

Greek Direct Investments in Turkey: The past decade and the future¹

Panagiotis Kontakos²

*Department of International and European Studies, University of Macedonia,
Thessaloniki, Greece*

Abstract

Greece is the third-largest foreign direct investor in Turkey. Furthermore, the invested amount is the highest among the countries in the region where Greek firms are present. The purpose of the paper is twofold: firstly, to analyze the anatomy of the current Greek direct investments in Turkey, the sector and geographic distribution, the major companies, and the recent trends and developments; Secondly, through a questionnaire survey addressed to the Greek investors in Turkey, to identify the set of the motivations and entry barriers, the investment profile of the entrants, and the prospects of doing business in Turkey as a Greek investor. Considering that the Survey is currently in progress only the conceptual structure of the questionnaire is discussed in the current draft. The shortage of related or updated academic research focused on the Greek direct investments in Turkey is expected to render special value in the subject.

Keywords: FDI, survey, questionnaire, globalization, Greece, Turkey

1. Introduction

The positioning of the Greek businesses at the forefront of the foreign direct investment of South Eastern Europe during the last decade has placed them in a position to take advantage of a completely new set of investment prospects in the region, and profoundly shape the economic geography of these neighbouring

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² Corresponding author: Ph.D Candidate, Department of International and European Studies, University of Macedonia, Economic and Social Sciences, 156 Egnatia Street, GR-540 06 Thessaloniki, Greece, Email: pkontakos@windowlive.com

transition countries (Bastian, 2004). Geographical proximity is a central parameter driving Greek direct investment in the Balkans. By contrast, the track record of Greek investments in Turkey is shaped by a more instinctive set of parameters despite the vicinity of both countries.

At the same time, the paramount importance of Turkey's accession to EU is today deeply in the focus of many discussions in both sides of the Atlantic, and within the context of many diverse backgrounds, bearing, not only economic, but also historical, cultural, social, religion and geo-political features and dimensions.

The aforementioned factors have motivated this paper. The shortage of related or updated academic research renders additional value in the subject. Sources of data include the Economic & Commercial Offices, of the Consulate General of Greece in Istanbul and the Embassy of Greece in Ankara, the Undersecretariat Turkish Treasury, and the Greek investors.

The paper is structured as follows: First, the phases of internationalization of Greek firms are examined to provide more perspective in the current status of the Greek-Turkish business relations. Second, recent foreign direct investment (FDI) trends in Turkey with focus on the Greek direct investment are presented. Third, a short literature review follows. Fourth, the Questionnaire survey approach to determine the incentives and barriers for Greek Investors in Turkey is analyzed. Results are not presented at this stage as the survey and the collection of questionnaires is in progress and expected to be completed by end July 2011. In the last section preliminary conclusions are discussed.

2. The phases of internationalization of the Greek firms

The latest historical internationalization of Greek firms coincides mainly with the collapse of the socialist regimes of the South Eastern Europe (SEE) and Central and Eastern Europe (CEE) and is a subject that has recently started to be examined in the academic literature.

The neighboring of Greece to the north with inaccessible Socialist countries had almost turned Greek entrepreneurs in isolation until the end of the 1980s. As a result the vast majority of the foreign trade was realized in the form of bilateral trade agreements.

Kalogerisis and Lambrianidis (2010) explore the internationalization of Greek firms in a two period framework: in the first period (1990-1998) the internationalization of Greek firms is almost exclusively a regional phenomenon. In particular, 95% of the Greek outward direct investment flows were directed towards the Balkans - mainly Bulgaria, Romania, Albania and FYROM. The majority of the parent entities of Greek investors were personal or family companies, whereas after the mid 90s Greek state owned firms started showing a considerable interest for the region. During the second period (1998-today), which is characterized with the socio-political stabilization of these countries, the attributes of the Greek direct investment change and the region becomes progressively more attractive to the larger Greek firms with longer-term focus.

Turkey, on the other hand was, and remains to a considerable extent, equally inaccessible for very different reasons. The fact that only a limited number of Greek companies were established in the period 1954-1999, in total amounting to 45, dictates that the internationalization phases previously described have not evolved.

It can be supposed that a first phase starts to emerge in May 2004, with the first official visit in Greece since 1988 of the Turkish PM Recep Tayyip Erdogan. This new phase was further supported by Greek direct investment in the Turkish financial sector in 2006, which in the case of Turkey acts as a driving force that encouraged more companies to be established.

Today, the entrance of Greek firms in the Turkish market can be described as one that marks the latest, more recent stage on their internationalization curve in the regional SEE and CEE mosaic. Moreover, the Greek foreign direct amount in Turkey has reached in 2010 \$6.5 bn and is the largest amount invested among the countries in the region - the second is Romania where the estimated respective amount in 2010 stood at approximately \$5.0 bn.

Accordingly, business between Greece and Turkey gained impetus due to the improvement in political ties over the last decade, which has encouraged the signing of a bilateral investment treaty (BIT) in 2001 and 22 bilateral agreements and cooperation protocols over transport, education, energy, environment, and has leveraged the volume of trading relations between the countries (table 1).

Table 1. External trade Turkey-Greece

Value (Mio euro)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010/8
Turkish Exports	476	533	622	814	939	901	1.274	1.648	1.646	1.171	722
Turkish Imports	467	298	334	378	477	582	834	692	784	808	620
Trade balance	9	235	288	436	462	319	440	956	862	363	102
Total trade	943	831	956	1.192	1.416	1.483	2.108	2.340	2.430	1.979	1.342

Source: Eurostat, May 2011

3. Greek and Foreign direct investment trends in Turkey

Inward FDI to Turkey has been assisted by increasing global FDI flows in the last decade and the increasing share of flows directed towards developing (as Turkey) and transition economies. In particular, developing and transition economies, for the first time in 2010, absorbed more than half of global FDI flows (Kontakos, 2011).

Overall, a significant improvement of inward FDI in Turkey has taken place since 2002. In 2010 FDI inflows were increased annually by 6% to \$8.9 bn. Cumulative FDI inflow (net) in 2010 reached \$107 bn from \$15 bn in 2002-1954. The number of companies with foreign capital participation reached 25,837 from 4,869 respectively. FDI inflows in the Turkish financial intermediation sector are the main contributor and comprised 39% of the totally attracted FDI inflows for equity capital investments in the period 1954-2010 followed by the manufacturing sector with 19%. Also, acquisitions of real estate by foreigners are substantial and reached \$17.2 bn in the period 2003-2010.

Until the end of 2010, 152 countries had invested in Turkey (table 2). In the period 2002-2010 Netherlands ranked first with invested capital of \$14.1 bn, followed by USA \$6.7 bn and Greece \$6.5 bn.

Table 2. International Direct Investment Inflow by Country, Turkey

Countries	(Mio USD)									
	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total 2002-10
EU-27	455	565	1027	5006	14489	12601	11076	4927	4762	54908
<i>Netherlands</i>	72	51	568	383	5069	5442	1343	718	501	14147
<i>Greece</i>	0	24	38	11	2791	2360	775	59	424	6482
<i>France</i>	22	121	34	2107	439	367	679	617	589	4975
<i>Germany</i>	86	142	73	391	357	954	1237	497	498	4235
<i>United Kingdom</i>	8	141	126	166	628	703	1335	350	233	3690
<i>Italy</i>	241	1	14	692	189	74	249	314	54	1828
<i>Other European Countries</i>	26	85	174	1267	7807	5061	6233	2431	2887	25971
Other European Countries (Excl EU-27)	13	11	6	1646	85	373	291	305	243	2973
<i>U.S.A.</i>	2	52	36	88	848	4212	868	260	318	6684
<i>Canada</i>	7	6	61	26	121	11	23	52	56	363
Central-South America And Caribbean	0	0	0	8	33	494	60	19	5	619
Africa	0	0	0	3	21	5	82	2	0	113
Asia	70	60	60	1756	1927	1405	2345	673	873	9169
Near And Middle Eastern Countries	5	1	54	1678	1910	608	2184	361	437	7238
<i>Gulf Arabian Countries</i>	5	0	43	1675	1783	311	1963	209	371	6360
<i>Iran</i>	0	0	0	0	12	3	25	30	42	112
<i>Israel</i>	0	0	0	1	112	98	100	44	8	363
<i>Other Near & Middle Eastern Countries</i>	0	1	11	2	3	196	96	78	16	403
Other Asian Countries	65	59	6	78	17	797	161	312	436	1931
Other Countries	24	2	0	2	115	36	2	12	3	196
Total	571	696	1190	8535	17639	19137	14747	6250	6260	75025

Source: Central Bank of the Republic of Turkey

At the end of 2010, 439 companies with Greek originated capital are officially registered and Greece ranks in the 14th position among the 152 countries in terms of the number of companies. As such, the average invested capital per (registered) Greek company was \$15 mn and is higher than the respective figures of \$8 mn for the Netherlands and \$6 mn for USA³.

The number of Greek companies registered in Turkey (table 3) can be considered very low in comparison with those in SEE, particularly in Bulgaria and Romania. Although it was not possible to identify the number of active companies at this stage of the research, using the experience from other Balkan countries (Bitzenis, 2003, Kalogerisis and Lambrianidis, 2010), and the availability of the contact details of the companies used in the Questionnaire survey, the ratio of active to registered companies can be estimated at approximately 35-45%, or approximately 150-190⁴.

³ A better representation of the average invested capital per country can be achieved if the concentration of total invested capital in few companies is removed.

⁴ Estimate with high degree of error due to the variation of this ratio among different countries.

This can be compared with the total number of active Greek affiliates of 3,000 in the Balkans as estimated by Bitzenis (2003).

Table 3. Number of Companies with foreign capital in Turkey- TOP 15

Countries	1954-2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total 1954-2010
Germany	836	54	126	315	445	513	519	552	491	469	4320
United Kingdom	299	29	61	117	281	435	414	235	202	161	2234
Netherlands	405	39	57	124	183	250	241	258	146	167	1870
Iran	283	25	97	115	117	98	96	133	172	419	1555
Russia	154	11	43	98	107	102	145	195	129	206	1190
U.S.A.	274	33	44	82	88	107	117	113	115	106	1079
France	239	14	34	66	63	101	112	98	103	86	916
Azerbaijan	75	10	34	50	51	80	116	127	162	170	875
Italy	203	14	29	63	60	89	78	100	89	95	820
Iraq	133	25	39	45	55	62	99	82	107	108	755
Denmark	36	4	3	23	104	128	104	50	45	35	532
Austria	91	7	11	34	46	56	56	90	75	64	530
Switzerland	179	11	19	28	32	45	60	44	50	46	514
Greece	63	10	27	47	52	34	44	49	55	58	439
Belgium and Luxembourg	74	6	18	33	44	61	75	49	32	30	422
<i>Other Countries</i>	1253	122	303	520	701	733	990	953	924	1086	7585
Total	4597	414	945	1760	2429	2894	3266	3128	2897	3306	25636

Source: Undersecretariat of Treasury

As depicted in table 4 that follows 97% of the Greek companies has been established in 10 major cities which are mainly located in the Marmara and Aegean regions. Specifically, Istanbul has attracted 66% of the companies, followed by Izmir (11%) and Bursa (8%). In terms of sector allocation, wholesale and retail trade includes 37% of the companies, followed by the manufacturing (20%) and transport, storage and communications sectors (10%).

