The relationship between the diplomatic network and the outward foreign direct investments: an application to the Netherlands

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Abstract

This paper examines the relationship between the diplomatic network, measured as the number of embassies, consulates, investment promotion agencies and state visits, and the outward foreign direct investment flows applied to the Netherlands. The results indicate that there is indeed a positive relationship between the number of embassies/consulates and the Dutch outward foreign direct investments flows, after controlling for other investment determinants and after taking the endogeneity problem into account. The opening of an embassy or consulate increases the outward investments with approximately twenty-five percent. Regarding to the investment promotion agencies and the state visits, no conclusions can be made with this analysis.

1. Introduction

Embassies and consulates are important sources of information about foreign markets for (potential) multinational enterprises (MNEs). For example, the Dutch Ministry of Foreign Affairs promotes the interests of the Dutch companies through a network of 112 embassies, 22 consulates general, 306 honorary consulates and 21 Netherlands business support offices (Ministry of Foreign Affairs, 2013). In addition to providing consular services to Dutch citizens who are abroad, one of the main tasks of the diplomatic network is helping companies that want to do business in a foreign country. The Foreign Service has specific knowledge about the international markets and has also an important role in facilitating international investments (Bergeijk, 2012).

The above mentioned functions of the Dutch diplomatic network are also explicitly stated on the various websites of the Dutch embassies and consulates around the world. According to website of the Dutch Embassy in Washington, D.C., United States, they can help Dutch entrepreneurs with 'information on sector developments, legislation, opportunities for subsidies and useful contacts in the US' (The Netherlands Embassy in United States, n.d.) and the Dutch Embassy in Brazil describes itself as an 'efficient link' between the Dutch multinational enterprises and the local Brazilian market (The Netherlands Embassy in Brazil, n.d.). In short, the embassies and consulates decrease the companies' costs of acquiring the right information about the foreign markets. Investing in another country is relatively risky, because companies have to deal with asymmetric information about the other markets. This specific market failure could lower the investment flows to another country and therefore the government's economic diplomacy can function as a bridge between the entrepreneurs that

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are interested in investing abroad and the foreign countries by providing market analyses and required connections.

The role of a diplomatic network regarding to the investment decisions of corporations in foreign markets has been the subject of only a few research papers. However, only the countries' investment promotion agencies (IPAs) are discussed. The embassies and consulates are rarely mentioned as an instrument to promote foreign investments. Besides the different types of instruments, there is also a difference in promoting outward or inward flows of investment. There are governmental agencies that promote inward investments by foreign companies. For example, the Netherlands Foreign Investment Agency (NFIA) that is set up to help and advice companies that want to invest in the Netherlands. The interest of this paper concerns the other type of promotion: home countries' governmental agencies in foreign countries that promote outward investments. An example for this type of promotion is the Japanese investment promotion agency, Japan External Trade Organization (JETRO). This agency promotes outward investment flows from to Japan as well as investment flows to Japan. Relatively more research is done on the relationship between the home countries' exports and the global governmental network of IPAs and/or embassies and consulates. Generally, they find a positive relationship between the two variables: the governmental promotion has a positive effect on the country's exports.

This paper will focus on the relationship between the Dutch diplomatic network and the outward investment flows from the Netherlands to other countries. This relationship has not been covered in the previous research papers in related topics. The role of MNEs within the global economy has increased significantly over the last decades, with a prominent role for the Netherlands (Dutch MNEs), being one of the top investors (and receivers) of the world (Galeza, 2011).

Using a panel data analysis, the effect of the number of embassies and consulates abroad on the outward foreign direct investments (FDI) will be examined. Previous studies in related topics addressed the endogeneity problem: having more investment flows from the home country to another country could trigger the home country's government to establish a embassy or consulate in that specific country. In some way, having panel data instead of cross section data that is often used in other research papers, is already part of the solution. Besides that, panel data regressions with the number of embassies and consulates as the dependent variable (instead of the investments) are used to tackle the endogeneity problem. To complete the role of the home country's government, also the role of official state visits by the Netherlands and the role of the Netherlands Business Support Offices (NBSOs) are examined. In this way, this paper provides a more complete view of the effectiveness of the governmental network abroad, compared to previous research papers.

The paper is organized as follows. In the next section the literature on the relationship between the diplomatic network and the investment flows and on other determinants of foreign direct investment flows will be reviewed. In the end of this second section the hypothesis will be given. In the third section, the used data will be described. Then, in the fourth section, the methodology will be explained. In the end, in sections five and six, the results are discussed and the conclusions are given.

1. Literature review and hypothesis
1.1 Foreign direct investments

Foreign direct investments are investments made by domestic corporations to merge with or to acquire foreign-controlled firms or to establish a new production location (Greenfield investment). When the domestic firms have made the foreign investments and own and control foreign affiliates (they control foreign assets), they become MNEs (Bowen, Hollander, & Viaene, 2012).

The question that arises is why domestic firms invest in affiliates abroad and become multinational corporations. Following the framework of Dunning (1981), the so-called 'OLI'-framework, there have to be ownership, location and internalization advantages for a firm to become a MNE. Ownership advantages refer to the company's unique knowledge-based assets that provide a competitive advantage to the company at the foreign markets. Locational advantages are advantages that arise when it is more profitable to produce in the foreign country instead of in the home country. For example, the factors of production (input costs) are relatively inexpensive in the foreign country or the corporate tax is relatively lower abroad. And internalization advantages can be described as advantages that make the location advantages more profitable when the firm chooses to produce internally instead of to outsource the production to another company. For example, the cost of transferring knowledge from the domestic to the foreign firm could be high or the existence of opportunistic behavior when the domestic firm outsources the production to another firm.

