BREXIT IMPLICATIONS OVER THE ENGLAND BANKING SYSTEM – AN EVENT STUDY APPROACH

Sabina Andreea CAZAN
Doctoral School of Economics and Business Administration
"Alexandru Ioan Cuza" University of Iasi
Iasi, Romania
sabinacazan@yahoo.com

Abstract: *The UK economic and political environment has been seriously challenged this year. The most significant event was the possibility of leaving the European Union. From February 2016, when the date of the referendum has been settled, the pro and cons of this scenario have been much debated on social media. The study aims to identify the BREXIT implications over the England banking system. In order to assess whether the referendums results have influenced in a positive or negative way the investors' behavior, we have conducted an event study on a panel of 11 financial institutions listed on the London Stock Exchange. The results have shown that in the post event window, the values of the abnormal and cumulative abnormal returns have dropped significantly, the market impact being negative. The outcome of the study has been completed by quantitative analyses, revealing the short term implications over the banking system. Nevertheless, the BREXIT effects over the UK economy have been mostly negative, the investigation showing a decrease of the financial stability.*
Keywords: BREXIT, UK banking system, event study analyses
JEL Classification: D53, G14, G21

1. INTRODUCTION

The UK banking system has been the biggest financial sector from Europe, with more than 311 banks and 47 building societies, continuing to be the third on a global scale. (BBA, 2014) As per a BBA report from 2015, UK banking system valued over 6 trillion GBP, approximately 25% of its activity being from retail services, 35% from corporate and other financial services, the remaining 40% being assigned to the entities with foreign offices. In the last years, the UK economy started to regain its growth and stability, overcoming the 2007 effects: the unemployment rate has fallen at 5%, the GDP values have been on an ascending trend, the inflation reaching 0.6%, the industries activity and the quality of life in general, being improved.

The possibility of Britain exit from the European Union has been discussed as far back as 2012, when David Cameron, the Prime Minister of the United Kingdom, has rejected the idea of a referendum. From that point forward, the topic has been much deliberated, in national and international channels and media. After many months of persuasive campaigns, on the 23rd of June, the population decided in favor of the UK leaving the European Union, generating panic and uncertainty over economic, political and social environments. The main objectives of the article are to determine the magnitude of the event over the financial markets and its consequences. In order to do that, an event study metrics has been applied to a panel data of eleven banks.

Notwithstanding, for a much more comprehensive paper, the analysis results have been correlated with the news from the social media and the authorities` press releases.

If in the first weeks after the referendum, only the negative effects have been observed, for the next period of time, the situation will not be improved. The enticement of UK assets will diminish, the capital inflows being cut down; the credit conditions, especially the ones regarding the mortgage loan will tighten, due to the housing markets instability. The core financial segments could face liquidity and funding issues, the outlook of the UK economy being unpredictable. (National Banks of England, 2016)

2. LITERATURE REVIEW

The first article which has used an event study approach has been performed by Dolley in 1933, which demonstrated the implications of the stock-splits over the stock prices. Many studies are using this methodology in order to determine the impact of an announcement over the wealth of company's shareholders (Cybo-Ottone & Murgia, 2000; Chong et al, 2006; Dilshad, 2013).

Over the years, the main focus of the event studies has been the effects of the mergers and acquisitions over the shareholders' wealth. In theory, a merger or an acquisition should create value as the synergies of two companies are summing up. If Cornett and Tehranian (1992) and Zhang (1995) have demonstrated that the added value of a merger is real, leading to a more efficient and profitable institution, Hannan and Wolken (1989), Houston and Ryngaert (1994) or Pilloff (1996) have established that there is no connection between an acquisition and wealth enhancement, being more a transfer of the acquirers synergy to the new organization.

In 1998, Cosimano and McDonald have used the methodology to determine whether the elimination of a reserve requirement will enhance monopoly power. Some US studies have focused on the impact of the changes of monetary policies, the operational losses or interest rates adjustments, showing an increase of the cumulative abnormal returns in the post-event window (Aharony, Saunders and Swary, 1986; Cummins & Wei, 2006; Strong, 1992). As it can be seen, from 1933 the methodology has been improved, being used for a variety of events and scenarios: stock trading and prices, return volatility, social and political events, mergers, acquisitions or other business cases

The article "Short run reaction to news announcements: UK evidence" established the connection between more than 8,000 corporate news disclosure involving 100 companies for over 10 years, and the implication over the market efficiency. When it comes to economic institutions, it is well known that increased level of risks and uncertainty will determine strategies focused on costs reduction and enhanced revenues. The investors are changing their expectation and behavior, based on the market information, even if there are only rumors. Furthermore, the market reactions to the negative information are more significantly than the ones to the positive information.