Table 4. Greek FDI in Turkey, 2010 - Regional Distribution of Companies by Sector

Top 10 cities	Istanbul	Izmir	Bursa	Antalya	Mugla	Ankara	Edirne	Kocaeli	Aydin	Balikesir	Tekirdag	Other	Total
Sector	Κων/πολη	Σμύρνη	Προύσα	Απόλεια	Μούγλα	Άγκυρα	Ανδρ/πολη	Κοτσσελι	Αϊδινιο	Παλαιό-καστρο	Ραιδεστός		
Agriculture, hunting and forestry and fishing	5	4	1	2			1			1			14
Mining and quarrying	3	3										1	7
Manufacturing	50	13	7	1		3	1	5			1	5	86
<i>Food products, beverages and tobacco</i>	12	7		1		1						1	22
<i>Textiles</i>	5		2				1				1		9
<i>Rubber and plastic products</i>	1	2	2										5
<i>Chemical products</i>	8	2						2				2	14
<i>Leather and related products, wearing apparel</i>	3											1	4
<i>Wood and paper products</i>	1												1
<i>Furnitures</i>	5	2	3					1				1	12
<i>Machinery and equipment n.e.c.</i>	4							1					5
<i>Motor vehicles and other transport equipment</i>	3												3
<i>Publishing, printing and reproduction of recorded media</i>	3					1		1					5
<i>Other Manufacturing</i>	5					1							6
Electricity, gas and water supply	12	1									1		14
Construction	13	2	1	2								1	19
Wholesale and retail trade	107	17	23	5	1	3	1			2	1	3	163
Hotels and restaurants	6	2			9	1	1		1				20
Transport, storage and communications	31	4			3		1		1	1		1	42
Financial intermediation	5												5
Real estate, renting and business activities	27	1		2		1			2			1	34
Health and social work	15	1	2										18
Other community, social and personal service activities	15			1		1							17
Total	289	48	34	13	13	9	5	5	4	4	3	12	439

Source: Undersecretariat of Treasury, Republic of Turkey, P. Kontakos

The two major deals for which the transaction amount has been released are the acquisition in the period 2006-2008 of a cumulative 90.1% stake in Finansbank by the National Bank of Greece for \$ 5,271 mn, and the acquisition in 2006 of 70% in Tekfenbank by Eurobank EFG for \$182 mn. These two acquisitions comprise 84% of the total Greek invested capital. Additional major deals or establishments of new subsidiaries as released by the Economic and Commercial Office, in the Embassy of Greece in Ankara, are presented in alphabetical order in the table 5 below.

Table 5. Major Greek Investors in Turkey

#	Target / Established entity	Buyer	Stake %
1.	Adocim Cimento Beton Sanayi ve Ticaret AS.	Titan S.A.	50
2.	Akdeniz Mineral Kaynaklari A.Ş.	Grecian Magnesite S.A.	100
3.	Akdeniz Yaş Gıda ve Konservecilik San. ve Tic. Şti.	P.E..T. Hellas Ltd. – Nestos	100
4.	Alunef Alüminyum San. A.Ş.	Alumil – Mylonas S.A.	100
5.	Assos Commercial İth. İhr. Gıda Paz. Ltd. Şti	Κοτρόσιος Ιωάννης	50
6.	Boromik Tütün Sanayi ve Tic. A.Ş.	Leaf Tobacco A. Michailidis Group	50
7.	Bronze İtalyan Banyo Mücevherati Tic. Ltd. Şirketi	Bronze Art (Dededimos Group)	100
8.	Eurodrip Damla Sulama ve Tic. A.Ş.	Eurodrip S.A.	98
9.	Finansbank	National Bank of Greece	90,1
10.	Gantek Bilgisayar Danışmanlık Ser. Tic. A.Ş.	Intracom IT Services S.A.	20
11.	Genesis İlac ve Sağlık Ürünleri A.Ş.	P.N. Gerolymatos S.A.	80
12.	Global Tanitim	Civitas	-
13.	Golden Agent II Tekstil Tic. A.Ş.	Golden Agent S.A.	100
14.	İlnak Su Ürünleri San ve Tic. S.A. Miramar San. ve Tic. A.Ş.	Nireus S.A.	100
15.	Inteltek internet Teknoloji Yatırım ve Danışmanlık Tic. A.Ş.	Intralot S.A.	45
16.	Kardalco Kabuklu Kuruyemiş Gıda Dah. San. A.Ş.	Cardiko – C. Cardassillaris & Sons S.A.	50,01
17.	Kaynak İş Sistemleri A.Ş.	Χαριτόπουλος Κυριαζής	100
18.	Kleeman Asansör S.A.	Kleeman Hellas S.A.	70
19.	Lifestyle Agent Tekstil Dış Ticaret A.Ş.	BSB S.A.	100
20.	Linomedia Baskı - Yayıncılık Sistemleri San. ve Tic. A.Ş.	Linomedia S.A.	80
21.	Mardav A.Ş.	Polychem Plastics S.A.	25
22.	Merko Gıda San. ve Tic. A.Ş.	Delta Nomikos S.A.	39
23.	Metropolitan Gıda San. Tic. Ltd. Şti.	Makan S.A.	50
24.	Moda Bagno İç ve Dış Tic.İnş. Tur. San. A.Ş.	Moda Bagno-Interni-Ververis	100
25.	Pabalk Maden A.Ş.	S & B Industrial Minerals S.A.	99
26.	Palaplast İzmir Plastik San. Tic. A.Ş.	Palatlana Bros – Palaplast S.A.	75
27.	Profilas Sanayi Mamulleri İth. Ve İhr. Ltd. Şti.	Antzoulatos Group	100
28.	Ridenco Tekstil San. Ve Tic. A.Ş.	Ridenco S.A.	100
29.	Sarantis Türkiye A.Ş.	Sarantis S.A.	85
30.	Sega Bakir SA,	Halkor S.A.	50
31.	Senkroma Boyar Madde Sanayi ve Ticaret A.Ş.	Crete Plastics S.A.	90
32.	TCC The Chair Company	Sato S.A.	100
33.	Tekfenbank	EFG Eurobank Group	70

Source: Economic & Commercial Office, Embassy of Greece, Ankara April 2009

4. Literature review of research regarding Greek direct investment in Turkey

Papadopoulos (2008) refers to the post-1999 expansion in Greek-Turkish economic exchanges that ‘has led to hopes in some quarters of a ‘decoupling’ of relations from the constrictive bonds imposed by traditional bilateral politics’. He argues that ‘the prospects for trade, tourism, energy cooperation and FDI, though positive and

therefore supportive of a more benign climate, are unlikely by themselves to overturn long-held foreign-policy priorities in either country'. In my view, this is among the most comprehensive studies, encompassing in a balanced approach both the current political and economic backgrounds and arguments, and facilitates the understanding of the current impediments in the future development of the bilateral economic relationships between Greece and Turkey, including unilateral or mutual direct investments.

Chatzoudes *et al.* (2007) also examine the Greek direct investment in Turkey mainly within a regional perspective. Empirical evidence from 17 Greek investors is provided through a questionnaire survey carried in summer 2004.

Bastian (2004) explores the reasons why Greek companies have identified and taken advantage of the investment opportunities in the region and describes, among others, geographical proximity as a key parameter driving Greek FDI in the Balkans, contrasting the case of Turkey where vicinity does not appear applicable.

Overall the subject of Greek direct investment in Turkey in the empirical evidence or other academic research is either non-explored, or non-updated, or partially or indirectly covered in different papers focused on Greek investment in the SEE region, or finally overarched by the political dimension of the Greek-Turkey foreign relations.

5. Incentives and barriers for Greek Investors in Turkey: a Questionnaire survey approach

A comprehensive literature review of questionnaire surveys regarding the FDI determinants in both the Central and East European region (CEE) and especially in the SEE region has been conducted by Bitzenis (2006, 2007).

Based on this review a Questionnaire has been constructed. The conceptual framework of the questionnaire is derived from the Eclectic Paradigm, or the "OLI" approach, developed by Dunning (1993). The formulation of the questionnaire regarding the motivations and obstacles is as formulated by Bitzenis (2007) in a questionnaire survey conducted to identify the motivations for and obstacles to foreign direct investment in Bulgaria during its transition period (post communist decade of the 1990s and especially after 1997); also the specific motives behind Greek entrepreneurs' interests in FDI projects in Bulgaria were considered (Bitzenis, 2006).

The purpose of the Questionnaire is to extract valuable information regarding the characteristics of FDI in Turkey. In particular, to identify the incentives and entry barriers, the business conditions, and the competitive advantages of doing business in Turkey as a Greek Investor.

The Questionnaire has been enhanced with questions that aim to provide a wider perspective in the issue by incorporating the roles of the current economic crisis in Greece, the prospect of Turkey's EU accession and the foreign relations between the two countries, and assess their impact in formulating the investment decisions of the Greek entrepreneurs.

From the total number of 439 Greek originated companies that are officially registered in Turkey at the end of 2010 the contact details for approximately 190

companies have been found. The Survey is in process and will be conducted in the period 1 May-30July, 2011 through e-mail and telephone communication. Depending on availability, the survey will be supplemented with information publicly announced in press releases or from related presentations to investors of the companies. Currently 21 replies have been received, and the targeting sample is 40-50, with emphasis on the major investors that were aforementioned.

The Questionnaire includes in total 15 multiple choice questions which are listed in table 6 that follows (only the questions are mentioned below):

Table 6. QUESTIONNAIRE SURVEY
Barriers and Incentives to Foreign Direct Investments (FDI) in Turkey
1. What is your business about?
2. Indicate the percent of Greek origin ownership of the ordinary shares or voting rights
3. Which market(s) do you prefer to serve from Turkey?
4. In what way your company entered the Turkish market? When (year):
5. Which factors discourage today the entrance in the Turkish market (<i>Obstacles</i>)?
6. Which factors encouraged your entrance in the Turkish market (<i>Incentives</i>)?
7. What is the number of your employees in Turkey?
8. Indicate the total invested funds (share capital; loans; cash or reinvested earnings):
9. What are the values of the Annual Turnover and Balance Sheet of your company?
10. Do you plan to increase your investment in Turkey in the next 2 years?
11. Do you utilize any Investment incentives of the Turkish Government?
12. Does the economic crisis in Greece drive your decision to invest in Turkey?
13. Does potential entry of Turkey to European Union influence your decision to invest?
14. What is your estimate for the future evolution of the relation of Turkey-EU?
15. Do you expect the Greek-Turkish politics to improve in the next 2 years?

Source: P. Kontakos

6. Conclusions

The recent entrance of the Greek investors in Turkey signifies the latest stage of their regional internationalization. At a first sight, their current involvement in the Turkish market may seem anemic in terms of the number of investors, particularly in comparison with other precedent SEE and CEE countries, or considering the market size and proximity of Turkey.

In contrast, Greek direct investment could be characterized as bold and conscious if the invested amount is considered. Beyond the concentration in two major investments, it should be noticed that Greece it ranks in the third position in terms of invested capital among 152 countries. Also, the Greek invested amount in Turkey is the highest among that committed to other countries in the region.

The Greek-Turkish case does seem to support the view that an improvement in political relations (post-Helsinki, 1999) can bring in its wake an expansion of economic ties. The emerging perspectives of the new Turkish foreign policy orientation, and the light they shed on the cross-road of Greek-Turkish foreign relations, are therefore expected to formulate the short and medium term willingness of Greek companies to further expand in Turkey.

In the current summary, the location and sector profiles of the Greek investment and business activity in Turkey are mainly analyzed. It will be supplemented by a questionnaire survey (currently in progress) that aims to identify the more distinct, and instinctive characteristics, the motivations, and the entry barriers that formulate the investment decision making of Greek entrepreneurs.

References

Bastian, J. (2004). "Knowing your way in the Balkans: Greek foreign direct investment in Southeast Europe", *Southeast European and Black Sea Studies*, 4:3, 458-490.

Bitzenis, A.P. (2003). "The determinants of FDI in transition countries: incentives and barriers based on a questionnaire research: the case of Bulgaria, 1989-2000", in G. Petrakos, A. Kotios, D. Chionis (eds.), *International and monetary aspects of transition in Southeastern Europe*, Volos: University of Thessaly Press, 140.

Bitzenis, A.P. (2006). "Determinants of Greek FDI outflows in the Balkan Region: the Case of Greek Entrepreneurs in Bulgaria", *Eastern European Economics*. 44:3, 79-96.

Bitzenis, A.P. (2007). "Determinants of Foreign Direct Investment: Evidence from Multinationals in the Post-crisis Era of Bulgaria in the Late 1990s", *Southeast European and Black Sea Studies*, 7:1, 83 – 111.

Chatzoudes, D., Arvanitopoulos, C., Dimitriades, E., Karasavvoglou, A.G. (2007). "Greek Foreign Direct Investment (FDI) in Turkey: An Empirical Research", *Proceedings of the 5th International Conference on New Horizons in Industry, Business and Education*, Rhodes, 413-418.

Dunning, J.H. (1993). *Multinational Enterprises and the Global Economy*. Wokingham, Berkshire: Addison Wesley.

