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Home vs. host country culture effects on the risk-taking of bank subsidiaries

By DAVOR BATINA (s4481828)

Supervisor: Dr. Sascha Füllbrunn

Department of Economics

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Abstract

This thesis analyzes cultural effects on risk-taking among bank subsidiaries in order to answer the question whether home or host country effects are stronger. A sample of 547 banks across 61 countries is used for the purpose of this research. Culture is measured by individualism and uncertainty avoidance. The results show that both measures are positively related to risk-taking. For individualism, home country effects prevail, while for uncertainty avoidance on the other hand host country effects are the strongest. These results are partly robust when alternative measures of risk-taking are used.

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1 Introduction

The recent financial crisis of 2007-08 showed the importance of risk-taking by banks as it was found to be one of the main factors that caused the crisis (Battaglia & Gallo, 2017). Namely, recent times have seen an increase in competition between banks. This provides banks with an incentive to take irresponsible risks in the search of income, as they do not want to fall behind on the competition. The influence of factors such as corporate governance and formal institutions on risk-taking has been widely analyzed in the literature over the years. However, only recently the literature has started to emphasize the role national culture plays in determining risk-taking.

Another recent phenomenon that was outlined by the financial crisis is the worldwide interrelatedness of banks, as the crisis did not limit itself to the United States but spread across the globe (Johnson & Mamun, 2012). As a result of the interrelatedness of banks, a large number of banks operate not only in their domestic countries but have subsidiaries all over the world. What distinguishes subsidiaries operating in a foreign country from domestic banks is that subsidiaries are influenced not by one but by two cultures; namely the one of their home (domestic) and host (country of operations) country.

This can cause difficulties for the parent bank when it comes to implementing its corporate culture on to the subsidiary, as the subsidiary's culture might deviate from that of the parent country bank. For instance, a Chinese employee of an American (home country) based bank operating in China (host country) might hesitate to engage in a profitable but risky investment opportunity, while it's American colleague is more eager to do so. This is due to the cultural differences between the two employees. Namely, China has a very collectivistic culture where individuals do not distinguish themselves much from the group, people from the United States on the other hand are much more individualistic and likely to take a risk if they can benefit from it (Lewis, 2010).

Previous literature on the relationship between national culture and bank risk-taking for the largest part does not take the distinction between domestic and foreign culture effects into account (Mihet, 2013; Illiashenko & Laidroo, 2020; Kanagaretnam et. al., 2014).

The main goal of this thesis is to analyze the home and host country effects closer, hence the following main research question is formulated in accordance to this: *'Is risk-taking among banks' subsidiaries affected more by home or host country culture?'*

National culture is operationalized by using Hofstede's cultural framework, which makes use of six dimensions (power distance, individualism, masculinity, uncertainty avoidance, long-term orientation and indulgence) to compare countries with regard to national culture. This

thesis will focus on individualism and uncertainty avoidance only, as these dimensions are found to influence risk-taking the most (Illiashenko & Laidroo, 2020; Kanagaretnam et. al., 2014). The z-score is used to measure the amount of risk-taking by banks.

This thesis expands the previous work on the relationship between national culture and banks' risk-taking by analyzing the distinction between domestic and foreign cultural effects in depth. The data sample used consists of a total of 547 bank subsidiaries' across 61 countries spread all over the world. Data is collected over the course of six years (2013-2018). Random effects regression analyses are then performed with the use of panel data. The results of the first analysis show that individualism has a positive effect on risk-taking. Contrary to previous work, the relationship between risk-taking and uncertainty avoidance was found to be positive as well. This result adds up to the small part of literature that finds a positive relationship between uncertainty avoidance and bank risk-taking (Illiashenko & Laidroo, 2020).

For individualism, the home country drives the positive effect. Uncertainty avoidance on the other hand, experiences both home and host country effects. The results of additional analyses show that host country effects are stronger for uncertainty avoidance. These results are partly robust when the standard deviation of the bank's net interest margin (SDNIM) is used as an alternative measure for risk-taking.

This study offers several contributions to the existing literature. Firstly, it expands the limited amount of literature that takes into account the differences in home and host country cultural effects on risk-taking (Ashraf & Arshad, 2017). Namely, by analyzing the data in more depth with additional models, the cause of the cultural effects is obtained. Secondly, it contributes to the growing field of research devoted to the impact of national culture on financial institutions (Badarau & Lapteacru, 2020; Kanagaretnam et. al., 2014; Mourouzidou-Damtsa et. al, 2019). Lastly, the results raise doubt from previous research with regard to the effects of Hofstede's uncertainty avoidance on risk-taking behavior (Minkov, 2018). Namely contrary to what was generally accepted in the literature, this study finds a positive relationship between uncertainty avoidance and risk-taking.

The remainder of this work is structured as follows. In the second chapter a literature overview on bank risk-taking, culture and home and host country effects is given. The third chapter covers the research methodology, where an overview of the data collecting process is given, followed by a description of the models and variables used in the analysis. Fourthly, the results of the models and robustness checks are outlined. Chapter five concludes this work.

2 Literature review and hypothesis formulation

This chapter will give an overview of existing literature on the relationship between home and host country culture effects and bank risk-taking. Firstly, bank risk-taking in general is discussed. The second and third sections cover the two aspects of national culture that are discussed in this thesis. Finally, literature with regard to the distinction between home and host country effects is reviewed.

2.1 Bank risk-taking

Banks compete with each other in a similar way as firms. This competition between banks however provides them with an incentive to increase risk-taking, as banks tend to invest in risky assets in search of a higher income than the competition. In addition to this, excessive risk-taking by banks harms the stability of the economic system, as it has a negative effect on the credit supply and corporate investment (Badarau & Lapteacru, 2020). The higher the competition between banks, the greater the reduction in corporate investment in times of crisis and with this the reduction in economic growth (Gonzales, 2016). Banks from countries with a higher risk-taking culture experienced more financial trouble during the crisis (Kanagaretnam et. al., 2014). Furthermore, according to Kanagaretnam et. al. (2019) there is a link between bank risk-taking and the amount of trust in the society. Higher bank risk-taking is associated with a lower degree of social trust in the country, which harms economic growth (Bjørnskov, 2012).

As mentioned in the introduction, an example of the danger of excessive risk-taking by banks is the global financial crisis of 2007-08 (Battaglia & Gallo, 2017). In times of economic crisis, central banks' drive risk-taking as they often cut interest rates in these times (Christiano et. al., 2004). This provides banks with an incentive to increase risk-taking (Delis & Kouteras, 2011). Namely, in periods of low interest rates banks tend to give out more loans to risky costumers, in the search of additional income as a compensation for low interest rates (Jimenez et. al., 2014). Furthermore, recent times have seen a large rise in globalization, as a result of this there are a lot of investment and financing options available abroad for banks. This could increase risk-taking for smaller and middle-sized banks, as they now have more possibilities to engage in risky investments abroad (Rajan, 2005).

The most commonly used method to measure bank-risk among the existing literature is the z-score. The formula for this measure consists of the sum of the capital adequacy ratio and the return on assets divided by the standard deviation of the return on assets. Time varying values for these variables are preferred over mean values (Lepetit & Strobel, 2013). Two other wide-

used measures of bank risk are the volatility of the bank's earnings and net interest margin (Kanagaretnam et. al., 2014); (Ashraf et. al., 2016); (Illiashenko & Laidroo, 2020). The volatility of the banks' earnings is measured by looking at the standard deviation of its return on assets. Net interest margin on the other hand measures the difference between interest income generated and paid out by the bank.

There are a number of factors other than competition that are found to influence bank risk-taking, such as the bank's corporate governance structure and its country's institutional environment. The power of the bank's shareholders can in some cases prevent the bank's management from taking-risks, given that the shareholders have sufficient rights to exercise their power (Shleifer & Vishny, 1986). Furthermore, corporate governance influences the degree to which institutional regulations such as capital requirements or deposit insurance policies have an effect on the bank's risk-taking (Laeven & Levine, 2009). According to Ashraf (2017) stronger political institutions provide an incentive for banks to take risk, as banks from these countries can easily access funding and count on the government to bail them out in times of major economic downturn. In addition to the factors outlined above the literature has found informal institutions such as national culture to influence bank risk-taking (Badarau & Lapteacru, 2020; Kanagaretnam et. al., 2014; Mourouzidou-Damtsa et. al., 2019).

2.2 National culture

Recent times have seen an increase in the amount of literature devoted to the effects of national culture on bank risk-taking (Badarau & Lapteacru, 2020). In accordance with this, previous literature has developed several models to measure culture. Hall & Hall (1989) does so by valuing countries based on the following three dimensions; a high or a low context culture, mono-or polychronic and past- or future oriented. Lewis (2010) on the other hand distinguishes countries based on their behavior, using three categories; linear-active, multi-active and reactive. Prasnikar et. al. (2008) use the Trompenaars and Hampden-Turner model as a proxy for national culture. This framework makes use of seven dimensions over which culture is measured. The values of these dimensions are based on a questionnaire from 46000 managers across 40 countries (Hampden-Turner and Trompenaars, 2011). However, none of these cultural models have been as widely used as Hofstede's cultural dimensions framework, as it is the most cited book in the field (Ashraf & Arshad, 2017; Kanagaretnam et. al., 2014; Diez-Esteban et al., 2019; Mihet, 2013).

In accordance to the existing literature, this thesis will use Hofstede's model to measure national culture. Hofstede makes use of six dimensions (power distance, individualism, masculinity, uncertainty avoidance, long-term orientation and indulgence) to measure cultural

differences between countries. Each country has a score from 0 to 100 for each of the six dimensions, which can then be compared to assess the differences in culture between countries (Hofstede, 1983).

However, as most of the well-known economic theories, Hofstede's framework has been subject to some critique. Examples of this are the fact that the original framework is based on data from the 1960s and 1970s and therefore could be outdated (Signorini et. al., 2009). In addition to this according to critics the model oversimplifies the framework by setting nations equal to culture (Signorini et. al., 2009; McSweeney, 2002). To test the plausibility of these critiques, several works have tested Hofstede's framework. Søndergaard (1994) analyzed 61 replications of Hofstede's study. A more recent cross-country test by Janicevic and Marinkovic (2015) used questionnaires' see whether the cultural dimensions found still hold. Both find evidence in favor of the model. Overall, there seems to be a consensus among existing literature in favour of Hofstede's framework. When it comes to assessing risk-taking, the existing literature finds two out of the six cultural dimensions are of importance. These are the degree of individualism and uncertainty avoidance (Illiashenko & Laidroo, 2020; Kanagaretnam et. al., 2014). The following subsection will discuss these dimensions in more depth.

2.3 Cultural indicators of risk-taking

2.3.1 Collectivism and individualism

Individualism can be defined as the strength of social ties that are present among people in the society. The more social ties, the lower the score of individualism (Hofstede, 1983).

According to Triandis (2001) people in collectivist (low individualism) societies prioritize group-goals over their personal goals, experience a stronger bond with other group members and are more modest in their decision making processes. An example of such a society is China, with an individualism score of only 20 out of 100. There is a high degree of collectivism in China, this can be seen in the fact that Chinese people are likely to avoid accountability for their decisions and all potential confrontations. Another important aspect of this collectivism in Chinese society is the close links between family relatives. Namely, people are strictly tied to their families and communities, school and work. Because of this, the Chinese have almost no room for mobility throughout their lives (Lewis, 2010). Due to their culture, the Chinese are less likely to engage in risk-taking activities, as they are unwilling to distinguish themselves much from the group.

Individualism on the other hand, is associated with an increased momentum in stock markets (Chui et. al., 2011), which is an indicator of high overconfidence and self-attribution bias (Daniel et. al., 1998). The United States is a country that has a relatively high degree of individualism as it has a score of 91 out of 100 based on Hofstede's framework. In contrast to the previously discussed collectivist society of China, in the United States the 'American Dream' prevails; everyone is equal and should thrive and work for a place at the top. The Americans are opportunist and are not afraid of challenges and competition, neither of taking risks (Lewis, 2010).

Previous studies show different results with regard to the relationship between bank risk-taking and individualism. A part of existing studies shows a positive relationship between the two (Ashraf et. al., 2016; Mihet, 2013). However this relationship does not necessarily hold for global-operating banks (Mourouzidou-Damtsa et. al., 2019). Individualistic countries have a higher risk of experiencing a stock price crash (Dang et. al., 2019), an on average higher firm debt (Fauver & McDonald, 2015) and a lower corruption rate (Jha & Panda, 2017). When it comes to economic performance, previous literature has found a positive relation between individualism and a firm's profitability (Gaganis et. al., 2019). However, in times of economic crises, the opposite is found to be true (Boubakri et. al., 2017). A possible explanation for this is the 'cushioning hypothesis' according to which in countries with lower degrees of individualism, people can count more on others to help them out in times of economic downturn (Illiashenko & Laidroo, 2020).

