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Dipartimento  
del Tesoro

*Financial integration, institutional quality and  
international holdings composition in the EMU*

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## Motivation (i)

- This paper studies the effects of financial integration and institutional quality on international holdings composition in the EMU countries over the period 1986-2014.
- It analyzes the dynamics of three main components namely, foreign direct investments, portfolio debt investments, and portfolio equity investments.
- The composition of international holdings plays an important role in determining vulnerabilities, likelihood of crises, resilience, economic performance and also..... in assessing the “endogeneity hps” for the EMU”.

## Motivation (ii): is EMU a self-fulfilling prophecy?

- "*Is EMU more justifiable ex post than ex ante?*" "yes" in Frankel and Rose (1998) *ex ante* analysis.
- Our *ex post* examinations suggest that the hps does not hold.
- The EMU periphery has not performed as well as predicted by the endogeneity hps
  - i) Caporale G., De Santis R. and A. Girardi (2015) "*Trade intensity and output synchronization: The endogeneity properties of EMU*", Journal of Financial Stability.
  - ii) Cesaroni T. and De Santis R. (2016), "*Current account "core periphery dualism" in the EMU*", The World Economy.

## Motivation (iii)

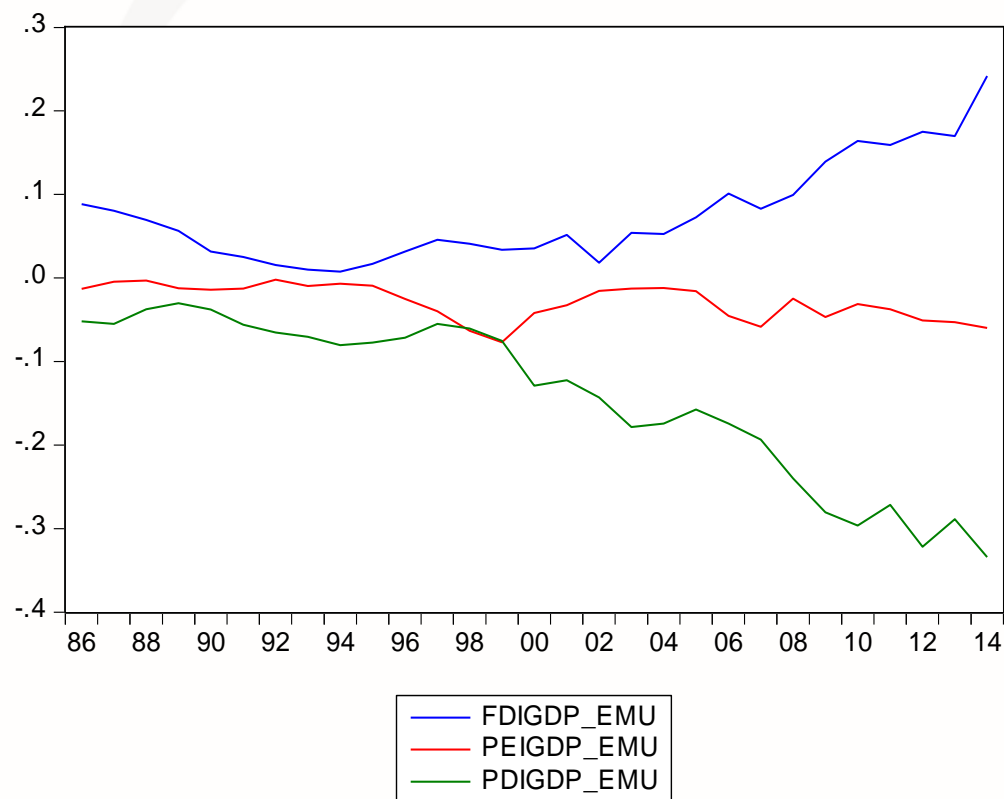
- The literature ranks international transactions, in increasing order of riskiness and decreasing order of economic performance: FDIs, portfolio equity and debt investments (Furceri et al 2011).
- The equity-debt mix is strictly related to country economic characteristics and financial regulatory settings.
- Economies with better institutional quality have a greater share of portfolio equity and FDI in external liabilities (Faria et al 2007).
- Institutions have a distinctive role in supporting economic performance and attracting foreign capitals (Acemoglu et al. 2012; Rodrik, 2008).