1.2 Market failures
1.2.1 Asymmetric information

In an ideal world (perfectly competitive markets), with the optimal allocation of resources, everyone has perfect knowledge of everything or has free access to the information that is needed (Rosen & Gayer, 2010). However, deciding whether or not a company should expand their production activities to other countries involves asymmetric information and risk: costs have to be made to analyze the potential market and to get familiar with it. Because of these costs and the associated risks, the investment decision makers could make the decision not to invest in a particular country. Hence, the foreign direct investment flows from one country to another are lowered (Lim, 2008) (Hayakawa, Lee, & Park, 2010). With the help of governmental organizations, companies could overcome the asymmetric information problem. Embassies and consulates (and of course also the NBSOs), familiar with the local markets, can provide the necessary information to the investment decision makers.

1.2.2 Externalities

Positive externalities could arise from the establishment of a foreign affiliate by one of the home country's firms. Having multinational corporations is beneficial for the home country. According to Markusen (Markusen, 1995), MNEs are relatively R&D-intensive and they employ a large number of (high-skilled) workers. Going abroad with the MNE's production, means that the multinational corporation could also benefit from the knowledge-based assets located at the foreign markets. Kogut and Chang (1991) found some evidence that supports

this view: Japanese corporations are more likely to invest in the United States when the R&D intensity is relatively higher in the United States. Indirectly, the home country could also benefit from the learning process the multinational corporation has in the foreign country. The home country's benefits from the multinationals' activities are not reflected in the economic transactions and therefore embassies and consulates are there to promote investments to go from an inefficient allocation of resources to an optimal allocation of resources.

1.2.3 Coordination problems

Being a corporation that is not familiar with the foreign country's legislation, culture, business practices and language, gives rise to serious coordination problems (UNCTAD, 2008). The presence of the home country's network of embassies, consulates and IPAs could help in overcoming the lack of knowledge. There could also be a role for the official Dutch state visits by Queen Beatrix and Prince (now King) Willem-Alexander. Having face-to-face meetings with the leaders of the country could improve the economic relation between the two countries. Discussing and explaining the intentions and interests of both countries, but also building up a network, could really be helpful for the Dutch firms that are interested in investing in that particular country (Nitsch, State visits and international trade, 2005). In short, the governmental network could act as a coordinator between the all the parties involved.

2.3 Literature on governmental investment promotion

Even though most of the literature examines the relationship between the activities of investment promotion agencies and the inward foreign direct investment flows or the effect of the diplomatic network (embassies and consulates) on exports, a similar reasoning can be used for the effect of embassies and consulates on the outward FDI flows. As already stated in the introduction of this paper, one of the main tasks of the diplomatic network is to help the home country's companies with the foreign investments. The network therefore functions in a similar way as an investment promotion agency: reducing the costs of information search process and providing assistance and useful contacts.

2.3.1 Embassies and consulates on exports

Rose (2007) concluded, with the help of a cross-sectional analysis and the method of instrumental variables, that an additional embassy or consulate increases the trade between the home and host country with approximately six to ten percent. To control for other determinants of export, Rose uses the traditional variables for market potential (income and population) and distance (physically as well as culturally). Following Rose, Afman and Maurel (2010) also examined the role of embassies and consulates on exports. This time, there is a focus on trade between OECD countries and transition economies (eastern markets). They also find a positive effect of diplomatic relations on exports: adding an embassy or consulate to the diplomatic network is equivalent to a reduction of an ad valorem tariff of two to eight percent.

For the sake of completeness, there are also studies that find a positive relationship between the export promotion agencies (EPAs) and exports (Lederman, Olarreaga, & Payton, 2010) (Martincus & Carballo, 2008).

2.3.2 IPAs on FDI

A distinction can be made between the effects of IPAs on outward or inward FDI flows. Most of the previous literature concentrates on the inward FDI flows. Lim (2008) shows that the effectiveness (the age of the IPA, the staff intensity) of IPAs affects the inward FDI flow positively. The results from Morisset (2003) indicate that there is a positive relationship between the FDI inflows and the IPAs' efforts, after controlling for market size (GDP per capita) and the investment climate. Wells and Wint (1990) found a significant relationship between the IPA dummy variable (is there an IPA based in the foreign country or not) and the FDI inflows. Using data on Japanese investments and US states' investment promotion, Head et al. (1999) found that the dummy variable of having an investment promotion office in Japan is not significant variable regarding to the explanation of the geographical spread of Japanese investments. Harding and Javorcik (2013) find a positive relationship between the IPA's quality and the inward FDI flows. Quality is measured as the quality of the IPAs' websites and the quality of handling the investors' requests.

Regarding to the relationship between outward FDI flows and IPAs' efforts, Hayakawa, Lee and Park (2010) find a positive effect of IPAs on outward investments made by unlisted companies only in politically unstable countries. Other combinations, with listed firms and politically stable countries, do not give significant results.

2.3.3 State visits on exports

Since there is no research done on the relationship between the number of state visits and foreign direct investments, only the results of the examination of the state visits' effect on exports can be given. And even regarding to this specific topic, there is only one known study. Using data on French, German and American state visits from 1948 to 2003, Nitsch (2005) finds a positive effect of state visits on exports. A visit results in an increase of the exports with eight to ten percent, ceteris paribus.