Based on the previously discussed literature, a positive relationship is expected between the degree of individualism and the amount of bank risk-taking. Thus the following hypothesis is formed;

Hypothesis 1: *The degree of individualism in the subsidiary's home and host country is positively related to the amount of risk-taking by the banks' subsidiary.*

2.3.2 Uncertainty avoidance

Uncertainty is one of the key elements of transaction costs in finance (Hart, 2001). Uncertainty avoidance can be defined as the degree to which people in the society are willing to accept ambiguity (Hofstede, 1983). "People in uncertainty-avoiding countries are more emotional and are motivated by inner nervous energy" (Hofstede & McGrae, 2004, p.11). The higher the uncertainty avoidance, the less ambiguity people are willing to accept. An example of a high uncertainty avoidance country is Russia, with a score of 95 out of 100. A possible explanation for this lies in their tumultuous past, as the Russians have been suppressed by the

reigning authorities for decades. As a result of this people got used to the feeling they are subordinate to the state. Furthermore, Russians are conservative and tend to plan things ahead. As a result of this, when new ideas or proposals come up, Russians will most likely not be at ease (Lewis, 2010). The same holds for several other Eastern European and Latin American countries, which have been suppressed by a communist party or dictator in the past.

On the other hand, countries that have a lower score on uncertainty avoidance ‘‘are more tolerant of opinions different from what they are used to; they try to have as few rules as possible’’ (Hofstede & McGrae, 2004, p.11).). The English-speaking countries (Australia, United States and Great Britain) belong to this group, these countries have a similar culture which is more open to challenges and are more likely to be open for new ideas and proposals (Lewis, 2010).

Uncertainty avoidance translates into other financial aspects as well, namely according to Kwok and Tadesse (2006) countries with higher uncertainty avoidance are more likely to have a bank-based system instead of a market-based system. In addition to this, uncertainty avoidance is closely related to risk aversion. It plays an important role in the process of overtaking a subsidiary, as it can affect the multinational’s degree of ownership (Erramili, 1996). Moreover, it causes takeover targets to require higher takeover premiums and lowers the chance of cross -border takeovers taking place (Frijns et. al., 2013). Overall there seems to be a consensus among existing literature that the relationship between uncertainty avoidance and bank risk-taking is negative (Kanagaretnam et. al., 2014; Ashraf et. al., 2016; Mihet, 2013).

Based on the previously discussed literature a negative relationship is expected between uncertainty avoidance and the amount of risk-taking by the bank’s subsidiary. The following hypothesis is formulated in accordance with this:

Hypothesis 2: *The degree of uncertainty avoidance in the subsidiary’s home and host country is negatively related to the amount of risk-taking by the banks’ subsidiary.*

2.4 Home vs. host country effects

Multinational banks are more likely to invest in subsidiaries that are located in countries that have similar cultural values as the home country, which explains the large investments of Spanish firms in Latin America (López-Duarte & Vidal-Suárez, 2010). These subsidiaries also have a higher chance of performing better (Calhoun, 2002; Lazarova et. al., 2017). According to Chen & Laoi (2011) subsidiaries perform better when they operate in a less

competing bank market. The same holds for subsidiaries located in countries with a lower GDP and higher inflation rate.

Based on what has been discussed in the first section of this chapter on bank risk-taking, national culture has been found to influence the amount of risk-taking by a bank. However in the case of bank's subsidiaries, the question remains whether they are bound to their parent bank or not with respect to the influence of culture on risk-taking.

The cultural influence of the home country depends on several factors. One of these factors is the culture of the manager (Williams, 2011). Host country managers are found to have a stronger influence on the functioning of the bank than home country managers implemented by the multinational, as host country managers are more in line with the cultural values of other stakeholders in the bank (Volkmar, 2003). In addition to this, there is a lower degree of trust in the host country for a foreign manager, compared to a domestic one (Banai and Reisel, 1999). However, possible negative effects of appointing a host-country manager are corruption and the need for higher legal protection (Muellner et. al., 2017). According to Zhu and Yang (2016) subsidiaries that got a foreign manager implemented after takeover experienced less risk-taking then before the takeover. In addition to this, formal institutions such as laws from the home country can influence the subsidiary abroad, Mili et. al. (2017) find that regulations from subsidiary's home country affect the capital ratio of it's subsidiaries.

Home and host country effects go both ways, namely multinational banks influence their subsidiaries by the implementation of their (home) country's cultural values. However, the subsidiary's culture shapes the way in which the cultural influence of the multinational comes into practice in the subsidiary (Williams, 2011; Choi et. al., 2013). Furthermore, existing literature finds the general effect of having subsidiaries on risk-taking is positive for the parent bank. This is in line with the so called 'market risk hypothesis' according to which increased internationalization increases bank risk-taking, because there is an incentive to exploit different market conditions found abroad (Berger et. al., 2013).

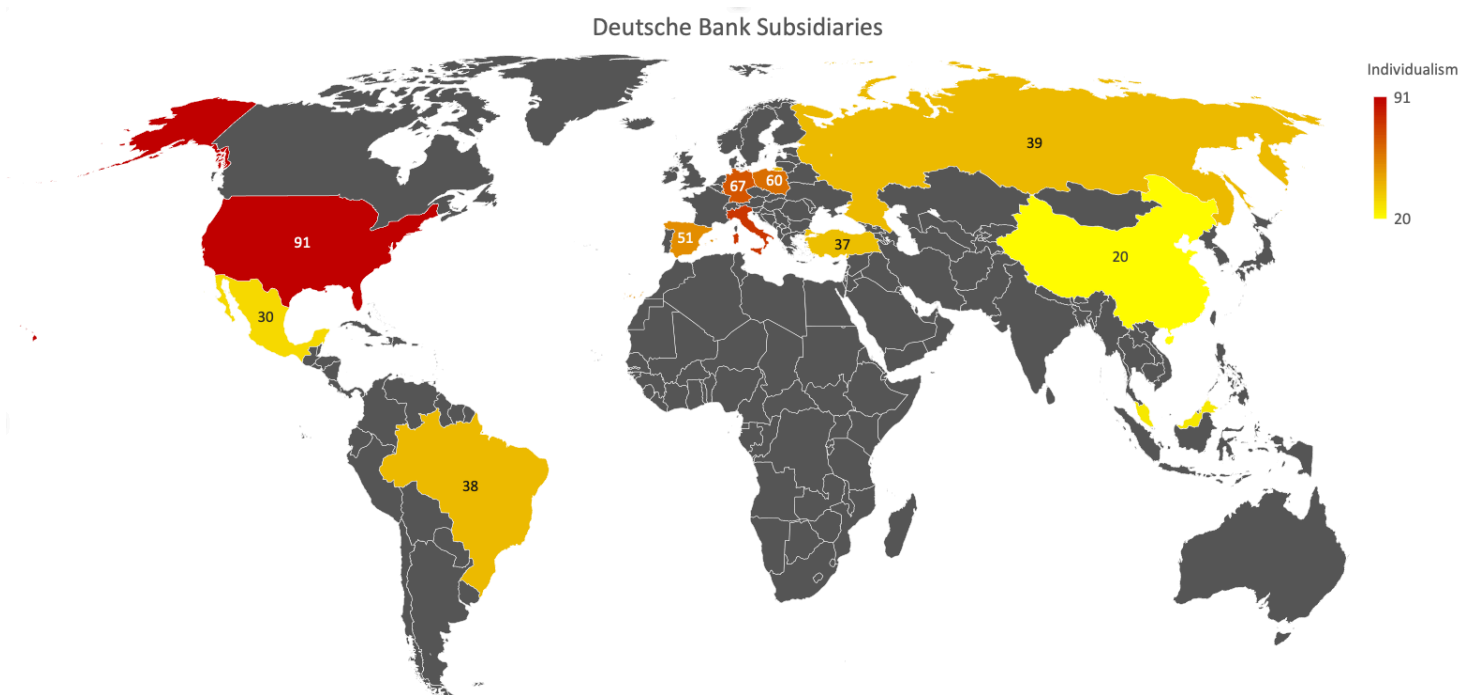
Ashraf & Arshad (2017) deals with the differences of home and host country effects on risk-taking; it finds stronger home country effects over host for all measures of national culture. Based on these findings, stronger home country effects over host country are expected for both individualism and uncertainty avoidance. Therefore the following two hypotheses are formulated with regard to the differences between home and host country effects:

Hypothesis 3: *When uncertainty avoidance is high in the home country and low in the host country, the effect of uncertainty avoidance on risk-taking will be stronger than when home is low and host is high.*

Hypothesis 4: *When individualism is high in the home country and low in the host country, the effect of individualism on risk-taking will be stronger than when home is low and host is high.*

Figure 2.1 below consists of a map that shows the relationship of interest; it shows the values of individualism for each of the host countries for the subsidiaries of Deutsche Bank. This bank has subsidiaries across 11 countries spread all over the world (Brazil, China, Italy, Luxembourg, Malaysia, Mexico, Poland, Russia, Spain, Turkey and the USA). These countries differ from each other with respect to individualism, as they range from a score as low as 20 in China to a score as high as 91 in the United States. The effects of different individualism values of each host country are then compared to effects of the home country (Germany) individualism (score of 67) to see which affects the bank's risk-taking the most. The home and host country effects of uncertainty avoidance are assessed in the same way as individualism.

Figure 2.1 Map of Deutsche Bank' subsidiaries



3 Methodology and research methods

The main goal of this chapter is to give an overview of the research methods used in this thesis. Firstly an overview is given of the data collection process, followed by a description of the regression models. The final part consists of an overview of the variables.

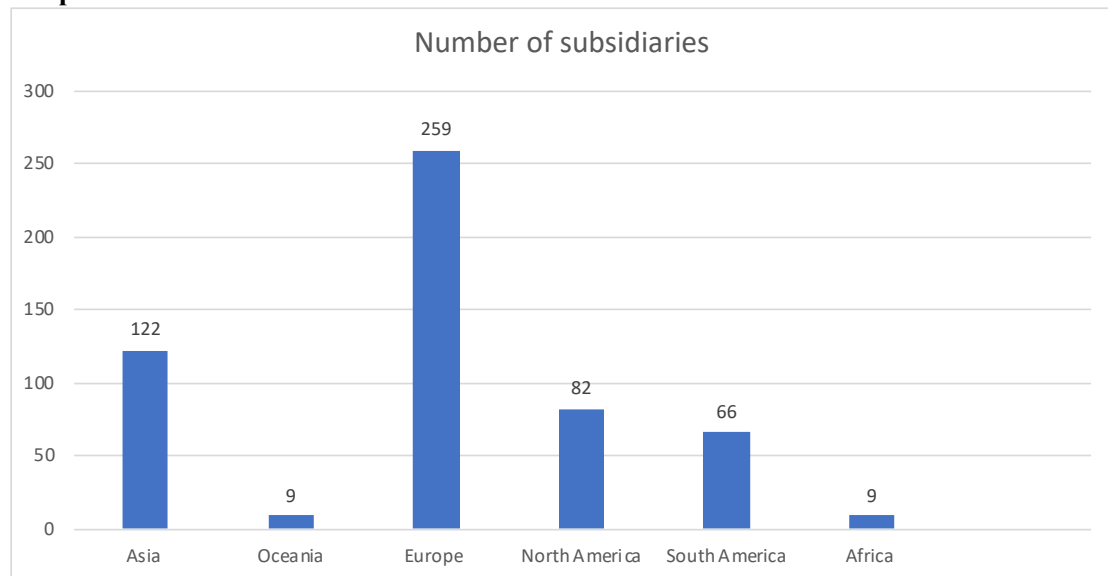
3.1 Data

Several steps were taken in order to form the sample and dataset needed for this research. Firstly, a database from Claessens & Van Horen (2014) was used to obtain ownership information on banks. This database contains ownership information from 2013 on 5498 banks in total across the world. Data from the Hofstede database was then used to find values of national culture of individualism and uncertainty avoidance for both home and host countries' of each bank. However, a number of countries from the ownership database were missing in Hofstede's database. Banks from these countries were therefore eliminated from the sample, as there were no cultural values available for them. Secondly, banks that had domestic owners were eliminated from the sample as for the purpose of this research only foreign-owned banks are of interest. Finally, the remaining subsidiaries were linked to their parent bank' countries, in accordance to the Claessens & Van Horen database. Some of the home countries found in the ownership database had equal cultural values because they belonged to the same region according to Hofstede. This was the case for Arab countries located in the Middle East (Bahrain, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia and United Arab Emirates), East African (Egypt & Libya) and Western African (Nigeria). Finally, this process resulted in two values for both individualism and uncertainty avoidance (one for both host and home) for each bank, thus making a total of four cultural values for each bank.

