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THE IMPACT OF EUROPEAN MACROECONOMIC NEWS ANNOUNCEMENTS ON CIVETS STOCK MARKETS

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ABSTRACT

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The purpose of this research is to investigate how CIVETS (Colombia, Indonesia, Vietnam, Egypt, Turkey and South Africa) stock markets are integrated with Europe as measured by the impact of euro area (EA) scheduled macroeconomic news announcements, which are related to macroeconomic indicators that are commonly used to indicate the direction of the economy. Macroeconomic announcements used in this study can be divided into four categories; (1) prices, (2) real economy, (3) money supply and (4) business climate and consumer confidence. The data set consists of daily market data from CIVETS and scheduled macroeconomic announcements from the EA for the years 2007-2012. The econometric model used in this research is Exponential Generalized Autoregressive Conditional Heteroscedasticity (EGARCH).

Empirical results show diverse impacts of macroeconomic news releases and surprises for different categories of news supporting the perception of heterogeneity among CIVETS. The analyses revealed that in general EA macroeconomic news releases and surprises affect stock market volatility in CIVETS and only in some cases asset pricing. In conclusion, all CIVETS stock markets reacted to the incoming EA macroeconomic news suggesting market integration to some extent. Thus, EA should be considered as a possible risk factor when investing in CIVETS.

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Tämän tutkielman tarkoituksena on selvittää, miten CIVETS (Kolumbia, Indonesia, Vietnam, Egypti, Turkki ja Etelä-Afrikka) osakemarkkinat ovat integroituneet Eurooppaan nähden. Tutkielmassa tarkastellaan euroalueen (EA) makrotalouden uutisten vaikutusta CIVETS osakemarkkinoihin. Makrotalouden uutisia käytetään talouden kehityksen mittareina ja tässä tutkielmassa käytetyt indikaattorit voidaan jakaa neljään ryhmään: (1) hinnat, (2) reaalitalous, (3) rahavaranto sekä (4) yritysilmapiiri ja kuluttajaluottamus. Käytetty data on kerätty vuosilta 2007–2012 ja koostuu CIVETS osakemarkkinadatasta sekä säännöllisin väliajoin julkaistuista makrotalouden uutisista. Tutkielmassa käytetään Exponential Generalized Autoregressive Conditional Heteroscedasticity (EGARCH) ekonometrista mallia.

Tulokset osoittavat, että CIVETS osakemarkkinat reagoivat eri tavalla eri kategorioihin kuuluviin uutisiin, joka vahvistaa näkemyksen CIVETS markkinoista heterogeenisenä ryhmänä. Analyysi osoittaa, että makrotalouden uutiset vaikuttavat yleisesti volatiliteettiin eivätkä niinkään osaketuottoihin. Tulosten mukaan integraatio EA:n ja CIVETS osakemarkkinoiden välillä löytyy. Tästä johtuen, EA:ta voidaan pitää mahdollisena riskitekijänä CIVETS osakemarkkinoille sijoitettaessa.

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1 INTRODUCTION

Macroeconomic announcements provide insight into national or regional economic trends for economists and market participants around the world and may affect both domestic and foreign financial markets. With these announcements financial institutions and investors try to anticipate the expected asset returns. In this research, eight commonly used scheduled macroeconomic news announcements from the euro area (EA) are introduced and applied in the empirical part to study their impact on six frontier stock markets. The announcements are related to macroeconomic indicators that are commonly used to indicate the direction of the economy. Macroeconomic announcements used in this study can be divided into four categories; (1) prices measured by consumer price index (CPI), (2) real economy measured by industrial production (IP), gross domestic product (GDP), retail sales (RS) and unemployment (UE), (3) money supply (M3), and (4) business climate and consumer confidence measured by purchasing managers' index (PMI) and consumer confidence (CC).

The purpose of this research is to investigate how CIVETS (Colombia, Indonesia, Vietnam, Egypt, Turkey and South Africa) stock markets are integrated with the EA as measured by the impact of scheduled macroeconomic news announcements. This research attempts to give insight into this phenomenon and how international investors and portfolio managers should be aware of the possible impact of EA macroeconomic news releases on stock market uncertainty among CIVETS and the investment risk related to market integration. Additionally, this research aims to provide comprehensive information on the economies and stock markets of CIVETS. The research problems examined in this study can be expressed as following questions:

1. How CIVETS are integrated with EA with regards to scheduled macroeconomic news announcements?
2. Can EA be considered as a risk factor when investing in CIVETS stock markets?

The hypothesis is that as European Union (EU) is among the main trading partners and sources of foreign direct investment (FDI) in CIVETS, stock returns and/or volatilities of at least some markets should react to the incoming

information from the EA to some extent. However, it can be assumed that due to the heterogeneity of CIVETS, differences in the impacts can be expected to arise due to for example differences in the size of the market, industrial structures, political and economic ties, dependence on international trade or geographical proximity. Furthermore, this research is limited only to studying the impact of EA macroeconomic news announcements on CIVETS stock markets. However, this study will not comment on how extensive the possible investment risk is or how will it affect individual investments.

Empirical research is done by examining the impact of both scheduled EA macroeconomic news releases and surprises on CIVETS stock market returns and volatilities. Daily market data from CIVETS has been gathered for the research period from 2007 to 2012. Available data for Vietnam starts in the end of 2006, thus 2007 has been selected as the starting point of the research period. Data regarding macroeconomic indicators applied in the econometric tests is scheduled and gathered for the same time period as the market data. The econometric model used in this research is Exponential Generalized Autoregressive Conditional Heteroscedasticity (EGARCH), which is commonly used in academia for this type of studies (see for example Koutmos and Booth, 1995).

The results of this study show that in general CIVETS stock markets are influenced by the EA macroeconomic news announcements supporting the hypothesis of higher global stock market integration. EA macroeconomic news announcements were found to impact more stock volatilities than asset prices in CIVETS. However, variation regarding the effects was found among CIVETS with Egypt evidencing the highest level of integration with regards to EA macroeconomic announcements, whereas Indonesia was found the most segmented as compared to other CIVETS.

The rest of the study is organized as follows. The remainder of this section presents background and motivation for this study and illustrates the economic prospects of CIVETS. Section 2 reviews the recent literature on the impacts of macroeconomic announcements on stock markets. In Section 3, historical and macroeconomic background for this research is explained. Section 4 presents

development of stock markets. Data and methodology are presented in Section 5. Section 6 is devoted to the estimated results of the study. Section 7 concludes.

1.1 Background and motivation

According to Johnson (2008), many emerging countries have become major determinants of global prosperity, accounting for between one-quarter to one-half of global growth. Furthermore, emerging markets have been able to sustain this growth despite the financial turbulence of the recent years due to the fact that they are not yet fully connected in terms of financial flows to the developed world. Additionally, emerging markets have been able to continue to maintain sound economic policies throughout the recent crisis and the importance of so-called south-south trade has increased and helped emerging markets to sustain growth. Due to growing market integration among the developed economies and the negative spillovers of the global financial crisis and euro crisis, emerging and frontier economies have received attention from the international investment community as the source for return and diversification benefits. Thus, CIVETS incorporate an interesting area for study because their exposure to external shocks from global markets has increased in the recent years due to the opening of their markets to foreign investment and international trade.

Modern finance theory has acknowledged the importance of the role of information in the formation of asset prices. However, the impact of information contained in macroeconomic announcements to financial markets varies depending on the level of development of the economy and the type of the financial market, news content and whether the news in question was expected or unexpected. Many previous academic studies have concentrated on the impact of macroeconomic news announcements on stock returns and volatilities both with single country and cross-country samples within the developed world. Only recently studies that include developing economies have emerged and have recorded evidence regarding co-integration of the financial markets around the world with some emerging regions still remaining segmented (see for example Nikkinen et al, 2006). According to the author's best knowledge, apart from the studies conducted by Korkmaz et al. (2012) regarding return and volatility spillovers among CIVETS stock markets and Yi et al. (2013) regarding comparative analysis of CIVETS and BRICs (Brazil, Russia, India and China) through scientometrics approach, no other academic research has been carried

out regarding CIVETS as a group. This research aims to contribute to the research regarding market integration and be among the pioneering studies on CIVETS. Additionally, according to the author's best knowledge be the first research to study the impact of macroeconomic announcements on CIVETS.

1.2 CIVETS at a glance

CIVETS is a fairly new acronym coined in 2009 by the Economist Intelligence Unit to refer to six dynamic frontier markets that are considered as the new rising economies. Also other country groupings such as the Next 11[1] and MIST[2] have been created to illustrate the potential of the countries' promising outlooks for investment and growth.

CIVETS markets' total population is large, around 584 million in the end of 2011 as seen in Table 1, and young with average median age of 27.3 years according to CIA World Factbook (CIA, 2013). Additionally, CIVETS has a growing middle-class, which contributes towards the growth of the economies. Compared to the famous BRICs, the amount of population is significantly smaller but younger in CIVETS as according to World Bank (2013), the total population of BRICs in the end of 2011 was 2,891.6 million and average median age was 32.7 years according to CIA World Factbook (CIA, 2013). However, currently BRICs are suffering from the same slowdown of economic growth as the developed economies due to their close trading relations. Furthermore, the Chinese Development Research Center of the State Council reported in the beginning of April 2013 that China's economic growth will slow from more than ten percent a year from 2000 to 2010 to 6.5 percent between 2018 and 2022 (Wolf, 2013). Similar reductions in economic growth rates have also been recorded recently for Brazil, Russia and India (Biller and Colitt, 2013; Krishnan, 2013; Rose and Tanas, 2013).

Thus, alternatives for BRICs have been sought, and CIVETS have been acknowledged by the international investment community to incorporate opportunities for investment and growth. In May 2011, HSBC Global Asset Management started a CIVETS fund and Standard and Poor's (S&P) launched

[1] Bangladesh, Egypt, Indonesia, Iran, Mexico, Nigeria, Pakistan, Philippines, Turkey, South Korea and Vietnam.
[2] Mexico, Indonesia, South Korea and Turkey.

the CIVETS60 index including the ten most liquid stocks in each of the CIVETS stock markets. Even though, CIVETS are considered as a heterogeneous group of countries, in addition to similar population structure and dynamics, they all possess roughly similar characteristics in terms of political stability, relatively developed financial markets and growth potential. Furthermore, CIVETS have been characterized as countries having the demographic profile as well as resource and business environment characteristics worthwhile long-term investments (Schiller, 2011).

Table 1 provides support for attention that CIVETS have received from the international investment community in the form of several macroeconomic indicators. Actual figures are for the years 2000 and 2011 and for 2015 a forecast is presented. The total population of CIVETS is expected to increase by over 31 million people between 2011 and 2015 to 614.8 million. For comparison, according to Eurostat, the total population in EU was 502.5 million in the end of 2011. The average per capita income of CIVETS increased from 2,062 United States (U.S.) dollars in 2000 to 5,564 U.S. dollars in the end of 2011 incorporating an increase of almost 170 percent and is forecasted to increase by further 21 percent between 2011 and 2015. The average GDP growth rate has increased from 5.0 percent in 2000 to 5.3 percent in 2011 and growth is expected to accelerate during the upcoming years. Unemployment is expected to remain at a reasonable level for Colombia, Indonesia and Vietnam. However, for Egypt, Turkey and especially South Africa, unemployment continues to be a challenge also in the future.

Table 1 Macroeconomic indicators for CIVETS

Macroeconomic indicators are presented as year-end values for 2000 and 2011 and values for 2015 are a forecast for the end of year. The source for the years 2000 and 2011 data is World Bank (2013) and IMF (2012) and for the forecast of 2015, IMF (2012).

	Colombia			Indonesia			Vietnam		
Indicator	**2000**	**2011**	**2015F**	**2000**	**2011**	**2015F**	**2000**	**2011**	**2015F**
Population, million	39.8	46.9	48.3	213.4	242.3	255.1	77.6	87.8	93.7
Nominal GDP, U.S.$ billion	99.9	327.6	430.1	165.0	846.5	1372.5	31.2	122.7	179.2
GDP per capita, U.S.$	2512.0	7104.0	8909.4	773.3	3494.6	5380.8	401.5	1407.1	1913.1
Real GDP growth, % change yoy	2.9	5.9	4.5	4.2	6.5	6.6	6.8	5.9	6.8
Unemployment rate, % of labor force	13.3	10.8	9.5	6.1	6.6	5.5	6.4	4.5	4.5
	Egypt			**Turkey**			**South Africa**		
Indicator	**2000**	**2011**	**2015F**	**2000**	**2011**	**2015F**	**2000**	**2011**	**2015F**
Population, million	67.7	82.5	87.0	63.6	73.6	77.6	44.0	50.6	53.1
Nominal GDP, U.S.$ billion	99.2	235.7	289.7	266.4	774.3	980.6	133.0	408.7	444.9
GDP per capita, U.S.$	1475.8	2780.9	3329.0	4189.5	10524.0	12635.8	3019.9	8070.0	8383.9
Real GDP growth, % change yoy	5.4	1.8	6.0	6.8	8.5	4.3	4.2	3.1	4.1
Unemployment rate, % of labor force	9.0	12.1	13.3	6.5	9.8	10.2	25.6	23.9	24.1

In order to illustrate the performance of CIVETS, the historical development of a compiled CIVETS stock return index portfolio[3] is contrasted with the performance of Morgan Stanley Capital International (MSCI) BRIC, MSCI Emerging Markets, MSCI Europe, and S&P500 indices in Figure 1. The returns are scaled to 1 in the beginning of 2007.

[3] CIVETS return index has been compiled for this study to compare the development of the relative performance of CIVETS with regards to benchmark indices for the whole research period from 2007 to 2012. The CIVETS return index has been compiled as a portfolio of the individual MSCI CIVETS indices and equal weights of 1/6 have been allocated for each index in the portfolio.

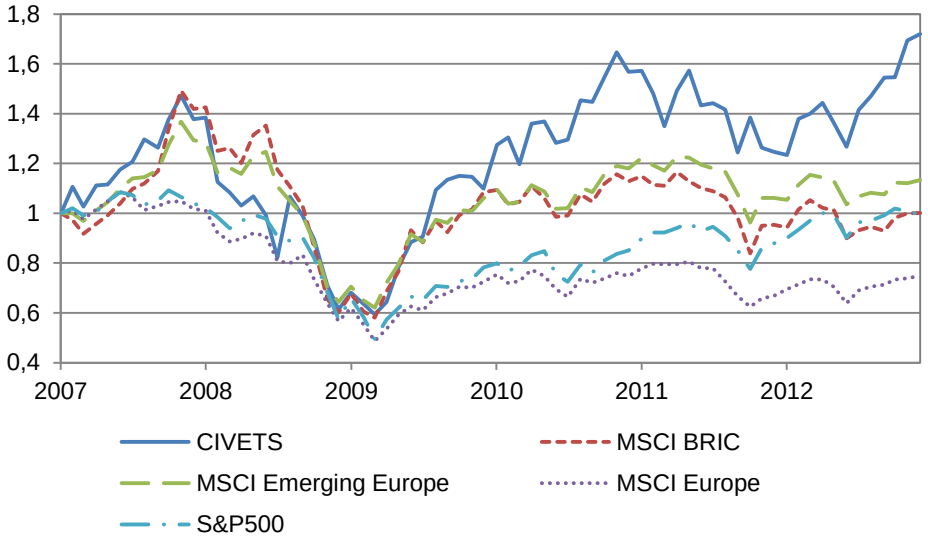

Figure 1 Development of CIVETS, MSCI BRIC, MSCI Emerging Markets, MSCI Europe and S&P500

The effect of global financial crisis is visible as all the indices reached the low point in 2009. The compiled CIVETS portfolio index has outperformed all of the benchmark indices since approximately the middle of the year 2009, giving further support on why the international investment community has paid such attention to CIVETS as a group.

2 RELATED LITERATURE

Previous research regarding the effects of macroeconomic news announcements on stock returns is vast and has mainly concentrated on the inter-relationships between developed economies. Only recently studies that have examined the effects of macroeconomic news announcements on emerging economies have arisen. Andersen et al. (2007) examined the interactions among U.S., German and British stock, bond and foreign exchange markets with respect to U.S. macroeconomic news announcements. They found that macroeconomic news surprises produce conditional mean jumps, thus stock, bond and exchange rate dynamics are linked to fundamentals and significant spillover effects between foreign and the U.S. market exist. Bollerslev et al. (2000) found that regularly scheduled macroeconomic new announcements are an important source of volatility at the intraday level in the U.S. Treasury bond market. Additionally, the authors found that the largest returns in the U.S. Treasury bond market are linked to the release of macroeconomic news announcements. Moreover, Nofsinger and Prucyk (2003) found that the impact of news on implied volatility depends on the content of the announcement suggesting that bad news creates high volatility and high volume, whereas good news elicits lower volume and is not associated with higher volatility.

Harju and Hussain (2011) investigated the intraday dynamics of four major European equity markets (France, Germany, Switzerland and United Kingdom) with respect to the U.S. macroeconomic news surprises. They found many of the U.S. indicators, including unemployment rate, advanced durable goods, industrial production and retail sales, to have statistically significant influence across all the studied European markets. In addition, some of the U.S. indicators seemed only to have a significant impact on the conditional volatility and not on the return. Consistent with earlier findings, unemployment was found to affect negatively on the stock returns suggesting that higher than anticipated U.S. unemployment rates lower equity values in Europe.

Nikkinen et al. (2006) studied how global stock markets are integrated with respect to the U.S. macroeconomic news announcements. Their results supported earlier findings (see for example Bekaert and Harvey, 1995 and Rockinger and Urga, 2001) and showed that market integration is higher among

the major stock markets of Europe and Asia with respect to the U.S. macroeconomic news announcements whereas some emerging markets are more segmented. Thus, the importance of the U.S. news releases varies across different regions suggesting that diversification benefits exist for the international investors investing in those segmented emerging regions. Similar results were recorded by Hanousek et al. (2009), when they investigated the impact of the U.S., EU and neighboring markets macroeconomic news announcements on stock returns in three largest emerging EU financial markets, Hungary, Czech Republic and Poland. The results showed that the impact of foreign news is more significant in markets with a larger proportion of foreign investors, that is, the Prague and Budapest stock markets. Furthermore, these markets are expected to react more sensitively to the news announcements especially from the EU in the future as all of the three markets are preparing to enter the euro area.

Önder and Simga-Mugan (2006) studied if and how economic or political news affects stock market activity in two emerging markets; Argentina and Turkey. These two markets possess similar characteristics such as adoption of financial liberalization in 1989, high inflation, highly volatile stock markets and existence of international investors. The results showed that world political news increase trading volume significantly in both of these markets. World economic news increased trading volume in Argentina, whereas country-related economic news increased volume in Turkey. Önder and Simga-Mugan (2006) came to the same conclusion as Hanousek et al. (2009) that differences in the findings can be due to greater involvement of international investors in Argentina as well as Argentina's co-integration with Latin American and other world markets.

Nowak et al. (2011) investigated how prices and volatility in emerging bond markets, Brazil, Mexico, Russia and Turkey, react to local macroeconomic news announcements as well as announcements from the U.S. and Germany. The results showed that similarly to mature bond markets, both conditional returns and volatility were found to be affected by surprises in global, regional and local macroeconomic and monetary policy news announcements in emerging bond markets. This suggests that global and regional news tends to be at least as important as local news for emerging bond markets and imply closer linkages between emerging and mature economies. However, the absorption of new information was found to be slower in emerging markets than in mature markets.

With regards to Turkey, they found that local news was considered more important than U.S. news implying less integration with the U.S. compared to the other countries included in the study. Additionally, joint releases of several indicators caused a delayed response in Turkey suggesting that investors process multiple news releases slowly.

Hussainey and Ngoc (2009) studied the effects of domestic and U.S. macroeconomic indicators on Vietnamese stock prices through multivariate regression analysis. They found that domestic industrial production affects positively to stock prices whereas the effects of long- and short-term interest rates were found less significant. According to the authors, this may be due to the fact that approximately 60 percent of the listed companies on the Vietnamese stock exchange operate in the industrial sector. Furthermore, real production activity in the U.S. was found to have a greater impact than the U.S. money market on the Vietnamese stock prices. Also Nguyen (2011) studied the spillover effect of the U.S. macroeconomic news on the Vietnamese stock market returns. The results showed that Vietnamese stock market was found to yield higher conditional returns when higher than expected news was published regarding non-farm payroll, unemployment, GDP percentage level and industrial production. Thus, the results are in accordance with Hussainey and Ngoc (2009) findings and indicate that the Vietnamese stock market reacts positively to the expansion in the U.S. economy, which is seen to be due to growing real and financial integration between the two economies.

