Foreign Direct Investments: Asian and European Transition Economies

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ABSTRACT: Transition economies in Asian and European region have been showing a great performance and attracting large sum of foreign direct investments in recent years. Although the foreign direct investments totaled only 500 million USD in 1992 for all these transition countries, it is around 270 billion USD as of 2011. This study investigates the trends and dispersion of foreign direct investments in these two geographically distinct regions for the period of 1992-2011. The results show that the transition economies in the Asian side look to perform better for accumulating much larger sum of foreign direct investments while the transition economies in the European side are more successful for having a higher foreign direct investments per capita.

Keywords: Transition economies; foreign direct investments; economic growth.
JEL Classifications: F21; F41

1. Introduction

There is a considerable amount of literature supporting that foreign direct investments (FDI) affect economic growth of countries both directly and indirectly. Many empirical studies provide evidence about the existence of a positive relationship between FDI and economic growth. These studies support that foreign direct investments affect economic growth and, in return, FDIs cause a leverage effect for attracting more foreign direct investment into a particular company. International investors deciding to invest in a foreign country consider a variety of criteria such that the potential for economic development in the future, the lack of barriers to trade, the level of financial development, the availability and the cost of skilled labor and geographic location.

This study discusses and compares the foreign direct investments to transition economies in Europe and Asia between the years of 1992-2011. A total of fifteen transition economies, seven from European and eight from Asia regions, is studied. Population, GDP, FDI stock and FDI annual flows, import and export variables are used and the changes in these variables for the period are computed.

This investigation looks for an answer for the questions of which side of the world of transition economies has attracted more FDIs in the underlying period and which side and what countries may attract more FDIs in the future. The following section reviews the related literature. The next section presents the data and methodology utilized in the research. The final section summarizes and pinpoints the concluding remarks.

2. Literature Review

Foreign direct investments are one of the most interesting issues examined by the economic literature. It is often referred that the underlying reason addressing this issue is that FDI is seen a critical challenge for economic growth, development and sustainability of a country. Independent of

the level of development, all countries generally compete to attract a greater share of foreign direct investments. According to Barrell and Holland (2000), countries that opened their economies more widely to FDI reaped more gains from the transition process. Razin (2003) states that FDI helps to reduce the unemployment rate and strongly contributes to the economic growth in the host country. Moreover, FDI, relative to financial investments, contributes more to capital accumulation and economic growth comparing to financial investments. Yang (2002) studies nine different countries and concludes that FDI has a positive effect on capital accumulation and economic growth. He also states that financial flows show no significant effect on capital accumulation and economic growth.

Carstensen and Toubal (2004) perform a panel data analysis and finds a significant relationship between FDI and market potential which is measured by relative low labor costs, skilled workforce, country risk and level of privatization. Bevan and Estrin (2004) finds that the most important determinants of foreign direct investment in transition economies in Europe are unit labor costs, gravity factors provided, market size and proximity. On the other hand, they points out that there is no significant effect on the risk level of the host country for foreign direct investments.

Another factor attracting foreign investment may be considered the level of institutional development. Bevan et al. (2004) in their study on transition economies show that foreign direct investments have a positive correlation with the formal institutions. The level of institutional development in the study is defined by private ownership of businesses, banking sector reforms, foreign exchange and trade liberalization and regulatory flexibility.

Baniak et al. (2002) states that the introduction of FDI in a host country affects capital accumulation, production facilities, technology, new management approaches and new sources of employment. Their findings support that the presence of instability in main macroeconomic variables reduces foreign direct investments in transition economies. Walsh and Yu (2010) also support these findings stating that the effect of these factors often differs between advanced and emerging economies.

Konings (2000) finds no spillover benefits on domestic firms where multinational companies enter a host country with foreign direct investments concerning three European countries (Bulgaria, Romania, Poland). Furthermore, the study supports that FDI has negative effects on the domestic firms in Bulgaria and Romania. He points the reason for this negative effect such that multinational companies investing in these host countries have much better technology and hence domestic firms are damaged due to the lack of their competitive power. In contrast, the Gorg and Greenaway (2003) study shows that the determinants of spillover benefits for local firms are their absorptive capacity and their geographical proximity to the investor company. In other words, domestic companies that are geographically close a multinational company and which have higher absorption capacity gain higher spillover benefits from foreign direct investments. In another study on more than 90,000 firms in ten transition economies (Bulgaria, Czech Republic, Estonia, Latvia, Lithuania, Poland, Romania, Slovenia, Croatia, Ukraine), Damijan and others (2012) found that the spillover effects of foreign direct investments on local firms depend on the absorptive capacity and productivity level of local firms.

According to Yao and Wei (2006) study, foreign direct investments accelerate the growth of newly industrialized countries and the fast economic growth of China in recent years can be attributed to the quickly accumulated FDIs as a good example. The studies including Mexico (Ramirez, 2006) and the Czech Republic (Djankov & Hoekman, 2000) support that foreign direct investments have an accelerating effect on economic growth of the host country.

Vu and Noy (2008) conduct an analysis which addresses six OECD countries and they find that FDI has a positive impact on economic growth both directly and indirectly as a result of its integration with labor. Feenstra and Hanson (1997) in their research for Mexico covering the period of 1975-1988 incline a positive correlation between the demand for educated workers and foreign direct investments. In other words, as the amount of foreign investments increase, the demand for educated labor force also increases.

