IMPACT OF POLITICAL COURSE SHIFT IN UKRAINE ON STOCK RETURNS

by

Oleksii Marchenko

A thesis submitted in partial fulfillment of
the requirements for the degree of

MA in Economic Analysis

Kyiv School of Economics

2014

Thesis Supervisor: _____   Professor Tom Coupé

Approved by _____
                 Head of the KSE Defense Committee, Professor Irwin Collier

              _____

              _____

              _____

Date _____

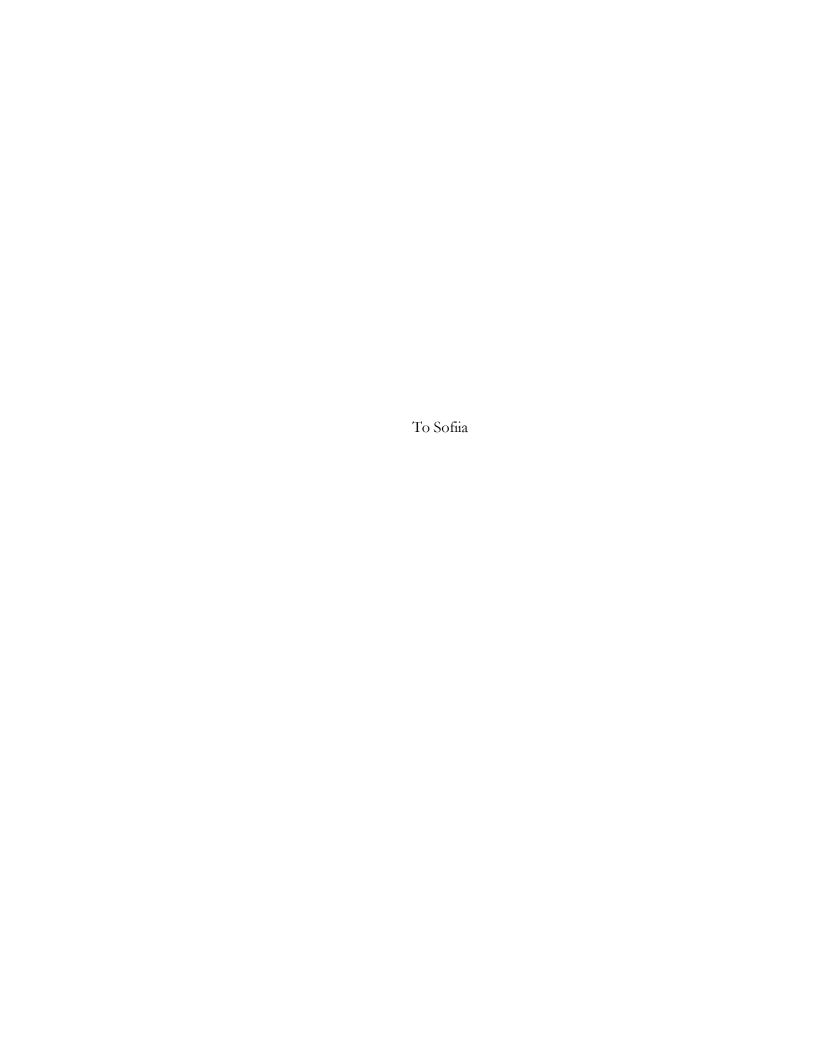Kyiv School of Economics

Abstract

IMPACT OF POLITICAL COURSE
SHIFT IN UKRAINE ON STOCK
RETURNS

by Oleksii Marchenko

Thesis Supervisor: Professor Tom Coupé

Since achieving its independence from the Soviet Union, Ukraine has faced the problem which regional block to integrate in. In this paper an event study is used to investigate investors` expectations about winners and losers from two possible integration options: the Free Trade Agreement as a part of the Association Agreement with the European Union and the Custom Union of Russia, Belarus and Kazakhstan. The impact of these two sudden shifts in the political course on stock returns is analyzed to determine the companies which benefit from each integration decisions. No statistically significant impact on stock returns could be detected. However, our findings suggest a large positive reaction of companies` stock prices to the dismissal of Yanukovych regime regardless of company`s trade orientation and political affiliation.

To Sofiia

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ACKNOWLEDGMENTS

GLOSSARY

AA. Association Agreement.

CAR. Cumulative abnormal returns.

CIS. Commonwealth of Independent States.

CU. Customs Union.

DCFTA. Deep and Comprehensive Free Trade Agreement.

EaP. Eastern Partnership.

ENP. European Neighborhood Policy.

EU. European Union.

EurAsEC. Eurasian Economic Community.

FTA. Free Trade Agreement.

RTA. Regional Trade Agreement.

C h a p t e r   1

INTRODUCTION

Since achieving its independence from the Soviet Union, Ukraine has faced the problem which regional block to integrate in. Prospects of new large markets and successful experience of economic development of Western countries stimulated policymakers to cooperate with the European community, whereas historically established economic connections and cultural proximity pulled policymakers towards the post-Soviet world. In recent years, the issue of political orientation has become especially important and even urgent.

Right now Ukraine has to make a decision between two integration options: the Free Trade Agreement (FTA) with the European Union (EU) as a part of the Association Agreement (AA) or the Customs Union (CU) of Russia, Belarus and Kazakhstan. The EU and the CU markets accounted for 29.6% and 41.8% of Ukrainian export in 2012 respectively[1]. The decision of whom to work with is complicated by the fact that these integration options are mutually exclusive. FTA provides a partially or full abolishment of custom tariffs on the inner border of its members. However, the customs union, as a next stage of economic integration, in addition, stipulates common external tariffs, which should be controlled by supranational organization created by its members. So, it is understandable that Ukraine could not be a part of the CU and sign the AA with the EU at the same time. In addition, President of Russia Vladimir Putin stated that the CU members would impose protective measures for their market if Ukraine signed the agreement with the EU[2]. In other words, Russia warned Ukraine that its market

---

[1] http://www.ukrstat.gov.ua/

[2] http://www.pravda.com.ua/news/2013/08/22/6996523/

would be closed for some Ukrainian goods in case of the association with the EU.

Since both integration decisions result in loss of a part of export markets, Ukrainian policymakers must consider all possible benefits and costs of each option before making a right decision. One of the possible ways to do this is to analyze which companies are expected to benefit and suffer from both integration decisions. Policymakers must study which firms will be able to adapt to new trade conditions and which will not and be forced to leave the market. It is very important because our economy should be prepared for such kind of shock. So, in this work we concentrate on determining the winners and losers of both integration options studying stock price reaction to news about perspectives of Ukraine to sign the agreement with the EU or CU.

Focusing on the European integration, Ukraine preliminary signed the Association Agreement with the European Union in 2012 and began working on the alignment of its legislation with European standards in order to ratify the agreement at the summit in Vilnius on November 28-29, 2013. This process took place despite Ukraine-Russia trade war, in which Russia used a variety of restrictions on the import of Ukrainian goods to stimulate Ukraine to join its Customs Union. On November 21, 2013, just before the Vilnius summit, the Prime Minister of Ukraine Mykola Azarov announced unexpectedly that the work on the AA with the EU would be suspended and that Ukraine would choose to improve trade relationships with countries of the CU. As a result, the formal signing of the AA in Vilnius was canceled. This drastic change in the political course provoked a great wave of negative reactions among Ukrainians, which led to strong protests. After almost 3 months of confrontations between people and police, quite unexpectedly the Parliament of Ukraine sacked the

government on February 22, 2014 and appointed a new government, which made European integration again a priority of its foreign policy.

In the period of three months Ukrainian companies thus experienced two political shocks: the first one was the cancellation of signing the AA with the EU and renewal of cooperation with the CU; and the second one was the change of political regime and return to negotiations with the EU. So, the first event decreases the perceived probability to sign the agreement with the EU and the second increases this very probability. The opposite is true for the CU case. Thus, we have a unique condition for the natural experiment to determine which companies win and which lose from each integration decision. To answer this very important question we turn to one of the most respected and influential economic experts – to the market. We use the widely known event study methodology to investigate how companies` stock prices reacted to changes of perceived probability to join the Free Trade Area with the EU or the CU with Russia, Belarus and Kazakhstan.

Since the stock price is a discounted sum of all expected future cash flows to equity holders, change in expectations of future cash flows causes stock prices to change as well. We assume that announcements of cancelation of the AA and later renewal of negotiations with the EU are relevant to investors` expectations about future companies` cash flows. So, studying the companies` stock reaction to the political course shift in Ukraine enables us to determine possible winners and losers of both integration scenarios. For example, if the reaction of stock to cancelation of the AA is negative but at the same time the stock shows positive reaction to renovation of negotiations with the EU, we can conclude that a company is expected to benefit from European integration, and vice versa if the opposite reaction is true, this very company is expected to win from joining the CU. It is understandable that exporters are more likely to benefit and suffer from

changes of trade conditions, so we are going to divide our companies according to export orientation and look how the reaction differs. Since we also deal with the change of political regime, we try to account for political connections of Ukrainian companies. We use a difference in difference strategy to analyze this 'natural' experiment and see how the companies` stock prices react depending on export priorities and political connections. In addition, we will examine how the events in Ukraine influence the stock prices of Western and Eastern partners, the biggest Polish and Russian companies.

Several works attempted to examine the most favorable direction of foreign policy for Ukraine. Movchan and Giucci (2011) and Shepotylo (2013) study the possible benefits for Ukraine from both the FTA with the EU and the CU. However, these works concentrate at the country level and investigate overall effects from both integration options for Ukraine ignoring possible losers among individual companies. In our research we look at company level data, which enables us to determine the expected impact of each foreign policy directions on companies` performance.

Also, there are studies (Thompson, 1993, 1994; Parinduri and Thangavelu, 2009; Breinlich, 2014) that analyze the expected impact of the FTA signing on companies` performance using the event study methodology. Yet there is no such research for Ukraine, so we are the first to study this issue. Moreover, in these works the effect of both expectations and the fact of actual signing is assumed to be of the same sign. It means that if investors have a positive attitude expecting the FTA, they should also react positively to the news about formal signing of this agreement. However, in our case a sudden rejection of negotiations about the AA (and FTA) and the change of the political course was not expected by our community and is perceived as a surprise to investors. Hence, our study is much more likely to observe a causal effect, rather than just a correlation between stock

changes and regional integration policy choices. So, we have unique conditions for such kind of research that were not available before.

Zadorozhna and Zaderey (2011) analyze the impact of political regime change on companies` stock returns studying their reaction to Orange Revolution, presidential elections in 2010 and the imprisonment of Yulia Tymoshenko. In our work we also deal with the political regime change. However, in our case the analyzed event is different – Ukrainians overthrew the government. So, our study could also be considered as a continuation of the research started by Zadorozhna and Zaderey (2013).

For our research we take the data set of the most liquid Ukrainian stocks being traded on the Ukrainian Stock Exchange (UX) as well as on foreign stock exchanges such as Warsaw (WSE) and London (LSE). In addition, we take the most liquid Polish stocks from WIG-20 index and the Russian stocks from the MICEX-10. However, we can use only stocks actively traded during the period of interest. Thus, after meeting all conditions we have 43 Ukrainian companies (UX: 29, WSE: 11, LSE: 3), 7 Polish and 7 Russian companies. We are quite well aware that the sample is rather small, but it is the best we can do dealing with developing Ukrainian stock market. We take daily data for 2012-2014.

Further, we divide companies into groups according to their export destinations and political affiliation to see whether the reaction to the change of the external policy is different among them. We expect western-oriented companies to benefit more from the FTA-EU than enterprises with eastern direction of their exports and vice versa. The same situation can be observed with political connections. Companies treated more favorably by the Yanukovych regime are expected to react negatively to the change of this regime. So, the procedure of dividing analyzed companies into several groups helps us separate economic and political

reactions to the integration course shift. Polish and Russian companies` reaction are taken as proxies for Western and Eastern partners` reaction to Ukrainian events.

This paper is divided into seven sections. The second section is the description of the EU-Ukraine and CU-Ukraine relationships. The third section contains the literature review and is organized in three parts. The first part of the literature review is devoted to the works studying cost and benefits from the available integration options for Ukraine. The second one presents the literature about the impact of regional trade agreements on companies` stock returns. In the third part we discuss the works that research how political connections influence firms` performance. In the fourth section of the paper the data is described. The fifth section discloses methodology used for this research. The empirical results are shown and discussed in the sixth section. Finally, conclusions are made in the seventh section.

CU-UKRAINE AND EU-UKRAINE RELATIONSHIPS

After the collapse of the Soviet Union, the Commonwealth of Independent States (CIS) was created as a mechanism to divorce the former Soviet republics and to distribute the property of the USSR. Although Ukraine was the Founder of the CIS together with Russia and Belarus, it did not ratify the statute of the organization, so de jure Ukraine is still only an observer. The CIS is not a supranational body and created exclusively to coordinate political, economic and other spheres of member states. For today the CIS includes 9 member states (Russia, Belarus, Kazakhstan, Armenia, Azerbaijan, Kyrgyzstan, Moldova, Tajikistan and Uzbekistan) and 2 observers (Ukraine and Turkmenistan).

In 1995, the leaders of Russia, Belarus and Kazakhstan signed the first agreement on the establishment of the Custom Union, which later transformed into the Eurasian Economic Community (EurAsEC). Then in 2010 a common customs space of Russia, Belarus and Kazakhstan was formed based on EurAsEC. In 2011 Vladimir Putin invited Ukraine to join the Customs Union of Russia, Belarus and Kazakhstan, informing that if Ukraine signs the Free Trade Agreement (FTA) with the European Union (EU) instead, Russia will shut down the access to its market for a number of Ukrainian goods. Nevertheless, Ukraine did not accept this offer yet maintaining the possibility for European integration. However, Ukraine is still a member of the CIS FTA signed in 2011.

Currently the relationship between Ukraine and EU are shaped by the European Neighborhood Policy (ENP). The ENP is a foreign relationship instrument of the EU aimed at stimulating the transformation process in countries on the Eastern and Southern borders of the EU towards closer political association and

a higher degree of economic integration. It is based on the set of common interests and values such as democracy, the rule of law, respect of human rights and social cohesion.