2.4 Hypotheses

Because the relationship between the diplomatic network (embassies and consulates) and the outward FDI flows is never been examined, the expected sign of the effect is based on literature on related topics (as mentioned above). Taking the previous studies into consideration, the following hypotheses are tested:

H1: The number of Dutch embassies and consulates in the host country positively affects the FDI flows from the Netherlands to the host country.

H2: The geographic spread of the Netherlands Business Support Offices (The Dutch IPAs) in the host countries positively affects the FDI flows from the Netherlands to the host country.

Regarding to the state visits done by the Dutch head of state, the hypothesis is as follows:

H3: A Dutch state visit to the host country positively affects the FDI flows from the Netherlands to the host country.

2.5 Control variables: FDI determinants

2.5.1   Gravity equation

Having examined previous literature on similar topics, it becomes clear that the gravity approach a very popular model to examine the FDI (and international trade) flows. The gravity model is based on the Newtonian gravity equation and predicts the bilateral investment with the size of the two economic 'masses' and the distance between the two countries. An economic mass is often defined as the country's GDP. The bigger the mass, the higher the FDI flow and the larger the distance between the countries, the lower the FDI flow (Marrewijk, 2007). To summarize, the gravity model applied to FDI looks as follows (with home country i and host country j):

$$\ln(\text{FDI}_{ij}) = \beta_0 + \beta_1 \ln(\text{GDP}_i) + \beta_2 \ln(\text{GDP}_j) - \beta_3 \ln(\text{Distance}_{ij}) + \varepsilon_{ij}$$

2.5.2   FDI determinants

To determine whether or not the Dutch governmental network has a positive effect on the foreign direct investments from the Netherlands to the host country, other variables that could influence the FDI flow have to be taken into account. Following the gravity equation, the Gross Domestic Product (GDP) and distance are two important determinants of the outward FDI flows from the Netherlands to a foreign country. To measure the (potential) market size of the foreign market the Gross Domestic Product of that particular country is often used: it is a proxy for the foreign country's demand (Borrmann, Jungnickel, & Keller, 2005) (Chakrabarti, 2001). Another important variable is the Dutch GDP, a variable that is also part of the traditional gravity equation. The Dutch GDP is a proxy for the total home country's supply: it shows to what extent the Dutch economy can invest in foreign countries (Bergstrand, 1985) (Anderson, 1979). To conclude, a positive relationship between the foreign country's GDP, as well as the home county's GDP, and the foreign direct investments is expected. Concerning the distance variable in the traditional gravity model, one can say that this variable is a proxy for transport costs. But the distance between two countries can also be a proxy for cultural-related, social-related and law-related differences (Bevan & Estrin, 2004) (Marrewijk, 2007). The expected sign of this variable is negative: the bigger the distance between the two countries, the lower the investments in that foreign country.

Other market-related variables are GDP per capita and the annual GDP growth. The GDP per capita is often used as a indicator for standard of living (Burda & Wyplosz, 2009) and an higher GDP per capita means that people relatively wealthier and therefore buy more (different) products. This could be an incentive for a multinational corporation to invest in that 'wealthy' country (Borrmann, Jungnickel, & Keller, 2005). The growth of the GDP shows the market potential of the foreign economy. Multinational corporations could anticipate future needs in the foreign country by setting up some production facilities in that country (Chakrabarti, 2001).

Variables that make it easier for the multinational corporation to invest in the foreign country are the dummy variables common language (in this case Dutch) and the same currency (in this case the euro). Having the same currency in the foreign country lowers the multinationals'

transaction costs and risks associated with currency fluctuations (Copeland, 2008). Doing business with foreigners that speak the same language ensures better (more efficient) communication between the investor and the foreign stakeholders and could therefore reduce the total investment costs. The expected sign of these variables is positive: having the same currency or language positively affects the investments (Borrmann, Jungnickel, & Keller, 2005) (Rose, 2007) (Wei, 2000).

Other dummy variables that are often included in the analysis are whether or not the foreign country is a member of the OECD and whether or not the foreign country is one of the 'BRIC'[2] or 'Next Eleven'[3] countries (O'Neill, 2001) (Wilson & Stupnytska, 2007). OECD members often have similar policies and rules regarding governmental issues, but also regarding to attracting foreign investments (Al-Sadig, 2009) (Molle, 2013). For example, member states will not be involved in corruption when they are trying to attract foreign multinational corporations. The BRIC and Next Eleven countries are considered to be the largest economies in this century with great investment opportunities. Therefore it is expected that multinational corporations will invest more in these countries.

The country's openness to trade, defined as the trade-to-GDP ratio, is also an important outward investment determinant. Having a low trade-to-GDP ratio often means that the foreign country has a closed economy with heavy trade barriers. Other research papers mostly find a positive relationship between the trade-to-GDP ratio and the foreign direct investments (Seim, 2009) (Busse & Hefeker, 2007). Even though, most of the papers find a positive relationship (or an insignificant one), it could be the case that countries that are very open to trade attract less foreign direct investments: low trade barriers result in low transaction costs and therefore it could be more beneficial for the home country's corporation to export to the foreign country instead of investing in foreign production facilities (Seim, 2009).

The foreign countries' wages are sometimes also regarded as important determinant of foreign direct investments. To put it very simple, relatively low wages are, in view of the production cost, attractive for the multinational corporations. The profit maximizing firm could therefore choose to invest in foreign production facilities, where foreigners will work for a relatively lower wage, to minimize the total production costs (Mateev, 2009) (Janicki & Wunnava, 2004). The expected sign of the variable's coefficient is negative: higher wages result in fewer investments.