Agayev (2010) examines the relationship between FDI and GDP of 25 transition economies. The findings of research support that FDI and GDP variables have a high positive correlation over the long term. In addition, the panel causality test made by Agayev (2010) shows the existence of a strong causality relationship from foreign direct investment to economic growth, and a relatively weaker relationship exists in the opposite direction. He summarizes that foreign direct investment flows

towards the transition economies supports economic growth and the increase in the growth also attracts more foreign capital investments. Mucuk and Demirsel (2009) in their study including the period of 1992-2007 for Turkey investigate the relationship between FDI and GDP. Their findings support that there exists a positive two-way correlation between these variables over long term.

Borensztein et al. (1998) examine foreign investments from developed countries to developing countries. As a result of this study, they show that foreign direct investments increase the transfer of technology and have a higher leverage effect in GDP relative to domestic investments.

The literature summarized above supports that FDIs should be considered crucial for economic growth, technology transfers and increasing employment. While constructing economic growth path for the future, governments should also include the effective policies for attracting FDIs. FDI policies should not be abstracted from other economic policies; on the contrary, it must be intertwined with the basic economic policies and support macro-economic objectives (UNCTAD, 1999).

3. Data Analysis and Methodology

For this investigation a total of fifteen transition economies are used. The transition economies include seven from the European region and eight from the Asian region. The names of countries in the European region are Albania, Belarus, Bosnia-Herzegovina, Croatia, Macedonia, Moldova and Ukraine. The names of countries in the Asian region are Armenia, Azerbaijan, Georgia, Kirgizstan Kazakhstan, Tajikistan, Turkmenistan and Uzbekistan. The data for population, GDP, export and import covering a period of 1992-2011 are collected from various sources. Table 1 below shows the comparative values of population, GDP, export and imports for the years 2000 and 2011 for the underlying transition economies.

Table 1. Asian and European Transition Economies for the year 2000 and 2011

	2000					2011				
	Pop.[1]	Exp.[2]	Imp.[2]	GDP[2]	GDP per Capita[3]	Pop.[1]	Exp.[2]	Imp.[2]	GDP[2]	GDP per Capita[3]
Albania	3072	704	1499	3640	1185	3216	4391	7324	12938	4023
Belarus	10058	7641	8087	10418	1036	9559	46670	48309	54629	5715
Bosnia	3694	1580	4157	5553	1503	3752	7338	11630	18312	4880
Croatia	4506	8645	9592	21518	4776	4396	26027	26128	63951	14549
Mace.	2009	1637	2280	3587	1785	2064	5543	7737	10240	4962
Moldova	4107	641	972	1288	314	3545	3151	6041	6997	1974
Ukraine	48892	19618	17947	31262	639	45190	88844	97762	167082	3697
Total	**76337**	**40465**	**44534**	**77265**	**11238**	**71722**	**181965**	**204932**	**334149**	**39800**
Armen.	3076	447	966	1912	621	3100	2405	4791	10251	3307
Azer.	8111	2118	2024	5273	650	9306	37227	15895	63424	6815
Georgia	4746	859	1323	3058	644	4329	5234	7916	14400	3326
Kazak.	14957	10341	8970	18292	1223	16207	92979	52128	184766	11401
Kyrgyz.	4955	573	654	1370	277	5393	3448	5097	5699	1057
Tajikistan	6173	-	-	861	139	6977	1755	4282	6524	935
Turkmen.	4501		-	4932	1096	5105	-	-	29306	5740
Uzbek.	24776	3265	-	13759	555	27760	15211	10160	45341	1633
Total	**71294**	**17603**	**13937**	**49457**	**5206**	**78177**	**158259**	**100269**	**359711**	**34214**
[1]Thousand; [2]million USD; [3]USD										

The total population of transition economies in the European side is around 76.3 million in 2000 and 71.7 in 2011. The total GDP for the region is 77.3 billion USD in 2000 and 334 billion USD in 2011. The total population of transition economies in the Asian side is around 71.3 million in 2000 and 78.2 million in 2011. The total GDP for the region is 49.5 billion USD in 2000 and 359.7 billion USD in 2011.

Table 2, 3, 4 and 5 below present FDI-Stock and FDI-Flows for the transition economies under investigation in Asia and Europe for the period of 1992-2011. The total FDI-Stock for all

European transition economies is only 456 million USD in 1992 while it is 49 million USD for the Asian transition economies. The figures for the European countries grew up to 10 billion USD and it is more than 17 billion for Asian countries in 2000. The total FDI stocks for the European countries grew up to 130 billion USD and it is more than 140 billion for the Asian countries in 2011.

From the year 2000 to the year 2011, the Asian transition economies increased their total GDP over 7 times while FDI investments boomed by 24 times. For the same time period, the GDP growth was only 4 times for the European transition economies while they had a FDI growth of 13 times. This shows that the Asian transition economies are more successful for attracting FDIs and hence they performed a better economic growth.