To conclude, the results regarding the impact of macroeconomic news announcements on stock returns and volatility vary across regions but the developed markets have been found to respond more to macroeconomic news surprises coming from other markets and are understood to exhibit a higher level of market integration as evidenced by Harju and Hussain (2011); Andersen et al. (2007) and Bollerslev et al. (2000). Segmented regions among the emerging economies still exist as some emerging economies such as Turkey and some smaller Asian economies respond more to local and regional news than global news as demonstrated by Nikkinen et al. (2006); Hanousek et al. (2009); Önder and Simga-Mugan (2006) and Nowak et al. (2011). However, there are some exceptions as Hussainey and Ngoc (2009) and Nguyen (2011) found that

Vietnam responds to expansion in the U.S. economy exhibiting increasing integration between the two countries as a result of close trading linkages.

3 HISTORICAL AND MACROECONOMIC BACKGROUND

3.1 Historical overview of CIVETS

3.1.1 Colombia

Colombia is the only Latin American country in CIVETS and is located at the northwestern corner of South America. Ever since the colonial times, the most important sources of wealth have been agriculture, mining and commerce. Colombia has signed free trade agreements with a number of countries, most notably the U.S., Canada, Mexico and the EU. According to Echeverry (2009), Latin America is a continent rich in natural resources. However, the abundance of natural resources has also taken its toll as it has made the political economy harder to deal with, created stronger sectorial business confederations dedicated to rent-seeking and keeping, making the economy vulnerable due to the dependency on commodities' export especially oil. Furthermore, oil industry is also the main receiver of FDI in Colombia.

Echeverry (2009) continues that Colombia has a controversial history as in the 1980s; the country achieved the dubious honor of being the number one world producer and exporter of cocaine. Additionally, drug trafficking has contributed towards the uprising of illegal armed groups, which currently comprise more than 30,000 people. These groupings have been claimed responsible for the increase in violence and also have constrained the economic growth especially during the late 1980s and the 1990s.

According to Gomez-Gonzalez and Kiefer (2009), during the 1980s, Colombia's financial system was subject to heavy restrictions in the form of raised reserve requirements, forced investments and strong constraints on foreign investment. Constraints were also placed upon the types of operations that intermediaries could execute and on the interest rates. However, in the beginning of 1990s, a program of financial liberalization was implemented. The process was supported by laws, which eased the conditions for the entrance of foreign investment to Colombia, promoted more competition in the financial system and gave financial institutions more liberty in the management of financial operations and interest rates.

Gomez-Gonzalez and Kiefer (2009) note that as a consequence of the growth in the financial system and the economic expansion that took place during the first half of the 1990s, Colombia registered a credit boom without precedent. As the expansion of credit followed the financial liberalization, also the quality of the loans of financial institutions decreased, and this degradation of loan quality resulted in the financial fragility of the economy. In the late 1990s, a sudden capital reversion occurred, followed by a steep fall in the terms of trade, which led to a reduction in the aggregate level of expenditure. This has been identified as the main cause of both the financial crisis and the economic recession that Colombia experienced in the late 1990s and early 2000s. As a result of the crisis, internal demand and output fell, especially during 1999.

As Echeverry (2009) points out the reforms did not result in the expected take-off in growth and Colombia started to re-implemented capital controls up until 2008, when they were completely abolished. In the past decade, Colombia has made vast progress in invigorating the sources of economic growth, improving welfare of the poorest and reinstating the rule of law across the country. However, the past global financial crisis has again challenged the growth and threatened the social advancements achieved so far. In addition, Colombia has recently suffered from vast flooding, which has weakened the already inadequate infrastructure.

3.1.2 Indonesia

Indonesia is the most populous country of CIVETS and the fourth most populous country in the world after China, India and the U.S. Indonesia has abundant natural resources including primarily oil but also natural gas, lumber and other agricultural products. According to Dowling and Chin-Fang (2008) partly due to the availability of oil, industrial sector has suffered from slow growth in the past and the shift from agriculture and mining to industrial production and exports of manufactured goods changed only slowly. Indonesia was one of the countries that were hit hardest by the Asian financial crisis that took place in the end of 1990s. However, the country was able to outperform its regional peers during the recent global financial crisis. According to, Pepinsky and Wihardja (2011), this was largely due to the government's switch to decentralization and the economic advances made under the first administration of President Yudhoyono (2004-2009) including promotion of fiscally conservative policies and reforms in the financial sector.

According to Dowling and Chin-Fang (2008), government control over banks and the banking system was the norm until reforms in the late 1980s and early 1990s. This strong role of the state derives from the historical break with the Dutch colonial past under Suharto, the persistent distrust of “capitalists”, and the need for the Suharto regime to maintain control of a number of industries in which rents could be extorted to its political machine. Furthermore, the private sector that emerged during this era was, and still is, largely controlled by families from the minority Chinese population.

Dowling and Chin-Fang (2008) state that the power of the presidency under Suharto was much greater than the formal governmental institutions, which included a judicial system, a legislature and an election process, would indicate. President Suharto was, for all intents and purposes, a dictator with wide-ranging powers not subject to judicial or legislative review. The passing of President Suharto in 2008 left the nation divided and only recently, Indonesia has undergone investment reforms that highlight the equal treatment of all investors regardless of national origin.

However, as McLeod (2011) points out, the political and business environment in Indonesia is still suffering from corruption despite the government’s anti-corruption campaign. The campaign has proven to be ineffective and the Indonesian public has become even more concerned about the lack of implementation of the policy rhetoric as many high level officials were involved in a corruption scandal that started to unravel in 2001 and spread from the Indonesian tax office to the immigration office in the Ministry of Justice and Human Rights. According to Lipsey and Sjöholm (2011), FDI inflows have been lower to Indonesia compared to other Asian countries than could be expected when considering Indonesia’s size, population and other country characteristics. This is suggested to be due to the lack of openness towards international investment, which is also the case in many other East Asian countries. Additionally, inadequate infrastructure continues to be a challenge for Indonesia.

3.1.3 Vietnam

Vietnamese economy is transitioning from centrally planned economy to a market economy. According to Meyer and Nguyen (2005), Vietnam began the ongoing path of reform in 1986 following the Chinese example of gradualism. However,

the communist party still remains firmly in power, and many aspects of the economy are subject to regulation or direct interference by the authorities of the government or the ruling party. Vietnam has been characterized to have a bureaucratic yet entrepreneurial business environment. State-owned enterprises (SOEs) still contribute more than the domestic private sector to GDP but their share has been gradually declining. Historically, private businesses were subject to substantial discretionary interference by governmental authorities. In 1999, policy changed towards supporting entrepreneurship and the development of private enterprises but their growth continues to be inhibited by an institutional framework favoring SOEs.

According to Meyer and Nguyen (2005), the legal framework for FDI in Vietnam evolved throughout the 1990s. The first FDI law was passed in 1987, followed by major changes in 1990, 1992, 1996 and 2000. Initially only some sectors were open to FDI, but such restrictions and limits on the maximum foreign ownership stake have been gradually removed. Changes in other laws and regulations have been equally important to investors, including establishment of procedures for granting investment licenses, and regulation concerning land lease, recruitment, salaries, and taxation. However, discrepancies between official policy and local implementation still exist, which are regarded to be the result of the interaction between informal and formal institutions within the public sector. For foreign investors such variation and decentralization offers both opportunities and risks. An investor-friendly local authority may facilitate administrative processes and create investment incentives, whereas local authorities may not have the administrative capabilities to implement the delegated tasks, or individuals may seek to use their power to obtain personal benefits, which could increase corruption.

Vietnam joined the World Trade Organization in 2007 as a result of the Vietnamese authorities' commitment to economic modernization in the recent years, which has also promoted more competitive and export-driven industries. However, according to World Bank, Vietnam is currently challenged to create jobs to meet the emergent labor force that is growing by more than one million people every year. In early 2012, Vietnam started a broad, "three pillar" economic reform program, proposing the restructuring of public investment, SOEs, and the banking sector.

3.1.4 Egypt

Egypt is located in the northeast corner of the African continent and is one of the most populous countries in Africa and the Middle East. The most economic activity in the country takes place in the fertile Nile valley and the economy depends mainly on agriculture, petroleum and natural gas exports and tourism.

According to Smith and Kulkarni (2010), Egypt's economy was highly centralized during the rule of former President Gamal Abder Nasser but opened up considerably under former Presidents Anwar El-Sadat and Mohamed Hosni Mubarak. The military coup of 1952 brought Gamal Abder Nasser to political power over a largely agrarian Egyptian state tied economically, politically and socially to the Great Britain. To severe the imperial influence Nasser gained widespread popular support by starting the economic and political transformation in 1956 in the form of land reforms to transfer private land from the elites to the general population. This was followed by nationalization of all banks and foreign firms, as well as the Suez Canal. Throughout the 20th century, Egypt has been many times on the verge of economic crisis resulting from rigorous and unsuccessful nationalization policies including maintaining trade barriers and subsidies for overpriced consumer goods. These policies were mainly supported by rent-seeking programs that depended on oil, remittances, tourism and foreign aid.

In 1991, when the country was near an economic collapse, Egypt introduced economic reforms. Omran (2007) states that the reform program involved the financial sector in many ways beginning with the elimination of the repressive measures that had been in practice since the early 1960s. Loan and deposit rates were liberalized in 1991, followed by the removal of ceilings on bank loans to the private sector in 1992. Despite these advances, not a single institution that offers a full range of financial products to its customers yet exists. After unrest erupted in January 2011, the Egyptian government pulled back on economic reforms that were implemented in the 1990s, drastically increasing social spending to address public dissatisfaction but political uncertainty at the same time caused economic growth to slow down, which resulted in reduction of government revenues.

3.1.5 Turkey

According to Yilmazkuday and Akay (2008), before 1980s, Turkey had a relatively closed and heavily regulated economy for which the main development strategy was import substitution. As a result, the economy was almost immune to external shocks and did not have business cycles in the traditional text-book sense. After a profound debt and balance of payments crisis in late 1970s, Turkey initiated a stabilization program in 1980. Apart from economic stabilization, the program aimed at the adoption of an export-led growth strategy. To this end, the economy was liberalized by means of market-based structural reforms.

Yilmazkuday and Akay (2008) continue that after a prolonged period of high growth, the economy experienced a slow-down for the first time in 1988. Starting from that year, the volatility of economic growth increased and the average growth rate fell until after the financial crisis in 2001. The slowing down of the economy continued in 1989 but gave way to a rapid recovery in 1990. However, the Gulf War in 1991 caused a sudden capital outflow and dragged the economy into another recession. During the following two years the economy enjoyed high growth rates again mainly thanks to the resumption of capital inflows, but could not avoid a severe crisis in 1994. After the economic crisis, the ups and downs of the economy were mainly shaped by the net capital inflows dominated by short-term financial capital flows, and therefore, the business cycle was closely related with the international financial flows.

Yilmazkuday and Akay (2008) state that in the beginning of 2000s, Turkey experienced the most severe financial crisis as the economy was suffering from high and chronic inflation, steadily worsening public debt position and increasing fragility in the banking sector. After the financial crisis, Turkey adopted financial and fiscal reforms as part of an IMF program. According to Basar and Tosunoglu (2006), further economic and judicial reforms and prospective EU membership are expected to boost Turkey's attractiveness to foreign investors.

3.1.6 South Africa

South Africa has a mixed economy including both private and state-owned enterprises. South Africa has an abundant supply of natural resources including

gold, diamonds, platinum and other metals and minerals. According to Rodrik (2008), before the democratic transition in 1994, South African economy and polity were dominated by the white minority, and even though the Apartheid regime had begun to unravel in 1980s, the majority of blacks remained deprived of basic political and economic freedoms. The democratically elected governments led by the African National Congress have managed to create a stable, peaceful and racially balanced political regime with an exemplary record of civil liberties and political freedoms.

Rodrik (2008) states that economic policy has been conducted in an equally exemplary manner, with South Africa turning itself into one of the emerging markets with the lowest risk spreads. While South Africa has instituted some innovative and costly social transfer programs to address long-standing disparities, it has done so in the context of cautious fiscal and monetary policies, which have kept inflation and public debt at low levels. There were no nationalizations or large-scale asset redistributions. Moreover, the economy was opened to international trade and capital flows. However, according to Hodge (2009), despite the positive trend in growth and other economic fundamentals, unemployment has continued to rise from its already high level in the early 1990s and continues to be a significant challenge for the economy.

3.2 Overview of CIVETS economies

3.2.1 Macroeconomic development

For an overview of the economic development in CIVETS, different measures of the macroeconomy are introduced below. Table 2 provides information about the population dynamics of the countries. CIVETS have a large and growing population totaling around 584 million in the end of 2011. Between 2000 and 2011, CIVETS population has increased by over 15 percent. Indonesia is by far the largest economy of CIVETS in terms of population with 242 million people and is the fourth most populous country in the world, whereas Colombia is the smallest country in CIVETS with population totaling 43 million in the end of 2011. In addition to large population, the population in CIVETS is young. On average close to 28 percent of CIVETS population belonged to the age group of 0-14 years in the end of 2011. The percentage share of children ages 0-14 has been decreasing during the past years, which can be inferred as decline in birthrate

due to family planning programs implemented in the developing economies (see for example Lapham and Mauldin, 1984). However, the great share of young population in CIVETS translates into large markets and an extensive consumer base.

Table 2 Population in CIVETS

Population figures are reported as year-end values in millions. The proportion of population of ages 0-14 years is presented in brackets as a percentage of the total population. The source for the data is World Bank (2013).

	Population, millions (ages 0-14, % of total)					
	2000	**2001**	**2002**	**2003**	**2004**	**2005**
Colombia	39.8 (32.8)	40.4 (32.4)	41.1 (32.00)	41.7 (31.6)	42.4 (31.2)	43.0 (30.8)
Indonesia	213.4 (30.7)	216.2 (30.3)	219.0 (29.9)	221.8 (29.5)	224.6 (29.1)	227.3 (28.8)
Vietnam	77.6 (32.1)	78.6 (31.1)	79.5 (30.1)	80.5 (29.2)	81.4 (28.3)	82.4 (27.3)
Egypt	67.7 (36.0)	68.9 (35.4)	70.2 (34.8)	71.5 (34.1)	72.8 (33.6)	74.2 (33.1)
Turkey	63.6 (30.7)	64.5 (30.2)	65.5 (29.7)	66.3 (29.3)	67.2 (28.8)	68.1 (28.4)
South Africa	44.0 (33.7)	44.9 (33.3)	45.5 (32.8)	46.1 (32.5)	46.7 (32.1)	47.2 (31.7)
	2006	**2007**	**2008**	**2009**	**2010**	**2011**
Colombia	43.7 (30.3)	44.4 (29.9)	45.0 (29.6)	45.7 (29.1)	46.3 (28.7)	46.9 (28.4)
Indonesia	229.9 (28.4)	232.5 (28.1)	235.0 (27.7)	237.4 (27.4)	239.9 (27.0)	242.3 (26.7)
Vietnam	83.3 (26.5)	84.2 (25.6)	85.1 (24.0)	86.0 (24.1)	86.9 (23.6)	87.8 (23.2)
Egypt	75.6 (32.7)	76.9 (32.3)	78.3 (32.0)	79.7 (31.8)	81.1 (31.5)	82.5 (31.3)
Turkey	69.1 (28.0)	70.0 (27.6)	70.9 (27.2)	71.9 (26.8)	72.8 (26.4)	73.6 (26.0)
South Africa	47.7 (31.4)	48.3 (31.0)	48.8 (30.7)	49.3 (30.4)	50.0 (30.1)	50.6 (29.9)

GDP is a measure of the market value of all final goods and services produced in a country in a given year. Furthermore, GDP per capita is often considered as an indicator of a country's standard of living. Table 3 reports the GDP per capita for CIVETS from 2000 to 2011 in current U.S. dollars. Turkey has historically fared well in terms of GDP per capita when compared to other CIVETS and had the highest GDP per capita of CIVETS also in 2011. The lowest GDP per capita was recorded for Vietnam for the same year. The gap between the highest and lowest GDP per capita can be considered somewhat significant as in 2011 the difference between Turkey and Vietnam was over 9,000 U.S. dollars, which is over six times the amount of GDP per capita in Vietnam. Indonesia has reported strongest growth in GDP per capita from 2000 to 2011 with the amount of GDP per capita increasing over three-fold during the period. Despite the relatively high levels of

economic growth in Egypt in recent years, GDP per capita growth has been modest when comparing to the other CIVETS economies.

Table 3 GDP per capita of CIVETS

GDP per capita is reported as year-end value in current U.S. dollars. The source for the data is World Bank (2013).

GDP per capita, current U.S. Dollars						
	2000	**2001**	**2002**	**2003**	**2004**	**2005**
Colombia	2512.0	2429.4	2384.1	2268.9	2762.1	3404.2
Indonesia	773.3	742.1	893.3	1058.3	1143.5	1257.7
Vietnam	401.5	415.7	440.8	491.5	557.8	642.3
Egypt	1475.8	1417.3	1251.9	1159.8	1082.4	1208.7
Turkey	4189.5	3036.7	3553.1	4567.5	5832.7	7087.7
South Africa	3019.9	2638.2	2440.0	3647.7	4695.0	5234.3
	2006	**2007**	**2008**	**2009**	**2010**	**2011**
Colombia	3725.1	4678.9	5423.3	5133.4	6186.0	7104.0
Indonesia	1585.7	1859.3	2171.7	2272.7	2951.7	3494.6
Vietnam	731.1	843.2	1070.2	1129.7	1224.3	1407.1
Egypt	1422.3	1695.8	2078.8	2370.7	2698.4	2780.9
Turkey	7687.1	9246.0	10297.5	8553.7	10049.8	10524
South Africa	5468.3	5930.1	5612.9	5738.3	7271.7	8070.0

Unemployment rate is another measure of the state of the economy. Table 4 shows the unemployment rate in percentages of total labor force for CIVETS from 2000 to 2011. In South Africa, unemployment is on a significantly higher level compared to the other CIVETS. According to Rodrik (2008), unemployment in South Africa is among the highest in the world for the reason that prevailing wage levels are too high and the economy has been unable to generate much growth momentum during the past decade. Unemployment rate in Vietnam has remained somewhat constant during the period, whereas Turkey has recorded the largest decrease in unemployment between 2009 and 2011.

Table 4 Unemployment in CIVETS

Unemployment is presented as a percentage of the total labor force. The source for the data is IMF (2012).

	Unemployment, % of total labor force					
Country	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**
Colombia	13.3	15.0	15.7	14.2	13.6	11.8
Indonesia	6.1	8.1	9.1	9.5	9.9	11.2
Vietnam	6.4	6.3	6.0	5.8	5.6	5.3
Egypt	9.0	8.8	10.1	11.3	10.5	11.5
Turkey	6.5	8.3	10.3	10.5	10.3	10.6
South Africa	25.6	29.4	30.4	28.0	26.2	26.7
	2006	**2007**	**2008**	**2009**	**2010**	**2011**
Colombia	12.0	11.2	11.3	12.0	11.8	10.8
Indonesia	10.3	9.1	8.4	7.9	7.1	6.6
Vietnam	4.8	4.6	4.7	4.6	4.3	4.5
Egypt	10.9	9.2	8.7	9.4	9.2	12.1
Turkey	10.2	10.2	10.9	14.0	11.9	9.8
South Africa	25.5	22.2	22.9	23.9	24.0	23.9

Labor productivity in CIVETS is presented in Table 5 and measured as GDP per person employed. Thus, labor productivity measures the amount of goods and services a person employed produces in a year. Labor productivity can be used as a measure of a country's economic growth and the growth in labor productivity depends mainly on investments in physical capital, new technology and human capital. Turkey has the highest GDP per person employed for the time period under observation. Even though Vietnam has the lowest labor productivity, the country has experienced highest growth as labor productivity has increased by 59.4 percent between 2000 and 2011. The lowest growth has been recorded for Colombia for the same period.

