

UNIVERSITY OF LJUBLJANA

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MASTER'S THESIS

**THE EFFECT OF NATIONAL ELECTIONS ON THE STOCK MARKET
A COMPARISON BETWEEN DEVELOPED OECD COUNTRIES AND
EMERGING MARKETS**

Ljubljana, January 2014

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AUTHORSHIP STATEMENT

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INTRODUCTION

In recent years, emerging markets established themselves as interesting opportunities for investments and managed to keep their appeal until now. Today's research, we base investment decisions, mainly targets developed markets. Gathering information specifically for emerging market effects could generate valuable insights when comparing them to the already established developed markets results.

Political uncertainty, in the environment of emerging markets, can influence the stock markets heavily. Especially national elections are events, which are of high informational value for investors in that context. Previous research on the effect of the elections on a country's stock market solidified the initial assumption of the impact of political uncertainty on the investor's beliefs (Bialkowski, Gottschalk, & Wisniewski, 2008, p.25). The stock prices and the volatility rise significantly when a country elects. The study mainly comprised developed markets. Countries, classified as emerging markets, have not been analysed extensively yet. Additional information on that topic would be interesting for investors, who wish to distribute money to- or are already holding a portfolio of assets in the country that is subject to the elections shock.

Extraordinary movements in the markets, which can be explained by the efficient market hypothesis (hereinafter: EMH), (Lo, 2008, p.1), are the measure of magnitude of the election shock. They are expected to be caused by the uncertainty that revolves around a possible change in the investment environment, due to a change in government or new policies that are introduced. The stability of a political system is generally expected to amplify this uncertainty the less developed it is and to mitigate it the more developed it is.

Since these countries are developing right now, it can be of interest to investigate, which role the political stability on the effect on the stock price has. Providing separate results for both groups, developed- and emerging markets to detect differences, will be one of the major parts of this thesis.

The lack of development of the emerging markets, either in an economic- or political way, creates a more insecure environment for investors. The lower the reliance in a system (e.g. lack of ability to enforce contracts, compliance with intellectual property rights, or else), the less likely it is that a risk-averse investor decides to take an investment and accepts a given

risk premium. These circumstances are said to lead to the so-called home bias (French & Poterba, 1991, p.222). Investors consequently direct their money flows to better-known opportunities, which not necessarily have to be better investments in terms of risk and payoff. This need for familiarity then results in investments, which are mainly home country based. Investors, which find themselves susceptible to the home bias, forego possibilities of international diversification and consequently make themselves vulnerable to single-country effects, due to their clustered investments. Information on the effect of national elections on the stock markets can be of interest to these investors, since their exposure to these single-country events is rising with their portfolio position in these countries.

The political direction (left-winged or right-winged) and different configurations of government (parliamentarian or presidential leadership), are very likely to cause different manifestations in stock market returns. Extensive research has been conducted on the US and its presidential system by Booth & Booth (2003).

The studies revealed that the US market indeed reacts to the national elections.

The contextual question addressed in this thesis is, if different forms of political leadership eventually lead to differences of the same direction. Additionally, the question is asked, if a certain political direction can provide a better environment for investors.

These thoughts originate from the partisan theory (Hibbs, 1977, p.1467), which connects left-winged- and right-winged governments and their policies to different interest groups (groups that appreciate low-unemployment and high-inflationary settings and vice versa).

To summarise, the informational value of the impact of national elections can be substantial for the decision-making of every investor for various reasons, which have been mentioned above. The purpose of this study is to identify the size of the impact of national elections on the markets, with the focus on emerging markets due to their rising attraction. The center of the analysis will be a comparison of developed countries with a list of countries, currently classified as emerging markets. The target is, besides determining the magnitude of the difference, to link the results to certain macroeconomic variables, as well as politics specific factors, to determine the origin of the deviation.

Methodology

The analytical approach of this event study follows the one of MacKinlay (1997). He provides guidance on how such study should be constructed, with the goal of discovering extraordinary, or "abnormal" effects of pre-determined events on stock prices. The basis of this approach is the efficient market hypothesis, which argues that all information (public and private) should

be priced instantly in a countries stock market. Therefore, the assumption that the markets will reflect the investors' opinion on national elections can be made and tested accordingly.

The hypothesis for the significance testing of the abnormal performance is that "national elections have no impact on a country's stock market". Abnormal returns, which do affect the stock prices beyond what can be explained by the EMH, will show significant test statistics.

The data for the analysis, which is sourced from Reuters Datastream, covers a timeframe of 19 years and 6 months (from the 01/01/95 until the 06/30/14). This dataset consists of indices, provided by Morgan Stanley Capital International (hereinafter: MSCI), which are value-weighted and nominated in their local currency. The MSCI World index serves as the market index for the market model. Besides the analysis of abnormal returns, additional focus lies on the stock prices' abnormal volatility. The corresponding calculations are facilitated to provide insights in how the volatility changes around national elections are different between OECD countries and emerging markets. The analytical approach on calculating the cumulative abnormal volatility is similar to the one used by Bialkowski et al. (2006, p.16).

Applying a linear regression analysis is subsequently used to further investigate the sources of abnormal performance. Politics-specific- and economic variables are regressed, to reveal their connection to the volatility changes around elections.

The final part of the analysis is then formed by calculations on the changes of the levels of volatility. The differences between pre-event- and event returns will be assessed by calculating the percentage change between the two timeframes

Besides analysing the differences among groups of countries, the before- and after crisis-performance is compared as well.

Additional information and more detailed explanation of the calculations mentioned above will be provided in the "Calculations" section.

Structure of the Thesis

The thesis can be roughly divided in three parts. Initially answering the question why the research was done, then calculating the results and finally discussing how they fit in the historical picture and what their implications for the future could be set it up.

Firstly, chapter 2-4 covers the historical background and explanations of the importance of emerging markets today, as well as their recent development. Secondly, chapter 5-6 cover the description of the dataset and the analysis of the data and thirdly, chapter 7 eventually contains the discussion and interpretation of the results.

1 HISTORICAL CONTEXT - ESTABLISHMENT OF THE OECD

1.1 History of the OECD

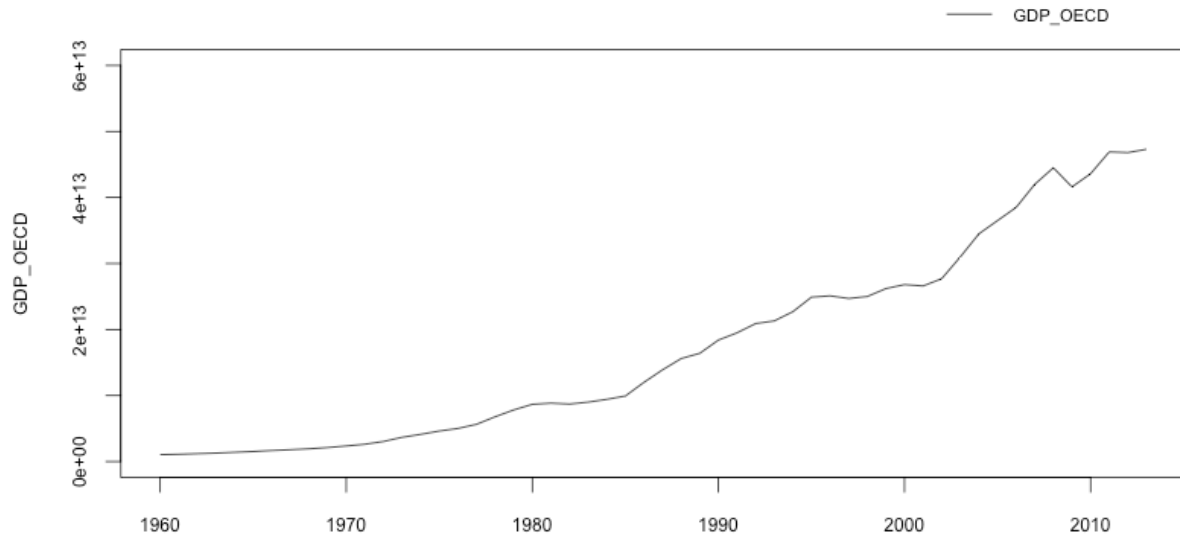
In the aftermath of World War II, the participating countries' leaders decided to not make the same mistakes, as after World War I, again. The battered countries should not be punished further - instead economic cooperation and development among them should be the new overall target (OECD History, 2014).

Part of the organisation, as we know it today, existed long before the official founding. In 1947, the Organisation for European Economic Cooperation (hereinafter: OEEC) was created. Its purpose was being a vehicle, to facilitate the Marshall Plan - a project for the reconstruction of Western Europe after World War II. The financial support for the European countries aimed mainly at containing the spread of communism, which was declared a threat, according to George C. Marshall, the US Secretary of State at that time. The Economic Cooperation Act from March 1948 secured funding and \$ 12 billion were brought up to aid the rebuilding. The execution of the Marshall Plan established close ties between Europe and the US. Initially, it was planned to integrate the Soviet Union also, but due to the Soviet fear of giving insights into their protected country, Eastern Europe and its "protector" were excluded from the funding (Marshall Plan, 2014).

After great success in achieving its targets in Europe post World War II, other countries like Canada and the US joined the organisation in 1960, to operate more globally. Subsequently, the OEEC was renamed into Organisation for Economic Co-operation and Development (hereinafter: OECD) during the Convention on the Organisation for Economic Co-operation and Development and went to work on the 30th of September 1961. Since then, the organisation receives its funds from the member countries, which contribute money according to their size.

At the moment, the OECD counts 34 member states (Table 1 in Appendix A), which have seen extraordinary progress since the incorporation. The United States, for example, were able to triple their Gross Domestic Product (hereinafter: GDP) since the inception. The progress of the OECD countries in terms of GDP can be observed in the graph below.

Figure 1. Gross Domestic Product of OECD Countries 1960 - 2012



Note: This graph displays the development of the Gross Domestic Product of the OECD countries from 1960 until 2012. The GDP is calculated in current US\$.

Source: Economic Indicators, n.d.

The OECD is currently working together with about 40 countries, to spread its principles worldwide. Besides the 34 member countries, it also manages close connections to the BRIC countries (Brazil, Russia, India and China), which form the group of the largest emerging markets. They currently amount to about 40% of the world trade.

1.2 Foundations of the OECD

The purpose and the main principles of the organisation are written down in the articles of the Convention on the Organisation for Economic Co-operation and Development from the 14th of December 1960. Article 1 states the main goals, which are as follows:

The aims of the Organisation for Economic Co-operation and Development (hereinafter Organisation) shall be to promote policies designed:

- (a) to achieve the highest sustainable economic growth and employment and a rising standard of living in Member countries, while maintaining financial stability, and thus to contribute to the development of the world economy;
- (b) to contribute to sound economic expansion in Member as well as non-member countries in the process of economic development; and
- (c) to contribute to the expansion of world trade on a multilateral, non-discriminatory basis in accordance with international obligations.

1.3 The Importance of the OECD

The OECD's importance, as being one of the key institutions in the aftermath of WW II, is directly linked to its goal of establishing better communications worldwide and to strengthen the connections between countries. Today, it provides recommendations on political decisions, to maintain the goal of helping to create a better economic environment. Its working processes are divided among three separate bodies. The Secretariat, the Council and the Committees.

The Council is the OECD's decision-making body, which consists of one representative from each member country plus one representative from the EU. Their meetings are regularly, to maintain the general institutional policy and additionally once a year to set the priorities for its work. These strategic decisions are then carried out by the Secretariat. This body consists of about 2500 staff, from economists to lawyers, scientists and professionals. Most of them are situated in Paris, where the OECD office is located. The analytic work that they carry out is then discussed in the Committees before recommendations to country leaders are made.

