

# Discussion Paper

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## Sovereign Credit Ratings and the Transnationalization of Finance – Evidence from a Gravity Model of Portfolio Investment

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### Comment

We would like to take the opportunity to refer to a comment by an invited reader filed on July 24, 2014 by first of all thanking the author for the comments made and the time taken.

#### IFRS adoption

The first point deals with an omitted variable bias with regard to IFRS adoption:

*“[I]t might be argued that there is an omitted variables bias. For example, previous studies that use a bilateral country panel to analyse the role of International Financial Reporting Standards (IFRS) have already proven that increasing comparability and transparency of financial accounting standards fosters cross-borders investments in a gravity framework.”*

We have neglected IFRS adoption in 2003/05 in our analysis despite the well-known effects of increasing comparability of financial statements and transparency of accounting standards in general. Positive effects are documented, yet not unequivocally, in Daske, Hail, Leuz and Verdi (2008) and using more recent data by Horton, Serafeim and Serafeim (2013). IFRS adoption is singular insofar as its introduction is a one-off event. Capturing this means introducing an indicator value for those countries introducing it for the financial year ending in 2005 except for Singapore, which introduced IFRS mandatorily in 2003 already. From a technical point of view, this translates into a level shift for all IFRS countries – unfortunately with a large overlap with the years spanning the global financial crisis (2007–09) and the European debt crisis (after 2010). In contrast to ratings, IFRS adoption is not a categorical variable measured on a (however questionable) scale but only an indicator variable.

We test for effects from IFRS introduction econometrically in our setting following Daske et al. (2008). They differentiate in their methodology between IFRS announcement and IFRS adoption. A summary of all IFRS countries and the respective dates is presented in Table 1.

Using indicator variables for IFRS announcement and IFRS introduction, Table 2 shows the home bias regression presented in the paper (Table 3, p. 26) while Table 3 replicates the size-making estimation

(Table 5, p. 28) and Table 4 differentiates between samples 2001-07 und 2008-11 (Table 6, p. 30). Instead of describing all tables in full detail, which has already been done in the main paper, we focus only on the relevant results for IFRS introduction and the implication on other estimated coefficients by going through comments 1 to 6.

1. Home Bias, Table 2: IFRS introduction in the sending country ( $j$ ) has a positive effect on the home bias measure. On average, home bias increases by 10.6 and 11.5 for IFRS announcement and IFRS adoption respectively. Thus, IFRS adoption increases home bias in contrast to those countries not adopting it.
2. Home Bias, Table 2: In model (5), we differentiate between by investment grade status ( $invgr$ ). The main effect comes from investment grade countries while for non-investment grade countries IFRS has a home bias reducing effect.
3. Size-Making, Table 3: IFRS introduction has a negative effect on the share of foreign investment holdings in the size-making model (2) while better ratings have an investment-enhancing effect (1).
4. Size-Making, Table 3: The negative effect from IFRS introduction stems from the negative influence from non-investment grade countries. The effect for sending countries is slightly less negative for investment grade countries ( $-0.331^* + 0.115^* = -0.216$ ) than for non-investment grade countries ( $-0.331^*$ ) but for both the overall effect is negative.
5. Size-Making (2001-07), Table 4: For the time of IFRS introduction, the sample 2001-07 shows the same pattern as the full sample. For non-investment grade receiving countries ( $i$ ), we now find a positive effect of IFRS introduction in models (4) without ratings ( $+0.122^{***}$ ) and (5) with ratings ( $0.137^{***}$ ). For investment grade countries, the joint effect is still negative ( $+0.137^{***} - 0.201^{***} = -0.064$ ).
6. Size-Making (2008-11), Table 4: For the sample 2008-11, all countries have already either fully adopted IFRS or have not implemented it at all. The reduced estimation does not show any (level) effects for IFRS countries compared to non-IFRS countries.

We find that IFRS introduction leads to a decrease in foreign portfolio investment holdings and higher home bias shares in countries with investment grade ratings. For non-investment grade countries, results are not unanimous. In all, IFRS introduction seems to have resulted in lower capital outflows of sending countries. Results for receiving countries are of similar magnitude but coefficients are at large insignificant.

