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An Examination of Investors' Reaction to the Announcement of CoCo Bonds Issuance:

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**An Examination of Investors' Reaction to the Announcement of CoCo Bonds Issuance:
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Abstract

Major international financial institutions (FIs) are using contingent convertible (CoCo) bonds in the wake of the 2008 financial crisis to meet stricter national and international capital requirements. Beginning with UniCredit's €500m 9.375% CoCo in July 2010, more than 40 publically held financial institutions headquartered in 16 countries have issued 68 CoCos. This paper examines investors' reactions to the announcements of CoCo bonds issuances by FIs. Using event-study methodology and measuring cumulative abnormal returns (CARs) following the announcements, we find FIs generally experience negative abnormal returns during the post-announcement period; however, the investors' reactions vary in a country-by-country analysis. These different reactions allow the potential for investors to launch global diversification and trading strategies.

Key words: Convertible bonds, Announcements effects; Abnormal returns

JEL classification: G13; G14; G15

I. Introduction

Contingent convertible (CoCo) bonds are hybrid debt instruments that must be converted to common stock if the predefined conversion event occurs. Before the contingency condition is met, CoCo bonds act like straight bonds. They have a normal coupon payment, par value, and time to maturity; therefore, these bonds carry the same advantages and disadvantages of normal bonds prior to conversion. Because the option to convert CoCo bonds to common stock is given to investors, they are willing to accept a lower rate of return for the bonds compared to similar non-convertible bonds, which reduces borrowing costs to issuers. The resulting difference in returns between CoCo bonds and nonconvertible bonds can be viewed as option premiums of the CoCo bonds.

CoCo bonds are particularly appealing to financial institutions (FIs) whose capital requirements are regulated by national and international authorities, such as central banks and Basel Committee on Banking Supervision. When FIs have an adequate debt-to-equity ratio, presumably during a positive economic environment, a CoCo bond behaves like a straight bond. However, when an FI's capital ratio falls below the threshold imposed by the regulatory authorities, presumably during economic downturns, the CoCo bond conversion feature is triggered and the bond is converted to common stock. This conversion lowers the FI's debt-to-equity ratio, results in a higher capital ratio, and lowers the default probability. This special conversion feature not only reduces the default probability and its associated costs, but also internalizes the cost of an FI's poor performance. Specifically, it shifts the poor performance cost from bail-outs by taxpayers to bail-ins by the FI's capital providers. Therefore, CoCo bonds issued by FIs should be beneficial to the public, both economically and politically.

Based on the above discussion, it may be expected that the public will perceive an announcement of CoCo bonds issuance by FIs to be good financial news that should have a positive affect on the market value of FIs following announcement (Li, Liu and Siganos, 2016). Research on *non*-financial institutions, however, shows mixed results. Kang, Kim, Park and Stulz (1995), and de Roon and Veld (1998), for example, find that the announcement of issuing CoCo bonds has a positive effect on a *non*-financial firm's stock price. Conversely, the empirical results of several studies (e.g., Dann and Mikkelsen, 1984; Eckbo, 1986; Mikkelsen and Partch, 1986; de Roon and Veld, 1998; Lewis, Rogalski and Seward, 1999; Wolfe, Daliakopoulos and Gwilym, 1999; Burlacu, 2000; Dutordoir and Van de Gucht, 2004; Cheng, Visaltanachoti and Kesayan, 2005; Ammann, Fehr and Seiz, 2006; Duca, Dutordoir, Veld and Verwijmeren, 2012; De Spiegeleer, Schoutens and Van Hulle, 2014) provide evidence of a negative market reaction, shown by negative abnormal return of equity.

While existing research has focused on examining the announcement effect of CoCo bonds issuance of *non*-FIs' stock prices, limited attempts have been made to investigate investors' reaction to the announcement of CoCo bonds issued by FIs. We believe that the value of the convertibility feature of CoCo bonds issued by FIs is not the same as the value of the convertibility feature of *non*-FIs for several reasons. First, FIs are bound by different forms of capital adequacy requirements because of national and international regulations. Second, FIs are more exposed to financial downturns and possible conversion triggers because of the financial nature of the assets and liabilities on their balance sheets. Third, FIs are special economic units because they provide special services to diverse sectors of the global economy and are major players in stabilizing (or destabilizing) the financial system. Finally, the global financial crisis of 2008 clearly highlighted the vulnerability of the capital adequacy of financial institutions to an unexpected downturn of the

economy, which in turn put a heavy burden on public funds to bail out the financial system. By internalizing the cost of FIs' poor performance, CoCo bonds may shift the cost from publicly supported insurance programs to the providers of capital, which may also introduce more market discipline on the operation of FIs. Therefore, the results obtained from the studies examining the non-FIs' stock price reaction to the CoCo bond announcement may not be applicable to FIs.

In this paper, we extend the present literature by exploring the announcement effect of CoCo bonds issuance by FIs at the global level. Specifically, this paper examines the effects of the announcement of CoCo bonds issuance on the issuers' stock value using market return data for two regions: the Asian Pacific region (AP-region) and the European region (E-region). The AP-region includes Australia, China, India and Malaysia, and the E-region includes Belgium, Britain, Denmark, France, Germany, Ireland, Italy, Netherlands, Portugal, Spain, Sweden and Switzerland. We employ an event-study approach to determine the announcement effect of CoCo bonds issuance by FIs on issuers' stock value and the volatility of the stock returns over an adjustment period of 15-days following the date of announcement. This paper differentiates itself from prior research by extending the analysis to a global setting by using data sets that cover two regions consisting of 46 publicly traded FIs that operate in 16 countries. Our results provide evidence to indicate that the FIs' stock prices experience negative abnormal returns in the post-announcement period.

