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Market reactions to the ECB's Comprehensive Assessment

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HIGHLIGHTS

- Stock and CDS markets' reactions are assessed using an event study methodology.
- Both markets generally did not react to the publication of the results.
- Stress tests remain an important supervisory tool for additional market transparency.

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ABSTRACT

Using an event study approach, we examine financial markets' reactions to the publication of the ECB's Comprehensive Assessment of banks in the euro area. Our results suggest that banks' stock market prices and CDS spreads generally showed no reaction.

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1. Introduction

On 26 October 2014 the European Central Bank (ECB) published the outcomes of the so-called Comprehensive Assessment of banks in the euro area (and Lithuania). A year before, on 23 October 2013, the ECB had announced the assessment in preparation for its new task as banking supervisor in the euro area. The Comprehensive Assessment consisted of an Asset Quality Review (AQR) and a stress test. Its aim was to scour banks' books for hidden problems, test their ability to withstand crises, and force weak banks to raise more capital.

Some previous studies examined the impact of European Banking Authority (EBA) stress tests on financial markets. For instance, using a similar event study approach as the current paper, [Petrella and Resti \(2013\)](#) find significant market responses to the EBA stress test in 2011. They conclude that stress tests produce valuable information for market participants and can play a role in mitigating bank opacity.

This paper examines the impact of the announcement of the Comprehensive Assessment and the publication of its outcomes on banks' stock prices and CDS spreads. Our results suggest that stock prices and CDS spreads generally did not react to the publication of the results. This conclusion also holds for banks with a capital shortfall. Only for banks in some countries do we find weak evidence for (mixed) effects on stock prices, while CDS spreads for German banks declined. The rest of this paper is structured as follows. Section 2 outlines the Comprehensive Assessment. Section 3 describes our methodology and Section 4 presents the results. Section 5 offers our conclusions.

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¹ The views expressed do not necessarily reflect the position of De Nederlandsche Bank or the Eurosystem.

2. The comprehensive assessment

In the first phase of the assessment, the Asset Quality Review, teams of examiners pored over the books of the 130 most important banks in the euro area, covering approximately 82% of total bank assets (Ewing, 2014). The aim of the review was to uncover hidden problems, such as bad loans that banks had not disclosed.

In the second phase of the assessment, banks were subjected to a stress test intended to measure banks' ability to withstand a crisis, such as a severe recession or turmoil in global financial markets. The stress test used both a baseline and an adverse scenario for testing banks' resilience to stress. In the baseline scenario, the EU economy develops in line with the European Commission's economic projections up to 2016; in the adverse scenario, macroeconomic developments clearly deteriorate. Banks were required to maintain a minimum CET1 ratio of 8% under the baseline scenario (as for the AQR) and a minimum CET1 ratio of 5.5% under the adverse scenario.

The AQR showed that as of end-2013 the carrying values – or book values – of banks' assets need to be adjusted by €48 billion, which will be reflected in the banks' accounts or prudential requirements. Furthermore, the assessment found a capital shortfall of almost €25 billion at 25 (mainly small and medium-sized) banks.² Twelve of the 25 banks covered their capital shortfall by increasing capital by €15 billion in 2014.

Most market participants consider the Comprehensive Assessment much more credible than previous EBA stress tests, but some academics are critical. According to de Groen (2014), one weakness of the Comprehensive Assessment is that the ECB focused purely on the CET1 ratio, which is based on risk-weighted assets. Likewise, in their stress test Acharya and Steffen (2014a,b) report much higher capital shortfalls than the ECB. Acharya and Steffen (2014b) conclude that the “regulatory stress test outcomes are potentially heavily affected by the discretion of national regulators in measuring what is ‘capital’, and especially by the use of risk-weighted assets in calculating the prudential capital requirement”.

3. Method

We use equity returns and CDS spreads of banks that have participated in the Comprehensive Assessment.³ Data were obtained from Bloomberg.

To examine whether stress tests have caused abnormal movements in equity or CDS markets we follow previous studies, such as Petrella and Resti (2013) and Morgan et al. (2014), and use an event study methodology. To measure the impact of an event we set the abnormal return of a security as the difference between the actual (ex post) return and the normal return over the relevant event window. Normal returns are estimated using the following market model:

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t} \quad (1)$$

where $R_{i,t}$ is the daily return of equity of bank i at time t , and $R_{m,t}$ is the return of a market portfolio. We use the MSCI Europe Index as proxy for the market portfolio.⁴ In addition, we employ daily

data on 5-year senior CDS spreads for a subset of the banks. We regress the CDS spread of bank i at time t on the overall index and employ the iTraxx Europe Index provided by Bloomberg as proxy for a market portfolio in the CDS market.