## Contribution to the existing literature

- Our contribution to the existing literature is threefold:
  - i) we analyze the determinants of international holdings composition in the EMU countries with a focus on core and peripheral members;
  - ii) we examine the evolution of the international holdings composition for a long period (1986-2014) catching the effects of various structural changes;
  - iii) we analyze specifically the role played by institutional quality.

## Descriptive statistics(i): PEIs , PDIs, FDIs trends in EMU (1986-2014)

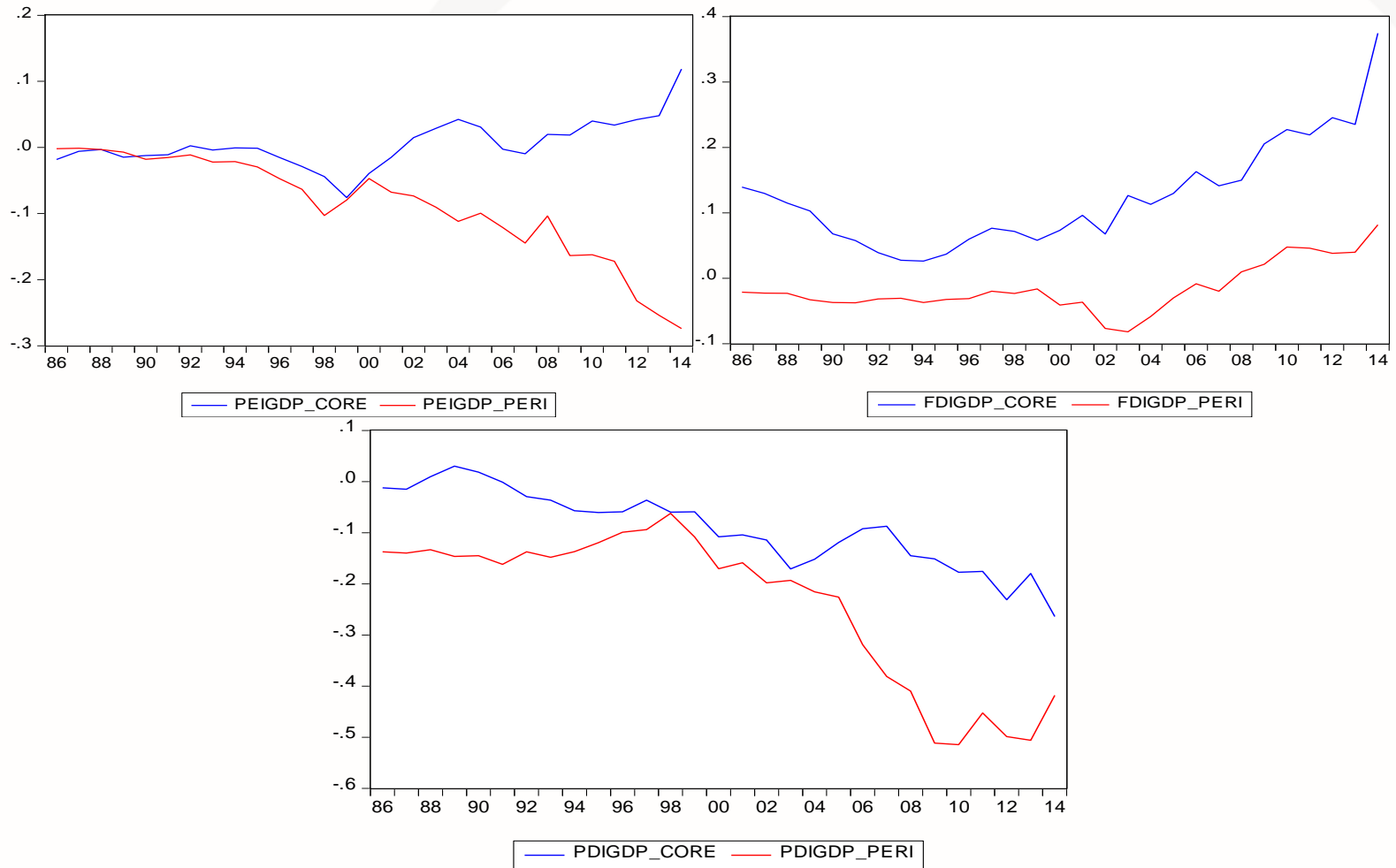
Chart 1 Net stocks of FDI, PDI, PEI in the EMU countries.



