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THE VALUE OF INFORMATION: THE IMPACT OF EBA STRESS TESTS IN STOCK MARKETS

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By, André Pereira

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In a special note, I dedicate this work to my parents and grandparents, to whom I owe so much in my life.

"Stress testing is a key tool to ensure that financial companies have enough capital to weather a severe economic downturn without posing a risk to their communities, other financial institutions, or the general economy."

Fed governor, Daniel Tarullo

List of abbreviations

Abbreviation	Name
CDS	Credit Default Swap
CEBS	Committee of European Banking Supervisors
EBA	European Banking Authority
EC	European Commission
ESRB	European Systemic Risk Board
GDP	Gross Domestic Product

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Abstract

This dissertation focus in testing if the 2010, 2011 and 2014 European Stress Tests performed under CEBS and EBA supervision produced useful and real information to the market.

Using an augmented CAPM model, I found that the most significant event to the stock markets is the Methodology release, in terms of risk and returns. In contrast, the Results event did not have much impact in the same market when considering the entire sample as one. Yet treating the sample in two different groups, on one hand the banks that passed and on the other hand the banks that failed, we can observe a significant reaction of the stock markets in the last group.

These findings are consistent with the literature available which conclude that the stress tests provide real and valuable to the markets about the banking system.

1. Introduction

The year of 2008 was the key moment for banking regulation.

The financial crisis increased the exposure and scrutiny to the banking system due to the collapse of the well-known American banks such as Lehman Brothers and Bear Stearns but also due to the sovereign debt crisis in Europe. Was this financial crisis triggered by a lack of regulation?

In response, central banks improved an already existing tool: the stress tests. These tests are based on a simulation methodology like, for example, Monte Carlo's simulations, a technique to predict the future and use that scenario to forecast results. The stress tests are also made under unfavourable economic scenarios in order to determine if a bank has (or not) sufficient capital to accommodate the impact on their balance sheet.

The main objectives of a stress test are preventing the undercapitalization of the banking sector, valuating the bank's loss absorbing capacity, identifying vulnerabilities in bank's risk management strategy, providing valuable information to regulators and at the same time increase the confidence, predictability and security in the financial markets.

The construction of the scenarios does not take into account historical data and does not expect past observations to remain valid in the future. The correct approach is forecasting possible developments in the economy and try to predict the future the best that is possible.

One of the main targets of the European regulators was to restore the confidence on Europe's economy and banking sector, signalizing to the market that they are aware of the problems that can happen in the future of the banking industry.

The European institutions introduced widespread stress tests in 2010 led by the Committee of European Banking Supervisors (CEBS) and since 2011 performed by the European Banking Authority (EBA) replacing CEBS.

The 2010 exercise was conducted in 91 European banks, covering at least 50% of the evaluated countries banking sector and also representing 65% of the European banking industry total assets.

The minimum threshold adopted to pass in the test was 6% of Core Tier 1 ratio for the adverse scenario. A value that 7 banks failed to achieve. The general perception was that this test was relatively poorly received giving the wrong insight to the market. The reason for this scepticism was the release of limited information contributing to increase the already existent uncertainty at that time in the markets. It was unanimous from the financial institutions to the general society that the adverse scenario adopted was not reasonable or even considered "adverse" since it only assumed a 0.6% decrease in GDP (Gross Domestic Product). This led to a subjective result where banks not well capitalized and not prepared to accommodate an economic shock still pass the test. Actually some of

these banks a few months after were asking for public intervention to support their business.

The 2011 stress test, the first performed by EBA, was seen as a successful reinforcement and upgrade to the 2010 test, namely by increasing the severity of the adverse scenario – assuming now a drop of 4% in GDP – as well as the disclosure and transparency of the methodology and data used which contributed to an improvement of the results reliability. The sample was composed by 91 banks (however, only 90 were disclosed) and the threshold was changed to 5% of Core Tier 1 ratio which caused 20 banks to fall below this level and consequently fail the test.

A lesson to bear in mind with these tests is when the data and methodology used is public the market can conduct their own tests and methodologies contributing to eliminate the doubt among the investors.

In 2014, EBA added an additional tool - the Asset Quality Review (AQR) - to complement the stress tests and improve the information provided to the market therefore reducing the systemic risk. The baseline and adverse scenarios were developed by European Systemic Risk Board (ESRB) and the European Commission (EC). The sample had increased to 123 banks and the threshold for the adverse scenario was set at 5.5% of Core Tier 1 ratio. In total, 24 banks had failed to reach the minimum required. The latest tests were considered by the public in general as being the best and more realistic ones since the year of 2010.

Although they were the best tests they were still referred as "a walk in the park on a Sunday morning" by Saxo Bank's Chief Economist when comparing with the American stress tests which are far more developed.

However, are these tests really helping the regulators? Are they real enough to warn the system about damaging banks? Are they contributing to reduce the risk in the market or on the other hand is it helping to increase the distrust in the system? If the probability of the worst scenario is extremely low would be this best scenario to test and would it increase the confidence on the markets?

This dissertation aims to test the impact of the 2010, 2011 and 2014 Europe's Stress Tests events – Announcement, Methodology and Results release events - on the stock markets, measuring their impact to reduce or increase the risk and also testing for the presence of abnormal returns.

