Investment Destination Decision by Using the VIKOR Method in the European Union Countries

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Abstract

This study examines the problem to select the most appealing investment destination among the EU countries for Foreign Direct Investment (FDI) inflows after the financial crisis in 2008. From the outbreak of the crisis to the recovery period, the need for companies to increase profits brings about the demand for market expansion and cheap resources. At this point, FDI as an important element of economic development in a global world requires deeper investigation. In this analysis, its indicators such as macroeconomic conditions, shares of markets in GDP and its growth rate, conditions of labour, natural and capital resources, availability of infrastructure and allocated time for doing business provide a general evaluation about all investment destinations in the EU. However, this general evaluation case is a question of a multi-criteria decision-making problem. The VIKOR (Vise Kriterijumska Optimizacija I Kompromisno Resenje) algorithm is used in order to increase the reliability of evaluation. For, most crucially, unlike other multi-criteria decision making methods, the VIKOR method calculates the acceptable advantage and the acceptable stability of the countries under all the criteria after proposing a compromising solution. This study intends to introduce VIKOR as a newly developed multi-criteria decision-making method by using FDI indicators for ranking suitable investment destinations and reaching the best one for a four-year time period between 2010 - 2013.

Keywords:FDI, Multi-Criteria Decision Making, VIKOR, European Union Countries

Introduction

Since the financial crisis in 2008, international cooperation has been necessary to pursue development and profitability of companies. Therefore, it's very important to make a right decision about a new investment destination for foreign investors. Location choice is complex, multinational and critical one as it affects both host countries and foreign investors (Liu & Park, 2006). Among the several economic activities attempted by foreign companies, foreign direct investment (FDI) has been accepted as an important variable of globalization, also positively linked with the global economic integration. According to European Commission (2014), European Union (EU) Countries haveremained the largest investment destination of foreign direct investment (FDI) on a global levelinspite of the growing importance of emerging economies. Therefore, this research is based on the selection of the most appealing investment destination among the EU countries for Foreign Direct Investment (FDI) inflows.

Investment destination choice creates a Multi-Criteria Decision Making problem and in this study to solve this problem, a newly developed algorithm VIKOR (Vise Kriterijumska Optimizacija I Kompromisno Resenje) is applied. Time frame for the evaluation is set through a four-year time period between 2010 – 2013. The beginning year 2010 is determined as the year of economic recovery.

There are many different methods that use to make location decision in the literature proposed by various authors. For instance, Karimi et al. (2009) use Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) to select the most suitable ASEAN countries for realizing FDI inflows.

By using ten different indicators such as GDP per capita, the rate of GDP growth over theprevious 15 years, the share of exports in GDP, telephone mainlines, electricity production per capita, average FDI flows over theprevious 10 years, HDI (Human Development Index), ESI (Environmental Sustainability Index) , overall index of economicfreedom, school enrollment, tertiary (% gross) within TOPSIS method, Singapore is determined as the most attractive country for investment for period 2000-2005. Lin and Tsai (2010) have modeled a multi-criteria decision making problem to make location choices for foreign direct investments in new hospitalsin China. This study uses a combination of ANP (Analytic Network Process) and TOPSIS to reach the ideal solution. Factor, government, demand and agglomeration conditions and their sub-criteria are evaluated to rankthe competition locations in YRD region of China. In Kuo and Liang's research (2011), a location decision for an international distribution center in Pacific Asia for international logistics managers istried to make by creating a new hybrid method. The combination of Fuzzy DEMATEL, AHP (Analytic Hierarchy Process) and ANP is illustrated by weighting ten criteria from port rate to transshipment time that are important for international logictics.