The process of sample formation was followed up by the process of obtaining financial information on the banks. This financial information was obtained using Orbis Bankfocus database. This database is specified for banks only and contains detailed financial information from banks across the globe. Despite this, some of the variables had no values in the database, which resulted in a small number of missing values in the final dataset. Country-level data regarding GDP and inflation was found using data from the World Bank. In accordance to existing literature values of the banks' host country were taken for these variables. Taiwan however has no information available in the World Bank, therefore values for GDP and inflation from the International Monetary Fund (IMF) database were taken for this country. Values for the law and order variable were obtained from the International Country Risk Guide (ICRG). This resulted in a final sample of 547 banks across 61 countries. Graph 3.1

below shows the distribution of subsidiary' banks host countries per continent. A full list of the banks and their home and host countries can be found in appendix B.

Graph 3.1



3.2 Research method and regression models

In order to empirically assess the relationship between national culture and bank-risk taking, panel data on different levels (bank and country) is used.

Cross-sectional generalized least squares regressions are run to see whether the home or host country culture has a stronger influence on the risk-taking of banks. This method is preferred over OLS, as it deals better with some minor degree of correlation in the residuals (Goldstein, 1986). As this thesis uses country-level cultural data as an independent variable, some countries may have similar cultural values due to historical or geographical reasons.

The dependent variable of both regressions will be the amount of risk-taking by the bank, measured by the Z-score. The Z-score is multiplied by -1 to make the results easier to interpret, as this way a positive coefficient for β_1 indicates higher risk-taking. The first regression model follows the methodology of Ashraf & Arshad (2017). Values of uncertainty avoidance and individualism for both the home and host country culture are used one by one. This results in a total of four independent cultural variables two for individualism (IH for home, IS for individualism in the host country) and two for uncertainty avoidance (UH for home and US for host). A total of four regressions are run, with each having a different measure of culture as independent variable. This setup allows for a comparison of differences between home and host country effects and to differentiate between effects of individualism & uncertainty avoidance. Due to the fact that cultural values are assumed to be constant over time, a random effects model is used.

This results in the following regression model 1:

$$Risk-taking_{ij} = \beta_0 + \beta_1(Measure\ of\ home/host\ country\ culture)_j + \beta_2size_{ij} + \beta_3LLP_{ij} + \beta_4CAR_{ij} + \beta_5GDPPC_j + \beta_6GDPgrowth_j + \beta_7INF_j + \beta_8LAWORDER_j + \varepsilon_{ij}$$

In order to examine the differences between home and host country effects in more detail, two more regressions are ran with three dummies as independent variables. The first dummy captures the effect on risk-taking when the value of home country uncertainty avoidance is above but the host country value is below the mean (UHASB). The second dummy indicates uncertainty avoidance in the home country is below but host country is above the mean (UHBSA) and the final dummy indicating both home and host uncertainty avoidance are above the mean (UHASA). In model 3, the dummies that capture differences in home and host individualism are built up in the same way (IHASB, IHBSA and IHASA). This setup allows for a better distinction between home and host country effects as dummies for home and host allow for comparison of the effects when only one of the two (home or host) is high (above average) and the other is low (below average).

This results in the following regression model 2 for uncertainty avoidance:

$$Risk-taking_{ij} = \beta_0 + \beta_1UHASB_j + \beta_2UHBSA_j + \beta_3UHASA_j + \beta_4size_{ij} + \beta_5LLP_{ij} + \beta_6CAR_{ij} + \beta_7GDPPC_j + \beta_8GDPgrowth_j + \beta_9INF_j + \beta_{10}LAWORDER_j + \varepsilon_{ij}$$

And model 3 for individualism:

$$Risk-taking_{ij} = \beta_0 + \beta_1IHASB_j + \beta_2IHBSA_j + \beta_3IHASA_j + \beta_4size_{ij} + \beta_5LLP_{ij} + \beta_6CAR_{ij} + \beta_7GDPPC_j + \beta_8GDPgrowth_j + \beta_9INF_j + \beta_{10}LAWORDER_j + \varepsilon_{ij}$$

3.3 Variables

3.3.1 Measuring risk-taking

The Z-score is used to measure the amount of bank risk-taking. This score measures the probability of a bank defaulting (Lepetit & Strobel, 2013). Although it is a relatively simple method to use and therefore has its limitations, it is nevertheless the most widely used method to measure bank riskiness among existing literature (Ashraf et. al, 2016; Kanagaretnam et. al., 2014; Illiashenko & Laidroo, 2020). Furthermore, previous work on the usefulness of the Z-score supports the use of this method as a measure of bank risk-taking (Lepetit & Strobel, 2013). The Z-score is calculated by taking the sum between the return on assets (ROA) and

the capital-asset ratio (CAR) and dividing this by the standard deviation of the Return on Assets (σROA). This results in the following formula:

$$Z - score = \frac{ROA + CAR}{\sigma ROA}$$

A logarithm of this value will then be taken to account for the possible harmful effect of outliers on the results of the regression. In addition to this, z-scores calculated are multiplied by -1. This is done because in this way the empirical results become easier to interpret as a higher value of the cultural measure indicates a higher amount of risk-taking. In the end, the results will be tested with robustness checks by using two alternative measures of risk-taking: the standard deviation of the banks' net interest margin (SDNIM) and the standard deviation of the banks' return on assets (SDROA).

3.3.2 Measuring national culture

The main independent variables in this research is national culture, as stated previously this was measured by making use of Hofstede's database for cultural values. Two cultural values that influence risk-taking the most are used, namely individualism (I) and uncertainty avoidance (U). Firstly, values for both home (H) and host (S) country for each firm are used one after the other, which will result in four regression models. Each model will have a different proxy for national culture, namely two for both individualism (IH & IS) and uncertainty avoidance (UH & US).

In order to differentiate between home and host country effects, two more regressions are run (one for uncertainty avoidance and one for individualism) including dummies that represent the differences in home and host country values. These dummies are created by looking at whether the values of home and host U and I are above or below the median value across the sample for uncertainty avoidance and individualism. A value higher than the mean is labeled as above (A); a value lower is labeled as below (B). This way, three dummies are created; one for when the home country is above the mean but host country is below the mean (UHASB), when home is below and host is above the mean (UHBSA) and when both are above the mean (UHASA). Individualism dummies are defined in the same way (IHASB, IHBSA and IHASA).

3.3.3 Control variables

In addition to the dependent and independent variables outlined in the previous sections, several bank and country-level controls are added to the regression. These control variables are added to account for the differences in measurement level between culture (national) and risk-taking (bank-level). The bank-level control variables are the following. Firstly, the size of the bank measured by the total value of the bank's assets. A logarithmic function of the amount of total assets is taken in order to decrease the effect of outliers on the regression. The other bank-level two control variables are the amount of loan loss provisions (LLP) and the capital adequacy ratio of the bank (CAR). Both of these are found to have a potential effect on the amount of risk-taking by banks (Bushman & Williams, 2012; Van Greuning & Brajovic Batanovic (2009). In accordance to the previous literature, values of LLP are divided by total assets (Illiashenko & Laidroo, 2020; Ashraf & Arshad, 2017).

In addition to the bank-level control variables, the following country-level control variables are added; the GDP per capita (GDPPC), the growth of the GDP (GDPgrowth), the inflation rate (INF) and the law and order (LAWORDER) of the country. Logarithmic values of GDP per capita are taken to diminish the differences in value between countries in terms of GDP per capita. All values will be taken for the host country of the bank. These bank- and country-level variables are in accordance with previous work done in the field (Ashraf & Arshad, 2017; Illiashenko & Laidroo, 2020; Choi et. al, 2013). Table 3.2 below gives an overview of the variables used.

Table 3.2 Summary of variables

Variables	Description
<i>Dependent variables</i>	
Z-score	Logarithm of (Return on Assets + Capital to Asset ratio)/ (SD Return on Assets), multiplied with -1
SDNIM	Standard deviation of the bank's Net Interest Margin
SDROA	Standard deviation of the bank's Return on Assets
<i>Independent variables</i>	
IH	Degree of Individualism (I) of the subsidiary's home country (H)
IS	Degree of individualism of the subsidiary's host country (S)
UH	Degree of Uncertainty avoidance (U) of the subsidiary's home country
IS	Degree of Uncertainty avoidance of the subsidiary's host country
UHASB	Dummy variable, 1 when U is above average in the home country, but below in host country
UHBSA	Dummy variable, 1 when U is above average in the host country, but below in home country
UHASA	Dummy variable, 1 when U is above average in both home and host country
IHASB	Dummy variable, 1 when I is above average in the home country, but below in host country
IHBSA	Dummy variable, 1 when I is above average in the host country, but below in home country
IHASA	Dummy variable, 1 when I is above average in both home and host country
<i>Control variables</i>	
Size	Logarithmic function of the total assets of the bank
Loan Loss Provisions (LLP)	Amount of Loan Loss Provisions of the bank, divided by total assets
Capital adequacy ratio (CAR)	Ratio of the bank's capital to its risk
GDP Per Capita (GDPPC)	Logarithmic function of the GDP per capita of the bank's host country
GDP growth (GDPgrowth)	Percentage growth in GDP of the bank's host country
Inflation rate (INF)	Inflation rate in the bank's host country
LAWORDER	The strength's of a country's legal system and the presence of it

4 Results

This section deals with the results of the analyses. The first part deals with the results of the three regressions, followed by a discussion on the outcome of the robustness checks.

4.1 Summary of statistics

Table 4.1 gives a summary of the statistics for the variables used in the regressions. The main dependent variable, the z-score, has a mean of -3.456 and a standard deviation of 1.066. These values are in accordance to the previous literature, which also reported a mean value for z-score of approximately -3.5 (Illiasenko & Laidroo 2020; Kanagaretnam et al, 2014). Moreover, averages for the independent variables measuring individualism and uncertainty avoidance are largely in accordance to the values in previous studies. The same holds for bank- and country-level control variables. The maximum amount of observations is 3,282, which is equal to the sum of 547 banks over the time period of 6 years. Some variables however have fewer observations due to missing data.

Table 4.1 Summary of variable statistics

VARIABLES	(1) N	(2) Mean	(3) Sd	(4) min	(5) max
Zscore	2,989	-3.456	1.058	-6.040	1.984
sdROA	3,258	0.981	2.092	0.0186	17.43
sdNIM	3,198	1.348	5.525	0.0212	115.4
IS	3,282	45.07	25.55	6	91
IH	3,282	57.22	25.45	6	91
US	3,282	65.21	22.63	8	104
UH	3,282	65.16	22.52	8	112
IHASB	3,282	0.157	0.364	0	1
IHBSA	3,282	0.192	0.394	0	1
IHASA	3,282	0.347	0.476	0	1
UHASB	3,282	0.155	0.362	0	1
UHBSA	3,282	0.188	0.391	0	1
UHASA	3,282	0.364	0.481	0	1
CAR	3,238	16.02	15.74	-21.16	100
llp	2,142	9.508	2.335	0	15.70
size	3,239	15.04	1.889	8.226	20.78
GDPgrowth	3,274	2.233	2.421	-6.789	23.99
GDPpc	3,274	9.789	1.035	6.889	11.69
INF	3,274	3.099	4.387	-11.31	41.12
LAWORDER	3,282	3.981	1.331	1	6

A correlation matrix and a VIF (Variance Inflation Factor) for the variables used can be found in appendix A. The correlation matrix showed all correlation coefficients are far below 0.5, which is commonly used as the threshold for collinearity (Taylor, 1990). On the other hand, the VIF test reports values of below 5, which in accordance to the correlation matrix, indicates there is no multicollinearity problem in our data. The size and sign of the correlation

coefficients are for the largest part in accordance to the previous literature (Kanagaretnam et al, 2014; Ashraf & Arshad, 2017).

4.2 Regression results

Table 4.4 on the following page shows the results of regression models 1-4, in which cultural measures for individualism and uncertainty avoidance are regressed one by one. This methodology is in line with Ashraf & Arshad (2017). In accordance to the previous literature, a positive effect of individualism on risk-taking is found. However, the results differ from previous literature with regard to uncertainty avoidance effects as a positive effect between uncertainty avoidance and risk-taking is found.

