMT	0.00
TLTRO1	2.50	VLTRO	0.63	TLTRO1	0.00

Note: **SMP** = SMP announcement (10 May 2010); **SMP-extension** = SMP extension to Spain and Italy (4 August 2011); **VLTRO-hint** = A hint on VLTROs (1 December 2011); **VLTRO** = VLTROs announcement (8 December 2011); **OMT-whatever\_it\_takes** = OMT ‘Whatever it takes’ speech (26 July 2012); **OMT-press\_conf** = OMT press conference (2 August 2012); **OMT** = OMT officially launched (6 September 2012); **TLTRO1** = First round of TLTROs announcement (5 June 2014); **TLTRO2** = Second round of TLTROs announcement (10 March 2016)

Once again, this broad picture can hide some interesting details. Zooming in on the type of reaction (Table 3 and Figure 3), we make the following observations. For the announcement of 04 August 2011 (SMP extension), the negative reaction accounts for almost half of the positive reaction. It is particularly striking that the large significant reaction to the three-year LTRO policy announcement (VLTRO) was actually near entirely negative. Indeed, there seemed to be a huge deception from the markets, where many sectors reacted negatively to that announcement. The markets were already expecting either an extension of the SMP or a three-year LTRO following M. Draghi’s speech to the European Parliament on the 1 December 2011, according to the Financial Times (“*Draghi hints at eurozone aid plan*”)<sup>6</sup>. Additionally, the Financial Times (“*On the ECB’s most significant non-standard measure*”)<sup>7</sup> highlighted that the announcement of the two rounds of VLTRO a few hours earlier was not a surprise for the markets. The massive negative reaction can thus reflect the fact that the markets were expecting

<sup>6</sup>Financial Times, 01 December 2011, <https://www.ft.com/content/87b3db16-1bfc-11e1-9631-00144feabdc0>

<sup>7</sup>Financial Times, 08 December 2011, <https://ftalphaville.ft.com/2011/12/08/785211/on-the-ecbs-most-significant-non-standard-measure/>

more than what was announced. The press conference of 2 August 2012 detailing the implementation of the OMT and the SMP announcement of 10 May 2010 are the other policies which created more negative than positive markets reactions. For the latter, the large negative reaction probably showed that it sparked an atmosphere of mistrust among market participants. A possible explanation is that some market participants interpreted this announcement as a confirmation of the distressed state of the peripheral countries. However, its extension to Italy and Spain seemed to have reassured the markets.

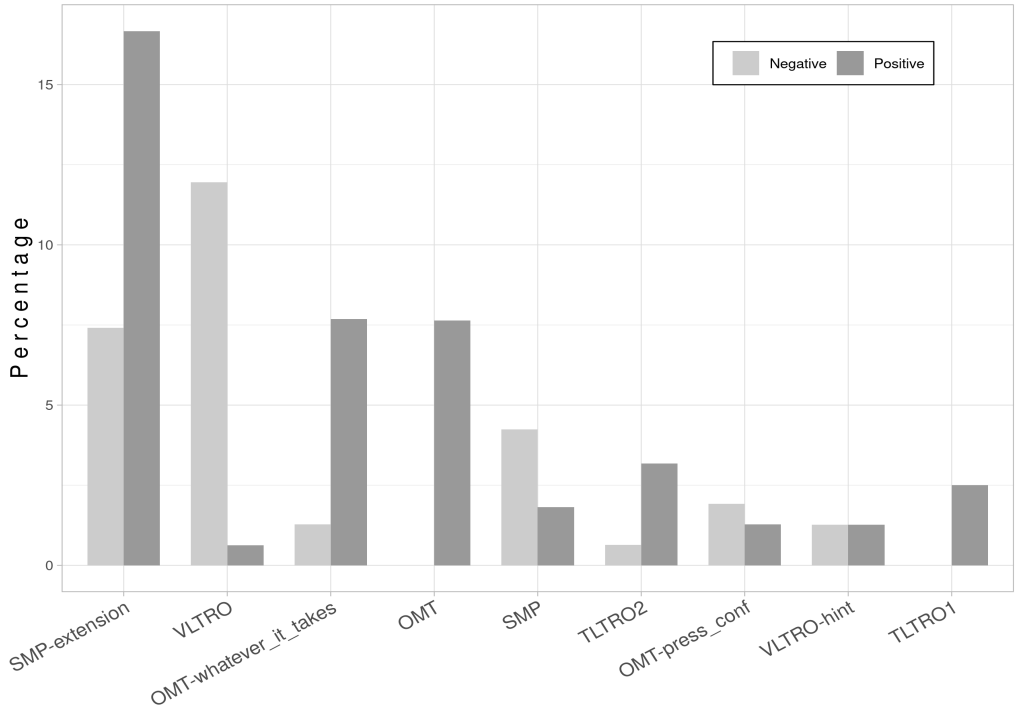


Figure 3: Significant reactions to policy announcements across all countries and sectors

Across the 11 countries over the 9 events, the results by sector (Table 4 and Figure 4) confirm that the banking sector had the most significant reaction to the policies. The Utilities, Retail Trade and Communications sectors were also very sensitive to the announcements. On the contrary, the Commercial services, Consumer services and Dis-

tribution services sectors reacted the least to the announcements. It appears that the sectors with the most reliance on interest rates, such as banks and durables, showed the largest responses (the interest rate channel of monetary policy).

Table 4: **Significant reactions by sector**

<b>Total reactions</b>		<b>Positive and negative reactions</b>			
Sector	Total (in %)	Sector	Positive (in %)	Sector	Negative (in %)
Bank	17.44	Bank	13.95	Utilities	6.17
Utilities	13.58	Communications	7.78	Retail Trade	6.17
Retail Trade	11.11	Utilities	7.41	Health Technology	5.00
Communications	10.00	Non-Energy Minerals	5.56	Commercial Services	4.44
Transportation	9.09	Producer Manufacturing	5.56	Electronic Technology	4.17
Health Technology	8.75	Technology Services	5.56	Transportation	4.04
Electronic Technology	8.33	Transportation	5.05	Bank	3.49
Non-Energy Minerals	7.78	Retail Trade	4.94	Process Industries	3.19
Producer Manufacturing	7.78	Industrial Services	4.44	Distribution Services	2.90
Technology Services	6.94	Electronic Technology	4.17	Consumer Non-Durables	2.25
Process Industries	6.38	Health Technology	3.75	Communications	2.22
Industrial Services	5.56	Process Industries	3.19	Non-Energy Minerals	2.22
Consumer Durables	4.69	Consumer Durables	3.12	Producer Manufacturing	2.22
Consumer Non-Durables	4.49	Consumer Non-Durables	2.25	Consumer Services	2.17
Commercial Services	4.44	Consumer Services	2.17	Consumer Durables	1.56
Consumer Services	4.35	Distribution Services	1.45	Technology Services	1.39
Distribution Services	4.35	Commercial Services	0.00	Industrial Services	1.11

We indeed observe quite a large heterogeneity in the sectors' responses: 9 reacted more positively (Bank, Utilities, Communications, Transportation, Non-energy minerals, Producer manufacturing, Technology services, Industrial services and Consumer durables). On the contrary, 4 sectors showed more negative reactions to the policies (Retail trade, Health technology, Commercial services and Distribution services). We also show that UMP affected the banking and non-banking sectors, albeit to different degrees. It then becomes interesting to assess the determinants of such heterogeneity in reaction to ECB announcements. The next section discusses our results from the regression analysis of Equation (3).