Source: EWN (2015)

# Descriptive statistics(ii): PEIs , PDIs, FDIs trends in core and periphery (1986-2014)

Chart 2 Net stocks of FDI, PDI, PEI in the core and periphery EMU countries



Source: EWN (2015)

## Descriptive statistics(iii): PEIs , PDIs, FDIs trends in core and periphery (1986-2014)

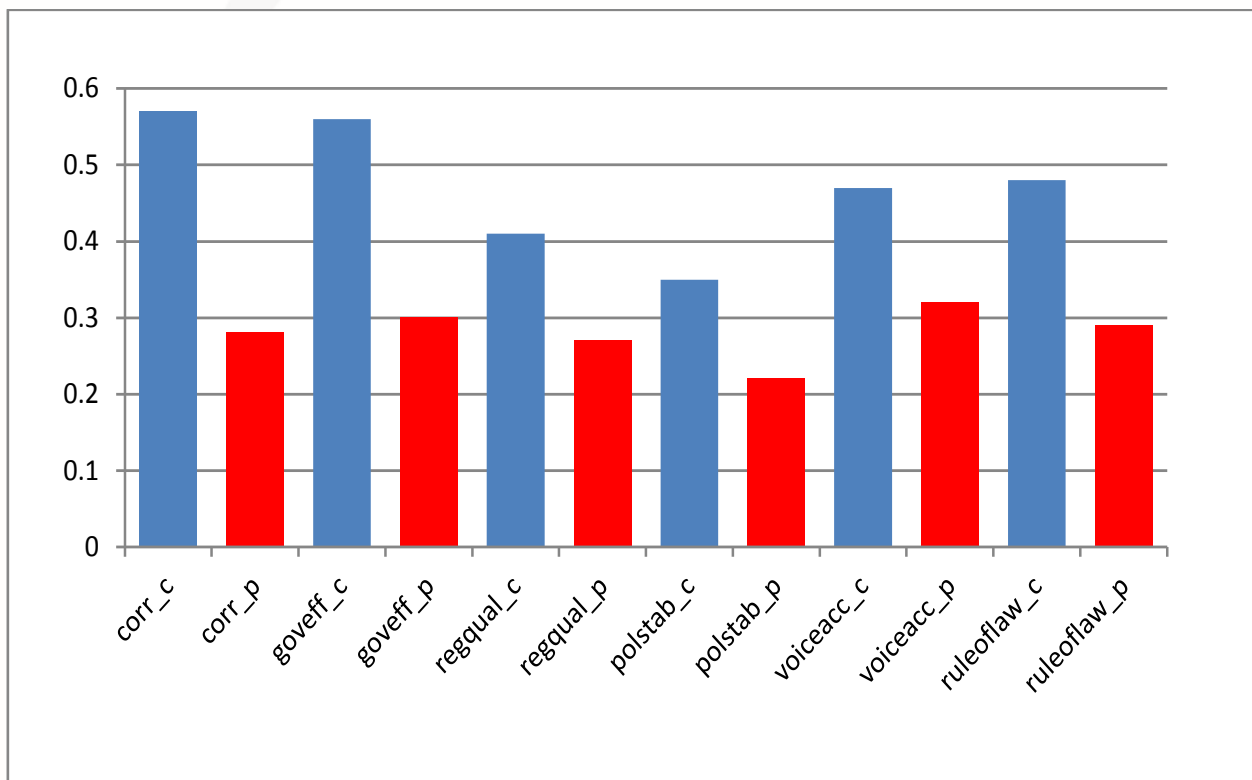
*Finding 1:* After the euro introduction net PEIs displayed asymmetric trends for core (increasing) and peripheral (decreasing) countries.