IFRS adoption thus has a one-off effect on our dependent variables but we cannot discern any effects over time.

## References

- Daske, H., & Hail, L. & Leuz, C. & Verdi, R., 2008. Mandatory IFRS Reporting around the World: Early Evidence on the Economic Consequences. *Journal of Accounting Research*, 46(5), pp.1085–1142
- Horton, J., & Serafeim, G. & Serafeim, I., 2013. Does Mandatory IFRS Adoption Improve the Information Environment? *Contemporary Accounting Research*, 30(1), pp.388–423

## Tables

**Table 1** Institutional variables by IFRS adoption country

Country	Announcement of Mandatory IFRS Reporting	Adoption of Mandatory IFRS Reporting	(1) Rule of Law	(2) EU Membership	(3) IFRS Convergence Strategy
Australia	07/04/2002	31/12/2005	1.7	0	1
Austria	06/04/2002	31/12/2005	1.8	1	0
Belgium	06/04/2002	31/12/2005	1.4	1	0
Czech Republic	06/04/2002	31/12/2005	0.7	1	0
Denmark	06/04/2002	31/12/2005	1.9	1	0
Finland	06/04/2002	31/12/2005	1.9	1	0
France	06/04/2002	31/12/2005	1.3	1	0
Germany	06/04/2002	31/12/2005	1.7	1	0
Greece	06/04/2002	31/12/2005	0.7	1	0
Hong Kong	09/10/2004	31/12/2005	1.5	0	1
Hungary	06/04/2002	31/12/2005	0.7	1	0
Ireland	06/04/2002	31/12/2005	1.6	1	0
Italy	06/04/2002	31/12/2005	0.5	1	0
Luxembourg	06/04/2002	31/12/2005	1.9	1	0
Netherlands	06/04/2002	31/12/2005	1.7	1	0
Norway	06/04/2002	31/12/2005	1.9	0	0
Philippines	10/02/2003	31/12/2005	-0.4	0	1
Poland	06/04/2002	31/12/2005	0.3	1	0
Portugal	06/04/2002	31/12/2005	1.1	1	0
Singapore	12/07/2000	31/12/2003	1.8	0	1
South Africa	05/20/2003	31/12/2005	0.2	0	1
Spain	06/04/2002	31/12/2005	1.1	1	0
Sweden	06/04/2002	31/12/2005	1.8	1	0
Switzerland	11/11/2002	31/12/2005	2.0	0	0
United Kingdom	06/04/2002	31/12/2005	1.6	1	0
Venezuela	04/21/2004	31/12/2005	-1.3	0	0

Source: Daske et al. (2008: 1118), Table 6

“The table presents IFRS announcement and adoption dates together with raw and (in parentheses) dichotomized indicator values of the institutional proxies used in the cross-sectional analyses across the 26 treatment sample countries and the 12 Campbell [1996] industries, respectively. We use the following conditional variables in the analyses. (1) The rule of law variable for the year 2005 from Kaufmann, Kraay, and Mastruzzi [2007]. Higher values represent countries with higher quality legal enforcement. (2) We distinguish between member states of the European Union (equal to one) and the remaining IFRS adoption countries. (3) We distinguish between countries with an official convergence strategy towards IFRS prior to mandatory adoption (equal to one) and the remaining IFRS adoption countries.” (Daske et al. 2008: 1119)