Profit maximizing multinational corporations could also take the countries' corporate tax rates into account when deciding where to invest in production facilities. Therefore the corporate tax rate is included as one of the determinants of the foreign direct investments. Countries with a relatively high tax rate will probably receive fewer investments from abroad than other countries (Hartman, 1985) (Billington, 1999) (Blonigen, 2005).

When a firm is deciding whether to invest in a certain country or not, an important aspect that they may take into account is the political situation in a country. When it is a politically unstable country, private property is maybe not guaranteed by the government and therefore

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[2] Brazil, Russia, India and China
[3] Bangladesh, Egypt, Indonesia, Iran, Mexico, Nigeria, Pakistan, Philippines, Turkey, South Korea and Vietnam

too much risk is involved. Therefore a negative relationship between the political instability and the foreign direct investments is expected, something that is supported by other research papers (Jun & Singh, 1996) (Wei, 2000) (Lee & Mansfield, 1996).

Investments made by multinational corporations are often influenced by the financial sector's behavior. Having a financial crisis could affect the bank's lending facilities and therefore affect the firm's investments negatively (Gibson, 1995) (Manova, Wei, & Zhang, 2011) (Casey & O'Toole, 2013). Besides that, an economic crisis affects the (potential) market sizes of the home and host country and therefore fewer investments may be made. A drop in the foreign direct investments due to the financial and economic crisis is visible for the years 2008, 2009 and 2010 (Demirguc-Kunt, Detragiache, & Merrouche, 2010) (Poulsen & Hufbauer, 2011).

3. Data

The panel dataset consists of 58 countries (see Appendix Table 1) and eleven year (2000-2011) and is mainly based, due to data availability, on the database of the World Competitiveness Yearbook (IMD, 2012). Data on the Dutch outward foreign direct investments (FDI) are retrieved from the OECD's database. The FDI stocks instead of the FDI flows are used for this paper's analysis (OECD, FDI positions by partner country, 2012). The yearly FDI flows are sometimes, due to disinvestments, negative values (OECD, 2013). Because the gravity model, a 'log-log'-model, is applied to determine the relationship between the investments and the explanatory variables, negative values will result in missing values. Therefore the FDI stocks are preferred above flows in the regression (Huang, Teng, & Tsai, 2010). Besides that, FDI stocks are less volatile than the FDI stocks (Bénassy-Quéré, Coupet, & Mayer, 2007).

This paper uses data on the number of Dutch embassies and consulates (EMCO) over a time period of eleven years, starting in 2000. The data on the changes over time is provided by the Ministry of Foreign Affairs. However, this overview is not complete. To have a more complete overview of the diplomatic network over time the website Embassypages.com (EmbassyPages, 2013) and the websites of the various Dutch embassies and consulates is used. Because Embassy Pages and the websites of the embassies and consulates only give information about the current situation, the most difficult part is to determine how the diplomatic network was constructed in the past and when changes exactly changes were made. Of course, the data provided by the Ministry of Foreign Affairs is the most important source. Using the search engine of the government's website to search for documents and publications about the opening and closing of embassies and consulates, using Google with keywords like 'embassy', 'consulate', 'Dutch', 'Netherlands' and 'closed', analyzing the websites of the Dutch embassies and consulates and even using LinkedIn to see how long a representative worked at a particular embassy or consulate, gave a comprehensive overview of the Dutch network and the changes over time.

Regarding to the IPAs (the Netherlands Business Support Offices) the website of the NBSOs (NBSO, 2013) is used to analyze the current network and a report that evaluates the IPAs is used to get the changes over time (Elk, Overweel, & Telussa, 2007). To get a more

comprehensive overview of the geographic spread of the NBSOs over time, a similar method as with the embassies and consulates is conducted. Data on the state visits (SV) of the Queen and prince (now King) are retrieved from the website of the Dutch royal house (RVD, 2013) and the website of the parliament (Documentatiecentrum, 2013). With this information a dummy variable is constructed: the value is 1 if the Royal Family visited a country (that is listed in the dataset) in a particular year.

The explanatory variables GDP (from the host country as well as from the Netherlands; current US dollar), the annual GDP growth (GDPG) and GDP per capita (GDPPC) (current US dollar) are taken from the World Bank (The World Bank, 2012). Data on political stability (PS), corporate tax (CT), tax on corporate profits, openness to trade (trade-to-GDP ratio (OP)) and on wages (WAGE) (in the manufacturing sector) are taken from the World Competitiveness Yearbook (WCY) (IMD, 2012). The risk of political instability is based on a survey conducted by the IMD WCY. The value can vary between zero (unstable country) and ten (stable country).

The distance (D) between Amsterdam and the other foreign cities with the highest population in the host countries and the dummy variable Language (DLANG) are retrieved from the CEPII database (CEPII, 2013). The Eurozone (DEURO), the OECD member states (DOECD), and the BRIC and Next Eleven countries (DBRICNE) are retrieved from European Union's website (EU, 2013), from OECD's website (OECD, 2013) or from the reports Goldman Sachs' economic reports (Wilson & Stupnytska, 2007) (O'Neill, 2001). The last variable is the dummy variable crisis (DCRISIS) with value one for the years 2008, 2009 and 2010 (Poulsen & Hufbauer, 2011).