*Finding 2:* After the euro introduction net FDIs displayed a growing trend for core countries and a substantial stability for peripheral countries.

*Finding 3:* After the euro introduction net PDIs displayed a sharp decreasing trend for peripheral countries.

## Descriptive statistics(iv)

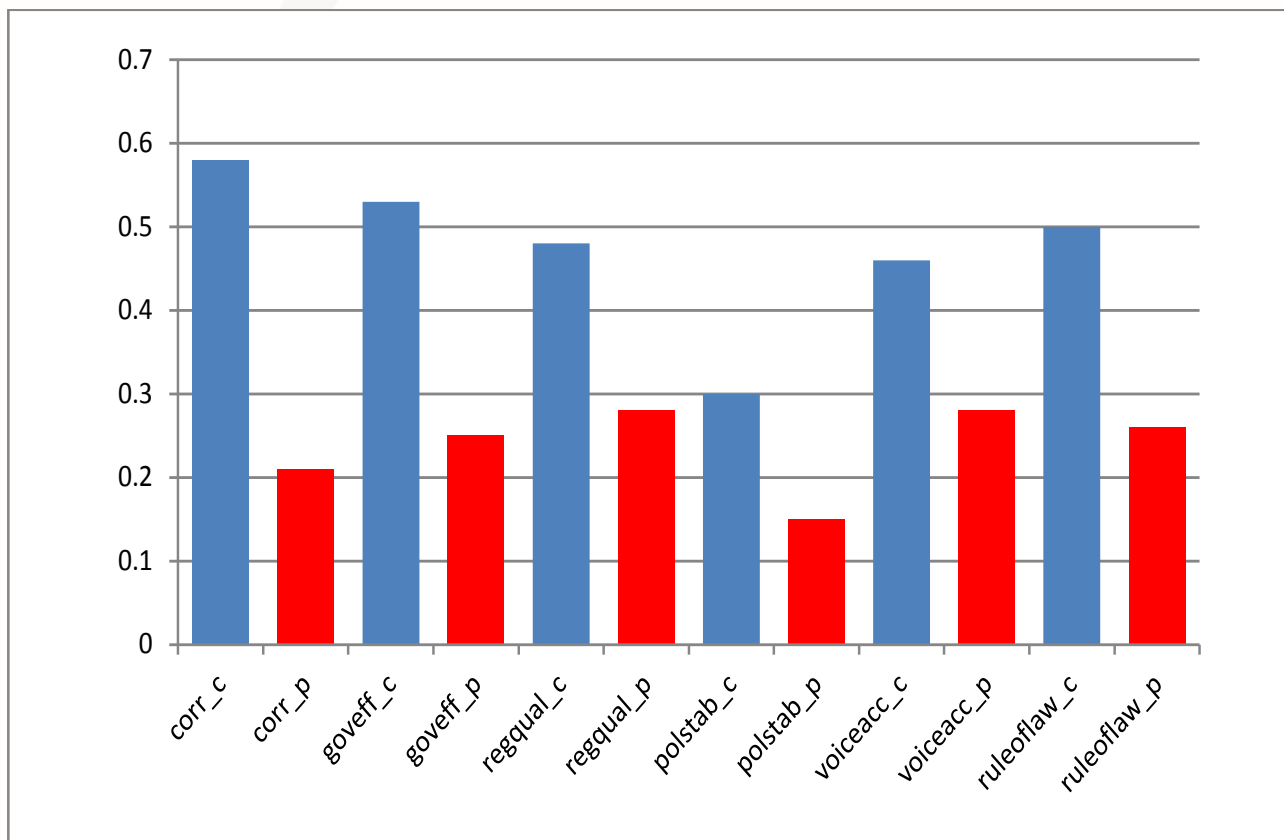
Chart 3 Institutional quality in core and peripheral countries (average 1986-1999)



