Tomislav Globan*

CAPITAL FLOW REVERSALS DURING A FINANCIAL CRISIS: DOES THE PRE-CRISIS COMPOSITION MATTER?

Record amounts of global capital flows that reached a peak in 2007 came to a sudden stop in the second half of 2008 with the spread of the financial crisis from the U.S. to the rest of the world. Theoretical assumptions considering different characteristics of various types of capital flows emphasize the higher probability for sudden stop or capital reversal episodes during financial crises in countries whose financial accounts rely more on foreign loans, rather than foreign direct investment (FDI). The aim of this paper is to test these assumptions on a sample of 75 advanced and developing countries during the recent financial crisis. The descriptive analysis revealed different reactions to the crisis and post-crisis recovery amongst various groups of emerging and developing economies. Namely, countries of Central and Eastern Europe (CEEC) and Commonwealth of Independent States (CIS), which had relied predominantly on foreign loans financing prior to the crisis, marked greater reduction in inflows comparing to more FDI reliant Latin American and Developing Asian countries. The econometric model using cross-sectional dataset confirmed that countries that in the pre-crisis period relied more on foreign loan financing, recorded more intensive withdrawal of foreign capital during the crisis. The main contribution of the paper is of an empirical nature, as it provides an insight into the determinants of capital reversals during the recent financial crisis on a sample of relatively large

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588

T. GLOBAN: Capital Flow Reversals During a Financial Crisis: Does the Pre-Crisis Composition Matter?
EKONOMSKI PREGLED, 63 (11) 587-607 (2012)

number of countries, and further acknowledges the importance and possible repercussions of the composition of a country's financial account.

Key words: *financial crisis, capital flows, pre-crisis composition, foreign direct investment, foreign loans, emerging and developing countries*

1. Introduction

Global capital flows have reached unprecedented levels over the last 20 years, peaking in 2007, until a financial crisis put a sudden stop to that trend in the second half of 2008. Although the crisis originated from the world's most developed economy (United States) and affected virtually every advanced economy in the world, the biggest reduction of capital inflows occurred in emerging and developing economies (EDEs), which had been using foreign capital to finance their growth in the pre-crisis period. However, economic theory distinguishes various types of foreign capital flows by their characteristics, behaviour during financial crises and effects on balance of payments. Theoretical assumptions emphasize the higher probability for sudden stop or capital reversal episodes during financial crises in countries whose financial accounts rely more on other types of investment, rather than foreign direct investment (FDI) (see Claessens, Dooley and Warner, 1995; Chuhan, Perez-Quiros and Popper, 1996; Rodrik and Velasco, 1999; Sarno and Taylor, 1999).

The purpose of this paper is to test aforementioned assumptions on a sample of 75 advanced and developing countries during the late-2000s financial crisis. The paper first analyses the impact of the global financial crisis on capital flows across different regions of emerging and developing economies and compares the post-crisis recovery of capital flows in these regions. Afterwards, it is empirically tested whether the reasons for noted regional differences in the intensities of capital reversals induced by the financial crisis could be found in the size of the pre-crisis share of FDI and foreign loans in total capital stock. Other determinants of capital flow reversals, such as the pre-crisis size of total capital stock as a measure of financial openness of a country, GDP per capita, and short-term debt to international reserves ratio, are also tested. Moreover, the analysis examines possible differences in reactions to the crisis amongst various groups of countries in the sample as well, namely advanced vs. emerging and developing countries.

The remainder of the paper is structured as follows. The second section carries out the literature review, i.e. theoretical and empirical papers that have dealt with the linkage between the pre-crisis composition of capital flows and their withdrawals during a crisis. Recent trends in global capital flows are described in

T. GLOBAN: Capital Flow Reversals During a Financial Crisis: Does the Pre-Crisis Composition Matter?
EKONOMSKI PREGLED, 63 (11) 587-607 (2012)

589

the third section, while in the fourth section data and methodology of the empirical analysis are presented. Findings of the analysis are given in the fifth section, whereas the sixth concludes the paper with final remarks and policy implications.

2. Literature Review

A notable amount of theoretical and empirical papers stress that an economy's propensity to experience a sudden stop or a capital flow reversal is dependent on the composition of its financial account, i.e. capital flows. The importance of the composition of capital flows arises from the assumption of different levels of volatility, i.e. instability of different types of capital flows. Foreign direct investment is considered as a substantially more stable and less volatile type of flows than foreign loans. Due to its specific character and long-term relationship between the foreign investor and the host company, FDI is considered to be less inclined to withdraw and leave the country in case of a financial crisis. The presence of large, fixed and illiquid assets, which come with direct investment, makes rapid disinvestment more difficult, as opposed to the withdrawal of short-term bank loans or selling shares (Blomström and Kokko, 1997; Borensztein, De Gregorio and Lee, 1998).

Empirical confirmation of the importance of country's financial account composition was provided by Wei (2001, 2006) who analysed a panel of advanced and developing countries and confirmed that sudden withdrawals of foreign capital are more likely if the country relies on foreign bank loans financing, rather than on FDI. The reason might lie in higher volatility of bank loans, compared to the volatility of FDI, in cases of negative trends in economic or policy fundamentals. Author also proved that corruption and crony capitalism lowers the volume of FDI inflows in a capital-importing country. That shifts the composition of capital inflows towards foreign bank loans, which can increase a country's probability of experiencing a future crisis.

Goldstein and Razin (2006) developed a theoretical model that predicts that FDI-financed projects are less reversible and more difficult to liquidate than projects financed by other types of international capital. Dadush, Dasgupta and Ratha (2000) highlight that, out of all types of private capital flows, short-term loans are most likely to be withdrawn first in times of crisis because their withdrawal costs are minimal, in contrast to the withdrawal of FDI, which can include the sale of the plant and equipment and also entail a financial loss if the stocks and bonds are sold during the crisis. Authors emphasize that financial crises in the 1970s and 1990s were preceded by the shortening of the maturity of international bank loans to developing countries. Short-term debt to international reserves ratio

590

T. GLOBAN: Capital Flow Reversals During a Financial Crisis: Does the Pre-Crisis Composition Matter?
EKONOMSKI PREGLED, 63 (11) 587-607 (2012)

proved especially indicative, as it signalled the risk of liquidity crises, bank runs and systemic financial crises.[1]

Frankel and Wei (2004) claim that countries whose financial accounts rely predominantly on short-term dollar liabilities instead of FDI and equity inflows, and countries that hold a low level of international reserves are likely to experience more frequent and more severe financial crises. They find evidence that high inflation combined with a low level of reserves and predominantly short-term composition of capital flows significantly raise the probability of a crisis.