4. Methodology
4.1 Log-log model

Following the traditional gravity model and other paper in related topics, a so-called log-log model will be constructed. This means that dependent variable, FDI stocks, as well as the independent variables will be transformed by the logarithm. However, there are a few exceptions: the dummy variables, GDP growth (percentage), corporate tax (percentage), openness to trade (percentage) and the number of embassies/consulates/NBSOs/state visits are not transformed by the logarithm.

4.2 Multicollinearity

To estimate a model with reliable individual coefficients, that are not very sensitive to changes in the model (addition or deletion of other independent variables), a correlation matrix will be constructed to examine the correlations between the various independent variables. With economic reasoning and the results from the matrix, the right independent variables will be selected.

4.3 Pooled, Fixed or Random

Firstly, a test will be conducted to check for stationarity. Because of the unbalanced panel dataset, a test that can deal with this is needed. Therefore the Fisher-type augmented Dickey-

Fuller test unit root test will be used. The null hypothesis is that all panels have a unit root, against the alternative that at least one panel is stationary. If a variable has a unit root, the first difference of the variable will be taken. If this still results in nonstationary series, the variable will be differenced again. Secondly, there will be a check for serial correlation. Even though serial correlation becomes a serious problem when there are relatively a lot of time periods, the existence of serial correlation results in a higher R^2 and smaller coefficients' SEs compared to their actual values. The Durbin-Watson statistic will be used as an indicator whether or not the errors of the model are serially correlated. When the Durbin-Watson statistic is or close to two the errors are not autocorrelated and a low value, close to zero, implies that there is serial correlation (Hill, Griffiths, & Lim, 2012) (Startz, 2009). Besides serial correlation, there should also be a test for (groupwise) heteroskedasticity and cross-sectional dependence (Reed & Ye, 2011) (Hill, Griffiths, & Lim, 2012). Unfortunately, the statistical software (EViews 7.1) that is used to analyze the panel data does not provide these particular tests. Nevertheless, the panel-robust standard errors can be used in presence of heteroskedasticity and correlation between country-specific errors.

It can be argued that in this globalizing world, with financial and economic integration, interdependencies between the used countries exists (Marrewijk, 2007). Therefore cross-sectional dependence may arise in the errors by common, but unobserved, shocks. According to Hoyos and Sarafidis (2006), the fixed (FE) and/or random (RE) effects estimators are still consistent, but they are not efficient anymore. Therefore the standard errors that come out of the FE/RE regressions are biased (usually the errors are too small). Even though a cross-sectional dependence (CD) test cannot be performed, the CD robust estimators will be used to avoid that the reliability of the estimators will be overstated. When a fixed effect model is used, the country characteristics that are time-invariant are included in the fixed effects. However, panel-robust standard errors should be used to control for within-country error correlations. When using a random effects model together with the panel-robust standard errors, the random effect estimator is not a minimum variance estimator, but the panel-robust standard errors are valid. In this case, heteroskedasticity and the less restrictive correlation structure are allowed (Hill, Griffiths, & Lim, 2012).

In the panel data analysis a choice will be made between a pooled, fixed effects or random effects model. This choice depends on the fact whether or not there are country-specific effects. In a pooled model, differences between countries are not incorporated and the countries are pooled together. But in a fixed or random effects model, the individual (country-specific) characteristics are taken into account.

To check whether there are country-specific effects or not, the Breusch and Pagan Lagrange Multiplier (BP LM) test will be used to test for random effects: random country-specific heterogeneity. The null hypothesis is that the random country-specific differences, the so-called random effects, have a zero variance. In that case, there are no random effects in the sample. Because (under the null hypothesis) there are no country-specific differences, the pooled model can be used. Rejecting the null hypothesis means that the variance of the random effects is larger than zero and therefore the random effects model need be used (Hill, Griffiths, & Lim, 2012). Lastly, the random effects models will be compared with the fixed

effects model to determine which estimator (FE or RE) has to be used. The Hausman test is used to compare the outcomes of the FE and the RE model. The null hypothesis of this test states that the random error component is uncorrelated with the other independent variables in the regression. And therefore the random effects model is preferred because of the smaller variance compared to the fixed effect model. When this error component is correlated with the other independent variables, the random effect estimator is not consistent anymore. In that case, the fixed effect model should be used. Concerning the fixed effect model, one can think of the following:

$$y_{jt} = \beta X_{jt} + \alpha_j + u_{jt}$$

Where

α_j= the country (j)-specific intercept, the so-called fixed effect

y_{jt} = the dependent variable

βX_{jt}= the explanatory variables of the regression with the associated coefficient.

u_{jt}= the error term

If the fixed effect model is used, time-invariant explanatory variables have to be left out of the regression. These variables become redundant when the country-specific intercept is used. On the contrary, using the fixed effects model is a solution for the omitted variable bias. Fixed effect model assumptions include no correlation between the countries' error terms and the error term has zero mean and constant variance. The country-specific effects are allowed to be correlated with the other explanatory variables. Regarding to the random effects model, one of the assumptions is that the random country effects are not correlated with the other explanatory variables in the regression. Besides that, the random error terms are uncorrelated across the used countries, have zero mean and have a constant variance. One of the advantages of the random effects model is that the time invariant explanatory variables can be used. The random effects model looks as follows:

$$y_{jt} = \beta X_{jt} + \alpha + u_j + e_{jt}$$

Where

u_j= the random effect (between-country error)

e_{jt}= the regression random error (within-country error)

α= country-specific effect

4.4 Causality

To tackle the endogeneity problem, a regression with the diplomatic network as the dependent variable and the outward foreign direct investments as the independent variable will be performed. Usually it takes some time to close an embassy, consulate or Netherlands Business

Support Office. Comparing the decision date to close an office and the actual closing date, it can be concluded that it takes two to three years to actually close the embassy/consulate/NBSO (Hoedeman & Koelé, 2011). Therefore a lagged value of the FDIs will be used. Other determinants of the Dutch diplomatic network in a foreign country will also be included in the regression.