Table 2. FDI-Stock of European Transition Economies (mil.USD)

YEAR	Alba.	Belar.	Bosn.	Cro.	Mold.	Mace.	Ukr.	Total
1992	20	7	0	129	16	n/a	284	**456**
1993	88	25	0	273	16	n/a	484	**886**
1994	141	35	0	388	29	77	484	**1154**
1995	211	50	0	496	97	87	897	**1838**
1996	301	154	0	988	122	98	1438	**3102**
1997	349	506	693	2136	196	156	2064	**6098**
1998	394	1320	760	1942	254	318	2801	**7788**
1999	435	1156	937	2564	319	362	3248	**9020**
2000	247	1306	1083	2796	449	540	3875	**10295**
2001	327	1397	1202	3896	549	916	4801	**13088**
2002	360	1646	1467	6076	637	1210	5924	**17319**
2003	483	1899	1561	8599	714	1632	7566	**22454**
2004	837	2057	2286	12414	844	2193	9606	**30238**
2005	1015	2383	2302	14548	1020	2087	17209	**40564**
2006	1381	2734	3203	27370	1278	2764	23125	**61855**
2007	2672	4483	5397	45063	1877	3747	38059	**101297**
2008	2839	6683	6066	30883	2596	4132	46997	**100195**
2009	3103	8537	6804	36511	2697	4525	52021	**114198**
2010	3496	9904	6520	34963	2880	4477	57985	**120226**
2011	4701	12987	6719	30883	3163	4728	65192	**128374**

Table 3. FDI-Stock of Asian Transition Economies (mil.USD)

| YEAR	Arm.	Azer.	Geor.	Kazak.	Kyrgyz.	Taji.	Turkm.	Uzbek.	Total
1992	31	0	n/a	0	0	9	n/a	9	**49**
1993	31	0	18	1271	10	18	79	57	**1485**
1994	41	0	26	1931	48	30	182	130	**2388**
1995	66	330	32	2895	144	40	415	106	**4029**
1996	84	957	68	4032	191	58	523	196	**6109**
1997	103	2089	246	5354	274	76	631	363	**9136**
1998	313	3095	512	6505	383	106	693	502	**12109**
1999	421	3605	631	7977	428	113	818	624	**14616**
2000	513	3735	762	10078	432	136	949	698	**17304**
2001	580	3962	879	12917	414	146	1119	781	**20797**
2002	684	5354	1049	15464	470	182	1395	846	**25446**
2003	793	8639	1395	17587	502	213	1621	929	**31680**
2004	1038	11482	1908	22376	504	251	1975	1106	**40640**
2005	1298	11930	2374	25607	518	306	2393	1297	**45723**
2006	1774	11347	3559	32879	1125	645	3124	1471	**55926**
2007	2486	6598	5356	44590	819	1013	3980	2176	**67018**
2008	3521	6612	6762	59035	1062	862	5257	2888	**85999**
2009	3628	7085	7352	71846	1004	993	9810	3730	**105447**
2010	4338	7648	8172	81854	1034	1016	13441	5358	**122861**
2011	5046	9113	9305	93624	1274	993	16627	6761	**142742**

Table 4. FDI-Flows of European Transition Economies (mil.USD)

YEAR	Alba.	Belar.	Bosn.	Cro.	Mold.	Mace.	Ukr.	Total
1992	20	7	0	13	17	0	200	**257**
1993	68	18	0	118	14	0	200	**418**
1994	53	11	0	110	12	24	159	**368**
1995	70	15	0	102	67	9	267	**530**
1996	90	105	0	479	24	11	521	**1229**
1997	48	352	0	543	79	58	623	**1702**
1998	45	191	67	953	76	150	743	**2225**
1999	41	444	177	1452	38	88	496	**2736**
2000	144	119	146	1051	128	215	595	**2398**
2001	206	96	119	1313	103	447	792	**3077**
2002	135	247	265	1071	84	106	693	**2601**
2003	178	172	381	1989	74	113	1424	**4331**
2004	346	164	511	1179	146	324	1715	**4385**
2005	264	305	351	1825	191	96	7808	**10840**
2006	324	354	555	3468	258	433	5604	**10997**
2007	659	1805	1819	4997	541	693	9891	**20405**
2008	974	2181	1002	6180	711	586	10913	**22546**
2009	996	1884	251	3355	145	201	4816	**11649**
2010	1051	1403	230	394	197	211	6495	**9981**
2011	1031	3986	435	1494	274	422	7207	**14849**

Table 5. FDI-Flows of Asian Transition Economies (mil.USD)

YEAR	Arm.	Azer.	Geor.	Kazak.	Kyrgyz.	Taji.	Turkm.	Uzbek.	Total
1992	2	0	0	100	0	9	n/a	9	**120**
1993	1	0	0	1271	10	9	79	48	**1418**
1994	9	22	8	660	38	12	103	73	**925**
1995	25	155	6	964	96	10	233	-24	**1466**
1996	18	591	54	1137	47	18	108	90	**2063**
1997	52	1051	243	1322	83	18	108	167	**3043**
1998	232	1023	265	1161	109	30	62	140	**3023**
1999	122	510	82	1438	44	7	125	121	**2450**
2000	104	130	131	1283	-2	24	131	75	**1875**
2001	70	227	110	2835	5	9	170	83	**3509**
2002	111	1392	160	2590	5	36	276	65	**4636**
2003	121	3285	335	2092	46	32	226	83	**6218**
2004	248	3556	492	4157	175	272	354	177	**9431**
2005	239	1680	453	1971	43	54	418	192	**5050**
2006	453	-584	1170	6278	182	339	731	174	**8743**
2007	699	-4749	1750	11119	208	360	856	705	**10948**
2008	935	14	1564	14322	377	376	1277	711	**19576**
2009	778	473	658	13243	189	16	4553	842	**20752**
2010	570	563	814	10768	438	-15	3631	1628	**18397**
2011	525	1465	975	12910	694	11	3186	1403	**21168**