The main objective is to answer the following questions:

I. Is the short term risk of the bank's stocks impacted by any of these events?

II. Is the long term risk of the bank's stocks impacted by any of these events?

III. Is there any abnormal stock's return evidence on any of these events?

We will also compare the results to the same questions on the 2014 stress test but dividing the sample in 2 groups – the banks that passed and the ones that did not pass the test.

With this work we aim to contribute to the discussion about the effectiveness and real impact of these tests on the European banking system. Are they contributing to increase the efficiency of the market? Are they helping to improve the information for the investor?

This dissertation is organized as follows. Section 2 presents a review of the literature that studied this topic regarding the Stress Test in last years but with other different approaches, methodologies and geographically diversified. Those works also cover different geographies. Section 3 shows how the data for this work was defined and which methodology was followed. In this section we also describe the methodology used. The Section 4 contains the results of this work showing how the banking system was impacted by the stress tests analysed and also gives additional and important insights with analysis in different viewpoints. Section 5 gives concluding remarks, further points to work and limitations of this work. In the final, we show the references used in this dissertation.

2. Literature Review

The literature in this area is increasing due to the recent developments in this topic by regulators and the banks. The literature mainly focuses on the American and European stress tests but there is some works with local supervisors. This thesis tries to contribute a little more to improve the currently information available on this subject.

The market in general but specially "…*the banking system needs indicators that can serve as warning systems to identify potential bank failures in an efficient and accurate matter* (Apergis, N. et al 2013)".

One of the tools chosen to produce those important warnings signals were the stress tests, identified as an essential component on the design of an optimal disclosure of information between the banking authorities (the regulators) and the investors (the market) (Gick & Pausch, 2012).

The main technique used to evaluate the impact of certain events such as mergers, stock splits, etc. is the event study methodology. Peristian et al. (2010) and Neretina et al. (2014) studied different topics using this technique.

This methodology divides the sample in two windows – the estimation window and the event window – and then following a model such as a CAPM the authors try to observe abnormal returns that are defined as the actual return minus the return expected in the absence of the event.

The 2009 US Stress tests were the first widespread exam performed in the world and as Peristian et al. (2010) found that test provided crucial information to the market and reduce the opaqueness in banks. The conclusions reached that the banks facing larger capital gaps on their results are the ones experiencing higher negative abnormal returns. As a consequence, contributing to increase the flowing of capital from the riskier to the safer banks as a result of the stress tests outcomes.

Neretina et al. (2014) studied the impact of 2009 US Stress Test on systematic risk, equity returns and CDS spreads on 2009-2013 period, reaching the conclusions of a statistically weak suggestion of impact on equity returns, but a significant evidence regarding the decline of CDS spreads after the results disclosure and the decrease of systematic risk in the following years after the stress test.

Apergis & Payne (2013) with 2011 EBA Stress test as the relevant event indicated that both credit risk and macroeconomic factors such as lower GDP growth, higher CDS spreads or higher LIBOR spreads are significant determinants of bank failures, which can serve as an alert system to the market regulators and banks itself.

Ellahie (2013) states that "*announcement of forthcoming public disclosure and the eventual disclosure can induce changes in the information environment*". After the information of 2011 results were released, the market experienced two

distinct feels: the information asymmetry declined and the information uncertainty increased. Overall, the author emphasizes the transparency and credibility as the most important factors of a successful stress test, contributing to maximize the value of information and the confidence given to the market by the regulatory institutions.

Alves et al. (2014) concluded that the 2010 and 2011 stress tests brought new information to the market environment and the outcomes were not anticipated by the stock market but were partially anticipated by the CDS market. Both markets had a stronger reaction in riskier financial institutions than in the safer ones and a positive and immediate influence on the aggregate behaviour of the sector. The share prices of the banks that passed the tests experienced higher positive cumulative abnormal returns, leading to a conclusion that investors attributed value to the information provided in these tests, which is consistent with what Gick & Pausch (2012) defended 2 years before: "…*stress tests create value as they will generally improve information disclosure between supervisor and investors*".

Petrella & Resti (2012) defend that the 2011 EBA Stress Test results event was considered relevant by investors, impacting the stock prices. The authors also argue that the market is not able to anticipate the test's results which is consistent with the idea of a high bank opaqueness level. Nevertheless, the study

shown again the importance of a stress test in producing valuable information to the market.

Nijskens & Wagner (2008) studied the impact of a CLO and CDS issuance events on the banks' risk. This study found a relationship between these events and the increase of the banks' beta share price. The increase on banks' risk was due to the increase in correlation across banks and not the volatility of the individual banks, which decreases instead. Overall, these events found an increase in risk on the financial system but a decrease on the banks' individual risk.

Cardinali & Nordmark (2011) concluded that the banks are opaque to an intermediate degree, sustaining this idea with the fact that 2010 Results and 2011 Clarification events were uninformative to the stocks market but in contrast the 2011 Methodology release event was very informative. In addition, the authors performed tests distinguish between the PIIGS and Non-PIIGS countries, however, the results didn't lead to different conclusions.

3. Data and Methodology

The purpose of this thesis is to analyse the impact of the Stress Tests performed by European institutions on stock market's indicators, such as the risk and stock's return. By comparing the results across different moments and years we will confirm or refuse the hypothesis that the information given to the market is reducing the risk and not creating abnormal returns since the stress tests are supposedly getting more realistic.

With the purpose of explaining the impact of Stress Tests on the stock markets the main econometric technique that will be used in this dissertation will be the regression analysis computed with dummies in order to signalize the events window as well as the interaction between the market return and the applied dummies, to measure the risk associated to the events considered.