5. Results
5.1 Correlation matrix

The results from the correlation matrix indicate that some explanatory variables are correlated. The host country's GDP is positively correlated (0.688) with one of the variables of interest, the number of embassies and consulates. Having an embassy in a host country is one thing, but when the host country has for example multiple economic (or financial) centers, the home country may decide, in view of being more effective, to expand the network within the country. The decision to expand the diplomatic network could also be influenced by Dutch tourism flows to other countries. The geographic spread of the tourists' destinations could also affect the geographic spread of the diplomatic network. Large (populated) countries, with multiple important cities, in terms of population and economic activity, are often associated with high GDPs (Moomaw & Shatter, 1996). This could be the reason why there is a correlation between the diplomatic network and the explanatory variable GDP. To get stable results from the regression, GDP will be dropped out of the regression model. In this study, GDP per capita will be the proxy for market potential.

The correlation between the wages and the GDP per capita is also very high (0.815). This is because wages are used to calculate the GDP (Burda & Wyplosz, 2009). Therefore the variable wages is left out of the regression.

The dummy variable DOECD, the variable PS and the variable GDPPC are also correlated. In some way, these variables are a proxy for the same thing: to that extent is the host country a 'developed' country. OECD members are mostly prosperous countries with a well-functioning democratic and governmental system (Molle, 2013) (OECD, 2013). Therefore the variables DOECD and PS are not of added value.

5.2 Regression models

In table 1 the estimation results of the various models are presented. Besides the variables' coefficients, the type of the regression model (supported by the LM Breuch-Pagan test statistic and the Hausman test statistic) and the (adjusted) R-squared is mentioned.

The first model represents, in some way, the 'traditional' model. Supported by topic-related and previous literature, the variables home country's GDP, distance and GDP per capita are often the variables with a lot of explanatory power. For the first model a pooled model with cluster-robust standard errors is used. Even though the LM BP test statistic indicates that there are random effects, using the cluster-robust standard errors correct for the overstated reliability and therefore these estimates can be interpreted. However, for the sake of completeness and following the correct methodology, the second model is a random effect model with the same explanatory variables. Regarding to the third model, explanatory

variables that describe the accessibility (openness to trade), the market potential (GDP growth) and the countries' conditions (political stability and corporate taxes) are included.

Expanding the model with other explanatory (dummy) variables gives rise to a serious problem: expanding the model means that the fixed effect model has to be used according to the Hausman test. However, due to some multicollinearity (for example, the dummy variables DOECD, DBRICNE and DEURO cover almost every country) an expanded model with fixed effects cannot be estimated. Of course, some of the dummy variables are correlated with the other explanatory variables. Seen from the Netherlands, countries with a high GDP per capita, with the euro and being part of the OECD are nearby. Therefore these variables are not of added value when GDP-related and distance-related variables are already included in the regression model.

Back to the results of the three models, one may conclude that indeed the embassies and consulates have an explanatory power regarding to the geographic spread of the Dutch foreign direct investments. However, when the model is expanded with the less traditional variables the number of NBSOs in a particular country does not explain the Dutch FDI stocks anymore. A possible explanation for this could be the fact that the Dutch IPAs are a relatively new phenomenon. Started just before the millennium, the IPAs were mostly established in emerging markets (for example: China) or in countries that already received a lot of direct investments from the Netherlands (for example: the USA). Regarding to the last option, the added value of an extra IPA within the Dutch network in that particular country could be open for discussion: market analyses were already provided by the established embassies and consulates, but due to the number of requests or the market potential (and the other tasks of the embassy and the consulates) it could be possible that more support from the Netherlands is needed (in this case in the form of IPAs). In short, the marginal benefit in the developed countries is probably lower. The IPAs in emerging economies, like Brazil, Mexico and China, were established because the government wanted to support Dutch firms that want to anticipate the countries' economic growth and market potential. Analyzing the correlation matrix, one may conclude that the variables BRICNE and NBSO are correlated. This supports the above-mentioned statement. Even though the evaluation reports concludes that NBSOs are effective, there is still a lot of work to do to get the Dutch IPAs on their desired level of effectiveness (Elk, Overweel, & Telussa, 2007). And because some of the NBSOs were only up and running for a few years and others are only established for a few years now, it is difficult to measure the IPAs' effect on the foreign direct investments.

Most of the coefficients of the other explanatory have the expected sign and are economically and statistically significant. Except for distance (not statistically significant), GDP growth (not statistically significant) and Political Stability (the coefficient's sign differs from the expected sign). Concerning the distance, this variable is negatively correlated with GDP per capita, something that makes sense when you take the position of the Netherlands and the geographic spread of wealthy countries over the world into account. This could be the reason that the distance variable does not have additional explanatory power in the expanded model.

Regarding to the annual GDP growth of the different host countries, the correlation between the dependent variable, the FDI stocks, and the GDP growth is already very low (-.165).