**Table 2** Home Bias: PPML panel estimation results with IFRS adoption (2001-2011)

Dep. Var.	(1)	(2)	(3)	(4)	(5)
$\log(S_i/A)$	-0.0003	-0.0003	-0.0004	-0.0005	-0.0005
$\log(W_k/\tau_{ik}A)$	0.0043	0.0044	-0.0201**	-0.0198*	-0.037***
$\log(\tau_{ij})$	-0.0001	-0.0001	-0.0000	-0.0000	-0.0001
$\log(1-A_j/A)$	16.180***	16.151***	18.563***	19.045***	18.103***
IFRS_announcement_j	0.1058***		1		
IFRS_adoption_j		0.1149***			2
rating_j			0.041***		
(invgr_j==0)*IFRS_adopt_j					-0.061***
(invgr_j==1)*IFRS_adopt_j					0.207***
(invgr_j==0)*rating_j				0.054***	0.0500***
(invgr_j==1)*rating_j				-0.008***	-0.013***
N	7820	7820	7820	7820	7820
ll	-2993.856	-2993.851	-2992.146	-2991.905	-2991.103
aic	6015.7109	6015.7012	6012.2923	6013.8093	6016.2061
bic	6113.2131	6113.2033	6109.7945	6118.2759	6134.6016
Fixed effects	Yes	Yes	Yes	Yes	Yes

PPML (Stata xtpoisson), Robust standard errors, fixed effects not reported

Note: Lane & Milesi-Ferretti (2007), S&P, Moody's, insufficient values for 2011 dropped.  $ll$  is the maximum of the log-likelihood estimation for the respective model;  $aic$  and  $bic$  pertain to the Akaike and Schwartz-Bayesian information criterion respectively. Significance  $p$  is denoted at 10%, 5% and 1% levels.  $rating_{i/j}$  is the country's average S&P and Moody's rating in a given year on a 20-step scale with AAA/Aaa=21 and default D=1.  $IFRS_{adoption_{i/j}}$  and  $IFRS_{announcement_{i/j}}$  are indicator variables with 1 in the year listed in Table 1 and thereafter, and 0 before.  $invgr_{i/j}$  is a variable indicating whether a country's average rating is in the investment grade range (BBB/Baa=14) or below.

**Table 3** Size-Making: PPML panel estimation results with IFRS adoption (2001-2011)

Dep. Var.	(1)	(2)	(3)	(4)	(5)
$\log(S_i/A)$	0.505*	0.631***	0.630***	0.631***	0.620***
$\log(W_k/\tau_{ik}A)$	-0.601***	-0.584***	-0.583***	-0.580***	-0.587***
$\log(\tau_{ij})$	-0.956***	-1.003***	-1.001***	-0.993***	-0.990***
rating_i	0.040				0.034
rating_j	0.034**		3		0.012
IFRS_adoption_i		-0.254***			
IFRS_adoption_j		-0.235			
IFRS_announcement_i			-0.256***		4
IFRS_announcement_j			-0.219		
(invgr_i==0)*IFRS_adopt_i				-0.482***	-0.292*
(invgr_j==0)*IFRS_adopt_j				-0.389*	-0.331*
(invgr_i==1)*IFRS_adopt_i				0.233***	0.048
(invgr_j==1)*IFRS_adopt_j				0.163**	0.115*
N	7885	7885	7885	7885	7885
ll	-205.053	-204.887	-204.887	-204.870	-204.857
aic	440.107	439.774	439.773	443.740	447.714
bic	544.697	544.365	544.364	562.276	580.196
Fixed effects	Yes	Yes	Yes	Yes	Yes

PPML (Stata xtpoisson), Robust standard errors, fixed effects not reported

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

Note: Lane & Milesi-Ferretti (2007), S&P, Moody's, insufficient values for 2011 dropped.  $ll$  is the maximum of the log-likelihood estimation for the respective model;  $aic$  and  $bic$  pertain to the Akaike and Schwartz-Bayesian information criterion respectively. Significance  $p$  is denoted at 10%, 5% and 1% levels.  $rating_{i/j}$  is the country's average S&P and Moody's rating in a given year on a 20-step scale with AAA/Aaa=21 and default D=1.  $IFRS_{adoption_{i/j}}$  and  $IFRS_{announcement_{i/j}}$  are indicator variables with 1 in the year listed in Table 1 and thereafter, and 0 before.  $invgr_{i/j}$  is a variable indicating whether a country's average rating is in the investment grade range (BBB/Baa=14) or below.