Source: Word bank WGI

## Descriptive statistics(v)

Chart4 Institutional quality in core and peripheral countries (average 2000-2014)



Source: Word bank WGI

## Descriptive statistics(vi)

*Finding 4* The institutional quality, on average, has been higher in core countries than in peripheral ones.

*Finding 5* The distance between institutional quality scores in core and peripheral countries, on average, has widened after the euro introduction.

## Dataset

- We consider 20 OECD members and a subsample of 14 EU countries (11 EMU members).
- We split the EMU countries into two sub-groups: core (Germany, Austria, the Netherlands, Belgium, Finland and France) and periphery (Italy, Spain, Portugal, Ireland and Greece).
- The data come from different sources: OECD, Milesi Ferretti (2015) and World Bank.
- The time sample spans from 1986 to 2014.

## Empirical strategy (i)

- We use a dynamic panel data estimator because the statistical properties of the series show that the international holdings stocks are affected by a marked persistence effects.
- The estimated dynamic equations are the following:

$$PEIshare_{it} = \beta_i + \beta_{01} * PEIshare_{it-1} + \beta_1 * X_{it} + \beta_2 * Y_{it} + \beta_{35} * Z_{it} \quad [1]$$

$$PDIshare_{it} = \beta_i + \beta_{01} * PDIshare_{it-1} + \beta_1 * X_{it} + \beta_2 * Y_{it} + \beta_{35} * Z_{it} \quad [2]$$

$$FDIshare_{it} = \beta_i + \beta_{01} * FDIshare_{it-1} + \beta_1 * X_{it} + \beta_2 * Y_{it} + \beta_{35} * Z_{it} \quad [3]$$

- where, the dependent variable,  $PEI (PDI, FDI)share_{it}$  is the ratio of country's net PEIs stock (PDIs, FDIs) to the country GDP.  $i$  and  $t$  are the country and year indices, respectively.

## Empirical strategy (ii)

- We follow the “pull and push factors approach” (Montiel and Reinhart, 1999): pull factors are domestic factors in the recipient country and push factors are external/global factors.
- $X$  is a vector, including common pull factors: financial integration, institutional quality and push factors: US three month T- bill rate, Brent .
- $Y$  is a vector of FDIs specific determinants including the market size, trade openness and real effective exchange rate.
- $Z$  contains controls such as the GDP growth rate or output gap, dummies and time trends.

## Estimates: A comparison between FE, GMM diff and GMM sys

	FE			GMM diff			GMM sys		
	pei	pdi	fdi	pei	pdi	fdi	pei	pdi	fdi
pei_net_gdpl1	1.01***			0.76***			0.97***		
pdi_net_gdpl1		0.90***			0.66***			1.02***	
fdi_net_gdpl1			0.73***			0.32***			0.86***
ogap	0.01***	-0.01**	-0.01***	0.04***	0.01*	-0.01***	0.03***	-0.01***	-0.01***
corruption	-0.05	0.08**	0.06***	-0.02	0.09	0.10**	-0.159***	0.01	0.01
fin_opl1	-0.01**	0.002	0.01***	-0.05**	0.02***	0.01*	-0.01***	-0.01**	0.01***
crisi_2008	0.03	-0.05**	0.01	0.14*	-0.08***	0.02	0.18**	-0.05*	0.02
trend	0.003**			0.05**			0.01***		
openess		0.001	0.00		0.003***	0.000		0.003***	-0.001***
core							0.12***	-0.14***	0.07***
periph							-0.293***	-0.01	-0.001
Constant	-0.009	-0.21***	-0.15***				-0.03	-0.13***	0.001