Adding this variable to the model, the effect of GDP growth on the investments is not significant anymore. The negative coefficient of the political stability variable is not expected. An increase of one in political stability results in an increase of 8.43% ($e^{0.081} - 1$) in the Dutch outward FDI stocks. The dataset consists of relatively wealthy countries. So, in a way, there is a selection bias regarding to the selected countries for the panel dataset. Besides that, one of the most important factors might be the fact that GDP per capita and political stability are heavily correlated.

The coefficients of the variables of interest EmCo and NBSO are 0.216 and 0.069 in the second model and 0.236 and 0.044 (not significant) in the third model. The conclusion can be made that the EmCo coefficient is pretty stable regarding to the three estimated models. Focusing on the last two models, an increase in the number of consulates (there can only be one embassy in a foreign country) means an increase in the Dutch outward FDI stock of 24.11% to 26.62%. These are striking results, but comparable with a research that is done on the relationship between tourism flows and the geographic spread of embassies and consulates (Gil-Pareja, Llorca-Vivero, & Martinez-Serrano, 2007).

Also the effect of state visits on the FDI stocks is analyzed. Unfortunately, no model could be made with state visits as a significant variable. The correlation between the state visits and the FDI stocks is also very low (-0.029)

Table 1: Estimation results of the panel data regressions

Dependent variable: log(FDI)	Model 1	Model 2	Model 3
Constant	-24.443*** (-5.326)	-27.601*** (-13.808)	-20.863*** (-5.3343)
EmCo	0.174*** (15.538)	0.216 ***(5.569)	0.236*** (6.590)
NBSO	0.266*** (11.660)	0.069** (1.986)	0.044 (1.452)
Log(GDPNL)	0.998*** (5.694)	1.183*** (13.670)	1.004*** (5.965)
Log(GDPPC)	0.515*** (6.657)	0.366 ***(5.418)	0.263** (2.164)
Log(D)	-0.104** (-1.982)	-0.197** (-2.039)	-0.219 (-1.288)
OP			0.007*** (3.541)
PS			-0.081*** (-2.986)
GDPG			-0.007 (-0.826)
CT			-0.018 **(-2.326)
No. of obs.	673	673	509
BP LM test	-	2801.49 (0.000)	1396.237 (0.000)
Hausman test	-	4.411 (0.353)	14.097 (0.0793)
Estimation Method	OLS cluster robust	RE cluster robust	RE cluster robust
Note: t-statistics in parentheses; * indicates significantly different from 0 at the ten percent level. ** indicates significantly different from 0 at the five percent level. *** indicates significantly different from 0 at the one percent level.			

5.3 Endogeneity problem

Because it is possible that there is a reverse causality from foreign direct investments to the Dutch diplomatic network, a model with EmCo as a dependent variable and lagged investments and lagged exports (retrieved from Statistics Netherlands (CBS, 2013)) as independent variables. Analyzing various reports, documents and publications on the diplomatic network, one may conclude that it takes approximately two to three years to close or open an embassy or a consulate. In table two the estimation results of this regression are displayed. With this regression, it can be concluded that the lagged value (two years) of Dutch foreign direct investment stocks does not affect the number of embassies and consulates.

Table 2: Estimation results of the 'reverse causality' regression

Dependent variable: EmCo	Model 4
Constant	5.178547 (152186.6)
Log(FDI) -2	-4.52E-07 (-0.246)
Log(Exports)	1.95E-06 (1.127)
BP LM test	337.758 (0.000)
Hausman test	31.855 (0.000)
Estimation Method	FE cluster robust
Note: t-statistics in parentheses; * indicates significantly different from 0 at the ten percent level. ** indicates significantly different from 0 at the five percent level. *** indicates significantly different from 0 at the one percent level.	

6. Conclusion
6.1 Hypotheses

The aim of this paper is to examine the relationship between the Dutch diplomatic network and the foreign direct investments made by the Dutch multinational corporations. The number of Dutch embassies and consulates in the host country positively affects the FDI flows from the Netherlands to the host country. Expanding the diplomatic network with one consulate/embassy increases the Dutch outward FDI stocks with approximately twenty-five percent, after controlling for other FDI determinants and the endogeneity problem.

Regarding to the influence of the Dutch IPAs, the Netherlands Business Support Offices (The Dutch IPAs) in the host countries on the outward investments, the result is not that strong. After controlling for other FDI determinants, the number of Dutch IPAs becomes insignificant.

Data on state visits of the Queen, King and prince over a time period of ten years is insufficient to make any conclusions about the relationship between the visits and the outward foreign direct investments

6.2 Policy implications

The effectiveness of the diplomatic network is now heavily debated in the Dutch parliament (Ministry of Foreign Affairs, 2013). The government already cut in the budget of the embassies and consulates and announced that several embassies and consulates will be closed down permanently (Koelé & Righton, 2013) (NOS, 2013). However, the minister of foreign affairs stated that he will focus on reducing the number of people at an embassy or a consulate and reducing the budget of the various embassies/consulates, instead of closing down embassies and consulates permanently (NRC, 2013). Unfortunately, this paper only examined the number of Dutch embassies and consulates over the world and not the effect of the number of diplomats (and other employees) and the budgets. However, the relationship between the number of consulates/embassies and the outward investments is very strong. Closing down or reducing the budget of the diplomatic network may therefore not always be wise. If the government invests in the business support abroad, the society as a whole can reap the benefits (in terms of jobs and R&D) of the multinationals' activities in the other countries.