In order to compute the regressions, we collected 2 samples on the banks' stocks[1] – one from 18/06/2009 to 26/10/2015 and another one from 18/12/2009 to 26/04/2015, 6 months and 1 year before and after the first and last event being studied in this dissertation, respectively. All the share prices were collected from the Bloomberg platform. In the case of some prices being unavailable we filled it

[1] The initial idea for this dissertation was also to study the impact of these events on the Credit Default Swaps markets along with stock markets. The absence of historical prices on an appropriate index to be use as proxy of the market determined the abandonment of this idea.

with the last available stock price. We dropped all banks for which no (or incomplete) data was available and we considered only the banks that were involved the three stress tests to give consistent results since the entities analysed are the same, avoiding to compare different samples for each stress test and also doing the analysis for banks that are not currently existing since they merged or were purchased. This left us with a final sample of 41 banks (Table II). The descriptive statistics are presented in Table III.

To calculate the stock returns across all data we used the constant-mean-return model, taking the logarithm as below:

$$R_{i,t} = \ln(\frac{P_{i,t}}{P_{i,t-1}}) \quad (1)$$

Where $R_{i,t}$ is the log-return for firm i at time t, $P_{i,t}$ is the current closing price and $P_{i,t}$ is last day's closing price.

The continuous compounded returns were used in order to avoid issues with nonstationary in the data because it can lead to some severe unreliable test statistics.

To measure the impact of the events and following Nijskens and Wagner (2008) we estimated the relationship between the stress tests events and the bank's beta in stock markets using the below augmented CAPM model:

$$R_{i,t} = \alpha_i + \beta_1 R_{M,t} + \delta D^{abn} + \beta_2 D^{temp} + \beta_3 D^{temp} R_{M,t} + \beta_4 D^{perm} + \beta_5 D^{perm} R_{M,t} + \varepsilon_{i,t} \quad (2)$$

In the model above, α_i is the bank fixed effect and $R_{i,t}$ and $R_{M,t}$ are the returns on an individual bank and the market used as a proxy, respectively. The market return used is measured by the Stoxx Europe Banks 600 Index, an index containing the majority of the banks in the sample of this study since this index includes the 600 banks with the largest market capitalization in Europe. Apart from a significant weight of UBS (a Swiss bank not used in this work) on this index, all the rest of significant banks (above 3.5% of the index) were part of this analysis, leading me to choose it as the better one to use as proxy. D^{abn} is a dummy variable that takes the value of one 22 business days before and after the event date and value zero otherwise, measuring any abnormal return associated with the event. We considered 22 business days in order to have a short time period to test the impact of the stress test events. However, an interesting work would also be testing the presence of abnormal returns with less days considered. That could lead to different results and conclusions. With less days, the impact of the stress tests should have a bigger importance than the one that will be noticed in this dissertation. This can lead us to talk about market efficiency: if the markets are efficient, the adjustment of the security's price will be almost automatic.

The events dates considered were:

Table I
Events' Dates

Event	Date
2010 Announcement	18/06/2010
2010 Methodology	07/07/2010
2010 Results	23/07/2010
2011 Announcement	13/01/2011
2011 Methodology	18/05/2011
2011 Results	15/07/2011
2014 Announcement	31/01/2014
2014 Methodology	29/04/2014
2014 Results	26/10/2014

D^{temp} is another dummy which takes the value of one in the 66 business days before and after the event window. This dummy was used to measure any temporary beta effect of the event in a short time perspective. On this case we picked 66 business days to try to capture the temporary effect on risk but with also with a sufficient range to measure that impact correctly. D^{perm} is the last dummy to measure the permanent beta effect, whose value is one from the event's date until the end of the period in this work.

The most relevant variables in this regression are the coefficients of the interaction terms $D^{temp}{*}R_{M,t}$ and $D^{perm}{*}R_{M,t}$ whose measures the change in a bank's beta share price, thus the risk associated on a temporary and permanent effect

in comparison to the market, respectively. The beta share price stands for a measure of a security's volatility, meaning that a higher beta indicates a higher volatility, so a higher risk associated with that security. In this model these are critical variables since we will try to verify an increase or decrease of the risk associated on the groups of banks analysed. It is expected that the banks who failed the test experienced an increase on their risk and for the banks who passed is expected a decrease or neutral effect in their risk.

Denote that these dummies are overlapped (permanent effect and temporary effect dummies have the same sample in the first 66 business days), meaning that the permanent effect will take into account the temporary effect. Therefore, we should exclude the last one from the permanent so that we eliminate the influence of the temporary on the permanent.

To test the impact of the tests on risk and abnormal return variables we considered as hypotheses the following:

(Abnormal Return)	H_0: $\delta = 0$	H_1: $\delta \neq 0$
(Temporary Effect on Risk)	H_0: $\beta_3 D^{temp} = 0$	H_1: $\beta_3 D^{temp} \neq 0$
(Permanent Effect on Risk)	H_0: $\beta_5 D^{perm} = 0$	H_1: $\beta_5 D^{perm} \neq 0$

Throughout the dissertation, I will compare all the moments across the three tests and the impacts on the stock markets as an alternative proxy of the information provided by these tests measuring the perception of the market.

4. Results

The results are present in tables IV, V and VI for the Announcement, Methodology and Results events, respectively.