The results show that home country individualism is found to have a significant positive effect on risk-taking. Namely, one standard deviation change in individualism at home, IH (25.45) results in a $(0.0051 \times 25.45) = 0.1298$ change in z-score. Thus, individualism at home has a positive effect on the amount of risk-taking by the subsidiary abroad, as a one standard deviation change in individualism at home increases the z-score. The same positive effect is found for IS (0.0035) however the host effect is not significant. Therefore based on these results, hypothesis 1 is only partially accepted as individualism at home positively affects the subsidiaries' amount of risk-taking. The positive effects of individualism in the host country however did not appear to be significant.

With regard to the relationship between uncertainty avoidance and risk-taking, both home and host country effects were found to be significant at the 1% level. Contrary to the previous literature (Ashraf & Arshad, 2017; Kanagaretnam et. al, 2014; Mihet, 2013) the effect of home and host country uncertainty avoidance on the amount of subsidiary's risk-taking was found to be positive, as both coefficients in the models 3 and 4 are positive. Based on these results, a one deviation change in uncertainty avoidance at home (UH) will result in a $(0.0046 \times 22.52) = 0.10359$ change in z-score. The coefficient of uncertainty avoidance in the host country (US) shows the same positive effect (0.0102). Thus based on this, both home and host country uncertainty avoidance has a positive effect on the amount of risk-taking by the subsidiary. Based on these results hypothesis 2 is rejected as the results indicate that the degree of uncertainty avoidance in both home and host country positively affects the subsidiary's amount of risk-taking. This relationship is in line with the findings of Illiashenk & Laidroo (2020). An explanation for the found positive effect of uncertainty avoidance on risk-taking is that the correlations found for uncertainty avoidance in previous studies (such as it's negative relationship with risk-taking) are inconclusive. The reason for this is that

perceived effects of uncertainty avoidance on risk-taking behavior could in fact be dominated by other cultural and institutional effects (Minkov, 2018).

Table 4.2 Regression models 1-4

VARIABLES	(1) zscore	(2) zscore	(3) zscore	(4) Zscore
IH	0.0051*** (0.0019)			
IS		0.0035 (0.0024)		
UH			0.0046** (0.0020)	
US				0.0102*** (0.0021)
Size	0.0318* (0.0177)	0.0402** (0.0177)	0.0440** (0.0178)	0.0479*** (0.0178)
llp	5.3971*** (0.4057)	5.3895*** (0.4043)	5.3796*** (0.4040)	5.3722*** (0.4036)
CAR	-0.0394*** (0.0012)	-0.0392*** (0.0012)	-0.0390*** (0.0012)	-0.0387*** (0.0012)
GDPpc	-0.0279 (0.0413)	-0.0415 (0.0426)	-0.0295 (0.0414)	-0.0431 (0.0413)
GDPgrowth	-0.0021 (0.0027)	-0.0020 (0.0027)	-0.0023 (0.0027)	-0.0020 (0.0027)
INF	0.0017 (0.0023)	0.0016 (0.0023)	0.0017 (0.0023)	0.0016 (0.0023)
LAWANDORDER	-0.1515*** (0.0430)	-0.1737*** (0.0476)	-0.1397*** (0.0434)	-0.0891** (0.0445)
Constant	-2.8150*** (0.3658)	-2.5834*** (0.3659)	-3.0369*** (0.3962)	-3.5351*** (0.4029)
Observations	2,474	2,474	2,474	2,474
Number of banks	474	474	474	474
R-Squared	0.5281	0.5297	0.5304	0.5312

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4.3 below shows the results of the regression models 5 and 6 in which the differences between home and host effects are further examined. In accordance to model 1 and 2, model 5 finds a positive relationship between individualism and risk-taking. Namely, all three dummies (IHASB, IHBSA and IHABA) have positive coefficients. However none of these effects are significant. Therefore, no conclusion can be made with regard to hypotheses 3. Nevertheless, there is a tendency against hypothesis 3 as the coefficient for home county effects is smaller (0.1051) than the host country effects dummy (0.1644).

Regression model 6 shows the effects for uncertainty avoidance. As can be seen in table 4.3, opposite effects between home and host country are found. Namely, the coefficient of UHASB is negative indicating uncertainty avoidance in the home country has a negative effect on the subsidiary's risk-taking. However these effects are not significant. The

coefficients of UHBSA are positive, thus the effect of host country uncertainty avoidance on risk-taking is positive. The same positive effect is found when uncertainty avoidance is high in both home and host country (UHASA). Based on these results hypothesis 4 is rejected, as host country effects (0.4887) are found to have a larger effect over home country effects (-0.2164).

Table 4.3 Regression models 5 and 6

VARIABLES	(1) zscore	(2) zscore
IHASB	0.1051 (0.1410)	
IHBSA	0.1644 (0.1434)	
IHASA	0.0832 (0.1247)	
UHASB		-0.2164 (0.1425)
UHBSA		0.4887*** (0.1394)
UHASA		0.4531*** (0.1166)
Size	0.0399** (0.0178)	0.0481*** (0.0178)
llp	5.3904*** (0.4048)	5.3736*** (0.4034)
CAR	-0.0392*** (0.0012)	-0.0387*** (0.0012)
GDPpc	-0.0350 (0.0427)	-0.0511 (0.0415)
GDPgrowth	-0.0021 (0.0027)	-0.0018 (0.0027)
INF	0.0016 (0.0023)	0.0015 (0.0023)
LAWANDORDER	-0.1506*** (0.0441)	-0.0845* (0.0444)
Constant	-2.6546*** (0.3682)	-3.0374*** (0.3773)
Observations	2,474	2,474
Number of banks	474	474
R-Squared	0.5297	0.5313

4.3 Robustness checks

In order to test the strength of the result robustness checks are conducted. The robustness checks consist of using two different measures for bank risk-taking, namely the standard deviation of the bank's net interest margin (SDNIM) and the standard deviation of the return on assets (SDROA). This methodology is in line with Ashraf & Arshad (2017). A wide range of previous literature uses SDNIM and SDROA as measures for bank risk-taking

(Kanagaretnam et. al, 2014); (Ashraf et. al, 2016); (Illiasenko & Laidroo, 2020). In this chapter the results of these tests will be discussed. Table 4.4 shows the results when SDNIM is taken as a proxy for the subsidiaries' risk-taking. The regressions are ran in the same way as in table 4.2 and 4.3, thus first a regression where each measure of national culture is ran one by one (table 4.4) followed by a regression with dummies for high home/host values (table 4.5). Tables 4.6 and 4.7 show the results for SDROA.

Table 4.4 Regression models 1-4 SDNIM as dependent variable

VARIABLES	(1) sdNIM	(2) sdNIM	(3) sdNIM	(4) sdNIM
IH	0.0068*** (0.0017)			
IS		0.0042* (0.0023)		
UH			0.0027 (0.0018)	
US				0.0027 (0.0020)
size	-0.1375*** (0.0270)	-0.1227*** (0.0268)	-0.1140*** (0.0273)	-0.1141*** (0.0274)
llp	4.6956** (2.2748)	4.5989** (2.2802)	4.3859* (2.2853)	4.2773* (2.2932)
CAR	0.0273*** (0.0041)	0.0276*** (0.0041)	0.0282*** (0.0041)	0.0289*** (0.0042)
GDPpc	0.4611*** (0.0736)	0.4344*** (0.0777)	0.4811*** (0.0736)	0.4752*** (0.0737)
GDPgrowth	-0.0939*** (0.0188)	-0.0901*** (0.0192)	-0.0947*** (0.0189)	-0.0927*** (0.0191)
INF	0.1003*** (0.0103)	0.1001*** (0.0104)	0.1014*** (0.0104)	0.1002*** (0.0104)
LAWANDORDER	-0.6457*** (0.0596)	-0.6674*** (0.0607)	-0.6497*** (0.0598)	-0.6375*** (0.0603)
Constant	0.3367 (0.6369)	0.6489 (0.6634)	0.0019 (0.6735)	0.0021 (0.6798)
Observations	2,610	2,610	2,610	2,610
Number of Banks	499	499	499	499
R-squared	0.2420	0.2383	0.2380	0.2379

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4.4 shows the same positive effects for both home and host individualism and uncertainty avoidance on risk-taking as in table 4.2 when SDNIM is used as a measure for risk-taking. However, the uncertainty avoidance effects are not significant. Nevertheless, cultural effects of all four measures are in the same direction as in table 4.2, we conclude the results are robust when SDNIM is used as a measure for national culture.

Table 4.5 Robustness check regressions 2 and 3 (SDNIM)

VARIABLES	(1) sdNIM	(2) sdNIM
IHASB	0.1830 (0.1220)	
IHBSA	0.6954*** (0.1382)	
IHASA	0.8219*** (0.1206)	
UHASB		-0.2024 (0.1296)
UHBSA		0.1532 (0.1319)
UHASA		0.3469*** (0.1083)
size	-0.1228*** (0.0268)	-0.1031*** (0.0276)
llp	5.2024** (2.2631)	3.4409 (2.2897)
CAR	0.0282*** (0.0041)	0.0300*** (0.0042)
GDPpc	0.3441*** (0.0755)	0.4686*** (0.0740)
GDPgrowth	-0.0536*** (0.0198)	-0.0884*** (0.0191)
INF	0.0912*** (0.0104)	0.0973*** (0.0104)
LAWANDORDER	-0.6838*** (0.0596)	-0.6330*** (0.0606)
Constant	1.2685* (0.6478)	-0.0778 (0.6664)
Observations	2,610	2,610
Number of banks	499	499
R-squared	0.2518	0.2437

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4.5 shows the results of regressions 2 and 3 when SDNIM is used as a proxy for risk-taking. The same positive effects of individualism as in table 4.3 are found. Furthermore uncertainty avoidance host country effects are stronger than home country effects. Based on this, the main results found in table 4.3 are robust when SDNIM is used as a measurement for risk-taking.

Table 4.6 and 4.7 show the results of our model when SDROA is used as a measure for risk-taking. Three of the four cultural measures (IH, IS and US) showed results in the same direction as in table 4.2, however the effect of UH was found to be negative. Based on this, the results of models 1-4 are not robust when SDROA is used as a proxy for risk-taking.

Table 4.6 Regression model 1-4 SDroa as dependent variable

VARIABLES	(1) sdROA	(2) sdROA	(3) sdROA	(4) sdROA
IH	0.0065*** (0.0012)			
IS		0.0042** (0.0017)		
UH			-0.0011 (0.0013)	
US				0.0034** (0.0014)
size	-0.2877*** (0.0192)	-0.2739*** (0.0192)	-0.2768*** (0.0195)	-0.2642*** (0.0196)
llp	23.4956*** (1.6361)	23.3875*** (1.6427)	23.4827*** (1.6480)	22.9890*** (1.6516)
CAR	0.0225*** (0.0029)	0.0230*** (0.0029)	0.0228*** (0.0029)	0.0244*** (0.0029)
GDPpc	0.2264*** (0.0527)	0.1982*** (0.0557)	0.2423*** (0.0529)	0.2375*** (0.0529)
GDPgrowth	0.0248* (0.0135)	0.0290** (0.0138)	0.0215 (0.0136)	0.0273** (0.0137)
INF	0.0689*** (0.0074)	0.0688*** (0.0075)	0.0693*** (0.0075)	0.0687*** (0.0075)
LAWANDORDER	0.0073 (0.0427)	-0.0140 (0.0436)	0.0059 (0.0429)	0.0196 (0.0433)
Constant	1.8789*** (0.4555)	2.1983*** (0.4736)	2.0150*** (0.4820)	1.4902*** (0.4867)
Observations	2,650	2,650	2,650	2,650
Number of Banks	509	509	509	509
R-squared	0.2670	0.2608	0.2592	0.2606

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4.7 below gives the results of regressions 2 and 3 when SDroa is used as a proxy for risk-taking instead of the z-score. While the same effect of uncertainty avoidance on risk-taking was found, the effects of two of the three individualism dummies (IHASB and IHBSA) were found to be negative. Therefore, the results of regression models 2 and 3 are not robust when risk-taking is measured by sdROA.