## Estimates: Net PEIs, PDIs and FDIs determinants in OECD

	1986-2014			1986-1999			2000-2014		
	pei	pdi	fdi	pei	pdi	fdi	pei	pdi	fdi
pei_net_gdpl1	0.97***			0.85**			0.91***		
pdi_net_gdpl1		1.02***			0.51***			1.01***	
fdi_net_gdpl1			0.78***			1.02***			0.73***
ogap	0.03***	-0.01***	-0.02***	-0.12**	-0.03***		0.05***	-0.01***	-0.02***
contrcorr	-0.16***	0.01	0.10***	-1.12***	-0.01	0.06*	-0.30***	-0.03	0.14***
core	0.12***	-0.14***	0.21***	1.56***	-0.44***	0.06**	0.12**	-0.13***	0.30***
periph	-0.30***	-0.01	0.15***	-1.41***	-0.10	0.06	-0.58***	-0.10**	0.23*
fin_opl1	-0.01***	-0.01**	0.01***	0.13***	0.11**	-0.01**	-0.01***	0.004	0.01*
crisi_2008	0.18**	-0.05*	0.09***				0.13*	-0.04	0.08***
trend	0.01***						0.02***		
openess		0.003***	-0.002***					0.001**	-0.001***
reex					-0.01***	-0.003***			
gdplog						0.03**			
ustbill								0.01***	
reexl1								-0.004**	
Constant	-0.03	-0.13***	-0.17***	1.45***	1.19***	-0.23	-0.26	0.33*	-0.10

## Preliminary estimates results (i)

Our preliminary results show:

- The sign and magnitude of the coefficients are in line with the literature (Xingwang and Steiner 2014, Furceri 2011).
- As for net PEIs, the output gap and the dummy for the crisis have a positive impact while the reduction of corruption, and financial integration seem to have displayed a negative impact.
- It seems that being a peripheral EMU country had a negative impact while the opposite occurred for the core countries.
- The sign of corruption indicator remains unchanged in the subsamples while the magnitude of its coefficient is greater in the post euro period.

## Preliminary estimates results (ii)

- As for PDIs:
  - i) financial integration had a positive impact and the crisis a negative one;
  - ii) to be core had a negative impact in the three subsamples, to be peripheral had a negative and significant impact only after 1999.
  
- As for the FDIs:
  - i) corruption control, financial integration, the crisis and to be core or peripheral EMU members had a positive and significant impact in the three subsamples.
  - ii) The degree of trade openness, the real effective exchange rate and the output gap had a negative impact.

## Estimates: Net PEIs and the role of institutional quality, (2000-2014)

	(1)	(2)	(3)	(4)	(5)	(6)
pei_net_gdpl1	0.94***	0.95***	0.92***	1.02***	0.99***	0.88***
ogap	0.05***	0.03***	0.05***	0.03***	0.03***	0.06***
fin_opl1	0.01**	-0.01***	-0.01***	-0.01***	-0.004	-0.01***
crisi_2008		0.136*		0.186**	0.111	
trend		0.03***	0.03***	0.02***	0.02***	0.03***
reex	0.02***					
contrcorr	-0.16***					
contrcorr_per	-0.59***					
contrcorr_core	-0.08***					
voiceacc		-0.15***				
voiceacc_per		-0.26***				
voiceacc_core		0.05				
regqual			-0.20***			
regqual_per			-0.21***			
regqual_core			0.10***			
polstab				0.05		
polstab_per				-0.08**		
polstab_core				0.02		
rulaw					-0.25***	
rulaw_per					-0.20***	
rulaw_core					0.01	
goveff						-0.16***
goveff_per						-0.46***
goveff_core						0.03
Constant	-1.24***	-0.63***	-0.65**	-0.70***	-0.26	-0.62***