The rest of the paper is organized as follows: Section II describes the data and methodology; Section III discusses the empirical results; and Section IV contains a summary and conclusions.

II. Data and methodology

a. Data

We identified 46 publicly traded FIs that have issued CoCo bonds during the period from January 2010 to June 2014. These FIs made 68 distinct issuance announcements during this period. We collect issuance-related data, such as the names of the issuing FIs, the announcement dates, the amount of the issuances and the daily closing prices from Bloomberg and several stock exchanges where the stocks are actively traded. For each announcement, we collect closing stock prices for 15 trading days before and after the announcement, and for the actual announcement date. Our final sample consists 2,108 daily observations for 68 announcement events by 46 FIs.

Using the daily closing stock price of each FI_i, we compute the daily return for day_t as:

$$K_{it} = \text{Ln} \left(\frac{I_{it}}{I_{it-1}} \right) \times 100 \quad (1)$$

where:

K_{it} = the daily return of FI_i on day_t

I_{it} = the closing stock price of FI_i on day_t

I_{it-1} = the closing stock price of FI_i on day_{t-1}

Ln = the natural logarithm

b. Methodology

In this study, we use several steps to compute cumulative abnormal returns (CARs) and to test their statistical significance. The event days are defined as the dates on which the issuing FI publicly announces the decision to issue CoCo bonds. We use 15 days prior to the announcement date as the pre-announcement period and 15 days following the announcement date as the post-announcement window. This process provides us with two time-series data sets: the pre-announcement sample and the post-announcement sample. We then compute means and variances

for the pre- and the post-announcement periods separately and perform an equality of mean test (t-test) and an equality of variance test (F-test). We define abnormal return (AR) as the difference between the mean return of the pre-announcement period and the return of each day in the post-announcement period (day₁, day₂, day₃, ..., day₁₅). Mathematically, abnormal returns are computed as:

$$AR_{it} = K_{it} - \bar{K}_{inon} \quad (2)$$

where:

AR_{it} = the abnormal return of FI_i on day_t ($t = 1, 2, 3, \dots, 15$)

K_{it} = the stock return of FI_i on day_t following the announcement date ($t = 1, 2, 3, \dots, 15$)

\bar{K}_{inon} = the mean stock return of FI_i in the 15 days of pre-announcement period

We then calculate the mean abnormal return for each day (day₁, day₂, day₃, ..., day₁₅) in the post-announcement period across all FIs on that day to construct a time-series of 15 days of abnormal returns. Specifically, the daily mean abnormal return on day_t is measured as:

$$\bar{AR}_t = \frac{1}{n} \sum_{i=1}^n AR_{it} \quad i = 1, 2, 3, \dots, n \quad (4)$$

where:

\bar{AR}_t = mean abnormal return over all announcements on day_t ($t = 1, 2, 3, \dots, 15$).

n = number of announcements on day_t ($t = 1, 2, 3, \dots, 15$).

Next, we establish the CARs by adding the mean abnormal returns over the 15 post-announcement days as:

$$CAR_t = CAR_{t-1} + \bar{AR}_t \quad t = 1, 2, 3, \dots, 15 \quad (5)$$

Finally, we use the t-statistic to test whether the calculated CARs are statistically different from zero:

$$t\text{-statistic} = \frac{CAR_t}{[\text{VAR}(CAR_t)]^{\frac{1}{2}}} \quad t = 1, 2, 3, \dots, 15 \quad (6)$$

III. Empirical results

Table 1 reports means and variances of returns by region and country in our sample during the 15-day period prior to the announcement dates of CoCo bonds issuance and during the 15-day period following the announcements, respectively. This table also includes the tests of the null hypotheses of equality of means of returns (t-test) and equality of variances of returns (F-test) between the pre- and post-announcements days. From Table 1, we see that the mean returns for the whole sample, as well as the two regions separately, are positive in the pre-announcement period, but are negative for the post-announcement period. In terms of individual countries, the mean stock returns are mostly positive (12 of 16 countries). The exceptions are Australia, India, Germany and Ireland. The highest mean and the highest variance both belong to Portugal. The mean abnormal returns are negative for 7 of 16 countries during the post-announcement period, i.e., Australia, India, Malaysia, Britain, Ireland, Netherlands and Switzerland.

In addition, Table 1 results show that there is an insignificant difference in the abnormal return volatility (measured by variance of abnormal returns) between the pre- and the post-announcement periods in the AP-region and its constituent countries, except for Australia and Malaysia. However, the E-region's abnormal return volatility is significantly higher during the post-announcement period compared to that of the pre-announcement period. In particular, Belgium, Britain, Germany, Ireland, Netherlands and Portugal all have higher abnormal return volatility in the post-announcement period than in the pre-announcement period, and the difference is statistically significant for Ireland. Notably, in the case of Italy, the return variance is statistically significantly lower during the post 15-day period.

Table 2 reports the daily cumulative abnormal returns (CARs) starting from the announcement date (day₀) of the CoCo bonds issuance for the overall market (all countries under

study) and for each region and country. We find that there is a negative market reaction to the announcement of CoCo bonds issuance for the overall market. Although the negative reaction follows a downward trend, the trend is not statistically significant. The same negative relationship between announcements and the post-announcement abnormal returns is observed in each region, although again the CARs are not statistically significant.