Table 5 Labor productivity in CIVETS

Labor productivity in CIVETS is measured as GDP per person employed in 2012 U.S. dollars and presented as year-end values. The source for the data is The Conference Board (2013).

Labor productivity measured by GDP per person employed in 2012 U.S. $						
Country	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**
Colombia	19201.0	18702.1	19230.5	18832.0	19480.1	19624.4
Indonesia	7881.4	8081.3	8367.6	8657.6	9004.8	9493.5
Vietnam	4132.9	4314.6	4503.1	4702.7	4947.2	5217.5
Egypt	14084.5	14332.9	14532.6	14264.0	14172.4	14158.5
Turkey	29494.9	27886.4	29835.6	31706.8	37284.9	39562.6
South Africa	20703.7	20588.4	20804.2	20904.8	21439.3	22113.6
	2006	**2007**	**2008**	**2009**	**2010**	**2011**
Colombia	21533.7	22486.4	22817.3	21933.8	21876.0	22780.3
Indonesia	9858.4	10014.6	10345.4	10579.6	10879.3	11427.7
Vietnam	5492.1	5794.7	5994.3	6143.8	6386.0	6586.8
Egypt	15109.3	15452.4	16132.1	16460.8	16876.3	16849.1
Turkey	41570.3	42865.7	42241.2	40049.4	41223.7	41973.6
South Africa	22845.8	23557.8	23509.0	23481.7	24519.6	25354.4

Since financial liberalization processes that took place in the 1990s, international trade and FDI have increased significantly in developing economies. Major trading partners of CIVETS are listed in Table 6 and the amount of trade is presented as a percentage of a country's total trade for the year 2011, which is the most up-to-date information available for the countries. The amount of trade includes both exports and imports. EU is the largest trading partner for Egypt, Turkey and South Africa, whereas for the other CIVETS; Colombia, Indonesia and Vietnam, EU is less significant trading partner and trading relations are more concentrated on the local partner countries.

Table 6 Major trading partners of CIVETS

The five major trading partners of CIVETS have been listed and the amount of trade is presented as a percentage of each country's total trade. The source for the data is European Commission (2013).

Major trading partners of CIVETS in 2011					
Colombia		**Indonesia**		**Vietnam**	
United States	32.2 %	Japan	14.4 %	China	19,1 %
European Union	14.7 %	China	13.3 %	European Union	13.0 %
China	9.2 %	Singapore	12.0 %	United States	11.5 %
Mexico	6.1 %	European Union	8.9 %	Japan	11.3 %
Brazil	3.7 %	South Korea	7.9 %	South Korea	9.6 %
Egypt		**Turkey**		**South Africa**	
European Union	30.3%	European Union	41.1 %	European Union	26.7 %
United States	8.9 %	Russia	8.0 %	China	13.7 %
China	6.8 %	China	6.5 %	United States	8.5 %
Saudi Arabia	4.9 %	United States	5.5 %	Japan	6.3 %
Turkey	4.6 %	Iran	4.3 %	India	3.8 %

FDI is defined as a direct investment into production or business of a country by a company in another country. FDI can be made either by buying a company in the target country or by expanding operations of an existing business in that country. Furthermore, FDI is considered as an indicator of a country's openness towards foreign investors. Table 7 shows the amount of FDI net inflows as a percentage of GDP. Relatively, Vietnam has been receiving the largest amount of FDI, which however has been on the decrease since 2009 most probably as a result of the global financial crisis. The sharpest decrease in FDI in the past years has been recorded for Egypt, which can be attributed to the effects of global financial crisis and the uncertainties related to the Arab Spring. Appendix 1 graphically illustrates all the economic measurements of CIVETS.

Table 7 FDI net inflows for CIVETS

FDI is presented as year-end value and as a percentage of GDP. The source for the data is World Bank (2013).

	FDI net inflows, % of GDP					
Country	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**
Colombia	2.4	2.6	2.2	1.8	2.6	7.0
Indonesia	-2.8	-1.9	0.1	-0.3	0.7	2.9
Vietnam	4.2	4.0	4.0	3.7	3.5	3.7
Egypt	1.2	0.5	0.7	0.3	1.6	6.0
Turkey	0.4	1.7	0.5	0.6	0.7	2.1
South Africa	0.7	6.1	1.3	0.5	0.3	2.6
	2006	**2007**	**2008**	**2009**	**2010**	**2011**
Colombia	4.1	4.6	4.2	3.1	2.4	4.0
Indonesia	1.4	1.6	1.8	0.9	1.9	2.1
Vietnam	3.9	9.4	10.5	7.8	7.5	6.0
Egypt	9.3	8.9	5.8	3.6	2.9	-0.2
Turkey	3.8	3.4	2.7	1.4	1.2	2.1
South Africa	-0.1	2.0	3.5	1.9	0.3	1.4

The main sources of FDI for the CIVETS in 2011 are listed in Appendix 2. EU is the largest source of FDI for Colombia, Egypt, Turkey and South Africa. Whereas for Indonesia and Vietnam, local sources of FDI are more significant than the EU.

3.2.2 Country risk analysis

Aggregate risk of investing in a country depending on the business environment of a specific country is referred to as country risk. For example, financial and political factors such as GDP growth, exchange rates, monetary policy, regulatory changes, riots and civil wars and other potential events might affect to the operating profits or the value of assets in a specific country. Therefore, the risks associated with investing in an emerging economy are compared from three different perspectives; political, macroeconomic and the openness towards establishing a business measured by the Ease of Doing Business Index.

The political rating represents the political stability of the country, which is seen to form the basis for a stable economy and business environment. Political risk rating takes into account different aspects of the political environment of a country including threat of war, social unrest, disorderly transfers of power, political violence, international disputes, regime changes, institutional

ineffectiveness and also the quality of the bureaucracy, the transparency and fairness of the political system, and levels of corruption and crime in a country. Macroeconomic risk rating measures the state of the economy and the calculation includes such factors as GDP growth, unemployment, inflation, real interest rates, fiscal balance, current account balance and external debt, dependence on private sector, reliance on commodity imports, reliance on a single export sector and central bank independence.

Business environment is measured by the Ease of Doing Business Index, which is created and published by the World Bank and is presented as a ranking out of 185 countries. Higher ranking, that is lower value, indicates better regulatory environment for businesses and stronger protection of property rights. A country ranking is based on the following factors; ease of starting a business, dealing with construction permits, getting electricity, registering property, getting credit, investor protection, tax paying, contract enforcement and insolvency resolution.

The investment climates of CIVETS have been compared with the help of risk ratings provided by the Economist Intelligence Unit and Ease of Doing Business Index ratings provided by the World Bank. Table 8 presents the ratings for CIVETS countries. Egypt recorded the highest political and macroeconomic rating among the CIVETS in the January and February 2013 ranking. This suggests that the political environment and the economic policies in Egypt are less stable than in other CIVETS. Indonesia posted the lowest ratings in both political and macroeconomic categories, suggesting that Indonesia is a more stable market compared to the other CIVETS.

According to Ease of Doing Business Index, South Africa receives the highest ranking among CIVETS, which suggests that the business environment is more responsive towards starting and operating a business than in the other CIVETS. Indonesia, which reported the lowest country risk scores, has the lowest ranking in terms of Ease of Doing Business Index. This suggests that despite stable political and macroeconomic environment, starting and operating a business is still a considerable challenge in Indonesia. Egypt and Vietnam also show fairly low rankings, proposing somewhat similar level of challenges in those countries as in Indonesia.

Table 8 Risk rating for CIVETS

The political and macroeconomic risk ratings were released in January and February 2013. The rating scale goes from 1 to 100, where the score of 100 represents the riskiest. Ease of Doing Business Index represents the ratings for June 2012 and is presented as a ranking out of 185 countries with a high ranking meaning that the regulatory environment is more favorable to the starting and operation of a firm. The source for the risk rating data is EIU (2013) and for the Ease of Doing Business Index, World Bank (2013).

	Colombia	Indonesia	Vietnam	Egypt	Turkey	South Africa
Political risk	40	30	55	70	50	30
Macroeconomic risk	30	30	45	65	50	45
Ease of Doing Business Index	45	128	99	109	71	39

To conclude, the risk ratings vary among CIVETS with Colombia and South Africa representing the countries that are politically and macroeconomically more stable and have an encouraging business environment as compared to other CIVETS. Even though Indonesia, Vietnam and Turkey exhibit stability in terms of political and macroeconomic environment, the business environment in these countries is less supportive as compared to Colombia and South Africa.

4 DEVELOPMENT OF STOCK MARKETS

4.1 Historical overview of CIVETS stock markets

Colombian Securities Market (Bolsa de Valores de Colombia, BVC) was established in 2001 as a result of the integration of the Bogota, Medellin and Occident Exchanges. However, the first stock exchange in Bogota, Colombia was established already in 1928. Currently, BVC is considered as the fourth most important securities market in Latin America with major oil companies constituting the largest part of the Colombian market capitalization. Colombian Securities Market publishes three different indices, COLCAP, COL20 and IGBC. COLCAP is the benchmark for Colombia's most heavily traded shares. COL20 includes the twenty largest companies and IGBC is the general index. There have been plans regarding the unification of the stock markets of Colombia, Chile and Peru as the Stock Markets of the Andes. (Bolsa de Valores de Colombia, 2008)

The capital market in Indonesia has existed long before the independence of Indonesia. The first stock exchange in Indonesia was established in Batavia (currently known as Jakarta) in 1912 during the Dutch colonial era. New stock exchanges were established in Semarang and Surabaya in 1942. The capital markets were more or less in active during the First and Second World War and 1956-1977 due to the nationalism program by the Indonesian government. In 1977, the Exchange was again reactivated by the President Suharto. However, only after 1987 reforms and deregulation packages to allow companies go public and foreign investors to invest in Indonesia, the Exchange activity started to improve. In 2007, Surabaya and Jakarta stock exchanges merged and formed the Indonesia Stock Exchange, which is located in Jakarta. The two main stock indices in the Indonesia Stock Exchange are the Jakarta Composite Index (JSXComposite) including all stocks traded on the exchange and Jakarta Islamic Index (JII), which benchmarks companies based on Islamic law, Sharia. (Bursa Efek Indonesia, 2010)

Ho Chi Minh Stock Exchange (HOSE), the largest stock exchange in Vietnam was established in 2000 with two equity issuances; Refrigeration Electrical Engineering Joint Stock Corporation and Saigon Cable and Telecommunication Material Joint Stock Company. The exchange has grown rapidly especially after

the introduction of electronic trading in 2009, as in the end of 2011 the number of listed domestic companies reached 301. (HoChiMinh Stock Exchange, 2008) The second securities trading center to open in Vietnam in 2005 was Hanoi Securities Trading Center, which changed to Hanoi Stock Exchange in 2009. Hanoi Stock Exchange publishes a composite index of all listed stocks, HNX-Index. (Hanoi Stock Exchange, 2013)

The Egyptian Exchange is one of the oldest stock markets established in the Middle East with its history dating back to 1883 when the Alexandria Stock Exchange was established, followed by the Cairo Stock Exchange in 1903. During the 19th century, Alexandria's Futures Market was one of the oldest in the world. The first local recorded cotton transaction took place in 1885 in Alexandria's Café de l'Europe on Place des Consuls, which was later renamed Mohammed Ali Square. The two exchanges were very active in the 1940s and the merged Egyptian Stock Exchange combining both Alexandria and Cairo exchanges was ranked as fourth in the world. However, central planning and socialist policies adopted in the 1950s led to the inactivation of the exchange for the period of 1961-1997. The exchange was reopened as a result of economic restructuring and reforms that were adopted by the government in the 1990s. In the beginning of 2011, the Egyptian Stock Exchange benchmark index EGX30 fell significantly and the exchange was closed for almost two months from January 27 to March 23 due to the Egyptian Revolution that took place in the upheaval of the Arab Spring. (Egyptian Exchange, 2013)

Istanbul Stock Exchange (ISE) in Turkey was established in 1986 but the origins of the Turkish stock market date back to 1929. ISE is the only securities exchange in Turkey established to provide trading in equities, bonds and bills, revenue-sharing certificates, private sector bonds, foreign securities and real estate certificates and international securities. ISE has followed a fast pace growth in terms of trading volume, market capitalization, number of listed corporations and foreign investment since its establishment. (IMBK, 2012) According to Adaoglu (2000), in the end of 1990s, ISE surpassed several European stock exchanges such as Paris, Stockholm, Amsterdam, Vienna, Brussels, Helsinki and Luxembourg in terms of monthly turnover velocity. ISE publishes several indices including ISE National All Share Index, ISE National-30, ISE National-50, ISE National-100, Sector and sub-sector indices, ISE Second

National Market Index, ISE New Economy Market Index and ISE Investment Trusts Index. ISE National-100 Index is used as the main indicator of the Turkish market. (IMBK, 2012)

Johannesburg Stock Exchange (JSE) in South Africa is the largest CIVETS stock exchange and the largest stock market in Africa. JSE was established in 1887 and over a hundred years later in 1995 the government made substantial changes to the stock exchange legislation, which resulted in the deregulation of the JSE through the introduction of limited liability corporate and foreign membership. In 1996, the exchange introduced fully centralized and automated trading system and in 2002 all the listed securities were successfully dematerialized. JSE is currently the 17th largest stock exchange in the world and there are plans to create a pan-African exchange by combining JSE with stock exchanges of Ghana, Namibia, Zimbabwe and Zambia. (Johannesburg Stock Exchange, 2013)

Trading hours on CIVETS stock markets differ from market to market as seen in Table 9. The longest trading period, eight hours, is on the ISE in Turkey, whereas the shortest trading period of four hours is on the Egyptian Stock Exchange.

Table 9 Trading hours on CIVETS stock markets

Trading hours on CIVETS stock markets are presented in both local time and Greenwich Mean Time (GMT).

	Colombia[4]	**Indonesia**	**Vietnam**
Trading hours (local time)	09.30-16.00	09.00-16.00	09.00-14.15
Time difference to GMT (in hours)	-4.0	+7.0	+7.0
Trading hours (GMT)	13.30-20.00	02.00-09.00	02.00-07.15
	Egypt	**Turkey**	**South Africa**
Trading hours (local time)	10.30-14.30	09.30-17.30	09.00-17.00
Time difference to GMT (in hours)	+2.0	+2.0	+2.0
Trading hours (GMT)	08.30-12.30	07.30-15.30	07.00-15.00

To conclude, CIVETS except for Vietnam have a long tradition in securities trade. However, some of the exchanges have been inactive for periods of varying lengths when the countries were under socialist rule or due to severe crisis. Egypt was the first country to establish its stock exchange in 1883 and the

[4] Colombian Stock Exchange follows the New York time zone.

youngest CIVETS stock exchange was established over a hundred years later in Vietnam in 2000.

4.2 Progression of CIVETS stock markets

For an overview of the CIVETS stock markets, several measurements of stock markets are introduced below. To begin with, market capitalization or market value can be considered as an indicator of development of financial markets. Table 10 presents market capitalizations in CIVETS from 2000 to 2011. Market capitalization is the overall size of the stock market at year end in U.S. dollars. Despite a significant decrease in 2008, the South African stock market is the leader among the CIVETS in terms of market capitalization. All of the markets experienced a decrease in 2008 due to the global financial crisis and showed signs of recovery in the subsequent year. However, the year 2011 also marked a decrease in share prices for all the CIVETS markets except Indonesia, which experienced an 8 percent growth during the year.

Table 10 Market capitalizations in CIVETS stock markets

Market capitalization is reported as the year-end value in billions of U.S. dollars. The source for the data is World Bank (2013).

	End of year (U.S. dollars, billions)					
Market	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**
Colombia	9.6	13.2	9.7	14.3	25.2	46.0
Indonesia	26.8	23.0	30.0	54.7	73.3	81.4
Vietnam[5]	N/A	N/A	N/A	0.2	0.2	0.5
Egypt	28.7	24.3	26.1	27.1	38.5	79.7
Turkey	69.7	47.1	34.0	68.4	98.3	161.5
South Africa	205.0	139.7	184.6	267.7	455.5	565.4
	2006	**2007**	**2008**	**2009**	**2010**	**2011**
Colombia	56.2	102.0	87.0	133.3	208.5	201.3
Indonesia	138.9	211.7	98.8	178.2	360.4	390.1
Vietnam	9.1	19.5	9.6	21.2	20.4	18.3
Egypt	93.5	139.3	85.9	90.0	82.5	48.7
Turkey	162.4	286.6	117.9	225.7	306.7	201.8
South Africa	715.0	833.5	491.3	704.8	1012.5	855.7

[5] Data is not available for Vietnam for the period of 2000-2002.

The number of listed domestic companies is also considered as a measure of stock market size. Table 11 presents the number of listed domestic companies on CIVETS stock markets from 2000 to 2011. The values are measured as the number of companies registered on stock exchanges at the end of a particular year.

Table 11 shows the number of listed domestic companies has increased significantly on the Vietnamese stock market since its establishment in 2000, whereas Egypt has experienced the strongest decrease in the number of listed companies during the period. Indonesian stock market is the largest and Turkish stock market the smallest when comparing the number of listed domestic companies in 2011 terms.

Table 11 Number of listed domestic companies on CIVETS stock markets

The number of listed domestic companies is reported as of year-end. The source for the data is World Bank (2013).

	Number of listed domestic companies, end of year					
Market	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**
Colombia	126	123	114	114	114	114
Indonesia	290	316	331	333	331	335
Vietnam[6]	N/A	N/A	N/A	22	26	33
Egypt	1076	1110	1148	967	792	744
Turkey	315	310	288	284	296	302
South Africa	616	542	450	426	403	388
	2006	**2007**	**2008**	**2009**	**2010**	**2011**
Colombia	114	96	96	86	84	79
Indonesia	344	383	396	398	420	440
Vietnam	102	121	171	196	275	301
Egypt,	603	435	373	305	213	231
Turkey	314	319	317	315	337	362
South Africa	401	422	379	363	360	355

Trading value can also be considered as another measure of market size. Here it is presented as a ratio of the total value of shares traded to GDP. This measurement represents market liquidity, that is, the ability of investors to easily buy and sell securities. Liquidity is an important attribute of stock markets, as liquid markets improve the allocation of capital and enhance prospects for long-term economic growth. Table 12 presents liquidity of CIVETS stock markets from 2000 to 2011.

The most liquid stock market in CIVETS during the observation period is South Africa, where liquidity is on a significantly higher level compared to other CIVETS markets. In terms of liquidity, South Africa has been on the same level of market liquidity as developed markets during the past years and exceeded the EA in 2011, where market liquidity was only 50 percent (World Bank, 2013). However, the low level for the EA is largely due to the current euro crisis so it cannot be directly interpreted to exhibit the normal characteristics of market liquidity in Europe. Market liquidity in Colombia, Indonesia, Vietnam and Egypt is on a significantly low level. Additionally, market liquidity in Turkey can also be considered to be far from the liquidity levels of the developed markets. Global

[6] Data is not available for Vietnam for the period of 2000-2002.

financial crisis affected market liquidity as all the CIVETS markets except Colombia and Egypt recorded decrease in market liquidity in 2008.

Table 12 Market liquidity in CIVETS stock markets

Market liquidity is measured as the total value of shares traded divided by GDP. The source for the data is World Bank (2013).

	Value of shares traded, % of GDP					
Market	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**
Colombia	0.4	0.4	0.3	0.4	1.3	4.3
Indonesia	8.7	6.0	6.7	6.3	10.7	14.7
Vietnam[7]	N/A	N/A	N/A	0.0	0.1	0.2
Egypt	11.1	4.0	2.9	4.0	7.1	28.3
Turkey	67.2	39.8	30.4	32.9	37.6	41.7
South Africa	58.3	58.8	71.0	61.1	74.3	81.3
	2006	**2007**	**2008**	**2009**	**2010**	**2011**
Colombia	7.0	5.0	5.1	5.5	8.0	8.2
Indonesia	13.4	26.1	21.7	21.4	18.3	16.5
Vietnam	1.8	17.7	7.2	22.3	16.2	4.6
Egypt	44.2	40.7	42.8	28.0	17.0	9.6
Turkey	42.9	46.7	32.8	39.6	57.7	53.4
South Africa	119.7	148.8	146.6	121.0	93.5	91.2

Turnover ratio is another measure to examine stock market development. Turnover ratio is calculated as the value of shares traded divided by market capitalization. Table 13 presents the turnover ratio in CIVETS markets from 2000 to 2011.

