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## The impact of the ECB banking supervision announcements on the EU stock market

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Supervision Announcements on the  
EU Stock Market**

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# The Impact of the ECB Banking Supervision Announcements on the EU Stock Market

by

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## **Abstract**

We study the impact of ECB's supervisory announcements on the Bank Stock index, from 2013 through 2017. Our evidence shows that the news, related to supervisory actions, do have highly significant effects on the market price of banks, contributing to the volatility of the Bank Stock Index for Europe and Italy. Most announcements signal the need to raise more regulatory capital and lead to negative returns in the stock market, thus increasing the cost of raising new capital. Our study is related to previous ones (by Bernanke and Kuttner) focusing on the impact of monetary policy announcements on the stock exchange.

Keywords: Banking Supervision, ECB, GARCH, Stock Market

JEL codes: G21, G28

# 1 Introduction

This paper addresses the impact of ECB announcements, related to banking supervision, on the market price of banks. We study the effect of 74 announcements released by the European Central Bank, as head of the Single Supervisory Mechanism, over the period 2013<sup>1</sup> through 2017. The market price of banks is measured by the Euro Banking Stock Index. In addition, a focus is made on the Italian Banking Stock Index, given the relevance of some specific supervisory matters for Italy in recent years.

Determining the impact of supervisors announcements on the market valuation and volatility of banks share prices appears of interest for at least two reasons. First the transparency and the efficiency of the various dimensions of the ECB communication policy has been questioned in the past. For example see Resti (2018)[9] on lack of transparency of the Supervisory Review and Evaluation Process, Schoenmaker and Veron (2016) [10] on the need of more transparency about supervisory data and Baglioni (2016) [1] on the communication of stress test results. Second, many supervisory announcements have a restrictive content, by introducing the need to raise more regulatory capital. An example is the well-known “addendum” to the guidance on non-performing loans (4 October 2017) introducing a tight calendar provisioning for NPLs. All these kind of announcements tend to depress the market valuation of banks, thus making more costly for them to raise new equity in the market. This effect, in turn, can induce banks to react to the supervisory action, at least in the short run, by cutting assets rather than by increasing their capital base, in order to meet the regulatory requirement on the capital/risk weighted assets ratio. When this is the case, the short run cost of restrictive prudential actions could be substantial in terms of a credit supply crunch and a negative impact on GDP

Two streams of literature are related to our research. The first one addresses the impact of supervisory actions on the supply of bank loans and on the aggregate economic activity. The evidence provided by those studies is broadly consistent with the view that regulatory restrictions, by demanding more capital, lead banks to cut their supply of loans in the short run, with negative consequences for aggregate output. This argument does not deny the long run benefit of a more stable financial system, it simply highlights the cost to be paid in the transition towards a higher capital-to-asset ratio. An example is the study by Conti Nobili Signoretti (2018) [3], documenting the negative impact on credit supply and economic activity of three regulatory episodes, leading to an increase of bank required capital: the Basel III reform (2009), the EBA stress test and capital exercise (2011), and the first comprehensive assessment carried out by the ECB (2014).

Another set of studies have looked at the link between monetary policy and the stock market. This link is relevant for the policy transmission mechanism. Announcements made by the central bank can change the value of households assets (“wealth effect”) and the cost of capital for firms. Stock market fluctuations can be a source of macroe-

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<sup>1</sup> Despite the fact that the SSM started to be officially operational on 4 November 2014, some announcements were released before that date, during the preparation period. For example, the first comprehensive assessment was announced on 23 October 2013.

conomic volatility. These issues have been highlighted by Bernanke and Kuttner (2005) [2], finding that unexpected changes of the federal funds rate target have a significant impact on US stock market indexes (a 25 b.p. cut of the policy rate leads to a 1% increase of the stock market index).