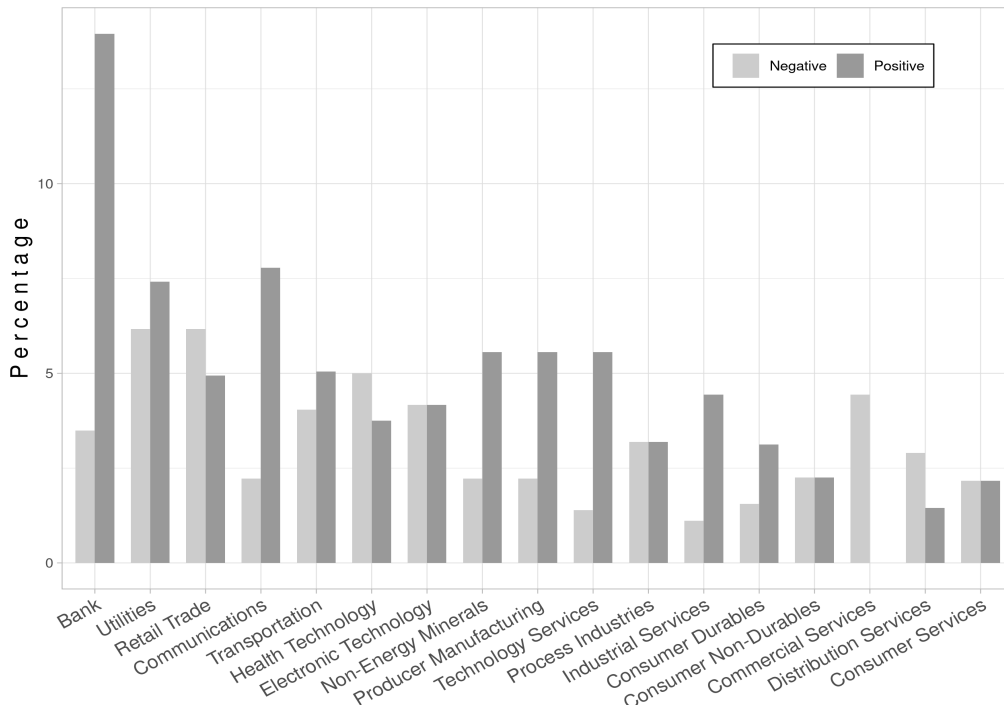


Figure 4: Significant reactions to policy announcements by sector across all countries

### 5.2. Determinants of the heterogeneous responses

Markets reactions to the ECB's UMP are subject, among other things, to investors' expectations about the state of the economy. Given the objectives of these expansionary measures (decrease the yields on bonds, ease the liquidity concerns in the money market), market participants could interpret them as a commitment by the central bank to restore economic conditions, on the one hand. Expecting a beneficial outcome of the policies, investors' confidence is naturally boosted, producing a positive response to them. On the other hand, for some investors, these measures revealed only that the implied country or sector is weak and may not recover from the crisis without assistance. To prevent further losses, they would prefer to retreat from the markets, which translates into a negative response. Our results capture the dominant effect of these two types of decisions from investors for a given state of country/sector characteristics. In this part, we aim to ex-

plore the difference in the perceptions (whether good or bad news) of investors of the unconventional policies across European countries and sectors.

Table 5 presents the results of Equation (3). We recall that in the (ordered) probit model framework, we cannot directly interpret the marginal impact of the regressors by looking at the coefficient. We thus focus only on their significance and their sign. We also use the Huber-White correction for heteroscedasticity and correlation to obtain robust variance-covariance matrix estimates. We obtain the results by sector with observations from the 11 countries and the 9 events, but are subject to some missing data. We discuss which factors predict an increase in the probability of a positive or negative response from the sector to ECB policies.

We find that a higher cost-to-income among banks leads to a significant (at the 1% level) increase in the probability of a positive response from the Consumer services, Consumer durables and Technology services sectors. In contrast, the Utilities and Distribution services sectors display a significant (at the 1% level) negative coefficient, which implies that a higher cost-to-income is likely to prompt a decrease in the probability of a positive response from those sectors. In the same vein, a higher bank ROA is associated with a significant increase in the probability of a positive response from the Health technology, Consumer durables, Retail trade, Commercial services and Distribution services sectors. Only the Communications sector records a negative but weakly significant coefficient for increasing ROA. The bank concentration variable predicts a mixed reaction from the sectors, with Consumer durables and Commercial services having a positive coefficient and Technology services, Transportation, Non-energy minerals and Distribution services having a negative estimate. Similarly, higher credit risk leads to an increasing probability of a positive reaction from the Bank, Consumer durables, Electronic technology, Technology services and Industrial services sectors. We find a decreasing probability of a positive reaction because of the higher credit risk in the Health technology, Commercial

services and Distribution services sectors. A stronger tier 1 ratio signals an increase in the probability of a positive response from Consumer durables, Electronic technology and Retail trade sectors. However, it is associated with a decreasing reaction from the Utilities, Technology services, Commercial services and Distribution services sectors. Finally, increasing market risk predicts an increasing response from the Bank, Consumer durables and Communications sectors. However, the response is decreasing in the Process industries, Technology services and Commercial services sectors.

Table 5: Ordered probit model estimation results

Variables	Bank	Health Technology	Consumer Non-Durables	Consumer Services	Consumer Durables	Electronic Technology	Communications	Process Industries
Bank Cost to Income Ratio	0.0476	0.1131	0.095	0.264***	11.8874***	-0.0793	0.081	0.1203
Bank Return on Assets (After Tax)	0.5014	5.1934***	-0.089	0.466	181.5391***	-3.2989	-1.1091*	0.4773
Bank Concentration	-0.1451	-0.1143	0.0737	0.0324	7.4965***	-0.0693	-0.0989	-0.0649
Credit Risk	0.0465**	-0.0265*	-0.0194	0	0.4155***	0.0231**	0.0201	0
Tier 1 Ratio	0.1739	-0.0622	0.0651	0.0353	14.1314***	0.4685***	0.0072	0.0337
Market Risk	1.4375**	0.259	-0.39	-0.6482	8.5314***	-0.2783	1.2663**	-1.9184***
Primary Balance (% of GDP)	-0.175	-0.7573**	-0.208	-0.2873	-76.6232***	-0.7555*	-0.0102	-0.4735*
Gross Debt (% of GDP)	0	0.0098	-0.004	0.0097	3.284***	0.0061	-0.0295***	0.0126
MacroPrudential Index	-0.3372	0.1217	0.317	-0.1579	29.6007***	-0.3352*	0.0644	0.3356*
Cut1 (Negative   Absent)	0.6358	-3.0841	0.6003	3.2627	762.7307	1.9425	-3.7755	0.0202
Cut2 (Absent   Positive)	3.7843	1.7168	5.0718	7.8329	972.2433	6.2266	0.4866	4.3978
N	75	72	80	82	57	64	80	84
R <sup>2</sup>	0.201	0.325	0.165	0.163	0.887	0.277	0.229	0.22
DEV	78.72	36.89	32.23	32.46	3.82	38	46.05	42.6
L.R.	11.36	12.73	5.08	5.05	23.5	10.14	9.8	8.95
pval	(0.25)	(0.18)	(0.83)	(0.83)	(0.01)	(0.34)	(0.37)	(0.44)