Turning to individual countries in the sample, Table 2 shows that investors generally react negatively (measured by the CARs) to the announcement of CoCo bonds issuance in China, India, Malaysia (3 of 4 countries from the AP-region), Britain and Ireland (2 of 12 countries from the E-region). This result is consistent with Cheng, Visaltanachoti and Kesayan (2005) who show a significantly negative stock price reaction to CoCo announcements. There are several countries in which the market reaction is immediately negative, but then the negative reaction disappears within a short period of time. Australia, Denmark, France and Sweden fall into this category. On the other hand, Italian, Dutch, Portuguese and Swiss FI stock prices initially react positively to the announcement of CoCo bonds issuance, but then the reaction becomes negative in 4 to 5 days. This initial reaction of Dutch FI stock price is consistent with the findings of de Roon and Veld (1998) who report the announcement effect of CoCo bonds issuance by *non*-FIs is associated with positive stock reaction for FIs. These findings are also similar to those of Li, Liu and Siganos (2016) who document a positive CAR over a three-day period following the announcement by U.S. FIs.

Findings are completely different for Belgium, Germany and Spain, where the markets react to the announcement of CoCo bonds issuance monotonically positively over the 15-day period following the announcement. These results are in line with Ammann, Blickle and Ehmann's

(2015) study in which they show a positive association between the announcement of CoCo bonds issuance and CARs using a sample of 34 FIs.

Graphs of Table 2 results are presented in Figures 1 through 19. Figures 1 through 3 show the trend of the overall market, the AP-region and the E-region market reactions (as measured by CARs) following the announcement of CoCo bonds issuance, respectively. These figures show that the CARs follow a declining path, suggesting a negative market reaction to the issuance announcement. These findings are generally similar to the previous literature regarding the negative stock price reaction to CoCo bonds offering. It is interesting to note the reaction of the AP-region is consistent with the prediction by the overreaction hypothesis, in which the corrective CARs are upward in reaction to the CoCo bonds announcement. This means investors consider the announcement as bad news and exaggerate its implications by pricing the stock under its fundamental value. When the uncertainty settles, prices rise and converge to its fundamental value.

A country-by-country analysis suggests that while FIs in many countries experience negative market reaction to the announcement, the market reaction in a few countries following the announcement is almost trendless (e.g., Australia) or even positive (e.g., Germany and Spain). It may be argued that the FI stock price reactions to the CoCo bonds issuance are related to the degree to which the financial mediation environment is regulated and investors incorporate this piece of information into the pricing of equity-related instruments. The presence of this non-similarity in stock price reaction to the announcement of CoCo bonds issuance may provide a diversification opportunity for investors who wish to diversify their investment portfolios internationally.

IV. Summary and conclusions

This paper examines the effect of CoCo bonds issuance announcements on abnormal returns of issuing FIs. Based on an analysis of CARs, the results suggest global and regional investors' reaction is generally negative. However, a country-by-country analysis shows that investor reaction to the announcement of CoCo bonds issuance is not homogenous. In some markets investors react negatively over the 15-day post-announcement period, while in other countries they initially respond positively and then the response becomes negative. In a few countries, such as Germany and Spain, the announcement is received as good news, where the investors' reactions are positive and CARs show an upward trend during the entire post 15-day period. In fact, the positive abnormal return could be as high as 6% (e.g., Germany).

The findings of this paper contain valuable implications for international investors who seek to diversify across countries and attempt to include the stock of FIs in their portfolio; that is, as the announcement effect of CoCo bonds issuance is not homogenous across the globe, it allows the potential for investors to launch global diversification and trading strategies. One may speculate that this dissimilarity in market reactions is due to the heterogeneous regulatory environment in which FIs operate, and the disparity of investors' preferences in process of asset selections and investment strategies.

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Table 1
Comparative mean and variance of returns
between post-announcement days and pre-announcement days

Country	Pre-15 days		Post-15 days		Difference in mean (T-statistic)	Difference in variance (F-statistic)
	Mean	Variance	Mean	Variance		
Overall	0.100	5.447	-0.044	7.509	1.299	0.725***
AP region	0.003	6.685	-0.030	6.947	0.161	0.962
Australia	-0.086	2.799	-0.409	0.723	0.208	3.095**
China	0.346	8.212	0.272	9.544	0.207	0.860
India	-0.306	6.228	-0.278	5.778	-0.101	1.078
Malaysia	0.093	0.089	-0.112	0.431	1.128	0.207***
E region	0.143	4.896	-0.050	7.770	1.460	0.630***
Belgium	0.211	3.049	0.181	5.660	0.039	0.539
Britain	0.040	3.452	-0.189	3.539	0.904	0.976
Denmark	0.173	2.168	0.173	1.964	-0.001	1.104
France	0.149	2.803	0.224	1.820	-0.272	1.540*
Germany	-0.175	1.726	0.094	2.785	-0.702	0.620
Ireland	-0.345	17.047	-1.756	69.775	1.042	0.244***
Italy	0.239	5.939	0.149	3.672	-0.008	1.660**
Netherlands	0.116	1.848	-0.054	2.440	0.322	0.757
Portugal	0.997	32.091	0.000	38.125	0.467	0.842
Spain	0.091	4.795	0.241	2.405	-0.537	1.994
Sweden	0.268	2.053	0.289	1.352	-0.091	1.519
Switzerland	0.250	3.196	-0.060	2.488	1.703*	1.285

(i) T-statistic value to test the null hypothesis that the mean of returns for post-announcement days is equal to the mean of returns for pre-announcement days.

(ii) F-statistic value to test the null hypothesis that the variance of returns for the post-announcement days is equal to the variance of returns for pre-announcement days.