Graph 1. FDI-Stock European and Asian Transition Economies (billion USD)
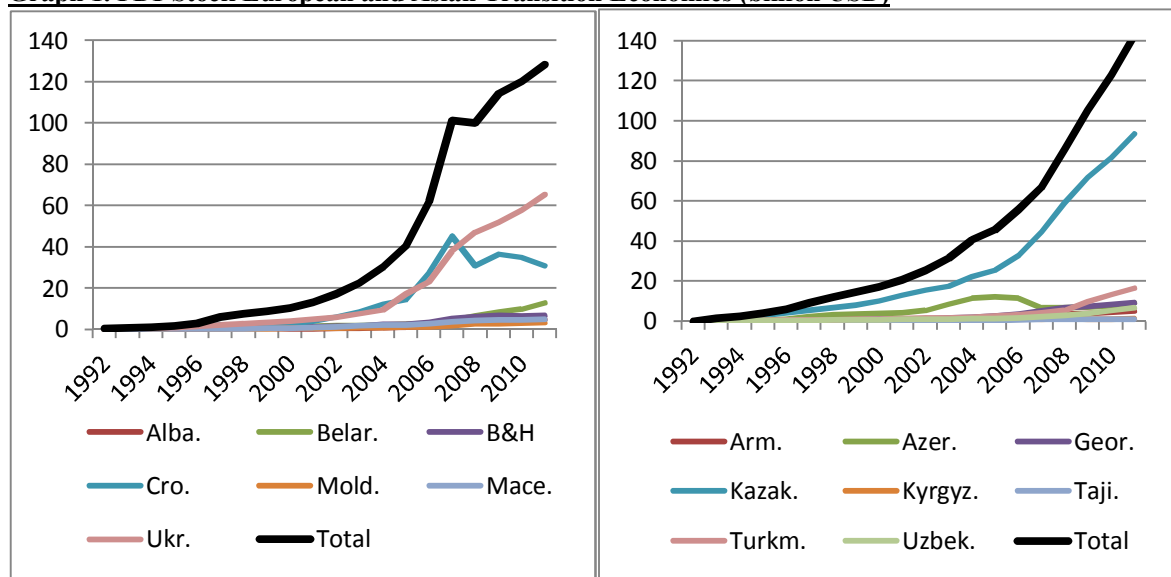
Graph 2. FDI-Flows European and Asian Transition Economies (billion USD)
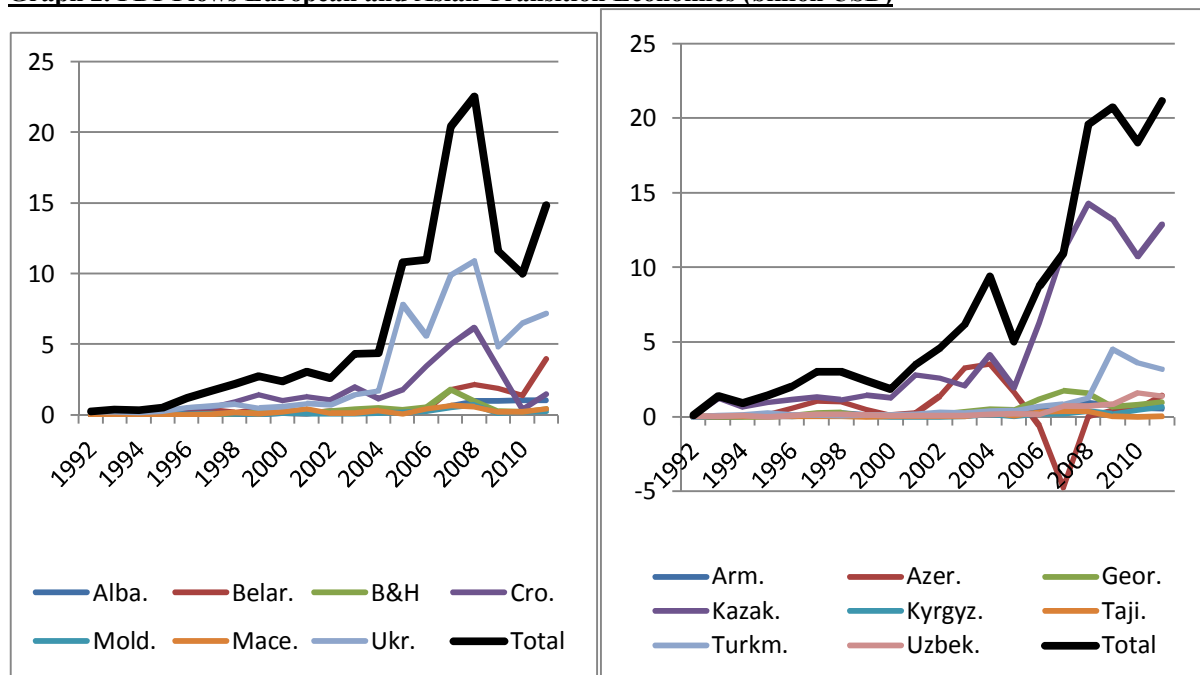

