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The success of US investors

Do US investors perform better when investing in the UK or in one of the BRIC countries?

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1. Introduction

The US foreign direct investment (hereafter: FDI) outflow, a stable 3% of Gross Domestic Product (hereafter: GDP), portrays the US as a prominent investing country in the world (The World Bank Group, 2013). Multiple factors influence the success of the international investments done. One of the most challenging factors for investors who are taking the step to invest in another country is the influence of distance. Distance does not only involve geographical distance. It has multiple forms: cultural distance, administrative and political distance, geographic distance and economic distance: the CAGE-framework (Ghemawat, 2001).

Grinblatt & Keloharju (2001) found empirically that US investors are likely to connect to other English speaking countries. For example, the non-geographical distance between the US and the UK is assumed to be small, because among other aspects both countries have a comparable legal system and a similar language spoken. In the present research the UK will be used to represent a country that lies closely to the US. Countries that are much more distinct from the US are for example the BRIC countries. Besides being a long way from home to the US in geographical sense, the social norms and economic standards of, for example, China are distinct from the US as well (Ghemawat, 2001; Khanna et al, 2005). The BRIC countries – Brazil, Russia, India and China – are seen as countries with a large non-geographical distance to bridge for Western companies. The different languages, the limited foreign language skills, the different business cultures based on for example personal connections, the level of state involvement and administrative barriers all cause the non-geographical distance between the BRIC countries and the US to be considered as significantly large (Ghemawat, 2001). Besides that Ghemawat (2001) considers distance between the home and the host country as a barrier, it can also be seen as an opportunity. Vesting, Rouse & Reinert (2005) state that firms can search for the boundaries of doing business abroad. Searching for distance is considered as searching for boundaries. However ‘going abroad’ should be considered carefully. When mentioning distance hereafter non-geographical distance is meant.

This paper will cover both mergers and acquisitions (hereafter: M&A) as well as Greenfield investment. M&A can be defined as a purchase of stock in an already existing company in an amount sufficient to confer control (Kogut & Singh, 1988). On the other hand, a Greenfield investment is defined by Kogut & Singh (1988) as a start-up investment in new facilities, which could be wholly-owned.

In order to disclose investment preferences different industries will be discussed. Light will be shed on the drug industry as well as on the telecommunication industry. Both industries are very internationally minded. At the same time these two industries are very different. The drug industry is an industry with huge investments and low flexibility whereas the telecommunications industry is an industry with average investments and high flexibility (Florida, 1997; Ruckman, 2005).

In order to measure the success of the US investors, investing in firms in these different sectors, event measurement for return on investment will be used. Event measurement

measures the return on investment by deviating the stock rate of the company and the expected stock rate right after the investment announcement (Brealey, Myers & Marcus, 2009). After some adjustments the timeframe used to clarify the effect of the announcement of the investment starts at the announcement day and ends 10 days after the announcement. This time frame is chosen based on several researchers and is also based on the data available (Brown & Warner, 1985; Agrawal & Kamakura, 1995). The factor influencing the performance of the US investor is non-geographical distance. This will be measured by the country choice of investment of the UK and the BRIC countries.

Although the effect of distance on the performance of investors is researched thoroughly (see for instance Grinblatt & Keloharju, 2001), hardly ever the performance of a US investor is investigated for non-geographical distance in different industries and through different types of investment. This study will fill this gap in literature by empirically testing the differences in performance between US investors. A flourishing investment culture and rapidly growing and globalizing investment markets make this research an interesting blend of topics. Whether US investors prefer similar culture and habits or prefer to search for boundaries in terms of distance will be answered in this paper.

The research is aimed to uncover the effect of non-geographical distance on the performance of US investors. The differences between investment in the UK and in countries developing on the fields of economics, politics and judicial aspects will be revealed.

The economic purpose of the current research is to show US investors what the effect of an investment could be on their stock rate. Due to shareholder preferences, the stock rate can highly fluctuate. Shareholders can value an announced investment positively or negatively by buying new shares or by selling shares. By distinguishing between countries, industries and types of investment, the effect of an international investment is further specified. In this way, it is shown more specifically what the effect of an investment on the stock rate is in different situations.

Using the SDC Thomson One dataset, Datastream, Eventus, FDI Markets, Compustat and companies' annual reports, a comparison of success of different investment strategies is made. The following main research question is formulated: *'What is the effect of investing in the UK or in one of the BRIC countries on the performance of the US investors, when distinguishing between the drug and telecommunications industry and between M&A or Greenfield investment?'*

The research is structured as follows. After this introduction, prior research will be discussed. In the third section, the data and methods used in this study are extensively presented. In the section thereafter the empirical results will be shown. In the fifth and final section main conclusions, limitations and implications of the research are discussed.

2. Literature review

Prior research has provided insight in the success factors underlying international investments. In the following order the literature will be discussed. The characteristics of US

investors, the differences between the BRIC countries and the UK, the types of investment, the differences between investments in two different industries and the impact of distance will be elaborated upon. Throughout the literature review hypotheses will be formulated.

2.1 Characteristics of US investors

US investors are interested in international investments for already many years. From approximately the 1980s onwards, the amount of FDI outflow from the US has started to increase further and further (Nunnenkamp, Gundlach & Agarwal, 1994). The FDI outflow from the US is an important money stream for firms in developed countries as well as for firms in developing countries. According to Feenstra (1998) investors decide on the three features of FDI – ownership, location and internalization – in order to answer the questions where, why and how much to invest. For US investors, the location of investment used to be determined mainly by the national culture of the country (Berger, 1991). According to Berger (1991) it is culture that serves as the conductor, and the investor as the catalyst to investment and entrepreneurship. Traditionally, the international investments were focused on countries in Europe. As Europe grew stronger, US investors shifted their main focus of investment to the less developed countries, for example Asian and Latin American countries. After the investment destinations of Europe and Asian and Latin America countries, the investors started to invest in countries all over the world (Kuemmerle, 1999). The developing countries were seen as promising markets in fast growing regions initiating severe cost advantages (Nunnenkamp et al, 1994). It follows that US investors are investing in many different countries.