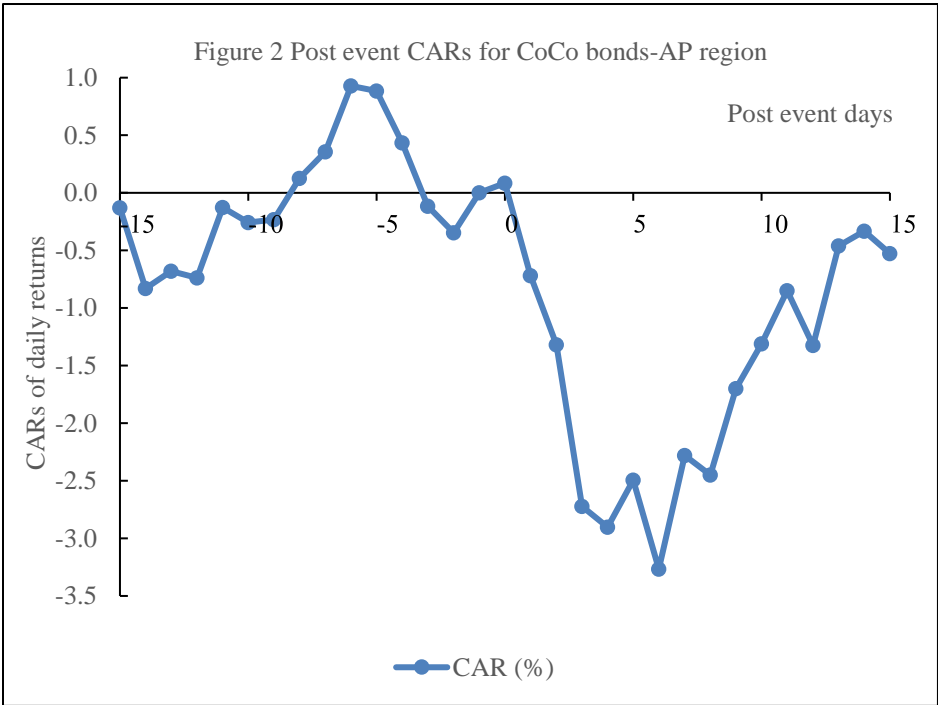
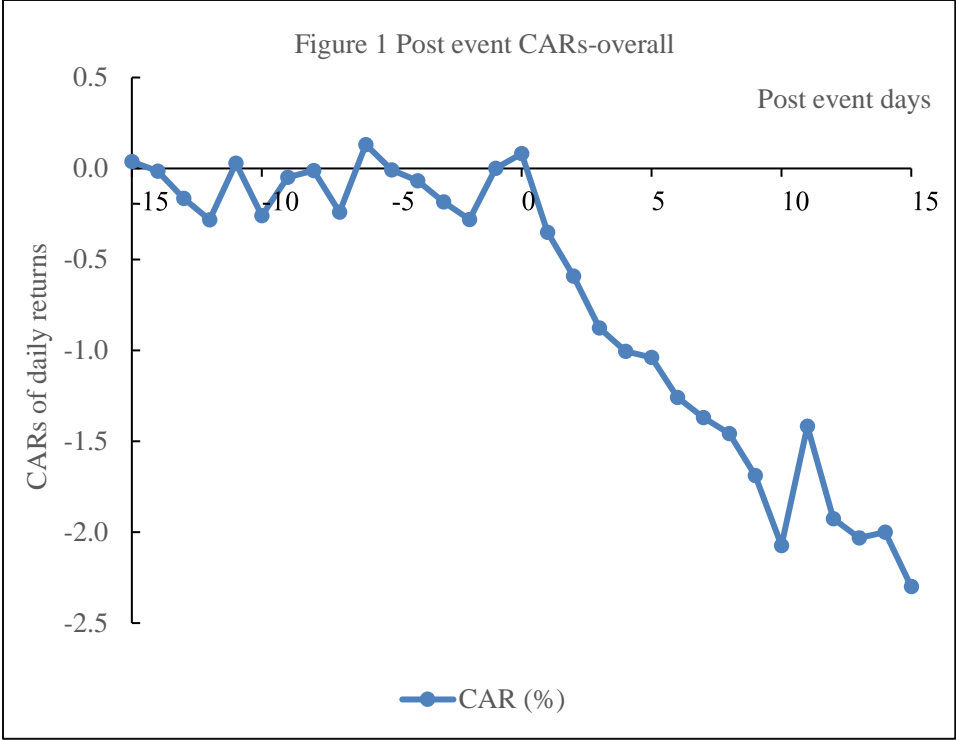
***, **, * indicates significant at 0.01, 0.05, and 0.1 levels (two-tailed), respectively.