Ukraine as the largest country in the European region and a direct neighbor of the EU has always been treated as one of the most important partners for the EU. Ukraine is one of the six post-Soviet countries including Armenia, Azerbaijan, Belarus, Georgia and Moldova, which were invited to the Eastern Partnership (EaP) program of the EU initiated by Poland and Sweden. Since launching in 2009, the EaP aims to develop closer political, economic trade-relationships and cultural links with the EU. This initiative emphasizes compliance with international law and fundamental values of democracy, the rule of law, respect of human rights and freedoms. Also, it is based on commitment to the market economy, sustainable development and good governance. The EaP is believed to help the EU partners to adjust their internal economic and political processes to the EU standards.

According to the EU declarations Ukraine has always been a priority partner country within the ENP and the EaP[3]. That is why, these programs were aimed at providing foundation for the Association Agreement (AA) between Ukraine and the EU. So, it was quite logical that in 2012 as a result of active European integration processes and as an evidence of serious intent on further cooperation from both sides, the EU and Ukraine signed deals on free trade and political association. However, it was stated by the EU governors that the AA would not be ratified unless Ukraine satisfied EU`s claims over deterioration of democracy and the rule of law. The closest attention of European leaders was focused on the imprisonment of the former Premier Minister of Ukraine, Yulia Tymoshenko,

---

[3] http://eeas.europa.eu/ukraine/index_en.htm

and the former Minister of Internal Affairs, Yurii Lutsenko. The last one was pardoned by the Ukraine President Viktor Yanukovych and released from prison due to the bad health condition. This was seen as a clear evidence for the strong desire of Ukrainian authorities to continue negotiations with the EU. However, the EU still expected from Ukraine the adoption of key legislation on parliamentary elections, a new law on the prosecutors general`s office and a new law on the medical treatment of prisoners abroad, which were crucial for the formal signing of the AA in the EaP Summit in Vilnius on November 29 2013[4].

Although Viktor Yanukovych urged the parliament to adopt laws in order to meet the EU criteria, all changes in legislation aimed to enable Yulia Tymoshenko to receive medical treatment from abroad were rejected by the parliament on November 21, 2013. Moreover, at the same date the government of Ukraine led by the Premier Minister Mykola Azarov announced the suspension of signing the AA with the EU, which made it almost impossible to formally sign the agreement in Vilnius. Though Viktor Yanykovych did attend the EU Summit in Vilnius on November 28-29, 2013, the association agreement was not signed. The decision to postpone the signing of the AA was met with indignation among Ukrainians and resulted in massive, ongoing protests, which turned into violent confrontation between the government and people in Ukraine.

After almost three months of protests, under the pressure from the public and international community, the President of Ukraine signed the agreement with leaders of opposition parties aimed to resolve the crisis. The agreement provided for the immediate return to the Constitution of 2004 with the limited power of the President and early presidential elections in December, 2014. Following this, on February 22, 2014 the President left Kyiv and did not return, which gave the

---

[4] http://en.interfax.com.ua/news/general/175853.html

basis for the Parliament of Ukraine to remove him from office and schedule early election for May 25, 2014. After that, the Parliament formed a new government mainly from opposition members and appointed Oleksandr Turchynov as acting President, who called European integration a priority for Ukraine[5]. Also, the Parliament adopted a resolution that released Yulia Tymoshenko from prison. On February 26, 2014 ex-president Viktor Yanukovych and his closest political entourage were announced to be on the international wanted list.

Thus, Ukraine has recently experienced two abrupt changes in foreign policy. The first shock came on November 21, 2013, when the Prime Minister Mykola Azarov announced the suspension of work on the signing of the AA, which was accompanied by failure to sign it in Vilnius. The second change of the political course occurred after the removal of the President Viktor Yanukovych and the appointment of the new pro-European government. Therefore, we have a unique opportunity to explore how the stock market responds to such shocks under natural experiment conditions.

---

[5] http://www.pravda.com.ua/news/2014/02/28/7016706/

C h a p t e r   3

LITERATURE REVIEW

As mentioned previously, in the literature review section firstly we want to look into the works that analyze cost and benefits for Ukraine from both the AA with the EU and the CU. These studies present the expected outcomes from both options of further integration. It gives an opportunity to compare theoretical results with our findings. Further, we discuss the works devoted to the impact of FTAs on companies` stock performance that enables to determine winners and losers on both country and company levels. The research question of these works is close to ours, so it is useful to look at their methodology and results. Finally, we pay attention to the papers that focus on political affiliation of business and its impact on companies` performance. Typically, these papers study developing countries due to non-transparency issues of their economies and the problem of weak legal system, which creates favorable conditions for the development of such kind of political connections. Since Ukraine is subject to mentioned characteristics and in our research we deal with changing of the political course, political connections could be an issue in our case and we should account for them in our methodology.

Movchan and Giucci (2011) try to quantify the effect from the Deep and Comprehensive Free Trade Agreement (DCFTA) with the EU and joining the CU of Russia, Belarus and Kazakhstan. The authors use computable general equilibrium (CGE) model and show the advantage of the DCFTA over the CU. According to their findings, the signing of simple FTA with the EU may increase Ukraine`s welfare by 4.6% in the long-run. Moreover, entering the DCFTA is expected to boost welfare by as much as 11.8%. On the contrary, Ukraine would suffer from 3.5% drop in aggregate welfare in case of joining the CU. So, the

study concludes that signing the DCFTA is the most favorable option for Ukraine.

The topic of trade policy choice for Ukraine is also analyzed by Shepotylo (2013). The author elaborates a gravity model to test the effects of both the FTA-EU and the CU integration scenarios. The model is estimated for the countries of the FTA-EU zone and the CIS countries in 2007-2011. Further Ukrainian exports are predicted based on estimated results. Thus, the research shows the expected long run increase in Ukrainian exports by 17.9% under the CU scenario, by 36% under the FTA-EU scenario and by 46.1% under the EU membership scenario. So, the author concludes that the EU integration would lead to the larger export gains for Ukraine.

Therefore, both works discussed above show that Ukraine could expect more benefits from the FTA-EU comparing with the CU. However, these studies concentrate on the country level and investigate an overall effect of both FTA-EU and CU options. In this case the information about which company is going to win or lose from the agreements is lost due to aggregation. Surely, there are companies that will benefit more than others from the FTA-EU comparing to the CU and vice versa. So, the task of our research is to zoom-in the effects of both options and determine winners and losers at the industry and company levels.

Moser and Rose (2013) investigate the effects of regional trade agreements (RTAs) on countries` welfare based on the stock market performance. The authors use the data set of 82 countries and 122 RTAs and two-step approach to assess the effects. As the first step the authors determine abnormal returns of the national market index corresponding to the announcement of RTA and information about the formal signing of it. They use event study methodology for

this purpose. Further, as the second step they run OLS regression to investigate what factors, including both RTA`s and countries` features, affect the magnitude of abnormal returns. The authors determine that abnormal returns due to RTAs are positive and significant. Also, they show that stock market returns are higher for RTAs between countries that already have large volumes of trade. Moreover, it is concluded that RTAs signed by poorer countries and RTA signed with small countries also stimulate higher returns.

Moser and Rose (2013) look for the factors that could influence the level of benefits that a country receives from RTA signing. So, the authors do not search for losers per se because signing RTA is not random and it happens only when policy makers expect RTA to bring prosper for its members in the future. Thus, endogeneity issues arise when the stock market`s reaction on the RTA announcement is analyzed. However, in our case we avoid such endogeneity as the switches in orientations were unexpected.

Thompson (1993) also uses the event study methodology to investigate the impact of the FTA between Canada and the US on companies in manufacturer industries in Canada. The author identifies three sets of events believed to reveal new information about the Canada-US FTA. Each set of events include both an unexpected setback in the agreement negotiations and its resolution. Further, the author sets up industry portfolios from the companies traded in Toronto, Montreal and Vancouver Stock Exchanges and looks at their abnormal returns for each event. Although Thompson (1993) estimates most of the cumulative abnormal returns with relatively large standard errors, she finds statistically significant positive reaction for paper industry and negative reaction for electronic and electric equipment industry on the FTA. This paper studies the effect of the FTA at the industry level, and thus very similar to our work. However, we look not only at the reaction of different groups of companies, but also at the reaction

of each separate company, which insures us from information loss due to aggregation. Moreover, the unexpected events we analyze are not just 'setbacks' in the integration process, they are radical changes in this process.

Thompson (1994) continues her research by studying whether the abnormal stock returns of Canadian companies corresponding to news announcement about Canada-US FTA are consistent with the international trade theories of comparative advantage and economies of scale. For this reason, the author estimates the abnormal returns for both individual Canadian manufacturer firms and industry-level portfolio. Relating the abnormal returns to variables that capture resource and scale advantage of Canadian firms shows that investors expect natural resource intensive firms to benefit from the FTA while companies with relatively small plant scale are anticipated to suffer. It appears that overall reaction of stock returns corresponds to predictions of the trade theory.

The effect of Canada-US FTA on manufacturer companies` returns is also studied by Breinlich (2014). The author determines the events believed to increase/decrease perceived probability to sign the FTA and studies how the stock returns react to these events depending on whether the company exports or not. Breinlich (2014) shows that positive events concerning the FTA led to significantly higher positive abnormal returns of exporting companies comparing to non-exporting. However, events that lower the probability of signing the FTA results in more negative returns for exporters than for non-exporters.

Parinduri and Thangavelu (2009) using methodology proposed by Thompson (1994) study the effect of signing the US-Singapore FTA on the stock returns of firms listed on the Singapore Stock Exchange. The authors determine a positive influence of the announcement of signing the free trade deal on companies` stock prices. Beside the fact that FTA negotiation was predictable, on average firms

from basic materials and health care industries increased their value by 2-5%. Although there is no statistically significant reaction from companies in other sectors of economy, this work also shows an example of winners/losers investigation approach.

Since in our research we deal with changing of the foreign policy direction as well as political regime, the companies` stock returns might be affected not only by expected benefits from new trade regime, but also by changes in the political environment. To measure the effects of FTA correctly we should account for possible political connections of companies. So, it is useful to look at the studies that investigate this issue.

One of the most popular works in the field of political connections is written by Fisman (2001). It is one of the early studies on this topic, in which the author tries to determine how much political connections matter for successful performance of business groups in Indonesia during the period of Suharto`s presidency. Fisman (2001) takes rumors about Indonesian president health as a measure of the connections value. He shows that firms with more powerful connections with Suharto`s regime loss in value more due to bad news about the president`s health. Thereby, the author concludes that political connections matters a lot and this result might be applicable to many other countries with a high level of corruption. This study shows that political affiliation could influence stock prices significantly.

One more case of political affiliation impact on firms` performance is presented by Goriaev and Sonin (2005). They investigate the existence of the political company-specific risk and how it can be turned into a systematic one. This work describes the Yukos affair, a resonance story of the state-led assault on the private Russian company. The authors detect large negative abnormal returns of Yukos`

stocks for the days when its main shareholders Mikhail Khodorkovsky and Platon Lebedev were arrested probably due to political reasons. Moreover, it appears that Yukos events were taken as a negative signal by the market concerning other companies. The investors assumed that the other companies could also suffer from the same scenario. So, the arrests of Yukos` shareholders influenced negatively the returns of other companies as well. However, the stock price of government-controlled Gazprom was affected in a positive way. This paper also finds a compelling evidence of strong influence of political connections on individual firm`s performance and market overall.

Two papers estimate the importance of political affiliations for companies in Ukraine. Baum et al. (2008) study how the political affiliation of Ukrainian banks influences their behavior in 2003Q3 – 2005Q2. The authors find out that political connections of the bank lead to the lower interest rate margin. So, banks with deputy patronage have every opportunity to set lower interest rates on loans and higher deposit rates, which makes them more attractive for the market. Moreover, the affiliated banks tend to increase their capitalization ratio compared to non-affiliated. Lower interest margins and increasing capitalization make this bank more attractive not only for customers but also for foreign investors, which is proven by several examples of affiliated banks acquisitions (TAS Bank, Khreshchatyk Bank). So, this paper shows that political connections do matter much in Ukraine if talking about banks` performance.

Zadorozhna and Zaderey (2013) also investigate the political affiliation of business in Ukraine but instead of banks they look at oligarchs` companies, which are traded on stock exchanges and determine how the change of political regime influences the stock returns of the selected firms. They take 3 events, which could influence the stock market: Orange revolution in 2004, presidential elections in 2010 and imprisonment of Yulia Tymoshenko in 2011. The authors use the event

study methodology and dummy regression approach to determine abnormal returns on these event windows. As a result, they show that performance of affiliated companies` stocks significantly differs from results of non-affiliated ones as well as international peers. Moreover, the research determines that in 70% cases affiliated companies` abnormal returns exhibit the sign that is consistent with political loyalty of the owner. Thus, Zadorozhna and Zaderey (2013) also prove that political connections do matter at least in the eyes of investors.

As can be seen, politically affiliated business is an important issue in developing countries such as Ukraine, where economic processes are not transparent, the legal system is rather weak and level of corruption is very high.

Summarizing, there are a couple of works (Movchan and Giucci, 2011; Shepotylo, 2013) which show that the FTA-EU will be more beneficial for Ukrainian economy than the CU. However, these studies concentrate on the country level and look at the overall effect of both options without analyzing their impact on performance of individual firms. Also, Thompson (1993, 1994) found that FTA could influence stock returns in different ways depending on industry and company characteristics. Moreover, Zadorozhna and Zaderey (2013) show that political connections do influence stock returns of Ukrainian companies during changes of regime. So, further in our research we try to determine the winners and losers from the FTA-EU accounting for companies` characteristics including export orientation, place of listing, industry and political affiliation.

C h a p t e r   4

DATA DESCRIPTION

The data we use in our work can be divided into 3 categories. The first category is the news we use to determine the key dates for our research. The second is stock prices of Ukrainian and foreign companies. And the last one is companies` background information collected to distribute them into the right group according to their export orientation and political affiliation.

In our paper we use the event-study methodology to determine the reaction of companies` returns on shifting of the political course in Ukraine. For this reason we should determine event dates of interest working as turning points in our natural experiment. To identify dates we use news archive of Ukraiinska Pravda website[6], one of the most popular sources of political news in Ukraine.