2.2 Non-geographical distance of the BRIC countries

From the mid-1990s onwards, foreign investments were initiated in developing countries as the borders of Brazil, Russia, India and China have opened up for international investment. Issues that affect the success of foreign investments or increase the risks of foreign investments are crime, corruption, intensive control of the government, bureaucratic business environment, underdeveloped infrastructure, high inflation and interest rates and low skilled employees (Lee & Peterson, 2000). All of these issues are in some way present in all of the BRIC countries. Through economic reforms, comprising macro-economic stabilization, liberalization and privatization schemes and the consolidation of foreign debt, the foreign investors' confidence in the regions has at least partially been built (Nunnenkamp et al, 1994). Since the reforms, the BRIC countries have become interesting countries to invest in.

Even though several trade barriers have been overcome with the reforms to secure international investments better, the Ghemawat's proverb (2001) is still highly relevant nowadays: distance still matters. In general, the larger the distance between the investor and the invested company, the harder it is to control and administer actions taken by the funded project due to the CAGE-distances as explained before (Ghemawat, 2001). All play a role in determining the success of investment projects, either M&A or Greenfield investment.

Already in 1985 it was clear that the success of FDI highly depends on the distance between involved countries (Schneider & Frey, 1985). Regardless of the type of distance, the further away the invested company is positioned from the investing company, the harder it is to make the investment successful.

Cultural distance can create difficulty in the communication between the trading parties (Agarwal, 1994). Even though geographic distance has become less relevant due to the continuing globalization and ICT improvements, interacting in a face-to-face manner is a much richer communication mode than communication via technology (Gupta & Sapienza, 1992; Sorensen & Stuart, 2001). Hence, it is less costly to monitor projects located next-door. Considering economic and political distance, Schneider & Frey (1985) found that the smaller the distance, the higher the return on the investment.

According to Li, Poppo & Zhou (2008) US investors infiltrate in the markets of the BRIC countries without knowing how to overcome the barriers of entry caused by distance. More closely related investors do not face such barriers. FDI is associated with gaining access to a foreign market and attracting better management skills (Li et al, 2008; Capron, 1999; Singh & Zollo, 1997). For foreign investment, action should be taken to overcome the issues of distance.

2.3 Non-geographical distance of the UK

A small distance between the US investor and the invested company has several distinctive advantages over investments at larger distance. Ghemawat (2007) shows, based on case studies, that countries with unilateral cultural attributes, like values, norms, economic positions, languages, ethnicity, religion, regulations and infrastructure, prove to blunt the effects of distance. These aspects mentioned by Ghemawat (2007) can be explained in terms of money, like for example monitoring or search costs.

These costs are components of the transaction cost theory. Coase (1937) laid the foundation for the presently used transaction cost theory, which was developed further by Williamson (1975; 1985). Williamson (1975; 1985) and Coase (1937) discuss the origination of transaction costs as costs of coordinating economic activities as a result of the use of market mechanisms as well as the use of a company's organizational structure. In this way, both producer and consumer are involved in the level of transaction costs. It follows from both, Coase (1937) and Williamson (1975), that the more coordination the investment demands, the higher the transaction costs will be. The higher the total costs will be and the less profitable the investment will be.

Unlike the BRIC countries, the UK is quite similar to the US. Namely, the UK and the US use the same language, have both powerful economic positions in the world economy, are both Christian, have a comparable legal system and have well-developed infrastructure. As both countries are quite similar to each other, for example the search costs and monitoring costs are relatively low (Coase, 1937; Williamson, 1975). In terms of the Ghemawat's (2001) distance theorem the non-geographical distance between the US and the UK is small.

Ghemawat (2007) found empirically a negative relationship between distance and the performance of the investors. In terms of event measurement, a positive relationship is found when the stock rate outperforms the market return. The market return can be seen as the average of all expected company returns in the market. This leads to the following hypothesis.
H1: The performance of US investors is higher when investing in the UK compared to investing in one of the BRIC countries.

2.4 M&A versus Greenfield investment

Not only a distinction can be made between the different countries involved. This research will also be focused on the difference between the different types of investment. As been discussed before, M&A means that the acquiring company only controls the acquired company whereas with Greenfield investment complete ownership is implied. This difference between M&A and Greenfield investment could explain the choice for either one of them (Kogut & Singh, 1988).

Different motives for FDI can result in the choice for either technology sourcing or technology exploitation. Technology sourcing means that new and different technologies are acquired. Technology exploitation means using existing technology to make something new (Love, 2003; Ruckman, 2005). A motive for international investment could be to attract capital resources or to attract natural resources. Chang & Rosenzweig (2001) found that the company is more likely to choose Greenfield investment over M&A, when the investing company already possesses the important skills for their business. In this case, the investing company chooses for the natural resources. In terms of Love (2003) the investor is exploiting its technology. On the other hand, when specific skills and technologies are needed, the investing company will choose for M&A (Chang & Rosenzweig, 2001; Demirbag, Tatoglu & Glaister, 2008). Then the investor is sourcing technology (Love, 2003).