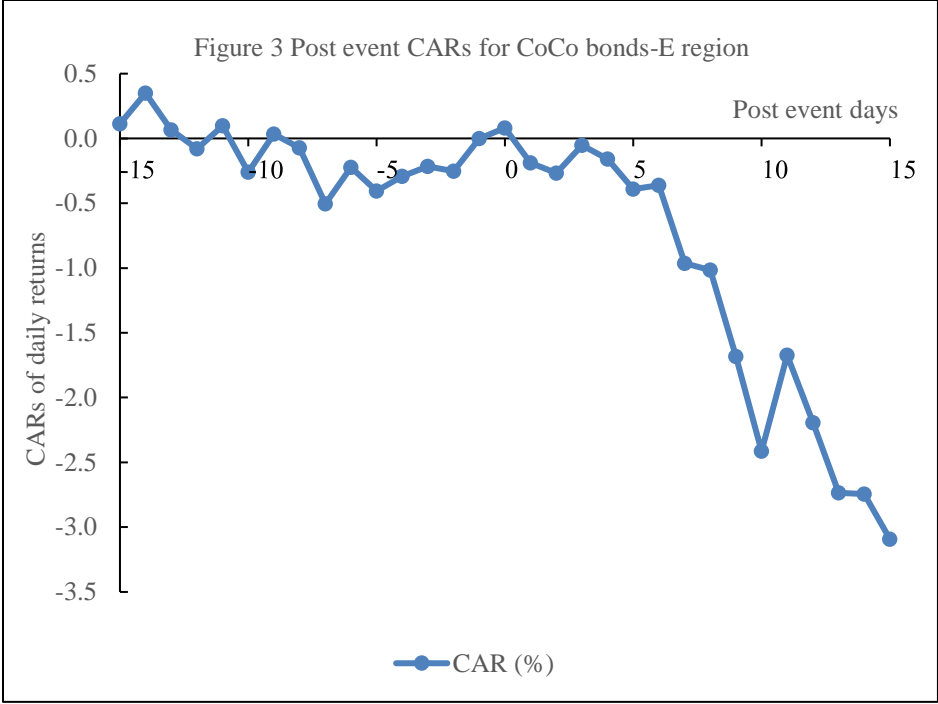
Table 2
CARs (%) around CoCo bonds announcement date

Day	0	1	3	5	7	9	11	13	15
Overall	0.082 (0.045)	-0.352 (-0.087)	-0.877 (-0.158)	-1.040 (-0.162)	-1.370 (-0.134)	-1.689 (-0.154)	-1.418 (-0.138)	-2.032 (-0.182)	-2.300 (-0.198)
AP region	0.084 (0.053)	-0.718 (-0.189)	-2.723 (-0.419)	-2.493 (-0.405)	-2.279 (-0.311)	-1.700 (-0.226)	-0.848 (-0.111)	-0.460 (-0.051)	-0.527 (-0.050)
Australia	0.314	0.095	-0.498	-1.020	0.075	1.692	0.418	0.513	-1.643
China	0.026 (0.016)	0.481 (0.162)	-1.535 (-0.202)	-2.512 (-0.400)	-3.021 (-0.332)	-1.921 (-0.232)	-2.986 (-0.310)	-1.503 (-0.154)	-1.182 (-0.121)
India	0.150 (0.088)	-1.873 (-0.452)	-4.171 (-0.799)	-2.598 (-0.407)	-1.862 (-0.306)	-1.819 (-0.281)	1.035 (0.165)	0.755 (0.090)	0.449 (0.041)
Malaysia	-0.290	-0.779	-1.163	-2.750	-2.132	-1.918	-1.706	-4.199	-3.274
E region	0.081 (0.042)	-0.188 (-0.045)	-0.053 (-0.011)	-0.391 (-0.061)	-0.964 (-0.085)	-1.683 (-0.138)	-1.672 (-0.148)	-2.734 (-0.226)	-3.092 (-0.254)
Belgium	1.781	1.369	1.731	2.123	7.592	4.435	6.546	3.050	-0.470
Britain	-0.662 (-0.405)	-0.846 (-0.369)	-1.049 (-0.282)	-0.728 (-0.268)	-0.490 (-0.136)	-2.246 (-0.483)	-3.574 (-0.654)	-4.698 (-0.708)	-3.676 (-0.580)
Denmark	-0.806 (-0.256)	-0.269 (-0.084)	0.223 (0.335)	0.738 (3.329)	-0.748 (-0.290)	1.138 (0.599)	0.659 (0.265)	0.417 (0.129)	0.005 (0.002)
France	-0.070 (-0.061)	-0.908 (-1.055)	-0.302 (-0.182)	0.486 (0.415)	0.559 (0.155)	2.136 (0.391)	1.975 (0.382)	2.073 (0.376)	1.193 (0.147)
Germany	0.462 (0.345)	0.591 (0.480)	1.541 (0.459)	4.698 (0.831)	5.354 (0.786)	3.918 (0.589)	5.619 (0.670)	6.263 (0.650)	4.302 (0.704)
Ireland	-1.214 (-0.220)	-6.284 (-0.430)	-9.488 (-0.920)	-13.612 (-0.822)	-23.580 (-0.620)	-24.329 (-0.575)	-18.781 (-0.481)	-21.401 (-0.557)	-22.578 (-0.587)
Italy	0.419 (0.220)	1.423 (0.434)	0.466 (0.100)	0.262 (0.064)	-0.740 (-0.176)	-1.086 (-0.306)	-1.021 (-0.232)	-1.843 (-0.345)	-1.449 (-0.550)
Netherlands	0.028	0.980	-0.034	-1.558	-2.152	-1.804	-1.317	0.016	-2.715
Portugal	1.743	3.413	1.419	-3.241	-5.235	-7.229	-9.223	-28.909	-15.950
Spain	0.570 (0.373)	0.405 (0.276)	1.505 (0.408)	0.855 (0.249)	3.114 (0.834)	2.388 (0.659)	2.666 (0.871)	2.928 (0.713)	2.403 (0.658)
Sweden	-0.109 (-0.148)	0.705 (0.382)	1.104 (0.364)	1.561 (0.439)	1.760 (0.464)	1.336 (0.354)	1.186 (0.376)	0.963 (0.434)	0.340 (0.103)

Switzerland	0.404	0.072	1.102	0.431	-0.437	-1.701	-2.667	-3.583	-4.969
	(0.289)	(0.031)	(0.398)	(0.101)	(-0.090)	(-0.335)	(-0.490)	(-0.595)	(-0.658)

This table presents the CARs around the announcement date. For countries that have multiple announcements, the t-statistics are reported in parentheses.