Table 4.7 Regressions 2 and 3 (SDroa)

VARIABLES	(1) sdROA	(2) sdROA
IHASB	-0.0206 (0.0881)	
IHBSA	-0.0764 (0.0997)	
IHASA	0.2120** (0.0865)	
UHASB		-0.2610*** (0.0924)
UHBSA		0.1012 (0.0944)
UHASA		0.0882 (0.0774)
size	-0.2795*** (0.0193)	-0.2682*** (0.0197)
llp	23.5877*** (1.6426)	22.9394*** (1.6524)
CAR	0.0236*** (0.0029)	0.0237*** (0.0029)
GDPpc	0.2240*** (0.0546)	0.2264*** (0.0533)
GDPgrowth	0.0275* (0.0143)	0.0265* (0.0137)
INF	0.0692*** (0.0076)	0.0674*** (0.0075)
LAWANDORDER	0.0018 (0.0431)	0.0235 (0.0436)
Constant	2.0967*** (0.4663)	1.8710*** (0.4764)
Observations	2,650	2,650
Number of banks	509	509
R-squared	0.2630	0.2638

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

5 Conclusion

Recent times have seen an increase in the amount of literature devoted to the influence of national culture on the functioning of banks. This thesis expands the existing literature on this topic by analyzing home and host country cultural effects on the amount of risk-taking by banks' subsidiaries in depth. Two dimensions of Hofstede's cultural framework are used as a proxy for national culture, namely individualism and uncertainty avoidance. Bank risk-taking is measured by the z-score. A worldwide sample of 547 banks across 61 countries is used for the analysis. The results showed that for individualism, only home country effects are present. For uncertainty avoidance on the other hand, both home and host country effects were found to be significant. Additional analyses showed that host country effects are stronger than home country effects for uncertainty avoidance. These results are largely robust when the volatility of the bank's net interest margin is used as a measure for risk-taking. However the results do not hold when risk-taking is measured by the volatility of the banks' earning.

In accordance to the first hypothesis this thesis finds a positive effect of individualism on risk-taking. Contrary to previous literature (Kanagaretnam et. al., 2014; Ashraf et. al., 2016; Mihet, 2013), a positive relationship between uncertainty avoidance and risk-taking was found as well. This result adds up to the limited amount of research that finds a positive relationship (Illiasenk & Laidroo, 2020). In addition to this, it raises the doubt from earlier research with regard to the usefulness of Hofstede's uncertainty avoidance. Namely, a part of previous research suggests the effects of uncertainty avoidance on risk-taking behavior found by previous studies could be caused by other cultural measures that dominate uncertainty avoidance (Minkov, 2018).

With regard to the difference between home and host country effects, the results showed that for to individualism only home country effects are significant. This is in accordance to previous work done on this subject by Ashraf & Arshad (2017) that finds home effects to be dominant for both individualism and uncertainty avoidance. For uncertainty avoidance, both home and host country effects were found. However, additional analyses showed that host country effects dominate home country effect for uncertainty avoidance. These results imply that different cultural effects can also have different origins; a possible explanation for this is that some cultural measures such as uncertainty avoidance depend more on the institutional environment like the laws in the country (Minkov, 2018). Individualism on the other hand, depends less on the institutional environment but more on personal norms and values (Lewis, 2010; Minkov, 2018). Contrary to what was found in previous research by Ashraf & Arshad (2017), this result provides evidence both home and host country cultural effects influence the

amount of risk-taking by the banks' foreign subsidiary. Multinational banks should thus consider both effects and not focus on solely one of the two.

Future research could expand the work done on this topic by considering different measures for national culture, as the largest amount of previous work uses Hofstede's framework. Despite being the most-used measure of culture, a part of existing literature questions the usefulness of this framework as the cultural dimension uncertainty avoidance is found to be inconclusive (Minkov, 2018). The results of this thesis further raise doubt on the use of uncertainty avoidance, as the results differ from the majority of previous literature. Other measures could lead to different results and provide us with additional insights on the influence of national culture on bank risk-taking. In addition to this other methods of analysis should be considered as the dominant home country effects found for individualism in the first regression model, did not hold in the other two models in this thesis. Furthermore, the results found did not hold when the volatility of bank earnings was taken as a proxy for bank risk-taking. Other methods of analysis might provide us with additional insights and with stronger results. Finally, the database of Claessens & Van Horen (2014) could be outdated as it comes from 2013 and has not been updated since. Future research should look for newer sources on ownership data of banks.

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Appendix A Tests on multicollinearity

Matrix of correlations regression 1

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) zscore	1.000											
(2) IS	-0.053	1.000										
(3) IH	0.109	0.204	1.000									
(4) US	0.282	-0.147	0.089	1.000								
(5) UH	0.108	0.044	-0.201	0.389	1.000							
(6) size	-0.256	0.235	0.179	-0.212	-0.187	1.000						
(7) llp	0.260	-0.165	-0.055	0.203	0.108	-0.144	1.000					
(8) CAR	-0.080	-0.072	-0.044	-0.067	0.003	-0.469	0.061	1.000				
(9) GDPpc	-0.107	0.670	0.158	-0.179	-0.072	0.348	-0.216	-0.111	1.000			
(10) GDPgrowth	-0.056	-0.220	-0.058	-0.208	-0.067	0.013	-0.137	-0.024	-0.185	1.000		
(11) INF	0.153	-0.124	-0.014	0.181	-0.003	-0.127	0.125	0.125	-0.199	-0.236	1.000	
(12) LAWANDORDER	-0.145	0.575	0.120	-0.282	-0.072	0.322	-0.265	-0.131	0.794	0.115	-0.411	1.000

Matrix of correlations Regression 2 and 3

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) zscore	1.000													
(2) IHASB	0.055	1.000												
(3) IHBSA	-0.031	-0.220	1.000											
(4) IHASA	-0.021	-0.326	-0.347	1.000										
(5) UHASB	-0.175	-0.124	0.236	-0.123	1.000									
(6) UHBSA	0.129	0.142	-0.152	0.234	-0.203	1.000								
(7) UHASA	0.196	-0.113	0.096	-0.142	-0.335	-0.363	1.000							
(8) size	-0.256	-0.018	-0.056	0.199	0.011	-0.089	-0.148	1.000						
(9) llp	0.260	0.011	-0.026	-0.094	-0.077	0.032	0.160	-0.144	1.000					
(10) CAR	-0.080	-0.004	0.070	-0.113	-0.019	-0.009	-0.030	-0.469	0.061	1.000				
(11) GDPpc	-0.107	-0.209	0.237	0.361	0.002	-0.050	-0.096	0.348	-0.216	-0.111	1.000			
(12) GDPgrowth	-0.056	0.191	-0.245	-0.205	0.076	-0.192	-0.072	0.013	-0.137	-0.024	-0.185	1.000		
(13) INF	0.153	-0.056	0.107	-0.030	-0.102	0.150	0.087	-0.127	0.125	0.125	-0.199	-0.236	1.000	
(14) Lawandorder	-0.145	-0.148	0.141	0.277	0.070	-0.194	-0.098	0.322	-0.265	-0.131	0.794	0.115	-0.411	1.000

Z-score Variance inflation factor

	VIF	1/VIF
LAWAND	3.96	.253
ORDER		
GDPpc	3.683	.272
UHASA	1.657	.603
UHBSA	1.567	.638
size	1.558	.642
GDPgrowth	1.36	.735
CAR	1.354	.738
UHASB	1.343	.745
INF	1.307	.765
llp	1.116	.896
Mean VIF	1.89	.

	VIF	1/VIF
LAWAND	3.897	.257
ORDER		
GDPpc	3.84	.26
IHASA	1.975	.506
IHBSA	1.802	.555
GDPgrowth	1.495	.669
size	1.48	.676
INF	1.332	.751
IHASB	1.313	.762
CAR	1.301	.769
llp	1.103	.907
Mean VIF	1.954	.

Appendix B List of banks

Bank name	Host country	Home country
BANCO BBVA ARGENTINA S.A	Argentina	SPAIN
BANCO BRADESCO ARGENTINA SA	Argentina	BRAZIL
BANCO CETELEM ARGENTINA SA	Argentina	FRANCE
BANCO PATAGONIA SA	Argentina	BRAZIL
BANCO SANTANDER RIO S.A.	Argentina	SPAIN
HSBC BANK ARGENTINA S.A.	Argentina	GREAT BRITAIN
INDUSTRIAL and COMMERCIAL BANK of CHINA (ARGENTINA) SA	Argentina	CHINA
BANK of CHINA (AUSTRALIA) LTD	Australia	CHINA
BANK of SYDNEY LTD	Australia	LEBANON
CITIGROUP PTY LIMITED	Australia	UNITED STATES
ING BANK (AUSTRALIA) LIMITED	Australia	NETHERLANDS
BANCO DO BRASIL AG	Austria	BRAZIL
DENIZBANK AG	Austria	RUSSIA
GENERALI BANK AG	Austria	ITALY
SANTANDER CONSUMER BANK GMBH	Austria	SPAIN
SBERBANK EUROPE AG	Austria	RUSSIA
DUTCH-BANGLA BANK LIMITED	Bangladesh	NETHERLANDS
BANCA MONTE PASCHI BELGIO SA	Belgium	ITALY
BANQUE TRANSATLANTIQUE BELGIUM	Belgium	FRANCE
BEOBANK NV/SA	Belgium	FRANCE
BNP PARIBAS FORTIS SA/ NV	Belgium	FRANCE
BYBLOS BANK EUROPE SA	Belgium	LEBANON
SANTANDER BENELUX SA/NV	Belgium	SPAIN
SANTANDER CONSUMER BANK S.A.	Belgium	SPAIN
SOCIETE GENERALE PRIVATE BANKING N.V.	Belgium	FRANCE
BANCO ABC - BRASIL SA	Brazil	LIBYA
BANCO BNP PARIBAS BRASIL S.A.	Brazil	FRANCE
BANCO CAIXA GERAL BRASIL	Brazil	PORTUGAL
BANCO CARGILL SA	Brazil	UNITED STATES
BANCO CETELEM SA	Brazil	FRANCE
BANCO CITIBANK	Brazil	UNITED STATES
BANCO CNH INDUSTRIAL CAPITAL SA	Brazil	NETHERLANDS
BANCO CREDIT AGRICOLE BRASIL S.A	Brazil	FRANCE
BANCO CREDIT SUISSE (BRASIL) SA	Brazil	SWITZERLAND
BANCO de LA PROVINCIA de BUENOS AIRES	Brazil	ARGENTINA

BANCO de LA REPUBLICA ORIENTAL DEL URUGUAY	Brazil	URUGUAY
BANCO de LAGE LANDEN BRASIL SA	Brazil	NETHERLANDS
BANCO FIDIS SA	Brazil	ITALY
BANCO FORD S.A.	Brazil	UNITED STATES
BANCO GMAC S.A.	Brazil	UNITED STATES
BANCO HONDA SA	Brazil	JAPAN
BANCO JOHN DEERE S.A.	Brazil	UNITED STATES
BANCO JP MORGAN SA	Brazil	UNITED STATES
BANCO KDB DO BRASIL SA	Brazil	KOREA
BANCO MERCEDES-BENZ DO BRASIL SA	Brazil	GERMANY
BANCO MIZUHO DO BRASIL SA	Brazil	JAPAN
BANCO MORGAN STANLEY S.A.	Brazil	UNITED STATES
BANCO MUFG BRASIL S.A.	Brazil	JAPAN
BANCO RABOBANK INTERNATIONAL BRASIL S.A.	Brazil	NETHERLANDS
BANCO SANTANDER (BRASIL) S.A.	Brazil	SPAIN
BANCO SOCIETE GENERAL BRASIL SA	Brazil	FRANCE
BANCO SUMITOMO MITSUI BRASILEIRO SA	Brazil	JAPAN
BANCO TOYOTA DO BRASIL S.A.	Brazil	JAPAN
BANCO VOLKSWAGEN SA	Brazil	GERMANY
BANCO VOLVO (BRASIL) SA	Brazil	SWEDEN
BBVA BRASIL BANCO de INVESTIMENTO SA	Brazil	SPAIN
DEUTSCHE BANK SA - BANCO ALEMAO	Brazil	GERMANY
GOLDMAN SACHS DO BRASIL BANCO MULTIPLO SA	Brazil	UNITED STATES
OMNI BANCO S.A.	Brazil	UNITED STATES
SCOTIABANK BRASIL S.A. BANCO MULTIPLO	Brazil	CANADA
BNP PARIBAS (BULGARIA) E.A.D.	Bulgaria	FRANCE
D COMMERCE BANK AD	Bulgaria	TURKEY
DSK BANK PLC	Bulgaria	HUNGARY
EXPRESSBANK AD	Bulgaria	FRANCE
PIRAEUS BANK BULGARIA AD	Bulgaria	GREECE
RAIFFEISENBANK (BULGARIA) EAD	Bulgaria	AUSTRIA
TBI BANK EAD	Bulgaria	NETHERLANDS
UNICREDIT BULBANK AD	Bulgaria	ITALY
UNITED BULGARIAN BANK - UBB	Bulgaria	GREECE
AMEX BANK of CANADA	Canada	UNITED STATES
BANK of CHINA (CANADA)	Canada	CHINA
CITIBANK CANADA	Canada	UNITED STATES
CTBC BANK CORP (CANADA)	Canada	TAIWAN
HABIB CANADIAN BANK	Canada	SWITZERLAND
ICICI BANK CANADA	Canada	INDIA
INDUSTRIAL and	Canada	CHINA