We pick the dates when the announcement about the AA cancelation is made for the first time by former Premier-Minister of Ukraine Mykola Azarov and when acting President of Ukraine Oleksandr Turchynov officially announces the renewal of negotiations with EU about the AA. If the announcement was made on weekend (as in the second case), we take the next business day as an event date. So, event dates taken for the analysis are November 21, 2013 and February 24, 2014 respectively.

Since official signing of the AA with the EU was planned on November 28-29 2013 during the summit in Vilnius, we also consider this time point as an event date. However, refusal of Ukrainian officials to sign the agreement in Vilnius could not be taken as a surprise anymore, and consequently stock prices might

---

[6] http://www.pravda.com.ua/archives/

absorb this information before the actual date and might not show clear casual effect. So, although we include November 29 2013 in our analyses, the results for this date are shown in Appendix only.

For our analysis we take the most liquid Ukrainian stocks traded on home and foreign exchanges. For this reason we consider almost all constituents of PFTS index that includes Ukrainian blue chips as well as other companies actively traded on Ukrainian, Warsaw and London stock exchanges. Moreover, we also investigate reaction of stock prices of the biggest and the most liquid Polish and Russian companies that have economic connections with Ukraine. These companies enable us to proxy the reaction of western and eastern partners of our country on Ukrainian events. As a result, we choose 43 Ukrainian (UX: 29, WSE: 11, LSE: 3), 7 Polish and 7 Russian companies for our research. The list of the analyzed companies is shown in Appendix (Table A1).

We take the daily closing price from January 4, 2012 to March 7, 2014 to calculate returns being used for our analysis. Companies` stock prices are downloaded from Ukrainian Stock Exchange website[7] and Thomson Reuters` financial database. We use PFTS index as proxy for Ukrainian market index since it has more constituents than UX index, and thus better describes market performance. Also, we take WIG-20 for Warsaw, FTSE-100 for London and MICEX-10 for Moscow stock exchanges. Moreover, we take MSCI Emerging Markets Index and MSCI All Country World Index to proxy performance of emerging and global markets.

We calculated descriptive statistics of stock returns for all 57 companies used in our research. It can be found in Appendix (Table A2). It is noticeable that min/max values differ much from values at $1^{st}/99^{th}$ percentile that indicates the

---

[7] http://www.ux.ua/ru/marketdata/export.aspx

19

presence of outliers in our sample. To take this into account we use both full sample of returns as well as sample trimmed at 1st and 99th percentile.

In our analysis we divided all Ukrainian companies into different groups according to their export orientation and political affiliation in order to separate the effect of trade and political connections on stocks` performance. For this reason we use available information sources including companies` websites, annual reports, presentations, analytical works, interviews, website of Stock market infrastructure development agency of Ukraine[8] and others. To determine companies` political connections we also look at the work of Zadorozhna and Zaderey (2013). The authors exploit Forbes databases to find out the political affiliation of oligarchs` companies. That is why, we make use of information about political connections of the biggest Ukrainian business groups from their study.

To determine winners and losers of European integration among Ukrainian companies we divide them into groups according to their exports` destinations. It is understandable that those companies oriented to western markets might benefit more from trade agreements with the EU than companies which export mostly to the CU countries. Moreover, the existing literature (Zadorozhna and Zaderey, 2013; Baum et al., 2008) shows that political affiliation does influence the performance of Ukrainian companies. So, investigating the effect of the political course shift on stock returns we should account for possible impact of political connections. Though, we distribute companies into 3 groups according to 'export' markets (west, east and domestic) and into 2 groups according to political connections (affiliated and non-affiliated). Also, for each company in our sample we determine its industry according to PFTS[9] website and Thomson

---

[8] http://smida.gov.ua/

[9] http://www.pfts.com.ua/en/moreinformation

Reuters` financial database and place of listing (stock exchange where company is traded).

In order to make the distribution process consistent we develop the following criteria. UNDP (2011) defines economy as export dependent when its export share in GDP exceeds 20%. We also use this threshold at company level. We treat company as western-oriented ("west" group) if its share of revenues from export to the EU countries exceeds 20%. The same approach we use to determine eastern-oriented companies. If a company receives more than 20% of its revenues from export to the CU countries, we put it into the "east" group. All other companies in our sample are treated as domestic ("domestic" group), since their exports do not account for a significant share of revenues. When we are lack of quantitative information about company`s export, we base our decision about distribution of company to particular export group based on all other publicly available information (incl. investor reports, presentations, analytic reports, relevant news, interviews with executives and others). The distribution of companies according to export direction is shown in Table 1.

Table 1. Distribution of Ukrainian companies according to export orientation.

N	Ticker	Company Name	Industry	Stock Exchange
		East		
1	avdk	Avdiivka Coke Plant	Basic Materials	UX
2	enmz	Ienakiieve Metallurgy Plant	Basic Materials	UX
3	hrtr	Khartsyzsk Pipe Plant	Basic Materials	UX
4	kraz	KRAZ	Industrials	UX
5	kvbz	Kriukiv Railcar Plant	Industrials	UX
6	ltpl	Luganskteplovoz	Industrials	UX
7	luaz	Bogdan Motors	Industrials	UX
8	msich	Motor Sich	Industrials	UX
9	mzvm	Mariupol Heavy Machinery	Industrials	UX
10	nvtr	Novomoskovsk Pipe Plant	Basic Materials	UX
11	svgz	Stakhaniv Railcar Plant	Industrials	UX

Table 1. Distribution of Ukrainian companies according to export orientation – Continued.

N	Ticker	Company Name	Industry	Stock Exchange
12	mlk	Milkiland	Consumer Products	WSE
13	wes	Westa ISIC	Industrials	WSE
14	avgr	Avangard	Consumer Products	LSE
15	mhpc	Myronivskyi Hliboproduct	Consumer Products	LSE
West				
1	almk	Alchevsk Metallurgy Plant	Basic Materials	UX
2	azst	Azovstal	Basic Materials	UX
3	cgok	Central Ore Mining	Basic Materials	UX
4	mmki	Mariupol Metallurgy Plant	Basic Materials	UX
5	pgok	Poltava Ore Mining	Basic Materials	UX
6	sgok	Northern Ore Mining	Basic Materials	UX
7	stir	Stirol	Basic Materials	UX
8	agl	Agroliga	Consumer Products	WSE
9	agt	Agroton	Consumer Products	WSE
10	ast	Astarta	Consumer Products	WSE
11	imc	Industrial Milk Company	Consumer Products	WSE
12	ker	Kernel	Consumer Products	WSE
13	fxpo	Ferrexpo	Basic Materials	LSE
Domestic				
1	bavl	Raiffeisen	Financials	UX
2	ceen	Centrenergo	Utilities	UX
3	dnen	Dniproenergo	Utilities	UX
4	doen	Donbasenergo	Utilities	UX
5	shchz	Pokrovske Mine	Basic Materials	UX
6	shkd	Donbas Komsomolets Mine	Basic Materials	UX
7	unaf	Ukrnafta	Oil & Gas	UX
8	uscb	Ukrsotsbank	Financials	UX
9	utlm	Ukrtelecom	Telecom	UX
10	yask	Iasynivka Coke Plant	Basic Materials	UX
11	zaen	Zakhidenergo	Utilities	UX
12	cle	Coal Energy	Basic Materials	WSE
13	ksg	KSG Agro	Consumer Products	WSE
14	ovo	Ovostar	Consumer Products	WSE
15	sgr	Sadovaya Group	Basic Materials	WSE

We determine company as politically affiliated if its owner (major investor) is a member or/and sponsor/donor of ruling party (Party of Regions). For example, each company that is a part of Rinat Akhmetov`s (the most influential Ukrainian oligarch and member of ruling Party of Regions) SCM Holding is included into "affiliated" group. The companies that do not match these criteria are treated as non-affiliated. The distribution of companies according to political affiliation is shown in Table 2.

Table 2. Distribution of Ukrainian companies according to political affiliation.

N	Ticker	Company Name	Industry	Stock Exchange
Affiliated				
1	avdk	Avdiivka Coke Plant	Basic Materials	UX
2	azst	Azovstal	Basic Materials	UX
3	cgok	Central Ore Mining	Basic Materials	UX
4	dnen	Dniproenergo	Utilities	UX
5	doen	Donbasenergo	Utilities	UX
6	enmz	Ienakiieve Metallurgy Plant	Basic Materials	UX
7	hrtr	Khartsyzsk Pipe Plant	Basic Materials	UX
8	mmki	Mariupol Metallurgy Plant	Basic Materials	UX
9	msich	Motor Sich	Industrials	UX
10	mzvm	Mariupol Heavy Machinery	Industrials	UX
11	nvtr	Novomoskovsk Pipe Plant	Basic Materials	UX
12	sgok	Northern Ore Mining	Basic Materials	UX
13	shkd	Donbas Komsomolets Mine	Basic Materials	UX
14	stir	Stirol	Basic Materials	UX
15	utlm	Ukrtelecom	Telecom	UX
16	zaen	Zakhidenergo	Utilities	UX
17	ker	Kernel	Consumer Products	WSE
Non-affiliated				
1	almk	Alchevsk Metallurgy Plant	Basic Materials	UX
2	bavl	Raiffeisen	Financials	UX
3	ceen	Centrenergo	Utilities	UX
4	kraz	KRAZ	Industrials	UX
5	kvbz	Kriukiv Railcar Plant	Industrials	UX
6	ltpl	Luganskteplovoz	Industrials	UX
7	luaz	Bogdan Motors	Industrials	UX

Table 2. Distribution of Ukrainian companies according to political affiliation – Continued.

N	Ticker	Company Name	Industry	Stock Exchange
8	pgok	Poltava Ore Mining	Basic Materials	UX
9	shchz	Pokrovske Mine	Basic Materials	UX
10	svgz	Stakhaniv Railcar Plant	Industrials	UX
11	unaf	Ukrnafta	Oil & Gas	UX
12	uscb	Ukrsotsbank	Financials	UX
13	yask	Iasynivka Coke Plant	Basic Materials	UX
14	agl	Agroliga	Consumer Products	WSE
15	agt	Agroton	Consumer Products	WSE
16	ast	Astarta	Consumer Products	WSE
17	cle	Coal Energy	Basic Materials	WSE
18	imc	Industrial Milk Company	Consumer Products	WSE
19	ksg	KSG Agro	Consumer Products	WSE
20	mlk	Milkiland	Consumer Products	WSE
21	ovo	Ovostar	Consumer Products	WSE
22	sgr	Sadovaya Group	Basic Materials	WSE
23	wes	Westa ISIC	Industrials	WSE
24	avgr	Avangard	Consumer Products	LSE
25	fxpo	Ferrexpo	Basic Materials	LSE
26	mhpc	Myronivskyi Hliboproduct	Consumer Products	LSE

So, after discussing the data used in our research and defining the groups of companies according to their export orientation and political affiliation we turn to the next chapter where research methodology is shown.

METHODOLOGY

In our research we use 2-step methodology to determine winners and losers from the EU and the CU directions of the foreign policy in Ukraine. As the first step we exploit the event study methodology described by MacKinlay (1997) to investigate the reaction of companies` stock returns to the political course change. For this reason we calculate cumulative abnormal returns (CARs) for each firm. As the second step we study these CARs relating them to firms` characteristic such as export orientation, political affiliation, place of listing and industry.

According to the efficient market hypothesis stock prices already reflect all currently available information. So, when new information appears stock prices must change to absorb it. This notion leads to the powerful event study methodology. It enables to measure the importance of event by looking at the stock returns during the period in which event takes place (Bodie et al., 2001). Hereby, the event study helps to see whether there is an unusual stock price reaction to some news, which means that new information change investors` expectations about future cash flows of the company.

The event study is a very popular technique, especially in the empirical financial research. It is applied to a large number of company specific and market wide events such as mergers and acquisitions (Gashchenko, 2005), earning announcements (MacKinlay, 1997), ADR listing (Gerasymenko, 2009), sponsorship agreements (Khvastunov, 2011) and many others. Thus, we can infer that the methodology we choose for our research is widely used.

At the first stage of our research we investigate how the stock prices react to the news announcement. For this reason we should start with determining abnormal returns of each security that was picked up. The formula of abnormal returns is the following:

$$AR_{it} = R_{it} - E(R_{it}|X_t), \tag{1}$$

where:

- t – index for time period;
- i – index for a security;
- AR_{it} – abnormal returns;
- R_{it} – actual returns;
- $E(R_{it} | X_t)$ – normal returns;
- X_t – conditional information for the normal return model.

We use logarithmic returns in our study that is a common practice in financial research. Since daily exchange rates did not change much during the period of interest, we use local currency returns in our analyses.

According to MacKinlay (1997) there are three common tools to model the normal return: the constant mean return model, the market model and the expanded version of market model – the multifactor model. However, the constant return market model assumes normal return to be constant, which is not realistic, thus we concentrate on the last two models.

The market model relates the return of security to the return of the market portfolio. So, the model looks as the following:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it},$$

$$E(\varepsilon_{it} = 0), \ var(\varepsilon_{it}) = \sigma_{\varepsilon_i}^2,$$

(2)

where:

- R_{it} – return of a security;
- R_{mt} – return of a market portfolio;
- ε_{it} – disturbance term.

We use the stock exchange index as proxy for the market portfolio. In our case we want to calculate the normal return for the stocks traded on the UX, WSE, LSE and MCX, thus we take PFTS index, WIG-20, FTSE-100 and MICEX-10 as proxies, respectively.

Although MacKinlay (1997) states that the simple market model produces the best result, we also try to expand it into a multifactor model and compare the results. Thus, we take the following specification:

$$R_{it} = \alpha_i + \beta_{1i} R_{NMt} + \beta_{2i} R_{FMt} + \beta_{3i} R_{EMt} + \beta_{4i} R_{WMt} + \varepsilon_{it},$$

$$E(\varepsilon_{it} = 0), \ var(\varepsilon_{it}) = \sigma_{\varepsilon_i}^2,$$

(3)

where:

- R_{NMt} – return of national stock market index (e.g. UX/PFTS);
- R_{FMt} – return of foreign stock market index for Ukrainian companies that traded on foreign markets (e.g. WIG, FTSE-100, MICEX-10);
- R_{EMt} – stock index for emerging markets (e.g. MSCI Emerging Markets Index);
- R_{WMt} – world stock index (e.g. MSCI All Country World Index);
- ε_{it} – disturbance term.