6.3 Limitations and suggestions for further research

Firstly, the panel dataset should be expanded, the time periods as well as the cross-sectional units, to get a more comprehensive views and reliable results. One way of doing this is to add more home countries to the dataset. Having more home countries and therefore also more couples of countries, should result in a better estimation of the panel data regression models. Regarding to the analysis of this paper, one may argue that there is a selection bias: the countries that are included in the dataset are relatively wealthy and politically stable compared to the rest of the world.

To check for the reverse causal relationship between the diplomatic network and the outward investments, other approaches could be preferred above the method that is used in this paper. Following other paper in related topics, instrumental variables could be used to tackle the endogeneity problem. Another approach is to conduct a case study: focusing in a qualitative way on a few chains in the diplomatic network can be of added value in explaining the causal relationship between the diplomatic efforts and the investments. Related to that, other proxies for diplomatic 'power' could be used, like the budgets or the number of diplomats.

One could also focus on the home counties' permanent representatives at the global organizations like the WTO and the UN. To what extent could they influence the firm's behavior? Or to what extent do countries work together to promote outward foreign direct investments? These questions could be interesting for further research.

7. References

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8. Appendix

8.1 Table 1A: List of countries

Argentina	Korea
Australia	Lithuania
Austria	Luxembourg
Belgium	Latvia
Brazil	Malaysia
Bulgaria	Mexico
Canada	New Zealand
Chile	Norway
China Mainland	Peru
Colombia	Philippines
Croatia	Poland
Czech Republic	Portugal
Denmark	Qatar
Estonia	Romania
Finland	Russia
France	Singapore
Germany	Slovak Republic
Greece	Slovenia
Hong Kong	South Africa
Hungary	Spain
Iceland	Sweden
India	Switzerland
Indonesia	Thailand
Ireland	Turkey
Israel	UAE
Italy	Ukraine
Japan	United Kingdom
Jordan	USA
Kazakhstan	Venezuela

8.2 Table 2A: Correlation matrix

	logGDP	logGDPNL	NSBO	OP	PS	GDPPC	logFDI	logD	SV	logWage	EMCO	CT	DLANG	DCRISIS	DOECD	DBRICNE	DEURO
logGDP	1.000	0.157	0.410	-0.407	0.140	0.144	0.721	0.043	-0.055	0.218	0.688	0.412	0.026	0.079	0.276	0.268	-0.064
logGDPNL	0.157	1.000	0.025	0.027	-0.124	0.195	0.126	-0.047	0.019	0.175	-0.015	-0.296	-0.004	0.544	-0.005	-0.019	-0.008
NSBO	0.410	0.025	1.000	-0.192	-0.012	-0.170	0.159	0.058	0.027	-0.225	0.202	0.116	-0.047	0.018	-0.146	0.413	-0.056
OP	-0.407	0.027	-0.192	1.000	0.145	0.195	0.010	-0.094	-0.006	0.070	-0.444	-0.414	0.177	-0.007	-0.170	-0.253	0.113
PS	0.140	-0.124	-0.012	0.145	1.000	0.594	0.304	-0.183	0.019	0.570	0.313	0.072	-0.022	-0.144	0.406	-0.342	0.200
GDPPC	0.144	0.195	-0.170	0.195	0.594	1.000	0.459	-0.472	-0.037	0.815	0.249	0.008	0.101	0.095	0.595	-0.409	0.298
logFDI	0.721	0.126	0.159	0.010	0.304	0.459	1.000	-0.315	-0.054	0.439	0.539	0.170	0.216	0.065	0.477	0.005	0.185
logD	0.043	-0.047	0.058	-0.094	-0.183	-0.472	-0.315	1.000	0.011	-0.474	-0.165	0.127	-0.306	-0.015	-0.484	0.349	-0.573
SV	-0.055	0.019	0.027	-0.006	0.019	-0.037	-0.054	0.011	1.000	-0.042	-0.012	0.014	0.052	-0.031	-0.045	0.027	0.031
logWage	0.218	0.175	-0.225	0.070	0.570	0.815	0.439	-0.474	-0.042	1.000	0.322	-0.003	0.128	0.098	0.693	-0.547	0.338
EMCO	0.688	-0.015	0.202	-0.444	0.313	0.249	0.539	-0.165	-0.012	0.322	1.000	0.389	-0.042	-0.015	0.337	-0.081	0.190
CT	0.412	-0.296	0.116	-0.414	0.072	0.008	0.170	0.127	0.014	-0.003	0.389	1.000	0.159	-0.215	0.124	0.055	0.082
DLANG	0.026	-0.004	-0.047	0.177	-0.022	0.101	0.216	-0.306	0.052	0.128	-0.042	0.159	1.000	-0.004	0.120	-0.067	0.230
DCRISIS	0.079	0.544	0.018	-0.007	-0.144	0.095	0.065	-0.015	-0.031	0.098	-0.015	-0.215	-0.004	1.000	-0.015	-0.012	-0.013
DOECD	0.276	-0.005	-0.146	-0.170	0.406	0.595	0.477	-0.484	-0.045	0.693	0.337	0.124	0.120	-0.015	1.000	-0.264	0.374
DBRICNE	0.268	-0.019	0.413	-0.253	-0.342	-0.409	0.005	0.349	0.027	-0.547	-0.081	0.055	-0.067	-0.012	-0.264	1.000	-0.291
DEURO	-0.064	-0.008	-0.056	0.113	0.200	0.298	0.185	-0.573	0.031	0.338	0.190	0.082	0.230	-0.013	0.374	-0.291	1.000