Variables	Utilities	Producer Manufacturing	Retail Trade	Technology† Services	Commercial‡ Services	Transportation	Industrial Services	Non-Energy Minerals	Distribution Services
Bank Cost to Income Ratio	-0.3952***	-0.0668	-0.0487	37.1461***	0.6848	-0.0889	0.0778	0	-4.655***
Bank Return on Assets (After Tax)	0.9136	0.1472	2.4299***	1.0228	4.2761**	0.4995	0.2876	-0.7693	6.8997***
Bank Concentration	-0.1414	-0.0365	0.015	-14.9654***	1.4216***	-0.232***	-0.0393	-0.1717**	-1.6857***
Credit Risk	0.0072	0.011	-0.0059	7.1946***	-0.157**	0.0202	0.0496***	-0.0099	-0.1444***
Tier 1 Ratio	-0.2446**	-0.0159	0.3554*	-69.3314***	-0.729**	-0.0341	0.0913	-0.0845	-1.6278***
Market Risk	-0.2906	0.6821	-0.386	-415.3829***	-7.6562**	-1.0456	-0.4734	-0.878	1.1567
Primary Balance (% of GDP)	0.5905	0.0413	-1.3348**	-73.2258***	-3.1309	0.3879	-0.7458**	0.2887	10.907***
Gross Debt (% of GDP)	0.0144	0.0015	0.0495***	-0.5422***	0.0738***	-0.008	-0.005	-0.0144	0.0646**
MacroPrudential Index	0.2508	-0.0419	0.1746	41.0079***	1.3574**	-0.3936**	0.0687	-0.3134	-5.7938***
Cut1 (Negative   Absent)	-11.9118	-3.1079	6.3375	-873.9091	-3.1309	-9.3125	0.789	-9.2601	-162.1849
Cut2 (Absent   Positive)	-7.6235	0.5789	11.0502	88.7561	-21.3391	-5.2053	5.9133	-5.4159	-124.2688
Intercept									
N	72	80	72	64	80	88	80	81	61
R <sup>2</sup>	0.384	0.071	0.474	0.914	0.422	0.251	0.262	0.128	1
DEV	51.92	52.96	42.36	3.82	19.85	52.37	33.27	50.69	0.00224
L.R.	19.97	2.89	24.26	30.6	11.91	12.33	9.14	5.34	27.74
pval	(0.02)	(0.97)	(0)	(0)	(0.22)	(0.2)	(0.42)	(0.8)	(0)

N: number of observations, R<sup>2</sup>: Nagelkerke R<sup>2</sup> index, DEV: deviance (-2x log likelihood of the fitted model), L.R.: model likelihood ratio  $\chi^2$  statistic, p-value of the L.R. test in brackets()

\*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% levels, respectively

† An ordered logistic estimation is performed instead to achieve the convergence of the model.

‡ A binary model is fitted because the dependent variable has only two outcomes.

Turning to the fiscal variables, we show that healthy government's primary balance leads to a decrease in the probability of a positive response from most sectors (Health technology, Consumer durables, Electronic technology, Process industries, Retail trade, Technology services and Industrial services); the only negative coefficient is for Distribution services. We make a similar observation for increasing gross debt, which induces the Consumer durables, Retail trade, Commercial services and Distribution services sectors to increase their probability of a positive response to the policies. The Communications and Technology services sectors are the only ones to decrease their probability. Lastly, with respect to a higher MPI, Consumer durables, Process industries, Technology services and Commercial services are likely to increase their probability of reacting positively, while Transportation and Distribution services do the opposite.

Overall, our results indicate that among the 17 sectors, with increasing cost-to-income, sectors show mostly an increasing probability of a positive reaction. The same observation holds for increasing ROA, credit risk, gross debt and MPI. For increasing levels of concentration, tier 1 ratio and primary balance, most sectors have a decreasing probability of a positive reaction to the policies. In addition, the predictive power of our variables is strong for the Retail trade, Technology services, Distribution services and Consumer durables sectors, as measured by the likelihood ratio statistic and its associated p-value. Conversely, the model has little power to predict the behaviour of the Producer manufacturing, Consumer non-durables and Non-energy minerals sectors, which record no or only one significant variable. With respect to our predictors, we think the following rationales are at play.

We first argue that bank profitability is a positive driver of sectors' responses to the policies. While there is a non-linear effect<sup>8</sup> between the central bank interest rate and bank

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<sup>8</sup>Some prior studies find a positive correlation between the central bank interest rate level and banks' profitability. For instance, [Borio et al. \(2017\)](#) show that short-term rates and bank ROA have a positive relationship; that is, monetary policy tightening increases bank profitability because its positive impact on the net interest income component dominates the negative impact on loan loss provisions and non-interest income. [Altavilla et al. \(2018\)](#), in contrast, find that monetary policy easing (during the ECB standard and non-standard policy periods) is not associated with lower bank profits.



ROA, our results show that monetary policy easing during the unconventional periods leads market participants holding stocks from various sectors (Health technology, Consumer durables, Retail trade, Commercial services and Distribution services) to believe that the easing should not erode bank profitability.

Second, we argue that credit risk is also a positive determinant of an increasing probability of a positive reaction. Although this seems to contradict the classic view of the bank credit risk channel<sup>9</sup>, our interpretation of this result is that some market participants interpreted the high credit risk as an emergency call to the central bank to intervene and rescue the banking sector, thus leading to an increase in the demand for bank equities.

Third, we assert that high concentration in the banking sector is a negative factor affecting the probability of a positive reaction from market participants to the UMP. When there is too much concentration in the banking sector, the sector has less competition and less efficiency (IJtsma et al., 2017) and can jeopardize the policy transmission to the sectors.

Lastly, we claim that a high primary balance drives down the probability of observing a positive reaction, while high gross debt does the opposite. A deteriorating government budget (low primary balance) or increasing debt level, equivalent to a distressed country, signals to market participants that the ECB would provide liquidity to the country, most likely through the SMP and OMT, but also through the LTROs with the banks' purchases of government bonds (Krishnamurthy et al., 2017).

Despite the heterogeneous behaviour of sectors that our predictors captured, we provide the rationale behind the dominant behaviour among market participants toward the ECB's unconventional policies. Our results thus should not be viewed as characterising the unique behaviour of market participants, but rather as expressing their most common reactions during unconventional times.

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<sup>9</sup>The relationship between monetary policy and the bank risk channel is not unique and linear. Accommodative monetary policy can lead to overall lower loan spreads (charging riskier borrowers with lower loan spreads), which translates into less risk (Matthys et al., 2020; Paligorova and Santos, 2017; Andreeva and García-Posada, 2021). Conversely, monetary policy expansion can also increase banks leverage and risk as the reinforcing links between liquidity and risk-taking may drive banks' appetite for risk (Angeloni et al., 2015; Borio and Zhu, 2012)

## 6. Conclusion

In light of the ECB's unconventional policies in response to the GFC and euro area SDC, there has been a buoyant literature on the impact and effectiveness of these policies. The studies on the determinants of their effectiveness focused on the cross-country or cross-sector responses to the UMPs at an aggregated level. This study contributes to the literature by using disaggregated data for each sector, by combining the heterogeneous responses at both the country and sectoral level and analysing its determinants.

Proceeding in a two-step approach, we first confirm that markets reacted heterogeneously to ECB announcements of the SMP, OMT and V/TLTRO. Second, we uncover the main determinants of these heterogeneous responses by considering the banking system and financial, fiscal and regulatory indicators. Our main findings reveal that some banking sector conditions, macroeconomic and macroprudential indicators are drivers of the heterogeneous reactions across sectors. We show that with increasing cost-to-income, ROA, credit risk (variables related to the banking sector), gross debt and MPI (macroeconomic and regulation variables), the probability of a positive response by the sectors is increasing. We observe the opposite behaviour, that is, a decrease in this probability, for increasing bank concentration, tier 1 ratio (bank-level variables) and primary balance (country-level variable).

# Appendices

## A. Descriptive statistics and variables definition

The variables that are considered for the model evaluation appear in the Table A.1 below.