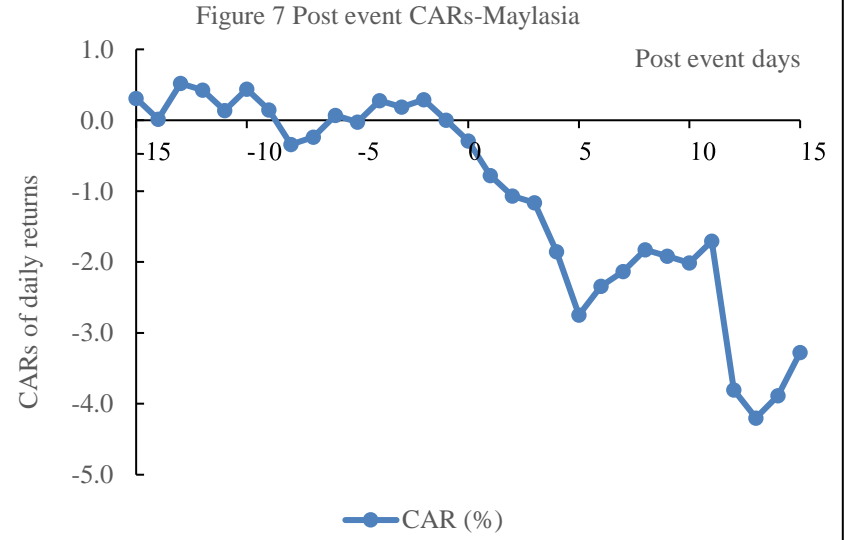
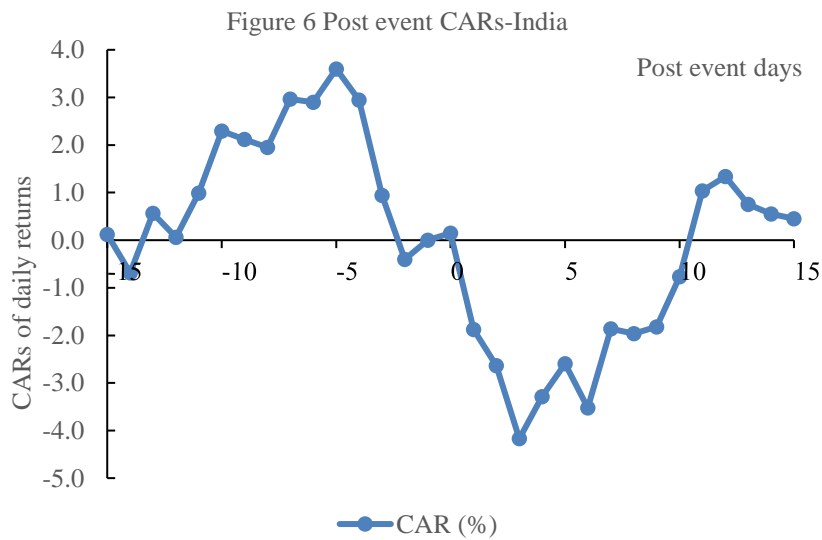
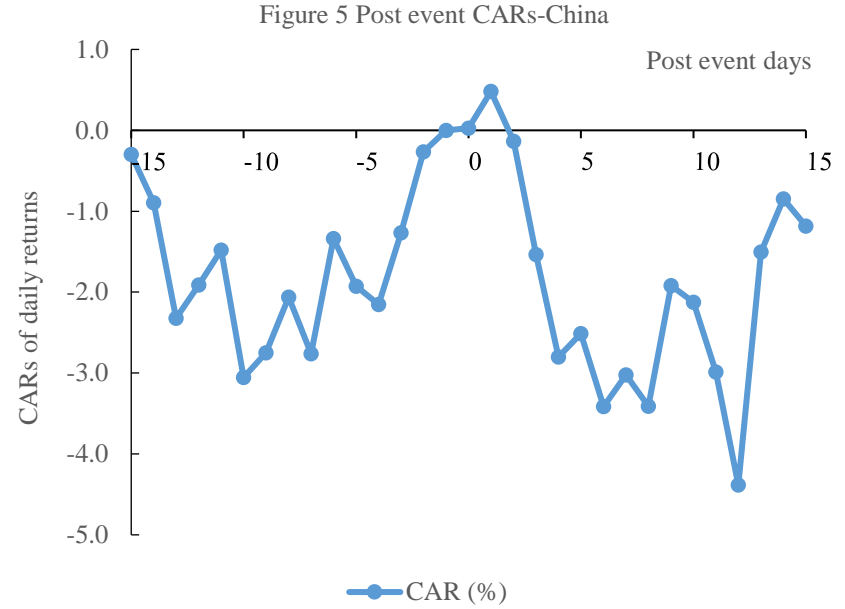
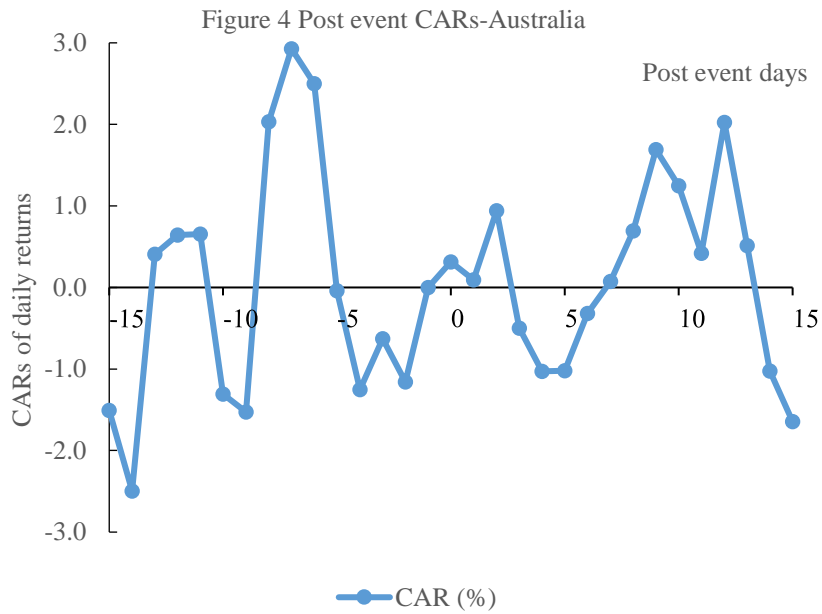