The OECD gives recommendations in various fields, i.e. agriculture, consumer policy and financial markets, to just name a few.

The OECD Road Map (2014) is a strategic set of goals, which was created in 2004 to decrease the lack of transparency in the democratic progress all over the world. Besides using the GDP as an important measure of economic well-being, also indicators of how responsive and responsible decision making is, at all levels of the economy, are introduced. The easier it is for a country to track the correct decision-making, the more incentives are created for making better policies. Therefore, indicators for these processes were needed to track the efficiency.

In June 2007, the World Forum on “Statistics, Knowledge and Policy” was held in Italy, in order to improve the measures of how the world is progressing. The product of that forum was the Istanbul Declaration, which was thereafter signed by the European Commission, the Organisation of the Islamic Countries, the OECD, the United Nations, the United Nations Development Programme, the United Nations Fund for Partnership, the World Bank and many other organisations.

The interest of these various international institutions represents the necessity and the aspiration to make the world development more transparent, which would eventually lead the countries to build a more politically and economically stable environment.

2 EMERGING MARKETS

2.1 What is an Emerging Market?

2.1.1 The Need for Classification

Before we can point out the characteristics an emerging market should have, we initially have to distinguish between developed and developing countries. The term emerging market is then a further specification of the latter. In this thesis the term “emerging” will be used for developing countries synonymously.

The late 1960s saw the need for classification of the economical state of countries, to facilitate the transfer of goods and financial aid from richer to poorer countries, as one integral part of the OECD policy. At that time, the term “lesser-developed countries” was popular. Due to its negative undertone, it was later replaced by the term “developing countries” (Nielsen, 2011, p.16).

Generally speaking, the change of a country’s economic state does not have to be a positive one. The economy could also develop in the adverse direction. A country can either become developed over the course of time, or fall back into a developing state. This also depends on the definition and thresholds that are set to analyse the markets. Different institutions are using different approach, which also used to change over the course of time. One essential aspect of characterisation is the level of industrialisation.

2.1.2 Classification of Emerging Markets

The list of emerging markets used in this thesis is provided by MSCI. They apply a classification framework, in which they distinguish between developed-, emerging- or frontier markets. Every year MSCI analyses countries by certain aspects of their capital markets to classify them accordingly.

2.2 Importance of Emerging Markets

2.2.1 BRIC(S) – MIKT

BRIC or BRICS respectively and MIKT are abbreviations for groups of emerging markets, which are subject to special attention in today's world economy.

MIKT stands for Mexico, Indonesia, (South-) Korea and Turkey and BRIC encompasses the economies of Brazil, Russia, India and China. Jim O'Neill, at that time, Head of Economic Research at Goldman Sachs, made assumptions in his paper in 2001 that the large emerging markets (the BRICs), would surpass the G7 countries in terms of real GDP growth from 2001 onwards (O'Neill, 2001, p.6). In the year 2000, these economies already accounted for about 23% of the world's GDP (in \$ on PPP basis). Therefore he argued that the world policymaking forums should be reorganised, by including representatives of these countries. This would help to address the global economic impact of fiscal and monetary policy that they have.

Jim O'Neill later also coined the term MIKT. These countries are bridge countries, which means that they are located in-between large economic powers, without being connected. Their prospects for future growth are also highly positive.

2.2.2 The Development of Emerging Markets

When we look back at O'Neill's paper from 13 years ago, we can most certainly confirm his point of the importance of the big emerging economies. The figures above display the development of several groups of uprising economies in comparison to the world economy and developed OECD countries as a benchmark. Series of the BRICs, the MIKTs and a combined series of all emerging markets, which are part of the later analysis, are included.

One can see that the world population grew constantly over the last 22 years. The emerging markets share that tendency, although their growth was slightly below the one of the world

series. This difference can be linked to the high population growth rates in African (around 3%) and Arabian countries like Qatar and Oman, which experience outstanding growth rates of 7- to 9%.

Figure 2. Population 1990 - 2012

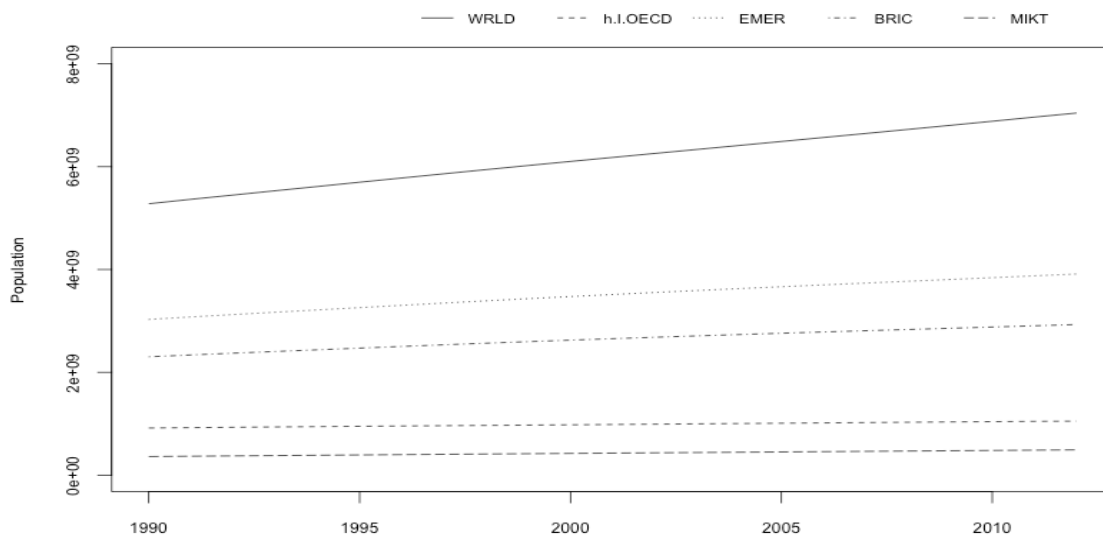


Figure 3. Life Expectancy 1990 - 2012

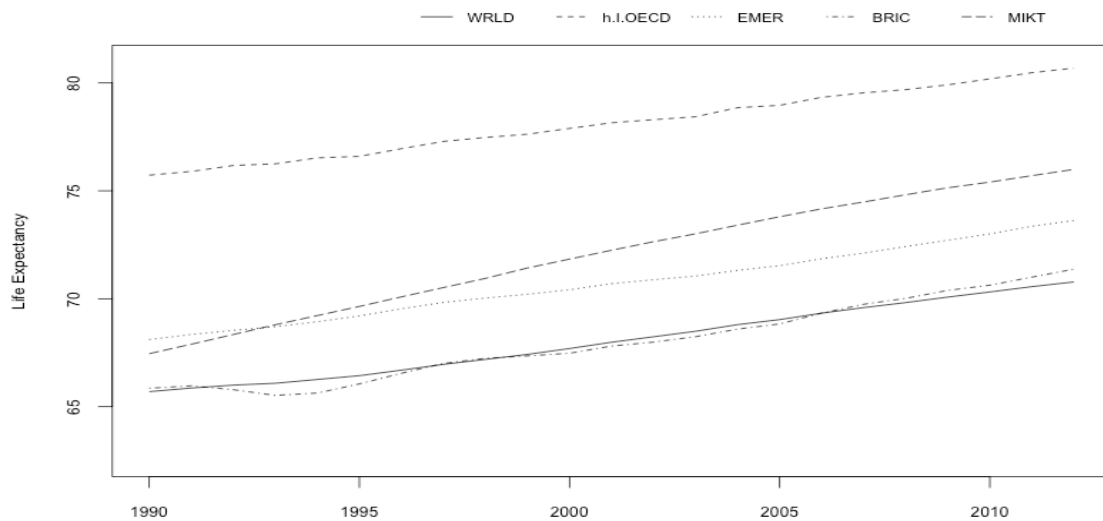


Figure 4. Gross National Income per capita 1990 - 2012

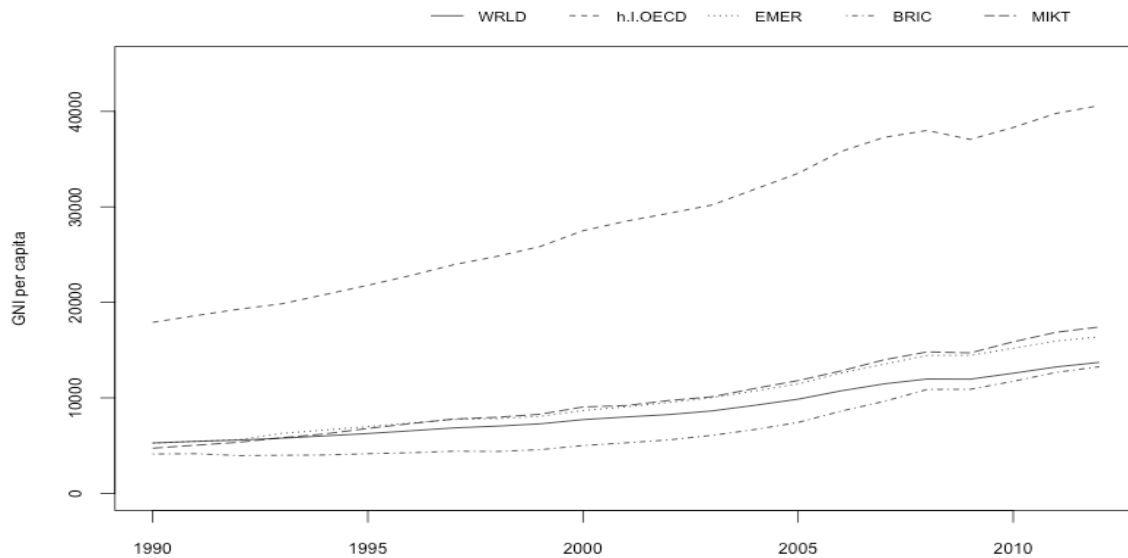
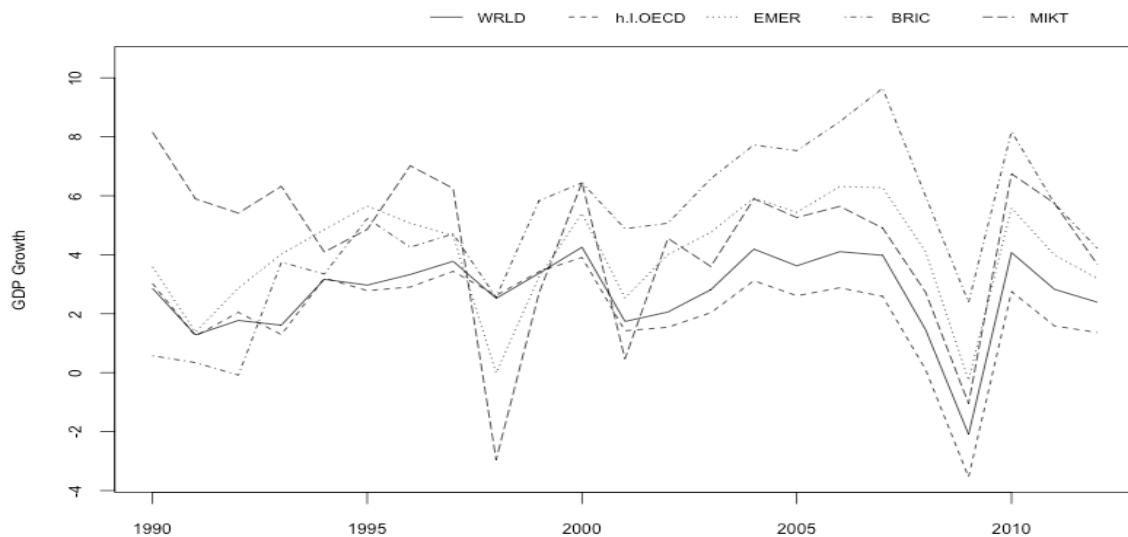


Figure 5. GDP Growth 1990 - 2012



Note: The graphs 2, 3, 4 and 5 display the development of 4 economic indicators (Population, Life Expectancy, GNI per capita and GDP Growth) from 1990 until 2012. The five lines represent the MIKT countries, the BRIC countries, a combined series of the emerging markets (EMER), a series of high income OECD countries (h.I.OECD) and the world series (WRLD).