Alaghemand (2014) evaluates FDI of Australia, Canada, Germany, Ireland, Japan, Luxembourg, Netherland, Switzerland, and United Kingdom for selecting the USA's investment destination over the pre-economic crisis (2004-2006),crisis (2007-2009) period, and post-economic crisis period (2010-2012) in his study. Additionaly, his study suggests a hybrid method based on a combination of AHP (Analytic Hierarchy Process),TOPSIS, and MP-MADM (the multi-period multi-attribute decision-making technique. For determining the relative priority of nine countries, fifteen criteria (bilateral distance, colony, common language, host countries' market size, development, GDP growth, market potential, productivity, tax, corruption risk, internal conflict risk, religious tension risk, trade agreements are used.Furthermore, Hekmatpanahet al (2015) combine entropy and Fuzzy TOPSIS method to determine the weightsof the criteria about prioritization of measures affecting investment and after this, AHP is used to rank the suitable places for investment alternatives inside the Isfahan Province. Many different researches can be found to suggest a technique to solve investment location choice problem. This paper is organized as follows: In the second section, FDI and its indicators are explained. In the methodology section, how data is sorted out is explained; VIKOR method and its steps are summarized. An application for determining the most appealing investment destination among the EU countries is given in the fourth section. Lastly, in the final section, the results are presented and suggestions are made for the future studies.

2. FDI and Its Indicators

Foreign direct investment (FDI) represents a business investment aiming at a long-term commitment and reflects an interest to the host country and contributes to developing countries(Vetter, 2014, p. 2). According to research of Karimi et al (2009,p.2), FDI is defined as an integral part of an open and effective international economic system and significantly helps countries to develop. OECD report (2014) indicates that FDI statisticsrelate to FDI inward and outward flow, FDI stocks and FDI income. Inward investmentsare defined as investments by non-resident investors in the presenting country while outward investmentsare cross-border investments by resident investors in the presenting country. FDI activites play a crucial role in speeding up the development and economic growth of a country. Thefore, these activities are an important indicator of international competitiveness as multi-national firms not only compete internationally by exports but especially by launchingsubsidiaries abroad. There has been a great deal of consideration about the indicators of FDI. Many articles and surveys are included in the literature. The main indicators are determined as the combination of the FDI indicators of important studies. Brewer (1993), Braunerhjelm and Svensson (1996), Broadman and Sun(1997), Dunning (2005), Mina (2007) ,Skuflic et al(2013) and Hoang and Bui (2015)argued the determinants of FDI in their researches. On the other hand, in this study, the indicators of FDI have been taken from Skuflic et al's study.

Because in their study, all indicators are included in a mixture of resource seeking,market-seeking, efficiency-seeking and macroecomic indicators of FDI. 20 indicators are used to make a location decision. These indicators, called criteria, are inflation, unemployment rate, government gross debt % of GDP, export % GDP as *macroeconomic indicators*; GDP per capita, GDP growth rate, export growth rate and population as *market seeking indicators*; labour force, total enrollment % (primary school), natural resources, agricultural land %capital, interest rate, lending interest rate as *resource seeking indicators* and finally, infrastructure, rail lines, roads ,electric power consumption, mobile phone subscriptions, time for doing business, time to export, time to import as *efficiency seeking indicators.* As can be seen, making a location decision by using these 20 criteria about FDI is a multi-criteria decision problem.

All criteria have not the same importance from the investors's view. Skuflic et al(2013) use the entrophy weighted technique to determine the importance of criteria. Therefore, this study prefers to use these trustable weights of criteria.

3. Methodology

As an approved variation of Multi-Criteria Analysis methods, the VIKOR (Vise Kriterijumska Optimizacija I Kompromisno Resenje) method is applied.It was first introduced byOpricovic in 1998 and developed by Opricovic and Tzeng in 2004. The VIKOR is based on the association with inconsistent and disproportionate criteria.This method focuses on ranking and selecting from a set of alternatives, and determines compromised solutions for a problem with conflicting criteria, which can help the decision makers to reach a final decision.
The VIKOR method has been used in many areas such as performance evaluation(Hajihassani (2015),Rezaie et al (2014));energy planning (Rojas-Zerpa and Yusta (2015), Cristobal (2011)); healthcare applications (Chang, (2014), Liu et al (2013)); supplier selection(You et al (2015), Tadic et al (2014)) ; company selection (Yucenur and Demirel (2012), Zandi and Roghanihan (2013)) since 1998.
The compromised ranking method of VIKOR consists of the following steps:

Step 1. Determine to the best and worst values for each criterion (i=1, 2, n) in the decision matrix between the available values.