Figure 8 Post event CARs-Belgium

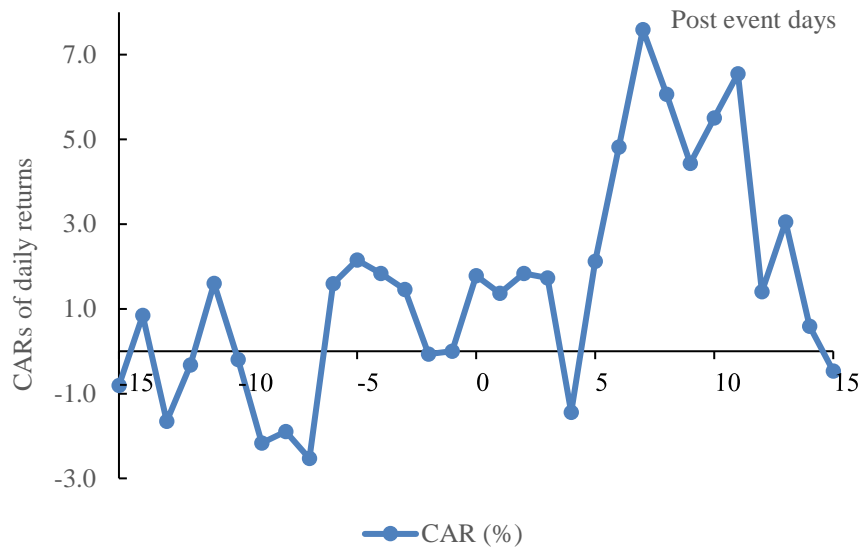


Figure 9 Post event CARs-Britain

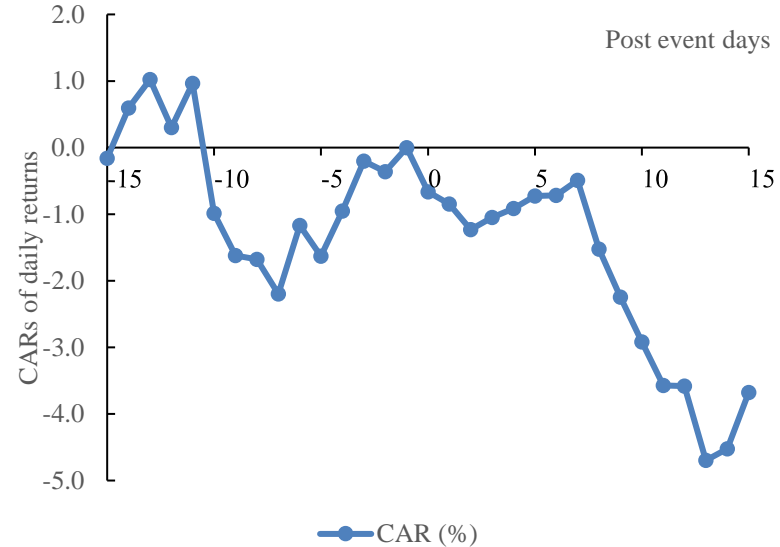


Figure 10 Post event CARs-Denmark

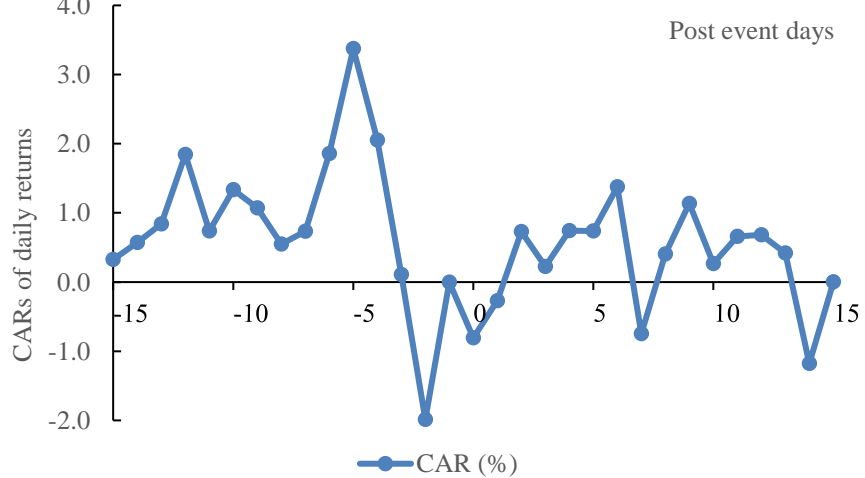


Figure 11 Post event CARs-France

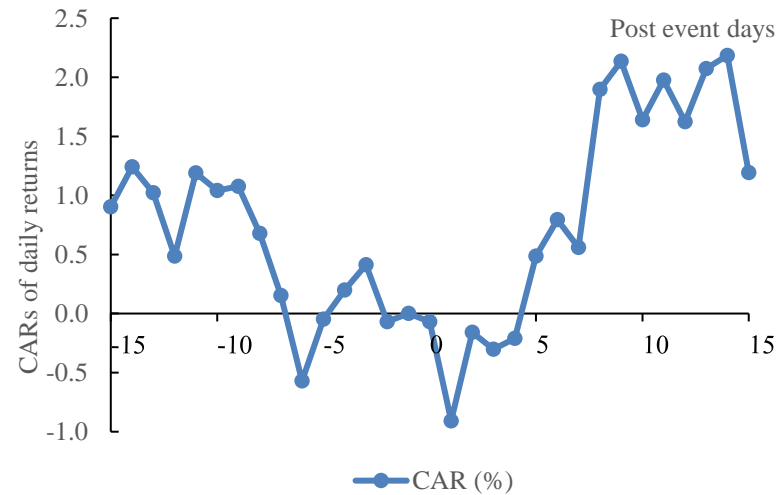