Source: Economic Indicators, n.d.

The important aspect here is that the emerging countries amount to about half of the world's population (the BRICs make up for a substantial part) If we combine the population with the level of Gross National Income (hereinafter: GNI) from Figure 4, we get a picture of the importance of these countries. The emerging markets series experiences substantially higher growth in gross national income compared to the world series benchmark.

Evidently, the MIKT countries account for a large part of that thriving development, since the performed even better than the emerging markets benchmark. The BRIC countries on the other hand underperformed the market constantly in the past years. Nevertheless, they were able to close the gap with every year and they are very likely to surpass the world average in the upcoming years. This means that the emerging markets will amount to half of the world's population with a substantially higher income than the other half. Their GDP growth performance was better as well. Once the series stabilizes itself, around 2003 (5 years prior to the financial crisis), one can make out a pattern that continues until 2012.

All emerging markets experienced GDP growth rates above the world average, with the BRIC countries leading the field by far. During the financial crisis, they were able to maintain more-than-twice the growth of the world average. The gap closed slightly in recent years, but the big emerging economies still growth faster (1.5% above average). Examples for this extraordinary development will be given in the following section.

2.2.3 Reasons for Extraordinary Development

The 1990s were a decade, which saw big international change. In 1992 the Soviet Union dissolved and Russia began to introduce massive privatisation and market- and trade liberalisation programmes. These privatisation programs transferred the ownership of 15,000 government owned firms into private hands. The implementation was poorly executed and did not lead to the self-induced restructuring of the firms that the government hoped for (Rogoff, 2002) .

A strong fiscal deficit in the following years spurred the need for new ways of funding, which led to the loans-for-shares program. Shares in the biggest Russian companies were used as collateral for the right to lend the government funds to manage the fiscal deficit. The auction process, which should lead to competition in the placing of the mandate, was corrupted and only a few bidders were able to place their bids. This gave rise to the Russian "oligarchs" and widened the income inequality substantially. Russia's consequent economic breakdown in August 1998 needed measures to revive the countries economic system. Strong tax reforms and the reinforced central state power were essential for an upturn. Regardless, it took Russia

until the end of 1999, when President Boris Yeltsin resigned and Vladimir Putin took over, after the 2000 presidential election to rehabilitate. Putin's methods were criticised as being mostly undemocratic but during his lead, the consumption, the investments and also the domestic demand of foreign investors rose. This eventually led to consecutive growth rates for the upcoming year (Aslund, 2008, p.1).

India, which used to have a protectionist approach on running its economy, was forced to change its methods, when a balance of payment crisis hit it in 1991. The fall of the Soviet Union, India's major trading party, worsened the situation additionally. India then introduced structural reforms and moved to a capitalistic, free-market scheme, which consequently increased foreign trade and direct investments. These measures helped to strongly increase the country's GDP since the early 1990s (Bajpai, 1996, p.13), China began with its economic reforms comparatively earlier. In 1978, they promoted private businesses, liberalised foreign investment and trade, invested in industrial production and in the education of the workforce.

China demonstrated that these measures worked. The growth rates were exceptional with an average of 9% per year and the GNI per capita nearly quadrupled until 1993. A large part of this growth is accredited to the efficiency gains of the country's workforce. This, as a side note, also supports the legitimacy of human capital as being an important source of investment, since its returns are growing instead of the declining monetary capital gains (Hu & Khan, 1997).

Brazil had a severe problem regarding the trust in its currency, which began in the 1980s. At its peak, the inflation ran with a price increase of 80% per month. To solve this issue, a new currency, the Unidade Real de Valor (hereinafter URV) was introduced. Its purpose was to re-establish the peoples' faith in the value of money. This URV with its actual printed currency, the real, replaced the Cruzeiro, in 1994. Once this severe and long-lasting problem was solved, Brazil was finally able to prosper (Ferrari-Filho, 2001, p.1). Since the early 1990s, Brazil's GDP rose sharply and increased five-fold.

Besides the efforts, these countries made in terms of privatisation and trade liberalisation, to spur extraordinary development, international measures, which targeted the support and the enhancement of trade, improved the global conditions drastically. The General Agreement on Tariffs and Trade and the establishment of the World Trade Organisation (hereinafter: WTO) in 1995, aimed at reducing friction in international trade. The removal of tariffs and trade barriers as well as the enforcement of non-discrimination and the increase in transparency helped to improve international trade and also to reduce its costs. A unified "playground" for the trade of countries all over the world was established. The target was to provide all

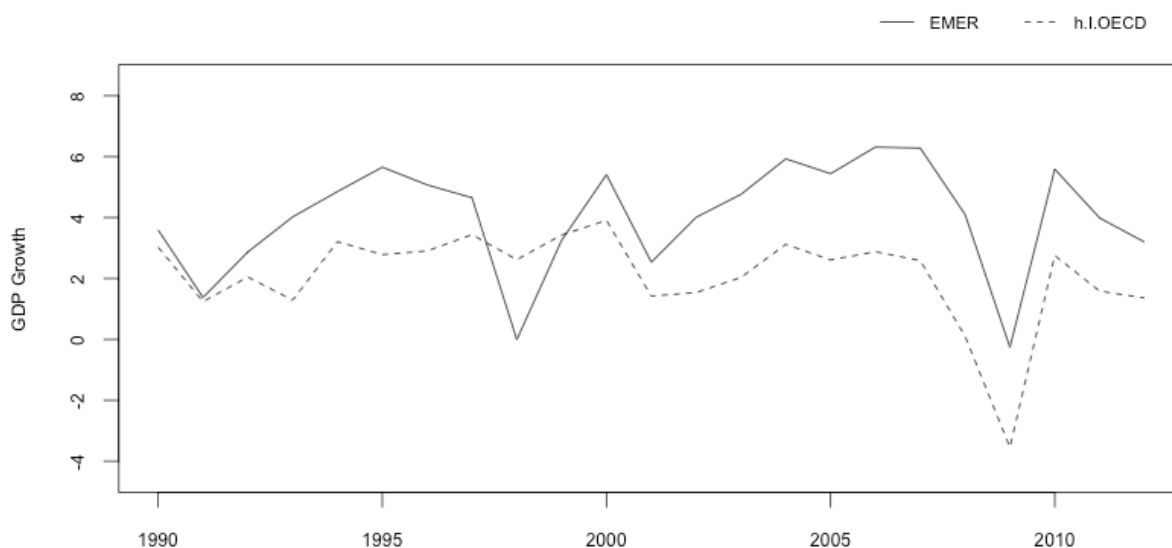
countries with the same premises to trade efficiently and to grow prosperous. A more open worldwide economy, and therefore the possibility for more people to access international products and services, opens up various trading possibilities for both, developed and developing countries.

2.3 Benefits of Emerging Market Investing

2.3.1 Increased Growth

The other benefit of emerging market investing is related to the increased growth rates, which are far above the ones of developed countries. The graph below pictures the GDP growth rate of emerging markets in comparison with developed OECD countries. The OECD growth at the end of 2012 was at around 1.5% while the emerging markets grew at around 3%.

Figure 6. GDP Growth - Emerging Markets vs. developed OECD Countries 1990 - 2012



Note: This graph displays the development of the GDP growth from 1990 until 2012. The two lines represent emerging markets, which are part of the thesis and the developed OECD countries.

Source: Economic Indicators, n.d.

2.3.2 Diversification - Avoidance of Home bias

Research from the early nineties, from French and Poterba, (1991, p.222), revealed that international investments are generally not well diversified. The most part of the investors' portfolios is invested in home country shares. Portfolios, which solely invest in the local country, even hold their major part of the investments in companies, which are located close to the location of the fund. This tendency decreases the diversification benefits a fund would have, if it would spread its investments and move towards perfect diversification. The target of perfect diversification should be an international investor's aim, while every diverge would be a deviation of the theoretically best state. This lack of international diversification is important in the context with the national elections. If the most part of a portfolio is invested in one country, the political exposure of the portfolio to the effects of elections in that one country is consequently higher. In 1991, Japanese investors had 98% of their investments in home country shares, the United States (hereinafter: US) 94% and Britain 82%. From a diversification perspective, emerging market investing makes sense, since it would help to spread the political exposure over countries and to reduce the effect one event has on the portfolio.

3 ELECTIONS AND THE STOCK MARKET

Since it was reasoned earlier on that political structures and political parties could affect the movements caused by national elections differently, further explanation will be provided below. The following sections describe the political framework and possible implications for the effect of national elections on the stock market, depending on a countries political system and political direction.

3.1 The Political Framework

3.1.1 Parliamentary System

Countries with parliamentary systems are led by the head of government. This person is separate from the head of state and leads the legislative section of a country. The head of state, solely serves the country for representative duties. Usually, countries have a president and a prime minister but they can also be organised as constitutional monarchies, like Sweden or the United Kingdom. The executive power of the representative is mostly limited, while the head

of government holds the real decision making capabilities. For these countries, with parliamentary systems, we examine the parliamentary elections, which are meant to have the most distinct impact on the stock markets for this category.

3.1.2 Presidential System

Presidential systems in contrast, are republican systems, in which the position of head of state and the head of government are combined in one and the same person. The executive section is nonetheless separate from the legislative. Countries with presidential systems are for example the United States or Turkey. Since the executive power is nested in the position of the president, the dates of presidential elections for these kinds of systems are of interest for this study.

3.2 The Impact of Politics on the Stock Market

The impact of national elections on the stock markets has been researched quite extensively over the past years. Mainly the markets of presidential systems, specifically the one of the United States were the topic of several research papers¹. Theoretically, the political change that a new president could bring to the country and therefore, to the investment environment, can make stock markets reacts to the elections. The uncertainty of the outcome of the election can cause additional movements.

The public appreciation of the current government² will therefore affect the anticipation of the election of a new government. Assuming that the current government is badly appreciated, it is more likely, that the stock prices will be affected positively, in the course of the election. This reasoning can be done vice versa. Differences due to the political structure are therefore expected.

3.2.1 The Partisan Theory

Additionally interesting is the question if different political direction also leads to different results.

¹ Research on that matter has been conducted by Allvine and O'Neill (1980), Niederhoffer, Gibbs, and Bullock (1970), Herbst and Slinkman (1984) and Nofsinger (2004).

² Here has to be distinguished here between the general public and investors. A government that is well appreciated by the majority of the people does not need to be as well appreciated by that part of the society that invests.

The partisan theory assumes that political parties generally follow policies, which are in line with their core principles. Hibbs (1977, p.1467) analysed post-war patterns of macro-economic policy in capitalist countries, to assess the theory's value in practice. He argues that lower income- and occupational status groups prefer low unemployment and high inflation settings, while high income- and occupational status groups (investors) prefer the configuration of high unemployment and low inflation. Hibbs revealed that policies, which lead to low unemployment and high inflation settings, are usually carried out in countries that are ruled by left-oriented governments. The high unemployment and low inflation setting is generally associated with right-wing governments.

The linear regression analysis should help to determine, if the governments of the countries in the analysis, performed better under a leftist or rightist government and also if different political system lead to different results³.