If the *i*th function represents a benefit then:
$f_i^* = max_j f_{ij} f_i^- = min_j f_{ij}$**(Equation 1)**
If the *i*th function represents a cost then:
$f_i^* = min_j f_{ij} f_i^- = max_j f_{ij}$**(Equation 2)**

Step 2.Computation of the values $S_j$and R_j, j = 1, 2,….,J, bythe relations

$$S_j = \sum_{i=1}^{n} w_i \frac{(f_i^* - f_{ij})}{(f_i^* - f_i^-)} \quad \textbf{(Equation 3)}$$

$$R_j = max_i \left[w_i \frac{(f_i^* - f_{ij})}{(f_i^* - f_i^-)} \right] \quad \textbf{(Equation 4)}$$

Step 3. Computation. of the values Q_j,j = 1, 2,….,J, by the relation

$$Q_j = v \frac{(\boldsymbol{S_j} - \boldsymbol{S^*})}{(\boldsymbol{S^-} - \boldsymbol{S^*})} + (1 - v) \frac{(\boldsymbol{R_j} - \boldsymbol{R^*})}{(\boldsymbol{R^-} - \boldsymbol{R^*})} \quad \textbf{(Equation 5)}$$

where

$$\boldsymbol{S^*} = min_j \boldsymbol{S_j} \boldsymbol{S^-} = \quad \textbf{(Equation 6)}$$

$$\boldsymbol{R^*} = min_j \boldsymbol{R_j} \boldsymbol{R^-} = n \quad \textbf{(Equation 7)}$$

Step 4.Rank the alternatives, sorting by the values S, R and Q.
Step 5. Propose as a compromise solution, for given criteriaweights, the alternative (a´), which is the best ranked by themeasure Q_{min}if the following two conditions are satisfied:
O1: Acceptable Advantage:

$$\boldsymbol{Q(a'')} - \boldsymbol{Q(a')} \geq \boldsymbol{DQ}$$

Where $a''$is the alternative with second position in the ranking list by Q ; $DQ = 1/(J-1)$,
J is the number of alternatives.
O2: Acceptable stability in decision making: Alternative$\boldsymbol{a'}$must also be the best ranked by *S* or/and R. This compromise solution is stable within a decision making process, which could be "voting by majority rule" (when *v*>0.5 is needed) or "by consensus" *v*≈0.5, or "with veto" (*v*<0.5). Here, v is the weight of the decision making strategy "the majority of criteria" (or "the maximum group utility").

If one of the conditions is not satisfied, then a set of compromise solutions is proposed, which consists of:

- Alternatives $\boldsymbol{a'}$ and $\boldsymbol{a''}$if only condition **O2** is not satisfied, or

- Alternatives $\boldsymbol{a'}$,$\boldsymbol{a''}$,…. $\boldsymbol{a^{(M)}}$if condition **O1** is not satisfied $\boldsymbol{a^{(M)}}$is determined by the relation $\boldsymbol{Q(a^{(M)}) - Q(a') < DQ}$ for maximum *M* (the positions of these alternatives are "in closeness").

4. Application

In this paper, the indicators of FDI, which are determined in the article of Skuflic et al (2013), are used. First of all, 20 important FDI indicators as criteria are obtained from World Bank for a four-year time period between 2010 - 2013.As an appropriate line with the aim of this research, Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom are listed as investment destinations.Then, decision matrices (28 x 20) are formed separately for the 2010, 2011, 2012, 2013 years by using value of 20 indicators and 28 decision points.Not to disrupt the integrity of 20 importantcriteria, the weights, which are calculated by using the eigenvector method, are obtained from the same research.Total of weights must be one. The weights of criteria and the effects of benefit or cost are shown in the Table 1.Alternatives and its criteria values are put together to create decision matrices. For 2010, the original data matrix is created and given in Table 2. After this creation, each step of VIKOR follows each other. Firstly, the best and worst values of all criteria functions are calculated from the data matrix, and it is shown in Table 3. By using VIKOR method, the ranking of alternative investment destinations are calculated. With using equation 6 and equation 7,$S^* = 0.36278905$, $S^- = 0.70186294$, $R^* = 0.075814344$ and $R^- = 0.13$ are obtained. Table 4 shows the evaluation results of alternative with S_j and R_j. Another ranking list is created by using the value of Q_j. It is seen in Table 5. Finally, using this table, the ranking of alternative destinations is obtained according to the FDI attractiveness performance for 4 years. If it is evalatued according to the conditions of **O1 and the O2,** the most reliable result can be obtained. That's why, reliable evaluation can be made by using these conditions.