Given the time-frame of the event, there are not many articles or studies on this topic, the research being an attempt to quantify the BREXIT effects using an event study methodology. The majority of the information related to this matter is brought by consultancies or advisors as reports or case studies. Furthermore, the UK financial institutions (Bank of England, BBA) or the biggest press centers are analyzing the implications of the event on a daily bases.

A recent study of Ashurst, a global law firm, has argue the main effects of the BREXIT situation: there will no longer be an European single market for the England companies, issues regarding grants and other funds may appear, some restrictions related with the free movement of people could arise, local currency could be affected by the market fluctuation, appearing new regulation, as well as another fiscal treatment. Other affected areas might be the intellectual property or the data protection. For sure, London as one of the biggest global financial center will experience some movements affecting not only UK but the whole world.

As per the last Financial Stability Report of the National Bank of England, the banking sector has been the most affected on short term, especially with the drop of the sterling. After the 23rd of June, the equity banking prices have decrease with approximately 20%, the price to book value reaching 0.58 from 0.72. These are only the beginning of a period of economic and regulation changes, the challenges of UK leaving the EU being unpredictable.

3. DATA AND METHODOLOGY

The event studies are trying to investigate the effects of the economic, political or social circumstances over the market. The basic idea is that the markets are efficient, so the asset prices will reflect any changes or consequence of an event. If at the beginning the monthly returns have been used, in recent years the studies have focused on the daily and intraday results.

The methodology is relatively simple, this representing the main reason why it is being used so much by researchers. In the first place, the event date needs to be established. The exactitude of the time frame it is very important because if it's not precise, we may analyze the wrong panel of abnormal returns. Furthermore, in many cases the information is leaked to the press long before the official announcement influencing the investors' position towards the market. In our case this was not difficult to assess, the referendum being on the 23rd of June 2016. Even if the possibility of UK leaving European Union has been a very popular subject this year, we've consider day 0 the referendum date because of all the skepticism and confusion surrounding the topic in the previous months. The pre and post event window included 10 days and the estimation window 221. As per Khotary and Warner (2006) a below 12 months period is considered the best lengths of the estimation window from three points of view: specification, power against specific types of hypothesis and sensitivity. In this way, the horizon becomes well specified, the risk of misspecification being minimal.

-221 -10 | | 0
+10
estimation window pre event post
event
window window

The sample is represented by the banks listed on London Stock Exchange. Taking into consideration that as benchmark we have used FTSE100, the chosen financial entities are part of one of the FTSE index. Bear in mind that only the biggest companies are part of this category of index, so the results can be generalized for the whole financial system. From 14 entities, three have been rejected for the lack of data. The stock prices have been collected from Yahoo Finance. In Table 1 it can be observed all the selected entities.

Table 1 - Selected banks for the analysis

No.	Name	Symbol	Comments
1.	Aldermore Bank	ALD	
2.	Barclays	BARC	Top 5
3.	BGEO Grup	BGEO	
4.	Caribbean Investment Holding Ltd	CIHL	Rejected, constant prices, no returns
5.	Clydesdale Bank and Yorkshire Bank	CYBG	Rejected, last stock price on 03.02.2016
6.	HSBC Holdings PLC	HSBA	Top 5
7.	Lloyds Bank PLC	LLOY	Top 5
8.	Metro Bank	MTRO	Rejected, last stock price on 07.03.2016
9.	Royal Bank of Scotland	RBS	Top 5, state cap
10.	Sberbank CIB	SBER	
11.	Secure Trust Bank	STB	
12.	Shawbrook Bank	SHAW	
13.	Standard Chartered	STAN	Top 5
14.	Virgin Money Holdings	VM	

Source: own computations based on the data provided by London Stock Exchange (http://www.londonstockexchange.com/exchange/prices-and-markets/stocks/indices/constituents-indices.html?index=&industrySector=8350&page=1)

The normal returns are being calculated for the whole period, resulting 242 values for each financial institution. The parameters of the market model are established based on the first 221 values. For the pre and after event window, the abnormal and the cumulative abnormal returns (CAR) are determined, on the day zero being the highest value. If the values from the post event window are greater than zero, the market implications have been positive, the investors being optimist in respect to the future trend of the company.