## 2 The Announcements

Year	Number of Announcements
2013	3
2014	20
2015	11
2016	20
2017	20
Total Number of Ann.	74

*Tab. 1: number of announcements.*

All the announcements used in our analysis are taken from the website of the ECB<sup>2</sup>. The number of announcements per year is reported in Table 1. They are identified in Table 2 by their release date, so each announcement can be easily recovered and read in the relevant press release. There are several types of announcements made by the ECB in its supervisory role. Most of them are classified as “guidance”: they are used by the ECB to inform banks about its own expectations, relative to the behavior of banks in specific areas, and they play an important role in the supervisory dialogue with individual banks. An example is the guidance on tackling non-performing loans (20 March 2017) which was followed by the “addendum” (4 October 2017) introducing the so-called “calendar provisioning”: banks are expected to provide full coverage of new NPLs within two years (seven years for the secured portion). The ECB also releases regulations and amendments to previous regulations, introducing binding rules and procedures for supervised banks. Sometimes the ECB launches a public consultation ahead of the publication of a new regulation, in order to get comments and feedbacks from market participants. An example is the consultation on the amendment to the regulation on financial reporting, introducing the expected loss impairment model, as requested by the new reporting standard for financial instruments IFRS 9 (17 February 2017). Another type of announcements is related to the harmonization of options and national discretions: an example is the release of a guideline and a recommendation, addressed to the National Competent Authorities, in order to further harmonize the way less significant banks are supervised (13 April 2017). Other announcements are related to the methodology and the outcomes of periodical stress tests (an example is the press release of 29 July 2016). While the majority of announcements concern the banking sector as a whole, at least significant banks, some press releases inform

<sup>2</sup> <https://www.bankingsupervision.europa.eu/press/pr/html/index.en.html>

the market of supervisory actions concerning an individual bank (for example the declaration that a bank is “failing or likely to fail”).

We have classified the 74 announcements included in our sample into three categories, depending on the supervisory signal sent to the financial market: either “more restrictive” or “less restrictive”, or “neutral”. An example of announcement signaling more restriction is the above mentioned addendum to the guidance on NPLs: the tight calendar provisioning, introduced through the addendum, demands banks to account for the losses accumulated in their loan portfolio, creating the need to raise new regulatory capital and/or to cut loans in order to meet the minimum capital ratios set by the prudential regulation. An example of announcement signaling less restriction is that reporting the outcomes of the 2016 stress test. The picture emerging from the stress test was very positive (all banks, with one exception, showed capital levels above the benchmark of 5.5% in the adverse scenario) inducing the ECB to state that “supervisory capital expectations will remain broadly stable”: a way to signal that in general no capital increase was needed for the coming year. An example of neutral announcement is the periodical assessment of the number of banks classified as “significant”: although this news can be quite relevant for a few individual banks (those entering or exiting the set of banks directly supervised by the ECB) it is not expected to have an aggregate impact on the banking sector as a whole. Announcements concerning individual banks are considered as neutral, since by definition they do not directly impact on the banking sector as a whole.

An important caveat must be made, concerning the expected/unexpected components of the news included in our sample. The above mentioned research, addressing the impact of monetary policy announcements on the stock market, was able to identify the unexpected component of changes in the federal funds rate target, by focusing on the change in futures contracts price relative to the day prior to a monetary policy action. Unfortunately, this tool is unavailable for news reporting supervisory actions, which are qualitative in nature. Therefore, in our sample it is not possible to disentangle the two components of the news: expected and unexpected. This problem presumably leads us to under-estimate the impact of the supervisory actions on the stock market, since some actions might be partially anticipated by market participants, limiting their observed impact on the stock exchange index on the day of announcement. Even more, this problem can introduce some uncertainty as far as the sign of estimated coefficients is concerned. For example a restrictive action, with a potential negative impact on the stock market, might be interpreted as less restrictive than expected when it is officially communicated: if this is the case, we might observe a positive impact on the announcement day, which sounds counter-intuitive. Despite these limitations, we are able to show that the news related to supervisory actions do have a relevant impact on the market price of banks, quite often with a high statistical significance.

### 3 The model

The stock market prices (and the returns) react to Central Bank monetary policy announcements. Cook and Hahn 1989 (See Cook and Hahn 1989[4]) measure the impact of monetary policy decisions on interest rates by regressing the changes in the federal