O1: Acceptable Advantage:J= 28, $DQ = 1/(28-1) = 0.037037037$

$$Q(a'') - Q(a') \geq DQ \rightarrow (1{,}703767287 - (-9{,}477844353) \geq 0.037037037$$

$11{,}18161164 \geq 0.037037037$ also,

$$Q(a''') - Q(a'') \geq DQ \rightarrow (13{,}3823585 - 1{,}703767287) \geq 0.037037037$$

$11{,}67859121 \geq 0.037037037$ therefore, Malta (a') is the best ranked destination alternative in 2010 according to VIKOR ranking result. Hungary (a'') is the second ranked alternative. From table 6, the ranking list is given for 2010. Moreover,Malta, Hungary and Slovakia (a''') have good advantage and also good stability as they satisfy "condition O1".

O2: Acceptable Stability in Decision Making: Alternative Malta is the best ranked by the value of Q and R. This compromise solution is stable within a decision making process, by consensus. Finally, for 2010, Malta, Hungary and Slovakia satisfy "condition O2". Following the same steps, all necessary values are calculated and finally obtained the ranking results of all years, as seen inTable 7. It can be said that for 2011 Estonia is obtained as the best ranked destination, while Slovakia is the second one. Estonia and Slovakia have also good advantage and stability as they satisfy O1 and O2. For 2012, Slovakia sustains her stability, this result supports multinational company for invest to Slovakia. In 2013, Slovakia is the second destination alternative, while Luxemburg is the best. These results mean that Slovakia can not lose its position easily for different criteria weights.

5. Conclusion

Nowadays, investment destination decisions are very important part in investment plan of multi-national firms. In general, from the investors' viewpoints, investing in other countries will increase income, and FDI outflows result in more efficient and competitive management of firms by gaining entrance to the markets outside the country and higher integrating into the global supply and value chains. Therefore, determining the right investment decision place is very critic and important.

By using multi-criteria decision making techniques, making the best decision can obtained and also it can save time and money for them. Several multi-criteria decision making techniques are used to find the best investment destination ranking. Increasing criticisims about methodologies used in the ranking systems cause to find new technniques for making more reliable ranking lists. This paper suggests a newly used multi-criteria method VIKOR for evaluating destination alternatives. VIKOR method shows applicability and performance of the decision alternatives.

Moreover, this situation helps to increase reliability of the results.In future studies, VIKOR can be combined with another multi-criteria decision making technique. It is believed that multi-criteria decision making techiques can be applied in near future to overcome weak and inaccurate results.

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Appendix

Table 1. Weights of Criteria and Benefit/Cost

	Criterion Name	**Benefit**	**Weight**
C1	Inflation	min	0,13
C2	Uneployment rate	min	0,13
C3	Government Gross Dept % of GDP	min	0,13
C4	Export of good and services% GDP	max	0,13
C5	GDP per capita	max	0,02
C6	GDP growth rate	max	0,02
C7	Export growth rate	max	0,12
C8	Population	max	0,02
C9	Labour force (total)	max	0,01
C10	Total enrollment % (primary school)	max	0,02
C11	Agricultural land %	max	0,03
C12	Forest area %	max	0,03
C13	Interest rate	min	0,01
C14	Commercial bank prime lending rate(%)	min	0,02
C15	Rail lines (km)	max	0,03
C16	Roads (km)	max	0,03
C17	Electric power consumption	max	0,03
C18	Mobile phone subscriptions	max	0,01
C19	Time to export	min	0,07
C20	Time to import	min	0,01