3.2.2 OECD Countries vs. Emerging Markets

The two groups of countries, which were used in this thesis, are strictly divided. The OECD countries group consists solely of the OECD's developed markets, while the ones classified as emerging are included in the emerging markets group. One, if not the major point of difference between both groups is their level of political stability. OECD countries are generally more stable (economically and politically).

The formation of the OECD and the consequent cooperation among the countries can be credited as being of substantial help in the process of development. The emerging markets on the other hand, are on their way to approach a developed state but they still lack stability in their economy and their political systems. This fact gives rise to argument that emerging markets will exhibit stronger stock price reactions to elections. Uncertainty of election outcome will therefore play a much bigger role in these markets. Since the OECD manages close ties to the important emerging markets, they are likely to close the gap to the developed markets in the upcoming years.

3.3 The Financial Crisis of 2008

Taleb, (2010, p.1) argues that the Global Financial Crisis was caused by several factors that arose during the last years and are said to influence the stability of financial markets and the

³ This theory has been, among others, backed by Fowler, J.H., (2006) and Vuchelen, J., (2003)'

correctness of risk assessment heavily. In his publication, he draws up a four-sector map between types of decisions and types of risk. The first quadrant resembles time series, which are easy to model, where statistical methods work well, the distribution is Gaussian-Poisson and decisions are binary. The decisions are either true or false and the magnitude of the outcome does not matter. In the second- and third quadrant, decisions and risk get more complicated, but traditional statistical models still apply. Once the fourth quadrant is reached, correct results cannot be produced by these methods anymore. The distribution of the time series is fat-tailed and the payoffs are complex. Therefore the probability of a tail risk to occur and its magnitude, are not possible to calculate anymore. By using traditional statistical methods one would highly miss-specify the risk associated with these scenarios. He further argues that these outcomes, once they reach a critical value, have a magnitude of possible loss, which does not decrease with value but increases geometrically.

The Global Financial Crisis was a so-called 10-sigma event, which falls into the fourth quadrant. Its probability to happen, is located at least 10 standard deviations from the mean. One could have possibly predicted the occurrence of the crisis but not its magnitude. The losses exceeded one trillion dollar and therefore making the banking sector lose more money from risk-taking than it earned. All countries worldwide had to deal with the outcomes. Some more, some less, depending on their state of international integration and trade dependence. The question that arises in context with the crisis is, if a difference between the two groups of countries exists, in how they coped with the financial crisis.

3.3.1 Emerging Markets and the Global Financial Crisis

It is assumed that a less developed economy would be more vulnerable in comparison to developed countries, in dealing with the global shock, due to their lack of economic- and political development. The emerging markets would, on the other hand, have a better position due to their reduced interweaving with the global economy and a throughout higher protectionist level.

The International Monetary Fund (hereinafter: IMF) conducted research on that matter in 2011, to assess the impact of the crisis on the emerging markets. This research led to the conclusion that the markets were hit by the crisis in the same intensity as the developed economies. The decline in growth rates was similar in their magnitude, but the recovery happened much faster and they were able to reach the growth level prior to the crisis earlier than developed countries. The IMF also found different levels of recovery, depending on the location of the country. The shock mostly spread through trade and financial factors and left

countries, which were less globalized and less dependent on world trade, less affected. Low-income countries exhibited on average better performance than high-income countries, which can be linked to the previous argument.

By comparing the emerging economies to their own history in dealing with critical situations, one should note that they were able to cope far better with the current situation, closed the gap to developed countries in terms of their development and did not magnify the shock, as they used to. Reason was the financial- and public sector of emerging economies, which was generally weak in the past.

Their preparation and the use of countercyclical policies to reduce the negative effects helped them to cope with the situations better. The continuing process of globalisation contains a trade- off between the higher growth, which is associated with more global trade and positive spill over effects and the contagion on the other hand, which makes all countries that are dependent on another, susceptible to a negative shock. According to the IMF, the formation of several growth poles world-wide (Unites States, China, Brazil,..), lowers the contagion effect, assuming that they are not perfectly correlated (Didier, Hevia, & Schmukler, 2011).

4 DATASET

4.1 Stock Indices

The data for the event study was sourced from Reuters' Datastream. The indices chosen, are provided by MSCI (Morgan Stanley Capital International), are value- weighted and nominated in their local currency. The time frame reaches from the 01/01/95 until the 06/31/14, which represents 19 years and 6 months of data. The restriction regarding the time frame is due to the establishment of the WTO in 1995. Since all economies differ, the establishment of the World Trade Organisation marks a step towards trade unification, which provides the countries with similar preconditions for their trading activities.

At the time writing, MSCI maintained indices only for 31 out of the 34 OECD countries. Iceland, Slovakia and Luxembourg had therefore to be excluded from the analysis. The set of the emerging markets (21 countries) is complete. Further adaptations (as will be explained below) had to be made to shape the dataset to meet the analytic requirements.

4.2 Election Dates

The election dates have been sourced from ElectionGuide (Election Dates, 2014), a service of the International Foundation for Electoral Systems. Their database provides information on different kinds of elections of countries worldwide. The election dates were collected for parliamentary- and presidential elections, depending on the political organisation of the country. Since it is assumed that in presidential systems the president has the ultimate power over legislation, dates for presidential elections were taken. Dates of parliamentary elections were used in parliamentary systems.

Some countries experienced second cycles in national elections. These usually take place 2-4 weeks after the first election. In these cases, both elections were excluded from the analysis to prevent volatility disturbances in the pre- and post-event time frame. The events would not be independent anymore, since the second cycles would influence the market sentiment after the first election. Also the pre-event window would be influenced from the point of view of the second election. The first cycle would have already influenced the sentiment of the market prior the second event. Therefore, only elections, which were decided in the first attempt, are analysed.

4.3 Economic- and Political Data

The economic indicators used for the explanation of the development of the markets and also in the linear regression analysis, were sourced from the World Bank Database. The World Bank also provided the political variables, which were additionally used in the regression. They specifically were part of the Database of Political Institutions from 2012. The dataset is complete until the end of 2012, which limits the regression analysis until that year.

4.4 Definition of Variables for the Linear Regression

The variables that were used in the linear regression are split up in an economic- and a political set.

4.4.1 Economic Indicators

The set of indicators (Economic Indicators, 2014) counts 5 variables and contains the following:

(a) GDP growth annual % (gdp)

The Gross Domestic Product (hereinafter: GDP) is generally referred to as the indicator of the economic level of a country. It measures, how much output value, in monetary terms, a country produces in one year. In contrast to the GNI (Gross National Income), it is a location-based approach, which does not take the production of local companies in foreign countries into account. Foreign ventures in the local country, on the other hand, are part of the GDP. Taxes and subsidies, which are not included in the value of the product, are either added or deducted.

The growth of the GDP, from one year to the next, pictures the development of a country's economy. It can be a valuable indicator in crisis times to assess if economies recover and if, how well. Depending on the size of the GDP growth, countries can be classified as emerging or even rapidly developing.

(b) GNI per capita, PPP current international \$ (gni)

GNI stands for Gross National Income. For our analysis, the variable is calculated in per capita terms to receive an average of how much a citizen of a specific country, irrespectively of his location, earns in one year.

(c) Population (Total) (pop)

The population is a sum of all people living within a country's borders, which counts all residents regardless of their citizenship. The World Bank's definition of refugees considers them as part of the population in their country of origin, because they are usually not permanently settled in the country of asylum.

4.4.2 Political Variables

The following are the six political variables (Political Variables, 2014), which have been chosen:

(d) Political System (system)

This is a dummy variable with values of either "1" or "0", to indicate either, if the country has a parliamentarian (1)- or a presidential system (0).

(e) Political Direction of Government (execrlcl and execrlcr)

These two variables are dummies, which explain the effect, the political direction of the government (either left- or right) has on the volatility of a country. Each of them represents one political direction.

(f) Control Over Law-making Houses (allhouse)

A dummy variable of "1" or "0", which is "1" if the party in charge, reached a majority in all houses that have law-making power and "0" if not.

(g) Amount of Seats (maj)

The majority is calculated by dividing the seats the governing party was able to win at the election, by the number of total seats available. It represents the magnitude of the election win.

(h) Change in Government (ch.gov)

The change in government determines, if the political direction of a country changed with the current election. It is a dummy variable, that is "1" in case a change occurred and "0" if not.

4.5 Reduction of the Dataset

The original dataset consisted of all countries that were either part of the OECD list or countries that were defined as emerging market, according to MSCI's definition at the time of writing. 34 OECD countries and 21 emerging markets met the criteria. Overlapping between the two sets (Chile, the Czech Republic, Greece, Hungary, Mexico, Poland, South Korea and Turkey were included in of both), reduced the countries to 26 OECD countries and 21 emerging markets. As mentioned before, additional countries had to be excluded, since MSCI did not provide indices for them at the time of writing. This concerns Iceland, Luxembourg and Slovakia.

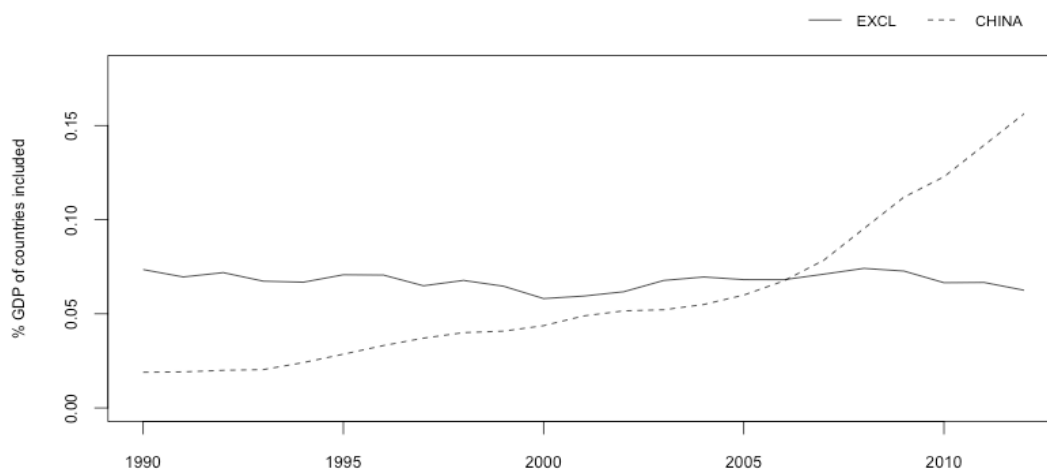
The first attempt of calculation included all indices, which were available from the 01/01/1994. The goal was to reach more than 20 years of data. Since many new indices were introduced in the subsequent year (MSCI Egypt, MSCI Hungary and MSCI Russia), the possibility to include more countries, especially on the emerging market side, led to the decision to set the starting point at the 01/01/95. The explanatory value should therefore be increased. Indices, which did not meet these requirements, were MSCI Estonia and MSCI Slovenia. Additionally, the impossibility to capture China's election on a single day led to the consequent exclusion of that country. The Chinese elections take place during the National People's Congress, which lasts for 5 months and are held on more than one day. And lastly, there is Taiwan, which is a special case in the analysis, since it is included in the event study but not in the linear regression. The World Bank did neither provide data on Taiwan itself, nor is the data included in the economic data for China (Economic Data Taiwan, 2014). In the end, 21 OECD countries and 20 emerging markets were part of the final dataset of the event study, with data reaching from the 01/01/95 until the 06/31/14, including 149 events (89 OECD, 60

EMER). The countries in the linear regression analysis were reduced to 21 OECD countries and 19 emerging markets, due to the exclusion of Taiwan, with data reaching from the 01/01/95 until the 12/31/12. The events used, were 131 (83 OECD, 48 EMER). The final list of countries can be found in the appendix.