funds rate target on market interest rates. They find a significant reaction. The same empirical model is estimated by Kuttner 2001[8]. We use a similar model to test the relationship between the banking stock index returns and the news produced by the ECB banking supervision announcements. The main difference with Cook and Hahn 1989 [4] depends on the qualitative rather than quantitative nature of the banking supervision announcements. Moreover, to disentangle the expected from the unexpected ECB banking supervision announcement we could follow the approach suggested by Kuttner 2001 (See Kuttner 2001[8]) which is based on future contract prices, but unfortunately, there is no future contract neither on the EURO Bank Stock Index nor on the Italian Bank Stock Index. In the details, we set (as independent variables) a specific 0, 1 dummy variable for every announcement. The dummy variable takes 1 after the announcement and 0 otherwise. To account the potential breakdown in the euro area, we introduce the 10Year BTP-BUND (bond) spread as an explanatory variable. We use two different dependent variables: the Euro Banking Stock Index return and the Italian Banking Stock index return. Moreover, to remove the autocorrelation in the errors, some lags of the dependent variable have been included as regressors (to decide the number of lags we have used the Bayesian Information Criterion, BIC). Finally, we have used a GARCH(1,1) model to take into account the conditional heteroskedasticity of the time series (see both fig. 1 and fig. 2). The analysis covers the period 1st January 2013 to 31st December 2017, using daily data. The data source is Bloomberg.

### The Impact on the Euro Banking Stock

$$r_t^{eu\_bank} = \mu + \rho_1 r_{t-1} + \rho_2 r_{t-2} + \lambda_0 s_t + \sum_{i=1}^{74} \beta_i \gamma_i + h_t^{1/2} \varepsilon_t \quad (1)$$

where  $r_t^{eu\_bank}$  is the the Euro Bank Stock Index return (the time series plot is in fig. 1)  $\gamma_i$  is a 1, 0 dummy variable which is equal to one on day and after the ECB Banking Supervision announcements and zero otherwise,  $s_t$  is the 10Year BTP-BUND (bond) spread at time  $t$ ,  $h_t = \alpha_0 + \alpha_1 r_t + \alpha_2 h_{t-1}$  and  $\varepsilon_t \sim \text{IN}(0, 1)$

### The Impact on Italian Banking Stock

$$r_t^{ita\_bank} = \mu + \rho_1 r_{t-1} + \rho_2 r_{t-2} + \lambda_0 s_t + \lambda_1 s_{t-1} + \sum_{i=1}^{74} \beta_i \gamma_i + h_t^{1/2} \varepsilon_t \quad (2)$$

where  $r_t^{ita\_bank}$  is the Italian Bank Stock Index return (the time series plot is in fig. 2)  $\gamma$  is a 1, 0 dummy variable which is equal to one on days after the ECB Banking Supervision announcements and zero otherwise,  $s_t$  is the 10Year BTP-BUND (bond) spread at time  $t$ ,  $s_t$  is the 10Year BTP-BUND (bond) spread at time  $t - 1$ ,  $h_t = \alpha_0 + \alpha_1 r_t + \alpha_2 h_{t-1}$  and  $\varepsilon_t \sim \text{IN}(0, 1)$

## 4 Estimation results and discussion

The estimation results are reported in Table 2. They rely on the reasonable assumption that no other relevant news, related to the banking market, is released in the same days of the supervisory announcements included in our data set. As it can be seen, most of the estimated coefficients are significantly different from zero, confirming our a priori that supervisory announcements have a remarkable impact on the market price of banks, contributing to the volatility of the Bank Stock Index. In order to obtain robust empirical evidence, we have estimated many other models. For example, to stress possible asymmetric effect between “good” and “bad news”, we have estimated the two models ((1)) ((2)) using EGARCH errors (see Engle and Ng 1993 [5]). Moreover, following Hansen Huang Shek Howard 2012 [7] as well as Hansen and Huang 2016 [6], we have estimated the two models ((1)) ((2)) using realized measures of volatility. The results are similar to those reported in Table 2 and available upon request.

We will not discuss every single coefficient of the regressions. We limit ourselves to go through some examples. As expected, the release of the guidance on tackling NPLs (2017/3/20) and of the “addendum” (2017/10/4) introducing the calendar provisioning had a negative impact on the Bank Stock Index return. Not surprisingly, the impact of such restrictive supervisory actions has been stronger on the Italian banks, which in the past have accumulated a stock of NPLs much higher than the other European banks have done on average. A strong negative impact on the banking market can be observed when the outcomes of the 2014 comprehensive assessment were released (2014/10/26), bringing very bad news: a capital shortfall of 25 billion for 25 banks (as an outcome of the stress test) together with a value adjustment of 37 billion (as an outcome of the Asset Quality Review), implying an overall impact of 62 billion on European banks. Again, a stronger impact can be observed for Italy, where the number of capital deficiencies was larger than in other countries. Also the news related to supervisory fees, to be paid mostly by significant institutions, can negatively affect the banking market: this effect is particularly strong when an increase of the burden due to such fees is announced, as it was the case in 2016 (28 April). The number of good news, coming from supervisory actions, is lower. An example is the announcement of a stress test exercise focusing on interest rate risk (2017/02/28), following the release of a new standard by the Basel Committee on Banking Supervision. In the press release announcing the stress test, the ECB made explicit that no additional capital demand was expected as an outcome of the exercise (at the aggregate level): not surprisingly, the reaction of the Bank Stock Index has been positive.