Hereby, using this factor model we try to capture not only the reaction of stock returns on performance of home market, but also performance of the market where company is traded (for companies listed abroad), emerging markets and a global one.

Both models (2) and (3) are estimated by using OLS and GARCH (1, 1) as the most common techniques in such kind of research (Zadorozhna and Zaderey, 2013; Khvastunov, 2011; Hansen and Lunde, 2001) and based on the estimation window, which is shown below in Figure 1.

Figure 1. Estimation and event windows.

We take a fixed estimation window for both events to avoid the effect of negative political situation after cancelation of the AA on calculation of normal returns. The typical size of estimation window for such kind of studies is 200-250 days (MacKinlay, 1997; Zadorozhna and Zaderey, 2013). Since we have stocks that are not traded on every day basis we take bigger estimation window size of 250 days to ensure enough volatility in the sample. If a stock is not traded on some particular day, we assume that its price does not change, and thus return is zero. Also, we use 9 different event windows to check robustness of our results. Event window varies from [-0;+0] (only event day is included) to [-2;+2] (2 days before and 2 days after event are included besides the event day itself). Such an approach was also used by Zadorozhna and Zaderey (2013).

After estimating the parameters of both (2) and (3) models based on the estimation window, we are able to predict the normal returns for event window, where the announcement effect is going to be estimated. Thereby, we can calculate the abnormal returns for the event window. For this reason we define the cumulative abnormal return (CAR) as follows:

$$CAR_i(T_1, T_2) = \sum_{t=T_1+1}^{T_2} AR_{it},$$

(4)

$$H_o: CAR_i(T_1, T_2) \sim N(0, \sigma_i^2(T_1, T_2)), \text{ where } \sigma_i^2(T_1, T_2) = (T_2 - T_1)\sigma_{\varepsilon_i}^2,$$

We can test the null hypothesis that events have no impact on the stock returns by calculating the t-statistics:

$$t = \frac{CAR_i(T_1, T_2)}{\sigma_i(T_1, T_2)},$$

(5)

Thus, the event study at the first step of our methodology enables us to determine how the AA cancelation and further renewal of European integration affect the stock returns of individual companies.

At the second stage we regress point estimates of CARs calculated earlier on companies` characteristics to investigate the determinants of stock price reaction. For this reason we include dummy variables corresponding to export orientation, political affiliation, place of listing and industry as explanatory variables in our regression. All mentioned factors besides place of listing were used in the previous literature (Thompson, 1993, 1994; Breinlich, 2011; Zadorozhna and Zaderey, 2013) and were shown to be important in determining the abnormal returns. Also, we add place of listing as a new factor because we believe that listing on western exchanges could make firms more recognizable and trustworthy among western consumers, which creates more favorable conditions

for export to this region. Thus, listing abroad could impact reaction of companies` stock returns to news about the AA with the EU. So, the full specification of the regression model we used in our research is the following:

$$CAR_{ik} = EX_i + polaff_i + forex_i + IND_i + u_{ik},$$ (6)

where:

- i – index for a security;
- k – index for an event;
- EX_i – export dummies:
  - $west_i$ – 1 if a company exports mainly to the EU;
  - $east_i$ – 1 if company exports mainly to the CU;
- $polaff_i$ – 1 if company is politically affiliated to Yanukovych regime;
- $forex_i$ – 1 if company is listed abroad;
- IND_i – industry dummies:
  - $conprod_i$ – 1 if company operates in the consumer products industry;
  - $basmat_i$ – 1 if company operates in the basic materials industry;
  - $industr_i$ – 1 if company operates in the industrials.

Therefore, the second step of our methodology concentrates on determinants of the abnormal returns. It enables us to explore systematic patterns in reaction of the companies` stock returns. In the next section all our findings are presented and discussed.

C h a p t e r   6

EMPIRICAL RESULTS

In the previous section we described methodology that is employed in our research. At the first step we calculated cumulative abnormal returns (CARs) based on full and trimmed sample. Also, we tried market and multifactor model for our regression. In addition, OLS and GARCH (1,1) were taken as estimation methods. Therefore, such approach resulted in eight different specifications. Since results do not differ much, we take CARs from "trimmed-market-OLS" specification for our further analysis. Comparison of results received by using different specifications for [-1;+1] event window is shown in Appendix (Table A3). The results for other sizes of event window are available upon request[10].

Although CARs for each event are calculated using nine different event windows, we concentrate our attention on CARs for [-1;+1] event window including three trading days: one day before the event, the event day itself and one day after. There are several reasons for such choice. According to Bodie et al. (2001) information leakage could complicate event study. Leakage means that some part of investors could learn about new relevant information before it becomes publicly available. In this case the stock prices might start to react before the actual event day. Moreover, Ivanov et al. (2012) found strong evidence of deviation from market efficiency at East-European Financial Markets including Ukrainian stock exchange. This implies that stock prices react to new information with some time lag, instead of reflecting it immediately. So, we consider [-1;+1] event window as more representative and use it for reporting the results from the

---

[10] You can contact the author via omarchenko@kse.org.ua

first step of our analysis. Also, we take CARs for [-1;+1] as input for the second step.

To interpret our results we should recall the conditions of natural experiment we have in our analysis. During three months market faced two shocks from changing the political course in Ukraine. The first one is cancelation of the association agreement with the EU and the second one is the change of the political regime with the following renewal of negotiations with the EU. So, basically we have two events which have opposite impact on perceived probability to sign the AA: the first event decreases this probability and the second event increases it. The opposite situation is true about the probability to enter the CU with Russia, Belarus and Kazakhstan. Though, companies` stock price reaction is expected to be negative to the first event and positive to the second one if these companies are expected to benefit from the AA. The opposite reaction is expected for companies that are expected to have more gains from the CU. The stock price of companies that are indifferent between two integration options is not supposed to react to analyzed events. So, keeping this in mind we are going to clarify our results.

The calculated CARs from the first step of our analysis are shown in Table 3. It is noticeable that the stock reaction of almost all companies in our sample to the first event is statistically insignificant. Bhattachrya et al. (1998) suggest several explanations why companies` stock reaction to events could be insignificant: markets are inefficient; markets are efficient but events are not value-relevant; markets are efficient, event are value-relevant but they were fully anticipated; or market are efficient, events are value-relevant but insider trading takes place causing prices to absorb new information before it becomes known to public. Since analyzed events are unexpected and assumed to be value-relevant (at least for exporters), we believe that market efficiency is an issue, given the findings of

Ivanov et al. (2012). Nevertheless, despite the fact that stock prices do not show a significant reaction, we think that prices might absorb some amount of information and it is still useful to analyze them further at the second step of our research.

Table 3. Calculated CARs for [-1;+1] event window.

N	Ticker	Company Name	Origin	CAR [-1;+1] Nov 21, 2013	CAR [-1;+1] Feb 24, 2014	Sign Test
1	agl	Agroliga	UA	-0.0317	0.1525***	1
2	agt	Agroton	UA	0.0163	0.0983**	0
3	almk	Alchevsk Metallurgy Plant	UA	-0.0075	0.1508***	1
4	ast	Astarta	UA	0.0141	0.2559***	0
5	avdk	Avdiivka Coke Plant	UA	0.0011	0.1172***	0
6	avgr	Avangard	UA	-0.0446	0.2007**	1
7	azst	Azovstal	UA	0.0129	0.1105**	0
8	bavl	Raiffeisen	UA	-0.0030	0.1839***	1
9	ceen	Centrenergo	UA	-0.0055	-0.0749	0
10	cgok	Central Ore Mining	UA	-0.0030	0.1530***	1
11	cle	Coal Energy	UA	-0.0079	0.0113	1
12	dnen	Dniproenergo	UA	-0.0105	0.1213*	1
13	doen	Donbasenergo	UA	0.0367	0.0608	0
14	enmz	Ienakiieve Metallurgy Plant	UA	0.0080	0.1258**	0
15	fxpo	Ferrexpo	UA	-0.0240	-0.0262	0
16	hrtr	Khartsyzsk Pipe Plant	UA	0.0775	0.1345**	0
17	imc	Industrial Milk Company	UA	0.0049	0.1354**	0
18	ker	Kernel	UA	0.0294	0.1960**	0
19	kraz	KRAZ	UA	-0.0088	0.3257***	1
20	ksg	KSG Agro	UA	-0.0536	0.0714	1
21	kvbz	Kriukiv Railcar Plant	UA	0.0365	-0.1375	1
22	ltpl	Luganskteplovoz	UA	0.0018	-0.0929	1
23	luaz	Bogdan Motors	UA	0.0010	-0.0170	1
24	mhpc	Myronivskyi Hliboproduct	UA	0.0247	0.3842***	0
25	mlk	Milkiland	UA	0.0096	-0.0223	1
26	mmki	Mariupol Metallurgy Plant	UA	0.0045	0.0585	0
27	msich	Motor Sich	UA	0.0136	-0.0179	1
28	mzvm	Mariupol Heavy Machinery	UA	-0.0128	0.0135	1
29	nvtr	Novomoskovsk Pipe Plant	UA	-0.0024	0.2081***	1
30	ovo	Ovostar	UA	0.0033	0.0494	0

Table 3. Calculated CARs for [-1;+1] event window – Continued.

N	Ticker	Company Name	Origin	CAR [-1;+1] Nov 21, 2013	CAR [-1;+1] Feb 24, 2014	Sign Test
31	pgok	Poltava Ore Mining	UA	0.0043	0.0409	0
32	sgok	Northern Ore Mining	UA	-0.0071	0.1037**	1
33	sgr	Sadovaya Group	UA	0.0154	0.4982***	0
34	shchz	Pokrovske Mine	UA	-0.0613	0.1473***	1
35	shkd	Donbas Komsomolets Mine	UA	0.0049	0.0830*	0
36	stir	Stirol	UA	0.0026	0.1092**	0
37	svgz	Stakhaniv Railcar Plant	UA	0.0051	0.0377	0
38	unaf	Ukrnafta	UA	0.0002	0.1372***	0
39	uscb	Ukrsotsbank	UA	-0.0042	0.5126***	1
40	utlm	Ukrtelecom	UA	0.0029	0.2904***	0
41	wes	Westa ISIC	UA	-0.0432	0.0472	1
42	yask	Iasynivka Coke Plant	UA	-0.0052	0.0565	1
43	zaen	Zakhidenergo	UA	0.0058	0.1452***	0
44	jsw	Jastrzebska Spolka Weglova	PL	0.0433	-0.0022	1
45	kgh	KGHM	PL	0.0108	-0.0213	1
46	lts	Lotos Oil	PL	-0.0072	0.0241	1
47	lwb	Lubelski Wegiel Bogdanka	PL	0.0561**	0.0322	0
48	pgn	Polskie Gornictwo Naftowe i Gazownictwo	PL	-0.0216	0.0006	1
49	pkn	Polski Koncern Naftowy Orlen	PL	-0.0088	0.0200	1
50	sns	Synthos	PL	0.0436	0.0308	0
51	chmf	Severstal	RU	0.0265	0.0135	0
52	gazp	Gazprom	RU	0.0111	-0.0108	1
53	lkoh	Lukoil	RU	0.0017	-0.0149	1
54	rosn	Rosneft	RU	0.0095	0.0063	0
55	sber	Sberbank	RU	-0.0058	-0.0039	0
56	urka	Uralkaliy	RU	-0.0379	0.0198	1
57	vtbr	VTB	RU	0.0289	0.0050	0
Sign Test					**51% (29 from 57)**	

Note: * p<0.1, ** p<0.05, *** p<0.01

On the contrary to the results at the first event window, CARs calculated for the second event are statistically significant for the half of analyzed companies. Moreover, all statistically significant CARs are positive that demonstrate positive overall reaction of the market to the second event. However, magnitude of the reaction differs among the companies, which justifies our will to look for the determinants of stock abnormal returns.

Also, it is noteworthy that Polish and Russian companies` stocks react neither to the first event nor to the second, except Polish Lubelski Wegiel Bogdanka that shows a significant positive reaction to the cancelation of the AA with the EU. Lubelski Wegiel Bogdanka is a big producer of coal in Poland that exports to the EU countries and faces competition from eastern markets including Ukraine. So, positive reaction of its stock price to the cancelation of the AA is expected, given the fact that the agreement is aimed to reduce trade barriers between the EU and Ukraine. However, the stock price of Lubelski Wegiel Bogdanka has also a positive but insignificant reaction to renovation of negotiations with the EU. This fact weakens our evidence for the reaction of Polish company to the change of external policy in Ukraine. The absence of Polish and Russian companies` stock price reactions to events in Ukraine could be explained by rather weak connections with the Ukrainian market for most of them.

According to our assumption stock prices of companies expected to benefit from either EU or CU integration option are supposed to have opposite reaction to the cancelation of the AA and to the renewal of negotiations with the EU. In other words, CARs of these companies are expected to have different signs at the first and second event windows. Following this logic a sign test is conducted and its results are also shown in Table 3. We put "1" if stock price reaction to the first and second event is different and "0" otherwise. As a result, only 29 from 57 (or 51%) companies' stocks in our sample show different reaction, 23 of which have expected sign. So, only a half of companies` abnormal returns could be perceived as a reaction to changing of integration direction. However, it is also possible that stock prices react not only to new trade opportunities, but also to probable improvement of economic and political environment in the country due to changing of the Yanukovych regime. Although this issue complicates the interpretation of stock reaction, we try to deal with it defining the determinants of abnormal returns at the second step of the analysis.

Table 4 shows summary statistics of CARs for different groups of companies. Previously we saw that reaction to the first event is statistically insignificant for almost all companies` stocks. From the table below it is also noticeable that abnormal returns at the first event window are close to zero for all groups and it is hard to determine any pattern from descriptive statistics. However, the reaction to the second event is much stronger, especially for Ukrainian companies. On average, companies that operate in Ukraine show cumulative abnormal return of 12% during the second event window. It shows that overall Ukrainian market react positively on the change of the political regime followed by renewal of negotiations with the EU. However, reaction to the second event is very different among the Ukrainian companies. Calculated CARs for [-1;+1] vary from -13.8 % to +51.3%, which motivates us to take a closer look at reaction of different groups of companies.