Table 6 and 7 show FDI-Stock per capita and FDI-Flows per capita. FDI-Stock per capita in 1992 is averaged only 7 USD in the European transition economies while it is only 2 USD in the Asian transition economies. FDI-Stock per capita sharply increased and it reached 2323 USD in the European transition economies while it is 1801 USD in the Asian transition economies in 2011. FDI-Flows per capita in year 1992 is averaged only 2 USD in the European transition economies compared to 1 USD in the Asian transition economies. By the year 2011 FDI-Flows per capita accumulated to 234 USD in the European side while it reached 269 USD in the Asian side. Overall, these indicate that the transition economies under study show an overwhelming performance attracting great amount of FDIs over a 20 year period. Overall, the performance of Asian transition economies looks better than the European transition economies considering total amount of FDI-Stock, FDI-Flows and FDI-Flows per capita.

Table 6. FDI-Stock per capita (USD)

	EUROPEAN ECONOMIES								ASIAN ECONOMIES								
	Alb.	Bel.	Bos.	Cro.	Mol.	Mac.	Ukr.	**Ave.**	Arm.	Azr.	Geor.	Kaz.	Kyr.	Taji.	Trkm.	Uzb.	**Ave.**
1992	6	1	0	28	4	..	6	**7**	9	0	..	0	0	2	..	0	**2**
1993	27	2	0	59	4	..	9	**17**	9	0	3	78	2	3	20	3	**15**
1994	44	3	0	83	7	39	9	**27**	12	0	5	120	11	5	44	6	**25**
1995	67	5	0	106	22	44	18	**37**	20	43	6	182	31	7	99	5	**49**
1996	97	15	0	212	28	50	28	**61**	26	122	14	257	41	10	123	8	**75**
1997	113	50	206	462	46	79	41	**142**	33	264	50	346	58	13	146	15	**116**
1998	128	130	218	424	60	159	56	**168**	101	388	105	426	79	18	158	21	**162**
1999	142	114	260	565	77	181	66	**201**	136	448	131	529	87	18	184	25	**195**
2000	80	130	293	621	109	269	79	**226**	167	461	161	674	87	22	211	28	**226**
2001	106	140	321	869	136	454	99	**304**	189	484	188	867	83	23	246	31	**264**
2002	117	165	388	1360	160	598	123	**416**	224	647	227	1038	94	29	303	33	**324**
2003	155	191	413	1930	183	805	159	**548**	259	1031	305	1176	100	34	349	36	**411**
2004	268	208	605	2790	220	1079	203	**768**	339	1354	422	1486	100	39	420	43	**526**
2005	323	243	609	3275	271	1024	367	**873**	423	1389	530	1688	103	47	504	50	**592**
2006	437	280	847	6173	344	1353	496	**1419**	578	1304	801	2147	221	99	651	56	**732**
2007	843	461	1428	10181	511	1830	822	**2297**	809	748	1213	2881	159	153	819	82	**858**
2008	892	690	1607	6990	714	2013	1022	**1990**	1143	739	1539	3771	204	129	1069	108	**1088**
2009	972	886	1806	8277	749	2200	1138	**2290**	1176	781	1681	4535	190	146	1970	137	**1327**
2010	1091	1032	1734	7940	806	2173	1276	**2293**	1403	832	1878	5107	194	148	2666	195	**1553**
2011	1462	1359	1791	7026	892	2291	1443	**2323**	1628	979	2149	5777	236	142	3257	244	**1801**

Table 7. FDI-Flows per capita (USD)