Finally, notice that the coefficient of the BTP-Bund spread is negative and highly significant, as expected. A wider spread signals a higher tension in the market for sovereign debt, not only for Italy but also for some other high debt countries. This has a negative impact on the market valuation of banks, which generally hold in their portfolios of securities a large amount of domestic Government bonds. In the most acute phase of the sovereign debt crisis (2012 - 2014), a wider spread between the Government bond yields of high debt countries and that of Germany was taken as a signal that the risk of break-up of the euro area was higher, threatening the financial system.

## 5 Concluding remarks

We have documented the impact of the ECB announcements, related to its supervisory actions, on the stock market. Our evidence shows that such announcements have a remarkable effect on the Bank Stock Index for Europe and even more so for Italy, contributing to increase the volatility of the market price of banks. Many announcements have a negative impact, thus increasing the cost of raising new capital for banks. Our results point to the importance of an efficient communication strategy by central banks, as far as supervisory matters are concerned. While the same point has been made by previous studies related to monetary policy announcements, this is the first paper (as far as we know) addressing this issue in the area of banking supervision.

Regressor Day	Dependent Variable	
	$r^{eu}$	$r^{ita}$
$\mu$	0.062 (0.102)	0.067 (0.110)
$\rho_1$	-0.047* (0.028)	0.057* (0.030)
$\rho_2$		-0.089*** (0.025)
2013/09/12	0.276* (0.152)	0.366* (0.211)
2013/10/23	-0.541*** (0.154)	-0.719*** (0.212)
2013/12/16	0.695** (0.309)	0.922*** (0.243)
2014/01/09	-0.238 (0.371)	-0.206 (0.284)
2014/01/22	-0.690*** (0.206)	-1.050*** (0.192)
2014/02/03	0.628* (0.337)	1.095*** (0.178)
2014/02/07	-0.198 (0.332)	-0.137 (0.283)
2014/03/07	-1.049*** (0.244)	-0.844*** (0.297)
2014/03/11	1.038*** (0.246)	0.632** (0.2752)
2014/04/25	-0.595*** (0.198)	-0.576** (0.253)
2014/04/29	0.630*** (0.209)	0.345 (0.465)
2014/05/27	-0.062 (0.147)	0.000 (0.364)
2014/07/17	-0.307 (0.187)	-0.357 (0.225)
2014/07/23	0.485* (0.254)	0.484* (0.254)
2014/09/04	0.520*** (0.219)	1.230*** (0.229)
2014/09/08	-0.987*** (0.244)	-1.525*** (0.150)
2014/10/10	0.685** (0.288)	0.428 (0.417)
2014/10/22	0.416 (0.321)	0.744 (0.477)

Regressor Day	Dependent Variable	
	$r^{eu}$	$r^{ita}$
2014/10/23	0.021 (0.068)	0.291* (0.158)
2014/10/26	-2.0224*** (0.266)	-2.311*** (0.359)
2014/10/30	1.429*** (0.271)	0.426 (0.492)
2014/11/04	-0.374 (0.244)	0.481 (0.469)
2014/12/22	-0.023 (0.409)	0.250 (0.239)
2015/01/01	-0.060 (0.375)	0.245 (0.382)
2015/01/29	1.044*** (0.269)	0.421 (0.432)
2015/02/19	-0.565* (0.309)	-0.469* (0.274)
2015/03/26	-0.082 (0.237)	-0.092 (0.196)
2015/04/29	-0.182 (0.126)	-0.140 (0.132)
2015/10/09	-0.111 (0.158)	-0.177 (0.154)
2015/10/31	0.926*** (0.278)	-0.616*** (0.196)
2015/11/05	-0.504* (0.306)	-0.448*** (0.205)
2015/11/11	-1.437*** (0.224)	-0.978*** (0.243)
2015/11/14	1.119*** (0.252)	0.910*** (0.289)
2015/12/30	-1.398*** (0.314)	-1.543*** (0.317)
2016/01/06	0.832* (0.433)	0.889* (0.482)
2016/02/19	0.884* (0.521)	0.659 (0.468)
2016/03/24	0.315 (0.540)	-0.258 (0.511)
2016/04/28	-1.828*** (0.647)	-1.445*** (0.548)