Turkey is the clear leader among CIVETS markets in the value of shares traded as a percentage of the capitalization of local stock markets. The Turkish stock market turnover ratio in 2011 was 162.7 percent, which was even on a higher level compared to the EA, 110.0 percent in 2011 (World Bank, 2013). However, the severe effects of the euro crisis on the stock markets in the EA have to be borne in mind when making comparisons. The lowest turnover ratio for CIVETS in 2011 was recorded in Colombia with only 13.3 percent. Appendix 3 graphically illustrates all the measurements of CIVETS stock markets.

[7] Data is not available for Vietnam for the period of 2000-2002.

Table 13 Turnover ratio on CIVETS stock markets

The turnover ratio is a value of shares traded as a percentage of market capitalization. The source for the data is World Bank (2013).

	Value of shares traded, % of market capitalization					
Market	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**
Colombia	3.8	3.1	2.4	3.4	7.4	17.9
Indonesia	31.5	38.8	49.2	34.9	43.1	54.2
Vietnam[8]	N/A	N/A	N/A	N/A	31.2	24.8
Egypt	36.1	14.7	10.1	12.3	17.1	43.0
Turkey	196.5	133.4	174.3	194.7	176.9	154.9
South Africa	33.2	40.4	48.6	45.5	45.0	39.3

	2006	**2007**	**2008**	**2009**	**2010**	**2011**
Colombia	22.2	13.1	13.2	11.8	13.4	13.3
Indonesia	44.3	64.4	71.3	83.3	48.1	37.2
Vietnam	22.4	87.9	44.8	141.0	82.7	29.5
Egypt	54.8	45.6	61.9	60.1	43.0	33.5
Turkey	140.5	134.7	118.5	141.7	158.4	162.7
South Africa	48.8	55.0	60.6	57.3	39.6	39.8

Historical development of the CIVETS total return indices for the research period from 2007 to 2012 is presented in Figure 2. The MSCI indices are used for all the CIVETS markets and the returns are scaled to 1 in the beginning of 2007.

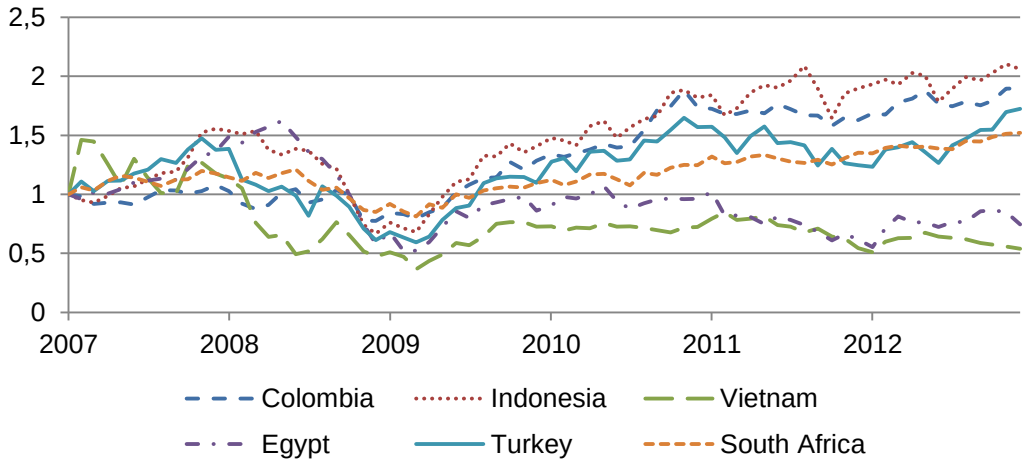

Figure 2 Development of CIVETS stock market indices

[8] Data is not available for Vietnam for the period of 2000-2003.

The decrease around 2009 is due to the global financial crisis and its spillover across the world. Indonesia has recorded highest increase for the period in question, whereas the most modest performance has been recorded for Vietnam, which has not been able to recover to the similar level as prior the crisis. See Appendix 4 for the monthly return volatilities of individual CIVETS total return indices.

4.3 Interdependence of stock markets

4.3.1 Relationship between stock market and macroeconomy

The links between stock market and macroeconomy have been studied extensively and evidence regarding this relationship is generally accepted. However, according to Chen et al. (1986) generalization about the main macroeconomic factors affecting global stock prices and returns is somewhat difficult to make. As Andersen et al. (2007) point out, consistent with the ability of investors to diversify; modern financial theory has focused on pervasive or systematic influences as the likely source of investment risk. Traditional efficient markets hypothesis suggests that asset prices should completely and instantaneously reflect movements in underlying fundamentals. Conversely, another school of thought suggests that asset prices and fundamentals are mostly disconnected. Experiences such as the late 1990s U.S. market bubble would seem to support that view, yet simultaneously it seems clear that financial market participants pay a great deal of attention to data on underlying economic fundamentals.

According to Arbitrage Pricing Theory by Ross (1976), only a few systematic factors affect the long-term average returns of financial assets, and the number of relevant variables in each case can be minimized by applying different evaluation techniques. By identifying these factors, it is possible to gain an intuitive appreciation of their influence on stock returns. This follows the idea of Capital Asset Pricing Model (CAPM), introduced by Sharpe (1964) and Lintner (1965), which suggests that the proper measure of risk of a security is the undiversifiable or systematic risk. According to CAPM, the expected return on an asset above the risk free rate is proportional to the undiversiable risk, which is measured by the covariance of the asset return with a portfolio composed of all the available assets in the markets.

Furthermore, Roll and Ross (1984) state that asset returns are also affected by influences that are not systematic but idiosyncratic, meaning that they affect individual firms or particular industries and not the overall economic conditions. However, systematic factors are considered as the primary sources of risk and hence, also the principal determinants of the expected as well as actual stock return. Similarly, asset pricing model developed by Cox et al. (1985) determines the equilibrium price, that is, the expected return of a given asset in terms of the underlying real economy variables. Thus, this framework also is able to incorporate many of the fundamental forces, that is, macroeconomic variables affecting asset prices.

Chen et al. (1986) state that financial theory has not been able to clearly define, which events are likely to influence all assets, which is further supported by Flannery and Protopapadakis (2002) as they conclude that even though macroeconomic indicators seem good candidates for risk factors, the evidence of their influence is limited and contradictory. Furthermore, Roll (1988) states that it is difficult to account for more than one third of the monthly variation in stock returns on the basis of systematic economic influences. Cutler et al. (1989) conclude that a substantial fraction of return variation cannot be explained only by the effect macroeconomic news announcements but other information related to future cash flows and discount rates also needs to be taken into account.

However, as stated by Chen et al. (1986), only general economic state variables will influence the pricing of large stock market aggregates, which is in accordance with the diversification argument related to capital market theory. Any systematic variables that affect the economy's pricing operator or that influence dividends would also influence stock market returns. Additionally, any variables that are necessary to complete the description of the state of nature will also be part of the description of the systematic risk factors. An example of such a variable would be one that has no direct influence on current cash flows but that affects the changing investment opportunities.

Valuation of a stock is determined by the present value of its future cash flows and the price of a stock, *p*, can be written as

(1) $$p=\frac{E(c)}{k},$$

where *c* is the dividend stream or expected cash flows and *k* is the discount rate, which implies that actual returns in any period can be written as

(2) $$\frac{dp}{p}+\frac{c}{p}=\frac{d[E(c)]}{E(c)}-\frac{dk}{k}+\frac{c}{p}.$$

According to Chen et al. (1986), this suggests that systematic forces that influence returns are those that change discount rate, *k*, and expected cash flows, *E(c).* Discount rate is affected by unanticipated changes in both the risk-free interest rate and the risk premium. Thus, fluctuations in real consumption will influence pricing and show up as unanticipated changes in risk premium. Expected cash flows change because of both real and nominal forces. Furthermore, changes in the expected rate of inflation and real production affect the expected cash flows and further valuation.

As noted by Graham et al. (2003), scheduled macroeconomic announcements provide important information for stock market investors, who use this information to re-assess the valuation of stocks. Since there is a great deal of uncertainty and, thus, disagreement about the content of the coming announcement, actual asset price movement, that is realized volatility, tends to be higher than normal on scheduled news announcement days. However, several hypotheses exist regarding the effect of macroeconomic news announcements on return volatility that are based on different assumptions and therefore predict somewhat different reactions.

According to Nofsinger and Prucyk (2003), the hypotheses can be categorized by being motivated by information, rational expectations or cognitive biases. For example, Kim and Verrecchia (1994) assumed that traders cannot acquire private information in advance of the announcement. In this scenario, the announcement causes an information asymmetry until the traders reach a consensus about the outcome. In another model, Kim and Verrecchia (1991a) assumed that traders are able to collect private information, form opinions and trade before the public announcement. Then trading and price changes are caused by the unexpected

part of the news. Kim and Verrecchia (1991b) provide an expanded version of the model, which assumes that traders are able to collect private information and that the announcement is highly anticipated and the quality of the announcement is already known. They suggest that the price sensitivity and the variance of the price change decline as the quality of the announcement increases. Ederington and Lee (1996) give an alternate approach and derive their hypothesis based on a model where traders may acquire some private information prior the announcement, but some uncertainty still exists. They measure the uncertainty through an option's implied volatility and show that implied volatility should be high before a scheduled news announcement and low after the announcement as the uncertainty is resolved.

With regards to the specific macroeconomic news announcements effects on stock markets, prior research has characterized CPI as a specific indicator representing several macroeconomic variables such as the discount rate, inflation and the goods market. Furthermore, CPI has been found to affect negatively to stock market as price increase can result to higher risk of future profitability (see for example Hussainey and Ngoc, 2009). Conversely, industrial production announcements have been found to positively affect stock markets as higher than expected published industrial production figures raised the conditional returns and lowered the conditional variance of the stock returns. (see for example Hanousek and Kočenda, 2011; and Nguyen, 2011).

GDP is considered as one of most important macroeconomic variables as it drives monetary and fiscal policy and consequently, it has been included in many of the previous research related to the impact of macroeconomic news announcement on stock markets. However, little indication of GDP news announcements' impact on stock valuation in cross-country studies has yet been found (see for example Graham et al., 2003; Nikkinen et al., 2006; Hanousek et al., 2009; Nguyen, 2011; Nowak et al., 2011). Indicator for retail sales has also been included in many of the previous research (see for example Nikkinen et al., 2006; Nowak et al., 2011; Nguyen, 2011). Furthermore, Nguyen (2011) found that Vietnamese stock market to yield lower conditional returns when higher than expected news was published regarding the U.S. retail sales. Unemployment indicator has been included in previous research regarding its effects on stock returns (see for example Hanousek et al., 2009; Nguyen, 2011; Harju and

Hussain, 2011) According to Nguyen (2011), higher than expected unemployment news are usually considered as good news for stock markets as it typically signals a decline in future interest rates. Moreover, Nguyen (2011) found similar reaction in Vietnamese stock exchanges with regards to the U.S. unemployment news announcements.

For example Hanousek et al. (2009) included a monetary aggregate in their research model. With regards to the impact of U.S. macroeconomic news announcements on the stock markets of other countries, PMI has been found to be among the most influential indicators (see for example Bollerslev et al., 2000; Graham et al., 2003; Nikkinen et al., 2006). Consumer confidence has also been rather widely applied in the previous research (see for example Nikkinen et al., 2006; Hanousek et al. 2009; Nowak et al., 2011)

4.3.2 Stock market integration

As noted by Bekaert and Harvey (2003) market integration stems from financial liberalization, which in the development literature has been often referred as domestic financial liberalization including banking sector reforms or even privatization, allowing inward and outward foreign equity investment. Furthermore, in a liberalized equity market, foreign investors can without restrictions purchase or sell domestic securities and domestic investors can purchase or sell foreign securities.

According to Bekaert and Harvey (2003), the financial liberalization process including loosening restrictions on foreign ownership of assets, capital market development often simultaneously with macroeconomic and trade reforms enabled developing economies to regain access to foreign capital in the early 1990s. Portfolio flows (both fixed income and equity) and FDI replaced commercial bank debt as the main sources of foreign capital. This has contributed to the coinage of terms referring to countries that possess specific characteristics related to economic development and investment opportunities.

The term emerging market was coined in the early 1980s by the International Finance Corporation (IFC) to refer to economies with low-to-middle per capita income with stock markets that were beginning to show similar characteristics as the developed stock markets in industrial countries. The most famous emerging

markets are the BRICs, named after Brazil, Russia, India and China. However, the classification of emerging markets is somewhat ambiguous and constantly changing. Depending on the source some or all of the CIVETS are counted as emerging markets and in many instances the international investment community includes Indonesia as an emerging market and refers to the other CIVETS as frontier markets. IFC also coined the term frontier market in 1992 to refer to a subset of emerging market economies. Frontier markets are usually understood as smaller, less accessible, yet still investable countries in the developing world. According to Berger et al. (2011), when their capital and liquidity increase, frontier markets can be reclassified as emerging markets. Frontier markets gained public attention in the end of 1990s when S&P started to track a representative index of frontier markets. Moreover, in 2007, S&P and MSCI launched their respective frontier market indices and recently, frontier market mutual funds and exchange traded funds have also emerged. The terms emerging and frontier markets are used interchangeably in this research due to the ambiguousness of the terms with relation to CIVETS.

According to Bekaert and Harvey (2003), the degree of market integration is difficult to measure as investment restrictions may not be binding, or there may be indirect ways to access local equity markets for example through country funds or American Depositary Receipts. Furthermore, the liberalization process is typically complex and gradual and many types of investment barriers exist. First, legal barriers can restrict foreign ownership and impose taxes on foreign investment. Second, information asymmetries are reflected in indirect barriers arising from differences in available information, accounting standards and investor protection. Third, barriers arise from emerging market specific risks including for example liquidity risk, political risk and currency risk that discourage investment and lead to actual segmentation.

According to Bekaert and Harvey (1995), markets are considered as fully integrated if assets with the same risk have identical expected returns irrespective of the market with risk referring to exposure to some common world factor. If a market is segmented, its covariance with a common world factor may have little or no ability to explain its expected return. As Liljeblom et al. (1996) point out, nowadays many large companies worldwide have diversified portfolios through their international activities (such as exports and foreign investments)

leading to more correlated stock prices worldwide. The modern portfolio theory by Markowitz (1952) suggests that by diversifying the risk can be minimized for a given level of expected return or alternatively the portfolio returns can be maximized for a given amount of risk. Increasing international stock market co-movement suggests the existence of common risk factors, which could mean decreased benefits of international diversification as the markets are becoming more and more integrated.

Bekaert and Harvey (1997) state that equities from emerging capital markets have different characteristics than equities from developed markets. Furthermore, emerging markets returns have at least four distinguishing features; higher sample average returns, low correlations with developed market returns, more predictable returns and higher volatility. Additionally, Bekaert and Harvey (1995) found that many emerging markets exhibit time-varying integration. Some emerging markets appear more integrated than one might expect based on prior knowledge of investment restrictions, whereas other markets appear segmented even though foreign investors have relatively free access to their capital markets. However, Berger et al. (2011) state that after the recent global financial crisis, there has been evidence that emerging markets are considered to be more or less integrated in the global economy as opposed to smaller frontier markets, which have not presented increasing integration over time. Thus, it can be argued that rather local than global factors can be considered as the main effects of equity return variation in frontier markets but to a lesser extent regarding emerging markets.

As noted by Koutmos and Booth (1995), stock traders all over the world incorporate into their buy and sell decisions not only information generated domestically but also information produced by other stock markets. Such behavior is consistent with the efficient market hypothesis, provided that news generated by international stock markets is relevant for the pricing of domestic securities. This is the result of increased globalization of financial markets. A volatility spillover occurs when changes in price volatility in one market produce a lagged impact on volatility in other markets, over and above local effects. According to Milunovich and Thorp (2006), volatility spillovers across international equity markets intensified after the October 19, 1987 stock market crash when a sharp drop in the U.S. equity markets appeared to create a widespread wave of

volatility across international markets. Volatility spillover patterns appear to be widespread in financial markets. Spillovers have been evidenced for example between equity markets, bond markets, futures contracts, exchange rates and equities.

According to Janakiramanan and Lamba (1998), large markets such as the U.S. are understood to affect smaller markets and not vice versa. The reasons behind the direction of the influence can be attributed to the following factors: dominant economic power, common investor groups, multiple stock listings and indirect influences. In the post-World War II period, the status of the most influential economy went to the U.S and as most of the cross-border trading is denominated in U.S. dollars, economic factors affecting U.S. capital markets and the U.S. dollar will have worldwide effects, with the influence of these factors being rapidly transmitted to other countries. Common investor groups can also be attributed to stock market co-movements as when two countries share geographical proximity and have similar groups of investors in their markets; these markets are more than likely to influence each other. In accordance with the dominant economic power attribute, the larger and more dominant market is likely to exert greater influence on the relatively smaller market. Additionally, dual listing of stocks affect integration as shocks in one market can be transmitted to the other market through the security. Indirect influences arise as investors in one market may react both directly and indirectly to the shock in another market. For example, upon opening markets react to shocks from other markets that occurred at the time they were closed. This links all stocks markets around the world to some extent and this phenomenon is considered to mostly explain the volatility spillover as markets react to the shocks that happened in other markets the day before.

Different methodologies have been used to study volatility in the stock markets. However, the most commonly used econometric methodology is the Generalized Autoregressive Conditional Heteroscedasticity (GARCH) and its variations (see for example Nikkinen et al., 2006; Hanousek et al., 2009 and Nguyen, 2011). GARCH was introduced by Bollerslev (1987) as an extension to Autoregressive Conditional Heteroscedasticity (ARCH) model introduced by Engle (1982). In these models, the key concept is the conditional variance, that is, the variance conditional on the past. In the classical GARCH models, the conditional variance is expressed as a linear function of the squared past values of the series. This

particular specification is able to capture the main stylized facts characterizing financial series such as stock return volatility. (Francq and Zakoian, 2010) According to Koutmos and Booth (1995), a multivariate GARCH model has several advantages over the univariate approach. First, it eliminates the two-step procedure, thereby avoiding problems associated with estimated regressors. Second, it improves efficiency and the power of the tests for cross market spillovers. Third, it is methodologically consistent with the notion that spillovers are essentially manifestations of the impact of global news on any given market.

Evidence has been found that Colombia is generally integrated with Latin American and the U.S. stock markets (see for example Chen et al., 2002). Hence, there is only limited potential for diversification benefits from investing in a portfolio of Latin American countries that include Colombia. Indonesia has been found to be integrated with the other original ASEAN-5 (Malaysia, the Philippines, Singapore and Thailand) stock markets (see for example Click and Plummer, 2005). However, the integration is far from complete meaning that the benefits of international portfolio diversification for international investor across the ASEAN-5 markets are reduced but not completely eliminated. Hussainey and Ngoc (2009) and Nguyen (2011) found that the Vietnamese stock market reacts to the expansion of the U.S. economy, which is resulting from the growing real and financial integration between the two economies. Goldberg and Veitch (2010) found that the beta of South Africa is low and dependent on exchange rates and gold prices during the pre-integration period; whereas the value of beta is higher and economic fundamentals no longer have a significant explanatory role. This further confirms that South Africa is and has been at least for the past decade integrated into the global financial markets.

Graham et al. (2013) studied the co-movement of selected Middle-East and North African (MENA) stock markets with the U.S. stock market and the regional co-movement of these markets. The results showed highest co-movement and dependency of Egypt with regards to the U.S. market in the long-term compared to other MENA stock markets. Even though regional market co-movement among the MENA markets seems to be much stronger relative to the global market dependencies, the findings provide support for the increasing trend toward global market co-movement. Furthermore, Neaime (2012) found that Egypt was one of the most affected MENA countries by the global financial crisis due to its growing

linkages to global stock markets. Yu and Hassan (2008) found a strengthening long-run relationship between Turkey and the U.S. stock markets, which is the result of the rapid progression of the financial liberalization.