Table A.1: **Variables definition**

Variable	Definition	Source
<i>Banking sector characteristics</i>		
Bank Cost to Income Ratio (in %)	Operating expenses of a bank as a share of sum of net-interest revenue and other operating income	Cihak, Demirguc-Kunt, Feyen and Levine (2012)
Bank Return on Assets (After Tax) (in %)	Commercial banks' after-tax net income to yearly averaged total assets	Cihak, Demirguc-Kunt, Feyen and Levine (2012)
Bank Concentration (in %)	Assets of three largest commercial banks as a share of total commercial banking assets	Cihak, Demirguc-Kunt, Feyen and Levine (2012)
Credit Risk (in %)	The risk of loss due to default by a borrower, computed as credit risk / total risk exposure amount, and following the standardised approach (use of external ratings)	ECB (Consolidated Banking data and Banking Structural Financial Indicators database)
Tier 1 Ratio (in %)	Core tier 1 capital (equity capital and disclosed reserves) / total risk exposure amount	ECB (Consolidated Banking data and Banking Structural Financial Indicators database)
<i>Financial system characteristics</i>		
Market Risk (in %)	The risk of losses in on- and off-balance sheet positions arising from adverse movements in market prices. Computed as risk exposure amount for position, foreign exchange and commodities risks (under standardised approach) / total risk exposure amount	ECB (Consolidated Banking data and Banking Structural Financial Indicators database)
<i>Fiscal and Regulation indicators</i>		
Primary Balance (in %)	Overall balance excluding net interest payment (interest expenditure minus interest revenue)	IMF (Fiscal Monitor database)
Gross Debt (in %)	General Government Gross Debt	IMF (Fiscal Monitor database)
Macroprudential Index (in unit)	Sum of the scores on policies aimed at borrowers' leverage and financial positions, and at financial institutions' assets or liabilities	Cerutti, Claessens and Laeven (2017)

Table A.2: Descriptive statistics

Market Indices											Austria										
Index	Estimation Window					Event Window					Sector	Estimation Window					Event Window				
	Mean	Std.Dev.	Max	Min	Obs	Mean	Std.Dev.	Max	Min	Obs		Mean	Std.Dev.	Max	Min	Obs	Mean	Std.Dev.	Max	Min	Obs
EMU, MSCI, All Cap	-0.03	1.50	4.94	-5.44	1883	0.22	1.93	4.10	-4.45	40	Bank	-0.12	3.03	10.88	-15.46	2159	0.63	4.03	14.44	-7.08	42
EU, MSCI, IMI (Large, Mid & Small Cap)	-0.01	1.30	4.40	-5.68	2011	0.19	2.01	7.26	-4.31	45	Commercial Services	0.05	2.71	15.97	-15.39	2092	-0.67	3.33	6.62	-15.39	45
Europe, MSCI, All Cap	-0.01	1.26	4.18	-5.47	1887	0.10	1.58	3.54	-4.28	40	Communications	-0.05	1.88	8.06	-14.89	2267	0.41	2.42	7.72	-3.90	45
World, MSCI, All Cap	0.00	0.98	3.70	-6.07	1900	0.02	1.44	2.95	-5.46	40	Consumer Durables					0					0
World excl EMU, MSCI, All Cap	0.01	0.97	3.78	-6.19	1900	0.00	1.43	2.94	-5.60	40	Consumer Non-Durables	0.07	2.30	13.98	-7.43	1957	0.02	1.76	4.11	-4.01	40
Euro Area, Equity Indices, STOXX	-0.01	1.49	5.19	-5.54	2233	-0.00	2.40	8.67	-4.06	45	Consumer Services	-0.16	2.73	15.78	-11.15	1548	-1.33	4.14	5.96	-11.15	15
Europe, STOXX, TMI	0.01	1.24	4.23	-5.47	2241	0.19	1.92	6.82	-4.27	45	Distribution Services					0					0
Europe, STOXX, All Europe Total Market	0.00	1.24	4.40	-5.51	2215	0.18	1.85	6.21	-4.49	45	Electronic Technology	-0.01	2.45	16.84	-13.16	2267	-0.20	3.20	9.60	-9.62	45
Europe, FTSE, All Cap	0.01	1.24	4.20	-5.51	2265	0.17	1.93	6.69	-4.44	45	Health Technology	-0.39	4.36	17.83	-50.98	1809	-0.09	4.78	11.56	-11.98	35
World, FTSE, All Cap	0.02	0.93	3.81	-6.21	2264	0.08	1.43	3.33	-5.37	45	Industrial Services	0.02	1.90	8.94	-9.42	2267	-0.05	2.60	8.43	-8.03	45
											Non-Energy Minerals	-0.01	2.90	11.69	-10.81	2267	0.19	3.97	11.77	-9.87	45
											Process Industries	0.01	1.49	5.60	-7.19	2267	-0.05	2.17	6.74	-7.19	45
											Producer Manufacturing	0.03	2.02	8.37	-6.48	2267	0.08	2.68	6.92	-6.19	45
											Retail Trade					0					0
											Technology Services					0					0
											Transportation	0.01	1.37	4.56	-5.58	2267	0.17	2.09	6.78	-4.64	45
											Utilities	-0.08	1.81	6.75	-11.62	2267	0.15	2.22	5.61	-4.09	45

Belgium											Germany										
Sector	Estimation Window					Event Window					Sector	Estimation Window					Event Window				
	Mean	Std.Dev.	Max	Min	Obs	Mean	Std.Dev.	Max	Min	Obs		Mean	Std.Dev.	Max	Min	Obs	Mean	Std.Dev.	Max	Min	Obs
Bank	-0.11	3.58	15.46	-13.97	2227	1.17	5.28	19.21	-8.92	45	Bank	-0.10	2.78	14.48	-10.22	2220	0.59	3.83	11.37	-6.02	45
Commercial Services					0					0	Commercial Services	0.05	1.50	5.83	-6.23	2267	-0.15	1.93	4.88	-5.79	45
Communications	-0.01	1.44	5.15	-5.91	2267	0.17	1.88	5.80	-4.79	45	Communications	-0.01	1.86	10.27	-8.07	2267	0.24	2.20	5.29	-4.08	45
Consumer Durables	0.12	1.97	9.66	-11.34	2267	0.47	3.58	12.77	-5.68	45	Consumer Durables	-0.04	2.25	7.61	-11.73	2267	0.23	2.69	6.82	-6.66	45
Consumer Non-Durables	0.07	1.59	6.83	-6.67	2267	0.16	2.17	9.03	-3.90	45	Consumer Non-Durables	0.05	1.58	4.68	-6.01	2267	0.13	1.94	4.68	-4.85	45
Consumer Services	-0.05	2.64	17.49	-14.05	2195	-0.05	3.05	8.18	-5.54	40	Consumer Services	0.03	2.13	7.15	-8.26	2267	0.13	2.84	7.16	-7.81	45
Distribution Services	-0.01	2.80	43.52	-46.37	2267	0.11	3.54	10.67	-12.57	45	Distribution Services	0.01	1.80	7.92	-7.43	2267	-0.00	2.21	7.00	-5.77	45
Electronic Technology	-0.01	2.25	8.84	-9.30	2267	0.28	3.22	9.74	-7.83	45	Electronic Technology	0.03	2.12	7.39	-7.48	2267	0.31	2.91	8.06	-6.49	45
Health Technology	0.06	1.70	11.41	-6.93	2267	0.10	2.44	7.21	-6.38	45	Health Technology	0.02	1.85	7.05	-6.96	2267	0.14	2.44	6.37	-4.46	45
Industrial Services	0.03	1.92	7.63	-6.21	2267	0.10	2.55	8.11	-5.50	45	Industrial Services	0.01	2.14	7.90	-8.12	2267	0.20	2.83	9.80	-6.42	45
Non-Energy Minerals	-0.01	2.55	9.37	-9.65	2267	0.39	3.68	10.07	-7.11	45	Non-Energy Minerals	-0.02	2.54	9.91	-10.32	2267	0.50	3.19	7.92	-7.27	45
Process Industries	-0.03	2.08	8.24	-7.39	2267	-0.06	2.92	7.53	-6.02	45	Process Industries	-0.00	2.01	7.38	-6.61	2267	0.15	2.64	6.82	-5.91	45
Producer Manufacturing	-0.09	2.20	8.12	-8.47	2267	0.36	3.09	11.42	-4.91	45	Producer Manufacturing	-0.01	1.99	6.79	-7.81	2267	0.27	2.73	8.13	-6.23	45
Retail Trade	-0.03	1.58	6.36	-8.76	2267	0.35	1.69	3.83	-3.20	45	Retail Trade	-0.05	1.84	7.22	-9.82	2267	-0.04	2.91	7.18	-9.82	45
Technology Services	-0.01	1.38	5.01	-5.11	2267	-0.15	1.78	5.27	-4.78	45	Technology Services	0.05	1.65	5.36	-7.76	2268	-0.00	2.03	4.41	-5.88	45
Transportation	-0.05	1.88	6.96	-7.97	2267	0.05	3.05	10.14	-7.97	45	Transportation	-0.01	1.93	6.95	-7.30	2267	0.17	2.45	7.36	-5.35	45
Utilities	0.03	1.27	7.42	-4.71	2267	0.05	1.54	3.43	-3.45	45	Utilities	-0.06	2.18	7.62	-8.95	2267	-0.10	2.92	6.12	-6.70	45