**Table 4** Size-Making: PPML panel estimation results with IFRS adoption (2001-2007)

Dep. Var. X <sub>i</sub> W <sub>j</sub> 1	(1)	(2)	(3)	(4)	(5)
log(S <sub>i</sub> /A)	0.171**	0.253***	0.253***	0.252***	0.208***
log(W <sub>k</sub> /tau <sub>ik</sub> *A)	-0.725***	-0.703***	-0.703***	-0.704***	-0.710***
log(tau <sub>ij</sub> )	-0.956***	-0.958***	-0.957***	-0.958***	-0.958***
rating <sub>i</sub>	0.032***				0.031***
rating <sub>j</sub>	0.005				0.001
IFRS_adoption <sub>i</sub>		-0.065***			
IFRS_adoption <sub>j</sub>		-0.025			
IFRS_announcement <sub>i</sub>			-0.065***		
IFRS_announcement <sub>j</sub>			-0.025		
(invgr <sub>i</sub> ==0)*IFRS_adopt <sub>i</sub>				0.122***	0.137***
(invgr <sub>j</sub> ==0)*IFRS_adopt <sub>j</sub>				-0.086	-0.082
(invgr <sub>i</sub> ==1)*IFRS_adopt <sub>i</sub>				-0.186***	-0.201***
(invgr <sub>j</sub> ==1)*IFRS_adopt <sub>j</sub>				0.064***	0.062***
N	5001	5001	5001	5001	5001
ll	-102.825	-102.821	-102.821	-102.820	-102.816
aic	227.649	227.642	227.642	231.641	235.633
bic	299.341	299.333	299.333	316.367	333.394
Fixed effects	Yes	Yes	Yes	Yes	Yes

Robust standard errors, fixed effects not reported

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

Note: Lane & Milesi-Ferretti (2007), S&P, Moody's, insufficient values for 2011 dropped. *ll* is the maximum of the log-likelihood estimation for the respective model; *aic* and *bic* pertain to the Akaike and Schwartz-Bayesian information criterion respectively. Significance *p* is denoted at 10%, 5% and 1% levels. *rating<sub>i/j</sub>* is the country's average S&P and Moody's rating in a given year on a 20-step scale with AAA/Aaa=21 and default D=1. *IFRS\_adoption* and *IFRS\_announcement* are indicator variables with 1 in the year listed in Table 1 and thereafter, and 0 before. *invgrade<sub>i/j</sub>* is a variable indicating whether a country's average rating is in the investment grade range (BBB/Baa=14) or below.

**Table 5** Size-Making: PPML panel estimation results with IFRS adoption (2008-11)

Dep. Var. X <sub>i</sub> W <sub>j</sub> 1	(1)	(2)	(3)
log(S <sub>i</sub> /A)	1.397***	1.298***	1.408***
log(W <sub>k</sub> /tau <sub>ik</sub> *A)	-0.55***	-0.542***	-0.56***
log(tau <sub>ij</sub> )	-1.02***	-1.010***	-1.02***
rating <sub>i</sub>	0.047		0.053
rating <sub>j</sub>	-0.005		-0.011
(invgr <sub>i</sub> ==1)*IFRS_adopt <sub>i</sub>		0.156***	-0.133
(invgr <sub>j</sub> ==1)*IFRS_adopt <sub>j</sub>		0.008	0.052
N	2801	2801	2801
ll	-49.928	-49.935	-49.927
aic	115.856	115.871	119.854
bic	163.358	163.373	179.232
Fixed effects	Yes	Yes	Yes

Robust standard errors, fixed effects not reported

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

Note: Lane & Milesi-Ferretti (2007), S&P, Moody's, insufficient values for 2011 dropped. *ll* is the maximum of the log-likelihood estimation for the respective model; *aic* and *bic* pertain to the Akaike and Schwartz-Bayesian information criterion respectively. Significance *p* is denoted at 10%, 5% and 1% levels. *rating<sub>i/j</sub>* is the country's average S&P and Moody's rating in a given year on a 20-step scale with AAA/Aaa=21 and default D=1. *IFRS\_adoption* and *IFRS\_announcement* are indicator variables with 1 in the year listed in Table 1 and thereafter, and 0 before. *invgrade<sub>i/j</sub>* is a variable indicating whether a country's average rating is in the investment grade range (BBB/Baa=14) or below.