Kalogerisis, A., and Labrianidis, L. (2010). "From spectator to walk-on to actor: An exploratory study of the internationalisation of Greek firms since 1989", *The European Journal of Comparative Economics*, 7:1,121-143

Kontakos, P.D. (2011). "The foreign direct investment into perspective: evidence from the Turkish banking sector", *Proceedings of the 2nd International Conference on International Business*, Thessaloniki, unpublished.

Papadopoulos, C.A. (2008). "Greek-Turkish Economic Cooperation: Guarantor of Détente or Hostage to Politics?", *South East European Studies at Oxford*, Occasional Paper 8:08.

FINANCIAL STABILITY AND STRESS TESTING: THE CASES OF CYPRUS AND GREECE

Konstantinos Moutsianas
PhD Student
Aristotle University of Thessaloniki
Dept. of Economics, Division of Business Administration
moutsianas@gmail.com

1. Introduction

The consistency and the stability of the financial system depend to a large extent on the healthy function of the banking sector. The recent financial crisis proved that the irregularities and the turbulences arising from the banks can cause dislocation to entire financial system. Ensuring financial stability and avoiding systemic nature of risks, is directly related to the assessment of the soundness and the resilience of the banking institutions. The need for systematic evaluation of the banking system in an economic era which characterized by high volatility and sharp fluctuations, it has become imperative. For this reason, the process of stress testing has been included in the wider context of monitoring exertion and risk management by supervisory authorities and financial institutions.

One definition for the term stress testing is that describes a range of techniques used to assess the vulnerability of a portfolio to major changes in the macroeconomic environment or to exceptional but plausible events (Blaschke, Jones, Majnoni, Peria, 2004). Stress testing becomes a widely used tool to assess potential vulnerabilities in a financial system. In individual financial institutions, the term describes a range of methods which attempt to measure the sensitivity of a portfolio to a set of extreme but plausible shocks and it is a way of revaluing a portfolio using a different set of assumptions (Jones, Hilbers, Slack, 2004). Another definition describes stress testing as generic term that is frequently used to describe a variety of techniques that are applied to assess the importance of assumptions that underlie economic models and forecasts (Lelyveld, 2009).

It is important to note that the differentiations of the definitions reflect the different objectives of stress tests. According to the Committee on the Global System, from a microeconomic perspective, stress testing is a risk management tool used to evaluate the potential impact on a firm of a specific event and/or movement in a set of financial variables. Accordingly, stress testing is used as an adjunct to statistical models such as value-at-risk (VaR), and increasingly it is viewed as a complement, rather than as a supplement, to these statistical measures. From a macroeconomic point of view, stress-testing is defined as a key element of macroprudential analysis that helps to monitor and anticipate potential vulnerabilities in the financial system. It adds a dynamic element to the analysis of financial soundness indicators – that is, the sensitivity, or probability distribution, of financial soundness indicators outcomes in response to a variety of (macroeconomic) shocks and scenarios (Sundararajan et al., 2002).

Furthermore, we should note that stress tests estimate the exposure, the possible losses and the general reaction of the financial system to a specific event, but not the probability of the event occurring. Stress tests do not provide information about how much likely is a diverse scenario to occur, but describe the behavior of the financial system to a set of judgments and assumptions (Committee on the Global Financial System, 2000).

A first discrimination with regard to the process of stress testing is the field of application on which will be developed the stress test. The stress test can be done either on portfolio level of financial institutions, or on the financial system level (system-focused level). The stress testing on portfolio-level is part of risk management and enables banks to manage extreme economic changes that have direct or indirect impact on the value of the portfolio. In the case of portfolio level stress tests, a number of risk categories are checked using the internal systems of banks. The implementation of this type of stress test plans to ensure the identification of potential risk concentrations and contributes to optimal allocation of capital.

The system-focused stress tests are conducted by the supervisory authorities of the countries and intended to identify hazards that may cause instability in the financial system. One of the issues related to system-focused stress test is the choice of financial institutions which should be included in the process of stress testing. Usually, are selected large banks that represent the largest proportion of total financial system. However, there are cases which are included other types of institutions such as insurance companies and branches of foreign banks. The process of stress testing at system level can be done through two approaches: (i) the top-down approach and the (ii) bottom-up approach. According to top-down approach, the stress test is conducted at aggregated representative portfolio. The bottom-up approach is carried out by aggregating the results of stress tests on individual portfolios.

According to the report of the Committee on the Global Financial System (2000), there are four main techniques for the application of the stress tests. The most common of these is the simple sensitivity test which includes changes in portfolio value for one or more shocks to a single risk factor. Also, there is the scenario analysis which refers to changes in portfolio value if a scenario were to occur. The scenario analysis is distinguished at hypothetical and historical scenarios. The third approach is the maximum loss which includes worst-case scenarios and their impact on banking institutions. Finally, there is the extreme value theory which describes the statistical theory concerned with the probability distribution of extreme losses.

At this point, it is useful to remark the FSAP (Financial Sector Assessment Program), a joint effort by International Monetary Fund (IMF) and the World Bank which started in 1999 and included the process of stress testing for almost a decade so as to identify vulnerabilities across institutions that could undermine the stability of a country's financial system (Moretti, Stolz, Swinburne, IMF Working Papers 08/206). The FSAP helps the countries to identify and remedy weaknesses, enhance their resiliency to macroeconomic shocks and cross-border contagion. In particular, the FSAP assessments include two main components: a financial stability assessment, which is the responsibility of the Fund, and a financial development assessment, the responsibility of the World Bank.

2. The process of stress testing

2.1 First Stage: The extent of the coverage of stress testing

The decision on the extent of the coverage will cover stress testing constitutes the starting point for the process of stress testing. Because the implementation of stress tests in all sectors of the financial system without exception is a very complicated and time consuming process, the majority of stress tests applied to a set of institutions, which are likely to be affected by common risk factors (Quagliariello Mario, 2009). The criteria for the inclusion of financial institutions in the process of stress testing are: the significance for the stability of the financial system, their proportion in the whole system and also the estimation that non-functioning of these institutions can lead to a systemic crisis. A good understanding and analysis of key features of the financial system is crucial for the first stage of the stress testing which related to the degree of coverage.

2.2 Second Stage: Multilevel study of the economic environment at macroµ - level

In the second stage of stress testing, is conducted an analysis of macro and micro economic environment on three main levels. This stage is very important because through the analysis, are specified the crucial variables under which will be the construction of scenarios. The comprehension of economic conditions is very considerable to the process of stress testing because it contributes in the identification of the factors that may be sources of risk and weaknesses in the financial system.

The multilevel analysis is done using indicators that provide information about a possible instability. According to Jones et al. (2004), the first level concerns the knowledge of the broader macroeconomic environment and macro-level indicators are formed so as to examine the economic conditions that prevail. For better comprehension, this level is divided into three sectors: the real sector, the government and external sector.

2.3 Third Stage: Specification of crucial variables

In this stage of development of the model of stress testing is essential to identify the key variables whose fluctuations can cause instability in the whole financial system. This stage is assisted by the careful analysis of the macroeconomic environment from the previous stage. Furthermore, it is important to investigate how easily the values of these variables can change and whether adverse changes affect the fundamentals sizes of the banking sector which is the heart of the financial system. To identify crucial variables is important to point the weaknesses in the financial system so as to adapt the model of stress testing in the specific circumstances and draw useful conclusions.

2.4 Fourth Stage: Description of financial system's interconnections

During the design stress testing process is useful to describe the interconnections that exist between the parties which constitute the financial system. This description gives us the ability to illustrate all the system components and how they interrelate. The interconnections which exist are in fact risk transfer channels from one part to another. Therefore, as has been the identification of critical variables is useful to detect possible channels of risks and crises. The description of the financial system's interlinkages gives us information about the extent to which a part of the system affects another. Moreover, there is an initial mapping of potential risks which face the financial system.

2.5 Fifth Stage: Scenario construction and shock calibration

Once the crucial variables and the interconnections between the parts of financial system have been described in the previous stages, the fifth stage is related to scenario construction and shock calibration. The scenario construction constitutes one of the basic components of process and it is the base for the conduct of stress test. At this stage, it is essential to take into account all the conclusions, the information and the elements that resulted from the four precedents stages. A definition for stress scenario considers it as 'simultaneous relative changes of multiple risk factors from the current condition to the stressed condition, which is translated into a numerical plausibility based on a multivariate distribution assumption of risk factors' (Breuer, Kenn, 1999).

In the frame of this stage it is included an examination of the available data and models to determine what can be used to understand the behaviour of the system with respect to the main vulnerabilities (Jones et al.2004). The scenario that will be constructed should be consistent with the objectives of the stress test, which have been set initially, and should be guided by some basic principles in order to be considered valid and reliable. Two elements which are very crucial for the reliability of the process of stress testing are the objectivity and plausibility of stress scenarios, which will be analyzed below. According to European Central Bank (Financial Stability Review, 2006), there are four types of scenarios: historical, hypothetical, probabilistic and reverse-engineered. The historical scenarios refer to replicate historical episodes of stress while the hypothetical scenarios do not match historical events. The probabilistic form of scenarios is constructed on the basis of the empirical distribution of the relevant risk factor and the reverse-engineered matches a predefined amount of losses which be endured by the financial sector. The types of scripts that are usually adopted by the supervisory authorities or by the banking institutions are the historical and hypothetical scenarios. The historical are more easily in the planning and in their application and they are based on the logic that certain extreme and unfavourable economic incidents are likely to be repeated. Moreover, the historical scenarios based on the assumption that future crises will be similar to past ones (Breuer and Krenn, 1999). The disadvantage of this type of scenario is that is backward looking and potentially does not take into consideration the recent developments at either the

macroeconomic environment at either the structure of financial institutions (Blaschke et al.2001).

The hypothetical scenarios are more flexible in the formulation of potential events and provide information about the sensitivity of the financial system to different crucial variables. The main disadvantage of the hypothetical form of stress scenarios is the difficulty in determination of the likelihood of the event occurring. In accordance with the Committee on the Global Financial System (2005), the hybrid solutions are frequently adopted. The hybrid solution is a combination of historical and hypothetical scenarios whereby the hypothetical scenarios are informed by the historical events and data.

The objectivity and the plausibility of stress scenarios constitute the most important aspects of the issue of stress tests' validity and credibility, as mentioned earlier. The key phrase of the process of stress testing is the 'extreme but plausible events'. So, the degree of the plausibility should be at an appropriate level. Although, the nature of the fifth stage of stress tests scenarios which related to the scenario construction and shock calibration, is subjective because the severity of scenarios is largely dependent on the assessment of the designer team (supervisory authorities or banking institutions). Nevertheless, the element of objectivity is an essential criterion so as the results of stress tests to be useful and provide information about the resilience of financial system. It should be noted that the objectivity is considerable both at macro level and financial institutions' level (portfolio level). We can distinguish two forms of objectivity: (i) the objectivity of the model and (ii) the magnitude of shocks to be considered. The objectivity which should characterize the nature of stress tests is related to selection of the crucial variables, the appropriate size of the shocks and the likelihood of stress scenarios. The lack of objectivity in a stress testing process can be a significant drawback.

2.6 Sixth scenario: Implementation of stress scenario

The next stage which follows the construction of stress scenario is the implementation of it. The implementation of the stress scenario will give the possibility to estimate the potential impacts from the stress conditions. Also, from the implementation we can understand the behavior of the entire financial system.

The application of stress scenario can be carried out by two methodologies: (i) the 'bottom-up' methodology and (ii) the 'top-down'. According to the first methodology, the implementation is conducted at individual portfolios' level and disaggregated data are used from the financial institutions. The outcomes from this methodology can be aggregated and provide information about the entire sector or a group of institutions (Jones et al.2004). The 'top-down' methodology is related to a group of institutions and requires aggregated data. The choice of the aforementioned methodologies would be done in the sixth stage or would be set in the first stage which related to extent of the coverage of stress testing and the type of stress test will be conducted.