The market model equation has the following components:

$$AR_{it} = R_{it} - \hat{\alpha}_i - \hat{\beta}_i R_{mt}$$

$AR_{it} \rightarrow abnormal\ returns\ for\ the\ stock\ price\ i, at\ time\ t$

$R_{it} \rightarrow actual\ returns\ of\ the\ stock\ price\ i, at\ time\ t$

$\hat{\alpha}_i \rightarrow ordinary\ least\ square\ of\ the\ intercept$

$\hat{\beta}_i \rightarrow ordinary\ least\ square\ of\ the\ slope$ *of the coefficient*

$R_{mt} \rightarrow market\ return\ at\ time\ t$

In order to see if there is an abnormal return, we must determine in the first place the value of the normal returns in the absence of the event. The daily returns are being calculated based on the stock prices, using the below formula. The time frame is 03.08.2015 – 08.06.2016, resulting 221 values for the estimation window. The estimation window framework is almost a year, the length needed to be middling. If we take into consideration to many or a few days, the market model parameters can be affected. The pre and post event window is between 09.06.2016 and 07.07.2016, with 21 values.

$$R_{t+1} = \frac{P_{t+1} - P_t}{P_t}$$

$R_{t+1} \rightarrow daily\ returns$
$P_t \rightarrow closing\ price\ of\ the\ day\ before$
$P_{t+1} \rightarrow closing\ price\ of\ the\ current\ day$

The benchmark is represented by FTSE100 index, formed by the first 100 largest companies listed on the London Stock Exchange (LSE). The index is used as a barometer of the market, the biggest five banks being a constituent. The other financial institutions involved in this study are part of the other FTE indexes. For each day, by summing the previous abnormal returns, we obtain the CAR value, as per below formula.

$$CAR_t = \sum_{t=1}^{t} AR_t$$

$CAR_t \rightarrow cumulative\ abnormal\ returns$
$AR_t \rightarrow abnormal\ return$

A t-Test is being performed in order to establish whether the abnormal returns values are different from zero. Two hypotheses are issued:

$\boldsymbol{H_0}$: The BREXIT announcement had no implications over the stock prices, mean or variance of returns. The event did not influence the market.

[α (CAR)] / [β (CAR)] = 0

$\boldsymbol{H_1}$: The BREXIT announcement had some implications over the stock prices, mean or variance of returns. The event can influence the market.

[α (CAR)] / [β (CAR)] ≠ 0

Following the above methodology, we can state whether the confirmation of the UK exit from European Union has influenced the stock market and if so, in what way. Furthermore, we will determine which banks have been more affected by the changes.

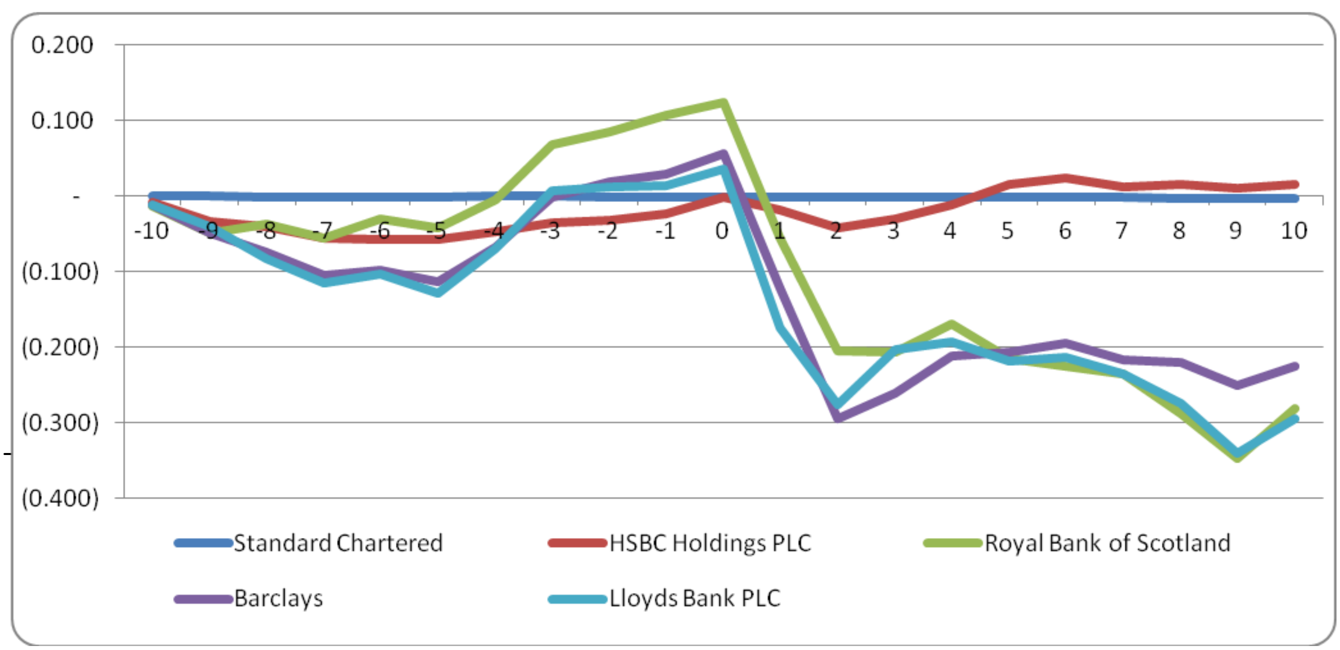
Even if the sample is not adding all the financial institutions listed on the London Stock Exchange, the results can be generalized, mostly because of the banks' asset value.