US investors are well-developed investors and are associated to have good management skills (Sorenson & Stuart, 2001). This suggests that US investors are less in need of other companies' strengths. The investor's perspective is reflected in the stock rates of the US investor. As the US investor is assumed to be less in need of other companies' strengths, the investor will judge more positively to Greenfield investment than to M&A (Brealey et al, 2009). So the hypothesis is formulated as follows.

H2a: US investors perform better when investing in the form of Greenfield investment than in the form of M&A.

Chakrabarti, Gupta-Mukherjee & Jayaraman (2009) found empirically that the performance of the acquiring company is better when the distance is large. In terms of Vesting's et al (2005) theorem, the performance of US investors investing in the BRIC countries is assumed to be better compared to acquiring a company in the UK. Due to the larger distance companies in the BRIC countries might have skills the US investors do not have. By combining the US knowledge with the knowledge in the BRIC countries the performance of the investor might be improved. This could be explained by following Capron's (1999) findings that

companies are motivated to acquire a company to strengthen their own weaknesses with the strengths of the acquired company.

With the control the acquiring company has gained it can bond with the tangible and intangible knowledge of the acquired company. This improves the acquiring company's knowledge base. So, the following is hypothesized.

H2b: M&A by a US investor in one of the BRIC countries results in a higher return on investment than M&A in the UK.

Besides M&A, the results at Greenfield investment will be tested as well. Greenfield investment is associated with natural resource investment (Chang & Rosenzweig, 2001). Brouters & Brouters (2000) found theoretically that investing companies prefer Greenfield investment when the distance is small. This may facilitate them to maximize company specific advantages. However, no empirical evidence could be found. Chang & Rosenzweig (2001) on the other hand have found evidence that the preference for Greenfield investment diminishes when non-geographical distance becomes smaller. Using the findings of Chang & Rosenzweig (2001), the following is hypothesized.

H2c: Greenfield investment in one of the BRIC countries results in a better performance of the US investors than Greenfield investment in the UK.

2.5 Industries and distance

The two industries that are discussed in the present research are the drug industry and the telecommunications industry. Both industries are crucial for today's life. The drug industry is known for its high level of knowledge protection. Whereas the telecommunications industry is better known for its so-called collaborative knowledge production (Saxenian, 1994). In this industry, 'the job hopping, interfirm relationships and informal knowledge exchange' is a competitive advantage over more secretive firms in the telecommunications industry (Fleming & Frenken, 2007: 55).

The drug industry is an industry with a large portion of production in the world. The level of Research & Development (hereafter: R&D) in this industry is high, involving many foreign acquirers (Ruckman, 2005). This industry knows M&A as well as Greenfield investment. Kuemmerle (1999) found empirically that investors in the drug industry could be worried about the risk of attrition of desired resources when acquiring. Pharmaceutical firms already have the knowledge and highly skilled researchers within the company. Then the important skills are already in the portfolio of the company. This supports the choice of Greenfield investment over M&A (Chang & Rosenzweig, 2001). Greenfield investment will be dominant if firms seek to protect their intangible assets (Kuemmerle, 1999). Taking into account the availability of a complete skills portfolio for the current business and the protection of the intangible asset, investors in the drug industry are highly expected to choose Greenfield investment over M&A.

The telecommunication industry is largely affected by oligopolization, due to M&A from the late twentieth century onwards (Warf, 2003). As a consequence of globalization, deregulation, technological changes and digital convergence the telecommunications industry

has grown to a large and important industry. Investments are mainly done in the form of M&A to strengthen weaknesses of the acquiring company (Capron, 1999; Singh & Zollo, 1997). Not only M&A are present in this industry, also Greenfield investment is present. In the telecommunications industry, a Greenfield investment is generally done when the investing company has strong technological capabilities and wants to enter a foreign market (Capron & Mitchell, 2004).

According to Ruckman (2005) acquirers in the drug industry at a large distance prefer technology sourcing. Acquirers investing in firms in the drug industry at a small distance choose target firms complementary to their own R&D intensity. Cohen & Klepper (1992) found empirically that comparable R&D intensity of involved firms is positively related to successful investment. When following the bulk of literature investments at small distance choosing complementary R&D intensity will result in a better performance. So the following is hypothesized.

H3a: In the drug industry, investment at a small distance is more successful than investment at a large distance.

The motivations for either M&A or Greenfield investment for the drug industry are discussed before. Greenfield investment protects firms' assets better than M&A (Kuemmerle, 1999; Capron, 1999; Singh & Zollo, 1997). Greenfield investment is done for technology exploitation and M&A is done for technology sourcing. Moreover, technology sourcing comes out best when investing at large distance (Love, 2003; Ruckman, 2005). In the drug industry secrecy about newly developed drugs and its ingredients is highly valued, therefore the following is hypothesized.

H3b: Greenfield investment in the drug industry results in a better performance of the US investors than M&A in the drug industry.

Due to many external and internal changes in the telecommunication industry the level of investments is high (Warf, 2003). In this industry every party continuously needs to improve in order to retain its competitive advantages over the competitors. As Capron & Mitchell (2004) discussed, companies choose for M&A when they need knowledge and experience from another company. The actors in the telecommunications industry experience the need to keep improving and try to gain all information possible from the competitor. In this case M&A could be more profitable because it allows the acquiring company to bond with the tangible and intangible knowledge of the acquired company. So, the following is hypothesized.

H4a: In the telecommunication industry, M&A is more successful than Greenfield investment.

Florida (1997) found that FDI in R&D departments of the telecommunications industry occurs mainly between a small number of highly industrialized countries. When following the findings of the Florida's (1997) research, the performance of the US investors will be better when investing in the British telecommunications industry. Namely, the British telecommunications industry is assumed to be more industrialized than the industry in the BRIC countries. Therefore the following is hypothesized.