4.6 Limitations

The implications of the limitations of the dataset should be kept in mind, when interpreting the results of the analysis. Mainly the exclusion of China would, if abnormal changes in stock prices could be measured, most certainly have major impacts on the emerging market series. Chinas GDP rose constantly, since 1990 and amounted in 2012 to about 16%, of the combined value of GDP of all other countries included in the analysis. The remaining countries that were excluded maintained and did not exceed a stake of about 6%. Since this is and has been a relatively small, their influence on the analysis can be considered as negligible. No major drawbacks are expected from the reduction of the timeframe (the year 1994 was excluded from the original dataset). Since it was possible to include even more countries into the analysis, the shift of the starting point is expected to merely have a positive influence on the explanatory value of the analysis.

Figure 7. GDP of Countries Excluded from Analysis



Note: This graph displays the development of the GDP stake of the countries excluded of the countries included in the analysis from 1990 until 2012. The two lines represent China and all other countries that were excluded (Czech Republic, Estonia, France, Iceland, Israel, Luxembourg, Slovakia and Slovenia).

Source: Economic Indicators, n.d.

5 ANALYSIS AND RESULTS

5.1 Analysis

5.1.1 Abnormal Returns

The assumed rational behaviour of market participants, who should react to new information, which is introduced to market (Lo, 2008, p.1), can be modelled with the help of the Market Model or other parametric models like the Constant Mean Return Model. They provide a set of returns, which reflect how the returns should have evolved, if the event would have not occurred. A significant difference between the two scenarios (the actual returns and the modelled returns), would then speak in favour of an abnormal effect of the event.

This thesis is concerned with a short-horizon event study, since the event window is one trading month (25 days) in each direction of the event date. The abnormal returns therefore do not need to be risk adjusted. All events are independent from each other and no clustering is assumed between the events, since all countries set their election dates differently. The length of the estimation window, $L_1 = T_1 - T_0$, is set as 250 trading days prior the beginning of the event window. The event window, $L_2 = T_2 - T_1$, is then defined as 25 days prior and 25 days post event date (51 days in total). The dataset, which is processed in the way it is described in the previous section, serves as the basis for this analysis.

MacKinlay, (1997, p.2) suggests the following steps for the calculation:

The market model is used, which expresses the security specific return in the following way:

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

where

$$E(\varepsilon_{i,t} = 0), \text{var}(\varepsilon_{i,t}) = \sigma^2_{\varepsilon_i}. \quad (2)$$

The return R_{it} is modelled by the parameters α_i , β_i and $\sigma^2_{\varepsilon_i}$. The security specific return is expressed as the intercept α_i plus the market return of a certain period R_{mt} times the risk coefficient β_i plus the error term ε_{it} . α_i and β_i are calculated for all returns of the estimation

window L_1 . These parameters are subsequently used to model the normal performance for the event window. The abnormal returns of the event window can then be obtained by utilizing the formula below:

$$AR_{i,\tau} = R_{i,\tau} - E(R_{i,\tau}|X_\tau) \quad (3)$$

and more specifically:

$$\widehat{AR}_{i,\tau} = R_{i,\tau} - \hat{\alpha}_i - \hat{\beta}_i R_{m,\tau} \quad (4)$$

The normal returns are deducted from the actual returns $R_{i\tau}$ for each day, to receive the abnormal returns per trading day. To achieve higher informational value, the returns are accumulated from one trading day to the next and are then called cumulative abnormal returns for the event window.

$$\widehat{CAR}_i(\tau_1, \tau_2) = \sum_{\tau=\tau_1}^{\tau_2} \widehat{AR}_{i,\tau} \quad (5)$$

$$\overline{CAR}_{\tau_1, \tau_2} = 1/N \sum_{i=1}^N \widehat{CAR}_i(\tau_1, \tau_2) \quad (6)$$

Summing up and averaging the results displays the effect of the event on the stock price of all countries over time. Two groups have been formed for the purpose of this analysis, to investigate the different effects of OECD countries and emerging markets. Besides both groups, an additional combined series is used to further illustrate the results.

The average cumulative abnormal returns are distributed as follows:

$$\overline{CAR}_{\tau_1, \tau_2} \sim N[0, var(\overline{CAR}_{\tau_1, \tau_2})] \quad (7)$$

The abnormal performance induced by the national elections is eventually tested for its significance. The Null Hypothesis (H_0): "elections have no impact on a country's stock

market" is tested against the Alternative Hypothesis (H1) of: "elections have an impact on a country's stock returns".

$$\theta_1 = \frac{\overline{CAR}_{\tau_1, \tau_2}}{\text{var}(\overline{CAR}_{\tau_1, \tau_2})^{1/2}} \sim N(0,1) \quad (8)$$

The test statistic expresses the tested values in deviations from the mean. Since the mean of abnormal returns is assumed to be "0", it just divides the value by the appropriate standard deviation. The null hypothesis is then rejected depending on the significance level. A two-sided t-test would reject the null if the absolute theta-values exceed 1,96.

For robustness checks, additional use of non-parametric tests was made. The sign test and the rank test are typically used to support the results of the parametric testing. To facilitate the non-parametric testing, the following formulas are used:

$$\theta_2 = \left[\frac{N^+}{N} - 0,5 \right] \frac{\sqrt{N}}{0,5} \sim N(0,1) \quad (9)$$

For the sign test and

$$\theta_3 = \frac{1}{N} \sum_{i=1}^N \left(K_{i0} - \frac{L_2 + 1}{2} \right) / s(K) \quad (10)$$

For the rank test, where

$$s(K) = \sqrt{\frac{1}{L_2} \sum_{\tau=T_1+1}^{\tau_2} \left(\frac{1}{N} \sum_{i=1}^N \left(K_{i\tau} - \frac{L_2 + 1}{2} \right) \right)^2} \quad (11)$$

The notation of these two tests follows MacKinlay (1997, p.32). The sign test is not well specified, if the distribution deviates from a normal distribution (Cowan, 1992, p.1). The residuals of the market model (the abnormal returns) are therefore tested for normality by using the Shapiro-Wilk test. The results are not significant (p-value: 0.2248) and therefore the

null hypothesis of normality is not rejected. This enables meaningful interpretation of the results of the sign-test.

5.1.2 Abnormal Volatility

The calculation of the abnormal volatility is used to analyse an eventual rise in the volatility level due to the event. It is split, as all the other calculations, in OECD countries, emerging markets and a combined analysis. The initial step of the procedure is a forecast of the volatility for the event window, based on the estimation window. The model, which is used for the forecasting, is a GARCH(1,1).

$$R_{i,t} = \alpha + \beta R_{m,t} + \varepsilon_{i,t} \sim N(0, h_{i,t}) \quad (12)$$

$$h_{i,t} = \gamma_0 + \gamma_1 h_{i,t-1} + \gamma_2 \varepsilon_{i,t-1}^2 \quad (13)$$

Bollerslev (1986, p.308) suggests to use the GARCH(1,1), since it is one of the most appealing approaches to analyse high frequent time series in financial markets. The volatility needs to be forecasted independently of the event, to provide an event- independent benchmark. Therefore it is solely based on the estimation window and no actual observations are added in the forecasting process.

$$E[h_{i,t*} | \Omega_{t*}] = \hat{\gamma}_0 \sum_{j=0}^{k-1} (\hat{\gamma}_1 + \hat{\gamma}_2)^j + (\hat{\gamma}_1 + \hat{\gamma}_2)^{k-1} \hat{\gamma}_1 h_{i,t*} + (\hat{\gamma}_1 + \hat{\gamma}_2)^{k-1} \hat{\gamma}_2 \varepsilon_{i,t*}^2 \quad (14)$$

The distribution of the observed residuals is as follows:

$$\varepsilon_{i,t*} \sim N(AR_t M_t \cdot E[h_{i,t*} | \Omega_{t*}]) \quad (15)$$

where the AR_t is expected to be 0 and the variance of the residual is a product of the GARCH(1,1) forecast and a multiplicative effect M_t of the event on the variance. This effect M_T is the desired indicator of the impact of the event. The residual-variance can be rewritten in the following way:

$$var\left(\epsilon_{i,t} - \frac{1}{N} \sum_{i=1}^N \epsilon_{i,t}\right) = M_t \cdot \left[E[h_{i,t}|\Omega_{t*}] \frac{N-2}{2} + \frac{1}{N^2} \sum_{j=1}^N E[h_{i,t}|\Omega_{t*}] \right], \quad (16)$$

$$= M_t \cdot EIDRV_{i,t}, \quad (17)$$

where $EIDRV_{i,t}$ stands for the event-independent demeaned residual variance. N then represents the number of events in the sample. By rearranging the formula, one can express M_t as the residual variance divided by the $EIDRV_{i,t}$.

$$\hat{M}_t = \frac{1}{N-1} \sum_{i=1}^N \frac{(N \cdot \hat{\epsilon}_{i,t} - \sum_{j=1}^N \hat{\epsilon}_{j,t})^2}{N \cdot (N-2) \cdot E[h_{i,t}|\Omega_{t*}] + \sum_{j=1}^N E[h_{i,t}|\Omega_{t*}]} \quad (18)$$

The residuals $\hat{\epsilon}_{i,t}$ are calculated with the market model in the same way as in the previous section. The formula above yields the multiplicative effect of the event on the volatility for each day of the event window in the cross-section. To receive the abnormal percentage change per day, the \hat{M}_t has to be compared to its corresponding value under the null hypothesis, which is 1. The cumulative abnormal volatility can consequently be calculated as:

$$CAV(n_1, n_2) = \left(\sum_{t=n_1}^{n_2} \hat{M}_t \right) - (n_2 - n_1 + 1) \quad (19)$$

Under the null hypothesis, \hat{M}_t does not diverge from $M_t \sim N(0, 1)$. Therefore:

$$H_0: CAV(n_1, n_2) = 0 \quad (20)$$

The test statistic of the CAV then follows a χ^2 distribution.

$$\phi(n_1, n_2) = \sum_{t=n_1}^{n_2} (N-1) \cdot \hat{M}_t \sim \chi^2_{(N-1)(n_2-n_1+1)} \quad (21)$$

These formulas follow the notation of Bialkowski et al. (2006, p.9). To estimate if a random data sample selected from the distribution in question will produce a similar result to the one obtained, we make use of Monte Carlo simulation. 5,000 repetitions were used to obtain the corresponding randomized p-values (Hope, 1968, p.582).

5.1.3 Linear Regression Analysis

Once the presence and magnitude of the volatility is determined, the next step is addressed, to discover the influence of several factors on the effect. The regression is run in cross-section and therefore at one point in time, the event day. The dependent variable is calculated similarly as done by Dubofsky, (1991, p.428), who uses the natural logarithm of the variance ratio as dependent variable. The ratio is calculated as the variance of the actual returns within the event window, divided by their variance of the pre-event window. Both windows are of equal size.

$$\log \frac{\sigma^2_{-25:25,j}}{\sigma^2_{-76:-26,j}} = \delta_0 + \delta_1 x_{1j} + \dots + \delta_M x_{Mj} + \eta_j \quad (22)$$

$$E(\eta_j) = 0 \quad (23)$$

Subsequently, x_{1j} to x_{Mj} , which stand for the values of the regressand, are regressed on the log of the variance ratio at the appropriate rank. η_j is the disturbance term and its expected value is 0. The coefficients of the analysis, display the correlation between the change in variance and the variables. They show if significant correlation exists and if the effect is positive or negative.