Tong and Wei (2009) analysed the effects of the recent global financial crisis on a large number of firm-level data in developing countries and found that liquidity shocks were higher for countries that in the pre-crisis period had had greater exposure to foreign portfolio investment and foreign loans, while the shocks were smaller in countries where FDI had been the dominant form of capital inflows. Frankel and Rose (1996) analysed a panel of over 100 developing countries over 20 years and found a significantly positive relationship between the "drying up" of FDI inflows and the emergence of currency crises. They emphasize that long-term capital inflows lead to the accumulation of physical capital or the development of human capital, and thus stimulate economic growth.

Levchenko and Mauro (2007) analysed 33 cases of sudden stops of capital inflows in advanced and developing countries in the 1980–2002 period. They found that FDI, despite accounting for a large share of total inflows, remained the most stable type of investment and played almost no role in sudden stops of financial flows. Equity portfolio investment had a minor role in sudden stops, while debt portfolio investment experienced a withdrawal, but with a quick return to pre-crisis levels. The least stable type of investment proved to be other investment in the public sector, banks and non-bank private sector that decreased most during analysed sudden stop episodes and remained at low levels for years afterwards.

Fernández-Arias and Hausmann (2000) also dealt with the question of relevance of the composition of external liabilities in measuring the risk of experiencing a financial crisis, with income per capita and degree of openness amongst control variables. They confirmed the hypothesis that FDI offers a safer form of financing than non-FDI types of flows, but only in developing countries, while developed economies can have large amounts of external liabilities in the form of debt without generating crises. However, they argued that the underlying reason for higher relative safety of FDI is the higher likelihood of crisis that debt liabilities entail when they suffer from maturity or currency mismatches ("original sin").

However, Carlson and Hernández (2002) analysed the Mexican crisis of 1994 and the Asian crisis of 1997 and concluded that no single type of capital flows

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[1] Rodrik and Velasco (1999) come to similar conclusions.

T. GLOBAN: Capital Flow Reversals During a Financial Crisis: Does the Pre-Crisis Composition Matter?
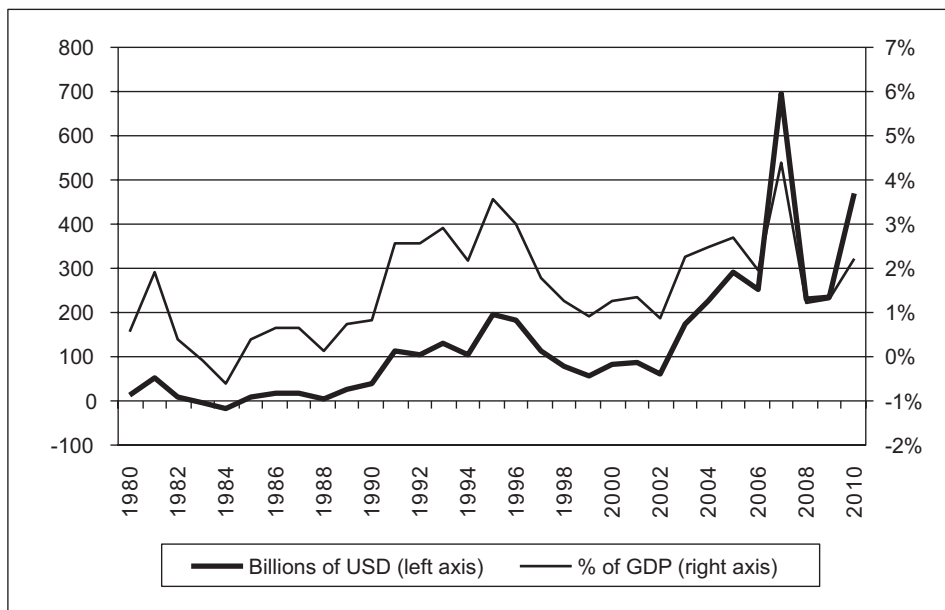EKONOMSKI PREGLED, 63 (11) 587-607 (2012)

591

could be linked with causing a crisis, as the same factors (types of capital flows) had played different roles in these crises. They stress that instead of avoiding certain types of foreign capital inflows, policy makers should monitor a wide range of financial ties and indicators when trying to prevent a financial crisis. For instance, they proved that the currency composition of debt had an impact on the severity of the crisis amongst Asian countries in 1997, while in Mexico in 1994 a high short-term debt to reserves ratio significantly contributed to the crisis. They conclude that a freely fluctuating exchange rate increases the share of short-term debt in total external liabilities, while the imposition of capital restrictions increases the share of FDI in total capital inflows.

3. Recent Trends in Global Capital Flows

The development and expansion of financial globalization and trade liberalization resulted in a surge in global capital flows in the 1990s, which reached

Figure 1:

NET CAPITAL FLOWS TO EMERGING AND DEVELOPING ECONOMIES,
1980 – 2010

Source: IMF – World Economic Outlook Database (April 2011), author's calculations

592

T. GLOBAN: Capital Flow Reversals During a Financial Crisis: Does the Pre-Crisis Composition Matter?
EKONOMSKI PREGLED, 63 (11) 587-607 (2012)

hitherto unprecedented levels. The composition of capital receiving countries has also changed over time. After decades in which the main recipients of foreign capital were advanced economies with highest incomes per capita, this trend turned in favour of less developed countries in the late 20th century (World Bank, 1999). Higher interest rates than in advanced economies, financial deregulation and increased liquidity in the global market have made EDEs very attractive to foreign investors. Capital flows to these countries reached a peak in 2007 when they reached almost USD 700 billion or 4.4 per cent of aggregate GDP (Figure 1).