COMMERCIAL BANK of CHINA (CANADA)		
JP MORGAN BANK of CANADA	Canada	UNITED STATES
KEB HANA BANK CANADA	Canada	KOREA
MEGA INTERNATIONAL COMMERCIAL BANK (CANADA)	Canada	TAIWAN
SBI CANADA BANK	Canada	INDIA
SOCIETE GENERALE (CANADA)	Canada	FRANCE
SUMITOMO MITSUI BANKING CORPORATION	Canada	JAPAN
UBS BANK (CANADA)	Canada	SWITZERLAND
BANCO DO BRASIL S.A.	Chile	BRAZIL
BANCO SANTANDER CHILE	Chile	SPAIN
HSBC BANK (CHILE)	Chile	GREAT BRITAIN
JPMORGAN CHASE BANK	Chile	UNITED STATES
SCOTIABANK CHILE	Chile	CANADA
BANGKOK BANK (CHINA) CO LTD	China	THAILAND
BANK of EAST ASIA (CHINA) LTD	China	HONG KONG
BANK of MONTREAL (CHINA) CO LTD	China	CANADA
BNP PARIBAS (CHINA)	China	FRANCE
CITIBANK (CHINA) CO LTD	China	UNITED STATES
CREDIT AGRICOLE CIB (CHINA)	China	FRANCE
DBS BANK (CHINA) LIMITED	China	SINGAPORE
DEUTSCHE BANK (CHINA) CO LTD	China	GERMANY
EAST WEST BANK (CHINA) LIMITED	China	UNITED STATES
FUBON BANK (CHINA) CO., LTD	China	TAIWAN
HANA BANK (CHINA) COMPANY LTD	China	KOREA
HANG SENG BANK (CHINA) LIMITED	China	HONG KONG
HSBC BANK (CHINA) CO LTD	China	GREAT BRITAIN
JP MORGAN CHASE BANK (CHINA) CO LTD	China	UNITED STATES
METROPOLITAN BANK (CHINA) LTD	China	PHILIPPINES
MORGAN STANLEY BANK INTERNATIONAL (CHINA) LIMITED	China	UNITED STATES
MUFG BANK (CHINA), LTD	China	JAPAN
OCBC WING HANG BANK (CHINA) LTD	China	SINGAPORE
SHINHAN BANK (CHINA) LIMITED	China	KOREA
SOCIETE GENERALE (CHINA) LIMITED	China	FRANCE
STANDARD CHARTERED BANK (CHINA) LTD	China	GREAT BRITAIN
UNITED OVERSEAS BANK (CHINA) LIMITED	China	SINGAPORE
WOORI BANK (CHINA) LTD	China	KOREA

BANCO FALABELLA SA	Colombia	CHILE
BBVA COLOMBIA SA	Colombia	SPAIN
CITIBANK COLOMBIA	Colombia	UNITED STATES
ITAU CORPBANCA COLOMBIA S.A.	Colombia	CHILE
SCOTIABANK COLPATRIA SA	Colombia	CANADA
BANCO BAC SAN JOSE, S.A.	Costa Rica	COLOMBIA
BANCO DAVIVIENDA (COSTA RICA) SA	Costa Rica	COLOMBIA
BANCO GENERAL (COSTA RICA) SA	Costa Rica	PANAMA
CORPORACION DAVIVIENDA (COSTA RICA) SA	Costa Rica	COLOMBIA
GRUPO BNS de COSTA RICA SA	Costa Rica	CANADA
GRUPO FINANCIERO CITIBANK de COSTA RICA SA	Costa Rica	UNITED STATES
SCOTIABANK de COSTA RICA S.A.	Costa Rica	CANADA
ADDIKO BANK D.D. ZAGREB	Croatia	AUSTRIA
ERSTE & STEIERMARKISCHE BANK DD	Croatia	AUSTRIA
KENTBANK DD	Croatia	TURKEY
OTP BANKA HRVATSKA DD	Croatia	HUNGARY
PRIMORSKA BANKA DD	Croatia	SWITZERLAND
PRIVREDNA BANKA ZAGREB D.D	Croatia	ITALY
RAIFFEISEN STAMBENA STEDIONICA DD	Croatia	AUSTRIA
RAIFFEISENBANK AUSTRIA D.D.	Croatia	AUSTRIA
SBERBANK DD	Croatia	RUSSIA
WUESTENROT STAMBENA STEDIONICA DD	Croatia	AUSTRIA
ZAGREBACKA BANKA DD	Croatia	ITALY
CESKA SPORITELNA A.S.	Czech Republic	AUSTRIA
CESKOSLOVENSKA OBCHODNI BANKA A.S.-CSOB	Czech Republic	BELGIUM
EQUA BANK A.S	Czech Republic	GREAT BRITAIN
EXPOBANK CZ A.S.	Czech Republic	RUSSIA
J&T BANKA AS	Czech Republic	SLOVAKIA
KOMERCNI BANKA	Czech Republic	FRANCE
MONETA MONEY BANK, A.S	Czech Republic	UNITED STATES
RAIFFEISEN STAVEBNI SPORITELNA AS	Czech Republic	AUSTRIA
RAIFFEISENBANK AKCIOVA SPOLECNOST	Czech Republic	AUSTRIA
SBERBANK CZ AS	Czech Republic	RUSSIA
UNICREDIT BANK CZECH REPUBLIC and SLOVAKIA AS	Czech Republic	ITALY
NORDEA KREDIT REALKREDITAKTIESELSKAB	Denmark	SWEDEN
BANCO INTERNACIONAL, S.A.	Ecuador	SPAIN
BANCO AGRICOLA	El Salvador	COLOMBIA
BANCO AZTECA EL SALVADOR SA	El Salvador	MEXICO
BANCO DAVIVIENDA SALVADORENO, SA	El Salvador	COLOMBIA

BANCO de AMERICA CENTRAL SA	El Salvador	COLOMBIA
BANCO G&T CONTINENTAL EL SALVADOR	El Salvador	GUATEMALA
BANCO INDUSTRIAL EL SALVADOR S.A.	El Salvador	GUATEMALA
SCOTIABANK EL SALVADOR SA	El Salvador	CANADA
AS SEB PANK	Estonia	SWEDEN
LUMINOR BANK AS	Estonia	UNITED STATES
DEXIA CREDIT LOCAL SA	France	BELGIUM
HSBC FRANCE SA	France	GREAT BRITAIN
CITIGROUP GLOBAL MARKETS EUROPE AG	Germany	UNITED STATES
CREDIT SUISSE (DEUTSCHLAND) AG	Germany	SWITZERLAND
GEFA BANK GMBH	Germany	FRANCE
HSBC TRINKAUS & BURKHARDT AG	Germany	AUSTRIA
ING-DIBA AG	Germany	NETHERLANDS
JP MORGAN AG	Germany	UNITED STATES
SANTANDER CONSUMER BANK AG	Germany	SPAIN
STATE STREET BANK INTERNATIONAL GMBH	Germany	UNITED STATES
TARGOBANK AG	Germany	FRANCE
TOYOTA KREDITBANK GMBH	Germany	JAPAN
UBS EUROPE SE	Germany	SWITZERLAND
UNICREDIT BANK AG	Germany	ITALY
BANCO AZTECA de GUATEMALA SA	Guatemala	MEXICO
BANCO de ANTIGUA S.A.	Guatemala	ECUADOR
BANCO INTERNACIONAL SA	Guatemala	SPAIN
ALLIED BANKING CORPORATION (HONG KONG) LIMITED	Hong Kong, SAR	PHILIPPINES
BANC of AMERICA SECURITIES ASIA LIMITED	Hong Kong, SAR	UNITED STATES
BANK of CHINA (HONG KONG) LIMITED	Hong Kong, SAR	CHINA
BOC HONG KONG (HOLDINGS) LTD	Hong Kong, SAR	CHINA
CHINA CITIC BANK INTERNATIONAL LIMITED	Hong Kong, SAR	CHINA
CHINA CONSTRUCTION BANK (ASIA) CORPORATION LIMITED	Hong Kong, SAR	CHINA
CITIBANK (HONG KONG) LIMITED	Hong Kong, SAR	UNITED STATES
CITICORP INTERNATIONAL LTD.	Hong Kong, SAR	UNITED STATES
CMB WING LUNG BANK LIMITED	Hong Kong, SAR	CHINA
DBS BANK (HONG KONG) LIMITED	Hong Kong, SAR	SINGAPORE
FUBON BANK (HONG KONG) LIMITED	Hong Kong, SAR	TAIWAN
GUOTAI JUNAN INTERNATIONAL HOLDINGS	Hong Kong, SAR	CHINA

LIMITED		
HANG SENG BANK LTD.	Hong Kong, SAR	GREAT BRITAIN
HONGKONG and SHANGHAI BANKING CORPORATION LIMITED (THE)	Hong Kong, SAR	GREAT BRITAIN
ICBC INTERNATIONAL HOLDINGS LIMITED	Hong Kong, SAR	CHINA
INDUSTRIAL and COMMERCIAL BANK of CHINA (ASIA) LIMITED - ICBC (ASIA)	Hong Kong, SAR	CHINA
JP MORGAN SECURITIES (ASIA PACIFIC) LIMITED	Hong Kong, SAR	UNITED STATES
KOOKMIN BANK HONG KONG LIMITED	Hong Kong, SAR	KOREA
OCBC WING HANG BANK LIMITED	Hong Kong, SAR	SINGAPORE
SCOTIABANK (HONG KONG) LIMITED	Hong Kong, SAR	CANADA
SHANGHAI COMMERCIAL BANK LTD	Hong Kong, SAR	CHINA
SHINHAN ASIA LIMITED	Hong Kong, SAR	KOREA
STANDARD CHARTERED BANK (HONG KONG) LIMITED	Hong Kong, SAR	GREAT BRITAIN
COMMERZBANK ZRT	Hungary	GERMANY
K&H BANK ZRT	Hungary	BELGIUM
KDB BANK EUROPE LTD	Hungary	KOREA
PORSCHE BANK HUNGARIA	Hungary	AUSTRIA
SOPRON BANK BURGENLAND ZRT	Hungary	AUSTRIA
UNICREDIT BANK HUNGARY ZRT	Hungary	ITALY
CITIBANK NA	India	UNITED STATES
BANK BNP PARIBAS INDONESIA PT	Indonesia	FRANCE
BANK COMMONWEALTH	Indonesia	AUSTRALIA
BANK DBS INDONESIA	Indonesia	SINGAPORE
BANK NUSANTARA PARAHYANGAN	Indonesia	JAPAN
BANK OKE INDONESIA	Indonesia	KOREA
BANK QNB INDONESIA TBK., PT	Indonesia	QATAR
BANK RABOBANK INTERNATIONAL INDONESIA	Indonesia	NETHERLANDS
BANK SBI INDONESIA PT	Indonesia	INDIA
PT BANK ANZ INDONESIA	Indonesia	AUSTRALIA
PT BANK BTPN TBK	Indonesia	JAPAN
PT BANK CIMB NIAGA TBK	Indonesia	MALAYSIA
PT BANK CTBC INDONESIA	Indonesia	TAIWAN
PT BANK HSBC INDONESIA	Indonesia	GREAT BRITAIN
PT BANK ICBC INDONESIA	Indonesia	CHINA
PT BANK KEB HANA	Indonesia	KOREA
PT BANK MAYBANK INDONESIA TBK	Indonesia	MALAYSIA
PT BANK MIZUHO INDONESIA	Indonesia	JAPAN
PT BANK of INDIA INDONESIA TBK	Indonesia	INDIA
PT BANK RESONA PERDANIA	Indonesia	JAPAN