Figure 12 Post event CARs-Germany

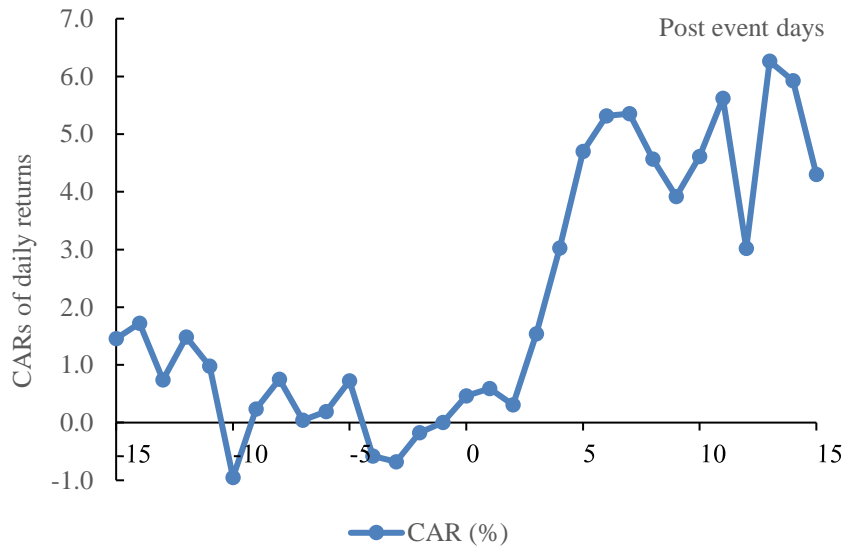


Figure 13 Post event CARs-Ireland

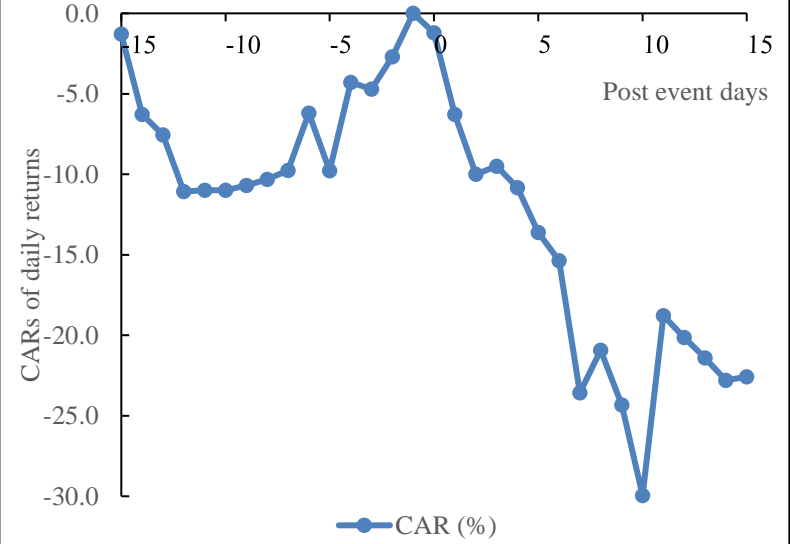


Figure 14 Post event CARs-Italy

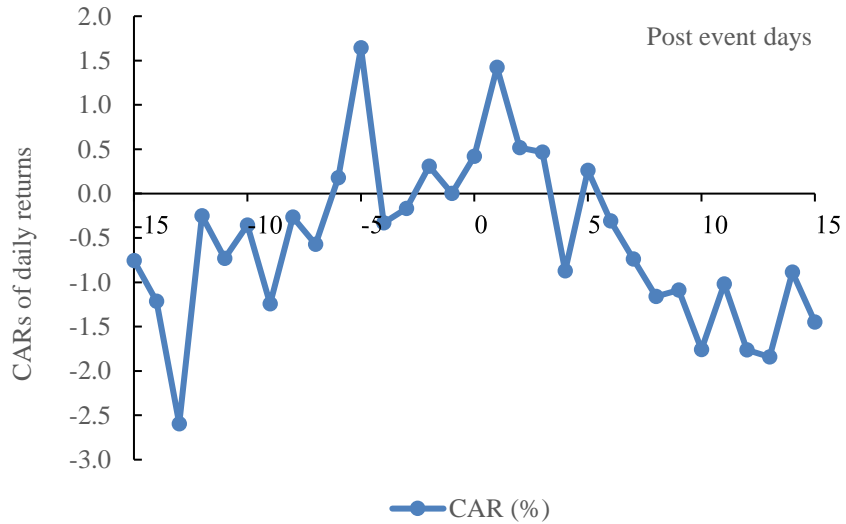


Figure 15 Post event CARs-Netherland