	EUROPEAN ECONOMIES								ASIAN ECONOMIES								
	Alb.	Bel.	Bos.	Cro.	Mol.	Mac.	Ukr.	**Ave.**	Arm.	Azr.	Geor.	Kaz.	Kyr.	Taji.	Trkm.	Uzb.	**Ave.**
1992	6	1	0	3	4	0	4	**2**	1	0	0	6	0	2	..	0	**1**
1993	21	2	0	26	3	0	4	**8**	0	0	0	78	2	2	20	2	**13**
1994	17	1	0	24	3	12	3	**8**	3	3	2	41	8	2	25	3	**11**
1995	22	1	0	22	15	5	5	**10**	8	20	1	61	21	2	56	-1	**21**
1996	29	10	0	103	6	6	10	**23**	6	75	11	72	10	3	25	4	**26**
1997	15	34	0	117	18	29	12	**32**	17	133	49	85	18	3	25	7	**42**
1998	15	19	19	208	18	76	15	**53**	75	128	55	76	23	5	14	6	**48**
1999	13	44	49	320	9	44	10	**70**	39	63	17	95	9	1	28	5	**32**
2000	47	12	40	233	31	107	12	**69**	34	16	28	86	0	4	29	3	**25**
2001	67	10	32	293	26	222	16	**95**	23	28	23	190	1	2	37	3	**38**
2002	44	25	70	240	21	52	14	**67**	36	168	35	174	1	6	60	3	**60**
2003	57	17	101	446	19	56	30	**104**	40	392	73	140	9	5	49	3	**89**
2004	111	17	135	265	38	159	36	**109**	81	419	109	276	35	43	75	7	**131**
2005	84	31	93	411	51	47	166	**126**	78	196	101	130	8	8	88	7	**77**
2006	103	36	147	782	70	212	120	**210**	148	-67	263	410	36	52	152	7	**125**
2007	208	186	481	1129	147	338	214	**386**	227	-538	396	718	40	55	176	27	**138**
2008	306	225	265	1399	196	285	237	**416**	304	2	356	915	72	56	260	27	**249**
2009	312	196	67	761	40	98	105	**225**	252	52	151	836	36	2	914	31	**284**
2010	328	146	61	89	55	102	143	**132**	184	61	187	672	82	-2	720	59	**245**
2011	321	417	116	340	77	204	159	**234**	169	157	225	797	129	2	624	51	**269**

A total of 15 transition economies, 7 countries in Europe and 8 countries in Asia, are studied. The data covers a 20-year period from the year 1992 to the year 2011. The variables employed for the analysis included population, FDI-Stock, FDI-Stock per capita, FDI-Flows, FDI-Flows per capita, GDP, GDP per capita, exports, exports per capita and imports, imports per capita. A total of 2400 observations is utilized in a number panel regression analysis. The model 1 presented below states that FDI-Stock is a function of GDP, export and import variables. A panel data set is formed for countries for the 20 year time period. Then, a set of panel regressions are run.

$$LFDISTOCK_{it} = \alpha_{it} + \beta_{1i}LGDP_{it} + \beta_{2i}LEXPORT_{it} + \beta_{3i}LIMPORT_{it} + u_{it}$$

Where i represents each transition economy (a total of 15 economies), t represents each year (a total of 20 years), $LFDISTOCK_{it}$ represents the log of FDI-Stock, $LGDP_{it}$ shows the log of GDP, $LIMPORT_{it}$ represents the log of imports, $LEXPORT_{it}$ represents the log of exports, α_{it}, β_{1i}, β_{2i}, and β_{3i} show the sensitivity of variables of the equation and u_{it} shows the regression error. The Model 1 is estimated for European transition economies, Asian transition economies and all transition economies, separately.

The Model 2 presented below is a Panel-VAR regression equation. Panel-VAR employs endogenous variables and presumes all variables independent. Each lagged variable is explained by the lagged value of another variable. This model is flexible since it does not require any causality among variables.

$$LFDISTOCK_{it} = \alpha_{it} + L_1 LGDP_{it-k} + L_2 LEXPORT_{it-k} + L_3 LIMPORT_{it-k} + u_{it}$$

Where i represents each transition economy (a total of 15 economies), k represents the length of lag, t represents each year (a total of 20 years), $LFDISTOCK_{it}$ represents the log of FDI-Stock, $LGDP_{it}$ shows the log of GDP, $LIMPORT_{it}$ represents the log of imports, $LEXPORT_{it}$ represents the log of exports, α_{it}, L_1, L_2, and L_3 show the sensitivity of variables of the equation and u_{it} shows the regression error. The Model 2 is estimated for European transition economies, Asian transition economies and all transition economies, separately.

5. Empirical Findings

Panel data series of the underlying variables are initially tested for unit root. Apperantly, all variables are non-stationary in level. Therefore, the logarithm of each variable is calculated and tested again for the unit root. Table 8 shows the results of the later unit root test. Hadri (2000), Levin-Lin-Chue (2002) and Im-peseran-Shin (2003) tests are performed for unity in all panel data series. The results inclined that the log values of all variables are stable at 1% significant level.

Table 8. Panel Unit Root Test

Variables	Hadri (2000)	LLC (2002)	IPS (2003)
Log FDI Stock	41.262*(0.000)	-6.619* (0.000)	-4.045* (0.000)
Log GDP	38.287* (0.000)	-7.515* (0.000)	-2.869* (0.000)
Log EXPORT	34.056* (0.000)	-2.403* (0.008)	-7.299* (0.000)
Log IMPORT	28.353* (0.000)	-5.330* (0.000)	-8.363* (0.000)

* 1% significant, ( ) p values.

Before exercising a set of panel regressions for model 1, the autocorrelations among the explanatory variables are checked. Wooldridge (2002) test is applied to measure the first degree autocorrelations in the panel data set. The results show a F value of 532.12 and p-probablity of 0.000 and some serial correlations in the error terms. Then, Breusch Pagan (1979), Breusch Pagan/Cook-Weisberg LM and White's (1980) tests are applied to chech for the existance of conditional variances. The Model 1 is initially run for a linear regression. The results of the linear regression are used for Breusch Pagan (1979), Breusch Pagan/Cook-Weisberg LM and White tests presented in Table 9 below. The test results suggest the existence of autocorrelations and conditional variances. Finaly, White's cross section coefficient covariance method is applied on the panel data set to overcome aoutocorrelations and conditional variances.The results of panel regression analysis are presented in Table 10 for model 1. Hausman test shows whether the coefficients in the model are statisticaly different from each other in terms of random or fixed effects. The test results support that a fixed effect for all sampling and Asian countries, and a random effect for European countries exist.