The residuals or abnormal returns (AR) implied by the market model are given by:

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

where the circumflex indicates that the parameter concerned is estimated. Next, following Morgan et al. (2014), we sum the abnormal returns over the relevant window around the event date (T) to compute the cumulative abnormal return (CAR). While we experimented with windows of various sizes, we follow Morgan et al. (2014) and focus on a 3-day window $(-1, +1)$.⁵ Our estimation windows for equity returns and CDS spreads consist of 255 trading days, i.e. the $(-265, -10)$ time interval, where $T = 0$ is the event date (i.e. the announcement of the assessment or the publication of the outcomes). This window is sufficient to conduct an event study using daily data (MacKinlay, 1997). The t -statistics obtained from the estimation are adjusted for event clustering and event induced variance following Kolari and Pynnonen (2010).⁶ These adjusted t -statistics are employed to test whether the CAR significantly differs from zero.

4. Results

Tables 1 and 2 show the financial market reactions to the announcement of the Comprehensive Assessment and the publication of its outcomes, respectively. The tables display the abnormal returns cumulated over a period of three (or more) trading days and averaged across groups of banks. We test whether banks have CARs that are significantly different from zero during our event windows. As Table 1 shows, the announcement of the assessment led to a decline in the average CARs of all banks of 2.4% but this effect is not significant. Also the CDS-spreads were not significantly affected. The results do not suggest that stock prices and CDS-spreads of gap and no-gap banks reacted systematically different. The same conclusion holds for the publication of the outcomes. Next, we differentiate between banks located in two groups of countries, namely the GIIPS countries (Greece, Ireland, Italy, Portugal and Spain) and the other countries in the euro area. As Tables 1 and 2 show, the results for both groups of countries are similar: both the announcement and the publication of the outcomes of the Comprehensive Assessment generally did not affect financial markets.

Next, we turn to the results per country. Focusing on our standard event window, there is some evidence that the Comprehensive Assessment had an effect on equity returns and CDS spreads. The announcement of the Comprehensive Assessment affected stock prices of Belgian and Portuguese banks negatively (see Table 1). In Spain there was a negative announcement effect for CDS spreads and in the Netherlands a positive effect. As to the market reaction to the publication of the results of the Comprehensive Assessment we see a mixed picture (see Table 2). CARs were affected positively for Austrian and Portuguese banks but negatively for the Irish banks in our sample. News articles from the Dow Jones

² For a list of the banks see <https://www.bankingsupervision.europa.eu/banking/comprehensive/html/index.en.html>.

³ Not all banks are listed. Likewise, for some banks CDS are not available. Our analysis also does not consider the effects on banks that were not part of the assessment. The Comprehensive Assessment covers 82% of total banking assets in the Euro Area making it difficult to have an adequate control sample in our analysis.

⁴ We have also considered as alternatives the MSCI World Index, Stoxx 600 Banks Index, the Euro Overnight Index Average rate and two-factor models including these indices with national indices. This does not affect our general findings (results available upon request).

⁵ We have considered a variety of additional event windows: $(-1, 0)$, $(0, +1)$, $(-2, 0)$, $(0, +2)$, $(-2, +2)$, $(-3, 0)$, $(0, +3)$, $(-3, +3)$, $(-7, 0)$, $(0, +7)$, and $(-7, +7)$.

⁶ In the presence of event clustering cross-correlation among stocks may lead to the over rejection of the null hypothesis of zero average abnormal returns. See also Amici et al. (2013); Fratianni and Marchionne (2013), and Elyasiani et al. (2014).

Table 1

Financial market reaction to the Comprehensive Assessment: announcement effects.