In all regressions the market daily return coefficient is statistically significant at 1% level indicating a high linearity, as expected, between the market used as proxy – Stoxx Europe Banks 600 Index - and the daily return of the sample used on this dissertation. The market return coefficient is always above 1 demonstrating that the sample of banks used in this work outperformed the market. As a curiosity, the constant term is statistically significant at least at 10% significance in all events on 2014 stress test.

In addition, we verify a probability F-statistic of zero, confirming that the variables are all jointly significant and the regressions used fits the data well.

4.1 Announcement Event

Regarding the Announcement's events (Table IV), we verify very small but statistically significant abnormal returns in 2011 at 10% significance level and in 2014 at 5% level. This confirms the better reaction of the market to the 2014's Stress Test comparing to the ones performed in 2011 and 2010.

The temporary effect on beta share price is statistically significant at 10% in 2011 with 6 months' data, having an impact of approximately -0.0557 on it. Even though the rest of the variables are not statistically significant we find a change

of signal after the 2010 stress test from an increase to a decrease on its risk, in the 2011 and 2014 tests.

4.2 Methodology Event

In Methodology events (Table V) we found statistically significant abnormal returns in all regressions except one, the 6 months' data in 2010 test. Yet they have different interpretations between them. The evidence shows that the Methodology release had a higher influence on the stock markets in comparison to the Announcement event. The 2010 test outputs a small positive abnormal return below 0.1% at 10% significance level. The market did not find the tests as being a real inspection on the banks. In 2011 and 2014 these methodologies releases were differently assumed by the market, turning to small negative abnormal returns statistically significant at level of 5%. This negative impact on the returns of the bank's stocks occurred because the market's fear the scrutiny the banks suffered, causing irreparable reputational damages to some of the most vulnerable banks. Neither a temporary nor a permanent effect were found statistically significant indicating that the methodology release does not cause any relevant reaction on the market regarding the long or short term risk.

4.3 Results Event

The Results events (Table VI) demonstrate important differences in relation to the other two events already analysed. The most relevant outcome is the absence of abnormal returns associated with all the three European stress tests at any range of data. This leads us to conclude that the results were already expected and incorporated by the market participants in the bank's shares prices. This finding was already expected in this study since the investors have their own methodologies. Also, after the official methodology release the market participants can forecast the output results that will come few months after with a good confidence interval.

4.4 The 2014 Stress Test

The tables VII and VIII compare the impact of 2014 tests between 2 groups – the eight banks that failed the test against the others 33 banks in the entire sample. This comparison is only done for 2014 stress test because this is the only year with a significant sample for both groups.

As in the analysis with the entire sample, all regressions present a market daily return coefficient statistically significant at 1% and a probability F-statistic equal to zero.

4.4.1 Banks above the minimum requirement

The banks which passed the 2014 test (Table VII) experienced a small positive abnormal return of approximately 0.1% following the announcement date, demonstrating that the market incorporated this press release believing the banks were well prepared to pass the tests. In the Methodology and Results events with 1 year data this group of banks had experienced a decline of their permanent risk at 10% significance level of -0.10 on their beta share price, revealing that their risk took in account the good results in this test.

4.4.2 Banks below the minimum requirement

In contrast, the banks who failed the test (Table VIII) had experienced a negative abnormal return of 0.36% at 1% significance level after the Methodology release and a positive abnormal return of 0.1% after the Results event. This show us that the test impacted negatively the stock's returns at the first moment but after better results than expected led to an increase in stock's returns.

The stock markets in the expectation of some banks to fail the test incorporated previously the higher risk associated to these banks in the stocks' price increasing their permanent risk (beta) on 0.37 since the first event.

In addition, this group had a temporary effect on its beta share price statistically significant at 5% level of -0.29 on the Announcement event but

overlapped with a permanent effect of 0.37 leaving us with an actual increase of 0.08 in the associated risk of those banks.

4.5 Additional Insights

In order to produce additional information and preventing distorted results due to the overlapped dummies variables, we took the temporary dummy and its interaction with the market from the regression.

The results are quite fascinating.

The sample of all banks considered in this dissertation and independently of the amount of data used (Tables IX, X and XI) demonstrates a negative abnormal return following the 2011 Methodology release and a positive abnormal return after the 2014 Announcement event. Any regressions with this sample found the statistically presence of a permanent effect on the beta share price for all the nine events. This demonstrates that the banking system was poorly satisfied with 2011 Methodology confirming the empirical perception of that stress test and was quite positive about the Announcement of 2014 stress test, derived from the developments made.

In the comparison between the banks who failed and passed the 2014 stress test (Tables XII and XIII) we observed a positive abnormal return above 1% in the Announcement event for three in four possible samples: the banks that passed

the test experienced this effect with the two range of data and the banks who failed with only the 6 months' range.

It was also detected an increase of permanent risk in all three events with 1 year data and only in the announcement event with 6 months' data. In addition, the Results event reduced the beta share price for the group of banks who passed the test.

This is a strong evidence of the impact that these stress tests can provoke in the banks with the worst performance.

5. Conclusions

The main conclusions are that the Announcement event along with the Methodology are the ones with a major impact on stock markets. That evidence is namely shown in form of abnormal returns and not in terms of temporary or permanent effect on banks' risk. The Results event did not reveal any relevant impact on the variables regarding the 3 European stress tests.

Yet the split of 2014 stress test in two groups shown an interesting different impact of the test.