Table 9. Conditional Variance Tests

	Breusch-Pagan LM	Breusch Pagan/ Cook-	White's Test
Chi-Square	187.564* (0.000)	4.610 * (0.032)	23.525* (0.005)

* 1% significance, ( ) p-probabilities,

Table 10. Panel Regression Results for Model 1

	All Transition Economies		European Transition Economies		Asian Transition Economies	
Dependent Variable:Log FDI Stock	Fixed Effect	Random Effect	Fixed Effect	Random Effect	Fixed Effect	Random Effect
Constant	1.2735 (0.1480) (0.2207)D-K	1.1641 (0.1320)	1.5365 (0.1280)	1.3657 (0.2020)	-18.7193* (0.0000) (0.0002)D-K	-7.6533* (0.0000)
Log GDP	1.1334* (0.0000) (0.0013)D-K	1.0279* (0.0000)	1.3197* (0.0000)	1.2973* (0.0000)	-1.4286* (0.0010) (0.0103)D-K	-0.0168 (0.9540)
Log EXPORT	0.1501 (0.4960) (0.6004)D-K	0.2369 (0.2320)	0.4050 (0.3870)	0.3113 (0.4790)	0.4104 (0.2250) (0.4307)D-K	-0.1957* (0.5310)
Log IMPORT	0.5113** (0.0130) (0.0716)D-K	0.4447* (0.024)	0.1409 (0.7170)	0.2301 (0.2020)	2.7528* (0.0000) (0.0005)D-K	1.9828 (0.0000)
R^2 within	0.5875	0.5871	0.6560	0.6557	0.7293	0.7017
R^2 between	0.7155	0.7286	0.4982	0.5078	0.6897	0.8223
R^2 overall	0.6169	0.6215	0.6094	0.6140	0.5589	0.6833
Hausman	6.82** (0.0779)FE		1.50 (0.6820)RE		20.10 (0.0002)FE	
Chi-Sq	-	419.19* (0.0000)	-	178.00* (0.0000)	-	264.63* (0.0000)
F	131.03* (0.0000)	-	57.84* (0.0000)	-	97.88* (0.0000)	-

* 1% significant, ** 5% significant, ( ) p values
D-K: p values of Driscoll-Kraay standard errors.

The relationship between FDI-Stock and GDP is statisticaly significant and the coefficiant is equal to 1.13 for the panel regression of all countries. This inclines that a 1% increse in GDP insreases the FDI-Stock by 1.13%. The coefficient of export for all countries group is also statically insignificant. The random effect model for the Euroean transition economies and the fixed effect model for the Asian transition economies show a statistically significant relationship between FDI-Stock per capita and GDP per capita. The relationsip is positive and has a coefficient of1.29 for the European countries while it is negative and has a coefficient of 1.42 for the Asian countries. The coefficient of export per capita is positive but not significant for either Europen or Asian countries. The coefficient of import is significant for the full sample, European and Asian countries. The relationship between FDI-Stock and import is statisticaly significant and has a coefficient of 2.75 for the Asian countries.

The Model 2 employed for a Panel-VAR regression analysis is presented below. Panel-VAR requires all time series to be stable. The logarithms of all variables are alraedy tested for stability for Model 1. Table 11 shows the estimated coefficients of four variables for model 2; logGDP, logFDISTOCK, logEXPORT and logIMPORT. The shocks to FDISTOCK increase FDISTOCK itself after the first year for the full sampling, European and Asian transition economies. The optimal lag length of the model is defined as 3 using AIC (Akaike Information Criterion).