	Stock market (%)				CDS market (bp)			
	(−1, +1)	(−2, +2)	(−3, +3)	(−7, +7)	(−1, +1)	(−2, +2)	(−3, +3)	(−7, +7)
Austria	−1.19	−2.48	−3.29***	0.617				
Belgium	−2.78**	6.28	−6.81	−4.01	2.4	3.41	4.56	0.836
Cyprus	−4.84	4.52	1.27	25.5***				
France	−0.769	−4.19***	−6.27***	−5.05***	1.58	3.83***	4.47***	0.787
Germany	−1.24	−2.18	−3.91**	0.272	−2.12	0.481	2.22	3.27
Greece	3.55	8.92	11.6	12.9				
Ireland	−18.8	−11.4	−12.7***	2.59	1.21	10.8	11.5	8.2
Italy	−2.27	−4.28	−5.79	−1.04	−0.95	1.71	6.5	−24.9
Luxembourg					−2.92	−0.678	0.569	3.73
Malta	0.597*	0.826***	0.034	1.63				
Netherlands					−7.16*	−1.23***	−0.829	−8.92
Portugal	−4.84***	−4.21***	−5.21***	−2.29***	−1.84	3.18	13.6	−33.7
Slovakia	−7.7	−6.58	−2.01***	4.84***				
Spain	−1.37	−3.2	−7.32*	−5.69	5.05***	3.57**	11.2***	−3.13
All	−2.44				−0.635			
No-gap	−3.24				0.046			
Gap	−0.97				−3.36			
No-giips	−1.51				−1.65			
Giips	−2.74				0.377			

Notes: This table shows the average cumulative abnormal returns for all, no-gap, gap, GIIPS, No-GIIPS banks, and per country banks in the stock market (in %) and the CDS market (in bp) in response to the announcement of the Comprehensive Assessment. The average reaction of spreads for the CDS market for GIIPS countries excludes Greece, as no CDS data is available for these banks. The No-GIIPS countries are BE, FR, and DE for stocks and BE, FR, DE, NL, and LU for spreads. This composition is determined by data availability. Reported figures are based on corrected *t*-statistics.

*** 1% significance level.
 ** 5% significance level.
 * 10% significance level.

Table 2

Financial market reaction to the Comprehensive Assessment: results effects.

	Stock market (%)				CDS market (bp)			
	(−1, +1)	(−2, +2)	(−3, +3)	(−7, +7)	(−1, +1)	(−2, +2)	(−3, +3)	(−7, +7)
Austria	7.71**	4.64	5.5***	5.1***				
Belgium	−1.84	−4.55**	−3.58	−13.6*	0.384	3.19	1.61	4.01
Cyprus	−1.31	−0.517	−2.29	−21.5***				
France	−0.059	−2.59**	−4.84***	−5.94***	−2.14	0.538	1.61	10.5***
Germany	1.28	0.287	1.78	2.12	−3.6***	−3.65	2.26	5.12
Greece	0.576	−5.31	−11.9	3.23				
Ireland	−6.59*	−4.69	−3.6	−1.71	−6.27	−3.73	−1.59	2.1
Italy	−1.26	−6.24	−10.6	−8.49	−14	−19.8	−19.3	6.95
Luxembourg					−0.231	2.8	2.95	7.9
Malta	0.42	−0.828***	−2.04***	1.24				
Netherlands					−2.19	−3.62	−2.55*	6.45***
Portugal	2.89***	−1.78	−5.85	−7.38	11.3	−14	−9.56	0.691
Slovakia	0.717	−0.633	0.601	1.88				
Spain	0.855	−4.03	−4.86	−10*	−2.32	5.65	3.05	20.4**
All	−0.203				−5.26			
No-gap	0.204				−1.98			
Gap	−0.954				−18.4			
No-giips	0.165				−2.15			
Giips	−0.7				−8.38			

Notes: This table shows the average cumulative abnormal returns for all, no-gap, gap, GIIPS, No-GIIPS banks, and per country banks in the stock market (in %) and the CDS market (in bp) in response to the publication of Comprehensive Assessment outcomes. The average reaction of spreads for the CDS market for GIIPS countries excludes Greece, as no CDS data is available for these banks. The No-GIIPS countries are BE, FR, and DE for stocks and BE, FR, DE, NL, and LU for spreads. This composition is determined by data availability. Reported figures are based on corrected *t*-statistics.

*** 1% significance level.
 ** 5% significance level.
 * 10% significance level.

Factiva database indicate that stock prices of banks for which markets expected worse results than reported increased. In other circumstances, stocks declined mainly due to economic news. For CDS spreads there is less evidence of a market reaction after the publication of the results of the assessment. An exception is the decline in spreads for German banks, which may reflect that markets were positively surprised that almost all German banks passed the Comprehensive Assessment.

For longer event windows, the results as shown in Tables 1 and 2 suggest stock market reactions for some countries (most notably

Austria, Belgium, France, and Spain). However, there is no evidence of reaction for these banks during a (−1, +1) window.⁷ Table 2 suggests a similar picture for the reactions in the CDS market.

⁷ An argument in favour of using longer event windows is that it could capture delayed market reactions. However, in longer windows market volatility due to other news may be picked up. For example, for the French banks in Table 2, the decrease in stocks for longer event windows seem to be driven by investors' profit-taking after gains in the run-up to the publication of the Comprehensive Assessment (Reuters, 2014) and not so much by the results of the stress test.