H4b: In the telecommunications industry, investment at a small distance is more successful than investment at a large distance.

H4c is created by combining the H4a and H4b.

H4c: In the telecommunications industry, the performance of the US investors is better when investing in the UK with M&A than investing in the BRIC countries through Greenfield investment.

3. Data and methods

The US investors acquiring in either the UK or in one of the BRIC countries are subtracted from the SDC Thomson One dataset, a database comprising worldwide financial content and transactions. The database consists of data since 1977 and includes over 400.000 transactions. In order to compare M&A and Greenfield investment best, the US investors considered in this research have invested through M&A as well as through Greenfield investment. By using the same companies for M&A as well as for Greenfield investment the differences caused by company specific characteristics are eliminated. The Greenfield investment data is extracted from the FDI Markets database. This is a cross border investment monitor. The database contains data since 2003 and includes worldwide Greenfield and capital investments ordered by country and sector. This resulted in 43 unique US investors, accounting for 280 investments. A unique tag was generated to track each unique investor.

For the financial information of the performance of the different US investors Eventus, Datastream and the annual reports of the US investors are used. Eventus embodies investments of US investors and all their numerical facts. Each US investor can be identified with either a ticker code or a CUSIP code. The data gathered from Eventus is an addition to the Datastream data. Datastream includes information of US investors among others. This financial data is put together by Thomson Reuters. The control variables are extracted from Compustat and the annual reports of the US investors.

The data selected contains US investors doing both M&A and Greenfield investment. This selection of investments is further specified towards the telecommunications industry and the drug industry. In order to test the hypotheses specifying to either one of them, different regressions are run. In these regressions selections are made to specify towards the topic of the hypothesis. For hypothesis 1, 2a, 2b and 2c the complete dataset is used with all its observations.

For the rest of the hypotheses only a selection of the dataset is used. This selection specifically leaves out the part that is not interesting for that particular hypothesis. Hypotheses 3a and 3b only concern about investments in the drug industry. For hypotheses 4a, 4b and 4c the investments done in the telecommunications are extracted from the dataset for the regression.

3.1 Measures

3.1.1 Exploration

The data on the stock prices of the investigated companies is formed following the arguments of Brown & Warner (1985) and Agrawal & Kamakura (1995). In order to fit the

periods with the possibilities of the dataset, the constructed estimation period ranges from day -244 to day -11. The event period ranges from -10 days to +10 days. By using the market adjusted returns the returns are controlled for market fluctuations (RPI, 2004).

In Table 1 (all tables and figures can be found in the appendix) the US investors taken into account are made explicit. These US investors have invested in either the drug industry and/or in the telecommunications industry. In order to extract suitable data from Datastream, the two industries are specified further into the sectors: telecommunications industry, the industrial goods & services, the technology, the healthcare, the chemicals, the banks and the personal & household goods.

3.1.2 Dependent variable

The measurement of performance of the US investors in the current research is quantified with the *Market Model Adjusted Return*. The Market Model Adjusted Return is the stock return adjusted for the overall trend in the market (EUR Datateam, 2013). By adjusting for the trend, the stock returns can be compared. In order to adjusted the stock return for the industry fluctuations the intercept, slope and trend are taken into account. In the Market Model Adjusted Return the expected company return is assumed to be equal to the market return (Dyckman, Philbrick & Stehan, 1984). US investors are performing well if the stock return in the Market Model Adjusted Returns is larger than zero. This encounters a positive effect by the US investors on their performance. The calculation made is the following.

$$\text{Market Model Adjusted Return} = \text{Stock return at day 1} - \alpha - \text{index return at day 1} * \beta$$

Day 1 means the first day of the evaluation period taken into account. In the current research day 1 is 10 days before the announcement day. The stock return is the return on the stock rate for the company discussed at that specific day. The index return is the return on the stock rate for the whole industry in which the company operates. Alpha is the intercept estimated over the estimation period in the market model. Beta is the slope between 0 and 1 estimated over the estimation period.

To provide an overview, Table 2 shows the distribution of the Market Model Adjusted Returns. The mean adjusted return for the period -10 to 10 days around the announcement date is 325.000.000. This means a positive change of around zero percent in the Market Model Adjusted Return. The maximum value of this event period is 97.400.000.000. As the Market Model Adjusted Return shows the difference of the investment performance compared to the average market performance, this maximum value is unrealistic. When using this event period with the high maximum value in STATA, the effects of the independent variables and control variables is almost equal to zero. Therefore this value will not be interpreted or used.

Other event periods are created. An event period is used from the announcement date to 10 days after the announcement date to keep taking the findings of Brown & Warner (1985) and Agrawal & Kamakura (1995) into account. The Market Model Adjusted Return from the day of the announcement to ten days after the announcement is -0,007983, see Table 2. All values of the newly created event periods can be found in Table 2 as well.

3.1.3 Independent variables

Three dummy variables are of main interest in this research. Firstly, a distinction is made between investment in the UK and investment in the BRIC countries. Secondly, M&A and Greenfield investment are separated. Lastly, the drug industry and the telecommunications industry are separated.

Investment in the UK vs. in the BRIC countries

In order to uncover the effects of non-geographical distance on the performance of US investors, a distinction between the destination of the investments has been done: UK or the BRIC countries. This distinction is discussed in H1. By using a dummy variable in the models, it can be assessed whether investing in the UK does generate a higher performance. The dummy takes on value 1 if the target nation is the UK and it takes on the value 0 if the target nation is one of the BRIC countries. Table 3 and 4 show that 99 investments are done in the UK. The investments done in the BRIC countries are in total 202, of which 24 are done in Brazil, 88 in China, 71 in India and 19 in Russia. Two-third of the investments goes to the emerging economies. Only one-third of the investments goes to the UK. This discrepancy will be taken into account in assessing the data.