Amongst emerging and developing economies, Central and Eastern European countries (CEECs) have attracted highest amounts of foreign capital (Figure 2a). After decades of relatively low foreign capital inflows, the transition from planned to market economies in the early 1990s indicated the beginning of the period of much higher capital inflows in the region. Gradual capital account liberalization that has accompanied the process of convergence and integration of transition countries into the European Union, and other international economic organizations like OECD, proved especially stimulating for capital inflows (Globan, 2011).

Figure 2:

THE COLLAPSE AND RECOVERY OF NET CAPITAL FLOWS IN SELECTED GROUPS OF EDES

(a) in per cent of GDP (b) in per cent of pre-crisis (2007) levels
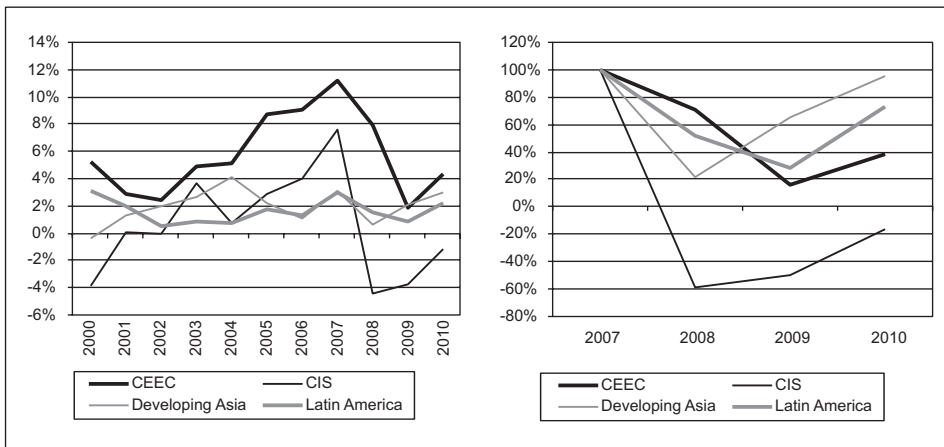
Source: IMF – World Economic Outlook Database (April 2011), author's calculations

T. GLOBAN: Capital Flow Reversals During a Financial Crisis: Does the Pre-Crisis Composition Matter?
EKONOMSKI PREGLED, 63 (11) 587-607 (2012)

593

The period of extremely high global capital flows ended abruptly in 2008 with the outbreak of the global financial crisis. Expanding global distrust and high risk aversion amongst investors resulted in a capital flight to safer forms of assets, and the strongest effects were felt in emerging and developing countries, where net capital flows in 2008 dropped to one-third of the pre-crisis year level (Figure 1). Every EDE region experienced a sharp reduction (sudden stop) in capital flows during 2008, with Commonwealth of Independent States (CIS) countries losing 158 per cent, and Developing Asia losing 79 per cent of value of the flows recorded in 2007 (Figure 2b). Capital flow reduction in CEECs and Latin America was somewhat more moderate during 2008, but accelerated in the following year, when their net capital flows dropped to 16 and 28 per cent of the pre-crisis levels, respectively. However, the strength of the post-crisis recovery was uneven amongst EDE regions. Net capital flows to Latin America and Developing Asia ascended very quickly and already in 2010 almost equalled pre-crisis (2007) levels (Figure 2b). Meanwhile, the recovery in capital flows to CEEC and CIS regions, which were

Figure 3:

THE COMPOSITION OF NET CAPITAL FLOWS
IN SELECTED GROUPS OF EDES IN 2007
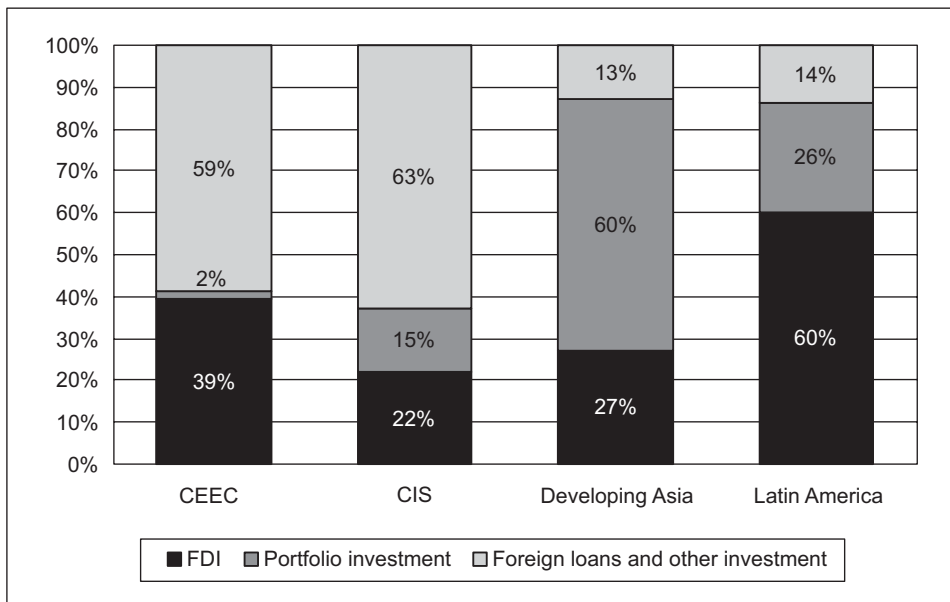
Source: IMF – World Economic Outlook Database (April 2011), author's calculations

hit hard by the economic crisis, did occur, but so far remained sluggish throughout the post-crisis period.