Table 2.The original data evaluation matrix for 2010

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20
Austria	0,9050416	4,4	82,4	50,6946958	46593,389	1,880118	12,80932	8363404	4313417	100,1505	38	38870	3,23	2,56	5066	124508	8347,438	145,6928	10	9
Belgium	2,0359191	8,3	99,5	76,2398598	44360,902	2,501055	10,00986	10920272	4898557	104,0449	45	6778	3,35	4,21	3578	119079	8368,656	111,0842	9	9
Bulgaria	1,2379006	10,2	15,9	55,1401382	6580,8139	0,655325	17,19037	7395599	3416896	103,2018	47	39270	6,01	11,14	4098	39587	4560,415	138,039	21	18
Croatia	0,8315054	11,8	57	37,737356	13505,766	-1,70114	6,16708	4417781	1949574	92,37661	24	19200	6,29	10,38	2722	26958	3813,679	113,6081	20	16
Cyprus	0,745504	6,3	56,5	47,7127872	30438,9	4,09077	2,631241	81776930	584478	101,5191	12	110760	4,6	6,82	0	8564	7264,323	106,4837	7	5
Czech R.	0,7642233	7,3	38,2	66,1767706	19763,964	-5,44876	14,84674	11153454	5239905	102,8734	55	39030	3,88	3,9	9569	130671	5318,084	110,6455	18	20
Denmark	3,2476662	7,5	42,9	49,7199843	57647,669	1,625136	1,92153	5547683	2930964	99,55399	62	5440	2,93	4,3	2131	73929	6327,506	115,6699	6	5
Estonia	2,0536041	16,9	6,5	75,1160846	14632,082	1,390644	24,04336	1103685	691625	101,6243	22	1731,8	3,56	7,76	787	34936	4622,696	93,69258	6	5
Finland	-1,450344	8,4	47,1	38,6777125	46205,166	2,295089	6,178553	10474410	2700262	105,7528	8	26570	3,01	2,27	5919	50914	6348,424	122,5551	9	8
France	1,5243808	9,3	81,7	26,0432298	40708,502	2,475874	9,01608	1331475	29836224	98,44948	53	22170	3,12	3,37	33608	894000	6506,318	127,2828	10	11
Germany	2,1401168	7,1	80,5	42,2964265	41725,85	0,789117	14,53441	10000023	41990452	102,0982	48	20290	2,74	3,77	33708	64448	3876,491	119,9427	8	7
Greece	0,3199248	12,5	171,3	22,0962329	26863,012	1,710582	4,630542	59277417	5148705	101,0627	63	91490	9,09	5,98	2552	41357	5493,728	154,797	20	6
Hungary	-1,424312	11,2	80,9	82,6234254	12958,271	-2,87361	11,32195	2097555	4310481	106,0313	59	33540	7,28	7,1	7893	70539	3229,951	110,3123	16	18
Ireland	2,3033599	13,9	87,4	95,6845516	47903,681	1,618932	6,170576	3097282	2184327	101,5238	66	21600	5,99	5,45	1919	96036	3470,785	159,3954	8	10
Italy	0,3507552	8,4	115,3	25,1697023	35877,871	2,992355	11,78573	5363352	24560253	99,06037	49	221570	4,04	4,03	18011	487700	16482,79	156,3055	20	18
Latvia	1,0798251	18,7	46,8	52,9827756	11379,256	1,965658	13,44204	65023142	1062383	108,0826	29	159540	10,34	9,56	1897	14459	7736,307	91,38733	10	11
Lithuania	-1,623873	17,8	36,2	65,4037491	11976,901	-0,27551	18,94228	4560155	1543795	105,7004	44	7390	5,57	5,99	1767	71563	5910,983	105,2358	8	10
Luxembourg	3,7416505	4,4	19,6	180,651396	102863,1	5,144673	8,166633	506953	237978	97,24195	51	867,5	2,92	2,28	275	2899	1682,996	143,1426	10	7
Malta	1,3599254	6,9	67,6	88,1840453	19694,083	4,3	18,33641	414508	177671	95,23537	32	3	4,19	4,62	0	2014	4171,21	107,2612	11	9
Netherlands	1,1613767	4,5	59	71,9539771	50341,252	1,070504	8,881369	16615394	8854921	108,5503	56	3650	2,99	3,01	3016	138641	7009,524	115,4302	7	6
Poland	1,7690061	9,6	53,6	40,4701129	12530,307	3,70981	12,8638	38042794	18074084	98,29265	48	93370	5,78	8,37	19702	295356	3797,092	122,9153	17	17
Portugal	0,6434795	10,8	96,2	29,8732617	22539,995	1,898675	9,521261	10573100	5553291	112,0986	40	34560	5,4	4,22	2843	71294	4959,094	115,3033	16	14
Romania	5,4917841	7,3	29,9	35,4214385	8139,1467	-0,93966	14,18956	20246871	9653136	96,72569	62	65730	7,34	14,11	13620	60043	2550,863	111,4289	13	13
Slovakia	-1,061202	14,4	38,2	76,4917267	16509,897	1,221819	15,68792	2048583	2699760	98,21819	40	12530	3,87	3,39	3587	38085	6521,093	103,2965	16	16
Slovenia	0,1603103	7,2	40,9	64,3237363	23417,64	0,013805	10,11638	46576897	1044577	105,4783	24	1817328	3,83	5,68	1228	38985	5706,563	111,2758	19	17
Spain	0,9909348	20,2	60,1	25,5198152	30737,832	5,988927	9,423764	9378126	23457625	101,4485	55	282030	4,25	7,22	15317	16101	1493433	117,1611	10	10
Sweden	0,4864432	8,7	36,8	46,1851924	52076,431	4,827314	11,94248	5391428	4972087	102,8798	8	19330	2,89	3,39	9957	135444	5201,405	109,0472	9	6
United K.	3,1706372	7,9	76,4	28,6875668	38362,217	1,911378	6,232202	62766365	32029852	106,9338	71	28810	3,62	3,96	16408	394428	5700,808	123,6255	8	6