M&A and Greenfield investment

The distinction between M&A and Greenfield investment is discussed in H2a, H2b, H2c, H3b and H4c. To distinguish for the two kinds of investment, a dummy variable is used. This dummy variable takes on the value of 1 if a company is acquired and it takes on the value of 0 if a Greenfield investment is done. By using this dummy variable it can be assessed whether investing through an M&A or through Greenfield investment results in a better performance. Also two separate variables are created for either M&A or Greenfield investment. Table 5 shows that 94 times M&A is executed and 207 times a Greenfield investment is done. Also in this case, there is a two-third/one-third division of the types of investment. This discrepancy will be taken into account when assessing the data.

Drug industry vs. telecommunications industry

The last separation made is between the two different industries, the drug industry and the telecommunications industry. For the effect of distance and the type of investment, when investing in the drug industry, H3a and H3b are distinguished. For these comparisons in the telecommunications industry H4a, H4b and H4c can be identified. In Table 6 it is shown that there are 161 investments done in the drug industry which is 53.49% of total investments. In the telecommunications industry 140 investments are done.

3.1.4 Interaction effects

To test hypothesis 2b, 2c and 4c an interaction terms are created. For hypotheses 2b and 2c an interaction term between the UK and Greenfield investment is created. This term indicated the effect of investment in the UK in the form of Greenfield investment. Table 7

shows that only 52 investments are done in the UK through Greenfield investment. Also, an interaction term is created for the UK together with M&A. This term indicates the effect of investment in the UK in the form of M&A. Table 7 shows that only 47 investments are done in the UK through M&A.

3.1.5 Control variables

Following previous researches in international collaboration, M&A and Greenfield investment, several control variables are incorporated in the model. The following control variables are included: industry fluctuations, employees at the US investor, age of the US investor, Earnings Before Interest Taxes and expense at R&D.

Industry fluctuations

In order to have stock prices of a certain company that could be compared to the performance of another company in another industry or sector, indirectly discussed by Wang & Wong (2009), the stock prices must be controlled for industry fluctuations. As been discussed, the Market Model Adjusted Return is already controlled for these industry fluctuations.

Employees at the US investor

The number of employees at a company fluctuate over the years. This also happens at the US investors. In order to be able to compare the investors, the announcement day of the investment is used as the day for comparison. It is clear that the results must be controlled for the amount of employees. There are several arguments why the amount of employees could be of influence on the investor.

On the one hand the more employees the investor has, the more effort it takes to diffuse the knowledge over the whole company and the less the company can react to changes or adapt to market fluctuations. According to Hamel, Doz & Prahalad (1989) an investment is only beneficial to the investor if the knowledge and skills gained abroad are successfully distributed over all parts of the company. So, the assets contributed by the partner should be easily transportable, interpretable and absorbable for the wellness of the investor. On the other hand, the more employees the US investor has, the more people can be sent abroad to make the investment a success and to gain knowledge and skills at the partner (Verbeke, 2013). This expertise can be transferred over the whole company.

In the sample, the number of employees ranges from 50 to 317,100, with a mean of 48,435.69 employees working at a US investor at the time of the announcement of the investment (Table 8). As Figure 1 shows, the distribution of the amount of employees at the US investors at the announcement, is mainly between 0 and 100,000 employees.

Age of the US investor

Following Makri, Junkunc & Eckhardt (2007), the age of the company at the moment of investing also captures the investor. When considering the learning curve firstly discussed

by Ebbinghaus (1885), more experienced companies have had the opportunity to learn from previous investments. It can be suggested that more experienced investors have a better feeling for profitable investments (Chemmanur, Loutskina & Tian, 2012). The age of the investor is created by subtracting the year of foundation from the year in which the announcement is made. The created variable is measured in years. The age of the US investors at the date of the announcement ranges from 2 to 163 years (Table 8). The mean is 53.44 year and the standard deviation is 48.85 year. As Figure 2 shows, the distribution of the age of the US investors at the announcement is very diverse. There are a lot of older companies, with the age between 100 and 150 years, and there are several young companies investing abroad.

Earnings Before Interest and Taxes

The performance of a company in terms of cash flow shows how much money the company has available. A large Earnings Before Interest and Taxes (hereafter: EBIT) creates room for a company to dig deeper and explore radical innovations (Benner & Tushman, 2003). Exploring radical innovations is associated with taking a larger risk of losing money, compared to the risk of exploiting existing innovations. The average EBIT at the year of the announcement, shown in Table 8, is 5,509 million US dollars. It ranges from -847 to 86,580 million US dollars.

Expense at R&D

Both industries, the telecommunications industry and the drug industry, rely heavily on R&D. A high level of expenses in R&D helps to make the investment successful (Cohen & Klepper, 1992). Moreover, if one company in an industry invests heavily, other companies in the industry can benefit (Audretsch & Feldman 1996). The average expense in R&D of US investors in the year of the investment is 3,053 million US dollars (Table 8).

3.1.6 Correlation

The correlation matrix of the independent variables (Table 9) shows that all correlations are and not larger than the absolute value of 0.2454. Therefore, all independent variables can be interpreted. Table 10 shows the correlation matrix of all variables involved. The significant correlation with the largest absolute value is -0.6742: the correlation between the amount employees of the US investor in the year of the announcement day and the cash flow of the capital investment in the year of the announcement day. This relationship will not be measured as both are control variables. Besides that, the absolute value of the correlation is not that high that it is a risk to interpret it. All other relatively high correlations are between control variables or between different forms of the dependent variables. These high correlations do not harm the research as all of these relationships will not be interpreted.