As can be seen from Table 4, on average stocks of Ukrainian companies listed abroad have larger reaction to the second event than stocks traded home. In addition, their reaction to the first event is negative, which goes align with natural experiment assumption. Also, it is interesting that stocks of companies oriented mainly to the EU market show larger reaction than stocks of those companies that exports mainly to the CU. However, both groups have positive reaction at the first event window. Moreover, "domestic" group of companies that mainly concentrate their operations on domestic market has the largest reaction to the renewal of negotiations with the EU and negative reaction to the cancelation of the AA-EU. This shows that trade orientation may not be the main determinant of abnormal returns at the first and second event windows, which suggests that change of political regime should have more powerful impact on stock prices than the change of foreign policy direction.

Table 4. CARs summary statistics for different groups of companies.

Event date		November 21, 2013				February 24, 2014			
Group	**N**	**Mean**	**SD**	**Min**	**Max**	**Mean**	**SD**	**Min**	**Max**
All companies	57	0.003	0.025	-0.061	0.078	0.092	0.128	-0.138	0.513
Ukrainian	43	0.000	0.024	-0.061	0.078	0.120	0.136	-0.138	0.513
Place of listing:									
Home	29	0.003	0.022	-0.061	0.078	0.106	0.128	-0.138	0.513
Abroad	14	-0.006	0.028	-0.054	0.029	0.147	0.152	-0.026	0.498
Export:									
East	15	0.004	0.029	-0.045	0.078	0.087	0.147	-0.138	0.384
West	13	0.001	0.016	-0.032	0.029	0.118	0.071	-0.026	0.256
Domestic	15	-0.005	0.024	-0.061	0.037	0.153	0.165	-0.075	0.513
Political connections:									
Affiliated	17	0.010	0.022	-0.013	0.078	0.118	0.072	-0.018	0.290
Non-affiliated	26	-0.006	0.024	-0.061	0.036	0.120	0.167	-0.138	0.513
Industry:									
Consumer products	10	-0.003	0.030	-0.054	0.029	0.152	0.115	-0.022	0.384
Basic materials	17	0.001	0.026	-0.061	0.078	0.122	0.113	-0.026	0.498
Industrials	8	-0.001	0.023	-0.043	0.036	0.020	0.139	-0.138	0.326
Other	8	0.003	0.015	-0.010	0.037	0.172	0.172	-0.075	0.513
Polish	7	0.017	0.031	-0.022	0.056	0.012	0.020	-0.021	0.032
Russian	7	0.005	0.023	-0.038	0.029	0.002	0.013	-0.015	0.020

On average, the reaction of politically affiliated companies` stocks to the first event is positive while stocks of non-affiliated companies react negatively. A different sign at the first window is expected and shows that political affiliation might matter. However, both groups have similar reactions to the second event. Also, industrial companies have the lowest average CARs among all industries for the second event window. It could mean that investors` expectations about prospects of industrial companies on the EU market are rather pessimistic. Groups of Polish and Russian companies do not show any remarkable reactions, which presents low exposure of Polish and Russian stocks to analyzed events in Ukraine. So, after looking at the results for different groups of companies we can

turn to the second step of our analyses where determinants of abnormal returns are studied.

At the second step we regress previously calculated CARs for Ukrainian companies on their characteristics such as export orientation, political connections, place of listing and industry of operations. Basically we conduct the same analyses as before trying to see how different companies` groups react to analyzed events. However, now we investigate the impact of one factor holding other factors fixed.

During the second step we use CARs estimated at the first step as a dependent variable. According to Lewis (2005) such approach could induce heteroscedasticity issue. To check whether the variance of errors is constant we conduct the Breusch-Pagan test. Although, the test showed that we cannot reject the null hypothesis of constant variance (p-value = 0.207), we provide results of regression with robust standard errors in Table 5. However, results of regression with and without robust standard errors do not differ much, which can be seen in Appendix (Table A4).

Results of the second step of our analysis could be summarized in four main points. Firstly, export dummies (west, east) are insignificant for both event windows and for all specifications of regression model. It means that abnormal stock returns could not be explained by companies` export orientation. This finding does not support the hypothesis about the impact of the political course change on companies` stock returns. If stocks really react to a possible opening of new trade opportunities either with the EU or CU but not to something else, export orientation should matter because it shows which companies are expected to benefit more when trade barriers are eliminated.

Table 5. Results of CARs regression with robust standard errors.

Event date	November 21, 2013			February 24, 2014		
	(1)	(2)	(3)	(1)	(2)	(3)
	CAR [-1;+1]	CAR [-1;+1]	CAR [-1;+1]	CAR [-1;+1]	CAR [-1;+1]	CAR [-1;+1]
west	0.00469	0.00534	0.0111	-0.0348	-0.0490	-0.00387
	(0.64)	(0.71)	(0.86)	(-0.75)	(-0.99)	(-0.07)
east	0.00891	0.00898	0.0186	-0.0659	-0.0676	0.0448
	(0.96)	(0.96)	(1.02)	(-1.14)	(-1.17)	(0.65)
polaff	**0.0155****	**0.0143***	**0.0123***	0.00150	0.0275	-0.00619
	(2.18)	(1.89)	(1.70)	(0.04)	(0.61)	(-0.13)
forex		-0.00256	-0.00554		0.0562)	0.0481
		(-0.28)	(-0.32)		(0.92)	(0.44)
conprod			-0.00622			-0.0819
			(-0.25)			(-0.65)
basmat			-0.0117			-0.0662
			(-0.83)			(-0.84)
industr			-0.0185			**-0.205***
			(-0.93)			(-1.78)
_cons	-0.0106	-0.00956	-0.00335	**0.152*****	**0.129*****	**0.175****
	(-1.60)	(-1.32)	(-0.70)	(3.07)	(2.30)	(2.23)
N	43	43	43	43	43	43
R-sq	0.132	0.134	0.168	0.042	0.070	0.167

Note: t statistics in parentheses; * p<0.1, ** p<0.05, *** p<0.01

Secondly, political affiliation (polaff) is statistically significant at 10%-level but only for the first event. On average, stock price reaction of politically affiliated companies was higher by 1.2 percentage points than stock reaction of non-affiliated during the first event window. Investors might perceive the cancelation of the AA as a signal of unlikely changes in business environment in Ukraine, which remains favorable for established connections between business units and political circles. In other words, investors could expect that politically affiliated companies will continue to benefit from their status in the future.

Thirdly, coefficient near industrials dummy (industry) is significant at 10%-level for the second event. On average, stocks of companies that operate in industrials

show lower CARs than stocks of companies from other industries. It might mean that investors` expectations about industrial companies are more pessimistic comparing with others. Maybe investors do not believe that products of this industry will be able to win tight competition on the western markets.

Finally, the most important result of our analysis is that constant term of our regression model for the second event is highly significant (5%-level) and positive. It means that all stocks regardless of companies` export orientation, political affiliation, industry or stock exchange react positively at the second event window. Given the fact that export orientation is insignificant in determining abnormal returns and overall market shows a strong positive reaction to the second event and absence of any significant reaction to the first event, we could suppose that companies` abnormal returns are caused by overthrow of the Yanukovych regime rather than by changing external policy priorities that followed it.

Chapter 7

CONCLUSIONS

The current paper studies the impact of the political course shift in Ukraine on companies` stock returns. During the period of three months Ukrainian companies faced two large political shocks. The first one is unexpected cancelation of signing the association agreement (AA) with the European Union (EU) and improving relationships with the Custom Union (CU) of Russia, Belarus and Kazakhstan. The second one is end of the Yanukovych regime that was followed by renewal of negotiations with the EU. Since the first and second event has different impact on perceived probability to sign the association with the EU (and to enter the CU), we have a natural experiment to determine the winners and losers from each integration option. The event study methodology was used in this research to determine the abnormal returns of companies at the first and second event windows. Further, in order to analyze the determinants of stock price reaction cumulative abnormal returns were related to export orientation, political affiliation and other companies` characteristics.

Results of our analysis show that there is no impact of integration policy change on companies` stock returns. So, companies` stocks do not react to changes in perceived probability to sign the Association Agreement with the EU or to enter the CU. There is no significant reaction of stocks to the cancelation of signing the AA-EU. In addition, it appeared that export orientation, which was expected to be the main determinant of stock prices reaction to changes of trade conditions, could not explain volatility in abnormal returns for both events. Finally, it was found significant large and positive cumulative abnormal returns for all groups of companies for the second event window. So, all these findings indicates that such reaction of stocks was caused not by the resumption of negotiations with the

European Union and probable removal of trade barriers with European countries, but with the removal of Yanukovych regime and optimistic expectations about the improvement of economic and political environment in Ukraine in the future.

WORKS CITED

Baum, Christopher, Mustafa Caglayan, Dorothea Schäfer, and Oleksandr Talavera. 2008. Political Patronage in Ukrainian Banking. *Boston College Working Papers in Economics* No 657.

Bhattacharya, Utpal, Hazem Daouk, Brian Jorgenson, and Carl-Heinrich Kehr. 1998. When an Event Is Not an Event: The Curious Case of an Emerging Market. *Center of Financial Studies Working Paper* No 1998/12.

Bodie, Zvi, Alex Kane, and Alan J. Markus. 2001. *Investments*, 5th edition. New York: McGraw-Hill.

Breinlich, Holger. 2014. Heterogeneous Firm-Level Responses to Trade Liberalisation: A Test Using Stock Price Reactions. *Journal of International Economics* Vol. 93.

Fisman, Raymond. 2001. Estimating the Value of Political Connections. *American Economic Review* No 91(4): 1095-1102.

Gashchenko, Iryna. 2005. Do International Mergers and Acquisitions Increase Wealth of Shareholders of the Acquiring Companies: Case of Targets from Transition Economies. *National University of "Kyiv Mohyla Academy", Economics Education and Research Consortium Thesis Paper.*

Gerasymenko, Julia. 2009. Cross-Listing Effect and Local Stock Returns: Evidence from Ukraine. *Kyiv School of Economics Thesis Paper.*

Goriaev, Alexei, and Konstantin Sonin. 2005. Is Political Risk Company-Specific? The Market Side of the Yukos Affair. *William Davidson Institute Working Paper* No 772.

Hansen, R. Peter, and Asger Lunde. 2011. A Comparison of Volatility Models: Does Anuthing Beat a GARCH(1,1)? *Centre of Analytical Finance Working Paper* No 2001-03.

Ivanov, Ivan, Boyan Lomev, and Boryana Bogdanova. 2012. Investigation of the Market Efficiency of Emerging Stock markets in the East_European Region. *International Journal of Applied Operational Research* Vol. 2, No 2: 13-24.

Khvastunov, Oleksii. 2011. The Impact of Sponsorship on Stock Value. *Kyiv School of Economics Thesis Papers.*

Lewis, Jeffrey B., and Drew A. Linzer. 2005. Estimating Regression Models in Which the Dependent Variable Is Based on Estimates. *Political Analysis* 13 (4): 345-364.

MacKinlay, A. Craig. 1997. Event Studies in Economics and Finance. *Journal of Economic Literature* Vol. 35: 13-39.

Moser, Christoph, and Andrew K. Rose. 2013. Who Benefits from Regional Trade Agreements? The View from the Stock Market. *NBER Working Paper* No 17415.

Movchan, Veronika, and Ricardo Giucci. 2011. Quantitative Assessment of Ukraine`s Regional Integration Options: DCFTA with European Union vs. Customs Union with Russia, Belarus and Kazakhstan. *Institute for Economic Research and Policy Consulting Policy Paper Series* No PP/05/2011.

Parinduri, A. Rasyad, and Shandre M. Thangavelu. 2009. Trade Liberalization and the Value of Firms: Stock Market Evidence from Singapore. *Nottingham University Business School Malaysia Campus Research Paper* No 2009-03.

Shepotylo, Oleksandr. 2013. Trade Policy Choice for Ukraine: Comparison of FTA EU ad CU Integration Scenarios. *Kyiv School of Economics Academic Papers.*

Thompson, Aileen. 1993. The Anticipated Sectoral Adjustment to the Canada-United States Free Trade Agreement: An Event Study Analysis. *Canadian Journal of Economics* Vol. 26: 253-271.

Thompson, Aileen. 1994. Trade Liberalization, Comparative Advantage, and Scale Economies: Stock Market Evidence from Canada. *Journal of International Economics* Vol. 37: 1-27.

United Nations Development Programme (UNDP). 2011. Towards Human Resilience: Sustaining MDG Progress in an Age of Economic Uncertainty. *Bureau for Development Policy.* New York.

Zadorozhna, Olha, and Natalia Zaderey. 2013. Impact of Political Regime Shift on Stock Returns of Oligarch Firms. *Economics Education and Research Consortium Working Papers Series* No 13/06E.

APPENDIX

Table A1. List of analyzed companies.

N	Ticker	Company Name	Industry	Stock Exchange
1	almk	Alchevsk Metallurgy Plant	Basic Materials	UX
2	avdk	Avdiivka Coke Plant	Basic Materials	UX
3	azst	Azovstal	Basic Materials	UX
4	bavl	Raiffeisen	Financials	UX
5	ceen	Centrenergo	Utilities	UX
6	dnen	Dniproenergo	Utilities	UX
7	doen	Donbasenergo	Utilities	UX
8	enmz	Ienakiieve Metallurgy Plant	Basic Materials	UX
9	hrtr	Khartsyzsk Pipe Plant	Basic Materials	UX
10	kvbz	Kriukiv Railcar Plant	Industrials	UX
11	msich	Motor Sich	Industrials	UX
12	pgok	Poltava Ore Mining	Basic Materials	UX
13	sgok	Northern Ore Mining	Basic Materials	UX
14	stir	Stirol	Basic Materials	UX
15	svgz	Stakhaniv Railcar Plant	Industrials	UX
16	unaf	Ukrnafta	Oil & Gas	UX
17	uscb	Ukrsotsbank	Financials	UX
18	utlm	Ukrtelecom	Telecom	UX
19	yask	Iasynivka Coke Plant	Basic Materials	UX
20	zaen	Zakhidenergo	Utilities	UX
21	kraz	KRAZ	Industrials	UX
22	luaz	Bogdan Motors	Industrials	UX
23	cgok	Central Ore Mining	Basic Materials	UX
24	mmki	Mariupol Metallurgy Plant	Basic Materials	UX
25	shkd	Donbas Komsomolets Mine	Basic Materials	UX
26	shchz	Pokrovske Mine	Basic Materials	UX
27	nvtr	Novomoskovsk Pipe Plant	Basic Materials	UX
28	mzvm	Mariupol Heavy Machinery	Industrials	UX
29	ltpl	Luganskteplovoz	Industrials	UX
30	agl	Agroliga	Consumer Products	WSE
31	agt	Agroton	Consumer Products	WSE
32	ast	Astarta	Consumer Products	WSE

Table A1. List of analyzed companies – Continued.