Table 3. The best f_i^* and the worst f_i^- values of all criterion functions for 2010

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20
f_i^*	-1,62387349	4,400000095	6,5	180,651396	102863,1	5,988927	24,04336	81776930	41990452	112,0986	71	282030	2,74	2,27	33708	894000	16829,96	159,3954	6	5
f_i^-	5,491784063	20,20000076	171,3	22,0962329	6580,8139	-5,44876	1,92153	4145088	17767 1	92,37661	8	3	10,34	14,11	0	2014	2550,863	91,38733	21	20

Table 4. Calculation of S_j and R_j for Criteria

	S_j	R_j
Austria	0,466868226	0,106552008
Belgium	0,526917933	0,085607428
Bulgaria	0,532570406	0,102907173
Croatia	0,672521246	0,117175782
Cyprus	0,51127443	0,116150169
Czech Republic	0,491239914	0,093858247
Denmark	0,549961968	0,12
Estonia	0,480263108	0,102848093
Finland	0,487063405	0,11640478
France	0,508749123	0,126763842
Germany	0,476862812	0,113437782
Greece	0,70186294	0,13
Hungary	0,524662371	0,080373518
Ireland	0,574583044	0,096951022
Italy	0,528522236	0,12748005
Latvia	0,57005337	0,117658228
Lithuania	0,472558065	0,110253153
Luxembourg	0,36278905	0,098025814
Malta	0,472092684	0,075814344
Netherlands	0,435025722	0,08912144
Poland	0,540727731	0,114935184
Portugal	0,60440344	0,123623584
Romania	0,589412553	0,13
Slovakia	0,503943942	0,085400921
Slovenia	0,502824348	0,095377504
Spain	0,570615622	0,13
Sweden	0,476471471	0,110249368
United K.	0,527353324	0,12459574