Table 11. Results for Panel-VAR model with Lags

Helmert Trans. Logarithm	FDISTOCK$_{t-1}$	GDP$_{t-1}$	EXPORT$_{t-1}$	IMPORT$_{t-1}$	FDISTOCK$_{t-2}$	GDP$_{t-2}$	EXPORT$_{t-2}$	IMPORT$_{t-2}$	FDISTOCK$_{t-3}$	GDP$_{t-3}$	EXPORT$_{t-3}$	IMPORT$_{t-3}$
All Countries												
FDISTOCK	0.8840*** (15.1233)	0.4567 (0.9126)	-0.4065 (-1.1406)	-0.0511 (-0.1641)	-	-	-	-	-	-	-	-
FDISTOCK	1.3364 (1.3218)	6.0745 (0.3294)	-3.3064 (-0.3228)	-3.2228 (-0.3325)	0.1305 (0.1277)	-1.4813 (-0.3384)	1.8050 (0.3391)	-1.4668 (-0.3334)				
FDISTOCK	3.6974 (0.0704)	49.4431 (0.0492)	-21.5534 (-0.0491)	-33.4188 (-0.0493)	-3.0807 (-0.0553)	-23.7297 (-0.0484)	8.0343 (0.0483)	7.8795 (0.0487)	2.5294 (0.0514)	3.2914 (0.0457)	5.8795 (0.0504)	-4.4479 (-0.0501)
GDP	0.0715 (0.6592)	1.8042** (2.0916)	-0.07946 (-1.5422)	-0.01552 (-0.2463)	-	-	-	-	-	-	-	-
EXPORT	0.1406 (1.4695)	1.3239 (1.6294)	0.0318 (0.0578)	-0.7105 (-1.3323)	-	-	-	-	-	-	-	-
IMPORT	0.1563 (1.5375)	1.4751* (1.7004)	-0.9195 (-1.5534)	0.0439 (0.0777)	-	-	-	-	-	-	-	-
European Countries												
FDISTOCK	0.8616*** (19.8678)	0.2383 (0.7368)	-0.02697 (-0.7229)	0.1177 (0.7324)	-	-	-	-	-	-	-	-
FDISTOCK	0.9577*** (5.3240)	-1.0442 (-1.1226)	0.6697 (0.8955)	0.4328 (0.8230)	-0.2685* (1.8901)	0.2944 (1.0112)	-0.3312 (-0.6908)	0.3488 (0.7999)	-	-	-	-
FDISTOCK	0.9989*** (6.4690)	-0.8748 (-1.3800)	0.4200 (0.7187)	0.5436 (1.3076)	-0.1873 (-1.0782)	0.9055*** (2.5519)	-0.3051 (-0.6603)	-0.1820 (-0.4776)	-0.0323 (-0.2751)	-0.3346* (-1.7779)	0.0629 (0.2606)	-0.0073 (-0.0350)
GDP	0.0076 (0.1513)	1.2844*** (4.1484)	-0.4436* (-1.7391)	0.1580 (0.9443)	-	-	-	-	-	-	-	-
EXPORT	0.1437* (1.6522)	1.1077*** (2.4742)	0.0991 (0.2649)	-0.4218* (-1.7877)	-	-	-	-	-	-	-	-
IMPORT	0.1700 (1.5117)	1.3855** (2.3480)	-0.9517** (-2.0329)	0.3379 (1.0942)	-	-	-	-	-	-	-	-
Asian Countries												
FDISTOCK	0.7928*** (6.1801)	-1.1096 (-0.9771)	0.4198 (0.7469)	0.7569 (0.7622)	-	-	-	-	-	-	-	-
FDISTOCK	1.1283*** (7.2739)	0.3176 (0.1116)	-1.1439 (-0.1622)	-0.1079 (-0.0857)	-0.2189 (-0.8496)	-0.2187 (-02793)	0.2990* (1.9518)	-0.2236 (-0.6381)	-	-	-	-
FDISTOCK	1.0985*** (7.2111)	1.2738 (0.6730)	-0.3990 (-0.9249)	-0.6134 (-0.4480)	-0.3689** (2.0582)	-0.1962 (-0.2093)	-0.0972 (-0.4197)	0.0628 (0.1113)	0.2123* (1.8827)	-0.1267 (-0.2393)	0.3049* (1.9164)	-0.3917 (-0.5512)
GDP	-0.1311 (-0.9366)	-0.8995 (-0.7027)	0.8828 (1.2675)	1.0611 (1.2092)	-	-	-	-	-	-	-	-
EXPORT	-0.1028 (-0.6487)	-1.5114 (-1.0070)	1.6672** (2.0246)	0.8337 (0.8621)	-	-	-	-	-	-	-	-
IMPORT	-0.0424 (-0.3672)	-0.8772 (-0.8259)	0.5252 (0.9815)	1.2568* (1.7373)	-	-	-	-	-	-	-	-

*** %1, ** %5, * %10, ( ) t statistics

The shocks with 1-year lag on GDP cause an increase on GDP itself for the full sampling and the European transition economies. The shocks with 1-year lag on GDP also cause an increase in exports and imports for the European transition economies. The shocks with 1-year lag on exports and imports cause an increase in exports for the Asian transition economies. Applying the 2-year lag on the variables, it is viewed that the current year FDI-Stock is affected by the previous FDI-Stock values in both the European and Asian transition economies. The shocks with 2-year lag on exports cause an increase in FDI-Stock for the Asian transition economies. Applying the 3-year lag on the variables, it shows that the effects of shocks tend to die out. Exports and FDI-Stock with a 3-year lag affect the current FDI values for the Asian economies while only GDP with a 3-year lag can affect the current FDI of the European economies.

4. Conclusions

This empirical study investigates the foreign direct investments to transition economies located in Asia and Europe. Seven countries from Europe and eight countries from Asia are studied for a 20-year period from 1992 to 2011. Bu using a panel regression analysis, the relationships between FDI-Stock and GDP, export and import variables is examined. The results support that there is a strong relationship between FDI and GDP. A similar strong relationship also exists in between FDI-Stock per capita and GDP per capita. This may help to state that any increase in GDP will induce more FDI and any increase in GDP per capita will induce even more FDI for these transition economies. The effects of exports on FDI are insignificant while a strong effect of imports inducing more FDI exists. The results show that the transition economies in the Asian side look to perform better for accumulating much larger sum of foreign direct investments while the transition economies in the European side are more successful for having a higher foreign direct investments per capita.

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