The group of banks that passed the test experienced a positive abnormal return after the Announcement event and a decrease of their permanent risk after the methodology and results event. In this case, the stress test was an important and credible tool to inform the market about the security of these banks.

The group of banks that did not achieve the minimum threshold was the mostly impacted by the stock markets. They experienced a negative abnormal return, first following the methodology event and a positive abnormal return after the results release, giving the idea that the market was expecting worst results. Although this group saw a decrease on its temporary risk followed by the announcement, the permanent effect overrides the temporary leaving us with an increase of the risk after all. This increase in risk was also experienced after the methodology and results event. This lead us to conclude that the market

processed the information given by the stress test and, as expected, penalized the banks who failed the test increasing their risk and reducing their stock's returns.

In the overall, the begin of stress tests in 2010 were surrounded by distrust and uncertainty. By not releasing the methodology used it contributed to increase that feelings in the markets. After that, the methodology began to be released and that was the key moment to the credibility of the EBA's stress tests which helped to gain some trust from the investors.

Since 2010 the stress tests improved a lot. At the beginning of the period market focus seems to be concentrated on methodology's fragility, in part, due to its lack of maturity. With the course of time, improvements in the whole process and a growing adherence to (actual or potential) loss events, the attention of the markets turned to the specific potential bank's results on the stress tests.

We conclude that the stress tests are becoming relevant from year to year as they become more realistic and giving real information to the markets, enabling them to proceed with the necessary adjustments on their market valuations and on stock's risk.

Also, they helped to mitigate the risk in some cases, warning in other cases and increased the role of the regulator in the banking system. A next stage of the

EBA's stress tests would be to increase the reality of the tests adding more complexity to the simulation.

Nowadays, regulation is really becoming part of the system and can be one of the keys to have a stronger sector in the future.

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Appendix

Table II
Sample of Banks

Allied Irish Banks plc	KBC Group NV
Alpha Bank, SA	Lloyds Banking Group plc
Bank of Cyprus Public Company Ltd	Banca Monte dei Paschi di Siena S.p.A.
Bank of Valetta plc	National Bank of Greece, SA
Bankinter SA	Nordea Banck AB
Barclays plc	OTP Bank Ltd
Banco Bilbao Vizcaya Argentaria SA	Piraeus Bank, SA
Banco Comercial Português, SA	PKO Bank Polski
BNP Paribas	Banco Popolare – Società Cooperativa
Banco BPI, SA	Banco Popular Español SA
Commerzbank AG	Royal Bank of Scotland plc
Groupe Crédit Agricole	Banco de Sabadell, SA
Danske Bank	Banco Santander SA
Deutsche Bank AG	Svenska Handelsbanken AB
Dexia NV	Société Générale
Erste Goup Bank AG	Skandinaviska Enskilda Banken AB
Eurobank Ergasias, SA	Swedbank AB
HSBC Holdings plc	Sydbank
ING Bank N.V.	UBI
Intensa SanPaolo S.p.A.	Unicredit S.p.A.
Jyske Bank	-

Table III
Descriptive Statistics for all Samples

	Entire Sample		**2014 Failed banks**		**2014 Passed banks**	
	6 months	**1 year**	**6 months**	**1 year**	**6 months**	**1 year**
Sample (Banks)	41	41	8	8	33	33
Sample (Share price)	57277	67978	11176	13264	46101	54714
Mean (Return %)	-0.0469	-0.0413	-0.2368	-0.2313	-0.0008	0.0048
Median (Return %)	0	0	0	0	0	0
Std. Dev. (Return %)	3.4466	3.4759	5.7501	5.6307	2.6428	2.6575
Minimum (Return %)	-45.0586	-45.0586	-45.0586	-45.0586	-43.8255	-43.8255
Maximum (Return %)	69.3147	69.3147	69.3147	69.3147	36.1013	36.1013

Table IV
Announcement Event for entire sample

	2010		2011		2014	
	6M	**1Y**	**6M**	**1Y**	**6M**	**1Y**
Constant	-0.000239 (0.000338)	- 0.000226 (0.000219)	-0.000496** (0.000227)	-0.000402* (0.000220)	- 0.000564*** (0.000206)	- 0.000525*** (0.000199)
Market Return	1.019622*** (0.052596)	1.015052*** (0.051666)	1.024171*** (0.046449)	1.020604*** (0.046396)	1.011407*** (0.049936)	1.011473*** (0.048041)
Abnormal Return	0.000400 (0.000507)	0.000404 (0.000528)	-0.000796* (0.000458)	-0.000797* (0.000456)	0.000968** (0.000399)	0.000976** (0.00098)
Temporary dummy	-0.000578** (0.000294)	-0.000575** (0.000281)	0.000419** (0.000206)	0.000382* (0.000213)	0.000582** (0.000285)	0.000567** (0.000284)
Temporary effect	0.016120 (0.029008)	0.019922 (0.027864)	-0.055700* (0.029481)	-0.052609 (0.034667)	-0.029327 (0.042093)	-0.013294 (0.047971)
Permanent dummy	-0.000223 (0.000261)	-0.000261* (0.000155)	-0.00000521 (0.000176)	-0.000119 (0.000191)	-0.0000405 (0.000188)	-0.0000985 (0.000193)
Permanent effect	-0.007505 (0.036893)	-0.005014 (0.047305)	-0.006282 (0.041759)	-0.005512 (0.043671)	0.047220 (0.059029)	0.016971 (0.058569)
F-statistic	2805.51	3460.84	2805.89	3461.09	2086.99	3461.63
Adj. R^2	0.227	0.234	0.227	0.234	0.227	0.234
Obs.	57277	67978	57277	67978	57277	67978

Robust standard errors are in brackets. ***, ** and * signal the statistically significance at 1%, 5% and 10%, respectively.