Table 5. Calculation of Q_j for Alternatives

	Q_j (q=0,00)	Q_j (q=0,25)	Q_j (q=0,50)	Q_j (q=0,75)	Q_j (q=1)
Austria	0,5672657	6,87906422	62,930697	290,228	0,306951
Belgium	0,180732	1,57321015	14,059296	64,87957	0,48405
Bulgaria	0,5	5,9964619	54,883338	253,2447	0,500721
Croatia	0,7633282	9,74445244	89,674422	414,0722	0,913465
Cyprus	0,7444004	9,3635799	85,922132	396,4034	0,437915
Czech Republic	0,3330015	3,65451178	33,211967	153,1666	0,378829
Denmark	0,8154493	10,3755136	95,316834	439,8339	0,552012
Estonia	0,4989097	5,9428042	54,311078	250,4887	0,346456
Finland	0,7490993	9,41076752	86,321856	398,194	0,366511
France	0,9402765	12,0728976	110,91873	511,7263	0,430467
Germany	0,6943431	8,64535024	79,2439	365,5154	0,336427
Greece	1	13,0419322	120,1453	554,7226	1
Hungary	0,0841399	0,2345857	1,7037673	7,869045	0,477398
Ireland	0,3900788	4,50598586	41,191872	190,1684	0,624625
Italy	0,9534942	12,2704263	112,77059	520,314	0,488782
Latvia	0,7722318	9,79213981	89,963359	415,1786	0,611266
Lithuania	0,6355706	7,82868776	71,701771	330,7083	0,323732
Luxembourg	0,4099142	4,62437691	41,972017	193,2993	0
Malta	0	-0,96877934	-9,477844	-43,8366	0,322359
Netherlands	0,2455834	2,40308463	21,581487	99,38195	0,213041
Poland	0,7219778	9,07493755	83,302107	384,3803	0,524778
Portugal	0,8823228	11,3412695	104,30866	481,4405	0,712571
Romania	1	12,9590222	119,21442	550,1791	0,66836
Slovakia	0,176921	1,50352086	13,382359	61,70552	0,416295
Slovenia	0,3610395	4,05113534	36,888907	170,1568	0,412993
Spain	1	12,9451632	119,05882	549,4196	0,612924
Sweden	0,6355007	7,83060625	71,725245	330,8252	0,335273
United K.	0,900264	11,5327898	105,9623	488,8996	0,485335

Table 6. Ranking Investment Destinations for 2010

	q=0,00	q=0,25	q=0,50	q=0,75	q=1
Austria	12	12	12	12	3
Belgium	4	4	4	4	16
Bulgaria	11	11	11	11	19
Croatia	19	19	19	19	27
Cyprus	17	17	17	17	14
Czech Republic	6	6	6	6	10
Denmark	21	21	21	21	21
Estonia	10	10	10	10	8
Finland	18	18	18	18	9
France	24	24	24	24	13
Germany	15	15	15	15	7
Greece	26	28	28	28	28
Hungary	**2**	**2**	**2**	**2**	**15**
Ireland	8	8	8	8	24
Italy	25	25	25	25	18
Latvia	20	20	20	20	22
Lithuania	14	13	13	13	5
Luxembourg	9	9	9	9	1
Malta	**1**	**1**	**1**	**1**	**4**
Netherlands	5	5	5	5	2
Poland	16	16	16	16	20
Portugal	22	22	22	22	26
Romania	26	27	27	27	25
Slovakia	3	3	3	3	12
Slovenia	7	7	7	7	11
Spain	26	26	26	26	23
Sweden	13	14	14	14	6
United K.	23	23	23	23	17

Table 7. Ranking Investment Destinations for a four year time period

	2010	**2011**	**2012**	**2013**
Austria	12	11	14	15
Belgium	4	4	4	9
Bulgaria	11	23	11	12
Croatia	19	18	19	19
Cyprus	17	28	15	21
Czech Republic	6	5	7	10
Denmark	21	12	13	14
Estonia	10	1	2	5
Finland	18	17	20	23
France	24	22	24	26
Germany	15	14	17	17
Greece	28	27	28	28
Hungary	2	21	22	4
Ireland	8	8	10	8
Italy	25	24	25	27
Latvia	20	10	12	13
Lithuania	13	3	5	6
Luxembourg	9	7	6	1
Malta	1	26	9	3
Netherlands	5	9	3	7
Poland	16	15	18	16
Portugal	22	19	21	22
Romania	27	16	27	20
Slovakia	**3**	**2**	**1**	**2**
Slovenia	7	6	8	11
Spain	26	25	26	24
Sweden	14	13	16	18
United K.	23	20	23	25