The possible explanation for the unevenness of capital flows reaction to the crisis and recovery could lie in differences in flows' pre-crisis composition across EDE regions. The importance of foreign loans declined significantly in Developing Asia and Latin America during 2000s, while, in contrast, the share of foreign loans in emerging Europe (CEEC and CIS) went up in the same period (IMF, 2011: 153), at the expense of FDI and other equity investment. Consequently, and in compliance with the literature analysed in the previous section, Developing Asia and Latin America met the crisis with more favourable composition of capital flows than other EDE regions. The share of foreign loans in total net capital flows in 2007 in Developing Asia and Latin America amounted to only 13 and 14 per cent respectively, and FDI flows exceeded foreign loans in both of these regions (Figure 3).

Meanwhile, in CEEC and CIS countries foreign loans accounted for 59 and 63 per cent of total capital flows, respectively, which significantly exceeded FDI flows and made them more vulnerable to the possibility of capital flow reversals during the upcoming crisis.[2]

4. Data and Methodology

To test the hypothesis of an existing statistically significant linkage between the pre-crisis composition of capital flows and capital flow reversals during the recent global financial crisis, a cross-section regression analysis is conducted on a sample of 75 advanced and developing economies. The full list of countries together with their respective country groupings is given in Appendix A. The determination of the sample was based on data availability, with offshore centres excluded from the analysis. All data have been retrieved from International Monetary Fund's (IMF) statistical databases – Balance of Payments Statistics (BOPS), International Financial Statistics (IFS) and World Economic Outlook (WEO) database.

The description of variables included in the model is given in Table 1. The dependent variable in the multiple linear regression model is the reversal of total net capital flows from 2007 to 2009 (variable *REVERSAL*). The year 2007 has been selected since it is the last pre-crisis year and the year in which capital flows marked highest values in most countries, while the reason for selecting year 2009

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[2]   Foreign loans into CEECs were facilitated by the strong presence of Western European banks in their markets (Bakker and Gulde, 2010).

T. GLOBAN: Capital Flow Reversals During a Financial Crisis: Does the Pre-Crisis Composition Matter?
EKONOMSKI PREGLED, 63 (11) 587-607 (2012)

595

as the lowest point of the crisis lies in the fact that during that year the sudden stop of capital flows was most evident in majority of countries. From 2010 onwards, the post-crisis recovery of capital flows started in most countries. The difference between the 2009 and 2007 flows is multiplied by (-1), so that positive coefficients of explanatory variables would indicate connections to higher, instead of lower, amounts of capital reversals.

Table 1:

DESCRIPTION OF VARIABLES USED IN THE MODEL[3]

Name	Variable description	Variable calculation	Source
REVERSAL	The reversal of total net capital flows[1] from 2007 to 2009.	$(TOTAL_{2009}/GDP_{2009} - TOTAL_{2007}/GDP_{2007})*(-1)$	BOPS, IFS, WEO
FDI_07	The share of FDI stock in total capital stock in 2007.	$FDI\_STOCK_{2007}/TOTAL\_STOCK_{2007}$	BOPS
LOANS_07	The share of stock of foreign loans in total capital stock 2007.	$LOANS\_STOCK_{2007}/TOTAL\_STOCK_{2007}$	BOPS, WEO
TOTAL_07	The share of total capital stock in nominal GDP in 2007.	$TOTAL\_STOCK_{2007}/GDP_{2007}$	BOPS, WEO
GDPPC	GDP per capita based on PPP in 2007, in current international dollars.	-	IFS
STDEBT	The short-term debt portfolio flows to total international reserves ratio in 2007.	$SHORT\_TERM\_DEBT_{2007}/RESERVES_{2007}$	IFS
SMALL	Binary variable that indicates small economies.	1 if $GDP_{2007} <$ USD 5 billion; 0 if $GDP_{2007} >$ USD 5 billion	WEO
DEVELOP	Binary variable that indicates the affiliation of a country to the group of emerging and developing economies.	Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Italy, Japan, Korea Republic, New Zealand, Norway, Portugal, Slovak Republic, Slovenia, Spain, Sweden, United Kingdom, United States = 0; Others = 1	WEO

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[3] Total net capital flows were obtained by the sum of net FDI, financial derivatives, portfolio and other investment inflows.

596

T. GLOBAN: Capital Flow Reversals During a Financial Crisis: Does the Pre-Crisis Composition Matter?
EKONOMSKI PREGLED, 63 (11) 587-607 (2012)

To investigate whether the pre-crisis composition of capital flows has had any impact on the intensity of capital flow reversals, variables *FDI_07* and *LOANS_07*, which measure the share of FDI stock and stock of foreign loans in total capital stock in 2007 respectively, are included in the model. The importance of the pre-crisis size of total capital stock, as a measure of financial openness of the country, in explaining capital flows behaviour during the crisis is also tested, hence the variable *TOTAL_07*. Similar to Fernández-Arias and Hausmann (2000), variable *GDPPC* is included in the model to control for the pre-crisis level of GDP per capita in each country. Moreover, similar to Rodrik and Velasco (1999) and Dadush, Dasgupta and Ratha (2000) who emphasized the role of short-term debt to international reserves ratio as a determinant of capital reversals in previous financial crises, the variable *STDEBT* is included in the model. It measures each country's pre-crisis share of short-term portfolio debt flows in total international reserves. Furthermore, the model contains two binary variables. As in Fernández-Arias and Hausmann (2000), variable *SMALL* controls for the size of the economy, i.e. indicates small economies where the volume of GDP is lower than USD 5 billion[4]. On the other hand, variable *DEVELOP* differentiates between advanced and developing economies. For detailed data on values of variables for all countries included in the analysis see Appendix A.

To confirm the stationarity of variables, Augmented Dickey-Fuller (ADF) tests were carried out, results of which are given in Table 2. The test showed that all variables are stationary I(0) at usual significance levels and as such can be used in estimating the equation using ordinary least squares (OLS).

Table 2:

T-STATISTICS FROM ADF TESTS

Variable	Intercept	Trend and Intercept	None
REVERSAL	-7.824***	-7.783***	-6.661***
FDI_07	-8.229***	-8.242***	-1.472
LOANS_07	-8.257***	-8.195***	-0.590
TOTAL_07	-8.719***	-8.674***	-1.391
GDPPC	-8.800***	-8.757***	-1.499
STDEBT	-6.880***	-6.961***	-6.172***

Note: ***the null hypothesis of the series being non-stationary can be rejected at the significance level of 1%.