N	Ticker	Company Name	Industry	Stock Exchange
33	cle	Coal Energy	Basic Materials	WSE
34	imc	Industrial Milk Company	Consumer Products	WSE
35	ker	Kernel	Consumer Products	WSE
36	ksg	KSG Agro	Consumer Products	WSE
37	mlk	Milkiland	Consumer Products	WSE
38	ovo	Ovostar	Consumer Products	WSE
39	sgr	Sadovaya Group	Basic Materials	WSE
40	wes	Westa ISIC	Industrials	WSE
41	avgr	Avangard	Consumer Products	LSE
42	fxpo	Ferrexpo	Basic Materials	LSE
43	mhpc	Myronivskyi Hliboproduct	Consumer Products	LSE
44	jsw	Jastrzebska Spolka Weglova	Basic Materials	WSE
45	kgh	KGHM	Basic Materials	WSE
46	lts	Lotos Oil	Oil & Gas	WSE
47	lwb	Lubelski Wegiel Bogdanka	Basic Materials	WSE
48	pgn	Polskie Gornictwo Naftowe i Gazownictwo	Oil & Gas	WSE
49	pkn	Polski Koncern Naftowy Orlen	Oil & Gas	WSE
50	sns	Synthos	Industrials	WSE
51	chmf	Severstal	Basic Materials	MCX
52	gazp	Gazprom	Oil & Gas	MCX
53	lkoh	Lukoil	Oil & Gas	MCX
54	rosn	Rosneft	Oil & Gas	MCX
55	sber	Sberbank	Financials	MCX
56	urka	Uralkaliy	Basic Materials	MCX
57	vtbr	VTB	Financials	MCX

Table A2. Descriptive statistics of companies` log-returns.

N	Ticker	Mean	SD	Min	Max	Range	p1	p99
1	agl	0.002	0.041	-0.126	0.179	0.304	-0.097	0.151
2	agt	-0.006	0.117	-1.159	0.615	1.774	-0.453	0.200
3	almk	-0.002	0.015	-0.072	0.045	0.117	-0.045	0.037
4	ast	0.001	0.026	-0.161	0.078	0.240	-0.074	0.067
5	avdk	0.000	0.015	-0.064	0.067	0.131	-0.058	0.045
6	avgr	0.000	0.021	-0.090	0.056	0.146	-0.078	0.049
7	azst	-0.001	0.015	-0.069	0.047	0.115	-0.044	0.043
8	bavl	0.001	0.020	-0.061	0.064	0.125	-0.049	0.059
9	ceen	-0.001	0.020	-0.191	0.067	0.258	-0.041	0.047
10	cgok	0.000	0.033	-0.221	0.159	0.380	-0.111	0.108
11	chmf	-0.001	0.020	-0.063	0.064	0.127	-0.055	0.047
12	cle	-0.009	0.058	-0.210	0.214	0.424	-0.185	0.163
13	dnen	0.000	0.051	-0.232	0.224	0.456	-0.146	0.187
14	doen	0.001	0.020	-0.056	0.127	0.183	-0.050	0.045
15	enmz	-0.001	0.013	-0.042	0.032	0.073	-0.040	0.031
16	fxpo	-0.002	0.034	-0.097	0.176	0.273	-0.092	0.115
17	gazp	0.000	0.015	-0.045	0.059	0.103	-0.035	0.043
18	hrtr	0.000	0.043	-0.283	0.192	0.475	-0.110	0.164
19	imc	-0.001	0.021	-0.101	0.090	0.191	-0.074	0.052
20	jsw	-0.002	0.023	-0.072	0.086	0.158	-0.065	0.073
21	ker	-0.002	0.026	-0.159	0.086	0.246	-0.080	0.055
22	kgh	-0.002	0.020	-0.089	0.057	0.145	-0.072	0.044
23	kraz	0.001	0.079	-0.391	0.315	0.706	-0.254	0.232
24	ksg	-0.001	0.030	-0.148	0.221	0.369	-0.063	0.077
25	kvbz	-0.001	0.024	-0.088	0.101	0.189	-0.067	0.081
26	lkoh	0.000	0.010	-0.037	0.034	0.071	-0.030	0.028
27	ltpl	0.000	0.026	-0.085	0.143	0.228	-0.081	0.082
28	lts	0.000	0.020	-0.071	0.060	0.131	-0.055	0.043
29	luaz	-0.003	0.081	-0.373	0.312	0.684	-0.262	0.240
30	lwb	0.000	0.017	-0.076	0.050	0.125	-0.056	0.046
31	mhpc	0.000	0.020	-0.057	0.066	0.123	-0.051	0.057
32	mlk	-0.001	0.025	-0.099	0.105	0.204	-0.056	0.075
33	mmki	-0.001	0.077	-0.487	0.405	0.892	-0.324	0.335
34	msich	-0.001	0.015	-0.051	0.059	0.111	-0.044	0.034
35	mzvm	0.001	0.082	-0.567	0.405	0.972	-0.248	0.363
36	nvtr	0.003	0.092	-0.411	0.405	0.816	-0.305	0.300

Table A2. Descriptive statistics of companies` log-returns – Continued.

N	Ticker	Mean	SD	Min	Max	Range	p1	p99
37	ovo	0.000	0.023	-0.094	0.064	0.158	-0.061	0.055
38	pgn	0.000	0.019	-0.058	0.054	0.112	-0.051	0.048
39	pgok	-0.003	0.050	-0.329	0.131	0.461	-0.191	0.124
40	pkn	-0.001	0.019	-0.053	0.056	0.109	-0.045	0.051
41	rosn	0.000	0.013	-0.048	0.042	0.090	-0.034	0.029
42	sber	0.000	0.015	-0.048	0.046	0.094	-0.039	0.033
43	sgok	0.001	0.044	-0.217	0.262	0.478	-0.141	0.137
44	sgr	-0.004	0.047	-0.199	0.195	0.394	-0.137	0.170
45	shchz	-0.003	0.063	-0.370	0.404	0.774	-0.184	0.188
46	shkd	-0.002	0.063	-0.303	0.267	0.570	-0.247	0.194
47	sns	0.001	0.023	-0.093	0.086	0.180	-0.058	0.066
48	stir	0.000	0.033	-0.145	0.114	0.258	-0.074	0.095
49	svgz	-0.001	0.029	-0.114	0.137	0.250	-0.079	0.064
50	unaf	0.000	0.041	-0.284	0.361	0.645	-0.057	0.171
51	urka	-0.001	0.022	-0.209	0.088	0.296	-0.055	0.061
52	uscb	0.001	0.037	-0.201	0.389	0.590	-0.085	0.106
53	utlm	-0.002	0.041	-0.187	0.182	0.369	-0.159	0.138
54	vtbr	-0.001	0.018	-0.067	0.055	0.123	-0.044	0.043
55	wes	-0.001	0.045	-0.220	0.227	0.447	-0.128	0.147
56	yask	-0.001	0.024	-0.087	0.080	0.167	-0.072	0.059
57	zaen	0.000	0.028	-0.118	0.092	0.210	-0.088	0.077
	Total	-0.001	0.040	-1.159	0.615	1.774	-0.110	0.121

Table A3. Results of different specifications at [-1;+1] event window.

Sample Size	Full								Trimmed							
Model	Market				Factor				Market				Factor			
Estimation Method	OLS		GARCH (1,1)		OLS		GARCH (1,1)		OLS		GARCH (1,1)		OLS		GARCH (1,1)	
Ticker	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat
Event Date	November 21 2013															
almk	-0.009	-0.232	-0.008	-0.211	-0.012	-0.338	-0.010	-0.274	-0.008	-0.197	-0.007	-0.172	-0.011	-0.298	-0.010	-0.264
avdk	0.000	-0.003	0.000	0.010	-0.003	-0.069	0.000	0.006	0.001	0.024	0.000	0.007	-0.003	-0.065	-0.001	-0.021
azst	0.013	0.299	0.012	0.268	0.011	0.249	0.010	0.233	0.013	0.297	0.013	0.274	0.011	0.248	0.011	0.240
bavl	-0.004	-0.097	0.000	0.000	-0.004	-0.099	0.000	-0.005	-0.003	-0.071	-0.001	-0.022	-0.002	-0.059	-0.001	-0.026
ceen	-0.005	-0.136	-0.003	-0.073	-0.004	-0.096	0.000	-0.001	-0.006	-0.135	-0.006	-0.154	-0.005	-0.132	-0.003	-0.088
dnen	-0.013	-0.141	-0.014	-0.162	-0.012	-0.137	0.001	0.007	-0.010	-0.116	-0.010	-0.109	-0.017	-0.183	-0.018	-0.198
doen	0.036	0.813	0.036	0.818	0.035	0.811	0.036	0.842	0.037	0.831	0.037	0.838	0.037	0.856	0.037	0.852
enmz	0.008	0.163	0.007	0.146	0.006	0.134	0.008	0.170	0.008	0.172	0.007	0.159	0.007	0.155	0.009	0.184
hrtr	0.076	1.081	0.076	1.080	0.075	1.070	0.079	1.110	0.078	1.108	0.073	1.046	0.074	1.062	0.071	1.018
kvbz	0.036	0.838	0.038	0.894	0.039	0.905	0.038	0.891	0.036	0.848	0.038	0.891	0.038	0.889	0.040	0.919
msich	0.013	0.395	0.013	0.419	0.014	0.449	0.016	0.507	0.014	0.417	0.015	0.459	0.015	0.460	0.017	0.526
pgok	0.009	0.120	0.014	0.194	0.000	0.002	0.008	0.117	0.004	0.060	0.009	0.123	0.000	0.002	0.006	0.089
sgok	-0.006	-0.105	-0.008	-0.135	0.002	0.026	-0.004	-0.059	-0.007	-0.117	-0.008	-0.134	0.003	0.045	0.000	0.007
stir	0.003	0.050	0.008	0.147	0.005	0.098	0.009	0.164	0.003	0.047	0.005	0.089	0.005	0.084	0.005	0.082
svgz	0.005	0.102	0.007	0.144	0.008	0.155	0.009	0.182	0.005	0.102	0.006	0.116	0.008	0.152	0.009	0.170
unaf	0.000	0.002	-0.016	-0.277	-0.001	-0.013	0.001	0.024	0.000	0.003	0.000	0.000	0.002	0.036	0.004	0.065
uscb	-0.007	-0.126	0.002	0.036	-0.007	-0.117	0.003	0.058	-0.004	-0.073	-0.001	-0.024	0.000	-0.004	0.001	0.010
utlm	0.001	0.009	0.002	0.029	0.005	0.065	0.008	0.109	0.003	0.039	0.003	0.046	0.005	0.068	0.006	0.073
yask	-0.005	-0.087	-0.009	-0.159	-0.008	-0.150	-0.011	-0.197	-0.005	-0.094	n/a	n/a	-0.008	-0.145	n/a	n/a
zaen	0.005	0.071	0.008	0.118	0.008	0.117	n/a	n/a	0.006	0.081	0.006	0.078	0.007	0.101	0.007	0.097
kraz	-0.007	-0.059	-0.005	-0.041	-0.014	-0.114	-0.015	-0.122	-0.009	-0.071	-0.011	-0.092	-0.016	-0.128	-0.015	-0.122
luaz	0.004	0.032	n/a	n/a	0.011	0.090	n/a	n/a	0.001	0.008	0.002	0.014	0.006	0.049	0.008	0.059
cgok	-0.002	-0.032	0.001	0.011	0.003	0.056	0.007	0.147	-0.003	-0.059	-0.002	-0.031	0.002	0.043	0.006	0.110
mmki	0.009	0.076	0.019	0.156	0.003	0.024	0.014	0.117	0.004	0.039	0.010	0.082	0.000	-0.001	0.007	0.063
shkd	0.006	0.061	0.004	0.034	0.015	0.141	0.014	0.130	0.005	0.046	0.004	0.040	0.004	0.035	0.010	0.093
shchz	-0.062	-0.644	-0.053	-0.557	-0.060	-0.629	-0.050	-0.529	-0.061	-0.644	-0.062	-0.646	-0.057	-0.604	-0.057	-0.600
nvtr	-0.002	-0.014	-0.005	-0.032	-0.019	-0.126	-0.019	-0.129	-0.002	-0.017	0.000	0.003	-0.007	-0.049	0.001	0.005

Table A3. Results of different specifications at [-1;+1] event window – Continued.