4. RESULTS

The main objective of the study was to identify the market reaction to the BREXIT announcement and its implications over the banking system. As we can see in Graph 1 and 2, in the first day after the announcement, values of the cumulative abnormal returns have dropped significantly, meaning that the event has influenced in a negative way the market. The UK exit from the European Union is not a precedent, the first time a country voted willingly this decision being Greenland. Nonetheless UK is a big player on the international market and a veteran member of EU institution, the referendum results being something unexpected for a big part of the world. An event like this, for sure will have implication on the countries functionality and its relationship with the world. In these circumstances, the results of the study are only a confirmation of the uncertainty of the England markets in the present.

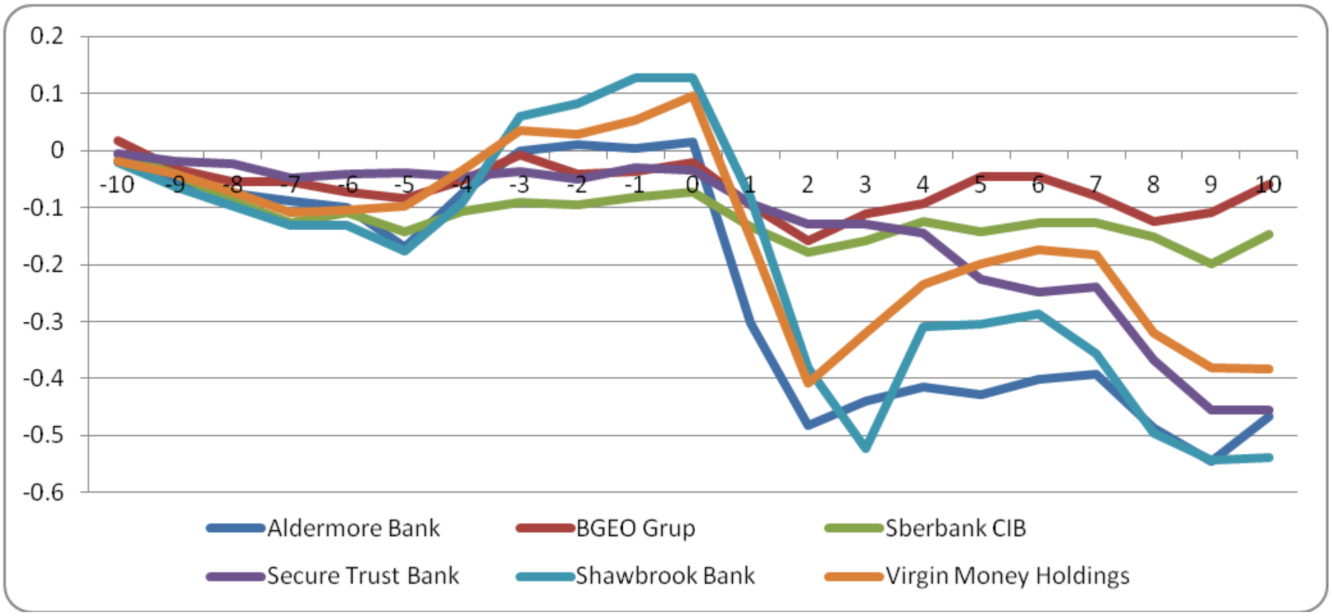
The regulation landscape will be changed completely in the following years. Until now, UK was acting under European Union, all the transactions made with the partner countries being regulated by this. From the financial sector point of view, under these circumstances the foreign activity will face a dropdown. MIFID (Markets in Financial Instruments Directive) is the most important piece of legislation regarding the banking and investment activity, being a passport for the foreign banks. The worst case scenario of the 'missing passport' may be the relocation or the closing of many UK and overseas branches or headquarters. If for the rest of the sectors this will imply a cost increase, for the banking industry the legal right to provide services is at stake. A recent statement of the chief executive of the British Bankers' Association has stated that the value of the transactions involving UK banks and the countries from EU27 is rising at 1,1 trillion pounds. Taking into consideration that the financial system is considered the biggest export industry, the consequences of an exit scenario will be ruthless. The rumors are saying that the smaller banks are already looking to relocate until the end of 2016, the bigger ones postpone it for the first quarter of 2017.