2.7 Seventh Stage: The results of the stress test and their interpretation

The final stage of the process of stress testing is the export of results and their interpretation. Substantially, the results describe the magnitude of the impact on key figures linked to the stability, sustainability and profitability of financial institutions. It should be mentioned that the results of stress test is useful to be combined with the results of other techniques of risk management for two main reasons: (i) to check the validity of them and (ii) to increase their usefulness. The results of the stress testing are connected absolutely to the assumptions that have developed within the scenario construction and the shock calibration. The interpretation of the results help the management of financial institutions and the supervisory authorities to understand if unexpected changes in crucial variables that initially they had been fixed can cause instability in financial institutions and by extension in the whole financial system. Moreover, in interpretation of the results it can become also comparison with financial soundness indicators in order to examine the robustness of the system. It should be noted that the stress testing methodology does not provide precise numerical results. The outcomes should be interpreted based on the framework of identification of potential vulnerabilities which could threaten the financial stability.

3. The cases of Cyprus and Greece

In this section, the fundamentals sizes of the banking systems of Cyprus and Greece are described in combination with the efficiency and their performance as well as the challenges that will be called to face in the future. Also, becomes an analysis and interpretation of the results of stress tests conducted for Cyprus and Greece under the Financial Sector Assessment Program (FSAP) of the International Monetary Fund. The study includes a comparative analysis of the stress tests carried out by European countries under the FSAP of IMF. The purpose of the comparative analysis is the recording of common points, the consideration of the discussed risks, the mapping of the results and the identification of gaps and limitations of the process. Our sample is composed of 27 European countries in which stress tests are applied in the frame of FSAP. Through this comparison, we conclude inferences with regard to the extent of coverage, the type of methodology which applied (sensitivity or scenario analysis), the scope of application (bottom-up or top-down) and the classification of main risks.

References

- Basel Committee on Banking Supervision, (2009). "Principles for Sound Stress Testing Practices and Supervision". Bank for International Settlements, consultative document.
- Basel Committee on Banking Supervision, (2009). "Principles for Sound Stress Testing practices and Supervision". Bank for International Settlements.
- Berkowitz, J.,(2000). "A Coherent Framework for Stress Testing". *Journal of Risk*, 2, 2.
- Blaschke, W., M.T. Jones, G. Majnoni and M. Peria, (2001). "Stress Testing of Financial Systems: An Overview of Issues, Methodologies, and FSAP Experiences". International Monetary Fund, Working Paper, no /01/88.
- Bunn, P., (2005). "Stress Testing as a Tool for Assessing Systemic Risks". *Financial Stability Review*, Bank of England.
- Cihak, M., (2004a). "Stress Testing: A Review of Key Concepts". CNB, Internal Research Policy Note, 2/2004.
- Cihak, M., (2004b). "Designing Stress Tests for the Czech Banking System". CNB, Internal Research Policy Note, no 3/2004.
- Cihak, M., (2005). "Stress Testing of Banking Systems". *Czech Journal of Economics and Fin* the results of the stress test and their interpretation, 55, 9-10.
- Cihak, M., (2007). "Introduction to Applied Stress Testing". International Monetary Fund, Working Paper, no 07/59.
- Committee on the Global; Financial System, (2000). "Stress Testing by Large Financial Institutions: Current Practice and Aggregation Issues". Bank for International Settlements.
- Committee on the Global Financial System, (2001). "A survey of Stress Tests and Current Practice at Major Financial Institutions". Basel, Bank for International Settlements.
- Drehmann, M., (2008). "Stress Tests: Objectives, Reality Limitations and Possibilities". European Central Bank.
- European Central Bank, (2006). "Country-level Macro Stress Testing Practices". *Financial Stability Review*.
- Fender, I., G. Gibson, P. Mosser, (2001). "An International Survey of Stress Tests". Federal Reserve Bank of New York, November (2001), Vol.7, no. 10.
- Hermanek, J. and E. Komarkova, (2004). "Survey of Stress Testing Practices in Czech Commercial Banks". CNB internal note.
- International Monetary Fund, the World Bank, (2003). "Analytical Tools of the FSAP".
- Jenkinson, N., (2007). "Developing a Framework for Stress Testing of Financial Stability Risks". Bank of England.
- Jones, M., P. Hilbers and G. Slack, (2004). "Stress Testing Financial Systems: What to Do When the Governor Calls". International Monetary Fund, Working Paper, no 04/127.
- Kalirai, H., M. Scheicher, (2002). "Macroeconomic Stress Testing: Preliminary Evidence for Austria". Austrian National Bank, *Financial Stability Report*, no 3.
- Kupiec, P., (1998). "Stress Testing in a Value at Risk Framework". *The Journal of Derivatives*. Vol.6, Issue 1, Fall, pp.7-24.
- Kupiec, P., (2001). "Stress Testing and financial Sector Stability Assessments: a Basic Recipe for an FSAP Stress Test". International Monetary Fund.
- Longin, F., (1999). "From Value at Risk to Stress Testing: The Extreme Value Approach". Center for Economic Policy Research Discussion Paper, no. 2161.

- Oyama, T., (2004). "Plausibility of Stress Scenarios". International Monetary Fund – De Nederlandsche Bank, 2nd Expert forum on Advanced Techniques on Stress Testing: Applications for Supervisors.
- Quagliariello, M., (2009). "Stress Testing the banking system: methodologies and applications". Cambridge University Press.
- Sorge, M., (2004). "Stress Testing Financial Systems: An overview of Current Methodologies". Bank for international Methodologies, Working papers, 165.
- Van den End, J.W., M. Hoeberichts and M. Tabbae, (2006). "Modelling Scenario Analysis and Macro Stress-Testing". De Nederlandsche Bank.
- Worrell, D., (2008). "Stressing to Breaking Point; Interpreting Stress Test Results". International Monetary Fund, Working Paper, no/08/148.

Estimating the determinants of loan demand: the case of Greek households

Dr Eleni Pastrapa*

Department of Home Economics and Ecology, Harokopio University, 70 El. Venizelou Ave, 17671, Athens, Greece

Abstract

The purpose of this study is to examine the determinants affecting borrowing and the amount of money borrowed by urban households in the north-eastern Greece employing cross – section data for 2009. The empirical analysis involves the estimation of a two – stage Heckman model. The results indicate that the young married and employed workers get loan. Furthermore, the probability of getting a loan is higher for homeowners and credit card holders. It was also found that the households with high income, with own house and higher number of members working hold higher loan amounts.

Keywords: loans, households, north – eastern Greece

*Tel.: 00302109549263
Fax.: 00302109577050
Email: epastrapa@hua.gr

1. Introduction

Households use their income and wealth to increase consumption. When these are insufficient, households borrow to cover their needs and keeping up with modern life (Bertola and Hochguertel, 2007). Specifically, households borrow to consume or invest today against their future income (Del - Rio and Young, 2005; Magri, 2002). Thus, households maximize their utility (Herendeen, 1974). The growth of household borrowing is due to the liberalization of banking system, the increasing of consumption and easier access of household to borrow (Dutt, 2006; Brown et al., 2005).

However, households' consumption and their needs for borrowing vary during their lifetime. According to the life cycle theory (Life Cycle Hypothesis), individuals smooth consumption over their life-cycle by borrowing when young, saving when in middle age and running down their assets in old age and at death (Del - Rio and Young, 2005; Modigliani, 1966; Modigliani, 1986; DeJuan and Seater, 2007; Ando and Modigliani, 1963; Bertola et al., 2006; Butler, 2001).

From the mid-1990's, together with the liberalization of the Greek banking system, the demand of Greek households for consumer goods started increasing and brought with it an increase in borrowing. However, the larger increase in borrowing was observed after the year 2000, when the rate of increase in borrowing was the highest in the Euro-zone. Especially, the borrowing of Greek households average increased by 28% from 2002 to 2007 (Bank of Greece, 2006; Bank of Greece, 2008).

The aim of this paper is to investigate the determinants affecting the probability of getting a loan and the loan amount by urban households in the northeastern Greece employing cross – section data. According to previous studies we perform a probit and OLS regression analysis in order to determine the extent to which demographic and socio-economic characteristics of the Greek household's influences households' amount of money borrowed. It is essential to point out that we conduct our survey after the “burst” of the global financial crisis. The paper proceeds as follows: Section 2 presents a review of previous studies on the empirical evidence of households' characteristics on loans demand. Section 3 deals with methodological issues and the data used in the empirical analysis while in Section 4 the empirical evidence are presented. Finally, conclusions of the analysis are discussed Section 5.

2. Literature review

Households choose borrowing as a way to finance their purchases (Kirchler et al., 2008). The demographic and economic characteristics of households affect their decision of credit. According to the life cycle hypothesis, the decision to get loan is positively correlated with the age. Younger persons are more likely to borrow than the older persons because of older persons have low-income expectations and they avoid risk. Borrowing involves the element of risk (Fabbri and Padula, 2004; Zeller, 1994; Magri, 2002; Abdul – Muhmin, 2008; Del-Rio and Young, 2005).

In addition, previous studies indicated that married persons are more likely to get consumer and mortgage loan than unmarried persons because married have great needs (Kamleitneir and Kirchler, 2007; Bridges et al., 2004; Chen and Jensen, 1985; Duca and Rosenthal, 1994; Magri, 2002). Larger households have greater needs than smaller households for durable and non-durable goods, which cover the borrowing (Nguyen, 2007; Manrique and Ojah, 2004; Swain, 2007). However, households' size does not affect the probability of getting a loan in Greece (Mitrakos and Simiyiannis, 2009). As far as employment status, employees are more likely to get loan than pensioners, unemployed and

self-employed. However, unemployment of household head affects positively the borrowing of households in Philippines (Fafchamps and Lund, 2003)

Some previous studies indicate that the probability of getting a loan decreases with household income (Swain, 2007; Del-Rio and Young, 2005). Low-income households get a loan to cover their needs but they have debt frequently (Kamleitneir and Kirchler, 2007). Contrary, Chen and Jensen (1985) indicate that the household's income do not affect the probability of getting a loan in U.S.A. In addition, homeowners are more likely than renters to borrow (Bridges and Disney, 2004; Bridges et al., 2004).

Households with positive past experience with regards to get a loan are more likely to get loan (Duca and Rosenthal, 1994). In addition, households are less likely to get a new loan when they have problems in repaying their loan (Campbell, 2006). According to Lyons (2003), the number of credit cards positively affects the probability of getting a loan. Finally, the probability of getting a loan is negatively affected from savings. Households are more likely to get a loan when they do not save money (Kamleitneir and Kirchler, 2007).

Specifically, previous empirical surveys confirm that the amount of loan increases with the age (Fabbri and Padula, 2004; Magri, 2002). The marital status is negatively related with the loan amount. Single and divorced have higher loan amount than married (Del-Rio and Young, 2005). However, household size is positively correlated with loan amount. Household size proxies for needs and loan amount are likely to increase with needs (Nguyen, 2007; Duong and Izumida, 2002; Fabbri and Padula, 2004). In particular, loan amount increases with number of children (Swain, 2007; Duong and Izumida, 2002; Magri, 2002). Accordingly, high-income households have larger loan amount than low-income households (Lin and Yang, 2005; Jappelli and Pistaferri, 2007; Crook, 2001). Loan amount of households increases with household's income because the high-income households usually hold mortgage (Ambrose et al., 2004). Household's income increases with number of working per members on household (Magri, 2002).

The household's loan amount increases with net wealth (Magri, 2002). Specifically, the value of dwelling is positively related with loan amount (Nguyen, 2007; Duong and Izumida, 2002). Homeownership also is positively correlated with loan amount (Crook, 2001; Bridges and Disney, 2004). On the other hand, years in current address are negatively related with loan amount (Crook, 1996). Finally, households that do not save money hold higher loan amount (Casolaro et al., 2005).

3. Methodological issues and data

Empirical analysis is based on an extensive survey of 428 urban households, which was carried out from the 7 January to 24 April 2009. The response rate was 92.5%. The form of the survey was a questionnaire, which was administered using face-to-face interviews with one adult from each household in their home. As a prerequisite, the person answered the questionnaire was above 18 years old. The sampled households were located in seven towns in north-eastern Greece: Orestiada, Alexandroupolis, Komotini, Xanthi, Kavala, Drama, Serres. The sampled households at each town were chosen at random following the protocol of "right –hand turns" Table A.1 in the Appendix presents basic frequency statistics of the sample.