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[4] The USD 5 billion threshold is used as in Fernández-Arias and Hausmann (2000).

T. GLOBAN: Capital Flow Reversals During a Financial Crisis: Does the Pre-Crisis Composition Matter?
EKONOMSKI PREGLED, 63 (11) 587-607 (2012)

597

The following regression equation has been econometrically estimated:

$$REVERSAL_i = \alpha + \beta FDI\_07_i + \gamma LOANS\_07_i + \delta X_i + \varepsilon_i \qquad (1)$$

where α represents a constant term, β, γ and δ are parameters, ε_i is an error term, and X_i is a vector of control variables that consists of variables *TOTAL_07*, *GDPPC*, *STDEBT* and binary variables *SMALL* and *DEVELOP*. Based on the theoretical and empirical framework mentioned in previous sections, the key parameters β and γ are expected to be negative and positive, respectively.

Estimated equation has been tested for the presence of heteroskedasticity and serial correlation of residuals. Since the results of the White test have indicated the presence of heteroskedasticity, standard errors and variances are corrected using the Newey-West correction method after which they are robust to heteroskedasticity. As expected in cross-section regressions, Breusch-Godfrey Lagrange multiplier test has shown no evidence of the serial correlation problem. Equation has also been tested for the presence of multicollinearity, but the correlation matrix of variables does not indicate the existence of this problem.[5]

5. Findings

The results of an estimated equation are given in Table 3. The 2007 share of FDI in total capital stock turned out not to have a significant impact on capital flow reversals during the crisis. However, the pre-crisis share of foreign loans in total capital stock was statistically significant and had an expected positive sign. Results imply that one per cent higher share of foreign loans in total capital stock has increased the capital flow reversal on average by 0.22 per cent of GDP, holding all other variables constant. In other words, countries that relied more on foreign loan financing rather than FDI in the pre-crisis period, experienced more intensive capital flow reversals during the global financial crisis. Furthermore, the results reveal that more financially open countries, i.e. countries that accumulated higher amounts of foreign capital relative to GDP prior to the crisis, experienced more pronounced capital flow reversals.

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[5] Detailed results of White, Breusch-Godfrey and multicollinearity tests are available upon request.

598

T. GLOBAN: Capital Flow Reversals During a Financial Crisis: Does the Pre-Crisis Composition Matter?
EKONOMSKI PREGLED, 63 (11) 587-607 (2012)

Table 3:

RESULTS OF AN ESTIMATED EQUATION

Dependent variable: *REVERSAL*			
Method of estimation: OLS			
Number of observations: 75			
HAC standard errors and covariance			
Variable	**Coefficient**	**t-statistic**	**p-value**
constant	-0.446***	-5.001	0.000
FDI_07	0.052	0.671	0.505
LOANS_07	0.221**	2.195	0.032
TOTAL_07	0.210***	5.684	0.000
GDPPC	7.26×10^{-6}***	2.905	0.005
STDEBT	-0.026**	-2.162	0.034
SMALL	-0.120***	-4.591	0.000
DEVELOP	0.156**	2.640	0.010
R-squared	0.818	Akaike info criterion	-1.430
Adjusted R-squared	0.799	Schwarz criterion	-1.182
S.E. of regression	0.113	Hannan-Quinn criter.	-1.331
F-statistic	43.146	Durbin-Watson stat.	1.582
Prob(F-statistic)	0.000		

Note: ***significant at 1%; **significant at 5%

The level of pre-crisis GDP per capita in terms of purchasing power parity proved also a significant explanatory variable for capital reversals. Results imply that higher pre-crisis income per capita is connected with more pronounced decreases of net capital flows during the crisis. However, the coefficient of the variable *GDPPC* is very small, which indicates that large changes in GDP per capita are needed in order to make any significant impact on the intensity of capital flow reversals.

Results reported in Table 3 indicate that the pre-crisis short-term debt to international reserves ratio was another significant determinant of capital flow reversals. However, the negative sign of the coefficient of variable *STDEBT* was rather unexpected, as it implies that higher shares of debt flows with short maturity in the eve of the crisis are related to the smaller volume of capital reversals during the crisis. This result contrasts the results obtained by Rodrik and Velasco (1999) and Dadush, Dasgupta and Ratha (2000) who showed that high amounts of short-term debt were one of the main determinants of capital reversals during financial crises

T. GLOBAN: Capital Flow Reversals During a Financial Crisis: Does the Pre-Crisis Composition Matter?
EKONOMSKI PREGLED, 63 (11) 587-607 (2012)

599

in the 1990s. However, it needs to be noted that these two papers used short-term loans as a measure of debt flows, while this paper uses short-term debt portfolio flows, since the data for short-term loans were not available.

Empirical analysis confirmed different reactions to the crisis amongst various groups of countries in the sample. Emerging and developing economies experienced more severe capital flow reduction during the crisis comparing to advanced economies, which marked on average 0.16 per cent of GDP lower capital reduction than emerging and developing economies. This result is expected since risk aversive international investors sought refuge during the crisis in safer types of investment in countries with high credit ratings. Moreover, the coefficient of the variable that represents small economies (*SMALL*) was statistically significant and its negative sign suggests that small economies were less affected by the crisis in terms of capital reversals.

In order to check the robustness of obtained results, similar analysis was conducted on three different subsamples of countries. The first one omitted small economies from the main sample, the second one omitted countries that experienced extremely large amounts of capital reversals relative to other countries in the sample (Belgium, Hungary, Iceland, United Kingdom), while the third one excluded advanced economies from the sample, i.e. contained only emerging and developing economies. The results are reported in Appendix B and they do not differ much from results reported in Table 3. Most importantly, the coefficient of the variable *LOANS_07* is statistically significant and has a positive sign in all cases. That constitutes further evidence that countries are more likely to experience more intensive capital flow reversals during a financial crisis, the higher is their pre-crisis share of foreign loans in total capital stock.