Table V
Methodology Event for entire sample

	2010		2011		2014	
	6M	**1Y**	**6M**	**1Y**	**6M**	**1Y**
Constant	-0.000357	-0.000281	-0.000321	-0.000288	-0.000495**	-0.000465**
	(0.000307)	(0.000210)	(0.000203)	(0.000205)	(0.000197)	(0.000191)
Market Return	1.024748***	1.017165***	1.007791***	1.009230***	1.010662***	1.010824***
	(0.052958)	(0.051800)	(0.047214)	(0.046110)	(0.049814)	(0.047943)
Abnormal Return	0.000845	0.000834*	-0.000843**	-0.000842**	-0.001114**	-0.001117**
	(0.000520)	(0.000494)	(0.000375)	(0.000376)	(0.000472)	(0.000472)
Temporary dummy	-0.000346	-0.000374	0.000172	0.000165	0.000786**	0.000773**
	(0.000285)	(0.000244)	(0.000361)	(0.000356)	(0.000388)	(0.000368)
Temporary effect	0.002926	0.009346	0.025145	0.026816	0.067763	0.078742
	(0.026933)	(0.027497)	(0.031462)	(0.032171)	(0.054728)	(0.060767)
Permanent dummy	-0.000134	-0.000230	-0.000197	-0.000251	-0.000161	-0.000202
	(0.000224)	(0.000144)	(0.000173)	(0.000193)	(0.000264)	(0.000232)
Permanent effect	-0.011621	-0.006332	0.007865	0.003697	0.031768	0.006803
	(0.041690)	(0.049095)	(0.042850)	(0.043679)	(0.065394)	(0.061788)
F-statistic	2805.38	3460.69	2805.61	3460.92	2806.59	3461.64
Adj. R^2	0.227	0.234	0.227	0.234	0.227	0.234
Obs.	57277	67978	57277	67978	57277	67978

Robust standard errors are in brackets. ***, ** and * signal the statistically significance at 1%, 5% and 10%, respectively.

Table VI
Results Event for entire sample

	2010		2011		2014	
	6M	**1Y**	**6M**	**1Y**	**6M**	**1Y**
Constant	-0.000332	-0.000268	-0.000227	-0.000229	-0.000441**	-0.000416**
	(0.000283)	(0.000194)	(0.000179)	(0.000190)	(0.000183)	(0.000177)
Market Return	1.004848***	1.009384***	1.025209***	1.021642***	1.017872***	1.016696***
	(0.051436)	(0.051320)	(0.047023)	(0.045274)	(0.049836)	(0.047709)
Abnormal Return	0.000190	0.000188	0.001059	0.001058	0.000416	0.000454
	(0.000401)	(0.000403)	(0.000793)	(0.000789)	(0.000450)	(0.000439)
Temporary dummy	0.00000355	-0.0000179	-0.001873***	-0.001853***	-0.000243	-0.000316
	(0.000383)	(0.000303)	(0.000585)	(0.000578)	(0.000331)	(0.000276)
Temporary effect	0.0179201	0.014762	0.008535	0.010806	-0.056572	-0.028115
	(0.025989)	(0.028670)	(0.038021)	(0.038141)	(0.049237)	(0.043033)
Permanent dummy	-0.000177	-0.000260*	-0.000151	-0.000190	-0.000404	-0.000327
	(0.000223)	(0.000153)	(0.000209)	(0.000221)	(0.000515)	(0.000314)
Permanent effect	0.010034	0.003416	-0.017491	-0.016029	0.038181	-0.007858
	(0.040137)	(0.048727)	(0.043485)	(0.044163)	(0.087669)	(0.065480)
F-statistic	2805.20	3460.49	2808.22	3463.60	2085.74	3460.86
Adj. R^2	0.227	0.234	0.227	0.234	0.227	0.234
Obs.	57277	67978	57277	67978	57277	67978

Robust standard errors are in brackets. ***, ** and * signal the statistically significance at 1%, 5% and 10%, respectively.

Table VII
All Events for sample above the threshold in 2014

	Announcement		Methodology		Results	
	6M	**1Y**	**6M**	**1Y**	**6M**	**1Y**
Constant	-0.0000482	-0.0000446	-0.0000129	0.00000386	-0.00000626	-0.00000454
	(0.000116)	(0.000128)	(0.000101)	(0.000111)	(0.0000959)	(0.000105)
Market Return	1.028789***	1.029512***	1.029201***	1.030545***	1.032064***	1.031962***
	(0.059444)	(0.057405)	(0.059164)	(0.056809)	(0.058986)	(0.056678)
Abnormal Return	0.000901**	0.000912**	-0.000504	-0.000500	0.000282	0.000321
	(0.000362)	(0.000365)	(0.000417)	(0.000418)	(0.000543)	(0.000529)
Temporary dummy	0.000135	0.000113	0.000142	0.000119	0.0000476	-0.0000339
	(0.000225)	(0.000220)	(0.000337)	(0.000304)	(0.000321)	(0.000278)
Temporary effect	0.033816	0.053853	0.058078	0.034903	-0.037953	-0.009721
	(0.034255)	(0.039741)	(0.045287)	(0.059022)	(0.046435)	(0.041983)
Permanent dummy	-0.0000677	-0.0000419	-0.0000248	-0.000126	-0.000274	-0.000136
	(0.000122)	(0.000131)	(0.000157)	(0.000187)	(0.000303)	(0.000190)
Permanent effect	-0.031443	-0.070379	-0.048734	-0.102483*	-0.053877	-0.101373*
	(0.047596)	(0.049566)	(0.047698)	(0.054129)	(0.058419)	(0.054193)
F-statistic	5142.18	6017.90	5142.47	6021.69	5143.68	6021.34
Adj. R^2	0.40	0.40	0.40	0.40	0.40	0.40
Obs.	46101	54714	46101	54714	46101	54714