5.1.4 Analysis of Changes in Volatility

The last part of the analysis is formed by a volatility analysis of different groups of returns. Its purpose is to reveal possible differences between the groups. The arithmetic returns are

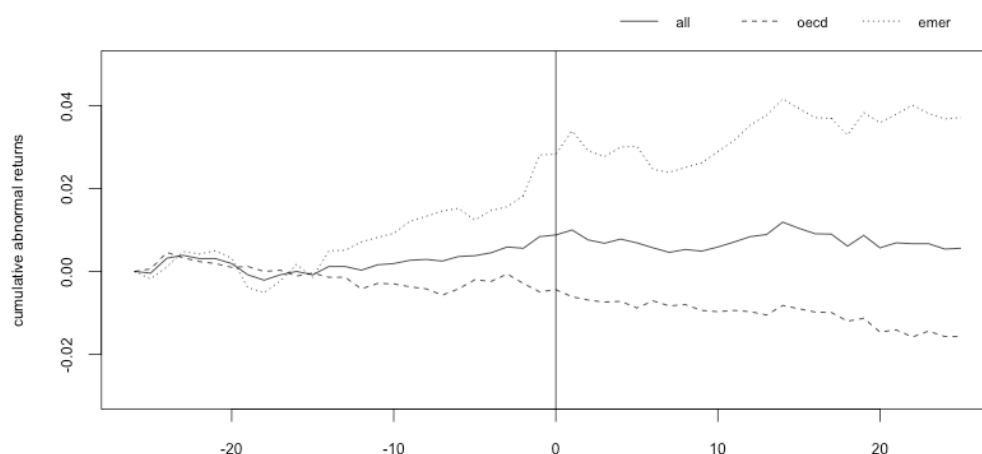
grouped in all, oecd and emer. These three sets are then further divided into events, which occurred before the financial crisis and events that occurred during and after (post 2007). The percentage change between the pre-event- and event window is then used as the indicator for the rise in volatility.

5.2 Results

5.2.1 Abnormal Returns

The time series of abnormal returns are analysed by comparing the OECD countries- and the emerging market series. The combined series, which merely is an average of both, therefore does not have its own characteristics. By looking at the time series', one can detect visible difference. The emerging markets experience abnormal returns close to significance and the cumulative abnormal returns rise throughout the event window. The OECD countries on the other hand experience a decline over the same range of days. The movements in the time series are also more intense for the emerging markets. Especially the rise to the peak, which is present for all three series and unfolds one day to three days prior the event date, is more distinct. The ARs of the emerging markets increase by one fourth of their total cumulative amount in that period. The combined series' movements are therefore mainly due to the contribution of the emerging market series.

Figure 8. Cumulative Abnormal Returns -25:25



Note: This graph displays the development of the cumulative abnormal returns (CARs) of the emerging markets (emer), the OECD countries (oecd) and the combined series (all) for an event window of -25,25.

All graphs seem to settle towards the end of the event window, due to a decline in intensity of the election shock, which results in lower abnormal returns. The analysis of the 149 events shows that the movements, connected with the national election day of a country, are generally not significant.

Table 1. Results of the Cumulative Abnormal Returns Testing

| Time Series | Event Window | CAR(n1,n2) | P-value t-test | P-value sign-test | P-value rank-test |
|-------------|--------------|------------|----------------|-------------------|-------------------|
| all | -25,25 | 0,0056 | 0,5561 | 0,8699 | 1,0678 |
| | -10,10 | 0,0043 | 0,509 | 0,4127 | 0,2924 |
| | -5,5 | 0,0033 | 0,5244 | 0,6232 | 0,5193 |
| | -3,3 | 0,0023 | 0,5988 | 0,4127 | 0,3942 |
| | -1,1 | 0,0044 | 0,378 | 0,1401 | 0,0681(*) |
| oecd | -25,25 | -0,0157 | 1,8818 | 0,2891 | 1,665 |
| | -10,10 | -0,0068 | 1,6897 | 1,00 | 1,3064 |
| | -5,5 | -0,0047 | 1,6289 | 1,00 | 1,7524 |
| | -3,3 | -0,0050 | 1,7481 | 0,0192(*) | 1,8386 |
| | -1,1 | -0,0032 | 1,5293 | 0,8323 | 1,4052 |
| emer | -25,25 | 0,0371 | 0,0452(*) | 0,0925 | 0,3477 |
| | -10,10 | 0,0206 | 0,1122 | 0,2451 | 0,056(*) |
| | -5,5 | 0,0150 | 0,158 | 0,3663 | 0,0432(*) |
| | -3,3 | 0,0130 | 0,5988 | 0,4127 | 0,3942 |
| | -1,1 | 0,0156 | 0,2309 | 0,0062(*) | 0,0438(*) |

Note: This table shows the cumulative abnormal returns (CARs) for different lengths of event windows for the three groups of events (ALL, OECD, EMER). The fourth column shows the p-values of the t-test, which belong to the various event windows and determine the significance. Column five and six display the p-values of the sign- and the rank-test, which have the purpose of supporting the previous p-values. Significant results are labelled with an asterisk (*).

The p-values of the abnormal returns, which can be seen in Table 4, are very high and therefore the null hypothesis is not rejected. These values are generally supported by the non-parametric tests, with the exception of the rank test, which shows significant results for most of the emerging markets event windows. Generally, we can accept that the abnormal returns in connection with national elections do not yield significant results and are therefore negligible. The null hypothesis of no abnormal returns is not rejected by the test statistic in nearly all cases. The p-values of the test statistic of the cumulative abnormal returns for the different lengths of event windows (-2,2; -5,5; -10,10; -25,25) are non-significant for the emerging

markets and OECD markets, although the latter show higher values, which suggest that they are more distant to rejecting the null.

Figure 9. Event-Specific CAVs -25:25

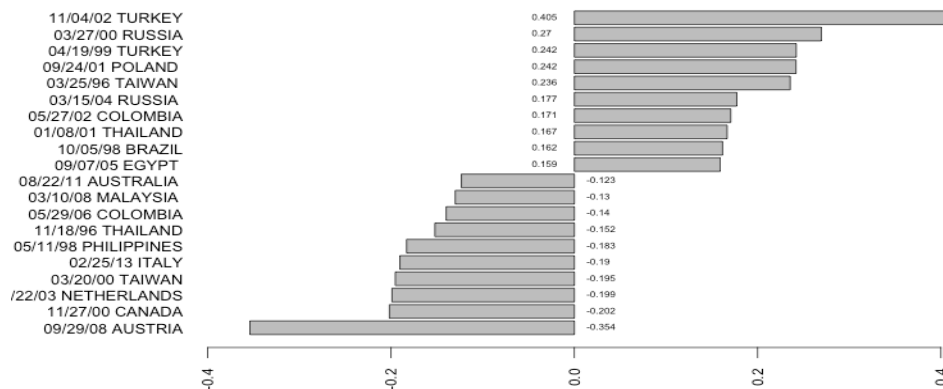
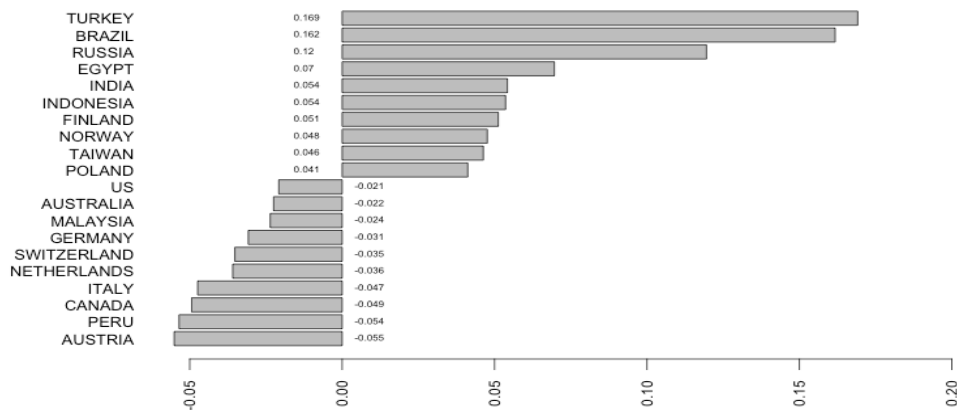


Figure 10. Country-Specific CAVs -25:25

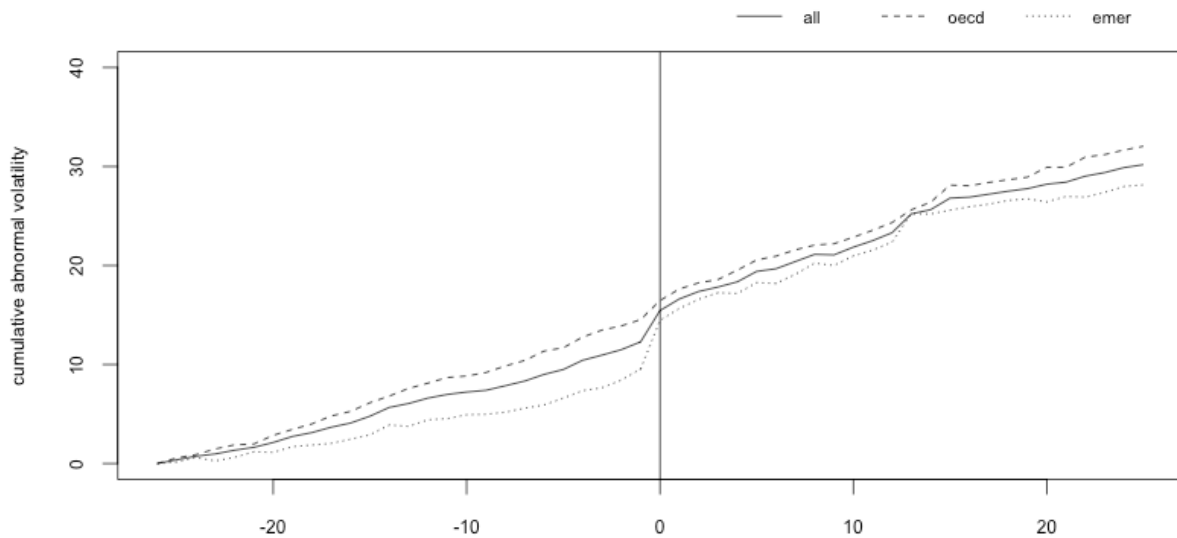


Note: Figure 9 and 10 display the highest and lowest ten CARs per country and per single event from the analysis (ranked from high to low), for an event window of -25,25)

Figure 9 and 10 are the result of a Sensitivity Analysis of the cumulative abnormal returns. The events and the countries with the highest and the lowest abnormal returns are listed in Figure 8 and Figure 9 and ranked from high to low. One can see that the top ten events that contribute the most to the movements in the cumulative abnormal returns line are emerging markets. Also the CARs per country show that the majority of the countries in the list are of that group. The other end of the graph is mainly populated by developed countries, which experience negative abnormal returns.

5.2.2 Abnormal Volatility

Figure 11. Cumulative Abnormal Volatility -25:25



Note: This graph displays the development of the cumulative abnormal volatility (CAVs) of the emerging markets (emer), the OECD countries (oecd) and the combined series (all) for an event window of -25,25.

Figure 11 shows that the cumulative abnormal volatility around the event date rises continuously for all three series. Both groups experience a jump in volatility, which starts shortly prior the event date. The intensity of the rise is again far more extensive for the emerging markets.

The abnormal volatility rises from the beginning of the event window until its end, to about 30 times of the expected value of the multiplicative effect ($M_t \sim N(0,1)$).