Sample Size	Full								Trimmed							
Model	Market				Factor				Market				Factor			
Estimation Method	OLS		GARCH (1,1)		OLS		GARCH (1,1)		OLS		GARCH (1,1)		OLS		GARCH (1,1)	
Ticker	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat
mzvm	-0.004	-0.034	-0.001	-0.010	-0.013	-0.100	-0.019	-0.149	-0.013	-0.102	0.002	0.014	-0.025	-0.194	-0.008	-0.063
ltpl	0.000	0.001	0.001	0.019	0.007	0.106	-0.001	-0.011	0.002	0.027	0.002	0.028	-0.001	-0.014	-0.002	-0.035
agl	-0.033	-0.440	n/a	n/a	-0.031	-0.414	n/a	n/a	-0.032	-0.418	-0.029	-0.383	-0.026	-0.348	-0.024	-0.318
agt	0.030	0.201	0.019	0.129	0.033	0.224	-0.018	-0.116	0.016	0.110	0.014	0.093	0.020	0.131	0.011	0.073
ast	0.015	0.348	0.010	0.226	0.010	0.225	0.008	0.182	0.014	0.325	0.014	0.328	0.013	0.289	0.013	0.288
cle	-0.008	-0.092	-0.005	-0.059	-0.012	-0.146	-0.014	-0.169	-0.008	-0.094	-0.008	-0.096	-0.007	-0.085	-0.006	-0.070
imc	0.005	0.102	0.004	0.094	0.001	0.031	0.004	0.085	0.005	0.103	0.005	0.104	0.001	0.024	0.004	0.076
ker	0.030	0.699	0.029	0.688	0.026	0.611	0.027	0.623	0.029	0.690	0.029	0.687	0.026	0.604	0.026	0.617
ksg	-0.054	-1.022	-0.054	-1.018	-0.059	-1.108	-0.059	-1.120	-0.054	-1.011	-0.053	-1.004	-0.058	-1.097	-0.058	-1.088
mlk	0.009	0.206	0.008	0.184	0.011	0.242	0.008	0.171	0.010	0.217	n/a	n/a	0.007	0.156	n/a	n/a
ovo	0.004	0.095	0.006	0.146	0.000	0.010	0.002	0.039	0.003	0.075	0.006	0.147	-0.001	-0.013	0.001	0.024
sgr	0.018	0.194	0.010	0.102	0.022	0.239	0.011	0.120	0.015	0.164	-0.002	-0.023	0.020	0.208	0.001	0.008
wes	-0.043	-0.408	-0.041	-0.391	-0.045	-0.433	-0.036	-0.349	-0.043	-0.412	-0.039	-0.377	-0.040	-0.386	-0.029	-0.275
avgr	-0.042	-1.074	-0.043	-1.092	-0.044	-1.145	-0.046	-1.199	-0.045	-1.131	-0.044	-1.106	-0.044	-1.141	-0.043	-1.096
fxpo	-0.026	-0.533	-0.032	-0.658	-0.021	-0.431	-0.027	-0.561	-0.024	-0.489	-0.026	-0.530	-0.021	-0.435	-0.023	-0.471
mhpc	0.025	0.655	0.024	0.640	0.023	0.616	0.023	0.620	0.025	0.655	n/a	n/a	0.024	0.654	0.027	0.709
jsw	0.043	1.447	0.041	1.372	0.041	1.377	0.039	1.305	0.043	1.435	0.043	1.407	0.041	1.343	0.040	1.309
kgh	0.011	0.457	0.010	0.425	0.012	0.495	0.011	0.474	0.011	0.439	0.009	0.375	0.011	0.476	0.010	0.433
lts	-0.007	-0.250	n/a	n/a	-0.009	-0.323	-0.009	-0.324	-0.007	-0.243	-0.008	-0.272	-0.011	-0.367	-0.011	-0.374
lwb	0.057	2.289	0.058	2.342	0.054	2.174	0.055	2.231	0.056	2.244	0.056	2.260	0.054	2.161	0.055	2.187
pgn	-0.022	-0.846	n/a	n/a	-0.024	-0.921	-0.025	-0.935	-0.022	-0.818	-0.021	-0.802	-0.023	-0.894	-0.023	-0.884
pkn	-0.010	-0.394	-0.010	-0.395	-0.013	-0.533	-0.013	-0.531	-0.009	-0.357	-0.008	-0.343	-0.012	-0.485	-0.011	-0.468
sns	0.043	1.332	0.046	1.404	0.043	1.322	0.047	1.445	0.044	1.335	0.045	1.379	0.045	1.373	0.047	1.444
chmf	0.027	1.125	0.028	1.145	0.025	1.014	0.026	1.049	0.026	1.104	0.027	1.113	0.024	1.015	0.025	1.058
gazp	0.011	0.747	0.013	0.872	0.012	0.837	0.013	0.910	0.011	0.749	0.012	0.824	0.012	0.811	0.013	0.874
lkoh	0.002	0.196	0.003	0.224	0.002	0.159	0.003	0.232	0.002	0.140	0.002	0.140	0.001	0.119	0.002	0.124
rosn	0.010	0.540	0.013	0.716	0.010	0.579	0.014	0.759	0.009	0.525	0.011	0.630	0.010	0.563	0.010	0.532
sber	-0.005	-0.357	-0.005	-0.320	-0.005	-0.357	-0.005	-0.318	-0.006	-0.381	-0.006	-0.377	-0.006	-0.382	-0.006	-0.369

Table A3. Results of different specifications at [-1;+1] event window – Continued.

Sample Size	Full								Trimmed							
Model	Market				Factor				Market				Factor			
Estimation Method	OLS		GARCH (1,1)		OLS		GARCH (1,1)		OLS		GARCH (1,1)		OLS		GARCH (1,1)	
Ticker	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat
urka	-0.035	-1.196	-0.041	-1.347	-0.035	-1.174	-0.038	-1.244	-0.038	-1.274	-0.039	-1.278	-0.037	-1.256	-0.039	-1.271
vtbr	0.029	1.141	0.029	1.142	0.028	1.078	0.027	1.070	0.029	1.109	0.029	1.089	0.029	1.095	0.029	1.082
Event Date	November 29 2013															
almk	-0.012	-0.318	-0.013	-0.341	-0.010	-0.275	-0.011	-0.294	-0.012	-0.323	-0.012	-0.311	0.001	0.011	-0.010	-0.274
avdk	-0.017	-0.382	-0.020	-0.428	-0.016	-0.354	-0.018	-0.396	-0.019	-0.412	-0.021	-0.452	0.026	1.045	-0.021	-0.443
azst	-0.003	-0.076	-0.010	-0.226	-0.001	-0.023	-0.008	-0.184	-0.004	-0.097	-0.011	-0.238	0.027	1.113	-0.009	-0.192
bavl	-0.047	-1.165	-0.044	-1.088	-0.043	-1.085	-0.041	-1.019	-0.050	-1.205	-0.048	-1.150	0.014	0.715	-0.044	-1.084
ceen	-0.020	-0.503	-0.023	-0.581	-0.014	-0.357	-0.018	-0.447	-0.027	-0.672	-0.029	-0.697	0.036	1.356	-0.021	-0.529
dnen	0.006	0.067	0.012	0.131	0.004	0.048	0.020	0.226	0.002	0.025	0.006	0.066	0.032	1.076	0.000	-0.005
doen	-0.022	-0.505	-0.022	-0.492	-0.018	-0.431	-0.016	-0.383	-0.021	-0.481	-0.021	-0.474	0.106	1.115	-0.017	-0.395
enmz	-0.003	-0.059	-0.005	-0.115	-0.001	-0.014	-0.002	-0.052	-0.003	-0.059	-0.004	-0.093	0.012	0.407	-0.002	-0.035
hrtr	0.012	0.171	0.014	0.201	0.009	0.126	0.019	0.270	0.009	0.133	0.006	0.091	0.020	0.615	0.004	0.050
kvbz	-0.020	-0.469	-0.017	-0.396	-0.016	-0.369	-0.017	-0.398	-0.020	-0.474	-0.019	-0.431	0.036	0.340	-0.018	-0.421
msich	-0.015	-0.467	-0.014	-0.434	-0.009	-0.303	-0.007	-0.240	-0.017	-0.529	-0.017	-0.506	0.013	0.272	-0.010	-0.316
pgok	-0.054	-0.752	-0.051	-0.712	-0.057	-0.801	-0.051	-0.724	-0.058	-0.812	-0.057	-0.799	-0.001	-0.025	-0.052	-0.737
sgok	0.026	0.433	0.021	0.349	0.034	0.565	0.022	0.362	0.022	0.363	0.021	0.345	-0.007	-0.058	0.024	0.397
stir	-0.088	-1.594	-0.082	-1.484	-0.085	-1.534	-0.081	-1.467	-0.089	-1.612	-0.087	-1.570	-0.012	-0.467	-0.085	-1.538
svgz	-0.005	-0.100	-0.001	-0.024	-0.001	-0.022	0.000	-0.002	-0.005	-0.096	-0.005	-0.100	-0.029	-0.666	-0.003	-0.067
unaf	-0.014	-0.227	-0.008	-0.143	-0.012	-0.195	0.005	0.092	-0.004	-0.063	-0.011	-0.185	0.003	0.054	-0.005	-0.088
uscb	0.002	0.037	0.012	0.202	0.005	0.090	0.017	0.297	0.006	0.105	0.006	0.106	0.005	0.069	0.012	0.208
utlm	0.019	0.258	0.019	0.251	0.024	0.318	0.023	0.310	0.016	0.215	0.016	0.209	0.010	0.080	0.019	0.252
yask	0.005	0.095	0.010	0.182	0.006	0.104	0.010	0.185	0.004	0.065	n/a	n/a	0.010	0.065	n/a	n/a
zaen	0.010	0.146	0.015	0.216	0.015	0.208	n/a	n/a	0.005	0.067	0.004	0.062	0.006	0.084	0.005	0.072
kraz	0.012	0.100	0.017	0.138	0.014	0.115	0.017	0.133	0.009	0.073	0.010	0.083	0.008	0.157	0.015	0.123
luaz	-0.080	-0.620	n/a	n/a	-0.072	-0.566	n/a	n/a	-0.081	-0.629	-0.079	-0.615	-0.003	-0.031	-0.078	-0.612
cgok	0.002	0.033	0.003	0.057	0.008	0.154	0.011	0.214	0.003	0.060	0.003	0.058	-0.003	-0.057	0.010	0.189
mmki	-0.013	-0.110	-0.006	-0.047	-0.017	-0.141	-0.009	-0.076	0.004	0.037	0.007	0.058	-0.001	-0.009	0.004	0.033
shkd	0.011	0.104	0.007	0.069	0.033	0.312	0.021	0.198	0.008	0.076	0.008	0.080	-0.055	-0.783	0.018	0.171

Table A3. Results of different specifications at [-1;+1] event window – Continued.

Sample Size	Full								Trimmed							
Model	Market				Factor				Market				Factor			
Estimation Method	OLS		GARCH (1,1)		OLS		GARCH (1,1)		OLS		GARCH (1,1)		OLS		GARCH (1,1)	
Ticker	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat
shchz	0.094	0.980	0.105	1.103	0.107	1.121	0.112	1.182	0.098	1.034	0.096	1.001	0.021	0.273	0.104	1.096
nvtr	0.026	0.175	0.024	0.165	0.008	0.057	0.013	0.085	0.012	0.085	0.017	0.117	-0.002	-0.082	0.021	0.145
mzvm	-0.013	-0.101	-0.001	-0.007	-0.012	-0.096	-0.017	-0.137	-0.001	-0.005	0.011	0.083	0.000	-0.010	0.001	0.012
ltpl	0.053	0.813	0.057	0.873	0.058	0.878	0.058	0.880	0.056	0.853	0.058	0.880	-0.025	-0.166	0.055	0.837
agl	-0.012	-0.159	n/a	n/a	-0.001	-0.011	n/a	n/a	-0.013	-0.167	-0.009	-0.119	-0.017	-0.389	0.001	0.013
agt	-0.007	-0.048	-0.010	-0.066	0.019	0.127	-0.051	-0.336	-0.030	-0.199	-0.032	-0.215	-0.018	-0.929	-0.031	-0.207
ast	-0.024	-0.550	-0.033	-0.750	-0.030	-0.688	-0.039	-0.878	-0.026	-0.608	-0.027	-0.615	-0.003	-0.184	-0.030	-0.689
cle	0.004	0.048	0.005	0.061	0.009	0.114	0.007	0.086	0.003	0.041	0.001	0.017	-0.033	-0.756	0.013	0.151
imc	-0.033	-0.690	-0.036	-0.745	-0.033	-0.704	-0.037	-0.781	-0.034	-0.723	-0.036	-0.757	-0.010	-0.282	-0.040	-0.826
ker	-0.028	-0.657	-0.030	-0.700	-0.034	-0.804	-0.035	-0.833	-0.031	-0.723	-0.031	-0.723	0.026	0.423	-0.036	-0.852
ksg	0.017	0.314	0.017	0.316	0.010	0.188	0.010	0.188	0.016	0.303	0.015	0.291	-0.002	-0.047	0.011	0.211
mlk	-0.032	-0.718	-0.031	-0.711	-0.027	-0.606	-0.026	-0.592	-0.032	-0.721	n/a	n/a	-0.001	-0.018	n/a	n/a
ovo	-0.015	-0.358	-0.013	-0.306	-0.023	-0.525	-0.021	-0.479	-0.018	-0.423	-0.016	-0.377	-0.011	-0.283	-0.026	-0.585
sgr	-0.115	-1.225	-0.125	-1.334	-0.106	-1.133	-0.116	-1.235	-0.124	-1.318	-0.142	-1.508	-0.081	-0.633	-0.140	-1.476
wes	0.032	0.301	0.033	0.311	0.036	0.342	0.042	0.401	0.030	0.283	0.036	0.343	-0.022	-0.576	0.053	0.505
avgr	-0.024	-0.611	-0.026	-0.648	-0.018	-0.455	-0.022	-0.567	-0.028	-0.701	-0.027	-0.674	-0.023	-0.573	-0.022	-0.568
fxpo	0.001	0.021	-0.004	-0.091	0.013	0.264	0.003	0.068	0.003	0.053	0.001	0.014	-0.001	-0.042	0.011	0.219
mhpc	-0.015	-0.409	-0.016	-0.412	-0.011	-0.285	-0.012	-0.314	-0.016	-0.416	n/a	n/a	0.053	0.812	-0.011	-0.291
jsw	-0.037	-1.244	-0.039	-1.301	-0.039	-1.308	-0.039	-1.290	-0.040	-1.338	-0.042	-1.376	0.014	0.163	-0.043	-1.419
kgh	-0.015	-0.620	-0.017	-0.710	-0.013	-0.518	-0.016	-0.663	-0.018	-0.739	-0.019	-0.781	-0.035	-0.746	-0.018	-0.735
lts	0.015	0.526	n/a	n/a	0.014	0.476	0.014	0.493	0.013	0.445	0.013	0.431	-0.019	-0.412	0.012	0.414
lwb	0.006	0.224	0.007	0.268	0.000	0.002	0.001	0.032	0.002	0.096	0.003	0.110	-0.019	-0.447	0.000	0.001
pgn	0.038	1.445	n/a	n/a	0.037	1.413	0.036	1.379	0.037	1.385	0.037	1.400	0.020	0.187	0.036	1.374
pkn	0.027	1.087	0.027	1.086	0.026	1.044	0.026	1.050	0.027	1.093	0.027	1.088	-0.002	-0.023	0.025	1.031
sns	0.029	0.878	0.030	0.933	0.027	0.821	0.030	0.915	0.024	0.731	0.025	0.774	-0.012	-0.377	0.023	0.699
chmf	0.026	1.061	0.026	1.086	0.028	1.125	0.028	1.137	0.025	1.056	0.026	1.070	-0.016	-0.651	0.027	1.141
gazp	-0.001	-0.097	0.000	0.028	-0.003	-0.206	-0.001	-0.042	-0.001	-0.068	0.000	0.006	-0.027	-0.614	-0.001	-0.043
lkoh	-0.008	-0.680	-0.008	-0.654	-0.010	-0.801	-0.008	-0.642	-0.009	-0.718	-0.009	-0.716	-0.010	-0.847	-0.011	-0.854

Table A3. Results of different specifications at [-1;+1] event window – Continued.