Graph 1 – CAR value of the Top 5 banks



Source: own computation

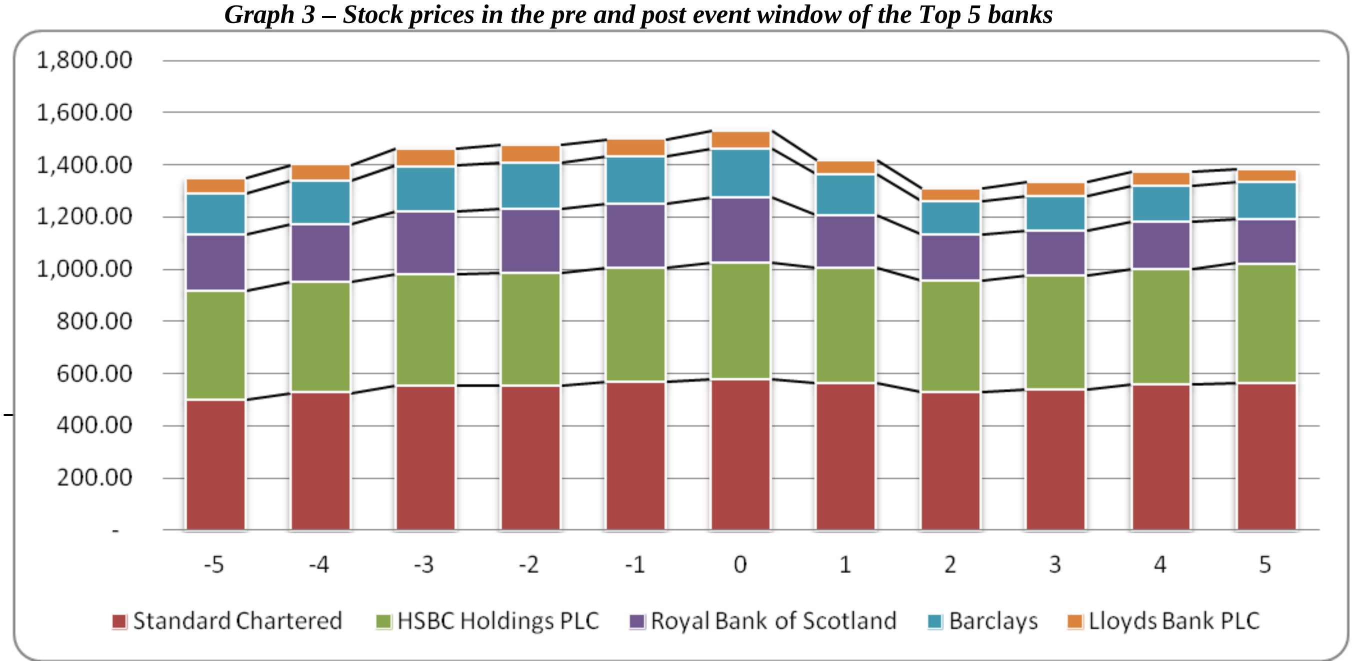
Graph 2 – CAR value of the others banks from the sample



Source: own computation

In respect of the stock behavior, after the referendums results, the prices have fallen significantly. The biggest drop has been assigned to Aldermore, with 47% (205.7 GBP vs 139.8 GBP) and Virgin Money Holdings with 33% (364.4 GBP vs 273.8 GBP). These two are relatively new banks, whose activity is focused on mortgage lending and small companies' financial services. The annualized housing prices have grown at 8% in July, the tensions on the market starting to increase. Even if the applications for a mortgage loan have risen with 3%, the total number of approvals has decreased with approximately 20%. Shawbrook Bank and Secure Trust are another SME oriented banks, being highly affected by the BREXIT situation. Due to the lack of liquidity, increase lending activity, size and targeted clients, the smaller banks will experience difficult times. The banks with a very powerful mortgage lending focus will be at risk in the following months, mostly due to the rising of the housing prices and unemployment.