Table 2. Results of the Cumulative Abnormal Volatility Testing

| Time series | Event window | Cav(n1,n2) | P-value t-test | P-value Monte Carlo |
|-------------|--------------|------------|----------------|---------------------|
| all | -25,25 | 30,1798 | 0,00(*) | 0,00(*) |
| | -10,10 | 14,8746 | 0,00(*) | 0,00(*) |
| | -5,5 | 10,4037 | 0,00(*) | 0,00(*) |
| | -3,3 | 7,3976 | 0,00(*) | 0,00(*) |
| | -1,1 | 5,1217 | 0,00(*) | 0,00(*) |
| oecd | -25,25 | 32,0437 | 0,70 | 0,70 |
| | -10,10 | 14,1640 | 0,40 | 0,40 |
| | -5,5 | 9,2008 | 0,30 | 0,20 |
| | -3,3 | 5,8115 | 0,10 | 0,00(*) |
| | -1,1 | 3,7254 | 0,20 | 0,20 |
| emer | -25,25 | 28,14508 | 0,00(*) | 0,00(*) |
| | -10,10 | 16,43739 | 0,00(*) | 0,00(*) |
| | -5,5 | 12,35481 | 0,00(*) | 0,00(*) |
| | -3,3 | 9,88739 | 0,00(*) | 0,00(*) |
| | -1,1 | 7,2338 | 0,00(*) | 0,00(*) |

Note: This table displays the cumulative abnormal volatility (CAV) for the different lengths of event windows for the three series (ALL, OECD, EMER). Column four displays the p-values of the t-test which belong to the χ^2 statistic. Column five shows the p-values from the Monte Carlo simulation, which support the original p-values. Significant results are labelled with an asterisk (*).

The multiplicative factor of the event on the stock prices is close to 5 for the emerging markets and close to 2 for the OECD countries. The graphs do not display any major movements apart from the jump. When looking at the p-values, one can see that they are highly significant for the emerging markets. The values are close to "0" and therefore, the null hypothesis is rejected at all commonly used levels. The OECD countries on the other hand show no significance. Solely the volatility in the event window -3,3 touches the significance level at 10%. The combined series on the other hand is highly significant again, which is mainly due to the strong impact of the emerging market series. The p-values, obtained by Monte-Carlo simulation, tend to be lower in all cases and are in line with the results of the parametric tests.

The Sensitivity Analysis of the cumulative abnormal volatility, which is displayed in Figure 12 and 13, shows again the impact of single countries and single events on the cumulative abnormal volatility. A positive increase in volatility can result in either upward or downward movements of the underlying returns, which are the basis of the volatility calculations.

Both groups of countries are present on the top- and on the lower end, which leads to the assumption that independently of the state of development of a country, volatility can increase with the elections.

Figure 12. Event-Specific CAVs -25:25

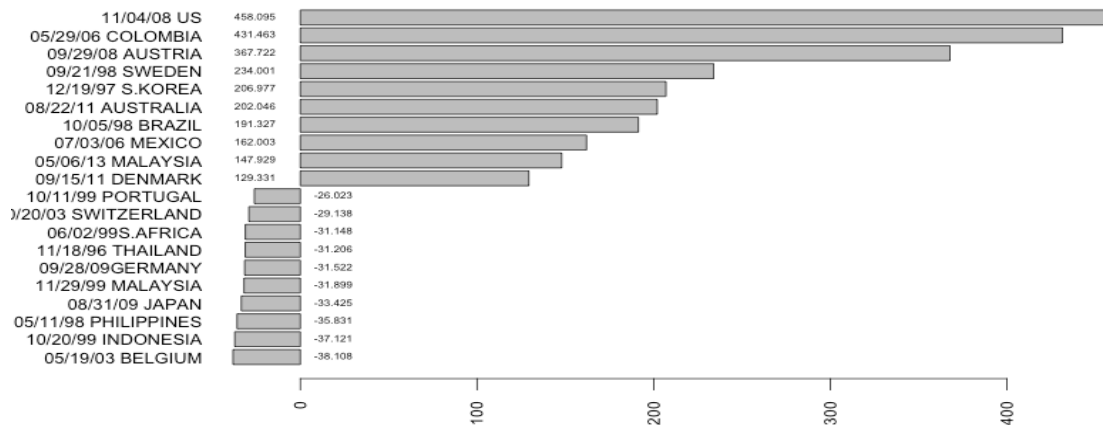
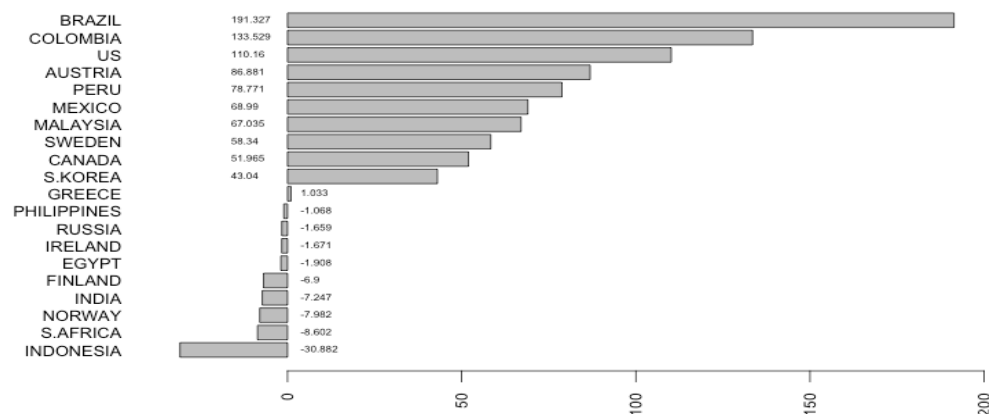


Figure 13. Country-Specific CAVs -25:25



Note: Figure 11 and 12 display the highest and lowest ten CARs per country and per single event from the analysis (ranked from high to low), for an event window of -25,25. The figures are absolute values. A figure of 30 stands for and increase by 30)

The increase mainly results in positive abnormal returns for the emerging markets and in negative returns for developed markets. Therefore, it is reasonable that emerging markets generally do appreciate political change, which is shown by the positive reaction of their markets, while countries that are already developed do not favour political stress and uncertainty.

5.2.3 Linear Regression

Table 3. Results of the Linear Regression Analysis OECD

| Coef | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| (Intercept) | 0,4335 (-0,428) | 0,3894 (0,477) | 0,6594 (0,28) | 0,6555 (0,288) | 0,5153 (0,412) | 0,6882 (0,269) | 0,6292 (0,333) | -0,4583 (0,913) | 2,0025 (0,665) |
| maj | -0,6732 (0,496) | -0,6799 (0,492) | -0,5095 (0,611) | -0,5148 (0,61) | -0,4652 (0,645) | -0,5030 (0,62) | -0,4894 (0,629) | -0,5307 (0,607) | -0,6212 (0,551) |
| allhouse | | 0,2199 (0,284) | 0,1688 (0,424) | 0,1686 (0,427) | 0,1728 (0,416) | 0,1678 (0,432) | 0,1451 (0,502) | 0,1533 (0,485) | 0,0888 (0,705) |
| system | | | -0,3746 (0,312) | -0,3728 (0,318) | -0,3431 (0,359) | -0,3687 (0,326) | -0,3700 (0,327) | -0,3258 (0,432) | -0,1262 (0,795) |
| Ch.gov | | | | 0,0166 (0,928) | 0,0229 (0,9) | 0,0121 (0,948) | 0,0131 (0,943) | 0,0099 (0,957) | 0,0004 (0,998) |
| execrlcl | | | | | 0,1847 (0,283) | | 0,1746 (0,313) | 0,1879 (0,3) | 0,1864 (0,305) |
| execrlcr | | | | | | -0,0904 (0,598) | | | |
| gdpg | | | | | | | -0,0266 (0,465) | -0,0235 (0,542) | -0,0142 (0,723) |
| log(gni) | | | | | | | | 0,1023 (0,792) | 0,1184 (0,762) |
| log(pop) | | | | | | | | | 0,0736 (0,428) |

Note: This table shows the results of the linear regression analysis for the OECD countries, where several regressors have been linked to the dependent variable, which is the natural logarithm of the volatility ratio. The purpose is to determine the factors, which affect the event-induced volatility. The variables used, are: maj, which is a measure of the intensity of the election win. It is calculated as the number of seats won divided by the total number of seats. allhouse is a dummy variable, which is one, when the winning party was able to achieve the majority in all lawmaking houses. system is another dummy variable, which is "1" if the country is organized in a parliamentary way and "0" if it is presidential. ch.gov is also a dummy variable, which is "1" if the political direction of the country changed through the election. execrlcl and execrlcr are dummy variables, which stand for the political direction of the governing party. gdpg is the yearly growth of the GDP in %. log(gni) is the natural logarithm of the gross national income per capita. It is calculated per capita as PPP current international \$. log(pop) is the natural logarithm of the world population. '***', '**', '.' determine the significance of the variables on the 1%, 5% and 10% level.

The results in Table 6 reveal that there is no significant connection between the OECD countries' change in volatility (which was not significant, as shown in the section above) and the political or economic variables used. The results of the OECD countries will therefore not be analysed further, since their lack of significance renders them unable to be interpreted meaningfully.

Table 4. Results of the Linear Regression Analysis EMER

| Coef | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|------------------|--------------------|--------------------|--------------------|--------------------|---------------------|--------------------|---------------------|---------------------|---------------------|
| intercept | -0,0537 (0,888) | -0,110 (0,776) | -0,1485 (0,705) | -0,2163 (0,584) | -0,4826 (0,215) | -0,0496 (0,904) | -0,4960 (0,2269) | -1,2822 (0,4867) | 0,9712 (0,8337) |
| maj | 0,4101 (0,54) | 0,705 (0,332) | 0,6675 (0,363) | 0,6153 (0,4) | 1,0705 (0,1359) | 0,4301 (0,559) | 1,0565 (0,1512) | 1,0849 (0,1464) | 1,0767 (0,159) |
| allhouse | | -0,2327 (0,297) | -0,2635 (0,252) | -0,2546 (0,266) | -0,4579 (0,0502) | -0,3151 (0,175) | -0,4545 (0,0565) | -0,4654 (0,0547) | -0,4689 (0,0608) |
| system | | | 0,136 (0,525) | 0,173 (0,422) | 0,0224 (0,9155) | 0,1987 (0,354) | 0,0253 (0,9061) | -0,0012 (0,9958) | -0,0094 (0,9705) |
| ch,gov | | | | 0,29 (0,228) | 0,3952 (0,0887) | 0,3954 (0,117) | 0,3979 (0,092) | 0,3879 (0,1053) | 0,3859 (0,1137) |
| execrlcl | | | | | 0,6551 (0,0143)* | | 0,6571 (0,0154)* | 0,6686 (0,0153)* | 0,6665 (0,0176)* |
| execrlcr | | | | | | -0,3703 (0,183) | | | |
| gdp | | | | | | | 0,0041 (0,9073) | 0,0022 (0,9513) | 0,0025 (0,9449) |
| log(gni) | | | | | | | | 0,0855 (0,6611) | 0,0792 (0,7126) |
| log(pop) | | | | | | | | | -0,0136 (0,9415) |

Note: This table shows the results of the linear regression analysis for the emerging markets, where several regressors have been linked to the dependent variable, which is the natural logarithm of the volatility ratio. The purpose is to determine the factors, which affect the event-induced volatility. The variables used, are: maj, which is a measure of the intensity of the election win. It is calculated as the number of seats won divided by the total number of seats. allhouse is a dummy variable, which is one, when the winning party was able to achieve the majority in all lawmaking houses. system is another dummy variable, which is "1" if the country is organized in a parliamentary way and "0" if it is presidential. ch,gov is also a dummy variable, which is "1" if the political direction of the country changed through the election. execrlcl and execrlcr are dummy variables, which stand for the political direction of the governing party. gdp is the yearly growth of the GDP in %. log(gni) is the natural logarithm of the gross national income per capita. It is calculated per capita as PPP current international \$. log(pop) is the natural logarithm of the world population. '***', '**', '.' determine the asterisk of the variables on the 1%, 5% and 10% level.