5 DATA AND METHODOLOGY

5.1 Data

5.1.1 Stock indices

The data regarding stock indices applied in this study was retrieved from the FactSet and consists of daily MSCI total return index data ranging from 3.1.2007 to 31.12.2012 covering a period of six years. The main analysis of the research including preliminary testing and model estimation is done by using EViews 5. The dataset consists of individual CIVETS stock market total returns, that is, the returns including dividends for MSCI Colombia, MSCI Indonesia, MSCI Vietnam, MSCI Egypt, MSCI Turkey and MSCI South Africa, which all are free-float equity indices representing the respective countries. Additionally, MSCI Emerging Markets total return index has been included in the research. South Africa is the only CIVETS stock market whose presence in the MSCI Emerging Markets Index has been explicitly noted. The stocks of some of the trading partners and sources of FDI for CIVETS such as China, South Korea and Brazil comprise 45.5 percent in the MSCI Emerging Markets Index. The country composition of MSCI Emerging Markets index is presented in Appendix 5.

Daily returns, Y_t, were computed as logarithmic differences by using the daily closing data.

(3) $$y_t = \left(\ln p_t - \ln p_{t-1}\right) * 100$$

Table 14 presents the descriptive statistics for all the MSCI indices applied in the research.

Table 14 Descriptive statistics of the MSCI indices daily total return data

Descriptive statistics of the respective MSCI total return index daily data for the research period from the beginning of 2007 to the end of 2012. The means and standard deviations have been annualized.

Descriptive statistics							
	Colombia	**Indonesia**	**Vietnam**	**Egypt**	**Turkey**	**South Africa**	**Emerging Markets**
Mean (%)	11.705	13.206	-8.193	-2.686	10.315	7.831	2.813
Median	0.015	0.039	-0.007	0.000	0.018	0.039	0.078
Maximum	9.339	10.135	9.606	10.563	12.723	5.962	8.391
Minimum	-9.235	-14.108	-7.815	-16.866	-8.942	-7.907	-8.270
Std. Dev. (%)	19.509	29.653	31.217	29.668	30.002	21.423	20.217
Skewness	-0.399	-0.540	0.008	-1.068	-0.011	-0.097	-0.395
Kurtosis	10.061	9.900	4.138	12.130	9.394	5.726	10.199
Observations	1510	1510	1510	1510	1510	1510	1510

In Table 14, mean represents the annualized mean return of the respective indices. Highest annual mean returns are found in Indonesia (13.2 percent) and Colombia (11.7 percent), whereas Vietnam (-8.2 percent) and Egypt (-2.7 percent) recorded negative returns. Annualized standard deviation, that is, volatility, is found highest in Vietnam (31.2 percent) and Turkey (30.0 percent) with Indonesia (29.7 percent) and Egypt (29.7 percent) exhibiting roughly as high values. The lowest volatility is recorded for Colombia (19.5 percent).

Skewness and kurtosis are related to the normal distribution with skewness measuring the extent to which a distribution is not asymmetric about its mean value and kurtosis measuring how fat tails of the distribution are. A normal distribution is not skewed and is defined to have a kurtosis coefficient of 3. All the data series under study exhibit positive excess kurtosis, that is, leptokurtosis, which is a characteristic feature of most financial time series. In addition, all the data except for Vietnam exhibit negative skewness, which in academic research has been found typical for stock index returns. (Brooks, 2008, pp. 161-162)

Table 15 shows the pairwise correlations of the MSCI indices for the research period from 2007 to 2012.

Table 15 Pairwise correlations of the MSCI indices daily return data

Pairwise correlations of the respective MSCI index daily data for the research period of the beginning of 2007 to the end of 2012.

Pairwise correlations							
	Colombia	**Indonesia**	**Vietnam**	**Egypt**	**Turkey**	**South Africa**	**Emerging Markets**
Colombia	1	0.329	0.093	0.174	0.387	0.406	0.531
Indonesia		1	0.127	0.295	0.353	0.422	0.652
Vietnam			1	0.140	0.108	0.091	0.161
Egypt				1	0.191	0.210	0.312
Turkey					1	0.527	0.593
South Africa						1	0.703
Emerging Markets							1

As seen in Table 15, CIVETS stock return indices exhibit fairly low correlation with regards to pairwise comparison. Highest correlation among CIVETS is found between Turkey and South Africa. However, correlation is still at somewhat low level (0.527). Vietnam is found to correlate the least with both the other CIVETS and MSCI Emerging Markets indices. All these findings can be inferred to support the view that frontier markets can still be seen as reasonably segmented (see for example Nikkinen et al, 2006). Relatively high correlation with individual CIVETS MSCI indices, with the exception of Vietnam, and MSCI Emerging Markets index is found. This can be attributed to the fact that all CIVETS excluding Vietnam are incorporated in the MSCI Emerging Markets index (see Appendix 5).

5.1.2 Macroeconomic indicators

Macroeconomic announcements are defined as public or formal notices regarding macroeconomic indicators, that is, statistics that concern the state of the economy or a particular area of the economy such as national accounts, monetary policy or labor market. In total, scheduled announcements of eight different macroeconomic indicators are included in this study. The indicators can be divided into four categories; (1) prices (CPI), (2) real economy (industrial production, GDP, retail sales and unemployment), (3) monetary (M3), and (4) business climate and consumer confidence (PMI and consumer confidence). The news announcements regarding these indicators are scheduled announcements for the EA for the research period from the beginning of January 2007 to the end

of December 2012 and occur quarterly in case of GDP and monthly in the case of the other seven indicators.

CPI is the indicator representing prices in the economy and measured through Harmonized Indices of Consumer Prices, which are comparable inflation figures designed for international evaluation of consumer price inflation[9]. Industrial production, which represents the real economy, is a business cycle index that measures the output and activity of industry through changes in the volume of output at regular intervals. Furthermore, the industrial production provides a measure of the volume trend in value added at factor cost over a given reference period. (European Central Bank, 2013) Furthermore, GDP represents the monetary market value of all final goods and services produced in a country over a period of a year or a quarter of a year. As stated by van den Bergh (2009), the real GDP per capita, which is corrected for inflation, is generally used as the core indicator in judging the position of the economy of a country over time or relative to that of other countries. The GDP is thus implicitly, and often even explicitly, identified with social welfare and often referred to as the measure of the standard of living. Retail sales represent the sale of goods and services from individuals and businesses to the end-user over a period of one month (European Central Bank, 2013), whereas unemployment rate represents the percentage of unemployed in the total labor force. (Eurostat, 2013)

M3 is the monetary aggregate selected for this research. M3 is the broad money indicator that comprises M2 (currency in circulation, overnight deposits, deposits with an agreed maturity up to two years and deposits redeemable at a period of notice up to three months) and marketable instruments issued by the monetary financial institutions. Additionally, certain highly liquid money market instrument such as money market fund shares and repurchase agreements are included in M3. (European Central Bank, 2013) Business climate is measured by the EA PMI, which combines surveys of business conditions in manufacturing industry that are conducted for a number of countries in the EA. The EA manufacturing PMI is published by Reuters and is a weighted indicator calculated from indices of output, new orders, employment, suppliers' delivery times and stocks of purchases. Furthermore, consumer confidence is used as an indicator to forecast the direction of the economy in the EA. Consumer confidence measures the

[9] Energy, food, alcohol and tobacco are excluded from CPI calculation. More information available on FactSet.

consumer sentiment in the EA and is the result of consumer surveys related to personal finance, job market, likelihood of saving and expectations on the economy. (European Central Bank, 2013)

For the research, macroeconomic news surprise is defined as per Balduzzi et al. (2001) in terms of a standardized surprise measure, which is computed as:

(4) $$S_{i,t} = \frac{R_{i,t} - C_{i,t}}{\sigma_{S_i}},$$

where $R_{i,t}$ and $C_{i,t}$ are the realization and the consensus[10] of data release *i* at time *t* and σ_{Si} is the standard deviation for the forecast error of data release *i.* In order to make the news surprises comparable across all announcements, the division by the standard deviation is applied. Additionally, the data has been fitted so that if MSCI index return was not published on a day of scheduled macroeconomic news announcement, the impact is studied the following day. All the data regarding macroeconomic indicators has been retrieved from FactSet. Table 16, which follows that of Graham et al. (2003), provides overall information regarding the macroeconomic indicators applied in the research.

[10] Median expectation of the monthly FactSet Consensus Economics survey.

Table 16 Scheduled macroeconomic news reports

Overall information about the macroeconomic indicators applied in the research from 2007 to 2012. Sources for the data are European Central Bank (2013) and FactSet.

Report	Abrv.	Issued	Issuing office	# of releases	Release day[11]	Release time (GMT)
Consumer price index	CPI	Monthly	Eurostat	72	16.5	5.00 AM
Industrial production	IP	Monthly	Eurostat	72	13.2	5.00 AM
Gross domestic product, 1st release	GDP	Quarterly	Eurostat	24	14.1	5.00 AM
Retail sales	RS	Monthly	Eurostat	72	4.8	5.00 AM
Unemployment	UE	Monthly	Eurostat	71	16.4	5.00 AM
M3	M3	Monthly	European Central Bank	71	27.2	4.00 AM
Purchasing managers' index, manufacturing	PMI	Monthly	Reuters	71	1.7	4.00 AM
Consumer confidence	CC	Monthly	Economic and Financial Affairs	71	27.5	5.00 AM

Additionally, the frequency distribution of coincident macroeconomic news announcements was recorded. In the sample period of 1510 trading days, there are 1065 trading days (70.5 percent) on which there is no news release. Furthermore, there are 71 trading days (4.7 percent) on which there are more than one release.

Due to geographical distances and thus, time zone differences, trading hours in CIVETS stock markets vary as measured in GMT. See Table 9 on Page 29 for detailed information regarding trading hours on CIVETS stock markets and Table 16 for the release times of the scheduled macroeconomic announcements. Time differences have been taken into account when conducting this research in a way that if scheduled macroeconomic announcement has been released prior the opening of the exchange or during the trading hours, the impact of the announcement is examined on the release day. This is the case for all CIVETS. However, if the announcement would have been released after the closing of the exchange, the impact would have been examined one day after the news release.

[11] Average release day of the month.

Colombia, Indonesia, Vietnam, Egypt, Turkey and South Africa are the markets selected for this research. All of the six countries have made the transition from centrally planned economy to free market economy, though their paths to economic and political development are diverged. CIVETS is a heterogeneous group of countries with characteristics differing for example in terms of geographic location and market capitalization. However, all of these countries have large and young population with Indonesia being the fourth most populous country in the world making the group important for research. EA scheduled macroeconomic news announcements were selected due to the close trading and investment relationships between CIVETS and the EU. Both the effects of news releases and news surprises of scheduled EA macroeconomic news announcements are studied in this research.

5.2 Model specifications

5.2.1 Baseline model

The main issue of this research concerns the impact of scheduled macroeconomic news announcements on return and volatility in CIVETS stock markets. EGARCH model proposed by Nelson (1991) in an attempt to capture the asymmetric impact of shocks on volatility, is one of the most applied methods to estimate volatility and examine the impact of macroeconomic news announcements on stock markets (see for example Koutmos and Booth, 1995) and also applied in this study. EGARCH serves as an extension to GARCH model proposed by Bollerslev (1987) to overcome some weaknesses related to GARCH model in handling financial time series.

Thus, EGARCH model has several advantages over the pure GARCH model. For example, EGARCH applies logged conditional variances, and then even if the model parameters have negative values, the conditional variance remains positive. Additionally asymmetries in volatilities are allowed in the EGARCH formulation, if the relationship between volatility and returns is negative. A competing model that also allows volatility to respond asymmetrically to innovations is the Quadratic GARCH (QGARCH) model proposed by Engle (1990). However, according to Koutmos and Booth (1995), on the basis of several diagnostics, the EGARCH model has been found to perform better than QGARCH model because the latter tends to moderate volatility associated with

negative innovations. An additional advantage of the EGARCH model is that no parameter restrictions are required to cover positive variances at all times. The specification of the EGARCH (1,1) model follows that of Fedorova (2012) and can be expressed as:

(5) $$r_{i,t}=\mu_i+\varepsilon_{i,t},$$

(6) $$\varepsilon_{i,t}=\sigma_{i,t}z_{i,t},$$

(7) $$z_{i,t}|\Omega_t\psi\sim(0,1,\vartheta)$$

(8) $$\ln\left(\sigma^2_{i,t}\right)=c_i+\alpha_i\frac{|\varepsilon_{i,t-1}|}{\sigma_{i,\,t-1}}+\gamma_i\frac{\varepsilon_{i,t-1}}{\sigma_{i,\,t-1}}+\beta_i\ln\left(\sigma^2_{i,t-1}\right)$$

where $r_{i,t}$ is the return on stock market index i at time t, μ_i is a constant, that is, the mean return and $\sigma^2_{i,t}$ is a conditional variance. The standardized residuals, $z_{i,t}$ are obtained from the set of information available in the previous period, $\psi(.)$ is a conditional density function and the probability distribution as a vector of parameters, v. A vector of four parameters comprises the variance equation, where c_i is a constant term, the estimated parameter α_i represents the symmetric effects of the model, asymmetric effect in the model is measured by parameter γ_i, and the persistence of conditional volatility is indicated by parameter β_i.

5.2.2 The effects of macroeconomic news releases

The empirical tests begin by analyzing the reactions of CIVETS stock markets to EA macroeconomic news releases. A univariate EGARCH (1,1) model with Gaussian normal distribution of errors is applied in order to study the effects of macroeconomic news releases. The mean (Equation 9) and the conditional variance (Equation 10) are extended to include parameters for macroeconomic announcements and stock market returns:

(9) Model 1: $r_{i,t}=\mu_i+\omega_{EM}r^{w}_{t-1}+\lambda_i D_{i,t}+\varepsilon_{i,t}$,

Model 2: $r_{i,t}=\mu_i+\omega_{EM}r^{w}_{t-1}+\boldsymbol{\lambda_i D_{i,t}}+\varepsilon_{i,t}$

(10) Model 1: $\ln(\sigma^2_{i,t})=c_i+\alpha_i\frac{|\varepsilon_{i,t-1}|}{\sigma_{i,\,t-1}}+\gamma_i\frac{\varepsilon_{i,t-1}}{\sigma_{i,\,t-1}}+\beta_i\ln\left(\sigma^2_{i,t-1}\right)+\boldsymbol{\eta_i D_{i,t}}$

Model 2: $\ln(\sigma^2_{i,t})=c_i+\alpha_i\frac{|\varepsilon_{i,t-1}|}{\sigma_{i,\,t-1}}+\gamma_i\frac{\varepsilon_{i,t-1}}{\sigma_{i,\,t-1}}+\beta_i\ln\left(\sigma^2_{i,t-1}\right)+\eta_i D_{i,t}$

where $r_{i,t}$ is the daily return for an emerging stock market *i* at time *t*. r^{w}_{t-1} represents stock market returns for Emerging Markets (EM). ω_{EM} is a parameter representing the autoregressive effects in returns of EM and can be assumed to capture information extending beyond the sole macroeconomic announcements. In the mean equation for Model 1, the variable $D_{i,t}$ is a dummy for macroeconomic announcements taking value 1 on announcement days and 0 otherwise. In the variance equation of Model 1, $\boldsymbol{D_{i,t}}$ is a *cx1* vector of dummy variables representing news announcements taking place in category *c* at time *t,* with each of the dummies taking value 1 on announcement days and 0 otherwise. In the mean equation for Model 2, $\boldsymbol{D_{i,t}}$ is a *cx1* vector of dummies for macroeconomic announcements with each of these dummies taking value of 1 on announcement days and 0 otherwise. In the variance equation of Model 2, $D_{i,t}$ is a dummy for macroeconomic announcements; again, the dummies take the value of 1 on announcement days and 0 otherwise. The dummies $\boldsymbol{D_{i,t}}$ are specific for each category. However, for some categories the dummies can be the same at a specific time *t.* The estimated coefficients of λ_i and η_i capture the contemporaneous effects of macroeconomic news announcements from different categories on stock markets and on the volatilities of these markets respectively.

5.2.3 The effects of macroeconomic news surprises

In order to study further the effect of macroeconomic news on CIVETS stock markets with regards to the effect of news surprises, the mean and variance equations are replaced by the following equations:

(11) Model 3: $r_{i,t}=\mu_i+\omega_{EM}r^{w}_{t-1}+\lambda_i S_{i,t}+\varepsilon_{i,t}$,

Model 4: $r_{i,t}=\mu_i+\omega_{EM}r^{w}_{t-1}+\boldsymbol{\lambda_i S_{i,t}}+\varepsilon_{i,t}$,,

(12) Model 3: $\ln(\sigma^2_{i,t})=c_i+\alpha_i\frac{|\varepsilon_{i,t-1}|}{\sigma_{i,\,t-1}}+\gamma_i\frac{\varepsilon_{i,t-1}}{\sigma_{i,\,t-1}}+\beta_i\ln\left(\sigma^2_{i,t-1}\right)+\boldsymbol{\eta_i S_{i,t}}$

Model 4: $\ln(\sigma^2_{i,t})=c_i+\alpha_i\frac{|\varepsilon_{i,t-1}|}{\sigma_{i,\,t-1}}+\gamma_i\frac{\varepsilon_{i,t-1}}{\sigma_{i,\,t-1}}+\beta_i\ln\left(\sigma^2_{i,t-1}\right)+\eta_i S_{i,t}$.

Similarly to testing the effects of macroeconomic news releases, two models are tested. r^{w}_{t-1} represents stock market returns for EM. ω_{EM} is a parameter representing the autoregressive effects in returns of EM. In the mean equation of Model 3, $S_{i,t}$ represents the news surprise for macroeconomic announcements. In the variance equation of Model 3, $\boldsymbol{S_{i,t}}$ is a *cx1* vector of the computed news surprises for macroeconomic announcements taking place in category *c* at time *t.* In the mean equation of Model 4, $\boldsymbol{S_{i,t}}$ is a *cx1* vector of the news surprises. In the variance equation of Model 4, $S_{i,t}$ is the representation of the news surprise of macroeconomic announcements. The computation of news surprises $\boldsymbol{S_{i,t}}$ takes into account categories, which share the same announcement day. In the case of GDP, RS, M3, IP, PMI and CC the values are calculated as they are, whereas for UE and CPI the values are negated with regards to their negative effect on stock market. All of the values are then summed up. Furthermore, the estimated coefficients of λ_i and η_i capture the contemporaneous effects of macroeconomic news surprises from different categories on stock markets and on the volatilities of these markets respectively.

5.2.4 Preliminary tests

Four preliminary tests; Jarque-Bera, Augmented Dickey-Fuller, Ljung-Box and ARCH-LM, are conducted in order to determine, whether the data is suitable for research and EGARCH model applicable for this study.

Jarque-Bera test is one of the most commonly used tests for testing normality in data series. Jarque-Bera uses the property of a normally distributed random variable that the entire distribution is characterized by the first two moments – the mean and variance. Additionally, the test statistic measures the difference of third and fourth moments of a distribution, skewness and kurtosis, of a series with those of a normal distribution. (Brooks, 2008, pp. 161-163) In order to test stationarity in the data, the most widely applied test, augmented Dickey-Fuller (ADF) unit root test developed by Dickey and Fuller (1979), is used. Due to non-stationary behavior of equity prices and their log-level series, unit root test is used to identify the degree of integration in the series. With the purpose of testing for the presence of the ARCH effect, Ljung-Box test is applied, which is based on the Q-statistics developed by Box and Pierce (1970). Ljung-Box test is commonly applied to identify the appropriate time series model for a given data series and when no significant correlation is found in the residuals of the model, the data is found independently distributed and passes the test.

As seen in Table 17, Jarque-Bera test statistics reject the null hypothesis of normal distribution in all cases. However, as mentioned Chapter 5.1, all the data series exhibit characteristics that are considered typical for financial time series, that is, leptokurtosis and negative skewness, which make the time series appropriate for this research. However, Vietnam is found an exception as it exhibits positive skewness. Vietnam's deviation from the rest of CIVETS can be due to the fact that Vietnamese stock market is younger and smaller than the other CIVETS stock markets and thus does not exhibit features that are characteristic for more mature stock markets. ADF was used to test the stationarity in the time series. The test was carried out with maximum lags of 12 and Schwarz Info Criterion was applied. The test statistics are found to be more negative than the critical value in the 1 % level (–3.434), hence the null hypothesis of a unit root can be rejected in all cases.