### Spain

Sector	Estimation Window					Event Window				
	Mean	Std.Dev.	Max	Min	Obs	Mean	Std.Dev.	Max	Min	Obs
Bank	-0.08	2.24	9.85	-8.92	2229	1.19	4.27	19.81	-6.87	45
Commercial Services	0.02	1.99	13.17	-9.24	2267	-0.07	3.03	8.78	-6.83	45
Communications	-0.08	2.00	8.25	-8.42	2267	0.47	3.66	12.77	-8.75	45
Consumer Durables	0.05	1.93	7.81	-9.05	509	0.20	2.17	4.25	-4.43	19
Consumer Non-Durables	-0.02	1.30	6.50	-5.86	2267	0.08	1.52	4.40	-2.48	45
Consumer Services	-0.09	2.39	8.65	-9.11	2267	0.17	3.62	9.27	-7.21	45
Distribution Services	-0.08	1.70	8.83	-6.87	1900	-0.15	1.87	5.61	-3.71	30
Electronic Technology	-0.05	3.53	25.19	-42.84	2157	1.72	6.10	25.19	-6.51	39
Health Technology	0.06	1.70	9.17	-6.13	2267	0.09	2.59	6.90	-5.73	45
Industrial Services	-0.07	2.10	7.88	-6.79	2267	0.49	2.87	8.44	-4.88	45
Non-Energy Minerals	-0.06	2.03	8.42	-8.05	2267	0.38	2.59	7.76	-5.88	45
Process Industries	0.01	1.32	4.76	-4.67	2267	0.12	1.65	3.91	-3.11	45
Producer Manufacturing	-0.04	1.65	6.95	-6.57	2267	0.15	2.61	8.25	-4.58	45
Retail Trade	0.07	1.84	11.30	-6.10	2267	0.56	2.95	10.15	-5.45	45
Technology Services	0.02	1.70	7.37	-8.09	2267	0.14	2.66	8.14	-5.55	45
Transportation	0.01	1.81	6.37	-9.15	2267	0.38	2.96	11.13	-5.57	45
Utilities	-0.04	1.93	6.56	-7.99	2267	0.66	3.05	10.21	-4.77	45

### Finland

Sector	Estimation Window					Event Window				
	Mean	Std.Dev.	Max	Min	Obs	Mean	Std.Dev.	Max	Min	Obs
Bank	-0.00	2.01	8.80	-6.60	2192	0.31	3.00	12.51	-4.55	43
Commercial Services	-0.04	1.85	8.60	-6.98	2267	-0.09	2.63	8.60	-6.91	45
Communications	0.05	1.63	6.30	-9.43	2267	0.14	2.11	8.54	-4.23	45
Consumer Durables	0.04	2.36	7.99	-10.08	2267	0.11	3.69	10.46	-9.96	45
Consumer Non-Durables	-0.02	1.48	6.39	-5.48	2267	0.05	2.24	9.14	-4.78	45
Consumer Services	-0.11	2.08	8.22	-13.35	2267	0.14	3.04	9.56	-8.58	45
Distribution Services	-0.05	2.67	19.14	-16.27	2267	-0.20	2.82	8.66	-6.19	45
Electronic Technology	-0.15	3.00	26.32	-17.63	2267	0.41	4.31	8.64	-12.18	45
Health Technology	0.00	1.76	11.84	-10.35	2266	-0.03	2.34	6.91	-6.63	45
Industrial Services	0.03	2.08	7.11	-8.21	2267	0.32	2.67	8.92	-5.61	45
Non-Energy Minerals	-0.21	3.13	14.33	-25.99	2267	0.68	4.03	9.97	-9.17	45
Process Industries	-0.01	2.31	10.37	-8.80	2268	0.21	3.40	9.72	-8.80	45
Producer Manufacturing	0.00	2.51	9.96	-9.60	2268	0.31	3.74	10.24	-7.79	45
Retail Trade	-0.04	2.09	8.07	-12.76	2267	0.12	2.97	9.19	-6.07	45
Technology Services	0.03	1.76	10.00	-6.80	2267	0.09	2.12	7.60	-3.46	45
Transportation	-0.04	2.44	11.51	-10.44	2267	0.29	3.02	8.14	-5.21	45
Utilities	-0.05	2.00	7.38	-12.82	2267	0.31	2.38	6.24	-5.06	45

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### France

Sector	Estimation Window					Event Window				
	Mean	Std.Dev.	Max	Min	Obs	Mean	Std.Dev.	Max	Min	Obs
Bank	-0.09	3.20	17.08	-14.81	2237	1.05	4.76	19.44	-6.85	45
Commercial Services	0.02	1.51	5.46	-6.37	2267	0.15	2.17	6.15	-5.35	45
Communications	-0.05	1.86	8.13	-6.94	2267	0.28	2.65	7.94	-5.87	45
Consumer Durables	-0.02	2.36	8.41	-8.95	2267	0.33	3.02	7.58	-8.12	45
Consumer Non-Durables	0.03	1.64	5.89	-6.28	2267	0.13	2.37	8.64	-4.76	45
Consumer Services	-0.04	1.82	6.22	-7.01	2267	0.30	2.41	8.21	-4.89	45
Distribution Services	0.02	2.01	6.77	-6.59	2267	0.12	2.77	9.68	-5.99	45
Electronic Technology	0.01	1.81	6.37	-7.29	2267	0.15	2.62	6.91	-7.29	45
Health Technology	0.02	1.61	5.56	-6.19	2267	0.33	2.22	7.11	-4.15	45
Industrial Services	-0.01	2.05	6.89	-7.37	2267	0.35	3.07	9.34	-6.68	45
Non-Energy Minerals	-0.06	2.33	8.09	-8.30	2267	0.40	3.25	9.12	-6.34	45
Process Industries	0.02	1.71	7.39	-6.40	2267	0.29	2.62	9.40	-5.06	45
Producer Manufacturing	-0.04	2.32	8.28	-8.36	2267	0.32	3.29	10.00	-7.11	45
Retail Trade	-0.03	1.94	7.35	-7.61	2267	0.28	2.92	8.38	-6.19	45
Technology Services	0.04	1.66	6.07	-6.49	2267	0.15	2.35	6.76	-6.29	45
Transportation	-0.00	1.41	4.24	-5.40	2267	0.03	2.18	7.78	-4.61	45
Utilities	-0.07	2.02	7.90	-7.89	2267	0.12	2.86	5.86	-6.36	45