The picture of the linear regression of the emerging markets is a little different. Some significant connections between the variables and the increase in volatility were revealed and can be seen in Table 7. The influence is negative when a party holds all law-making houses and positive when the political direction of the government changes and also when the governing party is left-winged. Emerging markets generally experience less volatility when their government was left-winged.

Since the variable for right-winged governments (*execrlcr*) was not significant, we cannot imply that while leftist governments provoke rises in volatility, rightist governments do the opposite. It can solely be said that investors, which have their money in emerging markets, value left-winged parties' policies less than the ones applied by other political parties.

A change in government (*ch.gov*) sparks additional movements, since it gives rise to uncertainty of the election outcome. If the same party would stay governing, it would be, generally speaking, easier for investors to predict the impact on their investments. Otherwise, they have to deal with uncertainty that could force them to re-allocate their investments. And lastly, the variable *allhouse*, which is significant as well, suggests that emerging markets experience lower volatility, when the governing party holds all law-making houses. This again addresses the uncertainty problem. Consistency in policy-making can lower the uncertainty and therefore be favourable for investors.

From the results, we cannot confirm significant differences in political systems. The p-values are far from crossing the threshold. The political direction on the other hand could be indeed linked to differences. The variable *maj* could not be linked to the volatility changes.

5.2.4 Volatility Analysis

The result, provided in the following table, represents the shift in variance from the pre-event window to the event window of different groups of events.

The *var.ch* column shows the change of all the events of the analysis (149), with a further split into ALL, OECD and EMER. The *var.nc.ch* column shows the change of events prior 2007 and the *var.wc.ch* shows the change of events after 2007.

The *diff.fc* column then displays the percentage change between the variance-change of events, which took place during the financial crisis and which did not.

Generally, one can say that the variance changed between the pre-event and the event window. The change can amount to a variance increase of above 50 percent.

Table 5. Change in Variance

| | Event window | Var.ch | Var.nc.ch | Var.wc.ch | Diff.fc |
|-------------|--------------|--------|-----------|-----------|---------|
| all | -25,25 | 0,3643 | 0,2863 | 0,5039 | 0,7601 |
| | -10,10 | 0,2445 | 0,4822 | 0,5152 | 0,0683 |
| | -5,5 | 0,2275 | 0,3408 | 0,0577 | -0,8308 |
| | -3,3 | 0,2615 | 0,3136 | 0,1710 | -0,4547 |
| | -1,1 | 0,4629 | 0,2394 | 1,1244 | 3,6959 |
| oecd | -25,25 | 0,3759 | 0,0167 | 0,8734 | 51,4007 |
| | -10,10 | 0,1936 | 0,1466 | 0,787 | 4,3694 |
| | -5,5 | 0,084 | 0,3158 | -0,0511 | -1,162 |
| | -3,3 | 0,0881 | 0,4466 | -0,1148 | -1,2571 |
| | -1,1 | 0,5279 | 0,1877 | 1,0095 | 4,378 |
| emer | -25,25 | 0,3524 | 0,4812 | 0,0507 | -0,8946 |
| | -10,10 | 0,2863 | 0,6887 | 0,0971 | -0,859 |
| | -5,5 | 0,3566 | 0,3525 | 0,3666 | 0,0399 |
| | -3,3 | 0,3862 | 0,2545 | 1,0827 | 3,2539 |
| | -1,1 | 0,3963 | 0,2224 | 1,2875 | 4,7882 |

Note: This table displays the changes in variance from the pre-event window to the event window, for different lengths of event windows and for all three groups of events. the pre-event windows have the same length as the event windows. The column var.ch represents the percentage change between the two windows. Column four and five show the change of events before the financial crisis, var.nc.ch and after the crisis var.wc.ch. The last column shows the percentage change between the events with and without crisis to determine the change that took place since the financial crisis occurred

The variance change is positive throughout the groups of countries. The emerging markets experience a constant increase for all different lengths of event windows between 29 to 40 percent. The OECD countries variance changes range from 8.4% (-5,5) to 52.79% (-1,1). The combined series (ALL), as a mixture of OECD countries and emerging markets, shows a rather constant picture with changes ranging from 26% to 46%. By comparing the variance change prior and after the financial crisis (event window -1,1), one can see that the intensity of the effect of the elections on the stock price quadrupled. This holds for both OECD countries and emerging markets.

CONCLUSION

The development of the emerging markets over the past years shows an uprising tendency and supports the importance of these markets in today's world economy. While accounting for a major part of the world's population, they are connected with higher growth potential in comparison to already developed markets. The rising attention is not only due to their importance in terms of size, but also due to the fact that they were able to cope better with the recent financial crisis, in comparison to their own history, managed to close the gap between them and the developed OECD countries and that they still achieved higher growth rates.

From the analysis of this thesis, we can conclude that the emerging markets do experience a much stronger impact of national elections on their stock prices. An additional return of 100 basis points and a volatility increase of five times can have serious influences on the portfolios of emerging market investors. The results from the linear regression let us conclude that the stocks of the emerging markets behave more volatile when the governing party of the country is left-oriented, which partly confirms the partisan theory. Investors, which generally favour high unemployment and low inflation political settings, therefore prefer emerging markets that are led by non-left-winged governments. Statements regarding differences caused by political systems could not be made. Regarding the uncertainty, we can say that it is reduced when the leading party is in possession of all law-making houses and increased, when the leading party of a government changes. The direction of this volatility could not be confirmed in terms of significance, although there is a tendency for emerging markets to react positively to political change (their abnormal returns were positive on average and close to significance).

The analysis of the change of unconditional variance revealed that the effect of national elections on the volatility changed since the financial crisis drastically. The variance around the election date increased nearly fivefold for emerging markets and quadrupled for the OECD countries. The current environment is therefore much more volatile than it was a decade ago. It has to be noted that due to this change, today's markets will face much stronger impacts from the elections.

The analysis of the change of unconditional variance revealed that the effect of national elections on the volatility changed since the financial crisis drastically. The variance around the election date increased nearly fivefold for emerging markets and quadrupled for the OECD countries. The current environment is therefore much more volatile than it was a decade ago. It has to be noted that due to this change, today's markets will face much stronger impacts from the elections. Most investors tend, due to the home-bias, to invest locally and to avoid international diversification. This exposes their investments to the volatility of a single

country. International diversification would help to decrease the impact of this issue. Local emerging market investors should be aware of the effects, when investing in their home country. Investors, who find themselves susceptible to the home bias in any other country, should take emerging market investments as valuable investment opportunities into account, when pursuing to move towards a more internationally diversified portfolio.

An investor, who would want to apply the information provided in this thesis, could make use the expected hike of the stock prices around the election dates. A simple buy- and hold strategy could be implemented by investing in a portfolio, which resembles the major stocks of an index of one of the countries that evidently react strongly and positively to the national elections (e.g. Turkey, Russia, India,..) and sell the investment after the election. One should invest between ten to five days before the event, to experience most of the rapid hike and sell one to two days after. The selling should not happen later, since the effect will loose its impact and the stock prices will start to move in the adverse direction, which would affect the return of the investment negatively.

Since the OECD is aiding the process of harmonization of the economic environment (e.g. with the OECD Road Map), which will further decrease the gap between the developed and emerging markets, the results of this thesis are likely to change in the course of the next decade (assuming the emerging markets hold on to their development). More information could be gathered over the coming years, to see if the observed relationships also hold in future years. Especially, if the emerging markets show the same reaction to volatility as they do now or if they adopt developed market behaviour.

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APPENDIXES

TABLE OF APPENDIXES

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Appendix A: Additional Tables

Table 1. List of the Current OECD Member States (2014)

| | | |
|----------------|---------------|-----------------|
| Australia | Greece | Norway |
| Austria | Hungary | Poland |
| Belgium | Iceland | Portugal |
| Canada | Ireland | Slovak Republic |
| Chile | Israel | Slovenia |
| Czech Republic | Italy | Spain |
| Denmark | Japan | Sweden |
| Estonia | (South) Korea | Switzerland |
| Finland | Mexico | Turkey |
| France | Netherlands | United Kingdom |
| Germany | New Zealand | United States |

Note: This table displays the list of countries, which were part of the Organization of Economic Cooperation and Development (OECD) at the time of writing. In total, they are 34 countries.

Source: OECD Member States, n.d.

Table 2. List of Emerging Markets – MSCI Market Classification (2014)

| | | |
|----------------|-------------|--------------|
| Brazil | Hungary | Poland |
| Chile | India | Russia |
| China | Indonesia | South Africa |
| Colombia | Malaysia | South Korea |
| Czech Republic | Mexico | Taiwan |
| Egypt | Peru | Thailand |
| Greece | Philippines | Turkey |

Note: This table shows the countries, which were classified as emerging markets by Morgan Stanley Capital International at the time of writing. They amount to 21 countries.

Source: MSCI List of Emerging Markets, n.d.

Table 3. Events of the Analysis

| Country | Election Type | Group | Elections |
|----------------|---------------|-------|-----------|
| Australia | Parliamentary | OECD | 8 |
| Austria | Parliamentary | OECD | 4 |
| Belgium | Parliamentary | OECD | 5 |
| Brazil | Presidential | EMER | 1 |
| Canada | Parliamentary | OECD | 5 |
| Colombia | Presidential | EMER | 3 |
| Denmark | Parliamentary | OECD | 5 |
| Egypt | Presidential | EMER | 3 |
| Finland | Parliamentary | OECD | 4 |
| Germany | Parliamentary | OECD | 5 |
| Greece | Parliamentary | EMER | 5 |
| Hungary | Parliamentary | EMER | 1 |
| India | Parliamentary | EMER | 1 |
| Indonesia | Presidential | EMER | 2 |
| Ireland | Parliamentary | OECD | 4 |
| Italy | Parliamentary | OECD | 4 |
| Japan | Parliamentary | OECD | 6 |
| Malaysia | Parliamentary | EMER | 4 |
| Mexico | Presidential | EMER | 3 |
| New Zealand | Parliamentary | OECD | 6 |
| Netherlands | Parliamentary | OECD | 6 |
| Norway | Parliamentary | OECD | 1 |
| Peru | Presidential | EMER | 1 |
| Philippines | Presidential | EMER | 3 |
| Poland | Parliamentary | EMER | 5 |
| Portugal | Parliamentary | OECD | 5 |
| Russia | Presidential | EMER | 4 |
| South Africa | Parliamentary | EMER | 4 |
| South Korea | Presidential | EMER | 4 |
| Spain | Parliamentary | OECD | 5 |
| Sweden | Parliamentary | OECD | 4 |
| Switzerland | Parliamentary | OECD | 3 |
| Taiwan | Presidential | EMER | 5 |
| Thailand | Parliamentary | EMER | 7 |
| Turkey | Parliamentary | EMER | 4 |
| United Kingdom | Parliamentary | OECD | 4 |
| United States | Presidential | OECD | 5 |

Note: This table shows all countries, which are part of the analysis. The countries classified as OECD are all countries, which were members of the OECD at the time this thesis was written, excluding the countries which are part of the OECD but classified as emerging market. The elections sum up to the 149 events of the analysis.

Source: Political Indicators, n.d.

Appendix B: List of Abbreviations

EMH – Efficient Market Hypothesis
OECD – Organisation for Economic Co-Operation and Development
OEEC – Organisation for European Economic Cooperation
EMER – Emerging Markets
GDP – Gross Domestic Product
GNI – Gross National Income
URV – Unidade Real de Valor
GATT – General Agreement on Tariffs and Trade
WTO – World Trade Organisation
MSCI – Morgan Stanley Capital International
BRIC – Brazil, Russia, India, China
MIKT – Mexico, Indonesia, South Korea, Turkey
AR – Abnormal Returns
CAR – Cumulative Abnormal Returns
AV – Abnormal Volatility
CAV – Cumulative Abnormal Volatility