3.2 Methods

Event measurement for return on investment is assessed to indicate whether US investors investing in the UK outperform US investors investing in the BRIC countries. As been discussed before, this will be measured with the Market Model Adjusted Return.

Event measurement for return on investment is a good proxy for performance of the US investors as it uses highly flexible financial information of the investor which is directly determined by supply and demand. This financial information carefully shows how the market reacts to just announced investments. If there is a positive shock in the stock rate, the stock market agrees with the investment decision. If there is a negative shock in the stock rate, the stock market does not agree with the investment decision. If there is no or hardly a change in the stock rate, the stock market is not clear about whether the investment decision is a success or not. The last option is hard to interpret.

$$\begin{aligned} & \text{Market Model Adjusted Return for } \widehat{10} \text{ days after the announcement day} \\ & = \beta_0 + \beta_1 \text{Country}_i + \beta_2 \text{Investment}_i + \beta_3 \text{M\&A} \\ & + \beta_4 \text{Greenfield investment} + \beta_5 (\text{UK} * \text{GF})_i + \beta_6 (\text{UK} * \text{MA}) \\ & + \beta_7 \text{Industry}_i + \beta_n \text{Controls}_i + \epsilon_i \end{aligned}$$

The relationship between the performance and non-geographical distance will be measured with an ordinary least squared regression, because it is a linear relationship (Wooldridge, 2009). The model is tested for heteroskedasticity, omitted variables. The independent variables are also tested for joint significance.

In the dataset it is assumed that the error terms are independently and identically distributed. This is confirmed using a Breusch-Pagan test. The test shows that the constant variance cannot be rejected. Despite this result, the robust option will be used in all models to ensure the control for heteroskedasticity and autocorrelation. It follows from the RESET test that there are no omitted variables. Moreover, the three independent variables are jointly significant. Depending on the hypothesis that is discussed, the variables and interaction effects are included. The results of these tests are shown in Table 11.

4. Results

Results of the influence of the different factors on the performance of the US investors are discussed in this section. At first, the models covering both industries together will be discussed. After that the results will be distinguished for the two separate industries. Depending on the topic that is discussed an interaction term is included. The results can be found in Table 12.

The influence of the country of investment on the performance of the investor is investigated and is significant at a 5% significance level, ceteris paribus. The formula below follows from hypothesis 1.

$$\begin{aligned} & \text{Market Model Adjusted Return} \\ & = \beta_0 + \beta_1 \text{Country}_i + \beta_2 \text{Investment}_i + \beta_7 \text{Industry}_i + \beta_n \text{Controls}_i + \epsilon_i \end{aligned}$$

When filling in the significant β s, the formula looks the following way.

$$\text{Market Model } \widehat{\text{Adjusted Return}} = -0.158 + 0.0172 * \text{Country}$$

It follows that the performance of the US investor will increase with 0.0172 more when investing in the UK compared to investing in one of the BRIC countries. So, hypothesis 1 cannot be rejected.

The type of investment on the performance of the US investor turns out to be insignificant, *ceteris paribus*. Hypothesis 2a is rejected. An interaction term is created for the analysis of hypothesis 2b. This interaction term includes investing in the UK through M&A. If the investment is done in the UK through an M&A the value of the interaction term can be included in the effect on the performance of the US investor. Also an interaction term is created for hypothesis 2c, including Greenfield investment in the UK. It follows from Table 12 that only the variables covering the influence of the country is significant at a 10% significance level, when investing through M&A in the UK. This is also the case for Greenfield investment in the BRIC countries. This means that there is no evidence for hypothesis 2b and 2c.

In order to find evidence for hypothesis 3a, 3b, 4a, 4b and 4c a selection in the dataset is made. This selection specifically leaves out the part that is not interesting for that particular hypothesis. Hypothesis 3a states that investment at a small distance is more successful than investment at a large distance, when investing in the drug industry. The effect of the country of investment on the performance of the investors investing in the drug industry is significant at a 5% significance level, *ceteris paribus*. The formula below follows from hypothesis 3a.

$$\text{Market Model } \widehat{\text{Adjusted Return}} \mid \text{Drug industry}$$

$$= \beta_0 + \beta_1 \text{Country}_i + \beta_2 \text{Investment}_i + \beta_7 \text{Industry}_i + \beta_n \text{Controls}_i + \epsilon_i$$

When filling in the significant β s, the formula looks the following way.

$$\text{Market Model } \widehat{\text{Adjusted Return}} = -0.242 + 0.0222 * \text{Country}$$

It follows that the performance of the US investor will increase with 0.0222 more when investing in the UK compared to investing in one of the BRIC countries. So, hypothesis 3a cannot be rejected.

The types of investment for the drug industry is insignificant, *ceteris paribus*. So, no evidence is found for hypothesis 3b. Also, the effect of the country of investment and the effect of the types of investment in the telecommunications industry are insignificant. Therefore, the hypotheses 4a and 4b must be rejected. The interaction term including M&A in the UK is also used for hypothesis 4c. Only the dummy variable for the different countries is significant at a 5% significance level, *ceteris paribus*. The variable for the type of investments and the interaction term are insignificant. So, also hypothesis 4c must be rejected.

5. Conclusion

As international investments are subject to many factors for being successful, it is interesting to see whether and how the non-geographical distance and the type of investment are of influence for a successful investment. This study focused on filed M&A and Greenfield investment in either the UK or in one of the BRIC countries starting from 1990, providing the opportunity to get insight in the effects on the performance of the US investor. As the markets

of the BRIC countries are unique in size, culture, norms and way of doing business, Western investors may not perform as easily as compared to investing in a Western country.