Ljung-Box test statistics are also reported in Table 17, which test the existence of the ARCH effect in the data series. For Ljung-Box test estimated with 30 lags, the critical values from χ^2 distribution with five degrees of freedom are 11.1 at the 5 percent level and 15.1 at the 1 percent level. Thus, for all series except Turkey and Colombia, the null hypothesis that all of the first five autocorrelation coefficients are zero can be rejected.

Table 17 Preliminary test statistics for MSCI stock index return data

Preliminary test statistics for testing normal distribution, unit root and ARCH effects in the MSCI daily stock return indices for CIVETS and Emerging Markets for the research period from 2007 to 2012. The number of lags included in the Ljung-Box test is 30.

Preliminary test statistics			
	Jarque-Bera	**ADF**	**Ljung-Box**
Colombia	3176.853	-35.750	13.959
Indonesia	3069.092	-36.015	18.738
Vietnam	81.507	-30.481	100.130
Egypt	5531.349	-34.494	98.657
Turkey	724.770	-37.792	2.712
South Africa	469.943	-29.234	25.062
Emerging Markets	3299.907	-31.998	60.734

Other test for the presence of ARCH effect in time series is the Lagrange multiplier test, that is, ARCH-LM test of Engle (1982). The results of this test show whether the EGARCH parameterization is the appropriate method for modeling conditional variance. The motivation behind ARCH-LM test is the observation that in many financial time series, the magnitude of residuals appears to be related to the magnitude of recent residuals.

In order to conduct ARCH-LM test, the equation was estimated as ARMA (1,1) and five lags were used in testing. The test statistics are reported in Table 18. The parameter estimates for the equation are reported in Panel A and the results of diagnostic tests are reported in Panel B. The ARCH-LM-statistic is significant for all data series suggesting the presence of ARCH effect in the index returns.

Table 18 ARCH LM test statistics for MSCI stock index return data

Test statistics for testing the ARCH effects in the MSCI daily stock return indices for CIVETS and Emerging Markets for the research period from 2007 to 2012. The number of lags included in the ARCH-LM test is 5.

	Colombia		**Indonesia**		**Vietnam**	
Panel A: ARCH-LM Test						
Parameters	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
C	0.595*	0.115	1.921*	0.298	1.643*	0.215
Residuals^2 (-1)	0.143*	0.026	0.172*	0.026	0.128*	0.026
Residuals^2 (-2)	0.293*	0.026	0.072*	0.026	0.161*	0.026
Residuals^2 (-3)	0.127*	0.027	0.112*	0.026	0.101*	0.026
Residuals^2 (-4)	0.025	0.026	0.092*	0.026	0.096*	0.026
Residuals^2 (-5)	0.005	0.026	0,000	0.026	0.064	0.026
Panel B: Diagnostic tests						
Adj. R^2	0.191		0.08		0.116	
Log-likelihood	-4205.861		-5598.725		-4863.694	
ARCH-LM statistic	291.6462		124.329		178.945	
F-statistic	72.07237		26.999		40.46	
Prob (F-statistic)	<0.001		<0.001		<0.001	

	Egypt		**Turkey**		**South Africa**		**Emerging Markets**	
Panel A: ARCH-LM Test								
Parameters	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
C	2.594*	0.346	1.912*	0.260	0.623*	0.115	0.504*	0.124
Residuals^2 (-1)	0.088*	0.026	0.061*	0.026	0.042**	0.025	-0.021	0.025
Residuals^2 (-2)	0.026	0.026	0.094*	0.025	0.207*	0.025	0.270*	0.025
Residuals^2 (-3)	0.024	0.026	0.108*	0.025	0.056*	0.026	0.105*	0.026
Residuals^2 (-4)	0.029	0.026	0.200*	0.025	0.170*	0.025	0.148*	0.025
Residuals^2 (-5)	0.087	0.026	0.005	0.026	0.184*	0.025	0.178*	0.025
Panel B: Diagnostic tests								
Adj. R^2	0.017		0.082		0.182		0.213	
Log-likelihood	-5802.586		-5259.561		-4055.333		-4311.422	
ARCH-LM statistic	30.013		128.076		278.237		324.975	
F-statistic	6.100		27.888		68.006		82.579	
Prob (F-statistic)	<0.001		<0.001		<0.001		<0.001	

According to the preliminary test statistics, the data set is found suitable for the research on the impact of EA macroeconomic news announcements on CIVETS stock markets and EGARCH model applicable for the study.

6 ESTIMATED RESULTS

6.1 The effects of macroeconomic news releases

The empirical part concentrates on analyzing the reactions of CIVETS stock markets to EA macroeconomic announcements. A univariate EGARCH (1,1) model with Gaussian normal distribution of errors is applied to study the effects of macroeconomic announcements. In total four models are estimated, in which macroeconomic news releases and surprises are allowed to affect the mean and volatility equations for each of the CIVETS stock markets. The estimated results for macroeconomic news releases are reported in Table 19.

At first, two models are estimated that only look at the impact of macroeconomic news releases regardless of the news surprise related to them. Panel A in Table 19 reports the outcomes of the estimated mean equations of Model 1 and Model 2. This panel shows that each CIVETS stock market is highly connected on the performance of the MSCI Emerging Markets Index (EM). This is presented as positive and statistically significant ωEM coefficients. Moreover, the trend for EM as a whole has an impact on CIVETS stock markets with Indonesian market exhibiting the greatest effect, whereas Vietnam experiences the lowest influence. On the whole, EA macroeconomic news releases do not affect the pricing of the assets in CIVETS stock markets, which is presented by the λ_{all} coefficients with no statistical significance in Model 1. The results of the estimated mean equation on Model 2 suggest that the responses to EA news releases vary across CIVETS based on the news category examined. Announcements from category GDP affect negatively and announcements from categories retail sales and consumer confidence affect positively the stock returns in the Vietnamese market. CPI is found to affect Turkish stock returns. No news announcement category has been found to affect the stock returns in Colombia, Indonesia, Egypt and South Africa.

Panel B in Table 19 presents the results of the estimated volatility equation and exhibits the CIVETS stock market responses to EA macroeconomic news releases. All of the CIVETS markets exhibit homogeneity in the sense that the market volatilities are highly dependent on the market volatility values during the previous period. This is exhibited by the positive and significant β_i coefficients meaning that these volatilities are persistent. Furthermore, γ_i coefficients in Model

1 are negative and statistically significant for Colombia, Indonesia, Egypt and Turkey. This suggests that positive shocks in these markets generate less volatility than negative shocks. However, for Indonesia, γ_i coefficient in Model 2 is positive suggesting that the market volatility is increased more by positive shocks than by negative shocks.

EA news releases in different categories seem to affect more on volatility than stock returns in CIVETS, which is in accordance with previous studies on other markets (see for example Graham et al., 2003 and Harju and Hussain, 2011). As evidenced by the significance of η_{CPI} coefficients in Table 19 Panel B, inflation significantly impacts volatility in three markets (Colombia, Egypt and Turkey). GDP announcements increase volatility in Vietnam and Egypt as evidenced by the positive and significant η_{GDP} coefficients. Stock market volatilities in Colombia, Egypt and Turkey are also increased by the unemployment announcements, evidenced by positive and significant η_{UE} coefficients. Differences in responses regarding news announcements on PMI are evidenced for Vietnam and Egypt as η_{PMI} coefficient is found positive and significant for Vietnam and negative and significant for Egypt. This suggests that volatility is increased in Vietnam and decreased in Egypt by these news announcements. Stock market volatilities in Egypt and South Africa are significantly decreased by industrial production announcements, which are evidenced by negative and significant η_{IP} coefficients. Moreover, η_{M3} decreases and η_{CC} increases the stock market volatility in the Egypt as evidence by significant negative and significant positive coefficients respectively. The effects in Vietnam are consistent with Hussainey and Ngoc (2009) and Nguyen (2011) that the Vietnamese stock market responds to foreign news. None of the announcement categories has been found to impact the volatility in Indonesian stock market. The GARCH estimates in both Model 1 and Model 2 are found significant as illustrated by the α_i and β_i coefficients for each of these models.

Table 19 The effects of macroeconomic news releases

Results for the estimated models 1 and 2 are presented in this table. The variables included in the models are MSCI Emerging Markets index (EM), gross domestic product (GDP), retail sales (RS), monetary aggregate (M3), industrial production (IP), consumer price index (CPI), unemployment (UE), purchasing managers' index (PMI) and consumer confidence (CC).

	Colombia				**Indonesia**			
	Model 1		**Model 2**		**Model 1**		**Model 2**	
Parameters	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Panel A: Mean equation								
μi	0.036	0.026	0.034	0.028	0.013	0.031	0.001	0.031
ωEM	0.425*	0.016	0.434*	0.016	0.931*	0.022	0.924*	0.020
λall	-0.017	0.056	-	-	-0.039	0.067	-	-
λGDP	-	-	0.290	0.181	-	-	0.141	0.206
λRS	-	-	-0.047	0.101	-	-	-0.123	0.121
λM3	-	-	0.001	0.100	-	-	0.062	0.136
λIP	-	-	-0.117	0.114	-	-	0.194	0.129
λCPI	-	-	-0.029	0.107	-	-	0.042	0.140
λUE	-	-	0.021	0.104	-	-	-0.003	0.110
λPMI	-	-	-0.115	0.105	-	-	-0.064	0.122
λCC	-	-	0.131	0.117	-	-	-0.077	0.117
Panel B: Volatility equation								
ci	-0.282*	0.030	-0.268*	0.027	-0.195*	0.028	-0.179*	0.025
αi	0.300*	0.029	0.322*	0.029	0.284*	0.031	0.290*	0.030
γi	-0.107*	0.017	-0.099*	0.018	-0.106*	0.021	0.109*	0.019
βi	0.851*	0.023	0.851*	0.022	0.958*	0.008	0.957*	0.008
ηall	-	-	0.088	0.055	-	-	-0.110*	0.053
ηGDP	-0.051	0.185	-	-	0.212	0.131	-	-
ηRS	0.147	0.124	-	-	-0.037	0.144	-	-
ηM3	0.315**	0.164	-	-	0.110	0.146	-	-
ηIP	0.069	0.142	-	-	-0.029	0.115	-	-
ηCPI	0.280*	0.126	-	-	-0.109	0.113	-	-
ηUE	0.415*	0.178	-	-	0.218	0.180	-	-
ηPMI	-0.104	0.146	-	-	-0.204	0.160	-	-
ηCC	-0.114	0.183	-	-	-0.067	0.182	-	-
Panel C: Diagnostic tests								
Adj. R2		0.266		0.269		0.419		0.419
Log-likelihood		-2093.473		-2095.551		-2455.796		-2453.066
F-statistic		40.124		40.728		78.745		78.776
Prob (F-statistic)		<0.001		<0.001		<0.001		<0.001

Table 19 The effects of macroeconomic news releases (cont.)

Results for the estimated models 1 and 2 are presented in this table. The variables included in the models are MSCI Emerging Markets index (EM), gross domestic product (GDP), retail sales (RS), monetary aggregate (M3), industrial production (IP), consumer price index (CPI), unemployment (UE), purchasing managers' index (PMI) and consumer confidence (CC).

	Vietnam				Egypt			
	Model 1		Model 2		Model 1		Model 2	
Parameters	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Panel A: Mean equation								
μi	-0.075**	0.043	-0.116*	0.044	0.020	0.048	-0.057	0.051
ωEM	0.202*	0.035	0.211*	0.035	0.458*	0.027	0.478*	0.025
λall	-0.120	0.098	-	-	-0.059	0.109	-	-
λGDP	-	-	-0.585*	0.286	-	-	-0.164	0.452
λRS	-	-	0.330**	0.188	-	-	0.171	0.217
λM3	-	-	0.136	0.233	-	-	0.238	0.262
λIP	-	-	-0.061	0.176	-	-	0.436	0.199
λCPI	-	-	0.105	0.173	-	-	0.238	0.213
λUE	-	-	-0.093	0.208	-	-	-0.149	0.222
λPMI	-	-	-0.124	0.156	-	-	0.263	0.192
λCC	-	-	0.358**	0.203	-	-	-0.013	0.212
Panel B: Volatility equation								
ci	-0.139*	0.025	-0.136*	0.021	0.004	0.011	-0.043*	0.010
αi	0.251*	0.028	0.281*	0.029	0.069*	0.007	0.103*	0.009
γi	-0.02	0.015	-0.021	0.015	-0.055*	0.006	-0.061*	0.007
βi	0.947*	0.010	0.938*	0.010	0.980*	0.003	0.967*	0.003
ηall	-	-	-0.069	0.052	-	-	0.043	0.027
ηGDP	0.411*	0.159	-	-	-0.175**	0.094	-	-
ηRS	-0.068	0.138	-	-	-0.134	0.096	-	-
ηM3	-0.296	0.202	-	-	-0.607*	0.086	-	-
ηIP	0.071	0.138	-	-	-0.285*	0.092	-	-
ηCPI	-0.069	0.123	-	-	0.302*	0.094	-	-
ηUE	-0.187	0.188	-	-	0.290*	0.122	-	-
ηPMI	0.392*	0.194	-	-	-0.345*	0.137	-	-
ηCC	0.078	0.179	-	-	0.217*	0.085	-	-
Panel C: Diagnostic tests								
Adj. R2		0.015		0.016		0.089		0.093
Log-likelihood		-2983.821		-2984.996		-2910.14		-2920.225
F-statistic		2.687		2.706		17838,000		11.996
Prob (F-statistic)		<0.001		<0.001		<0.001		<0.001

Table 19 The effects of macroeconomic news releases (cont.)

Results for the estimated models 1 and 2 are presented in this table. The variables included in the models are MSCI Emerging Markets index (EM), gross domestic product (GDP), retail sales (RS), monetary aggregate (M3), industrial production (IP), consumer price index (CPI), unemployment (UE), purchasing managers' index (PMI) and consumer confidence (CC).

	Turkey				South Africa			
	Model 1		Model 2		Model 1		Model 2	
Parameters	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Panel A: Mean equation								
μi	0.018	0.041	0.015	0.041	0.006	0.023	0.013	0.024
ωEM	0.841*	0.026	0.855*	0.026	0.751*	0.018	0.750*	0.019
λall	0.094	0.086	-	-	0.038	0.050	-	-
λGDP	-	-	-0.225	0.348	-	-	-0.039	0.169
λRS	-	-	-0.072	0.182	-	-	-0.082	0.080
λM3	-	-	0.015	0.145	-	-	-0.146	0.114
λIP	-	-	0.119	0.191	-	-	-0.045	0.091
λCPI	-	-	0.393*	0.190	-	-	0.142	0.109
λUE	-	-	-0.188	0.138	-	-	0.081	0.095
λPMI	-	-	0.056	0.146	-	-	-0.005	0.095
λCC	-	-	0.203	0.162	-	-	-0.008	0.099
Panel B: Volatility equation								
ci	-0.104*	0.024	-0.062*	0.012	0.130*	0.026	-0.121*	0.023
αi	0.157*	0.021	0.116*	0.016	0.155*	0.025	0.158*	0.024
γi	-0.062*	0.016	-0.053*	0.014	0.001	0.019	-0.005	0.018
βi	0.956*	0.010	0.972*	0.007	0.985*	0.005	0.985*	0.005
ηall	-	-	-0.030	0.042	-	-	-0.045	0.048
ηGDP	0.101	0.145	-	-	0.026	0.141	-	-
ηRS	-0.085	0.146	-	-	-0.120	0.145	-	-
ηM3	0.129	0.151	-	-	-0.191	0.160	-	-
ηIP	-0.175	0.157	-	-	-0.225*	0.135	-	-
ηCPI	0.236**	0.137	-	-	0.186	0.126	-	-
ηUE	0.537*	0.197	-	-	0.195	0.172	-	-
ηPMI	-0.2462	0.193	-	-	-0.006	0.193	-	-
ηCC	-0.093	0.170	-	-	0.198	0.168	-	-
Panel C: Diagnostic tests								
Adj. R2	0.345		0.348		0.489		0.491	
Log-likelihood	-2701.439		-2705.462		-1928.217		-1930.285	
F-statistic	57.852		58.613		104.258		104.784	
Prob (F-statistic)	<0.001		<0.001		<0.001		<0.001	

6.2 The effects of macroeconomic news surprises

In the second part, two models are again estimated in which the effect of news surprise in the macroeconomic announcement is taken into account. Panel A in Table 20 reports the outcomes of the estimated mean equations of Model 3 and Model 4. The high dependency on the performance of the EM of each CIVETS stock market is again illustrated by positive and statistically significant ωEM coefficients. Similarly to the estimated results in Model 1, the results in Model 3 suggest that on the whole, EA macroeconomic news surprises do not affect the pricing of the assets in CIVETS stock markets, which is presented by the λ_{all} coefficients with no statistical significance in Model 3.

The results of the estimated mean equation on Model 4 suggest that the responses to EA news surprises vary across CIVETS based on the news category examined, representing similar results as those regarding EA news releases. News surprises from categories GDP and unemployment affect stock returns in the Vietnamese market. Turkish stock returns are affected by news surprises in PMI, whereas South African stock returns are affected by retail sales. GDP news surprises are also found to affect Egyptian stock returns. No single news surprise category affects the stock returns in Colombia and Indonesia.

Panel B in Table 20 illustrates the results of the estimated volatility equation and exhibits the CIVETS stock market responses to EA macroeconomic news surprises. Again all of the CIVETS markets exhibit homogeneity in the sense that the market volatilities are highly dependent on the market volatility values during the previous period. This is exhibited by the positive and significant β_i coefficients meaning that these volatilities are persistent. Moreover, γ_i coefficients are negative and statistically significant for Colombia, Indonesia, Egypt and Turkey suggesting that positive shocks generate less volatility in these markets than negative shocks. These results are similar to the results from Model 1 and Model 2.

Stock market volatilities are decreased by industrial production announcements in Colombia and Indonesia, which is evidenced by the negative and significant η_{IP} coefficients. Furthermore, stock market volatilities in Vietnam, Egypt and Turkey are decreased by monetary announcements as evidenced by negative and

significant η_{M3} coefficients, whereas unemployment increases volatility in Vietnam and Egypt as illustrated by positive and significant η_{UE} coefficients. Inflation announcement surprises increase and GDP announcement surprises decrease volatility in Egypt as evidenced by positive and significant η_{CPI} coefficient and negative and significant η_{GDP} coefficient respectively. Stock market volatility in Turkey is decreased by consumer confidence news surprises as evidenced by negative and significant η_{CC} coefficient. Moreover, retail sales increase volatility in South Africa as per positive and significant η_{RS} coefficient. The GARCH estimates in both Model 3 and Model 4 are found significant for Colombia, Indonesia, Egypt, Turkey and South Africa as illustrated by the α_i and β_i coefficients for each of these models.

Table 20 The effects of macroeconomic news surprises

Results for the estimated models 3 and 4 are presented in this table. The variables included in the models are MSCI Emerging Markets index (EM), gross domestic product (GDP), retail sales (RS), monetary aggregate (M3), industrial production (IP), consumer price index (CPI), unemployment (UE), purchasing managers' index (PMI) and consumer confidence (CC).