Table 3
List of banks with capital shortfall under the alternative SRISK measure: market reactions.

Country	Bank	SRISK	Shortfall	Stocks	Spreads
Austria	Erste Group Bank	5.92	0	7.707**	
Belgium	Dexia	21.35	0.34	−3.907	
Belgium	KBC Group	5.26	0	0.2305	
Cyprus	Hellenic Bank Public Co.	0.17	0.28	−1.312	
France	BNP Paribas	58.03	0	0.5754	
France	Societe General	49.48	0	−.6936	2.430
Germany	Aareal Bank	1.56	0	0.9000	
Germany	Commerzbank	24.25	0	3.498	0.6028
Germany	Deutsche Bank	76.59	0	0.8935	3.481
Greece	Alpha bank	0.15	0	−3.092	
Greece	Eurobank Ergasias	2.47	4.63	5.820	
Greece	National Bank of Greece	0.60	3.43	−5.157	
Greece	Piraeus Bank	1.15	0.66	4.733	
Ireland	Gov. Comp. Bank of Ireland	2.16	0	−3.100	
Italy	Banca Carige	1.73	1.83	−12.34***	
Italy	Banca Monte dei Paschi di Sienna	9.87	4.25	−9.329*	−25.46
Italy	Banca Popolare dell'Emilia Rom.	1.88	0.13	1.300	
Italy	Banca Popolare di Milano	1.85	0.68	−.6946	−.1556
Italy	Banca Popolare di Sondrio	1.02	0.32	−2.036	
Italy	Banco Popolare S.C.	5.53	0.43	1.401	−21.87
Italy	Credito Emiliano	0.46	0	6.421*	
Italy	Intesa Sanpaolo	18.70	0	0.6434	−4.431
Italy	Mediobanca	1.03	0	2.697	−6.566
Italy	UniCredit	30.36	0	−1.347	−8.592
Italy	Unione di Banche Italiane S.C.	3.88	0	−1.287	
Portugal	Banco BPI	1.12	0	3.075	
Portugal	Banco Comercial Portugues	2.70	1.14	2.699	
Spain	Banco Bilbao Vizcaya Argentaria	5.61	0	0.1066	
Spain	Banco de Sabadell	4.33	0	0.8446	−5.181
Spain	Banco Popular Espanol	3.69	0	3.231	
Spain	Banco Santander	23.83	0	−.7634	
Spain	Bankinter	0.45	0		−2.707

Notes: This table shows market reactions to cumulative abnormal returns of listed banks in Appendix 2 of Acharya and Steffen (2014b) that do not pass the SRISK benchmark stress test using a (−1, +1) event window. The “SRISK” and “Shortfall” columns indicate the size of capital shortfalls (in billion €). The final columns indicate the reaction of the stock (in %) and CDS markets (in bp) to the publication of the outcomes of the Comprehensive Assessment.

*** 1% significance level.

** 5% significance level.

* 10% significance level.

Finally, we have examined the CARs of those banks that had a shortfall according to Acharya and Steffen (2014a). These authors report higher capital shortfalls under their alternative stress test. If such expectations had been priced in, the publication of the outcomes of the Comprehensive Assessment may have surprised financial markets.⁸ As Table 3 shows, the publication of the results of the assessment did not affect the stocks and spreads of most of these banks. Only for three Italian banks and one Austrian bank do we find (mixed) reactions. CDS spreads of all banks were not affected.

5. Discussion and conclusions

Although our results suggest that the immediate market effects of the Comprehensive Assessment are limited, at least for some banks the assessment has led to increased transparency, as markets responded to the provision of new information. Our finding of a limited market response can be interpreted in two ways. Either, financial market participants had no confidence in the assessment and therefore decided to ignore the publication of its results, or the outcomes of the assessment were in line with market expectations. Although our results cannot rule out the first explanation, in view of market analysts' reactions to the publication of the assessment, we believe that the second interpretation is more likely.

The success of the ECB's Comprehensive Assessment is not primarily determined by short-term market responses. As a result of the exercise, the ECB knows more about the current state of the banks and can use this information in implementing its new responsibility for bank supervision in the Eurozone. Due to the Comprehensive Assessment several banks have enhanced their capital base which may enhance financial stability.

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⁸ Still, at the time the leverage ratio was not a regulatory measure so it may also be argued that markets would therefore not be affected by shortfalls calculated on the basis of this measure.

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