PT BANK SUMITOMO MITSUI INDONESIA	Indonesia	JAPAN
PT BANK UOB INDONESIA	Indonesia	SINGAPORE
BANK of MONTREAL EUROPE PLC	Ireland	CANADA
CITIBANK EUROPE PLC	Ireland	UNITED STATES
DEPFA ACS BANK	Ireland	GERMANY
ELAVON FINANCIAL SERVICES DESIGNATED ACTIVITY COMPANY	Ireland	UNITED STATES
INTESA SANPAOLO BANK IRELAND PLC	Ireland	ITALY
JP MORGAN BANK (IRELAND) PLC	Ireland	UNITED STATES
ULSTER BANK IRELAND DAC	Ireland	GREAT BRITAIN
UNICREDIT BANK IRELAND PLC	Ireland	ITALY
ALLIANZ BANK FINANCIAL ADVISORS S.P.A.	Italy	GERMANY
BANCA UBAE SPA	Italy	LIBYA
CREDIT AGRICOLE FRIULADRIA SPA	Italy	FRANCE
CREDIT AGRICOLE ITALIA S.P.A.	Italy	FRANCE
DEUTSCHE BANK SPA	Italy	GERMANY
FINDOMESTIC BANCA SPA	Italy	FRANCE
HYPO ALPE-ADRIA-BANK SPA	Italy	AUSTRIA
SANTANDER CONSUMER BANK SPA	Italy	SPAIN
FIRSTCARIBBEAN INTERNATIONAL BANK (JAMAICA) LIMITED	Jamaica	CANADA
NATIONAL COMMERCIAL BANK JAMAICA LIMITED	Jamaica	CANADA
TOKYO STAR BANK LTD.	Japan	TAIWAN
SEB BANKA AS	Latvia	SWEDEN
SIGNET BANK AS	Latvia	GREAT BRITAIN
AB SEB BANKAS	Lithuania	SWEDEN
CITADELE BANKAS AB	Lithuania	LATVIA
SWEDBANK AB	Lithuania	SWEDEN
BANQUE CARNEGIE LUXEMBOURG S.A.	Luxembourg	SWEDEN
BANQUE de LUXEMBOURG SA	Luxembourg	FRANCE
BANQUE DEGROOF PETERCAM LUXEMBOURG SA	Luxembourg	BELGIUM
BANQUE INTERNATIONALE A LUXEMBOURG SA	Luxembourg	QATAR
BANQUE TRANSATLANTIQUE LUXEMBOURG SA	Luxembourg	FRANCE
BGL BNP PARIBAS	Luxembourg	FRANCE
BPER BANK LUXEMBOURG S.A.	Luxembourg	ITALY
CA INDOSUEZ WEALTH (EUROPE)	Luxembourg	FRANCE
CATELLA BANK SA	Luxembourg	SWEDEN
CREDEM INTERNATIONAL	Luxembourg	ITALY

(LUX) SA			
CREDIT SUISSE (LUXEMBOURG) SA	Luxembourg	SWITZERLAND	
DANSKE BANK INTERNATIONAL SA	Luxembourg	DENMARK	
DB VALUE SARL	Luxembourg	GERMANY	
DEKABANK DEUTSCHE GIROZENTRALE LUXEMBOURG SA	Luxembourg	GERMANY	
DELEN PRIVATE BANK LUXEMBOURG SA	Luxembourg	BELGIUM	
DEPFA PFANDBRIEF INTERNATIONAL S.A.	Luxembourg	GERMANY	
DEUTSCHE BANK LUXEMBOURG SA	Luxembourg	GERMANY	
DNB LUXEMBOURG SA	Luxembourg	NORWAY	
DZ PRIVATBANK S.A.	Luxembourg	GERMANY	
EUROBANK PRIVATE BANK LUXEMBOURG SA	Luxembourg	GREECE	
EUROPEAN DEPOSITARY BANK SA	Luxembourg	GERMANY	
FIDEURAM BANK (LUXEMBOURG) SA	Luxembourg	ITALY	
FREIE INTERNATIONALE SPARKASSE SA	Luxembourg	GERMANY	
HSBC TRINKAUS & BURKHARDT (INTERNATIONAL) SA	Luxembourg	AUSTRIA	
ING LUXEMBOURG	Luxembourg	NETHERLANDS	
INTESA SANPAOLO BANK LUXEMBOURG	Luxembourg	ITALY	
JOHN DEERE BANK S.A.	Luxembourg	UNITED STATES	
KBL EUROPEAN PRIVATE BANKERS SA	Luxembourg	QATAR	
MEDIOBANCA INTERNATIONAL (LUXEMBOURG) SA	Luxembourg	ITALY	
MITSUBISHI UFJ INVESTOR SERVICES & BANKING (LUXEMBOURG) S.A.	Luxembourg	JAPAN	
MIZUHO TRUST and BANKING (LUXEMBOURG) SA	Luxembourg	JAPAN	
NATIXIS WEALTH MANAGEMENT LUXEMBOURG.	Luxembourg	FRANCE	
NEUDORF VERWALTUNG S.A	Luxembourg	GERMANY	
NORDEA BANK S.A.	Luxembourg	SWEDEN	
PICTET & CIE (EUROPE) SA	Luxembourg	SWITZERLAND	
SKANDINAVISKA ENSKILDA BANKEN SA	Luxembourg	SWEDEN	
SOCIETE GENERALE BANK & TRUST	Luxembourg	FRANCE	
BANGKOK BANK BERHAD	Malaysia	VIETNAM	
BANK of AMERICA MALAYSIA BERHAD	Malaysia	UNITED STATES	
BANK of CHINA (MALAYSIA) BERHAD	Malaysia	CHINA	
BANK of NOVA SCOTIA BERHAD	Malaysia	CANADA	

BNP PARIBAS MALAYSIA BERHAD	Malaysia	FRANCE
CITIBANK BERHAD	Malaysia	UNITED STATES
DEUTSCHE BANK (MALAYSIA) BHD.	Malaysia	GERMANY
INDIA INTERNATIONAL BANK (MALAYSIA) BHD	Malaysia	INDIA
INDUSTRIAL and COMMERCIAL BANK of CHINA (MALAYSIA) BERHAD	Malaysia	CHINA
JP MORGAN CHASE BANK BERHAD	Malaysia	UNITED STATES
KUWAIT FINANCE HOUSE (MALAYSIA) BERHAD	Malaysia	KUWAIT
MIZUHO BANK (MALAYSIA) BERHAD	Malaysia	JAPAN
MUFG BANK (MALAYSIA)	Malaysia	JAPAN
OCBC BANK (MALAYSIA) BERHAD	Malaysia	SINGAPORE
UNITED OVERSEAS BANK (MALAYSIA) BHD.	Malaysia	SINGAPORE
BANCO CREDIT SUISSE (MEXICO) SA	Mexico	SWITZERLAND
BANCO NACIONAL de MEXICO, SA - CITIBANAMEX	Mexico	UNITED STATES
BANCO SANTANDER (MEXICO) S.A., INSTITUCION de BANCA MULTIPLE, GRUPO FINANCIERO SANTANDER	Mexico	SPAIN
BANK of AMERICA (MEXICO)	Mexico	UNITED STATES
BANK of TOKYO - MITSUBISHI UFJ (MEXICO)	Mexico	JAPAN
BARCLAYS BANK MEXICO SA	Mexico	GREAT BRITAIN
BBVA BANCOMER S.A.	Mexico	SPAIN
DEUTSCHE BANK MEXICO SA- INSTITUCION de BANCA MULTIPLE	Mexico	GERMANY
HSBC MEXICO, SA	Mexico	GREAT BRITAIN
SCOTIABANK INVERLAT SA	Mexico	CANADA
VOLKSWAGEN BANK SA	Mexico	GERMANY
BANQUE MAROCAINE POUR LE COMMERCE et L'INDUSTRIE BMCI	Morocco	FRANCE
CREDIT du MAROC	Morocco	FRANCE
SOCIETE GENERALE MAROCAINE de BANQUES	Morocco	FRANCE
AMSTERDAM TRADE BANK NV	Netherlands	RUSSIA
ANADOLUBANK NEDERLAND NV	Netherlands	TURKEY
GARANTIBANK INTERNATIONAL NV	Netherlands	TURKEY
MIZUHO BANK EUROPE NV	Netherlands	JAPAN
MUFG BANK (EUROPE) NV	Netherlands	JAPAN
PPF GROUP N.V.	Netherlands	CZECH REPUBLIC
RBS HOLDINGS NV	Netherlands	GREAT BRITAIN
ROBEKO GLOBAL STARS EQUITIES FUND N.V.	Netherlands	JAPAN
TD BANK NV	Netherlands	CANADA

YAPI KREDI BANK NEDERLAND N.V	Netherlands	TURKEY
ANZ BANK NEW ZEALAND LIMITED	New Zealand	AUSTRALIA
ASB BANK	New Zealand	AUSTRALIA
BANK of NEW ZEALAND	New Zealand	AUSTRALIA
HONGKONG & SHANGHAI BANKING CORPORATION LTD	New Zealand	GREAT BRITAIN
WESTPAC NEW ZEALAND LIMITED	New Zealand	AUSTRALIA
BANK ALFALAH LIMITED	Pakistan	UAE
FAYSAL BANK LTD	Pakistan	BAHRAIN
HABIB BANK LIMITED	Pakistan	SWITZERLAND
HABIB METROPOLITAN BANK LIMITED	Pakistan	SWITZERLAND
SAMBA BANK LIMITED	Pakistan	SAUDI ARABIA
SILKBANK LIMITED	Pakistan	OMAN
UNITED BANK LIMITED	Pakistan	UAE
ATLANTIC SECURITY BANK - SUCURSAL de PANAMA	Panama	PERU
AUSTROBANK OVERSEAS (PANAMA) SA	Panama	ECUADOR
BAC BANK INC	Panama	COLOMBIA
BAC INTERNATIONAL BANK INC	Panama	COLOMBIA
BANCO DAVIVIENDA (PANAMA) SA	Panama	COLOMBIA
BANCO de CREDITO DEL PERU	Panama	PERU
BANCO de OCCIDENTE (PANAMA) S.A	Panama	COLOMBIA
BANCO DEL PACIFICO (PANAMA) SA	Panama	ECUADOR
BANCO INTERNACIONAL de COSTA RICA	Panama	COSTA RICA
BANCO PICHINCHA PANAMA SA	Panama	ECUADOR
BANCO SANTANDER (PANAMA) SA	Panama	SPAIN
BANCOLOMBIA (PANAMA) SA	Panama	COLOMBIA
BANESCO (PANAMA), S.A	Panama	VENEZUELA
BANISI SA	Panama	ECUADOR
BANISTMO SA	Panama	COLOMBIA
BCT BANK INTERNATIONAL	Panama	COSTA RICA
FPB BANK INC	Panama	BRAZIL
GNB SUDAMERIS BANK S.A	Panama	COLOMBIA
GTC BANK INC	Panama	GUATEMALA
ITAU (PANAMA) S.A.	Panama	BRAZIL
KEB HANA BANK	Panama	KOREA
MERCANTIL BANCO	Panama	VENEZUELA
SCOTIABANK (PANAMA) SA	Panama	CANADA
BANCO FALABELLA PERU SA	Peru	CHILE
BANCO GNB PERU SA	Peru	COLOMBIA
BANCO INTERAMERICANO de FINANZAS SA - BIF	Peru	SPAIN
BANCO PICHINCHA	Peru	ECUADOR
BANCO RIPLEY SA	Peru	CHILE
BANCO SANTANDER PERU	Peru	SPAIN