### Greece

Sector	Estimation Window					Event Window				
	Mean	Std.Dev.	Max	Min	Obs	Mean	Std.Dev.	Max	Min	Obs
Bank	-0.55	6.13	25.76	-35.58	1934	0.65	4.97	14.45	-13.16	42
Commercial Services	-0.20	5.27	27.45	-35.52	2215	0.75	5.14	15.11	-10.14	45
Communications	-0.19	3.67	17.54	-18.65	2267	0.12	3.59	6.44	-11.52	45
Consumer Durables	0.54	3.62	18.40	-7.72	85					0
Consumer Non-Durables	-0.03	2.57	11.42	-14.53	2267	0.05	2.49	5.13	-8.04	45
Consumer Services	-0.17	3.23	13.48	-18.46	2267	0.40	3.14	9.25	-9.19	45
Distribution Services					0					0
Electronic Technology	0.07	3.83	17.00	-10.35	904	0.59	6.41	11.59	-4.39	5
Health Technology	-0.78	4.94	19.86	-30.07	629	0.53	11.18	17.52	-12.73	5
Industrial Services	-0.15	2.77	19.09	-15.96	2268	0.34	3.19	9.40	-8.33	45
Non-Energy Minerals	-0.03	2.62	16.15	-10.45	2267	0.22	3.17	9.60	-6.32	45
Process Industries	0.01	1.90	24.83	-19.02	1754	-0.16	0.98	1.61	-2.66	20
Producer Manufacturing	-0.10	2.71	16.18	-17.07	2267	0.50	3.49	14.32	-5.43	45
Retail Trade	-0.10	2.36	12.27	-16.83	2267	0.43	3.47	10.31	-6.69	45
Technology Services	0.09	4.53	23.05	-12.98	941	-0.22	4.92	11.25	-8.40	15
Transportation	-0.08	1.96	8.44	-13.25	2268	0.04	3.18	8.44	-13.25	45
Utilities	-0.21	3.11	18.80	-21.66	2267	0.39	3.58	10.66	-7.32	45

### Ireland

Sector	Estimation Window					Event Window				
	Mean	Std.Dev.	Max	Min	Obs	Mean	Std.Dev.	Max	Min	Obs
Bank	-0.33	5.50	34.60	-32.63	1424	0.03	6.67	18.69	-10.47	18
Commercial Services	0.07	2.35	12.94	-15.55	2214	-0.03	2.64	5.05	-7.40	45
Communications					0					0
Consumer Durables	0.07	1.40	9.98	-6.41	1995	0.23	1.89	8.55	-2.28	35
Consumer Non-Durables	0.07	1.39	6.44	-5.01	2268	-0.04	2.01	5.82	-5.01	45
Consumer Services	0.10	1.73	14.36	-8.18	2268	-0.18	2.32	5.51	-6.07	45
Distribution Services	0.02	1.74	6.39	-6.15	2268	0.09	2.29	5.37	-5.75	45
Electronic Technology					0					0
Health Technology	0.11	2.05	8.47	-21.11	2259	-0.22	3.24	8.47	-8.96	45
Industrial Services	0.57	3.26	26.26	-5.27	174					0
Non-Energy Minerals	0.01	2.64	7.71	-16.95	2268	0.59	3.38	13.99	-5.61	45
Process Industries	0.01	3.11	10.32	-13.42	2268	0.10	3.86	7.75	-13.42	45
Producer Manufacturing	0.05	1.73	9.37	-10.59	2268	0.20	2.53	8.75	-6.46	45
Retail Trade					0					0
Technology Services	0.26	3.37	30.74	-26.32	1205	0.25	1.91	3.00	-4.94	15
Transportation	0.04	1.95	7.08	-12.09	2268	0.24	2.16	5.47	-4.17	45
Utilities					0					0

### Italy

Sector	Estimation Window					Event Window				
	Mean	Std.Dev.	Max	Min	Obs	Mean	Std.Dev.	Max	Min	Obs
Bank	-0.14	3.14	11.85	-13.39	2219	1.23	4.70	16.87	-8.91	45
Commercial Services	-0.04	2.00	8.87	-7.49	2267	0.04	2.03	4.32	-4.30	45
Communications	-0.02	2.45	8.49	-8.66	2267	1.16	3.45	11.38	-8.05	45
Consumer Durables	0.02	2.64	7.35	-10.95	2267	0.27	3.64	9.52	-9.76	45
Consumer Non-Durables	0.04	1.70	6.67	-7.84	2268	-0.02	2.24	7.37	-3.90	45
Consumer Services	-0.07	2.09	6.71	-9.81	2267	0.36	3.13	8.88	-5.29	45
Distribution Services	-0.00	1.71	9.50	-6.62	2267	0.23	1.84	4.74	-4.24	45
Electronic Technology	-0.11	2.47	11.73	-16.81	2267	0.63	3.08	7.18	-7.14	45
Health Technology	0.00	1.62	4.89	-6.43	2268	0.12	2.25	5.47	-5.99	45
Industrial Services	-0.00	2.02	13.88	-15.94	2267	0.15	2.88	7.05	-7.15	45
Non-Energy Minerals	-0.02	2.33	19.59	-7.78	2267	0.47	3.03	9.12	-5.91	45
Process Industries	0.02	1.56	10.33	-5.61	2267	0.14	1.83	4.08	-5.61	45
Producer Manufacturing	0.01	2.42	8.24	-11.28	2267	0.26	3.36	7.46	-8.65	45
Retail Trade	0.07	1.89	27.00	-6.94	2267	-0.39	2.15	4.06	-4.89	45
Technology Services	0.05	1.57	6.77	-5.07	2267	0.23	2.06	6.36	-4.88	45
Transportation	-0.02	2.03	8.62	-8.45	2267	0.77	2.96	8.79	-6.73	45
Utilities	-0.04	1.90	6.46	-9.60	2267	0.55	2.72	7.77	-6.07	45

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### Netherlands

Sector	Estimation Window					Event Window				
	Mean	Std.Dev.	Max	Min	Obs	Mean	Std.Dev.	Max	Min	Obs
Bank	-0.13	2.02	8.19	-6.22	247	0.76	2.71	5.47	-1.44	5
Commercial Services	-0.02	2.27	7.56	-9.08	2268	0.29	2.97	6.63	-9.08	45
Communications	-0.04	1.78	10.32	-8.21	2267	0.17	2.02	6.23	-3.50	45
Consumer Durables	0.01	2.20	12.89	-9.71	2267	-0.02	1.72	6.13	-3.05	45
Consumer Non-Durables	0.03	1.36	7.23	-5.92	2267	0.13	1.85	6.09	-3.98	45
Consumer Services	-0.01	1.51	4.71	-8.23	2268	0.19	2.21	4.71	-6.62	45
Distribution Services	-0.01	1.26	5.82	-5.28	2267	-0.17	1.60	5.04	-3.62	45
Electronic Technology	0.08	1.97	7.87	-8.06	2267	0.23	2.65	5.96	-7.51	45
Health Technology	-0.00	2.88	20.32	-29.91	2226	-0.21	3.49	13.90	-11.92	45
Industrial Services	0.00	2.11	7.05	-9.13	2268	0.01	3.55	7.96	-9.13	45
Non-Energy Minerals	-0.16	9.16	70.73	-68.38	992	-0.30	2.70	3.39	-5.97	13
Process Industries	-0.00	1.84	7.87	-6.54	2268	0.02	2.62	6.42	-6.35	45
Producer Manufacturing	-0.00	2.12	7.28	-7.84	2268	0.37	3.07	9.98	-7.60	45
Retail Trade	0.02	1.44	5.56	-6.36	2267	0.23	1.71	6.46	-3.71	45
Technology Services	0.07	1.83	6.92	-12.06	2268	0.12	2.62	7.68	-6.73	45
Transportation	0.00	1.98	24.52	-8.17	2267	-0.04	2.29	7.02	-6.64	45
Utilities					0					0