Graph 3 – Stock prices in the pre and post event window of the Top 5 banks



Source: own computation

In the opposite direction are HSBC Holding and Standard Chartered. These have shown the smallest values of the abnormal and cumulative abnormal returns, meaning that the event did not have the same impact on their activity as in the other cases. HSBC Holdings Plc is the biggest bank from United Kingdom, with more than 2,000 billion USD. Standard Chartered Plc is on the fifth position, with only 725 billion USD. Taking into consideration that both institutions are well capitalized, with many branches and offices all over the word, providing extensive business lines, they managed to mitigate the negative effects. Furthermore, these two have the most expensive share prices from their category. The size, the age, the clients segment or the diversity of the financial services are influencing the magnitude and the time frame of the banks recovery.

In the case of the other three large banks, the prices have declined with approximately 20%. The CAR values have followed the same trend, decreasing in the first three days. The social media in the post event period was suggesting that the referendum may not be approved in Parliament. Along with the Prime Minister resignation and the reassurance of the political and financial authorities have counterbalanced the negative effects triggered on the 23rd of June. As it can be seen in Graph 1, 2 and 4, in the first 10 days after the announcement, there is a fluctuation of the abnormal and cumulative abnormal returns, reflecting the market players\` efforts to adapt and absorb the news.

Another consequence of the BREXIT decision which had a significant impact on the stock market as well was the sterling decline with more than 6%. The drop is bigger than the GBP fall from 1992 (4.3%), EURO fall from 2008 (2.75%) and USD fall from 1973 (4.8%). In the next months, the currency will be very sensitive to all the political transformation, influencing the market performance. Furthermore, the profitability of the banking system is linked with the overall national economy. Taking into consideration that the actual figures provided by Thomson Reuters are suggesting a decrease in the national indicators, due to the interconnection with all de sectors, the financial systems growth will diminish. The events after BREXIT vote is like a domino, one consequence leading to another. The short term facts have proven this scenario, the national authorities doing everything they can to soften the transition to a non-EU member.

Table 2 – Average returns on the pre and post event window

	Average returns on -10 window	**Average returns on +10 window**	**Variation (%)**	**Price variation % (day 1 vs day 0)**
Standard Chartered	0.0019256	0.0017843	-0.01%	-3%
HSBC Holdings PLC	(0.0005461)	0.0022983	0.28%	-1%
Royal Bank of Scotland	0.0094643	(0.0418398)	-5.13%	-22%
Barclays	0.0028403	(0.0279901)	-3.08%	-21%