	Colombia				**Indonesia**			
	Model 3		**Model 4**		**Model 3**		**Model 4**	
Parameters	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Panel A: Mean equation								
μi	0.041**	0.024	0.040	0.024	0.002	0.028	0.003	0.028
ωEM	0.433*	0.017	0.440*	0.016	0.925*	0.019	0.924*	0.019
λall	0.050	0.046	-	-	0.068	0.049	-	-
λGDP	-	-	0.117	0.352	-	-	-0.046	0.260
λRS	-	-	0.120	0.085	-	-	0.103	0.106
λM3	-	-	-0.164	0.100	-	-	-0.026	0.151
λIP	-	-	0.098	0.136	-	-	-0.010	0.126
λCPI	-	-	-0.043	0.122	-	-	-0.188	0.234
λUE	-	-	-0.166	0.185	-	-	0.062	0.203
λPMI	-	-	-0.069	0.117	-	-	-0.141	0.127
λCC	-	-	-0.036	0.170	-	-	0.221	0.190
Panel B: Volatility equation								
ci	-0.244*	0.023	-0.246*	0.023	-0.204*	0.025	-0.204*	0.024
αi	0.305*	0.028	0.312*	0.028	0.298*	0.033	0.295*	0.032
γi	-0.103*	0.017	-0.102*	0.017	-0.113*	0.020	-0.110*	0.019
βi	0.854*	0.022	0.843*	0.023	0.948*	0.010	0.951*	0.009
ηall	-	-	-0.083*	0.046	-	-	-0.049	0.045
ηGDP	-0.091	0.277	-	-	-0.060	0.120	-	-
ηRS	-0.083	0.082	-	-	0.032	0.085	-	-
ηM3	-0.032	0.100	-	-	0.032	0.102	-	-
ηIP	-0.295*	0.114	-	-	-0.193*	0.078	-	-
ηCPI	0.078	0.182	-	-	0.099	0.124	-	-
ηUE	0.292	0.199	-	-	0.117	0.145	-	-
ηPMI	0.239*	0.109	-	-	-0.064	0.092	-	-
ηCC	0.040	0.150	-	-	0.181	0.129	-	-
Panel C: Diagnostic tests								
Adj. R2		0.269		0.273		0.419		0.42
Log-likelihood		-2093.183		-2095.164		-2453.599		-2455.073
F-statistic		40.609		41.382		78.861		78.92
Prob (F-statistic)		<0.001		<0.001		<0.001		<0.001

Table 20 The effects of macroeconomic news surprises (cont.)

Results for the estimated models 3 and 4 are presented in this table. The variables included in the models are MSCI Emerging Markets index (EM), gross domestic product (GDP), retail sales (RS), monetary aggregate (M3), industrial production (IP), consumer price index (CPI), unemployment (UE), purchasing managers' index (PMI) and consumer confidence (CC).

	Vietnam				Egypt			
	Model 3		Model 4		Model 3		Model 4	
Parameters	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Panel A: Mean equation								
μi	-0.096*	0.039	-0.102*	0.040	-0.033	0.045	-0.017	0.046
ωEM	0.213*	0.035	0.212*	0.034	0.398*	0.028	0.424*	0.027
λall	0.028	0.077	-	-	-0.045	0.088	-	-
λGDP	-	-	-1.052*	0.278	-	-	-0.838**	0.470
λRS	-	-	-0.017	0.187	-	-	-0.118	0.263
λM3	-	-	0.004	0.286	-	-	-0.25	0.235
λIP	-	-	0.158	0.168	-	-	0.123	0.278
λCPI	-	-	-0.065	0.235	-	-	-0.148	0.259
λUE	-	-	-0.597**	0.348	-	-	0.324	0.256
λPMI	-	-	-0.106	0.248	-	-	0.263	0.211
λCC	-	-	0.032	0.325	-	-	0.062	0.282
Panel B: Volatility equation								
ci	-0.131*	0.017	-0.145*	0.017	0.024*	0.005	0.001	0.005
αi	0.268*	0.028	0.276*	0.028	-0.004	0.005	0.036*	0.005
γi	-0.023	0.016	-0.025	0.016	-0.069*	0.005	-0.073*	0.006
βi	0.931*	0.012	0.935*	0.011	0.978*	0.002	0.974*	0.003
ηall	-	-	-0.087*	0.039	-	-	-0.107*	0.016
ηGDP	-0.228	0.167	-	-	-0.204*	0.060	-	-
ηRS	0.090	0.096	-	-	0.029	0.031	-	-
ηM3	-0.182**	0.097	-	-	-0.164*	0.036	-	-
ηIP	-0.119	0.090	-	-	-0.040	0.029	-	-
ηCPI	0.201	0.141	-	-	0.082*	0.026	-	-
ηUE	0.300*	0.140	-	-	0.286*	0.042	-	-
ηPMI	-0.034	0.109	-	-	0.067*	0.028	-	-
ηCC	0.066	0.138	-	-	-0.147*	0.041	-	-
Panel C: Diagnostic tests								
Adj. R2	0.016		0.017		0.087		0.093	
Log-likelihood	-2983.454		-2982.783		-2898.877		-2911.085	
F-statistic	41457,000		2.848		11.273		12.041	
Prob (F-statistic)	<0.001		<0.001		<0.001		<0.001	

Table 20 The effects of macroeconomic news surprises (cont.)

Results for the estimated models 3 and 4 are presented in this table. The variables included in the models are MSCI Emerging Markets index (EM), gross domestic product (GDP), retail sales (RS), monetary aggregate (M3), industrial production (IP), consumer price index (CPI), unemployment (UE), purchasing managers' index (PMI) and consumer confidence (CC).

	Turkey				South Africa			
	Model 3		Model 4		Model 3		Model 4	
Parameters	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
Panel A: Mean equation								
μi	0.031	0.036	0.035	0.036	0.008	0.021	0.019	0.021
ωEM	0.837*	0.026	0.847*	0.026	0.749*	0.019	0.754*	0.018
λall	0.028	0.075	-	-	0.028	0.043	-	-
λGDP	-	-	-0.099	0.430	-	-	0.216	0.286
λRS	-	-	0.055	0.197	-	-	0.171**	0.103
λM3	-	-	-0.212	0.162	-	-	-0.054	0.123
λIP	-	-	0.027	0.261	-	-	0.146	0.102
λCPI	-	-	-0.048	0.308	-	-	0.196	0.152
λUE	-	-	0.257	0.233	-	-	0.074	0.165
λPMI	-	-	0.285*	0.114	-	-	0.038	0.124
λCC	-	-	0.371	0.234	-	-	-0.177	0.161
Panel B: Volatility equation								
ci	-0.061*	0.016	-0.072*	0.013	-0.120*	0.019	-0.127*	0.018
αi	0.137*	0.022	0.131*	0.019	0.149*	0.023	0.155*	0.023
γi	-0.071*	0.016	-0.060*	0.015	-0.019	0.019	-0.003	0.018
βi	0.944*	0.012	0.960*	0.009	0.986*	0.005	0.987*	0.005
ηall	-	-	-0.062*	0.032	-	-	0.009	0.028
ηGDP	-0.244	0.186	-	-	0.213	0.130	-	-
ηRS	0.111	0.085	-	-	0.188*	0.077	-	-
ηM3	-0.162*	0.069	-	-	0.027	0.067	-	-
ηIP	0.003	0.069	-	-	0.030	0.066	-	-
ηCPI	0.051	0.118	-	-	-0.016	0.084	-	-
ηUE	0.058	0.091	-	-	0.135	0.096	-	-
ηPMI	-0.121	0.083	-	-	0.029	0.094	-	-
ηCC	-0.172**	0.103	-	-	-0.148	0.095	-	-
Panel C: Diagnostic tests								
Adj. R2		0.345		0.349		0.490		0.492
Log-likelihood		-2704.401		-2704.2		-1925.211		-1927.563
F-statistic		57.714		58.766		104.547		105.3
Prob (F-statistic)		<0.001		<0.001		<0.001		<0.001

7 SUMMARY AND CONCLUSIONS

The purpose of this study was to examine how CIVETS stock markets are integrated with respect to scheduled EA macroeconomic news announcements. The impact of both scheduled macroeconomic news releases and news surprises on CIVETS stock market returns and volatilities was studied. Furthermore, eight commonly used scheduled macroeconomic news announcements from EA were applied in the empirical part to study their impact on CIVETS. The macroeconomic announcements used in this study were divided into four categories; (1) prices measured by consumer price index, (2) real economy measured by industrial production, gross domestic product, retail sales and unemployment, (3) money supply, and (4) business climate and consumer confidence measured by purchasing managers' index and consumer confidence index. The hypothesis was that stock returns and/or volatilities of at least some of the markets should react to the incoming information to some extent based on the financial and economic ties between individual CIVETS countries and the EU as evidenced by their FDI and trading relations. It was assumed ex-ante that the results would vary across CIVETS due to for example differences in the size of the market, industrial structures, political and economic ties, dependence on international trade or geographical proximity with regards to EA. Thus, a thorough analysis of the CIVETS economies and stock markets was carried out prior the research to explain the state of the economies and their relation with the EA and EU.

CIVETS is a geographically dispersed and heterogeneous group of countries considered as the new rising economies. Despite differences related to for example the size of the stock market and the amount of GDP per capita, CIVETS share common characteristics as they have all gone through financial crises and subsequent structural reforms and they have young and large population that translates into large consumer base. Additionally, CIVETS has a growing middle-class, which contributes towards the growth of the economies. As a result CIVETS have attracted attention from the international investment community. However, CIVETS have also suffered from the effects of global financial crisis and for example political instability in Egypt and unemployment in South Africa challenge the growth of the economies. Still, CIVETS incorporate an interesting area for study because their exposure to external shocks from global markets has

increased in the recent years due to the opening of their markets to foreign investment and international trade. However, reservations towards the reasons behind the coinage of the acronym, CIVETS, still exist as the markets are considered heterogeneous as mentioned earlier.

The examination of the impact of EA macroeconomic announcements was performed in two stages; first, the effect of EA macroeconomic news releases was measured and second, the impact of EA macroeconomic news surprises was estimated. The econometric model applied in the analysis was EGARCH, which is commonly used in similar type of studies. The analyses revealed that in general EA macroeconomic news releases and surprises affect stock market volatility in CIVETS and only in some cases asset pricing. Homogeneity in CIVETS is exhibited by high dependence in the market volatility values of the previous period. Negative news are found to have a leverage effect for most of the CIVETS stock markets, thus suggesting a negative relationship between market returns and volatility as greater volatility is generated by negative than by positive shocks.

The comparison of results estimated in different models gives similar results and only minor variation was found regarding the impact of macroeconomic news releases when compared to the effects of macroeconomic news surprises. Diverse impacts of macroeconomic news releases and surprises are observed for different categories of news supporting the perception of heterogeneity among CIVETS. The results suggest the existence of information spillovers from EA to Vietnam, Turkey, Egypt and South Africa with respect to stock returns. When examining stock volatilities, evidence of information spillovers from EA to all CIVETS was found. This suggests that global news is considered as important for CIVETS stock markets and imply closer linkages between frontier and mature economies. The results are justifiable as for Egypt, Turkey and South Africa; the EU is the main trading partner and the main source of FDI for these countries. With respect to Colombia, EU is the main source of FDI for the country.

Egypt was found to react to the largest number of different news categories, thus suggesting higher degree of integration between EA and Egypt as compared to other CIVETS. Furthermore, Indonesia was found most segmented of the CIVETS with regards to the EA as industrial production was the only news

category found to impact stock volatility in the country. Moreover, asset prices in Indonesia did not respond to any EA macroeconomic news category. This is in accordance with the finding that for Indonesia, EU is less significant trading partner and trading relations are more concentrated on the local partner countries in Asia. In conclusion, all CIVETS stock markets reacted to the incoming EA macroeconomic news to some extent suggesting at least some form of integration. Thus, EA should be considered as a possible risk factor when investing in CIVETS.

The aim of this study was to provide useful information for international investors and portfolio managers investing in CIVETS. The results of this study may be applied by investors in the assessment of their investment strategies with regards to portfolio diversification and hedging against market contagion.

Future research on the topic could be extended to assess the impact of macroeconomic news announcements from other significant economies such as the U.S. or China. Furthermore, the effects of local macroeconomic news announcements could be studied among CIVETS in order to examine the interdependence of these markets. Abstract of this Master's Thesis (see Appendix 6) has been accepted for the international conference of Emerging Markets Queries in Finance and Business[12] and the results of this Master's Thesis will be presented there.

[12] Emerging Markets Queries in Finance and Business (EMQFB) will be held in Tîrgu-Mureș, Romania between 24 and 27 of October, 2013. More information can be found at http://www.rorcf.ro/.

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Appendix 1 Economic measurements of CIVETS

Figure 1 presents the total population of CIVETS between 2000 and 2011. Colombia, Vietnam, Egypt, Turkey and South Africa are presented on the left axis, whereas Indonesia is presented on the right axis.

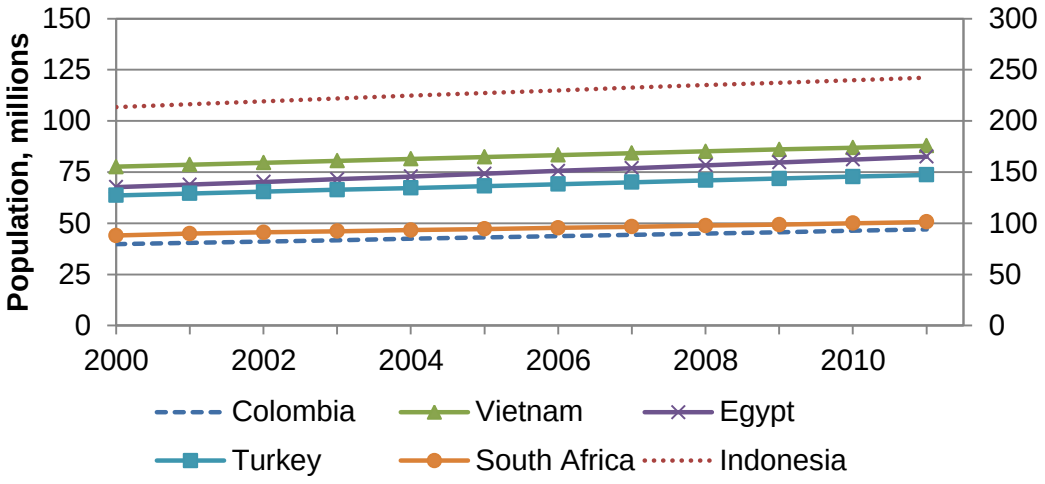

Figure 1 Total population of CIVETS

Figure 2 shows the children between 0 and 14 years as a percentage of total population between 2000 and 2011.

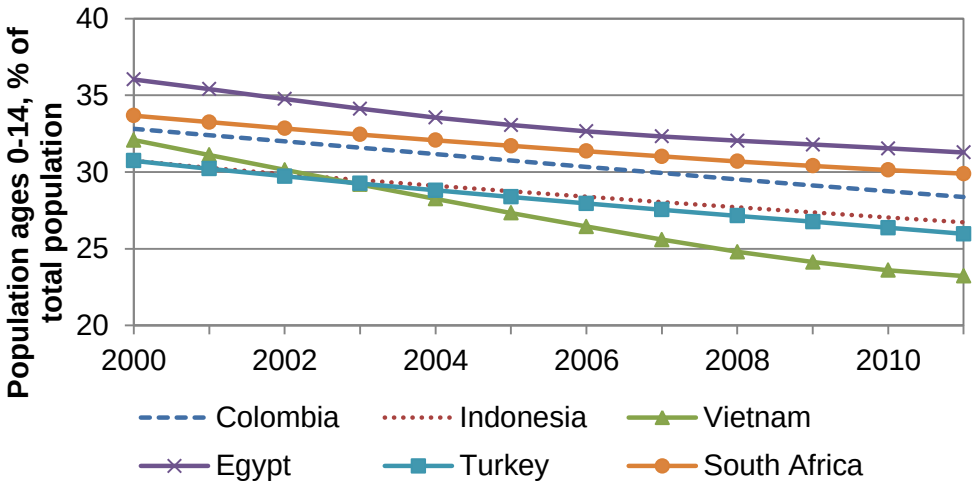

Figure 2 Population ages 0-14 in CIVETS

Figure 3 shows the development of GDP per capita in CIVETS from 2000 to 2011.

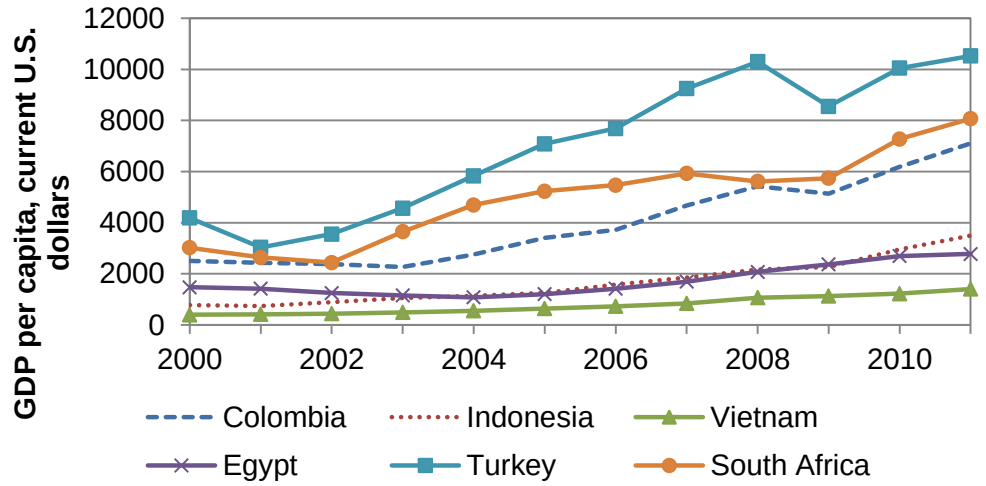

Figure 3 Development of GDP per capita in CIVETS

Figure 4 shows the development of scaled GDP in CIVETS from 2000 to 2011. All GDP figures are scaled to 1 in 2000.

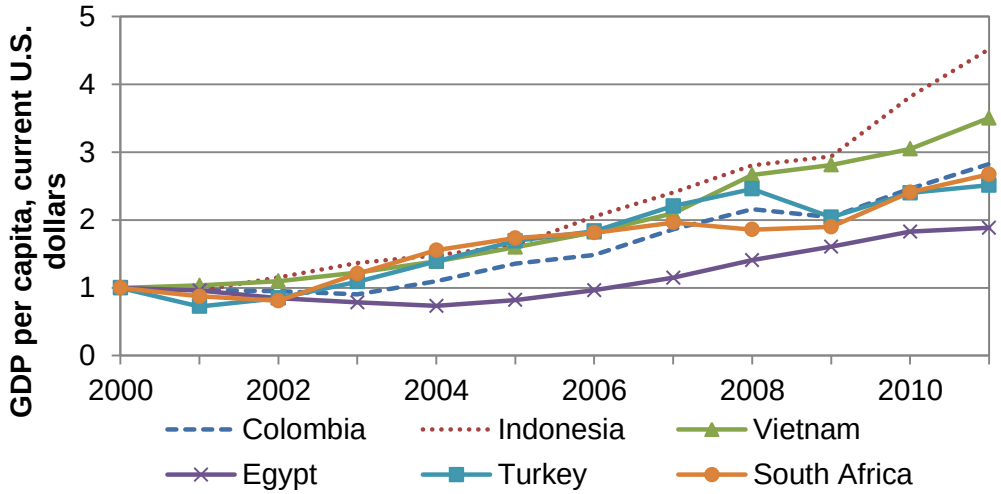

Figure 4 Development of scaled GDP per capita in CIVETS

Figure 5 presents the unemployment level in CIVETS between 2000 and 2011.

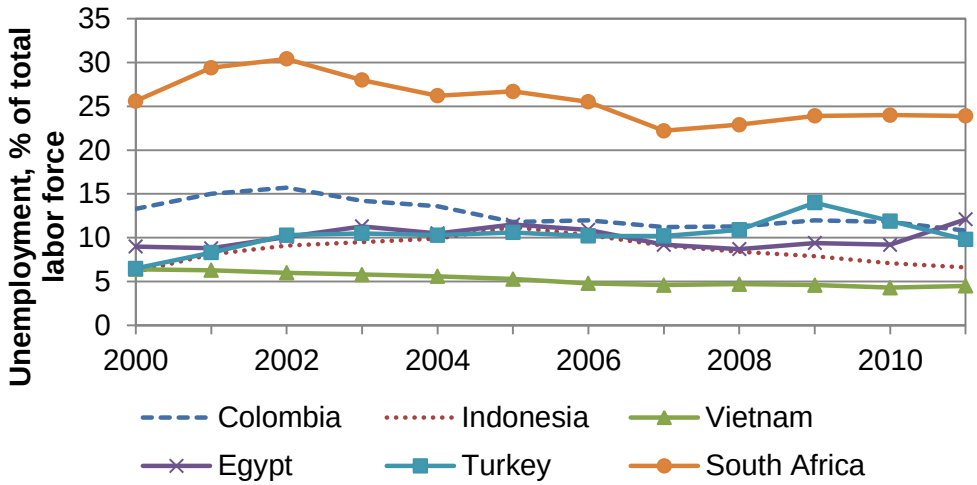

Figure 5 Unemployment in CIVETS

Figure 6 shows the development of labor productivity measured by GDP per person employed in CIVETS between years 2000 and 2011.