Regressor Day	Dependent Variable	
	$r^{eu}$	$r^{ita}$
2016/05/10	1.289*** (0.330)	0.920*** (0.243)
2016/05/18	0.088 (0.904)	0.247 (0.559)
2016/06/21	-2.190* (1.278)	-2.103 (1.284)
2016/07/12	2.225*** (0.829)	2.685*** (0.971)
2016/07/29	-0.000 (0.478)	-0.904 (0.556)
2016/08/10	-0.250 (0.488)	0.967* (0.546)
2016/09/12	-0.359 (0.357)	-0.567 (0.524)
2016/11/03	1.386*** (0.334)	-0.170 (0.593)
2016/11/04	-0.178 (0.181)	2.005*** (0.533)
2016/11/14	0.689*** (0.123)	0.755 (0.509)
2016/11/15	-2.506*** (0.215)	-4.750*** (0.330)
2016/11/21	0.886*** (0.297)	2.474*** (0.532)
2016/11/23	-0.643* (0.335)	-0.600 (0.546)
2016/11/28	0.670 (0.487)	1.410*** (0.510)
2016/12/15	2.519*** (0.485)	-0.818* (0.430)
2016/12/16	-2.816*** (0.163)	-0.293* (0.176)
2017/02/17	-0.342* (0.189)	-0.049 (0.189)
2017/02/28	1.071*** (0.203)	0.968*** (0.194)
2017/03/20	-0.726*** (0.192)	-0.864*** (0.219)
2017/04/13	0.856*** (0.442)	0.950** (0.454)
2017/04/28	-0.811** (0.364)	-0.567 (0.381)
2017/05/15	0.773*** (0.122)	-0.778*** (0.134)
2017/05/16	-1.287*** (0.194)	-0.136 (0.166)

Regressor Day	Dependent Variable	
	$r^{eu}$	$r^{ita}$
2017/06/02	0.377* (0.204)	0.531** (0.212)
2017/06/07	-0.425*** (0.162)	-0.355* (0.209)
2017/06/23	1.176*** (0.195)	1.693*** (0.140)
2017/06/30	-0.632*** (0.214)	-1.419*** (0.177)
2017/07/27	-0.175 (0.171)	-0.215 (0.177)
2017/08/28	0.111 (0.284)	-0.185 (0.249)
2017/09/15	-0.350 (0.289)	-0.072 (0.260)
2017/09/21	1.351*** (0.127)	1.290*** (0.099)
2017/09/25	-0.744*** (0.132)	-0.947*** (0.098)
2017/10/04	-0.550*** (0.087)	-0.624*** (0.113)
2017/11/24	0.333*** (0.097)	0.514*** (0.134)
2017/12/05	0.161 (0.140)	-0.011 (0.195)
2017/12/15	-0.284** (0.111)	-0.268* (0.159)
$\lambda_0$	-0.144*** (0.008)	-0.129*** (0.008)
$\lambda_1$		-0.060*** (0.007)
$\alpha_0$	0.048** (0.022)	0.030* (0.015)
$\alpha_1$	0.090** (0.024)	0.076*** (0.021)
$\alpha_2$	0.886** (0.027)	0.910*** (0.022)
N. Obs.	1267	1267
Adj. $\bar{R}^2$	0.281	0.276
F Stat.	57.488***	29.712***
LB residuals	0.266	0.032
LB residuals <sup>2</sup>	2.31	1.005

Tab. 2: Robust standard errors in brackets. (\*\*\*), (\*\*), (\*) denote statistical signif. at 1%, 5%, 10%. LB stands for Ljung-Box Test.

*Fig. 1: daily EU Bank Index Return*

*Fig. 2: daily ITA Bank Index Return*



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