Empirical analysis is based on the estimation of the well-known Heckman two-stage procedure, which takes into consideration sample selection. In particular we estimated a probit equation for the probability of getting a loan and a linear regression for the amount of loan including Mills ratio. According to this method, the differences in the amount of household loans are estimated at two stages. In the first step estimate the function:

$$L_i = \alpha y'_i + \varepsilon_i \quad (1)$$

Eq. (1) describes the probability of household have a loan (L_i^*) as determined by a set of explanatory variables y'_i . (L_i^*) is not observed but we have information on its sign, namely (L_i^*) is positive when households get a loan (i.e. $L_i = 1$).

Formally, we have:

$$L_i=1 \text{ } \alpha v L_i^* > 0 \quad (2)$$

$$L_i=0 \text{ } \alpha v L_i^* \leq 0 \quad (3)$$

The second stage examined the factors influencing the amount of household's loans. Formally:

$$A_i = bx_i + \varepsilon_i \quad (4)$$

A_i is the amount of household loans, x_i is the factors affecting the amount of household loans and ε_i is an error term. The equation (1) estimates by a binary probit regression. The dependent variable was coded 1 if the household gets a loan and 0 otherwise. A probit analysis model in the first stage is used to provide the expected values of the residuals that are truncated at the second stage (the OLS regression.) Thus, the Heckman procedure is appropriate because it examines the amount of loan consistently by considering sample selection bias. Mills is the selection parameter estimated from the probit model. The correction factor is the inverse Mill's ratio. Eq. (4) is estimated by ordinary least square regression. In the Eq. (4) as explanatory variable we used the inverse Mill's ratio. A positive coefficient on the inverse Mill's ratio suggests that unobservable in the probit equation that increase the probability of getting a loan also increase the amount of household loan (Heckman, 1979; Halkos, 2007; Sardianou, 2008).

3.1 Model specification

Following the empirical methodology described in section 3.1 the following expanded probit specification for getting a loan is employed:

$$\text{LOAN}_i = \alpha_0 + \alpha_1 \text{LNAGE} + \alpha_2 \text{LNAGE2} + \alpha_3 \text{MARRIED} + \alpha_4 \text{MELI} + \alpha_5 \text{MISTHOTO} + \alpha_6 \text{ANERGOS} + \alpha_7 \text{LNEISOD} + \alpha_8 \text{HOMEOWN} + \alpha_9 \text{ETKATOIK} + \alpha_{10} \text{PALIADAN} + \alpha_{11} \text{NOKARTES} + \alpha_{12} \text{APOTAM} + \varepsilon_i \quad (5)$$

where LOAN is a dummy variable indicating whether the i th household get loan or not.*

Once Eq. (5) is estimated, the following expanded log-linear specification for total amount of loans is employed:

$$\text{LNPOSO}_i = b_0 + b_1 \text{LNAGE} + b_2 \text{LNAGE2} + b_3 \text{MARRIED} + b_4 \text{NOCHILD6} + b_5 \text{NOCHILD712} + b_6 \text{NOCHILD1318} + b_7 \text{ANALNPME} + b_8 \text{LNEISOD} + b_9 \text{LNPLOUTAN} + b_{10} \text{HOMEOWN} + b_{11} \text{ETKATOIK} + b_{12} \text{APOTAM} + b_{13} \text{EIDSEAKP} + \text{MILLS}_i + \varepsilon_i \quad (6)$$

where LNPOSO _{i} is the natural logarithm of total loans amount per household in € (all types of loans are included)*.

The empirical results from estimation of Eqs. (5) and (6) are presented in the next section of this study.

4. Empirical results

Several interesting results were obtained by the empirical estimation of Eqs. (5) and (6). Table 1 summarizes the empirical results of probit equations with regard to the probability of getting a loan. Non-statistically significant variables were omitted from model I. The final results for explanatory variables of getting a loan are presented in the third column of Table 1, model II. Generally, empirical results are in line with previous studies. All the estimated

* Please see Table A.2 in the Appendix for a detailed description of independents variables used in equations 5 and 6.

coefficients of the explanatory variables presented in the final model have the expected sign and are statistically significant.

The results from probit equation suggest that the probability of getting a loan is positively correlated with the age in a non-linear way. The coefficient of age is positive and that of age squared is negative. The probability of getting a loan increase: reaching a maximum at 58 years of age. Moreover, the positive sign of the estimated coefficient for the variable “MARRIED”, implies that married persons are more likely to get loan than unmarried persons. On the other hand, unemployed individuals get loan to cover their needs and employees is a statistically significant factor in the decision to get loan at a 1% level of significance. Indeed, it is estimated that employees are more likely to get loan than others. Years in current address appears to negatively affect the probability of getting a loan at 1% significant level whereas homeownership is positively related to get loan. Homeowners get mortgage loan to house purchase. In addition, households with credit history (that household get previously loans were repaid) are more likely to get loan than the households without or bad credit history. Numbers of credit cards positively influence the probability of getting a loan at 1% significant level. Specifically, as number of credit cards increases the probability of getting a loan increases too. In contrast, savings negatively affects the probability of getting a loan. Households that do not save money are more likely to get a loan than others.

Table 1: Probit equations for borrowing households (n=396)

<i>Variables</i>	<i>Model I</i>	<i>Model II</i>
CONSTANT	-18.383* (-1.71)	-21.267** (-2.05)
LNAGE	9.488 (1.59)	10.407* (1.82)
LNAGE2	-1.162 (-1.42)	-1.287* (-1.63)
MARRIED	0.398** (2.25)	0.405** (2.40)
MELI	0.081 (1.21)	
MISTHOTO	0.429*** (2.64)	0.433*** (2.68)
ANERGOS	1.331** (2.20)	1.362** (2.26)
LNEISOD	-0.194 (-1.25)	
HOMEOWN	0.332* (1.85)	0.339** (1.96)
ETKATOIK	-0.041*** (-4.57)	-0.039*** (-4.53)
PALIADAN	0.697*** (4.79)	0.685*** (4.75)
NOKARTES	0.183*** (2.88)	0.168*** (2.71)
APOTAM	-0.360** (-2.34)	-0.426*** (-2.92)
Log likelihood	-217.198	-218.379
Akaike info criterion	1.163	1.159
Hanna-Quinn criter.	1.214	1.202
Mc-Fadden R-squared	0.205	0.201

Note: ***, **, represent level of significant at 1%, 5%, respectively. z-Statistics are presented in the parentheses.

As far as households' loan amount, the estimated coefficients are displayed in Table 2.. Model I is the initial estimated model where all the explanatory variables of equation (6) were

used. Results indicate that no statistical significant are the number of children over 7 years old, marital status and wealth. Non-statistically significant variables were omitted from model I. The final results for explanatory variables of loan amount are presented in the model II. All the estimated coefficients of the explanatory variables presented in the final model have the expected sign and are statistically significant. The estimated coefficients on determinants of loan amount are in line with previous studies.

Final results from OLS regression analysis suggest that the loan amount of household is positively correlated with the age. In particular, the loan amount reaches a maximum at 42 years of age. The loan amount decreases in case of respondents are over 42 years old. This result is line to the life cycle hypothesis. The number of children under 6 years old is estimated to be positively and statistical significant predictor of the loan amount. Households with children under 6 years old are young and they have more needs to cover, for this reason households tend to borrow higher amount of loans.

Number of working members per household do reveals significant impact on loan amount. In fact as number of working members increases household's loan amount increases too. The number of working members affects the income of households. Household's income increases with number of working members. The estimated coefficient of the variable income is positive and statistically significant at 1% level. The estimated income elasticity is 0.597. These results indicate that an increase in household's income is positively related to an increase in loan amount. More precisely, an increase in income by 1% will increase loan amount by 0.597% on average. Ownership variable has positive sign in relation to loan amount. The estimated coefficient of the variable years in current address is negative and statistically significant at 1% level. Moreover, households that save money, hold small loan amount. These households use savings to cover their needs. As expected, the number of loans has a statistically positive effect on household's loan amount.

Finally, the estimated coefficient for Mill's ratio has the expected positive sign and is statistically significant at 5% level of significance, result that confirms that the household's decision to get loan actually affect the total loan amount borrowed by households.

Table 2: Estimated selection correction models for the loan amount of household (n=134)

<i>Variables</i>	<i>Model I</i>	<i>Model II</i>
Constant	-29.297* (-1.73)	-40.535** (-2.52)
LNAGE	17.625* (1.91)	24.401*** (2.85)
LNAGE2	-2.340* (-1.88)	-3.269*** (-2.85)
MARRIED	-0.020 (-0.08)	
NOCHILD6	0.487*** (3.11)	0.371*** (2.89)
NOCHILD712	0.189 (1.01)	
NOCHILD1318	0.275 (1.55)	
ANALNPME	1.256** (2.31)	0.835** (2.02)
LNEISOD	0.413** (2.18)	0.493*** (2.98)
LNPLOUTAN	0.120 (0.97)	
HOMEOWN	1.123*** (3.59)	1.381*** (5.52)
ETKATOIK	-0.050*** (-3.51)	-0.048*** (-3.63)
APOTAM	-0.473** (-2.40)	-0.445** (-2.29)
EIDSEAKP	1.224** (2.15)	1.101** (2.31)
MILLS	0.853** (2.07)	0.798** (2.03)
R ²	0.418	0.432
R ² (adjusted)	0.346	0.386
Durbin-Watson stat	2.021	1.999
F	5.838***	9.359***

Note: ***, **, *, represent level of significant at 1%, 5%, 10%, respectively. t-Statistics are presented in the parentheses.

5. Conclusions

From the mid-1990's, the demand of Greek households for consumer goods started increasing and brought with it an increase in borrowing. Previous studies indicated that the socioeconomics characteristics of households affect loan demand. Findings from the two - stage Heckman model, with regard to the probability of getting a loan suggest that the households concerned are of young married persons and consist of employed workers, homeowners and credit card holders. As far as the determinants of the loan amount it was estimated that the households with the higher loan amounts were those with high income, with own house and higher number of members working.

Generally, households making use of loans consist of young and middle-aged persons, homeowners with high incomes. These possess past credit experience and are characterised by low propensity to save money. The study of the borrowing behavior of Greek households is a valuable basis for the formulation and application of a suitable and effective policy aiming at protecting consumers form indebtedness.

References

1. Abdul – Muhmin, A. (2008). “Consumer attitudes towards debt in an Islamic country: managing a conflict between religious tradition and modernity?”, *International Journal of Consumer Studies*, 32:3, 194--203.
2. Ambrose, B., LaCour-Little, M., and Sanders A. (2004). “The effect of conforming loan status on mortgage yield spreads: a loan level analysis”, *Real Estate Economics*, 32:4, 541--569.
3. Ando, A., and Modigliani F. (1963). “The “life cycle” hypothesis of saving: aggregate implications and tests”, *The American Economic Review*, 53:1, 55--84.
4. Bank of Greece, Statistics Department (2006). “Indebtedness of households and financial stress: Research at the household level”, *Governor’s Annual Report 2005*, Annex IV, Bank of Greece, Athina. [In Greek].
5. Bank of Greece, Statistics Department (2008). *Indebtedness of households and financial stress: evidence from the survey 2007*. Athina: Bank of Greece. [In Greek].
6. Bertola, G., and Hochguertel S. (2007). “Household debt and credit: Economic issues and data problems”, *Economic Notes*, 36:2, 115--146.
7. Bertola, G., Disney, R., and Grant C. (2006). “The economics of consumer credit demand and supply”, in G. Bertola, R. Disney and C. Grant (ed.), *The Economics of Consumer Credit*. Cambridge, Massachusetts, London, England: MIT Press, 1-26.
8. Bridges, S., and Disney R. (2004). “Use of credit and arrears on debt among low-income families in the United Kingdom”, *Fiscal Studies*, 25:1, 1--25.
9. Bridges, S., Disney, R., and Henley A. (2004). “Housing wealth and the accumulation of financial debt: Evidence from UK households”, The European Credit Research Institute (www.ecri.be).
10. Brown, S., Taylor, K., and Price S. (2005). “Debt and distress: Evaluating the psychological cost of credit”, *Journal of Economic Psychology*, 26:5, 642--663.
11. Butler, M. (2001). “Neoclassical life-cycle consumption: a textbook example”, *Economic Theory*, 17:1, 209--221.
12. Campbell, J. (2006). “Household finance”, *The Journal of Finance*, 61:4, 1553--1604.
13. Casolaro, L., Gambacorta, L., and Guiso L. (2005). “Regulation, formal and informal enforcement and the development of the household loan market. Lessons from Italy”, *Economic Working Papers*, 560, Bank of Italy.
14. Chen, A., and Jensen H. (1985). “Home equity use and the life cycle hypothesis”, *Journal of Consumer Affairs*, 19:1, 37--56.
15. Crook, J. (1996). “Credit constraints and US households”, *Applied Financial Economics*, 6:6, 477--485.
16. Crook, J. (2001). “The demand for household debt in the USA: evidence from the 1995 survey of consumer finance”, *Applied Financial Economics*, 11:1, 83--91.
17. DeJuan, J., and Seater J. (2007). “Testing the cross – section implications of Friedman’s permanent income hypothesis”, *Journal of Monetary Economics*, 54:3, 820--849.
18. Del – Rio, A., and Young G. (2005). “The determinants of unsecured borrowing: evidence from the British household panel survey”, *Working Papers*, Bank of England.
19. Duca, J., and Rosenthal S. (1994). “Do mortgage rates vary based on household default characteristics? Evidence on rate sorting and credit rationing”, *Journal of Real Estate Finance and Economics*, 8:2, 99--113.
20. Duong, P., and Izumida Y. (2002). “Rural development finance in Vietnam: A microeconomic analysis of household surveys”, *World Development*, 30:2, 319--335.
21. Dutt, A. (2006). “Maturity, stagnation and consumer debt: a Steindlian approach”, *Metroeconomica*, 57:3, 339--364.