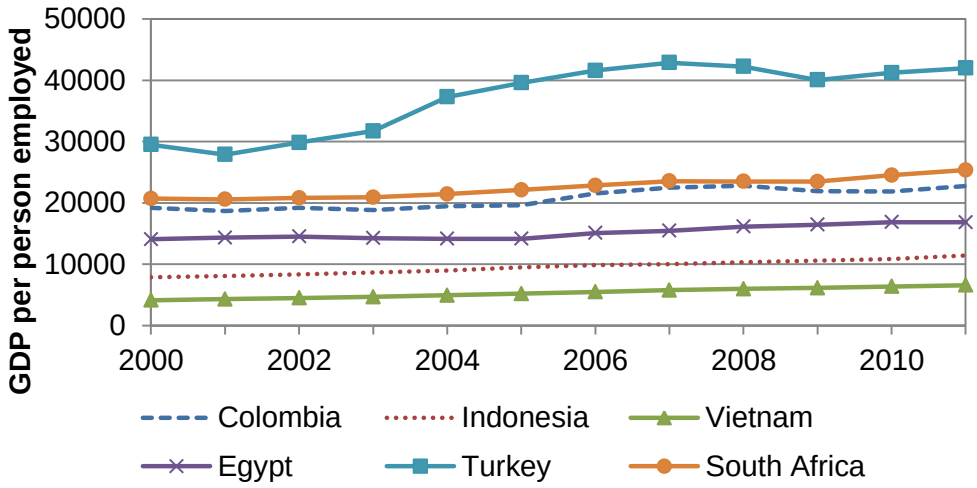

Figure 6 Labor productivity per person employed in CIVETS

Figure 7 tracks the development of FDI net inflows as a percentage of GDP from 2000 to 2011.

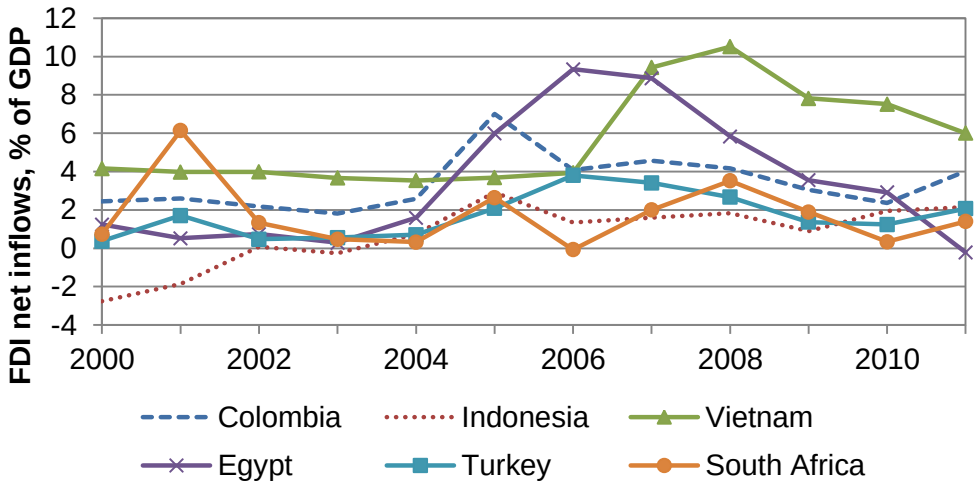

Figure 7 Development of FDI net inflows in CIVETS

Appendix 2 Main sources of FDI for CIVETS

Main sources of FDI are presented in Table 1 as per the year-end of 2011 and the five largest sources of FDI have been listed. The sources for the data are Central Bank of Colombia, Bank of Indonesia, General Statistics Office of Vietnam, Central Bank of Egypt, Central Bank of the Republic of Turkey, South African Reserve Bank.

Table 1 Main sources of FDI for CIVETS in 2011

Main sources of FDI for CIVETS in 2011			
	Colombia	**Indonesia**	**Vietnam**
1.	European Union	Singapore	Hong Kong
2.	Panama	Japan	Japan
3.	Chile	European Union	Singapore
4.	United States	South Korea	European Union
5.	Brazil	Australia	South Korea
	Egypt	**Turkey**	**South Africa[1]**
1.	European Union	European Union	European Union
2.	United States	Near and Middle Eastern Countries	United States
3.	United Arab Emirates	North America	China
4.	Saudi Arabia	Other Near and Middle Eastern Countries	N/A
5.	Qatar	Other European Countries	N/A

[1]Available data accounts for only the three largest sources of FDI for South Africa.

Appendix 3 Measurements of CIVETS stock markets

Figure 1 shows the development of market capitalization in CIVETS stock markets from 2000 to 2011. Colombia, Indonesia, Egypt, Turkey and South Africa are presented on the left axis, whereas Vietnam is presented on the right axis. All market capitalizations are scaled to one in 2000. Data not available for Vietnam for the period of 2000-2002.

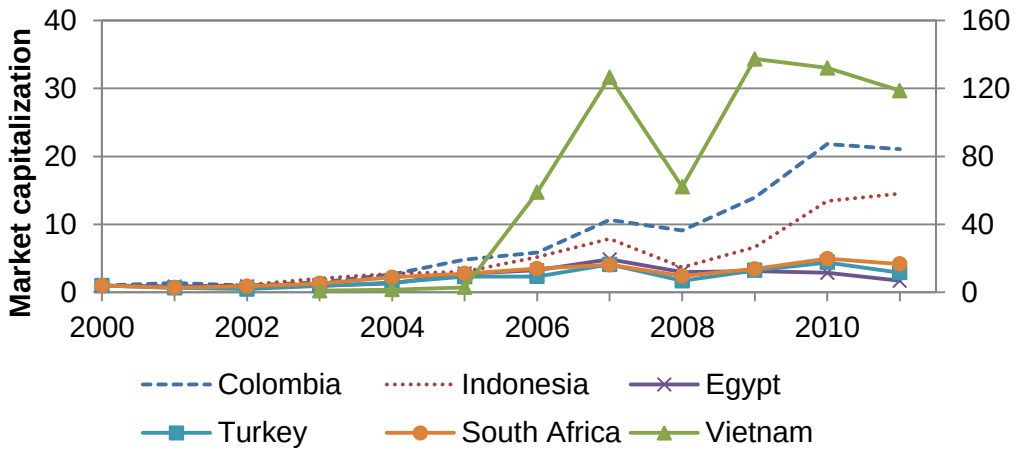

Figure 1 Development of market capitalizations in CIVETS

Figure 2 presents the number of listed domestic companies in CIVETS stock markets from 200 to 2011. Data not available for Vietnam for the period of 2000-2002.

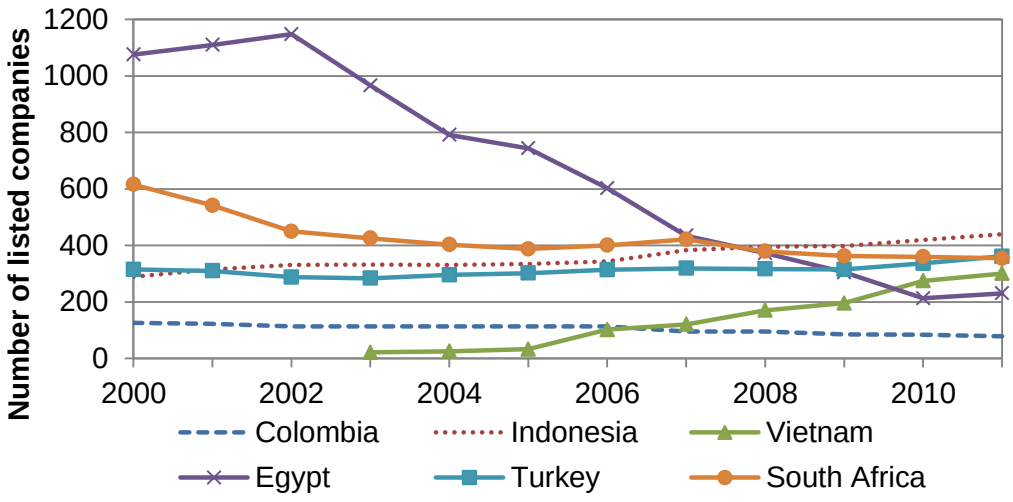

Figure 2 Number of listed domestic companies on CIVETS stock markets

Figure 3 shows the market liquidity in CIVETS from 2000 to 2011. Market liquidity, that is, the ability of investors to easily buy and sell securities, is measured as the ratio of total value of shares traded to GDP. Data not available for Vietnam for the period of 2000-2002.

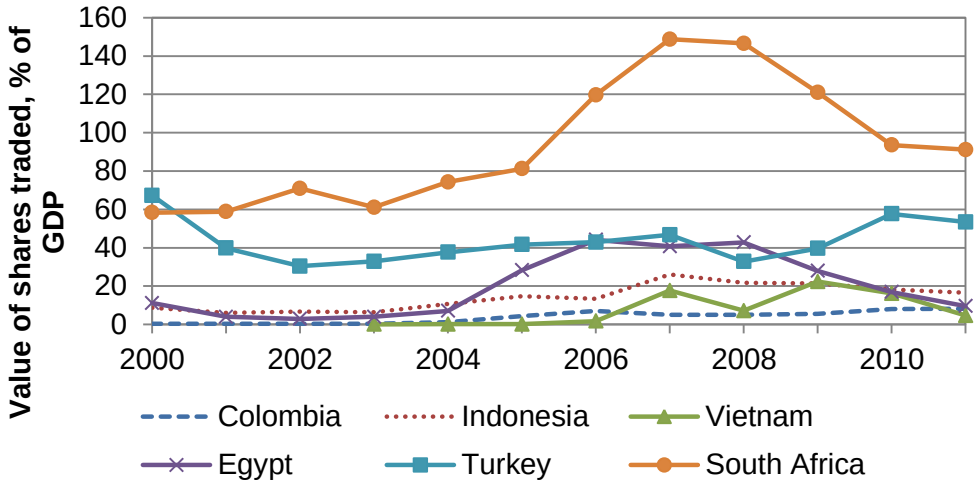

Figure 3 Market liquidity in CIVETS stock markets

Figure 4 shows the turnover ratio for CIVETS stock markets from 2000 to 2011. Turnover ratio is a measurement of market development and is calculated as the value of shares traded to market capitalization. Data not available for Vietnam for the period of 2000-2003.

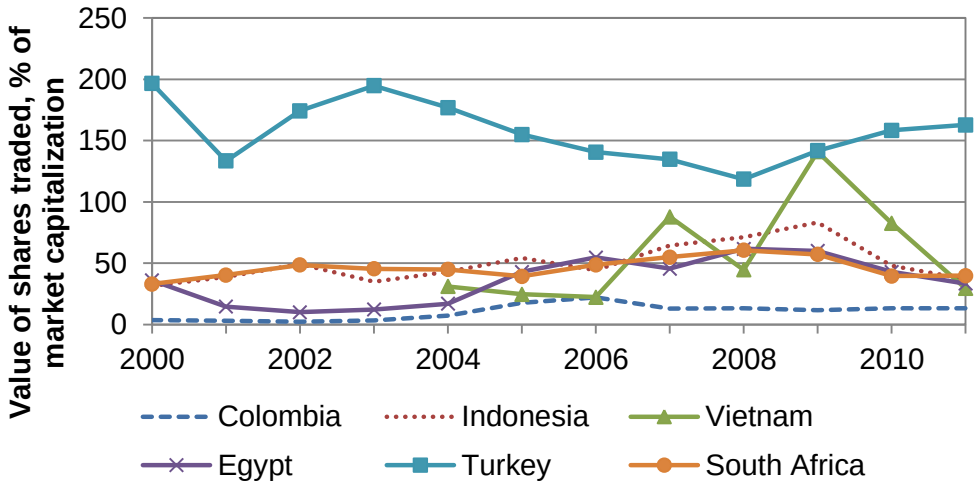

Figure 4 Turnover ratio on CIVETS stock markets

Appendix 4 Monthly returns of CIVETS MSCI indices

Figure 1 shows the monthly returns of MSCI indices for individual CIVETS stock markets.

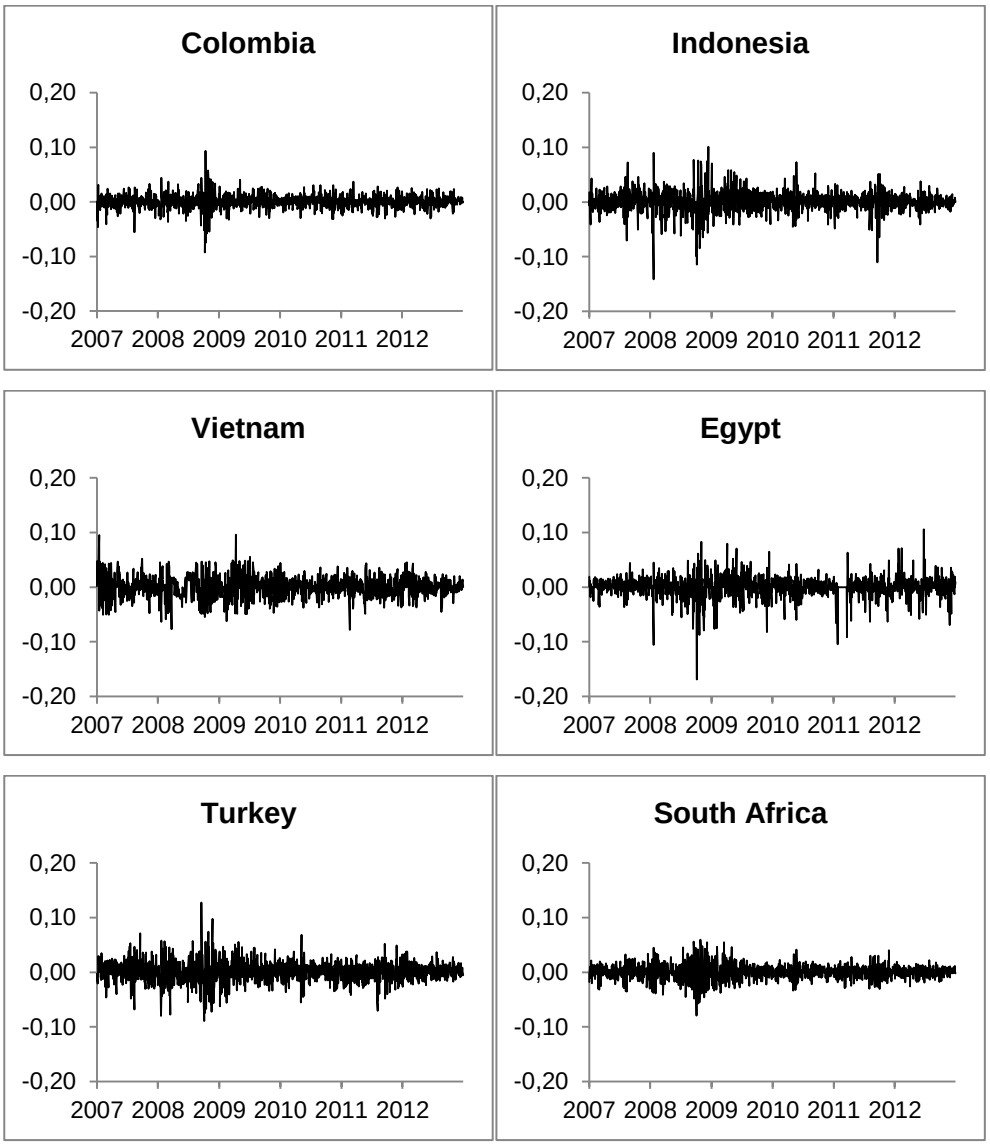

Figure 1 Monthly CIVETS stock returns

All indices present somewhat high volatility, which is particularly visible around the end of 2008 and the beginning of 2009. This high volatility was caused by the global financial crisis. Flat line in Egypt in the beginning of 2011 is caused by the upheaval of Arab Spring, which led to the Egyptian Exchange being closed between January and March, 2011. All markets exhibit the so-called volatility clustering, meaning that high volatility sequences are followed by high volatility and low volatility sequences are followed by low volatility.

Appendix 5 Composition of the MSCI Emerging Markets Index

The MSCI Emerging Markets Index was launched on December 31, 1987. The countries included in the index are: Brazil, Chile, China, Colombia, Czech Republic, Egypt, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Morocco, Peru, Philippines, Poland, Russia, South Africa, Taiwan, Thailand and Turkey. Hence, Vietnam is the only CIVETS stock market that is not included in the index.

Figure 1 presents the country composition of the MSCI Emerging Markets Index. South Africa is the only CIVETS stock market having an explicitly recorded proportion in the index.

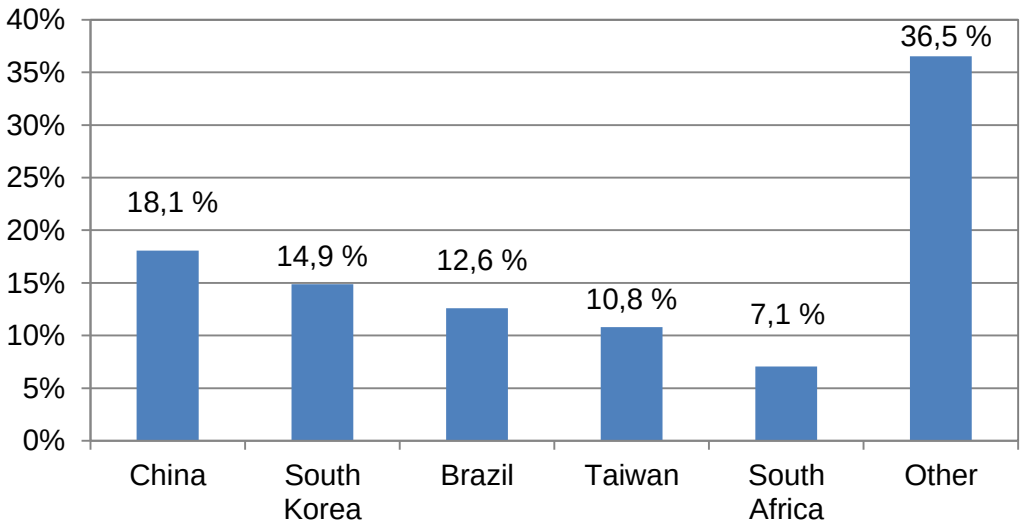

Figure 1 Country composition of the MSCI Emerging Markets Index

Source: MSCI (2013) MSCI Emerging Markets Index, March 29, 2013 [online]. MSCI Indices [Accessed April 19, 2013]. Available from: http://www.msci.com/resources/factsheets/index_fact_sheet/msci-emerging-markets-index.pdf

Appendix 6 Abstract submitted for EMQFB 2013, Romania

The Impact of European Macroeconomic Announcements on CIVETS Stock Markets

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ABSTRACT

This paper studies the impact of European macroeconomic announcements on CIVETS (Colombia, Indonesia, Vietnam, Egypt, Turkey, and South Africa) stock markets. A link between European macroeconomic announcements and CIVETS stock markets is found. The data used is from between 2007 and 2012.

European macroeconomic news is shown to affect CIVETS stock market volatility and in some instances the stock returns. Evidence on the impact of overall European macroeconomic news on stock market volatility is found for Colombia, Vietnam, Egypt, and Turkey. European announcements about GDP, retail sales, and unemployment have a significant effect on the pricing of stocks. According to our results, CIVETS stock markets seem to exhibit a negative relationship between market returns and volatility: negative news have a leverage effect for the most of CIVETS stock markets, as greater volatility is generated by negative than by positive shocks.

These results may be applied for asset pricing and portfolio selection and the assessment of investment decisions with respect to macroeconomic news releases.

JEL classification: C32, F36, G12, G15

Keywords: macroeconomic announcements, stock market integration, spillovers, emerging markets, CIVETS