Robust standard errors are in brackets. ***, ** and * signal the statistically significance at 1%, 5% and 10%, respectively.

Table VIII
All Events for sample below the threshold in 2014

	Announcement		Methodology		Results	
	6M	**1Y**	**6M**	**1Y**	**6M**	**1Y**
Constant	-0.002694***	-0.002507***	-0.002485***	-0.002325***	-0.002232***	-0.002114***
	(0.000432)	(0.000396)	(0.000484)	(0.000446)	(0.000472)	(0.000436)
Market Return	0.939707***	0.937064***	0.934186***	0.932152***	0.9593331***	0.953725***
	(0.067645)	(0.060732)	(0.068637)	(0.061735)	(0.074185)	(0.067158)
Abnormal Return	0.001244	0.001238	-0.003634***	-0.003635***	0.000968*	0.001001**
	(0.001389)	(0.001375)	(0.001375)	(0.001377)	(0.000502)	(0.000488)
Temporary dummy	0.002423***	0.002440***	0.003446***	0.003391***	-0.001439	-0.001479**
	(0.000861)	(0.000867)	(0.000958)	(0.000836)	(0.000955)	(0.000688)
Temporary effect	-0.289789**	-0.290275**	0.107715	0.104571	-0.133375	-0.103990
	(0.126661)	(0.147187)	(0.208677)	(0.225390)	(0.161507)	(0.133272)
Permanent dummy	0.0000719	-0.000332	-0.000724	-0.000932	-0.000941	-0.001114
	(0.000820)	(0.000823)	(0.001170)	(0.000978)	(0.002314)	(0.001370)
Permanent effect	0.371707*	0.377294**	0.363840	0.374676**	0.417921	0.377892*
	(0.191417)	(0.167756)	(0.237719)	(0.190384)	(0.348520)	(0.198872)
F-statistic	156.54	208.53	156.31	208.36	154.88	206.83
Adj. R^2	0.078	0.086	0.077	0.086	0.077	0.086
Obs.	11176	13264	11176	13264	11176	13264

Robust standard errors are in brackets. ***, ** and * signal the statistically significance at 1%, 5% and 10%, respectively.

Table IX
Announcement Event for entire sample without Temporary Effect

	2010		2011		2014	
	6M	**1Y**	**6M**	**1Y**	**6M**	**1Y**
Constant	-0.000459	-0.000340	-0.000421*	-0.000354	-0.000540***	-0.000504***
	(0.000342)	(0.000246)	(0.000221)	(0.000215)	(0.000201)	(0.000194)
Market Return	1.032515***	1.024457***	1.016838***	1.015765***	1.010886***	1.011267***
	(0.050239)	(0.049773)	(0.047222)	(0.046489)	(0.049955)	(0.048135)
Abnormal Return	-0.000061	-0.000107	-0.000501	-0.000521	0.001473***	0.001493***
	(0.000453)	(0.000404)	(0.000373)	(0.000363)	(0.000454)	(0.000461)
Permanent dummy	-0.000024	-0.000164	-0.000058	-0.000150	0.000020	-0.000063
	(0.000259)	(0.000176)	(0.000171)	(0.000188)	(0.000179)	(0.000187)
Permanent effect	-0.019456	-0.013342	-0.000859	-0.002270	0.042659	0.015905
	(0.046084)	(0.047792)	(0.042132)	(0.043411)	(0.057341)	(0.057313)
F-statistic	4207.99	5190.79	4207.88	5190.75	4210.11	5192.17
Adj. R^2	0.227	0.234	0.227	0.234	0.227	0.234
Obs.	57277	67978	57277	67978	57277	67978

Robust standard errors are in brackets. ***, ** and * signal the statistically significance at 1%, 5% and 10%, respectively.

Table X
Methodology Event for entire sample without temporary effect

	2010		2011		2014	
	6M	**1Y**	**6M**	**1Y**	**6M**	**1Y**
Constant	-0.000475	-0.000354	-0.000304	-0.000278	-0.000463**	-0.000437**
	(0.000304)	(0.000236)	(0.000201)	(0.000204)	(0.000191)	(0.000185)
Market Return	1.027747***	1.022146***	1.009771***	1.010719***	1.012136***	1.012325***
	(0.049346)	(0.048969)	(0.047181)	(0.046170)	(0.049985)	(0.048119)
Abnormal Return	0.000572	0.000534	-0.000722**	-0.000727**	-0.000362	-0.000346
	(0.000472)	(0.000431)	(0.000312)	(0.000309)	(0.000281)	(0.000288)
Permanent dummy	-0.000029	-0.000170	-0.000213	-0.000262	-0.000066	-0.000146
	(0.000209)	(0.000164)	(0.000179)	(0.000195)	(0.000231)	(0.000215)
Permanent effect	-0.014422	-0.010815	0.008674	0.004864	0.040290	0.011633
	(0.045893)	(0.047537)	(0.042494)	(0.043315)	(0.065938)	(0.061898)
F-statistic	4208.09	5190.95	4208.25	5191.16	4208.59	5190.80
Adj. R^2	0.227	0.234	0.227	0.234	0.227	0.234
Obs.	57277	67978	57277	67978	57277	67978

Robust standard errors are in brackets. ***, ** and * signal the statistically significance at 1%, 5% and 10%, respectively.