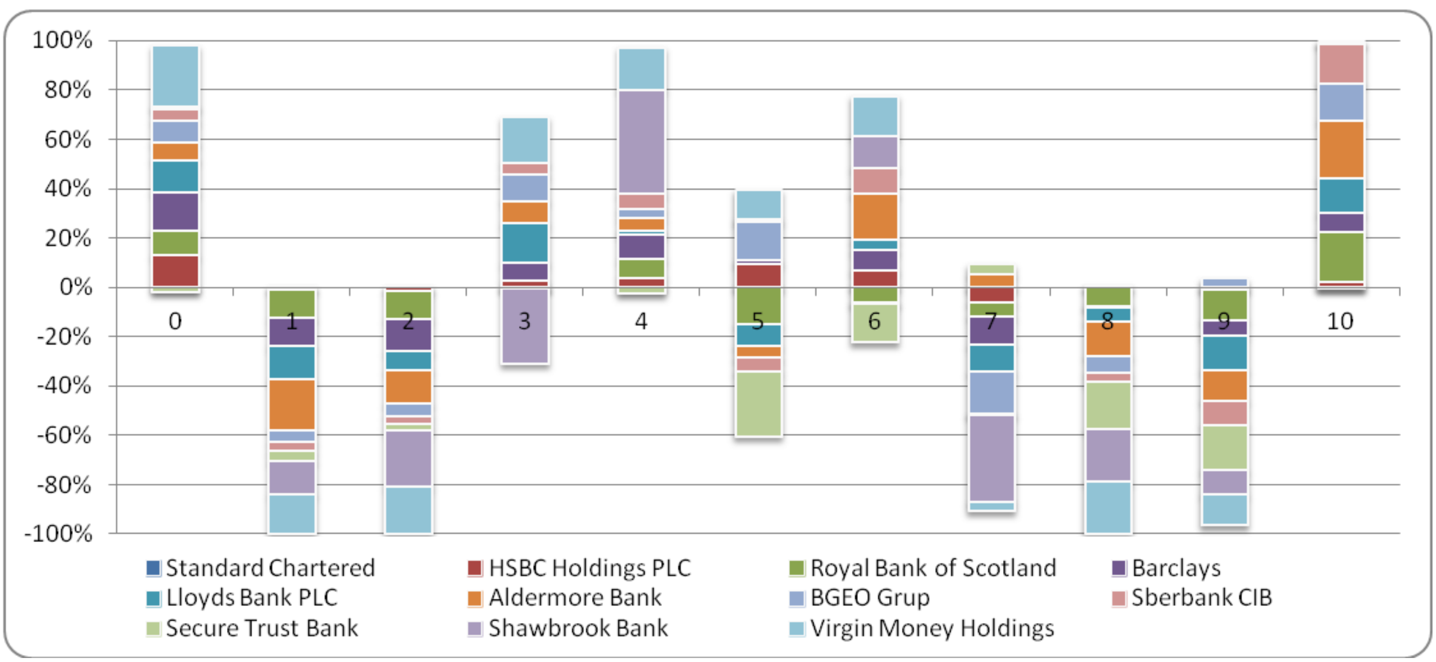
Lloyds Bank PLC	0.0016706	(0.0333833)	- 3.51%	-27%
Aldermore Bank	(0.0030497)	(0.0503630)	- 4.73%	-47%
BGEO Grup	0.0021802	(0.0003877)	- 0.26%	-7%
Sberbank CIB	0.0008607	(0.0012273)	- 0.21%	-5%
Secure Trust Bank	(0.0036095)	(0.0514037)	- 4.78%	-6%
Shawbrook Bank	0.0124216	(0.0673219)	- 7.97%	-27%
Virgin Money Holdings	0.0051016	(0.0483445)	- 5.34%	-33%

Source: own computation

As can be seen in Table 2, except HSBC Holding PLC which had a positive variation of 0.28%, all the institutions have recorded a decrease on their daily returns. The fact that Lloyds, Royal Bank of Scotland, Barclays or Aldermore have significant percent of government influence, being concentrated in the UK has broaden the negative effects. Beside HSBC, Standard Chartered is another bank whose home market is not United Kingdom, mitigating the magnitude of the announcement. (Hong Kong for HSBC; India and Africa for Standard Chartered).

The fourth Graph is presenting the values of the abnormal returns in the first ten days after the referendum. The trend is not constant, the variations illustrating the market reaction. Even the FTSE100 index has been affected by the BREXIT news, price decreasing with 1%. Taking into consideration that it is formed by the biggest 100 companies, with the majority of the businesses overseas, using USD or EUR as currency, the light fluctuation has been expected.

Graph 4 – Abnormal returns in post – event window



Source: own computation

As per BBA press release, the lending market has absorbed the news on a very optimistic and unexpected way. The mortgage and consumer loans have remain constant in the June-July period at 3% and 6%. The figures are not alleviating the public concerns regarding this topic because of the very short time frame. The real effects on the borrowing sector will be measured after a few months, mostly due to the complex process of approval and fund assignation.

In the following month, The Bank of England has tried to maintain the interest rate at a constant value, restarting the program `quantitative easing` through which additional funds are making to the economy by bonds acquisition. In the last Financial Stability report, the core issues are represented by risk minimization, accentuating the 100% involvement in the recovery process of UK economy. The main financial aspects will be the capital and liquidity buffers, used for the mitigation of the markets shock and a regulatory framework oriented to risk and liability contraction.

Regarding the M&A market, the falling of the GBP has made everything cheaper for the foreigners' acquirers. The real effects will be assessed after the third quarter though. The lack of the business confidence has been enhanced by the confusion and unpredictability of the market. There are still a lot of rumors and scenarios related to the next period of time: the possibility of the Scottish independence, the triggering of the Articles 50 of the Lisbon treaty, the pullback of the banking passports, the political tensions, or the world pressures. The event can be considered a precedent in the economic history of the world, the UK facing one of the biggest challenges from the latest centuries.

5. CONCLUSION

For many years the United Kingdom has been a very important financial center for Europe, being involved in the majority of the retail and corporate business areas. Compared to France or Germany who have contributed to the European financial landscape with 9%, the UK involvement has been double.