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

## Estimates: Net PDIs and the role of institutional quality, (2000-2014)

	(1)	(2)	(3)	(4)	(5)	(6)
pdi_net_gdpl1	0.97***	0.99***	0.99***	0.98***	0.91***	0.99***
ogap	-0.03***	-0.03***	-0.03***	-0.02***	-0.02***	-0.02***
ustbill	0.04***	0.04***	0.04***	0.03***	0.05***	0.04***
fin_opl1	-0.02***	-0.013***	-0.017***	-0.01*	-0.03***	-0.01***
openess	0.005***	0.005***	0.005***	0.004***	0.01***	0.01***
contrcorr	0.144***					
contrcorr_per	0.03					
contrcorr_core	-0.10***					
voiceacc		0.35***				
voiceacc_per		0.05				
voiceacc_core		-0.12***				
regqual			0.21***			
regqual_per			0.03			
regqual_core			-0.09***			
polstab				0.17***		
polstab_per				-0.07**		
polstab_core				-0.16***		
rulaw					0.46***	
rulaw_per					0.17***	
rulaw_core					-0.12***	
goveff						0.11*
goveff_per						-0.02
goveff_core						-0.11***
Constant	-0.563***	-0.814***	-0.613***	-0.419***	-1.087***	-0.48***

\*\*\* p<0.01, \*\*

p<0.05, \* p<0.1

## Estimates: Net FDIs and the role of institutional quality, (2000-2014)

	(1)	(2)	(3)	(4)	(5)	(6)
fdi_net_gdpl1	0.66***	0.94***	0.68***	0.79***	0.68***	0.80***
ogap	-0.02***	-0.01**	-0.02***	-0.003**	-0.01***	-0.01**
reexl1	0.004***	0.002**	0.003**	0.002**	0.001	0.001
fin_opl1	0.01***	0.003**	0.01***	0.01***	0.01***	0.01***
openess	-0.003***		-0.002***	-0.001**	-0.001***	-0.001*
constrcorr	0.01					
constrcorr_per	0.15***					
constrcorr_core	0.23***					
voiceacc		0.05**				
voiceacc_per		0.07*				
voiceacc_core		-0.01				
regqual			0.07**			
regqual_per			0.07*			
regqual_core			0.21***			
polstab				0.02**		
polstab_per				-0.06*		
polstab_core				0.09***		
rulaw					0.03*	
rulaw_per					-0.06	
rulaw_core					0.18***	
goveff						0.03**
goveff_per						-0.05**
goveff_core						0.03**
Constant	-0.38***	-0.27***	-0.38**	-0.24**	-0.10	-0.03

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

## Preliminary estimates results (iii): instit. quality in core and peripheral countries

- PEIs:
  - i) in core countries the control of corruption had a negative impact while the improvement in regulatory quality a positive one;
  - ii) in peripheral countries institutional quality had a negative impact and the magnitude of the coefficients is greater than that of core countries.
- PDIs:
  - i) in core countries institutional quality had a negative impact,
  - ii) in peripheral countries with few exception the coefficients are not significant (moral hazard?).
- FDIs:
  - i) in core countries institutional quality stimulates investments abroad,
  - ii) in peripheral countries the impact was heterogeneous.

## Conclusions

- The EMU core and periphery have performed differently especially after the 1999: not in favour of the endogeneity hypothesis.
- The heterogeneity in institutional quality might have amplified the asymmetric behavior between core and peripheral members in terms of international holdings composition.
- These findings have important policy implications concerning the role of international capital movements and institutional quality.
- The preliminary evidences suggest that an improvement of the institutional quality might restrain the heterogeneous economic performances of countries within the EMU.

**Thank you**

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