6. Conclusion and Policy Implications

The late-2000s financial crisis seriously affected global capital flows, and emerging and developing (EDE) countries, as the dominant capital recipients, took the hardest hit. Although every EDE region experienced a sharp reduction in capital flows during 2008, the post-crisis recovery was uneven, with Developing Asia and Latin America quickly catching up to the pre-crisis levels. In contrast, CEE and CIS countries, hard hit by the economic crisis, struggled to reach similar pace of recovery in capital flows. The purpose of the paper was to econometrically test whether the pre-crisis composition of capital flows can explain the behaviour of flows during the crisis, and also their diverse behaviour across regions of EDEs. The previously theoretically and empirically backed hypothesis that describes FDI

600

T. GLOBAN: Capital Flow Reversals During a Financial Crisis: Does the Pre-Crisis Composition Matter?
EKONOMSKI PREGLED, 63 (11) 587-607 (2012)

as a safer form of capital flows than foreign loans and stresses that FDI, if dominant in financial account, keeps capital flows stable during crisis periods, was put to the test using a linear regression model on a sample of 75 advanced and developing countries for the period of the recent financial crisis. In years prior to the crisis, financial accounts of Developing Asian and Latin American economies relied more on FDI and equity inflows and tilted away from foreign loans, while CEEC and CIS countries were characterised by opposite trends.

Results of the econometric model proved that the pre-crisis share of foreign loans in total capital stock was significantly and positively correlated with more intensive capital flow reversals during the recent crisis. Thereby, the findings of the paper confirmed theoretical assumptions that countries that rely more on foreign loans (debt) rather than FDI (equity) financing, are expected to experience more intensive capital flow reversals during a financial crisis. Moreover, statistically significant positive relationship between the emerging and developing countries and the higher intensity of crisis-related capital flow reversals proved that capital flows to those economies were hit by the crisis harder than advanced economies. In CEEC and CIS countries, foreign loans, facilitated by the strong presence of Western European banks in their markets, significantly exceeded FDI flows in the pre-crisis years, which made them more prone to capital flow withdrawals during the upcoming crisis. The crisis-induced flight of investment to less risky forms of assets in terms of expanding global distrust and high risk aversion amongst investors affected more financially open and foreign capital dependent countries stronger, which was also econometrically confirmed by the analysis. Furthermore, empirical results highlighted a statistically significant positive relationship between the level of income per capita (measured by GDP per capita) and the intensity of capital reversals, but also a rather unexpected negative relationship between reversals and a short-term debt to international reserves ratio.

The main contribution of the paper is of an empirical nature, as it provides an insight into the determinants of capital reversals during the recent financial crisis on a sample of relatively large number of countries, and further acknowledges the importance and possible repercussions of the composition of a country's financial account. Results obtained support theoretical assumptions about the greater instability and insecurity of foreign loan debt financing during crisis periods, as it provides more exposure to potentially harmful sudden and large capital reversals than equity financing, i.e. foreign direct investment. This can serve as a warning to economic policy makers about the potential risks that debt type of financing, especially the inflow of foreign loans, entails, and serve as a stimulus to make further effort to eliminate administrative, legislative and other barriers to the inflow of foreign direct investment.

T. GLOBAN: Capital Flow Reversals During a Financial Crisis: Does the Pre-Crisis Composition Matter?
EKONOMSKI PREGLED, 63 (11) 587-607 (2012)

601

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T. GLOBAN: Capital Flow Reversals During a Financial Crisis: Does the Pre-Crisis Composition Matter?
EKONOMSKI PREGLED, 63 (11) 587-607 (2012)

603

APPENDIX A – Individual country data used in the analysis

COUNTRY	GROUP	REVERSAL	FDI_07	LOANS_07	TOTAL_07	GDPPC	STDEBT
Argentina	Latin America	-2.43%	39.35%	19.51%	65.52%	13331.24	0.69%
Australia	Advanced	-0.60%	26.49%	6.67%	154.22%	37068.71	296.01%
Austria	Advanced	-41.40%	24.43%	4.80%	309.51%	38621.17	146.51%
Bangladesh	Developing Asia	0.07%	16.47%	79.32%	37.26%	1324.10	4.55%
Belarus	CIS	-3.19%	27.17%	42.96%	36.45%	10938.44	0.08%
Belgium	Advanced	-95.85%	33.97%	29.66%	502.07%	35797.51	397.83%
Bosnia-Herzegovina	CEEC	-5.92%	69.40%	50.00%	52.52%	7205.08	0.03%
Brazil	Latin America	-1.31%	33.65%	9.67%	67.36%	9893.92	4.20%
Bulgaria	CEEC	2.69%	59.21%	24.46%	156.16%	12095.58	0.92%
Burkina Faso	Sub-Saharan Africa	0.23%	17.78%	52.88%	47.20%	1216.80	0.09%
Canada	Advanced	-5.31%	37.10%	4.62%	94.12%	38427.48	81.26%
Cape Verde	Sub-Saharan Africa	-1.70%	45.92%	48.43%	131.96%	3212.32	0.02%
Chile	Latin America	-3.46%	60.67%	19.40%	94.76%	14742.36	3.80%
China PR	Developing Asia	-0.46%	99.23%	8.42%	35.15%	5547.55	0.66%
Colombia	Latin America	1.04%	54.42%	25.80%	49.65%	8682.71	0.67%
Côte d'Ivoire	Sub-Saharan Africa	3.41%	25.38%	65.97%	113.32%	1618.99	6.19%
Croatia	CEEC	-3.37%	50.08%	32.86%	151.30%	17888.25	1.62%
Czech Republic	Advanced	-9.20%	57.50%	14.42%	108.31%	25293.79	0.31%
Denmark	Advanced	-32.89%	22.05%	5.33%	235.17%	37162.40	34.57%
Dominican Republic	Latin America	-4.57%	61.60%	37.32%	51.70%	7625.69	11.74%
Ecuador	Latin America	-1.48%	36.54%	39.42%	62.11%	7023.76	1.07%
Egypt	Middle East	-1.82%	59.61%	33.03%	65.00%	5504.82	11.22%
El Salvador	Latin America	-1.89%	39.75%	42.38%	74.56%	7207.67	1.39%
Estonia	CEEC	-19.17%	47.47%	26.12%	182.06%	20971.24	0.14%