22. Fabbri, D., and Padula M. (2004). "Does poor legal enforcement make households credit-constrained?", *Journal of Banking & Finance*, 28:10, 2369--2397.
23. Fafchamps, M., and Lund S. (2003). "Risk-sharing networks in rural Philippines", *Journal of Development Economics*, 71:2, 261--287.
24. Halkos, G. (2007). *Econometrics. Theory and Practice: Instructions in using Eviews, Minitab, SPSS and Excel*. Athina: V. Gkiourdas.[In Greek].
25. Heckman, J. (1979). "Sample selection bias as a specification error", *Econometrica*, 47:1, 153--161.
26. Herendeen, J. (1974). "The role of credit in the theory of the household", *The Journal of Consumer Affairs*, 8:2, 157--181.
27. Jappelli, T., and Pistaferri L. (2007). "Do people respond to tax incentives? An analysis of the Italian reform of the deductibility of home mortgage interest", *European Economic Review*, 51:2, 247--271.
28. Kamleitner, B., and Kirchler E. (2007). "Consumer credit use: a process model and literature review", *Revue Europeene de Psychologie Appliquee / European Review of Applied Psychology*, 57:4, 267--283.
29. Kirchler, E., Hoelzl, E., and Kamleitner B. (2008). "Spending and credit use in the private household", *The Journal of Socio-Economics*, 37:2, 519--532.
30. Lin, C., and Yang T. (2005). "Curtalement as a mortgage performance indicator", *Journal of Housing Economics*, 14:3, 294--314.
31. Lyons, A. (2003), "How credit access has changed over time for U.S. households", *The Journal of Consumer Affairs*, 37(2), pp. 231-255.
32. Magri, S. (2002). "Italian household's debt: determinants of demand and supply", *Temi di discussione*, 454, Banca d' Italia.
33. Manrique, J., and Ojah K. (2004). "Credits and non-interest rate determinants of loan demand: a Spanish case study", *Applied Economics*, 36:8, 781--791.
34. Mitrakos, T., and Simigiannis G. (2009). "The determinants of Greek household indebtedness and financial stress", *Economic Bulletin*, Bank of Greece, 32, 7--6. [In Greek].
35. Modigliani, F. (1966). "The life cycle hypothesis of saving, the demand for wealth and the supply of capital", *Social Research*, 33:2, 160--217.
36. Modigliani, F. (1986). "Life cycle hypothesis, individual thrift and the wealth of nations", *The American Economic Review*, 76:3, 297--313.
37. Nguyen, C. (2007). "Determinants of credit participation and its impact on household consumption: evidence from rural Vietnam", *Discussion Paper*, 2007/03, Centre for Economic Reform and Transformation.
38. Sardianou, E. (2008). "Estimating space heating determinants: An analysis of Greek households", *Energy and Buildings*, 40:6, 1084--1093.
39. Swain, R. (2007). "The demand and supply of credit for households", *Applied Economics*, 39:21, 2681--2692.
40. Zeller, M. (1994). "Determinants of credit rationing: A study of informal lenders and formal credit groups in Madagascar", *World Development*, 22:12, 1895--1907.

Appendix

Table A.1 Basic frequency statistics of the sample

	%
Age (years) ^a	
19-24	5
25-39	50
40-54	33.8
55-64	7
>64	4.2
Married	63
Size of family	
1 person	10.8
2 persons	23
3 persons	21
4 persons	35.3
5 persons	7.3
>5 persons	2.8
Number of children under 6 years old	
None	80
1	13.5
2	6
3	0.5
Number of children between 7 and 12 years old	
None	83.5
1	12.8
2	3.8
Number of children between 13 and 18 years old	
None	81.5
1	15
2	3.5
Employment status	
employees	62
unemployed	2
The ratio of the number of working members on the total number of household members	
0.17-0.25	2.3
0.26-0.50	37.4
0.51-0.75	22.3
0.76-1	38
Level of monthly household income (€)	
0-1.000	9,8
1.001-2.000	39,8
2.001-3.000	33,8
3.001-4.000	10,5
4.001-5.000	3,5
5.001-6.000	1,5
6.001-7.000	0,5
>7.001	0,6
Households save money	39
Homeownership	74.3
Years in current address ^a	
0.1-5	46
6-10	17
11-15	10.8
16-20	8.5
>20	17.7
Total wealth of household (€)	
0-30,000	13,8
30,001-60,000	10,0
60,001-90,000	7,0
90,001-120,000	9,3
120,001-150,000	13,0
150,001-180,000	6,3
180,001-210,000	4,0
210,001-240,000	5,0
240,001-270,000	4,5
270,001-300,000	3,0
>300,000	20.6

Table A.1 Basic frequency statistics of the sample (continued)

	%
Previously loans were repaid	46.3
Households get loan	56.8
Number of households loans	
0	43.2
1	39.8
2	12
3	4
4	2
Loan amount ^a (€)	
1,000-20,000	31.9
20,001-40,000	11.1
40,001-60,000	14.8
60,001-80,000	11.9
80,001-100,000	7.4
100,001-120,000	6.6
120,001-140,000	6.6
140,001-160,000	5.2
160,001-180,000	1.5
180,001-200,000	0
>200,000	3
Number of credit card	
None	63
1	17.8
2	10.8
3	3.8
>3	4.6

^a Variables are quantitative and answers are grouped for better presentation within a table format

Table A.2 A detailed description of independents variables used in the empirical analysis equations (5) and (6).

<i>Variables</i>	<i>Description of variables</i>
LNAGE	the natural logarithm of respondent's age
LNAGE2	the square of the natural logarithm of respondent's age
MARRIED	a dummy variable taking the value 1 if the respondent is married and zero otherwise
MELI	the number of household members
MISTHOTO	a dummy variable taking the value 1 if the respondent is employee and zero otherwise
ANERGOS	a dummy variable taking the value 1 if the respondent is unemployed and zero otherwise
LNEISOD	the natural logarithm of household's total monthly income measured in €
HOMEOWN	a dummy variable, taking the value 1 if the dwelling is owned and zero otherwise
ETKATOIK	the years where the household reside in the current address
PALIADAN	a dummy variable taking the value 1 if the household get previously loans were repaid and zero otherwise
NOKARTES	the number of credit cards per household
APOTAM	a dummy variable taking the value 1 if the household save money and zero otherwise
NOCHILD6	the number of respondent's children under 6 years
NOCHILD712	the number of respondent's children between 7 and 12 years
NOCHILD1318	the number of respondent's children between 13 and 18 years
ANALNPME	the ratio of the number of working members on the total number of household members
LNPLOUTAN	the natural logarithm of total household wealth measured in €
EIDSEAKP	the ratio of the sum of five dummy variables (eidste: a dummy variable taking the value 1 if the household contract mortgage loan and zero otherwise, eidepi: a dummy variable taking the value 1 if the household contract home improvement loan and zero otherwise, eidauto: a dummy variable taking the value 1 if the household contract loan for buying a car and zero otherwise, eidkat: a dummy variable taking the value 1 if the household contract consumer loan and zero otherwise, eidpro: a dummy variable taking the value 1 if the household contract personal loan and zero otherwise)
MILLS	the inverse Mill's ratio
ε	an error term

ECONOMIC ACTIVITY IN GREECE WITHOUT THE EURO

Irene Sotiropoulou, PhD Student
E-mail: isotiropoulou@econ.soc.uoc.gr
Department of Economics, University of Crete

Supervisor: Professor George Stathakis
E-mail: stathakis@econ.soc.uoc.gr

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ABSTRACT

The paper belongs to an ongoing PhD research project, titled “Exchange Networks and Parallel Currencies: Theoretical approaches and the case of Greece”, which is already in its third-year phase. The project comprises both theoretical study and field research and it focuses on economic activity in Greece which is performed without the use of any official currency. This has been the first time that parallel currencies and exchange networks, but also free bazaars, are being researched in Greece, not only because of lack of interest by academia, but also because such initiatives emerged the very last years in the country and still emerge and develop, particularly since 2009 onwards.

Given that related literature is very limited in economics, and actually it refers mostly to parallel currencies, one major problem the research project faced was to place the phenomena studied within a theoretical framework that could be “possible”, “testable”, “consistent” and “with certain explanatory power”. To reach such framework the researcher needed to explore methodological tools which would permit to keep up with evolutions and emerging patterns in the economic activity of interest, while providing some directions or hints about the possible theoretical construction which would explain this activity.

Therefore, this paper is an attempt to present the pathway, both methodological and theoretical, which this research project has followed and actually to give the most up-to-date information concerning the research findings, as the project is meant to be soon concluded.

Keywords: parallel currencies, exchange networks, free bazaars, free networks, non-monetary transactions, Greece.

ECONOMIC ACTIVITY IN GREECE WITHOUT THE EURO

A. Introduction: The research project and its scope

This paper belongs to a larger research project (the PhD research project of the author) titled “Exchange Networks and Parallel Currencies: Theoretical approaches and the case of Greece”, which studies economic activity without the use of any official currency, which takes place beyond charity or family-friendship circles. The research project examines parallel currencies, exchange networks and free bazaars, most of which emerged the last years in Greece and still emerge and develop, especially since 2009 onwards. Moreover, some *sui generis* initiatives have been included, despite the fact that they cannot be categorised into any of the already mentioned scheme types¹.

By the term “exchange networks” I mean structures which facilitate non-monetary exchange for their members and they are either of general nature or specialised in one sector of activity. The term free-exchange bazaar (*χαριστικό-ανταλλακτικό παζάρι*) is the one used for bazaars where people can bring things (clothes, petty machines, shoes, toys, books, CDs, furniture, etc.) to exchange them or just give them away and take anything they believe it is useful to them. The free networks are online only; their members notify when they want to give something away for free or when they need anything that might be available but not yet announced online, and they get instantly notified when something is disposed by any network member.

By “parallel currencies” we mean any currency used in transactions by people, without this being official in any country. A parallel currency might have only a virtual or digital appearance (f.ex. units credited in a computer database) or it might take a physical appearance in notes, issued by the currency users. The important feature of parallel currencies is that they have no (positive) interest rate, so loans are without interest payments and currency accumulation is not encouraged.

B. Methods and (first) hypotheses

B.1. Returning to the basics

The main theoretical issue I face is that the schemes studied are choices and activities that cannot be easily explained because there is not any thoroughly elaborated theoretical framework in economics to explain such economic activity. Moreover, existing literature is dedicated to parallel currencies, while exchange networks and free bazaars and networks are not mentioned at all².