Event measurement is used to test whether an investment was beneficial to the investor or not. After running OLS regressions, the results for hypothesis 2a, 2b, 2c, 3b, 4a, 4b and 4c turned out to be insignificant. Therefore these hypothesis are rejected, leaving hypothesis 1 and 3a for discussion.

Prior research shows that US investors and their shareholders prefer investment at small distance. Countries operating at a small distance use a similar language, have a similar economic power position in the world economy, have comparable legal system and the similar development of the infrastructure (Ghemawat, 2001). In other words, investment in the UK would result in a better performance of the US investor than investment in one of the BRIC countries. The results show that the performance of the US investor is relatively better when investing in the UK compared to investing in one of the BRIC countries.

This result helps to answer the research question: *'What is the effect of investing in the UK or in one of the BRIC countries on the performance of the US investors?'*. Namely, the effect of investing in the UK is more positive on the performance of the US investor than the effect of investing in one of the BRIC countries. Only for the drug industry the results of the country of investment on the performance of the US investor were significant. Therefore, the results cannot be further specified to the two specific industries. Future research is needed to make the answer to the research question more specific towards different industries and different forms of investment.

6. Limitations

In this section, the limitations and possible extensions of this research are shortly mentioned. First of all, this research focuses on in which country, in which industry and through which type of investment the US investors invested. Even though the test for omitted variables did not show that there were omitted variables, several aspects are not discussed that theoretically could be of influence to test the effect of non-geographical distance on the performance of US investors. Aspects that could extent the research are how many times of investment of influence, what was the status of the company – for M&A, or what was the status of the property – for Greenfield investment. Also, the size of the relative expense for the investor was not defined. Therefore, the results provide a rough estimate of the influence of the independent variables. In addition, the measure of non-geographical distance is captured in the distinction between investment in the UK or in the BRIC countries. As this measure captures all sorts of distance, further research can extend and specify more for the different forms of distance.

Focussing on the dataset used, only 43 companies were included which summed 280 observations. This is a small dataset, which could have caused the insignificant results. For future research, it could be better to select a larger dataset by not only selecting companies that have done both M&A and Greenfield investment. On top of that, two-third of the investments was to the emerging economies, whereas only one-third goes to the UK. Also,

there was a two-third/one-third division for the types of investments. This might result in a not evenly distributed result. The uneven distributed results in a small dataset could have caused all the insignificant results.

Even though event measurement provides hard data which is easily comparable, it is impossible to extract only the effect of the announcement by controlling for other effects. Therefore, event measurement gives a rough estimate of the effect of the announcement on the stock rate of the investor. Moreover, it does not mean that if the reaction of the shareholders on the stock rate was positive, the investment was beneficial for the investor as well. Event measurement only shows the reaction of the shareholders based on their expectations of the successfulness of the investment.

7. Implications

Besides filling a gap in scientific literature, the purpose of the research is to show US investors what to expect of their stock rate when deciding to invest abroad. In order to show this, two extreme examples are used. For short non-geographical distance the UK is chosen and for long non-geographical distance the BRIC countries are chosen. By using different industries and different types of investment, the difference in performance between investing in the UK or in the BRIC countries could be more specified.

When following the results of the research, it is most likely that the stock rate of the US investors will increase more positively than the market average if the US investor chooses to invest in the UK. This result can be implied by US investors that shareholders prefer relatively save investment over investments with less uncertainty due to the effect of the forms of non-geographical distance. In other words, it would be harder to convince the shareholders of investment in the BRIC countries than investment in the UK.

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Appendix

Tables

Table 1: US investors

3M	Citigroup	Microsoft
ADC Telecommunications	Commonwealth Biotechnologies	Motorola
Alere	Covance	Mylan
Alere - Watson Pharmaceuticals Inc	Gen-Probe	Neogen
American Telephone & Telegraph	Genzyme	NeoStem
Amgen	Harris	Nuance
AMRI	Immtech	PacificNet
Andrew	Intel	PerkinElmer
Baxter	Invitrogen	Pfizer
BioReliance	IVAX	Pharmaceutical Product Development
Cambrex	Johnson & Johnson	Qualcomm
Celgene	Lucent Technologies	Serologicals
Chiron	Merck & Co	ViroPharma
Cincinnati Bell	Mercury Interactive	Yahoo
Cisco Systems		

Table 2: Market Model Adjusted Return

	Mean	Minimum	Maximum
Return 10_-10	325000000	-.150353	97400000000
Return 5_-5	.0003713	-.2672988	.114164
Return 2_-2	-.002234	-.2857328	.2114608
Return 1_-1	.0025997	-.2737512	.5506825
Return 10_0	-.007983	-.5119194	.127602
Return 5_0	-.0079845	-.4933492	.2286843
Return 2_0	-.0092414	-.6395913	.3455783
Return 1_0	-.0072505	-.5501028	.4354679

Table 3: Distribution countries

	Frequency	Percentage
Brazil	24	7.97
China	88	29.24
India	71	23.59
Russia	19	6.31
UK	99	32.89

Table 4: Distribution country groups

	Frequency	Percentage
UK	99	32.89
BRIC	202	67.11

Table 5: Distribution types of investment

	Frequency	Percentage
Greenfield	207	68.77
M&A	94	31.23

Table 6: Distribution industries

	Frequency	Percentage
Drug	161	53.49
Telecommunications	140	46.51

Table 7: Interaction term

	Frequency (1)	Frequency (0)
UK_MA	47	254
UK_GF	52	249

Table 8: Control variables

	Mean	Minimum	Maximum
Amount of employees at the announcement	48,435.69	50	317,100
In_employment	9.733845	3.912023	12.66697
Age at announcement	113.24	2	163
In_age	3.574598	0.6931472	9.798572
EBIT in millions	5,491.238	-847	86,580
In_EBIT	18.99908	1	25.18433
R&D in millions	3,042.942	0	19,659
In_R&D	18.34315	1	23.7018