The main objective of the study was to determine the impact of BREXIT announcement over the banking system. Even if the majority of the England citizens have been in line with the countries exit, the event had triggered negative effects over the economic functionality and stability. The event study has focused on 11 banks, all listed on the London Stock Exchange. In post event window, the abnormal and cumulative abnormal returns values have dropped significantly, meaning that there has been no gain for the market. The decrease of the stock prices and the market movements are confirming the results. On short term, the challenges have been consequential; the true test will be though at the end of the negotiations. The small banks will rather be more affected by the economic changes, especially the ones which focus on the mortgage lending small and medium enterprises` financial services.

Given the amount of time, only the short term effects have been identified. For sure, the uncertainty in the England economy will be elevated for the years to come, affecting the investors' behavior on global scale. BREXIT was the trigger of a systemic shock, which will extend over a long period of time. The politicians say that the negotiation will continue until 2018, but this is the best case scenario. With Greenland, which is far away less complex as UK, the arbitration took three years. However, this process is crucial for the wellbeing of United Kingdom economic, political and social environment, assessing their functionality as a non-member of European Union. Nonetheless, the crucial role of advisor, leader or active participant on the international markets will remain pretty strong despite the present uncertainty. The real challenge for UK was not the recovery following the referendum day; the real challenge will come after the leaving EU day, when all the legal and economic requirements will be established.

Acknowledgment

This work was supported by a grant of the Romanian National Authority for Scientific Research, CNCS – UEFISCDI, project number PN-II-RU-TE-2014-4-0291

References

1. Aharony, J., Saunders, A., Swary, I. (1986). The effects of a shift in monetary policy regime on the profitability and risk of commercial banks, *Journal of monetary economics*, Vol. 17, issue 3, 363-377;
2. Ashurts, (2016). *BREXIT: The UK takes a leap of faith – what now?*;
3. Bank of England, (2016). *Financial Stability Report*;
4. BBA, (2014). *UK Banking Industry Structure 2014*;
5. BBA, (2015). *Winning the Global race – the competitiveness of the UK as a center for international Banking*;
6. Chong, B., Liu, M., Tan, K. (2006). The wealth effect of Forced Bank Mergers and cronyism, *Journal of Banking and Finance*, no. 30, 169-193;
7. Cornett, M., Tehranian, H. (1992). Changes in corporate performance associated with bank acquisitions, *Journal of Financial Economics*, no. 31(2), pp. 211–234;
8. Cosimano, T.F, McDonald B. (1998). What's different among banks?, *Journal of Monetary Economics*, no. 41, 57-70;
9. Cummins, D., Wei, R. (2006). The Market Value Impact of Operational Loss Events for US Banks and Insurers, *Journal of Banking & Finance*, no. 30, 2605-2634;
10. Cybo-Ottone, A., Murgia, M. (2000). Mergers and Shareholders Wealth in European Banking, *Journal of Banking and Finance*, no. 24 (6), 831-856;
11. Dilshad, M.N. (2013). Profitability Analysis of Mergers and Acquisitions: An Event Study Approach, *Business and Economic Research*, vol. 3, no.1, 2162-4860;
12. Dolley, J. (1933). Characteristics and Procedure of Common Stock Splits-ups, *Harvard Business review*, 316:326;
13. Hannan, T.H., Wolken J.D. (1989). Returns to bidders and targets in the acquisition process: Evidence from the banking industry, *Journal of Financial Services Research*, no. 3(1), pp. 5–16;
14. Houston, J.F., Ryngaert, M.D. (1994). The overall gains from large bank mergers, *Journal of Banking and Finance*, no. 18 (6), pp. 1155–1176;
15. Khotary S.P., Warner, J.B. (2006). Econometrics of Event studies – working paper, *Handbook of Corporate Finance: Empirical Corporate Finance*;

16. Tucker, J., Guermat, C., Prasert, S. (2012). Short-run reaction to news announcement: UK evidence, *Centre for Global Finance Working Paper Series,* 5:12;
17. Pilloff, S.J. (1996), Performance changes and shareholder wealth creation associated with mergers of publicly traded banking institutions, *Journal of Money, Credit and Banking*, no. 28(3), pp. 59–78;
18. Strong, N. (1992). Modelling abnormal returns: A reveiw article, *Journal of Business Finance and Accounting*, 533-553;
19. Zhang, H. (1995), Wealth effects of US bank takeovers, *Applied Financial Economics*, no. 5(5), pp. 329–336;

This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.