### Portugal

Sector	Estimation Window					Event Window				
	Mean	Std.Dev.	Max	Min	Obs	Mean	Std.Dev.	Max	Min	Obs
Bank	-0.30	2.93	13.41	-12.93	2217	0.96	4.38	13.78	-6.45	44
Commercial Services	-0.08	2.03	8.72	-6.88	2267	0.17	2.84	6.05	-4.75	45
Communications	-0.12	1.96	7.58	-9.78	2267	0.59	3.83	18.21	-8.36	45
Consumer Durables					0					0
Consumer Non-Durables					0					0
Consumer Services	-0.08	2.03	8.72	-6.88	2267	0.17	2.84	6.05	-4.75	45
Distribution Services	0.03	2.67	15.08	-7.96	295	2.13	2.13	2.13	1	1
Electronic Technology	0.10	1.15	3.06	-4.58	58					0
Health Technology					0					0
Industrial Services	-0.14	2.19	12.07	-15.56	2267	0.42	2.81	9.61	-4.74	45
Non-Energy Minerals	-0.08	2.41	18.30	-29.46	2267	-0.03	3.16	12.45	-6.14	40
Process Industries	-0.01	1.67	5.59	-7.19	2267	0.13	2.35	8.90	-4.94	45
Producer Manufacturing					0					0
Retail Trade	0.03	2.07	6.57	-7.57	2267	0.06	2.88	10.64	-5.57	45
Technology Services	-0.07	1.75	7.56	-8.11	2172	0.21	2.41	5.39	-4.39	28
Transportation	-0.11	2.45	13.24	-10.09	2124	0.03	3.54	11.48	-9.88	45
Utilities	-0.03	1.78	6.31	-7.42	2267	0.64	2.45	6.61	-4.66	45

## B. Significant reactions to policy announcements at country-level

The detail of the event-study results are presented below

Table B.1: **Significant reactions**

<b>Austria</b>				<b>Belgium</b>			
Sector	Positive	Sector	Negative	Sector	Positive	Sector	Negative
Communications	1 out of 9	Bank	1 out of 9	Bank	2 out of 9	Process Industries	1 out of 9
Transportation	1 out of 9	Commercial Services	1 out of 9	Communications	1 out of 9	Technology Services	1 out of 9
Bank	0 out of 9	Electronic Technology	1 out of 9	Health Technology	1 out of 9	Transportation	1 out of 9
Commercial Services	0 out of 9	Process Industries	1 out of 9	Producer Manufacturing	1 out of 9	Bank	0 out of 9
Electronic Technology	0 out of 9	Consumer Services	1 out of 3	Retail Trade	1 out of 9	Communications	0 out of 9
Industrial Services	0 out of 9	Communications	0 out of 9	Consumer Durables	0 out of 9	Consumer Durables	0 out of 9
Non-Energy Minerals	0 out of 9	Industrial Services	0 out of 9	Consumer Non-Durables	0 out of 9	Consumer Non-Durables	0 out of 9
Process Industries	0 out of 9	Non-Energy Minerals	0 out of 9	Distribution Services	0 out of 9	Distribution Services	0 out of 9
Producer Manufacturing	0 out of 9	Producer Manufacturing	0 out of 9	Electronic Technology	0 out of 9	Electronic Technology	0 out of 9
Utilities	0 out of 9	Transportation	0 out of 9	Industrial Services	0 out of 9	Health Technology	0 out of 9
Consumer Non-Durables	0 out of 8	Utilities	0 out of 9	Non-Energy Minerals	0 out of 9	Industrial Services	0 out of 9
Health Technology	0 out of 7	Consumer Non-Durables	0 out of 8	Process Industries	0 out of 9	Non-Energy Minerals	0 out of 9
Consumer Services	0 out of 3	Health Technology	0 out of 7	Technology Services	0 out of 9	Producer Manufacturing	0 out of 9
Consumer Durables	0 out of 0	Consumer Durables	0 out of 0	Transportation	0 out of 9	Retail Trade	0 out of 9
Distribution Services	0 out of 0	Distribution Services	0 out of 0	Utilities	0 out of 9	Utilities	0 out of 9
Retail Trade	0 out of 0	Retail Trade	0 out of 0	Consumer Services	0 out of 8	Consumer Services	0 out of 8
Technology Services	0 out of 0	Technology Services	0 out of 0	Commercial Services	0 out of 0	Commercial Services	0 out of 0

<b>Germany</b>				<b>Spain</b>			
Sector	Positive	Sector	Negative	Sector	Positive	Sector	Negative
Bank	1 out of 9	Retail Trade	2 out of 9	Bank	3 out of 9	Commercial Services	1 out of 9
Commercial Services	0 out of 9	Utilities	2 out of 9	Utilities	3 out of 9	Consumer Services	1 out of 9
Communications	0 out of 9	Distribution Services	1 out of 9	Communications	2 out of 9	Health Technology	1 out of 9
Consumer Durables	0 out of 9	Electronic Technology	1 out of 9	Industrial Services	2 out of 9	Bank	0 out of 9
Consumer Non-Durables	0 out of 9	Bank	0 out of 9	Health Technology	1 out of 9	Communications	0 out of 9
Consumer Services	0 out of 9	Commercial Services	0 out of 9	Non-Energy Minerals	1 out of 9	Consumer Non-Durables	0 out of 9
Distribution Services	0 out of 9	Communications	0 out of 9	Process Industries	1 out of 9	Industrial Services	0 out of 9
Electronic Technology	0 out of 9	Consumer Durables	0 out of 9	Producer Manufacturing	1 out of 9	Non-Energy Minerals	0 out of 9
Health Technology	0 out of 9	Consumer Non-Durables	0 out of 9	Technology Services	1 out of 9	Process Industries	0 out of 9
Industrial Services	0 out of 9	Consumer Services	0 out of 9	Electronic Technology	1 out of 8	Producer Manufacturing	0 out of 9
Non-Energy Minerals	0 out of 9	Health Technology	0 out of 9	Consumer Durables	1 out of 3	Retail Trade	0 out of 9
Process Industries	0 out of 9	Industrial Services	0 out of 9	Commercial Services	0 out of 9	Technology Services	0 out of 9
Producer Manufacturing	0 out of 9	Non-Energy Minerals	0 out of 9	Consumer Non-Durables	0 out of 9	Transportation	0 out of 9
Retail Trade	0 out of 9	Process Industries	0 out of 9	Consumer Services	0 out of 9	Utilities	0 out of 9
Technology Services	0 out of 9	Producer Manufacturing	0 out of 9	Retail Trade	0 out of 9	Electronic Technology	0 out of 8
Transportation	0 out of 9	Technology Services	0 out of 9	Transportation	0 out of 9	Distribution Services	0 out of 6
Utilities	0 out of 9	Transportation	0 out of 9	Distribution Services	0 out of 6	Consumer Durables	0 out of 3

### Finland

Sector	Positive	Sector	Negative
Bank	1 out of 9	Bank	2 out of 9
Electronic Technology	1 out of 9	Consumer Durables	1 out of 9
Industrial Services	1 out of 9	Health Technology	1 out of 9
Non-Energy Minerals	1 out of 9	Industrial Services	1 out of 9
Producer Manufacturing	1 out of 9	Non-Energy Minerals	1 out of 9
Transportation	1 out of 9	Process Industries	1 out of 9
Commercial Services	0 out of 9	Producer Manufacturing	1 out of 9
Communications	0 out of 9	Retail Trade	1 out of 9
Consumer Durables	0 out of 9	Transportation	1 out of 9
Consumer Non-Durables	0 out of 9	Utilities	1 out of 9
Consumer Services	0 out of 9	Commercial Services	0 out of 9
Distribution Services	0 out of 9	Communications	0 out of 9
Health Technology	0 out of 9	Consumer Non-Durables	0 out of 9
Process Industries	0 out of 9	Consumer Services	0 out of 9
Retail Trade	0 out of 9	Distribution Services	0 out of 9
Technology Services	0 out of 9	Electronic Technology	0 out of 9
Utilities	0 out of 9	Technology Services	0 out of 9