604

T. GLOBAN: Capital Flow Reversals During a Financial Crisis: Does the Pre-Crisis Composition Matter?
EKONOMSKI PREGLED, 63 (11) 587-607 (2012)

COUNTRY	GROUP	REVERSAL	FDI_07	LOANS_07	TOTAL_07	GDPPC	STDEBT
Finland	Advanced	-1.09%	20.10%	5.08%	256.91%	35283.92	187.65%
France	Advanced	-19.15%	17.39%	32.53%	279.72%	33470.10	373.73%
Georgia	CIS	-5.07%	57.08%	36.30%	94.07%	4677.08	0.08%
Germany	Advanced	-25.25%	19.42%	30.55%	192.90%	34567.48	417.51%
Greece	Advanced	-3.58%	8.94%	32.28%	191.34%	28587.47	354.34%
Guatemala	Latin America	-1.16%	35.39%	53.21%	44.00%	4732.41	1.27%
Honduras	Latin America	-1.58%	56.29%	40.44%	63.88%	4090.14	0.83%
Hungary	CEEC	-58.85%	76.63%	11.49%	252.03%	18805.42	3.58%
Iceland	Advanced	-160.36%	15.74%	26.30%	645.92%	39753.57	67.49%
India	Developing Asia	1.03%	25.77%	23.70%	35.61%	2724.44	1.97%
Indonesia	Developing Asia	-0.47%	32.59%	35.06%	61.71%	3689.97	7.93%
Italy	Advanced	-6.45%	14.90%	26.66%	155.65%	30645.56	192.88%
Jamaica	Latin America	-13.31%	46.72%	41.37%	144.06%	8940.84	4.91%
Japan	Advanced	-9.96%	4.36%	23.57%	72.54%	33609.20	16.58%
Jordan	Middle East	-6.37%	47.81%	19.16%	232.42%	5094.85	0.09%
Kazakhstan	CIS	-16.86%	40.51%	43.94%	118.21%	10840.38	3.34%
Korea Republic	Advanced	-6.10%	14.76%	19.71%	78.76%	26579.13	4.55%
Kuwait	Middle East	-38.77%	1.57%	45.92%	52.51%	37979.63	3.96%
Kyrgyz Republic	CIS	5.07%	22.92%	61.25%	92.07%	1997.28	0.00%
Latvia	CEEC	-24.05%	24.60%	50.59%	165.02%	17148.68	0.29%
Lithuania	CEEC	-2.76%	37.43%	41.00%	108.56%	18168.65	0.36%
Mali	Sub-Saharan Africa	-2.16%	30.18%	53.56%	44.77%	1002.46	0.08%
Morocco	Middle East	-2.41%	63.12%	27.31%	81.32%	4123.52	0.07%
Mozambique	Sub-Saharan Africa	-3.97%	33.35%	61.94%	116.85%	846.76	0.01%
Namibia	Sub-Saharan Africa	-4.10%	75.19%	20.14%	58.18%	6398.68	3.43%
New Zealand	Advanced	-2.82%	33.09%	19.84%	157.53%	26904.54	39.59%

T. GLOBAN: Capital Flow Reversals During a Financial Crisis: Does the Pre-Crisis Composition Matter?
EKONOMSKI PREGLED, 63 (11) 587-607 (2012)

605

COUNTRY	GROUP	REVERSAL	FDI_07	LOANS_07	TOTAL_07	GDPPC	STDEBT
Nigeria	Sub-Saharan Africa	-4.37%	57.54%	13.44%	39.10%	2052.49	1.71%
Norway	Advanced	-37.48%	20.54%	24.59%	199.89%	52426.70	27.99%
Pakistan	Developing Asia	0.20%	34.87%	53.06%	51.31%	2583.23	0.53%
Peru	Latin America	1.80%	34.03%	29.44%	73.47%	7783.73	2.78%
Poland	CEEC	-3.29%	47.26%	17.58%	93.79%	16370.18	0.81%
Portugal	Advanced	-3.22%	18.97%	21.55%	286.20%	22697.12	1118.85%
Romania	CEEC	0.70%	47.68%	30.95%	78.47%	11494.50	0.27%
Russian Federation	CIS	-4.71%	39.51%	26.92%	95.62%	14899.38	0.34%
Senegal	Sub-Saharan Africa	3.21%	13.99%	49.47%	53.05%	1705.10	0.74%
Slovak Republic	Advanced	4.76%	62.60%	9.94%	101.07%	20341.98	1.98%
Slovenia	Advanced	-25.51%	25.64%	37.24%	130.49%	27992.31	20.91%
South Africa	Sub-Saharan Africa	-2.08%	38.99%	10.28%	99.09%	9933.76	1.28%
Spain	Advanced	-12.54%	20.88%	7.74%	220.61%	30471.56	386.78%
Sweden	Advanced	-25.15%	26.13%	20.18%	255.09%	37481.00	224.46%
Syria	Middle East	-0.24%	39.18%	56.70%	27.98%	4489.65	0.03%
Tanzania	Sub-Saharan Africa	1.66%	48.89%	48.61%	80.14%	1180.85	0.07%
Thailand	Developing Asia	-4.52%	44.14%	14.61%	87.78%	8286.15	0.21%
Tunisia	Middle East	-0.58%	54.13%	34.02%	123.77%	8401.27	0.13%
Turkey	CEEC	-2.48%	32.17%	33.07%	74.29%	12649.72	3.46%
Uganda	Sub-Saharan Africa	0.29%	60.10%	33.82%	48.27%	1076.58	0.24%
Ukraine	CIS	-7.37%	32.78%	40.60%	81.99%	6961.28	3.02%
United Kingdom	Advanced	-88.79%	7.61%	11.83%	574.52%	35751.42	958.66%
United States	Advanced	-11.08%	14.46%	10.92%	144.39%	46467.47	970.43%
Venezuela	Latin America	-7.70%	54.30%	15.17%	37.77%	12189.40	2.44%
Yemen	Middle East	1.90%	32.20%	67.80%	42.82%	2347.82	0.00%