In addition, I use economic theory as stated or narrated in other disciplines because I want to explain the schemes I study in economic terms even if my theoretical sources originate in those other disciplines. Moreover, economic theory is also used as stated or narrated by the scheme participants and the schemes as collectives themselves, because I accept the possibility that both practical and theoretical knowledge might spring from social

¹ For a detailed description of the schemes studied and the findings concerning their activity so far, see Sotiropoulou, I. (2010b, 2010c).

² Some very informative books on theory related to parallel currencies are Douthwaite, R. (2006), Kennedy M. (1995), North, P. (2007), Zelizer, V. (1997) and Fisher, I. (1933). For more detailed presentation of related literature, please see Sotiropoulou, I. (2010a), pp. 9-13.

and/or collective activity, no matter whether this has been mentioned in academic texts so far¹.

Therefore, the first argument constructed has turned to be of the negative type and to my great disappointment it made clear that neither subjective value theory nor labour (objective) theory of value could be applied to the schemes studied in this project². At the end, the researcher has been left with no hypotheses but with the essential question: **what are those people doing? Why? Are they doing anything that is “economic” or has any “economic” implications?**

The choices we had from literature were rather limited: either we should dismiss all this activity as “irrational” or outside economic scope, or we had to turn the study into another discipline, perhaps, sociology or anthropology, given that it would be easier to find some literature in those disciplines to support our project.

Instead of facing the literature dilemma within the library, we decided that first we had to answer the main question as stated above. To do this, we opted for the method of **observation**, especially when any scheme was holding a fair or a gathering open to the public.

Of course, typically, this belongs to the qualitative methods section, so as time went by, we also used other methods: **observation with participation; text analysis; discussion;** The method of **“thick description”** used by anthropologists has also been heavily used in this project. By “thick description³” I mean the method where a researcher gathers information about all incidents, details, images, people, relations and material world that is possible to be observed. To do this, there is no need to have a previously constructed theory – actually a previous theory might endanger a thick description by biasing the data gathered at the end.

The preliminary stage of research has lasted formally for one year, till the formal-interview stage started in April 2010. Unofficially this stage cannot stop before the entire project stops, because it is amazing the pace by which new issues come up almost everyday that are not yet elaborated enough to be included in the formal interviews. We expect to examine them thoroughly at a later stage of the project, or keep the new issues for another project, after this first one is formally over.

B.2. Theory emerging from research: The first three hypotheses

It is impossible to conduct research without theory, so the researcher is in any case obliged to find one or some theoretical approaches, in order to be able to form hypotheses for the research. Therefore, in March 2010, three theoretical arguments have been constructed to explain the activity studied. We have three and not one argument, not only because the project is not at a stage that would permit us to reject any of them, but also because there is no rule that makes such a choice obligatory at this stage⁴. The arguments⁵ are the following, in brief:

¹ However, this possibility of knowledge springing from grassroots activity has been mentioned in academic literature. See for the this Biddle, E. et al (2007).

² For the entire detailed argument, see Sotiropoulou, I (2010a), pp. 13-14.

³ Thick description is not uncontroversial as a notion and as a method. Discussion on this can be found at Redding, G. (2005) and at Ponderotto, J.G. (2006).

⁴ How multiple theories interact with each other and with observation findings and how necessary this is in field research, is well defended by Bensman, J. and Vidich, A. (1960).

⁵ Detailed development of the theoretical arguments used for the first stage of research is found at Sotiropoulou, I. (2010a), pp. 15-18.

B.2.I *The crack – Η ρωγμή*

The first theoretical construction is the notion of “crack” or “ρωγμή”¹. This notion emerged from Professor Stathakis’ own discussion and notes over the schemes we study in this project and by “crack”/“ρωγμή” we mean that those initiatives consist of breaking points for the capitalist economy, as this has been formed the last decades in Greece. The crack can be traced a) in the views of the participants in comparison to the mainstream economy and economic theory and b) in the possibility that multiple market structures created by the schemes might prevent the main market from working as it should or as the liberal theory wants it: as a self-regulating and free [from societal control] market. Neale² asserts that in a markets-system, whenever some of the markets start to work in a non-self-regulating manner, the entire system ceases to be self-regulating³.

Finally, to the notion of the crack one could add John Holloway’s view⁴, according to which the crack might be any activity that does not (or attempts not to) conform to capitalist economic structures and ideas concerning labour. A “crack” exists where a social activity sets the agenda not in response to another social phenomenon but in an original way, focusing not on reaction to a previous situation, but on exploring the needs of the people who perform the activity⁵.

B.2.II *Simmel’s Philosophy of Money⁶ and Bateson’s Ecology of the Mind⁷*

This argument combines Bateson’s theory on schizophrenia based on the idea that the condition is created after a person is constantly exposed to situations of double bind with the “thick description” of the modern capitalist monetary system, as Simmel presents it in his *Philosophy of Money*. Then the schemes we study are an effort of people to avoid the double bind they face within modern economy⁸. People, by participating in the schemes exit from the mainstream economy’s field of communication and acquire an ability (or chance) of meta-communication; they can again comment and renegotiate the conditions of their economic

¹ The definition we use for crack is the one given by Lydia Koniordou, who is a classical theatre actress and theatre director and used the notion of “crack” as the main axis for directing the play of Aeschylus’ *Persai* in 2006.

“The crack is the first sign from which one... can predict an evolution of things. We do not usually pay attention to the crack. What does the crack shows? It shows a conflict of opposite things: whether... they are social propensities, or... big social inequalities, or it is huge arrogance that cannot think of its own destruction, e.g. it is the indication of great contradictions that have not yet been overtly expressed”.

The definition above has been given within the framework of an interview which Ms Koniordou gave on May 26th 2010 especially for this research project

² Neale, W.C. (1957).

³ Neale, W.C. (1957), p. 369.

⁴ Holloway, J. (2010), esp. chapters 1-13.

⁵ This idea of “re-setting the agenda” is perhaps the crucial point for the crack not only in Holloway’s book (see for this chapters 5-10, e.g. pp. 21-79) but also in the research findings, as they will be presented in the next unit of this paper. This is well “found” in the research results, e.g. the schemes, instead of adopting an anti-capitalist discourse or any discourse starting with an “anti-”, tend to create or establishing new themes for discussion or public debate and they act within those new themes. Holloway calls this behaviour “the revolt of doing against labour”, see Holloway, J. (2010), pp. 83-99.

⁶ Simmel, G. (2004).

⁷ Bateson, G. (1972).

⁸ For example, “you need official money to access your food and clothes – I cannot hire you and/or offer you a salary that will provide you with the money to cover your basic needs because I have not official money to pay you”, etc.

activity; finally, they (try to) avoid the market-imposed double binds by using their creativity, which Bateson considers as an alternative to schizophrenia¹.

B.2.III Collective viewings of value, keeping-while-giving and grassroots transaction mechanisms

The third argument starts from Annette Weiner's hypothesis² that people in a specific social and economic setting participate in several types of transactions, not with primary intention to participate in the transactions but aiming to keep out of the transactions what they consider most valuable to them. We also use David Graeber's anthropological theory of value³ as well as his views about capitalist modes of production⁴, as he links value to human action in a wider context, well beyond the notion of labour. So, production and reproduction of ideas and perceptions are also considered action creating and contributing to the value of some things in comparison to other. In support of those two views, there come Caroline Humphrey's results from her field research in Nepal⁵. She concludes that barter not only is not the stage prior to monetary transactions, but rather the stage after a monetary system has started to disintegrate. "Barter is a response to increasing poverty on the part of the people who wish nevertheless to maintain their autonomy"⁶.

Moreover, given that knowledge can also be created by non-scholar people and/or by collective groupings, not only by written word and narration, but by action as such⁷, one can also describe the theoretical approach of the schemes themselves as a collective viewing⁸ of value. Nevertheless, due to complete lack of literature, we can only, at this stage, describe its features, because we think that collective viewings of value are those which permit scheme participants to prioritise their "valuables", decide which of them can enter which transaction and under which rules, and it actually explains why and how all those people bother to defy mainstream evaluations and invent ways to apply their own.

B.3. Checking the three arguments for the first time⁹

Just after having constructed the three arguments presented above in March 2010, we decided that it was time to check them out in real world: we created a list of questions, divided into three groups, of which the questions of the second and third group would be used to create the interview questionnaires. At the end, the questions were nine (or eight) in total for each participant. The questions were not only open-ended, but they also were as simple and as terminology-neutral¹⁰ as possible. Actually, the questions list was constructed in a way to create a fruitful discussion and not to make participants just agree or disagree with something.

¹ Bateson, G. (1972), p. 203.

² Weiner, A. (1992).

³ Graeber, David (2001).

⁴ Graeber, David (2006).

⁵ Humphrey, C. (1985).

⁶ Humphrey, C. (1985), p. 67.

⁷ See for this Biddle, Graeber & Shukaitis (2007).

⁸ We avoid the term "theory", first because it is not a theory, second because "viewing" implies better the positionality of the viewer(s).

⁹ For the first findings of the first stage of research, see Sotiropoulou, I. (2010a), pp. 18-20 and Sotiropoulou, I. (2010b) pp. 18-20.

¹⁰ There is no neutrality in words, however, some words are less "coloured" than others and we tried to use them instead of the "others".

Of course, the most difficult part came just after the interviews started to accumulate. One would say that the open-end questions are very useful in grasping participants' real views but really messy in comparing those views to the theoretical arguments we have to check out.

Analysis showed that all three arguments do not seem to be able to be discarded yet from the project. The third argument, as more detailed, seemed easier to be connected to the participants' discourse, although one should note that the third argument is the author's favourite. So, one should be careful with anything that shows that specific argument to prevail. Another issue was whether the other two arguments have a more... macro-economic nature, which means that we can check them easier with mapping or quantitative data that will be used in the second stage of research.

C. The geography issue¹

Given that the project covers the entire geographic area of Greece and many of the schemes also have a country-wide dispersion, in autumn 2010 it seemed rather necessary to put the information we have gathered so far on the map.

We chose this approach as we could not ignore the importance of space. Moreover, literature on parallel currencies often uses space and geography as an analytical tool². The problem in our case was that it is not only parallel currencies we are studying. This has several implications in terms of literature and methodology but also in terms of possible comparison among schemes of different structure.

The indicator we used was membership. Of course, membership does not reveal much about real function of a scheme³ – however, as a participant pointed out, a scheme might also have among its aims to create “little by little a social web who might believe in exchange” and to ensure that “someone, feeling that there exists something like this, that “*I can at any moment send an email and exchange services with someone else*”, might have more inner balance”. Therefore, we kept the membership as an important indicator, even if we have no data yet about the real, material activity within the schemes and about the economic safety the schemes might provide their members with.

To prepare the maps, we used the Quantum GIS Software and the maps of locating villages, towns and cities as well as the boundaries of the first grade counties as are available online by the Hellenic Statistical Authority⁴. We also used the population data as of the census of 2001, again available by the Hellenic Statistical Authority. The data about the schemes have been either available on the web or provided by the schemes themselves. In some cases, the data were pretty raw, so the author had to work on accumulating information in a quantitative way from membership lists.

This particular method permitted that the research could give some first picture of the geographical dispersion of schemes and their members in Greece compared to the population dispersion of the country. We also tried to compare the geographical dispersion of schemes to the unemployment increase rates for each Greek region during the last years. The results of

¹ The entire study with the maps as of January 2011 is published at Sotiropoulou, I. (2011a).

² See for example, Bates, L. K. and J. Lepofsky (2005) Gelleri, C. (2009), Kennedy, M. and B. A. Lietaer (2008), Leyshon, A. and N. Thrift (1997), Pacione, M. (1999), Williams, C. C. and J. Windebank (2003). Actually, the most difficult part of using this literature was to think what questions should one raise concerning geography of Greek schemes. At the end, the choice made was to create the maps and see what questions emerge from them afterwards.

³ Hodges, J. and M. Stott (1996), pp. 266.

⁴ www.statistics.gr

this last comparison have been, however, inconclusive as of the role of unemployment increase to the establishment and expansion of the schemes¹.

D. Return to theory: The * hypothesis²

Mapping the schemes created much more questions than the ones it was supposed to answer. Actually, mapping pointed out that the initial choice not to integrate historical research and to focus on the actual economic activity, e.g. the one taking place since the beginning of the project in February 2009, was problematic.