### France

Sector	Positive	Sector	Negative
Consumer Non-Durables	1 out of 9	Producer Manufacturing	1 out of 9
Consumer Services	1 out of 9	Utilities	1 out of 9
Health Technology	1 out of 9	Bank	0 out of 9
Non-Energy Minerals	1 out of 9	Commercial Services	0 out of 9
Process Industries	1 out of 9	Communications	0 out of 9
Producer Manufacturing	1 out of 9	Consumer Durables	0 out of 9
Retail Trade	1 out of 9	Consumer Non-Durables	0 out of 9
Technology Services	1 out of 9	Consumer Services	0 out of 9
Bank	0 out of 9	Distribution Services	0 out of 9
Commercial Services	0 out of 9	Electronic Technology	0 out of 9
Communications	0 out of 9	Health Technology	0 out of 9
Consumer Durables	0 out of 9	Industrial Services	0 out of 9
Distribution Services	0 out of 9	Non-Energy Minerals	0 out of 9
Electronic Technology	0 out of 9	Process Industries	0 out of 9
Industrial Services	0 out of 9	Retail Trade	0 out of 9
Transportation	0 out of 9	Technology Services	0 out of 9
Utilities	0 out of 9	Transportation	0 out of 9

### Greece

Sector	Positive	Sector	Negative
Retail Trade	2 out of 9	Communications	1 out of 9
Bank	1 out of 9	Non-Energy Minerals	1 out of 9
Producer Manufacturing	1 out of 9	Retail Trade	1 out of 9
Utilities	1 out of 9	Transportation	1 out of 9
Commercial Services	0 out of 9	Utilities	1 out of 9
Communications	0 out of 9	Bank	0 out of 9
Consumer Non-Durables	0 out of 9	Commercial Services	0 out of 9
Consumer Services	0 out of 9	Consumer Non-Durables	0 out of 9
Industrial Services	0 out of 9	Consumer Services	0 out of 9
Non-Energy Minerals	0 out of 9	Industrial Services	0 out of 9
Transportation	0 out of 9	Producer Manufacturing	0 out of 9
Process Industries	0 out of 4	Process Industries	0 out of 4
Technology Services	0 out of 2	Technology Services	0 out of 2
Electronic Technology	0 out of 1	Electronic Technology	0 out of 1
Health Technology	0 out of 1	Health Technology	0 out of 1
Consumer Durables	0 out of 0	Consumer Durables	0 out of 0
Distribution Services	0 out of 0	Distribution Services	0 out of 0

### Ireland

Sector	Positive	Sector	Negative
Distribution Services	1 out of 9	Commercial Services	1 out of 9
Non-Energy Minerals	1 out of 9	Consumer Non-Durables	1 out of 9
Transportation	1 out of 9	Distribution Services	1 out of 9
Consumer Durables	1 out of 7	Health Technology	1 out of 9
Commercial Services	0 out of 9	Consumer Services	0 out of 9
Consumer Non-Durables	0 out of 9	Non-Energy Minerals	0 out of 9
Consumer Services	0 out of 9	Process Industries	0 out of 9
Health Technology	0 out of 9	Producer Manufacturing	0 out of 9
Process Industries	0 out of 9	Transportation	0 out of 9
Producer Manufacturing	0 out of 9	Consumer Durables	0 out of 7
Bank	0 out of 4	Bank	0 out of 4
Technology Services	0 out of 3	Technology Services	0 out of 3
Communications	0 out of 0	Communications	0 out of 0
Electronic Technology	0 out of 0	Electronic Technology	0 out of 0
Industrial Services	0 out of 0	Industrial Services	0 out of 0
Retail Trade	0 out of 0	Retail Trade	0 out of 0
Utilities	0 out of 0	Utilities	0 out of 0

### Italy

Sector	Positive	Sector	Negative
Bank	2 out of 9	Commercial Services	1 out of 9
Transportation	2 out of 9	Consumer Non-Durables	1 out of 9
Communications	1 out of 9	Electronic Technology	1 out of 9
Consumer Services	1 out of 9	Retail Trade	1 out of 9
Electronic Technology	1 out of 9	Bank	0 out of 9
Non-Energy Minerals	1 out of 9	Communications	0 out of 9
Process Industries	1 out of 9	Consumer Durables	0 out of 9
Technology Services	1 out of 9	Consumer Services	0 out of 9
Utilities	1 out of 9	Distribution Services	0 out of 9
Commercial Services	0 out of 9	Health Technology	0 out of 9
Consumer Durables	0 out of 9	Industrial Services	0 out of 9
Consumer Non-Durables	0 out of 9	Non-Energy Minerals	0 out of 9
Distribution Services	0 out of 9	Process Industries	0 out of 9
Health Technology	0 out of 9	Producer Manufacturing	0 out of 9
Industrial Services	0 out of 9	Technology Services	0 out of 9
Producer Manufacturing	0 out of 9	Transportation	0 out of 9
Retail Trade	0 out of 9	Utilities	0 out of 9

### Netherlands

Sector	Positive	Sector	Negative
Communications	1 out of 9	Health Technology	1 out of 9
Consumer Non-Durables	1 out of 9	Commercial Services	0 out of 9
Commercial Services	0 out of 9	Communications	0 out of 9
Consumer Durables	0 out of 9	Consumer Durables	0 out of 9
Consumer Services	0 out of 9	Consumer Non-Durables	0 out of 9
Distribution Services	0 out of 9	Consumer Services	0 out of 9
Electronic Technology	0 out of 9	Distribution Services	0 out of 9
Health Technology	0 out of 9	Electronic Technology	0 out of 9
Industrial Services	0 out of 9	Industrial Services	0 out of 9
Process Industries	0 out of 9	Process Industries	0 out of 9
Producer Manufacturing	0 out of 9	Producer Manufacturing	0 out of 9
Retail Trade	0 out of 9	Retail Trade	0 out of 9
Technology Services	0 out of 9	Technology Services	0 out of 9
Transportation	0 out of 9	Transportation	0 out of 9
Bank	0 out of 1	Bank	0 out of 1
Non-Energy Minerals	0 out of 1	Non-Energy Minerals	0 out of 1
Utilities	0 out of 0	Utilities	0 out of 0

### Portugal

Sector	Positive	Sector	Negative
Bank	2 out of 9	Communications	1 out of 9
Communications	1 out of 9	Transportation	1 out of 9
Industrial Services	1 out of 9	Bank	0 out of 9
Utilities	1 out of 9	Commercial Services	0 out of 9
Technology Services	1 out of 4	Consumer Services	0 out of 9
Commercial Services	0 out of 9	Industrial Services	0 out of 9
Consumer Services	0 out of 9	Process Industries	0 out of 9
Process Industries	0 out of 9	Retail Trade	0 out of 9
Retail Trade	0 out of 9	Utilities	0 out of 9
Transportation	0 out of 9	Non-Energy Minerals	0 out of 8
Non-Energy Minerals	0 out of 8	Technology Services	0 out of 4
Consumer Durables	0 out of 0	Consumer Durables	0 out of 0
Consumer Non-Durables	0 out of 0	Consumer Non-Durables	0 out of 0
Distribution Services	0 out of 0	Distribution Services	0 out of 0
Electronic Technology	0 out of 0	Electronic Technology	0 out of 0
Health Technology	0 out of 0	Health Technology	0 out of 0
Producer Manufacturing	0 out of 0	Producer Manufacturing	0 out of 0



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