Sample Size	Full								Trimmed							
Model	Market				Factor				Market				Factor			
Estimation Method	OLS		GARCH (1,1)		OLS		GARCH (1,1)		OLS		GARCH (1,1)		OLS		GARCH (1,1)	
Ticker	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat
rosn	0.000	-0.003	0.003	0.170	-0.001	-0.036	0.002	0.102	0.000	0.005	0.002	0.103	0.011	0.204	-0.001	-0.075
sber	-0.002	-0.132	-0.002	-0.102	0.001	0.048	0.001	0.059	-0.002	-0.138	-0.002	-0.136	-0.085	-1.545	0.000	-0.014
urka	0.035	1.170	0.030	0.986	0.033	1.115	0.033	1.083	0.033	1.097	0.032	1.059	-0.046	-1.126	0.031	1.016
vtbr	-0.017	-0.668	-0.017	-0.671	-0.014	-0.534	-0.014	-0.548	-0.017	-0.642	-0.017	-0.626	-0.122	-1.284	-0.013	-0.483
Event Date	February 24 2014															
almk	0.138	3.632	0.153	3.999	0.134	3.671	0.149	4.017	0.153	3.985	0.158	4.104	0.149	4.033	0.152	4.100
avdk	0.071	1.558	0.098	2.108	0.069	1.543	0.100	2.172	0.098	2.110	0.109	2.311	0.096	2.118	0.111	2.403
azst	0.143	3.292	0.195	4.314	0.140	3.319	0.192	4.340	0.151	3.460	0.204	4.472	0.148	3.483	0.199	4.470
bavl	0.220	5.440	0.234	5.730	0.219	5.478	0.231	5.734	0.256	6.140	0.255	6.135	0.255	6.192	0.253	6.173
ceen	0.052	1.328	0.108	2.669	0.051	1.335	0.109	2.754	0.117	2.873	0.119	2.909	0.116	2.919	0.115	2.910
dnen	0.148	1.654	0.080	0.899	0.149	1.665	0.097	1.087	0.201	2.228	0.176	1.961	0.200	2.207	0.174	1.933
doen	0.113	2.548	0.109	2.467	0.110	2.573	0.109	2.551	0.110	2.504	0.111	2.513	0.110	2.566	0.109	2.542
enmz	0.180	3.864	0.197	4.161	0.178	3.904	0.196	4.192	0.184	3.938	0.193	4.097	0.183	3.986	0.192	4.128
hrtr	-0.114	-1.628	-0.131	-1.864	-0.114	-1.622	-0.130	-1.840	-0.075	-1.070	-0.091	-1.297	-0.076	-1.085	-0.091	-1.300
kvbz	0.146	3.402	0.142	3.305	0.146	3.412	0.142	3.304	0.153	3.557	0.155	3.595	0.154	3.563	0.155	3.590
msich	-0.018	-0.560	-0.020	-0.618	-0.019	-0.612	-0.018	-0.587	0.011	0.348	0.020	0.605	0.009	0.300	0.020	0.617
pgok	0.126	1.775	0.154	2.160	0.122	1.722	0.154	2.171	0.121	1.705	0.160	2.238	0.117	1.661	0.158	2.220
sgok	0.031	0.509	0.058	0.953	0.033	0.546	0.059	0.963	0.061	1.001	0.060	0.996	0.066	1.080	0.065	1.060
stir	0.117	2.116	0.114	2.064	0.117	2.126	0.114	2.078	0.126	2.275	0.128	2.318	0.125	2.270	0.126	2.293
svgz	-0.024	-0.484	-0.037	-0.743	-0.024	-0.478	-0.039	-0.772	-0.026	-0.525	-0.017	-0.348	-0.025	-0.504	-0.016	-0.328
unaf	0.223	3.632	0.016	0.270	0.221	3.642	0.056	0.930	0.134	2.262	0.198	3.268	0.135	2.273	0.198	3.281
uscb	0.140	2.449	0.147	2.577	0.139	2.443	0.148	2.591	0.135	2.371	0.161	2.810	0.136	2.385	0.162	2.828
utlm	0.147	1.946	0.165	2.190	0.148	1.959	0.167	2.213	0.196	2.588	0.205	2.704	0.195	2.578	0.205	2.702
yask	0.315	5.664	0.238	4.381	0.312	5.695	0.238	4.405	0.326	5.829	n/a	n/a	0.325	5.861	n/a	n/a
zaen	0.016	0.226	0.005	0.064	0.017	0.233	n/a	n/a	0.071	0.998	0.072	1.010	0.072	1.004	0.073	1.019
kraz	-0.152	-1.233	-0.172	-1.389	-0.158	-1.273	-0.180	-1.454	-0.138	-1.115	-0.173	-1.403	-0.143	-1.160	-0.180	-1.452
luaz	-0.073	-0.571	n/a	n/a	-0.071	-0.555	n/a	n/a	-0.093	-0.724	-0.101	-0.787	-0.089	-0.695	-0.097	-0.754
cgok	0.008	0.159	0.018	0.365	0.009	0.173	0.021	0.425	-0.017	-0.337	-0.002	-0.048	-0.015	-0.307	-0.001	-0.012

Table A3. Results of different specifications at [-1;+1] event window – Continued.

Sample Size	Full								Trimmed							
Model	Market				Factor				Market				Factor			
Estimation Method	OLS		GARCH (1,1)		OLS		GARCH (1,1)		OLS		GARCH (1,1)		OLS		GARCH (1,1)	
Ticker	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat
mmki	0.579	4.876	0.608	5.097	0.576	4.860	0.607	5.089	0.384	3.325	0.413	3.568	0.383	3.316	0.412	3.558
shkd	-0.033	-0.309	-0.028	-0.270	-0.035	-0.336	-0.020	-0.188	-0.022	-0.211	-0.033	-0.314	-0.028	-0.267	-0.022	-0.207
shchz	0.098	1.025	0.080	0.841	0.094	0.988	0.080	0.846	0.058	0.614	0.081	0.847	0.059	0.626	0.080	0.839
nvtr	-0.130	-0.885	-0.144	-0.980	-0.135	-0.915	-0.152	-1.032	-0.018	-0.122	-0.032	-0.217	-0.020	-0.136	-0.032	-0.216
mzvm	0.202	1.597	0.127	1.013	0.196	1.546	0.094	0.742	0.013	0.107	0.059	0.467	0.008	0.062	0.052	0.412
ltpl	0.214	3.260	0.191	2.917	0.217	3.287	0.189	2.882	0.208	3.175	0.193	2.951	0.207	3.158	0.192	2.932
agl	0.046	0.605	n/a	n/a	-0.021	-0.284	n/a	n/a	0.049	0.651	0.051	0.677	0.021	0.283	0.030	0.401
agt	0.047	0.315	0.030	0.198	-0.020	-0.134	0.006	0.042	0.041	0.275	0.038	0.257	0.042	0.284	0.026	0.173
ast	0.103	2.393	0.101	2.314	0.095	2.202	0.136	3.035	0.104	2.391	0.104	2.400	0.104	2.384	0.109	2.504
cle	0.498	5.929	0.502	5.975	0.442	5.351	0.434	5.250	0.498	5.930	0.500	5.941	0.471	5.658	0.464	5.583
imc	0.146	3.078	0.147	3.088	0.109	2.319	0.153	3.187	0.147	3.094	0.149	3.104	0.109	2.306	0.157	3.251
ker	0.081	1.906	0.082	1.923	0.096	2.275	0.099	2.316	0.083	1.945	0.083	1.941	0.108	2.529	0.105	2.463
ksg	0.108	2.040	0.108	2.045	0.107	2.015	0.102	1.931	0.109	2.058	0.110	2.070	0.118	2.225	0.115	2.152
mlk	0.037	0.834	0.035	0.787	0.029	0.660	0.010	0.223	0.038	0.858	n/a	n/a	0.039	0.881	n/a	n/a
ovo	0.136	3.149	0.138	3.200	0.175	3.982	0.168	3.830	0.137	3.159	0.141	3.244	0.184	4.143	0.170	3.841
sgr	0.510	5.437	0.503	5.357	0.481	5.150	0.487	5.189	0.513	5.442	0.495	5.255	0.537	5.667	0.526	5.541
wes	0.290	2.764	0.292	2.784	0.232	2.236	0.250	2.402	0.290	2.768	0.292	2.788	0.265	2.538	0.258	2.474
avgr	0.048	1.224	0.048	1.228	0.008	0.214	0.002	0.060	0.047	1.196	n/a	n/a	0.021	0.544	n/a	n/a
fxpo	0.054	1.092	0.047	0.960	0.069	1.427	0.077	1.604	0.056	1.150	0.055	1.113	0.059	1.223	0.063	1.300
mhpc	0.145	3.839	0.143	3.801	0.112	3.002	0.120	3.220	0.145	3.847	n/a	n/a	0.118	3.157	0.129	3.442
jsw	-0.005	-0.152	-0.007	-0.242	-0.018	-0.608	-0.036	-1.196	-0.002	-0.073	-0.003	-0.084	-0.020	-0.649	-0.026	-0.868
kgh	-0.023	-0.936	-0.023	-0.921	-0.016	-0.679	-0.006	-0.259	-0.021	-0.869	-0.023	-0.953	-0.017	-0.718	-0.010	-0.403
lts	0.022	0.744	n/a	n/a	0.023	0.769	0.017	0.595	0.024	0.816	0.023	0.778	0.008	0.270	0.004	0.129
lwb	0.031	1.249	0.032	1.308	0.044	1.775	0.046	1.875	0.032	1.291	0.033	1.309	0.041	1.629	0.042	1.683
pgn	-0.002	-0.084	n/a	n/a	-0.020	-0.752	-0.020	-0.765	0.001	0.023	0.001	0.040	-0.014	-0.534	-0.016	-0.591
pkn	0.018	0.749	0.018	0.747	-0.001	-0.057	-0.002	-0.092	0.020	0.816	0.021	0.849	0.000	-0.005	-0.001	-0.049
sns	0.026	0.809	0.029	0.896	0.041	1.260	0.047	1.451	0.031	0.941	0.032	0.987	0.067	2.058	0.067	2.031
chmf	0.014	0.578	0.015	0.604	-0.005	-0.186	0.002	0.088	0.013	0.564	0.014	0.578	0.002	0.075	0.009	0.357

Table A3. Results of different specifications at [-1;+1] event window – Continued.

Sample Size	Full								Trimmed							
Model	Market				Factor				Market				Factor			
Estimation Method	OLS		GARCH (1,1)		OLS		GARCH (1,1)		OLS		GARCH (1,1)		OLS		GARCH (1,1)	
Ticker	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat	CAR	t-stat
gazp	-0.011	-0.760	-0.009	-0.627	0.002	0.104	-0.004	-0.286	-0.011	-0.728	-0.010	-0.650	0.001	0.038	-0.003	-0.210
lkoh	-0.014	-1.166	-0.014	-1.138	-0.006	-0.501	-0.008	-0.620	-0.015	-1.206	-0.015	-1.205	-0.004	-0.322	-0.004	-0.344
rosn	0.006	0.345	0.009	0.505	0.004	0.243	0.015	0.838	0.006	0.351	0.008	0.438	0.004	0.201	0.004	0.219
sber	-0.004	-0.248	-0.003	-0.217	-0.004	-0.290	-0.002	-0.119	-0.004	-0.256	-0.004	-0.253	-0.004	-0.249	-0.003	-0.209
urka	0.022	0.739	0.017	0.564	0.053	1.810	0.038	1.267	0.020	0.667	0.019	0.637	0.036	1.217	0.033	1.075
vtbr	0.005	0.188	0.005	0.186	-0.003	-0.113	-0.003	-0.110	0.005	0.191	0.005	0.193	-0.003	-0.101	0.005	0.204

Note: n/a – not available due to flat log likelihood during GARCH (1,1) estimation.

Table A4. Results of CARs regression without robust standard errors.

Event date	November 21, 2013			February 24, 2014		
	(1) CAR [-1;+1]	(2) CAR [-1;+1]	(3) CAR [-1;+1]	(1) CAR [-1;+1]	(2) CAR [-1;+1]	(3) CAR [-1;+1]
west	0.00589	0.00732	0.0102	-0.0222	-0.0449	-0.00792
	(0.65)	(0.75)	(0.92)	(-0.41)	(-0.78)	(-0.13)
east	0.00918	0.00936	0.0174	-0.0600	-0.0628	0.0457
	(1.12)	(1.13)	(1.35)	(-1.23)	(-1.29)	(0.62)
polaff	**0.0164****	**0.0147***	0.0131	-0.00488	0.0214	-0.00400
	(2.27)	(1.76)	(1.45)	(-0.11)	(0.43)	(-0.08)
forex		-0.00376	-0.00793		0.0598)	0.0479
		(-0.41)	(-0.56)		(1.10)	(0.59)
conprod			-0.00270			-0.0792
			(-0.14)			(-0.71)
basmat			-0.00788			-0.0634
			(-0.68)			(-0.96)
industr			-0.0168			**-0.205***
			(-0.93)			(-1.99)
_cons	**-0.0108***	-0.00934	-0.00377	**0.146*****	**0.122*****	**0.174*****
	(-1.77)	(-1.30)	(-0.39)	(3.99)	(2.89)	(3.19)
N	43	43	43	43	43	43
R-sq	0.137	0.141	0.170	0.037	0.067	0.167

Note: t statistics in parentheses; * p<0.1, ** p<0.05, *** p<0.01