Table XI
Results Event for entire sample without Temporary Effect

	2010		2011		2014	
	6M	**1Y**	**6M**	**1Y**	**6M**	**1Y**
Constant	-0.000337	-0.000279	-0.000437**	-0.000386*	-0.000450**	-0.000427**
	(0.000244)	(0.000212)	(0.000196)	(0.000200)	(0.000183)	(0.000177)
Market Return	1.018153***	1.016195***	1.027201***	1.023495***	1.016234***	1.015962***
	(0.048146)	(0.048060)	(0.046697)	(0.045454)	(0.049738)	(0.047825)
Abnormal Return	0.000195	0.000177	-0.000692	-0.000718**	0.000249	0.000192
	(0.000379)	(0.000354)	(0.000525)	(0.000522)	(0.000374)	(0.000363)
Permanent dummy	-0.000173	-0.000250	-0.000030	-0.000110	-0.000448	-0.000374
	(0.000175)	(0.000168)	(0.000193)	(0.000207)	(0.000459)	(0.000316)
Permanent effect	-0.002506	-0.002829	-0.016477	-0.014791	0.000965	-0.014516
	(0.043246)	(0.045863)	(0.041751)	(0.041906)	(0.075448)	(0.064251)
F-statistic	4207.82	5190.76	4208.32	5191.20	4208.04	5191.08
Adj. R^2	0.227	0.234	0.227	0.234	0.227	0.234
Obs.	57277	67978	57277	67978	57277	67978

Robust standard errors are in brackets. ***, ** and * signal the statistically significance at 1%, 5% and 10%, respectively.

Table XII
All Events for sample above the threshold in 2014 without temporary effect

	Announcement		Methodology		Results	
	6M	**1Y**	**6M**	**1Y**	**6M**	**1Y**
Constant	0.0000421	-0.000040	-0.0000068	-0.0000086	-0.00000450	-0.00000568
	(0.000110)	(0.000122)	(0.0000962)	(0.000110)	(0.0000901)	(0.000101)
Market Return	1.029440***	1.030421***	1.030464***	1.031291***	1.030979***	1.031712***
	(0.059346)	(0.057411)	(0.059181)	(0.057233)	(0.058601)	(0.056663)
Abnormal Return	0.001051**	0.001062**	-0.000333	-0.000327	0.000337	0.000298
	(0.000447)	(0.000454)	(0.000253)	(0.000258)	(0.000374)	(0.000357)
Permanent dummy	-0.0000567	-0.0000352	-0.0000172	-0.0000194	-0.000233	-0.000141
	(0.000116)	(0.000129)	(0.000134)	(0.000140)	(0.000260)	(0.000193)
Permanent effect	-0.026715	-0.066407	-0.040821	-0.077773	-0.079447	-0.103693*
	(0.047298)	(0.049013)	(0.049918)	(0.050875)	(0.053200)	(0.053294)
F-statistic	7713.11	9025.97	7712.65	9027.14	7715.19	9032.28
Adj. R^2	0.40	0.398	0.40	0.398	0.40	0.398
Obs.	46101	54714	46101	54714	46101	54714

Robust standard errors are in brackets. ***, ** and * signal the statistically significance at 1%, 5% and 10%, respectively.

Table XIII
All Events for sample below the threshold in 2014 without temporary effect

	Announcement		Methodology		Results	
	6M	**1Y**	**6M**	**1Y**	**6M**	**1Y**
Constant	-0.002593***	-0.002417***	-0.002344***	-0.002202***	-0.002287***	-0.002164***
	(0.000450)	(0.000557)	(0.000498)	(0.000454)	(0.000461)	(0.000425)
Market Return	0.934351***	0.932261***	0.936533***	0.934091***	0.955410***	0.950995***
	(0.068632)	(0.030690)	(0.071724)	(0.064277)	(0.077298)	(0.069201)
Abnormal Return	0.003212***	0.003273	-0.000480	-0.000427	-0.000115	-0.000246
	(0.001244)	(0.002939)	(0.000990)	(0.001021)	(0.001123)	(0.001119)
Permanent dummy	0.000338	-0.000175	-0.000269	-0.000666	-0.001334	-0.001333
	(0.000772)	(0.001030)	(0.001044)	(0.000914)	(0.002063)	(0.001360)
Permanent effect	0.328827*	0.355445***	0.374871	0.380429**	0.332667	0.353338*
	(0.188651)	(0.083959)	(0.233305)	(0.188358)	(0.290340)	(0.197727)
F-statistic	233.80	311.68	233.76	311.78	232.07	309.99
Adj. R^2	0.077	0.086	0.077	0.086	0.076	0.085
Obs.	11176	13264	11176	13264	11176	13264

Robust standard errors are in brackets. ***, ** and * signal the statistically significance at 1%, 5% and 10%, respectively.