CITIBANK DEL PERU SA	Peru	UNITED STATES
SCOTIABANK PERU SAA	Peru	CANADA
CTBC BANK (PHILIPPINES) CORP	Philippines	TAIWAN
HONGKONG and SHANGHAI BANKING CORP LTD	Philippines	GREAT BRITAIN
MAYBANK PHILIPPINES INC	Philippines	MALAYSIA
BANK HANDLOWY W WARSZAWIE S.A.	Poland	UNITED STATES
BANK MILLENNIUM	Poland	PORTUGAL
BNP PARIBAS BANK POLSKA SA	Poland	FRANCE
CREDIT AGRICOLE BANK POLSKA SA	Poland	FRANCE
DEUTSCHE BANK POLSKA S.A.	Poland	GERMANY
DNB BANK POLSKA SA	Poland	NORWAY
EURO BANK SA	Poland	FRANCE
ING BANK SLASKI S.A. - CAPITAL GROUP	Poland	NETHERLANDS
MBANK SA	Poland	GERMANY
MERCEDES-BENZ BANK POLSKA S.A.	Poland	GERMANY
PEKAO BANK HIPOTECZNY SA	Poland	ITALY
SANTANDER BANK POLSKA S.A.	Poland	SPAIN
SANTANDER CONSUMER BANK SA	Poland	SPAIN
TOYOTA BANK POLSKA SA	Poland	JAPAN
BANCO BPI SA	Portugal	SPAIN
BANCO CREDIBOM SA	Portugal	FRANCE
BANCO PRIMUS SA	Portugal	FRANCE
SANTANDER TOTTA SGPS	Portugal	SPAIN
ALPHA BANK ROMANIA	Romania	GREECE
BANCA COMERCIALA INTESA SANPAOLO ROMANIA SA	Romania	ITALY
BANCA ROMANEASCA S.A.	Romania	GREECE
BANK LEUMI ROMANIA	Romania	ISRAEL
BCR BANCA PENTRU LOCUINTE	Romania	AUSTRIA
BRD-GROUPE SOCIETE GENERALE SA	Romania	FRANCE
CREDIT AGRICOLE BANK ROMANIA SA	Romania	FRANCE
CREDIT EUROPE BANK (ROMANIA) SA	Romania	FRANCE
FIRST BANK	Romania	UNITED STATES
GARANTI BBVA	Romania	TURKEY
LIBRA INTERNET BANK SA	Romania	UNITED STATES
OTP BANK ROMANIA SA	Romania	HUNGARY
PATRIA BANK	Romania	NETHERLANDS
RAIFFEISEN BANK SA	Romania	AUSTRIA
UNICREDIT BANK SA	Romania	ITALY
VISTA BANK (ROMANIA) S.A	Romania	GREECE
ALEF-BANK ZAO	Russian Federation	GREAT BRITAIN
AO CITIBANK	Russian Federation	UNITED STATES
AO RAIFFEISENBANK	Russian Federation	AUSTRIA
BANK CREDIT SUISSE	Russian Federation	SWITZERLAND

(MOSCOW)		
BNP PARIBAS ZAO	Russian Federation	FRANCE
COMMERZBANK (EURASIJA)	Russian Federation	GERMANY
CREDIT AGRICOLE CORPORATE and INVESTMENT BANK' CLOSED JOINT STOCK COMPANY	Russian Federation	FRANCE
CREDIT EUROPE BANK LTD	Russian Federation	NETHERLANDS
DEUTSCHE BANK LLC	Russian Federation	GERMANY
HOME CREDIT and FINANCE BANK	Russian Federation	CZECH REPUBLIC
HSBC BANK (RR) LLC	Russian Federation	GREAT BRITAIN
ING BANK (EURASIA) ZAO	Russian Federation	NETHERLANDS
JP MORGAN BANK INTERNATIONAL	Russian Federation	UNITED STATES
NATIXIS BANK ZAO	Russian Federation	FRANCE
NORDEA BANK JSC	Russian Federation	SWEDEN
PUBLIC JOINT-STOCK COMPANY ROSBANK	Russian Federation	FRANCE
RUSFINANCE BANK OOO	Russian Federation	FRANCE
UNICREDIT BANK AO	Russian Federation	ITALY
ADDIKO BANK AD BEOGRAD	Serbia	AUSTRIA
BANCA INTESA AD BEOGRAD	Serbia	ITALY
CREDIT AGRICOLE SRBIJA A.D. NOVI SAD	Serbia	FRANCE
ERSTE BANK A.D. NOVI SAD	Serbia	AUSTRIA
EUROBANK A.D. BEOGRAD	Serbia	GREECE
EXPOBANK JSC	Serbia	RUSSIA
NLB BANKA AD BEOGRAD	Serbia	SLOVENIA
OPPORTUNITY BANKA A.D. NOVI SAD	Serbia	UNITED STATES
OTP BANK SERBIA AD BELGRADE	Serbia	HUNGARY
RAIFFEISEN BANKA AD BEOGRAD	Serbia	AUSTRIA
SBERBANK SERBIA A.D. BEOGRAD	Serbia	RUSSIA
VOJVODJANSKA BANKA AD NOVI SAD	Serbia	GREECE
VTB BANKA A.D. BEOGRAD	Serbia	RUSSIA
CITIBANK SINGAPORE LIMITED	Singapore	UNITED STATES
TORONTO DOMINION (SOUTH EAST ASIA) LIMITED	Singapore	CANADA
CESKOSLOVENSKA OBCHODNA BANKA CSOB	Slovakia	BELGIUM
OTP BANKA SLOVENSKO, AS	Slovakia	HUNGARY
TATRA BANKA A.S.	Slovakia	AUSTRIA
VSEOBECNA UVEROVA BANKA A.S.	Slovakia	ITALY
ADDIKO BANK D.D.	Slovenia	AUSTRIA
SBERBANK BANKA DD	Slovenia	RUSSIA
SKB BANKA DD	Slovenia	FRANCE
UNICREDIT BANKA SLOVENIJA D.D.	Slovenia	ITALY
ABSA BANK LTD	South Africa	GREAT BRITAIN
ALBARAKA BANK LIMITED	South Africa	BAHRAIN
GROBANK	South Africa	GREECE
HABIB OVERSEAS BANK LIMITED	South Africa	PAKISTAN

HBZ BANK LIMITED	South Africa	SWITZERLAND
MERCANTILE BANK LIMITED	South Africa	PORTUGAL
ARESBANK SA	Spain	LIBYA
BANCO CAIXA GERAL SA	Spain	PORTUGAL
BANCO MEDIOLANUM SA	Spain	ITALY
BANKOA SA	Spain	FRANCE
DEUTSCHE BANK SAE	Spain	GERMANY
ARAB BANK (SWITZERLAND) LTD	Switzerland	JORDAN
BANQUE de COMMERCE et de PLACEMENTS SA	Switzerland	TURKEY
CREDIT EUROPE BANK (SUISSE) SA	Switzerland	NETHERLANDS
DZ PRIVATBANK (SCHWEIZ) AG	Switzerland	GERMANY
FRANKFURTER BANKGESELLSCHAFT (SWITZERLAND) AG	Switzerland	GERMANY
GAZPROMBANK (SWITZERLAND) LTD	Switzerland	RUSSIA
GOLDMAN SACHS BANK AG	Switzerland	UNITED STATES
HABIB BANK AG ZURICH	Switzerland	PAKISTAN
PARGESA HOLDING SA	Switzerland	NETHERLANDS
ANZ BANK (TAIWAN) LIMITED	Taiwan	AUSTRALIA
CITIBANK TAIWAN LIMITED	Taiwan	UNITED STATES
DBS BANK (TAIWAN)	Taiwan	SINGAPORE
HSBC BANK (TAIWAN) LIMITED	Taiwan	GREAT BRITAIN
KGI BANK PUBLIC COMPANY	Taiwan	CHINA
STANDARD CHARTERED BANK (TAIWAN) LIMITED	Taiwan	GREAT BRITAIN
CIMB THAI BANK PUBLIC COMPANY LIMITED	Thailand	MALAYSIA
MEGA INTERNATIONAL COMMERCIAL BANK PCL	Thailand	TAIWAN
STANDARD CHARTERED BANK (THAI) PUBLIC COMPANY LIMITED	Thailand	GREAT BRITAIN
UNITED OVERSEAS BANK (THAI) PCL	Thailand	SINGAPORE
SCOTIABANK TRINIDAD & TOBAGO LIMITED	Trinidad and Tobago	CANADA
ALTERNATIFBANK A.S.	Turkey	QATAR
BURGAN BANK AS	Turkey	KUWAIT
CITIBANK A.S.	Turkey	UNITED STATES
DENIZBANK A.S.	Turkey	RUSSIA
DEUTSCHE BANK AS	Turkey	GERMANY
ING BANK A.S.	Turkey	NETHERLANDS
ODEA BANK AS	Turkey	LEBANON
STANDARD CHARTERED YATIRIM BANKASI TURK AS	Turkey	GREAT BRITAIN
ABC INTERNATIONAL BANK PLC	United Kingdom	LIBYA
AHLI UNITED BANK (UK) PLC	United Kingdom	BAHRAIN
AIB GROUP (UK) PLC	United Kingdom	IRELAND
ALPHA BANK LONDON LIMITED	United Kingdom	GREECE

BANK LEUMI (UK) PLC	United Kingdom	ISRAEL
BANK of CHINA (UK) LTD	United Kingdom	CHINA
BANK of NEW YORK MELLON (INTERNATIONAL) LTD (THE)	United Kingdom	UNITED STATES
BANK SADERAT PLC	United Kingdom	IRAN
BNP PARIBAS UK HOLDINGS LTD	United Kingdom	FRANCE
BRITISH ARAB COMMERCIAL BANK PLC	United Kingdom	LIBYA
CANADA SQUARE OPERATIONS LIMITED	United Kingdom	CANADA
CAPITAL ONE (EUROPE) PLC	United Kingdom	UNITED STATES
CIBC WORLD MARKETS PLC	United Kingdom	CANADA
CITIFINANCIAL EUROPE PLC	United Kingdom	UNITED STATES
CLYDESDALE BANK PLC	United Kingdom	AUSTRALIA
CREDIT SUISSE (UK) LIMITED	United Kingdom	SWITZERLAND
EUROPE ARAB BANK PLC	United Kingdom	JORDAN
FBN BANK (UK) LIMITED	United Kingdom	NIGERIA
FCE BANK PLC	United Kingdom	UNITED STATES
GOLDMAN SACHS INTERNATIONAL	United Kingdom	UNITED STATES
ICBC (LONDON) PLC	United Kingdom	CHINA
ICICI BANK UK PLC	United Kingdom	INDIA
INVESTEC BANK PLC	United Kingdom	SOUTH AFRICA
MBNA LIMITED	United Kingdom	UNITED STATES
MORGAN STANLEY BANK INTERNATIONAL LIMITED	United Kingdom	UNITED STATES
NATIONAL BANK of EGYPT (UK) LIMITED	United Kingdom	EGYPT
NATIONAL BANK of KUWAIT (INTERNATIONAL) PLC	United Kingdom	KUWAIT
NOMURA BANK INTERNATIONAL PLC	United Kingdom	JAPAN
PERSIA INTERNATIONAL BANK PLC	United Kingdom	IRAN
RBC EUROPE LIMITED	United Kingdom	CANADA
ROTHSCHILD & CO CONTINUATION LIMITED	United Kingdom	SWITZERLAND
SANTANDER CARDS UK LIMITED	United Kingdom	SPAIN
SCOTIABANK EUROPE PLC	United Kingdom	CANADA
SG KLEINWORT HAMBROS BANK LIMITED	United Kingdom	FRANCE
STANDARD BANK LONDON HOLDINGS LIMITED	United Kingdom	SOUTH AFRICA
TD BANK EUROPE LTD	United Kingdom	CANADA
UNION BANK UK PLC	United Kingdom	NIGERIA
BANK of THE WEST	United States of America	FRANCE
BBVA USA BANCSHARES, INC	United States of America	SPAIN
BMO HARRIS BANK NA	United States of America	CANADA
BNP PARIBAS SECURITIES CORP	United States of America	FRANCE
CITIZENS BANK, NATIONAL ASSOCIATION	United States of America	CANADA
CITIZENS FINANCIAL GROUP INC.	United States of America	GREAT BRITAIN
DB USA CORPORATION	United States of America	GERMANY
DEUTSCHE BANK TRUST COMPANY AMERICAS	United States of America	GERMANY

FIRST HAWAIIAN INC	United States of America	FRANCE
HSBC BANK USA, NATIONAL ASSOCIATION	United States of America	GREAT BRITAIN
MUFG AMERICAS HOLDINGS CORPORATION	United States of America	JAPAN
MUFG UNION BANK, N.A.	United States of America	JAPAN
SANTANDER BANK N.A.	United States of America	SPAIN
TD BANK NATIONAL ASSOCIATION	United States of America	CANADA
TOYOTA MOTOR CREDIT CORPORATION	United States of America	JAPAN
BANCO PATAGONIA (URUGUAY) SAIFE	Uruguay	ARGENTINA
BANCO SANTANDER URUGUAY S.A.	Uruguay	SPAIN
BANCO EXTERIOR, C.A. - BANCO UNIVERSAL	Venezuela	SPAIN
BANCO PROVINCIAL	Venezuela	ARGENTINA
HONG LEONG BANK VIETNAM LIMITED	Vietnam	MALAYSIA
HSBC BANK (VIETNAM) LTD	Vietnam	GREAT BRITAIN
INDOVINA BANK LTD	Vietnam	TAIWAN
PUBLIC BANK VIETNAM LIMITED	Vietnam	MALAYSIA
SHINHAN BANK VIETNAM	Vietnam	KOREA
STANDARD CHARTERED BANK (VIETNAM) LTD	Vietnam	GREAT BRITAIN
VIETNAM-RUSSIA JOINT VENTURE BANK	Vietnam	RUSSIA