Sources: BOPS, IFS, WEO, author's calculations

Note: Country groups are determined by the IMF, available at: http://www.imf.org/external/pubs/ft/weo/2011/01/weodata/weoselagr.aspx

606

T. GLOBAN: Capital Flow Reversals During a Financial Crisis: Does the Pre-Crisis Composition Matter?
EKONOMSKI PREGLED, 63 (11) 587-607 (2012)

APPENDIX B – Results of estimated equations based on three different subsamples

Model without small economies

Dependent variable: *REVERSAL*			
Method of estimation: OLS			
Number of observations: 73			
HAC standard errors and covariance			
Variable	**Coefficient**	**t-statistic**	**p-value**
constant	-0.446***	-5.208	0.000
FDI_07	0.052	0.675	0.502
LOANS_07	0.221**	2.216	0.030
TOTAL_07	0.210***	5.712	0.000
GDPPC	7.26×10^{-6}***	3.111	0.003
STDEBT	-0.026**	-2.177	0.033
DEVELOP	0.156***	2.801	0.007
R-squared	0.817	Akaike info criterion	-1.424
Adjusted R-squared	0.800	Schwarz criterion	-1.205
S.E. of regression	0.113	Hannan-Quinn criter.	-1.337
F-statistic	49.093	Durbin-Watson stat.	1.615
Prob(F-statistic)	0.000		

Note: ***significant at 1%; **significant at 5%

Model without small economies and countries that experienced extremely large capital reversals

Dependent variable: *REVERSAL*			
Method of estimation: OLS			
Number of observations: 69			
HAC standard errors and covariance			
Variable	**Coefficient**	**t-statistic**	**p-value**
constant	-0.239***	-4.091	0.000
FDI_07	0.014	0.329	0.743
LOANS_07	0.151**	2.400	0.019
TOTAL_07	0.056**	2.644	0.010
GDPPC	8.31×10^{-6}***	6.063	0.000
STDEBT	-0.013***	-2.796	0.007
DEVELOP	0.103***	2.715	0.009
R-squared	0.632	Akaike info criterion	-2.501
Adjusted R-squared	0.597	Schwarz criterion	-2.275
S.E. of regression	0.066	Hannan-Quinn criter.	-2.411
F-statistic	17.775	Durbin-Watson stat.	2.276
Prob(F-statistic)	0.000		

Note: ***significant at 1%; **significant at 5%

T. GLOBAN: Capital Flow Reversals During a Financial Crisis: Does the Pre-Crisis Composition Matter?
EKONOMSKI PREGLED, 63 (11) 587-607 (2012)

607

Model without advanced economies

Dependent variable: *REVERSAL*			
Method of estimation: OLS			
Number of observations: 49			
HAC standard errors and covariance			
Variable	Coefficient	t-statistic	p-value
constant	-0.085***	-3.277	0.002
FDI_07	0.001	0.029	0.977
LOANS_07	0.099***	2.957	0.005
TOTAL_07	0.020	1.160	0.252
GDPPC	8.10×10^{-6}***	4.971	0.000
STDEBT	0.188	1.177	0.246
R-squared	0.580	Akaike info criterion	-3.013
Adjusted R-squared	0.531	Schwarz criterion	-2.781
S.E. of regression	0.051	Hannan-Quinn criter.	-2.925
F-statistic	11.892	Durbin-Watson stat.	1.658
Prob(F-statistic)	0.000		

Note: ***significant at 1%

ZAUSTAVLJANJE PRILJEVA KAPITALA TIJEKOM FINANCIJSKE KRIZE: JE LI VAŽNA NJIHOVA PRETKRIZNA STRUKTURA?

Sažetak

Rekordni iznosi globalnih tokova kapitala koji su dosegli vrhunac u 2007., doživjeli su nagli zastoj u drugoj polovici 2008. širenjem financijske krize iz SAD-a na ostatak svijeta. Teorijske pretpostavke o različitim značajkama pojedinih vrsta kapitalnih priljeva ističu veću vjerojatnost za nagli zastoj ili bijeg kapitala tijekom financijskih kriza u zemljama čiji se financijski računi platne bilance više oslanjaju na inozemne kredite, nego na izravna strana ulaganja (FDI). Cilj ovog rada jest ispitati vrijede li navedene pretpostavke na uzorku od 75 razvijenih i zemalja u razvoju tijekom razdoblja recentne financijske krize. Deskriptivna analiza je otkrila različite reakcije na krizu, ali i različitu dinamiku postkriznog oporavka između pojedinih skupina zemalja u razvoju. Naime, zemlje Srednje i Istočne Europe te Zajednice nezavisnih država, koje su se u pretkriznom razdoblju pretežno financirale inozemnim kreditima, zabilježile su znatno veće smanjenje priljeva u odnosu na FDI-u sklonije zemlje Latinske Amerike i Azije. Rezultati ekonometrijskog modela potvrdili su da su zemlje koje su se u pretkriznom razdoblju oslanjale dominantno na inozemne kredite, zabilježile intenzivnije epizode povlačenja inozemnog kapitala tijekom krize. Glavni doprinos ovog rada je empirijske naravi, s obzirom da pruža uvid u odrednice bijega kapitala zabilježenog tijekom nedavne financijske krize na uzorku relativno velikog broja zemalja te daje daljnju potvrdu o važnosti i mogućim posljedicama strukture financijskog računa platne bilance.

Ključne riječi: financijska kriza, priljevi kapitala, pretkrizna struktura, izravna strana ulaganja, inozemni krediti, zemlje u razvoju