Questions raised could be summarised as following: is it possible that all this activity is completely new, e.g. that people shifted suddenly their choices into joining all those schemes in hundreds or thousands? Is it possible that all this activity, for which no literature exists, be so quickly acquired as knowledge by so many people who can “miraculously” coordinate themselves without really many instructions? Is it possible that all this activity is a random choice or just an activity invented because of the new communication technologies available to most people? Can this be just a fashion or just a temporary shelter against economic “crisis” and as a fashion or temporary solution it will fade out once mainstream economy will recover? If this is not a peculiarity of Greek society, then what is really happening?

At this point, in January 2011, there (re-)appeared the historical question: what if this activity needs to be placed within a historical perspective? Of course, there is no chance within this research project to do the historical research required to gather all data necessary to evaluate all the findings and have some definite or at least, satisfactorily verified conclusions. But it has been possible to raise questions and construct one more hypothesis, which will have the features needed to direct the examination of the above mentioned questions into some interesting routes.

For analytical purposes, I distinguished the challenges this economic activity raises for economic theory and mostly for my own research, into a series of “themes challenged and revisited”, so that they are easier to be compared to related literature:

- I. The “deficient” nature of transactions without official currency³.
- II. The transactions without exact measuring and without linear perception of time⁴.
- III. The disdain against rural communities and their economic structures, and the establishment of modern economy⁵.
- IV. The idea that “Small is beautiful” but inefficient⁶.
- V. The “dark otherness” of peasant economies and the “freedom that money gives”⁷.
- VI. The visibility possibility and ability⁸.

¹ Sotiropoulou, I. (2011a), pp. 32-33.

² For the entire discussion on this “no-name” hypothesis and the detailed development of the themes challenged, see Sotiropoulou, I. (2010b).

³ A very informative study about exchange and monetary transactions is that made by Fayazmanesh, S. (2006). Of course, this view is well discussed and criticised in Lietaer, B. (2010).

⁴ See Taussig, M. (pp. 3-12), but also Fayazmanesh, S. (2006), where barter unequal transactions are discussed.

⁵ See particularly Hechter, M. (1974) and Peckham, R.S. (2004).

⁶ Of course, the discussion is based on Schumacher, E.F. (1974) and on Taussig, M. (2010), where a detailed discussion about the efficiency of small traditional production is compared to mass production, with reference to agriculture in Latin America.

⁷ Simmel, G. (2004).

⁸ Mazower, M. (2002), pp. 65-98, 214-218, 221-227, shows how the rapid changes in peasant societies in late 19th-early 20th century had been perceived as non-existent by the capitalist urban culture and the mainstream thought of that era. It is possible that we also need to re-think our perceptions of what changes and what does not change in economy nowadays.

There is no name or title for this hypothesis (yet) because it is too early to name it. It seems that the schemes studied are the surface of an economy or economies which never ceased to exist as both material spaces and experiences in people's histories. They were, however, dismissed, disdained and even disreputed and the first texts that easily accepted this "I do not see for I do not want to see" attitude have been the academic ones, despite that one would expect exactly the opposite.

Finally, the entire discussion is not about naming the schemes studied as modern or old, pre-capitalist or post-capitalist, parallel or resisting to capitalist economy. We might need to view all this activity as coeval to the so-called capitalist or monetary or conventional economy and as setting a different agenda for economics than what capitalist and anti-capitalist discourse can offer. This does not mean that I dismiss any conflictual features or conflict elements that this activity might have because using another transaction mode does not change the economic and social power of the scheme participants.

It becomes evident, however, that the schemes enable their members, while transacting without official currency, to challenge economics here and now, or... once more, if we accept the idea that this challenge has never ceased to exist, even if we have no much information about it.

E. Instead of conclusions

At the edge of the quantitative stage of research, the researcher is wondering how all the above questions can be quantified, so that they are "asked" to scheme participants through a questionnaire or "explored" through quantitative data that the schemes might give. On the other hand, it seems that the first, essential, question (What are those people doing?) is still valid, as it has not been answered yet. It might not be definitely answered anyway within this project's framework. However, this will not be a negative result at all: it is evident that this research will not only be an adventure till the end of the PhD project, but it will also provide interesting hints for further research in the future.

REFERENCES:

- 1) Arensberg, C.M., Pearson H.W. & Polanyi, K., eds (1957). *Trade and market in early empires*. Glencoe, Illinois: Free Press.
- 2) Bates, L. K. & J. Lepofsky (2005). "Helping everyone have PLENTY: Addressing distribution & circulation in an HOURS-based Local Currency System", *International Journal of Community Currency Research*, 9, 1-20.
- 3) Bateson, G. (1972). *Steps to an ecology of the mind – Collected essays in anthropology, psychiatry, evolution and epistemology*. Northvale NJ & London: Jason Aronson Inc..
- 4) Bensman, J. & Vidich, A. (1960). "Social theory in field research", *The American Journal of Sociology*, 65: 6, 577-584.
- 5) Biddle, E., Graeber, D. & Shukaitis, S., eds (2007). *Constituent Imagination: Militant Investigations//Collective Theorization*. Oakland-Edinburgh-West Virginia: AK Press.
- 6) Douthwaite, R. (2006). *Short Circuit*. Online edition updated till July 2006, accessible at www.feasta.org/documents/shortcircuit/index.html.
- 7) Fayazmanesh, S. (2006). *Money and exchange – Folktales and reality*. New York & London: Routledge-Taylor & Francis Group.

- 8) Fisher, I. (1933). *Stamp scrip* (assisted by Hans R. L. Cohnsen & Herbert W. Fisher). New York: Adelphi Company Publishers, accessible at www.appropriate-economics.org/ebooks/fisher/contents.html and at <http://userpage.fu-berlin.de/~roehrigw/>
- 9) Gelleri, C. (2009). "Chiemgauer regiomoney: Theory and practice of a local currency", *International Journal of Community Currency Research*, 13, 61-75.
- 10) Goerner, S., Lietaer, B., McLaren, N. & Ulanowicz, R.E. (2010). "Is our monetary structure a systemic cause for financial instability? Evidence and remedies from nature", *Journal of Future Studies*, 14: 3, 89-108.
- 11) Graeber, D. (2001). *Towards an anthropological theory of value – The false coin of our dreams*. Houndmills & New York: Palgrave.
- 12) Graeber, D. (2006). "Turning modes of production inside out – Or, why capitalism is a transformation of slavery", *Critique of Anthropology*, 26:1, 61-85.
- 13) Gregory, C.A. (1997). *Savage money – The anthropology and politics of commodity exchange*. The Netherlands: Harwood Academic Publishers.
- 14) Hechter, M. (1974). *Internal colonialism – The Celtic fringe in Celtic national development, 1536-1966*. Berkeley & Los Angeles: University of California Press.
- 15) Hodges, J. & Stott, M. (1996). "Local Exchange and Trading Schemes - Never knowingly undersold?", *Local Economy*, 11:3, 266-268.
- 16) Holloway, J. (2010). *Crack Capitalism*. London: Pluto Press.
- 17) Humphrey, C. (1985). "Barter and economic disintegration", *Man (New Series)*, 20:1, 48-72.
- 18) Kennedy, M. (1995). *Interest and Inflation Free Money*. Seva International, accessible at www.appropriate-economics.org/ebooks/kennedy/kennedy.htm.
- 19) Kennedy, M. & Lietaer, B.A. (2008). *Monnaies régionales: De nouvelles voies vers une prospérité durable*. Trans. by V. Guimard. Paris: Éditions Charles Léopold Mayer.
- 20) Leyshon, A. & Thrift, N. (1997, 2005). *Money/Space – Geographies of monetary transformation*. London & New York: Routledge.
- 21) Lietaer, B. (2010). "Monetary monopoly as structural cause for systemic financial instabilities?", in S.Mouatt & C.Adams (eds): *Corporate and social transformation of money and banking: Breaking the serfdom*. Palgrave Macmillan, chapter 2.
- 22) Mazower, M. (2002). *The Balkans*. Trans. Constantinos Kouremenos. Athens: Patakis Publishing [In Greek].
- 23) Neale, W.C. (1957): "The market in theory and history", in C.M.Arensberg, H.W.Pearson & K.Polanyi (eds), *Trade and market in early empires*, Glencoe- Illinois, Free Press, 357-372.
- 24) North, P. (2007). *Money and liberation – The micropolitics of alternative currency movements*. Minneapolis & London: University of Minnesota Press.
- 25) Pacione, M. (1999). "The Other Side of the Coin: Local Currency as a Response to the Globalization of Capital", *Regional Studies*, 33:1, 63-72.
- 26) Peckham, R.S. (2004). "Internal colonialism – Nation and region in 19th century", in M.Todorova (ed), *Balkan identities-Nation and memory*. London: Hurst & Company, 41-58.
- 27) Ponderotto, J.G. (2006). "Brief note on the origins, evolution and meaning of the qualitative research concept "thick description"", *The Qualitative Report*, 11:3, 538-549.
- 28) Redding, G. (2005). "The thick description and comparison of societal systems of capitalism", *Journal of International Business Studies*, 36: 2, 123-155.
- 29) Schumacher, E.F. (1974). *Small is beautiful – A study of economics as if people mattered*. Abacus Edition. London: Sphere Books Ltd.

- 30) Simmel, G. (2004). *The philosophy of money*. 3rd edition, edited by D.Frisby, trans. by T.Bottomore & D. Frisby from a first draft by K.Mengelberg. London & New York: Routledge – Taylor & Francis Group.
- 31) Sotiropoulou, I. (2010a). “Exchange networks & parallel currencies: Theoretical issues or research in Wonderland”, 1st International Conference in Political Economy, titled “*Beyond the Crisis*” (September 10-12th 2010), Rethymno-Greece. Accessible at http://www.iippe.org/wiki/images/d/d2/CONF_APE_Sotiropoulou.pdf
- 32) Sotiropoulou, I. (2010b). “How environmental awareness can be practical and funny while puzzling economists: Exchange networks, parallel currencies and free bazaars in Greece”, *International Conference: Environment, Innovation and Sustainable Development* (October 7-8th, 2010) Marseille-France. Accessible at <http://innovation.univ-littoral.fr/wp-content/uploads/2010/09/sotiropoulou.pdf>.
- 33) Sotiropoulou, I. (2010c). “Alternative Exchange Systems in Contemporary Greece” (Regional Review), *International Journal of Community Currency Research*, 15: Special Issue: The State of the Art, D27-31. Accessible at [http://www.ijccr.net/IJCCR/2011_\(15\)_files/06%20Sotiropoulou.pdf](http://www.ijccr.net/IJCCR/2011_(15)_files/06%20Sotiropoulou.pdf).
- 34) Sotiropoulou, I. (2010d). “In deep (epistemological) waters: Studying transactions without official currency”, unpublished paper, Department of Economics, University of Crete.
- 35) Sotiropoulou, I. (2011a). “Exchange networks & parallel currencies on the map of Greece: Geographical patterns and schemes’ activity”, *International Conference on Community and Complementary Currencies*, (February 16-17th 2011) Lyon-France. Accessible at <http://conferences.ish-lyon.cnrs.fr/index.php/cc-conf/2011/paper/viewFile/98/34>.
- 36) Sotiropoulou, I. (2011b). “Economic activity without official currency in Greece: The * hypothesis”, 2nd International Conference in Political Economy, titled “*Neoliberalism and the crises of economic science*” (May 20-22nd 2011), Istanbul – Turkey. Accessible at http://www.iippe.org/wiki/Conference_2011/Conference_Papers.
- 37) Taussig, M. (2010). *The devil and commodity fetishism in Latin America*. 30th edition with a new chapter by the author. Chapel Hill: The University of North Carolina Press.
- 38) Todorova, M. ed. (2004). *Balkan identities – Nation and Memory*. London: Hurst & Company.
- 39) Weiner, A. (1992). *Inalienable Possessions*. Berkeley & Los Angeles: University of California Press.
- 40) Williams, C. C. & Windebank, J. (2003). "The slow advance and uneven penetration of commodification", *International Journal of Urban and Regional Research*, 27:2, 250-264.
- 41) Zelizer, V. (1997). *The social meaning of money: Pin money, paychecks, poor relief and other currencies*. Princeton NJ: Princeton University Press.