Table 9: Correlation matrix independent variables

	MA1_GF0	BRIC1_UK0	Drug1_Tele2
MA1_GF0	1.0000		
BRIC1_UK0	0.2454***	1.0000	
Drug1_Tele2	-0.2403***	-0.2275***	1.0000

Table 10: Correlation matrix

	return10_10	return5_5	return2_2	return1_1	return10_0	return5_0	return2_0	return1_0	stag	ma1_gf0	bric0_uk1	industry
return10_10	1.0000											
return5_5	0.0960*	1.0000										
return2_2	0.0622	0.0044	1.0000									
return1_1	0.1226**	0.0512	0.0700	1.0000								
return10_0	0.4159***	0.0248	0.1607***	0.0749	1.0000							
return5_0	0.0785	0.4279***	0.0726	0.0963*	0.5288***	1.0000						
return2_0	0.0427	-0.0854	0.4843***	0.0079	0.5285***	0.4526***	1.0000					
return1_0	0.0824	0.0484	0.1301	0.4588***	0.4777***	0.5091***	0.5087***	1.0000				
stag	-0.0339	0.0349	-0.0533	0.1128*	0.1424**	0.1700***	0.0941	0.1978***	1.0000			
ma1_gf0	-0.0385	0.0967*	-0.0138	0.0050	0.0312	0.0459	-0.0048	0.0540	0.3241***	1.0000		
bric0_uk1	-0.0384	-0.0196	0.0073	0.0646	-0.0145	0.1598***	0.1729***	0.1506***	0.1359**	0.2446***	1.0000	
industry	0.1068	0.0371	0.0659	0.0738	0.1010*	0.0733	0.0657	0.0772	-0.0233	-0.2335***	-0.2268***	1.0000
employees	-0.0196	-0.0754	0.0828	-0.0839	0.0504	0.0268	0.1083*	-0.0142	-0.1996***	-0.2481***	-0.1113*	0.3019***
ebit_milli	0.0314	-0.0133	0.0137	0.1008*	0.1761***	0.1137**	0.1556***	0.1450**	-0.1243**	-0.3091***	-0.1098*	0.4559***
expense_rd	0.1083*	-0.0502	-0.0214	0.0092	0.0969*	0.0027	-0.0309	0.0245	-0.2664***	-0.2528***	-0.1047*	0.1987***
age	0.0613	-0.1121*	-0.0288	-0.0694	0.0252	-0.0450	0.0412	-0.0235	-0.1242**	0.0004	0.0977*	-0.2531***

	employees	ebit_milli	expense_rd	age
employees	1.0000			
ebit_milli	0.3916***	1.0000		
expense_rd	0.5630***	0.4578***	1.0000	
age	0.3988***	0.0450	0.4112***	1.0000

Table 11: Tests

	H0	p-value
Breusch-Pagan	Constant Variance	0.5776
RESET	Model has no omitted variables	0.7415
F-test	Joint significance	0.1108

Table 12: Results

	Return for day 0 to day 10 after announcement					
	All observations H1 & H2a	With interaction term H2b	With interaction term H2c	Drug industry selected H3a & 3b	Telecommunications industry selected H4a & H4b	Telecommunications industry with interaction term H4c
Country dummy	0.0172**	0.0129*	0.0244*	0.0222**	0.00697	0.00932*
Investment dummy	0.00183			0.00305	-0.000800	0.00232
Industry	-0.00393	-0.00428	-0.00428			
M&A		-0.00317				
Greenfield investment			0.00317			
UK*MA		0.0115				-0.00773
UK*GF			-0.0115			
ln(Employees investor)	0.00695	0.00694	0.00694	0.0124*	-0.000873	-0.000883
ln(Age of investor)	-0.00622	-0.00633	-0.00633	-0.0144	0.00293	0.00304
ln(EBIT investor)	0.00385***	0.00379***	0.00379***	0.00697***	0.000726*	0.000756
ln(R&D expenses investor)	0.00171**	0.00168**	0.00168**	0.00198**	0.000153	0.000215
Constant	-0.158***	-0.154***	-0.157***	-0.242***	-0.0179	-0.0242
Observations	300	300	300	160	140	140
R-squared	0.254	0.255	0.255	0.382	0.071	0.074

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Figures

Figure 1: Histogram employees at announcement

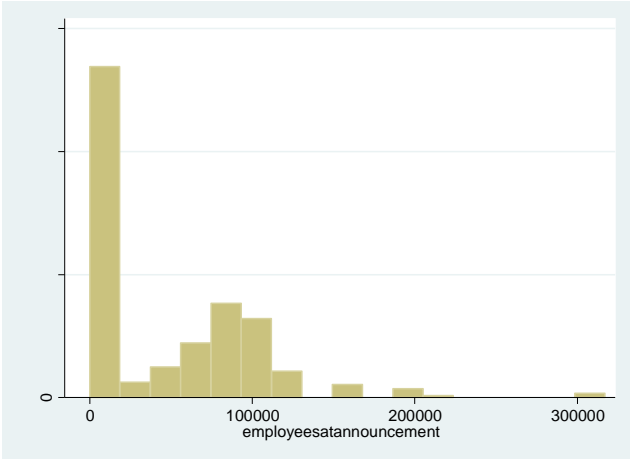


Figure 2: Histogram age at announcement

