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To lead or to follow? Creditors' dynamics as a debt relief game

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Introduction

Background and motivation

- **Despite coordination and burden sharing among different types of creditors are key for sovereign debt restructurings...**
 - Comparability of treatment (COT) is a cornerstone principle for Paris Club operations
- **...inter-creditor coordination has become increasingly difficult overtime** (Rivetti 2022; Buchheit and Gulati, 2023)
 - Successful COT application in the 1980s: informal public sector pressures, e.g., through regulatory agencies, were crucial (Rieffel 2003; Jossline 2009)
 - From mid-1990s, cooperation weakened partly due to diversification of creditor types
 - From 2000s, emergence of non-Paris Club official creditors, like China, with a preference for bilateral approach to debt restructurings (Buchheit and Gulati, 2023)

Our approach and research question

- We examine historical restructuring data and use it to build indicators of de facto inter-creditor coordination
- We interpret the time series of debt relief as the outcome of creditors playing a repeated debt relief game
 - Every time a creditor provides relief, other creditors can follow (and provide relief)
- We construct indicators of successful and failed leadership and indicators defining when creditors acted as followers
- We characterize a debt relief game with a leader or a follower(s) and study various issues:
 - **Timing:** Does the data support de facto coordination? How do different types of creditors play the debt relief game? Does it matter for a creditor to lead or to follow?
 - **Size and terms:** Do creditors coordinate on the size of debt treated and the restructuring approach?
 - **Impact:** does de facto coordination affect post-restructuring outcomes?



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Data and key variables

Data collection

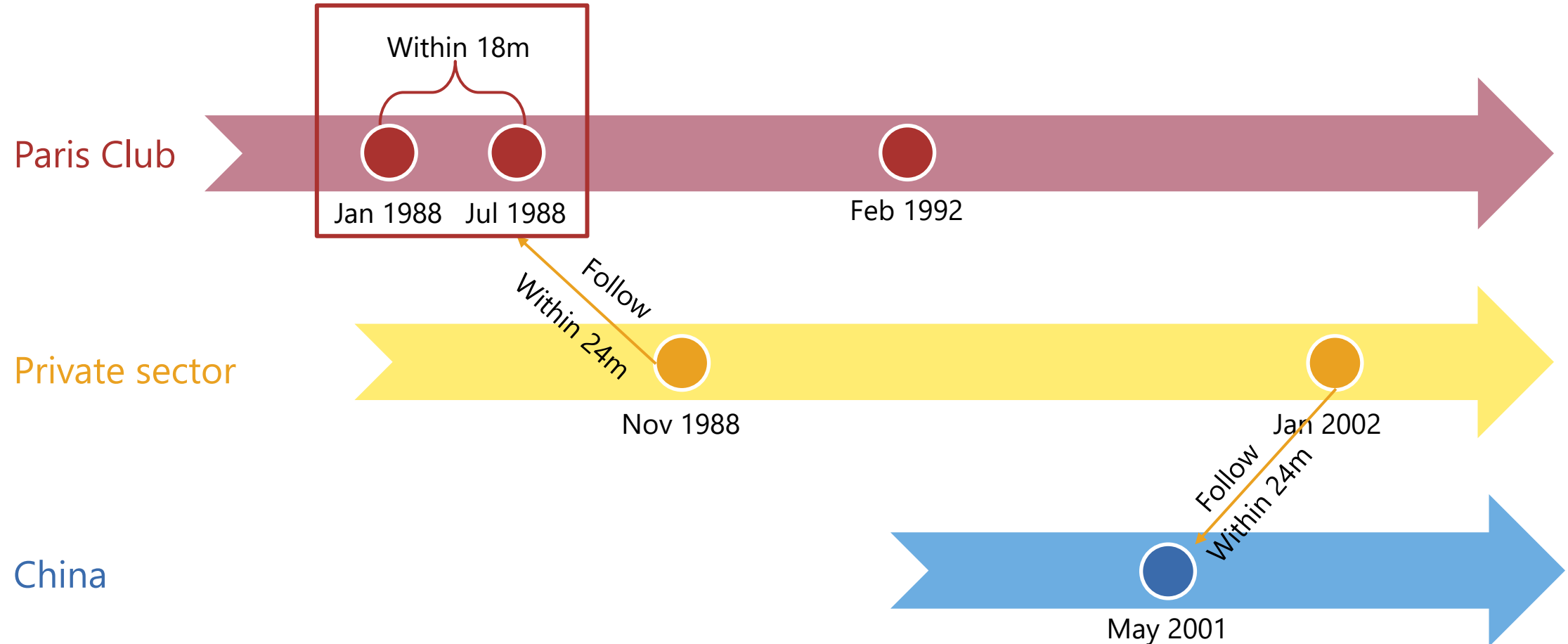
- Putting together databases of debt restructurings with three types of creditors:
 - **Paris Club** (Cheng et al. 2018): 1956-2019
 - **Private sector** (Asonuma and Trebesch 2016, updated): 1978-2019
 - **China**, biggest non-Paris Club bilateral official creditor (Bon and Cheng 2020, Acker, Brautigam and Huang 2020, AidData 2021, updated): 2000-2019
 - We purposely leave the DSSI and the Common Framework aside: formal coordination arrangement at least between the Paris Club and China
- Restructuring data complemented with
 - Macroeconomic variables of debtor countries (IMF WEO, World Bank WDI)
 - Debt composition per credit type (World Bank IDS)

Data transformation

- **Bundling restructuring events into restructuring episodes**

- Within each creditor type, some events fall in a very close time window
- We consider them as one effective restructuring episode (Reinhart and Trebesch 2016, Farah-Yacoub et al. 2021)
- This transformation – based on a mechanical rule of 18 months – helps us avoid overestimating inter-creditor coordination
- Aggregation at the episode level using the volumes of debt involved as weights

Data transformation: defining a debt relief game



Data summary

Creditor	Full sample		1980 - 1999		2000 - 2019	
Paris Club	nb	share	nb	share	nb	share
Total number of episodes	338	100%	202	100%	121	100%
Total number of episodes as a follower	41	12%	21	10%	20	17%
Total number of episodes as a 1st mover	297	88%	181	90%	101	83%
Private sector	nb	share	nb	share	nb	share
Total number of episodes	152	100%	115	100%	37	100%
Total number of episodes as a follower	65	43%	53	46%	12	32%
Total number of episodes as a 1st mover	87	57%	62	54%	25	68%
China	nb	share	nb	share	nb	share
Total number of episodes	163	100%	0	-	163	100%
Total number of episodes as a follower	26	16%	0	-	26	16%
Total number of episodes as a 1st mover	137	84%	0	-	137	84%

- **From default events to default episodes**

- For the PC: 425 events turn into 338 episodes
- For the PS: 198 events turn into 152 episodes
- For China: 208 events turn into 163 episodes

- **From default episodes to debt relief games**

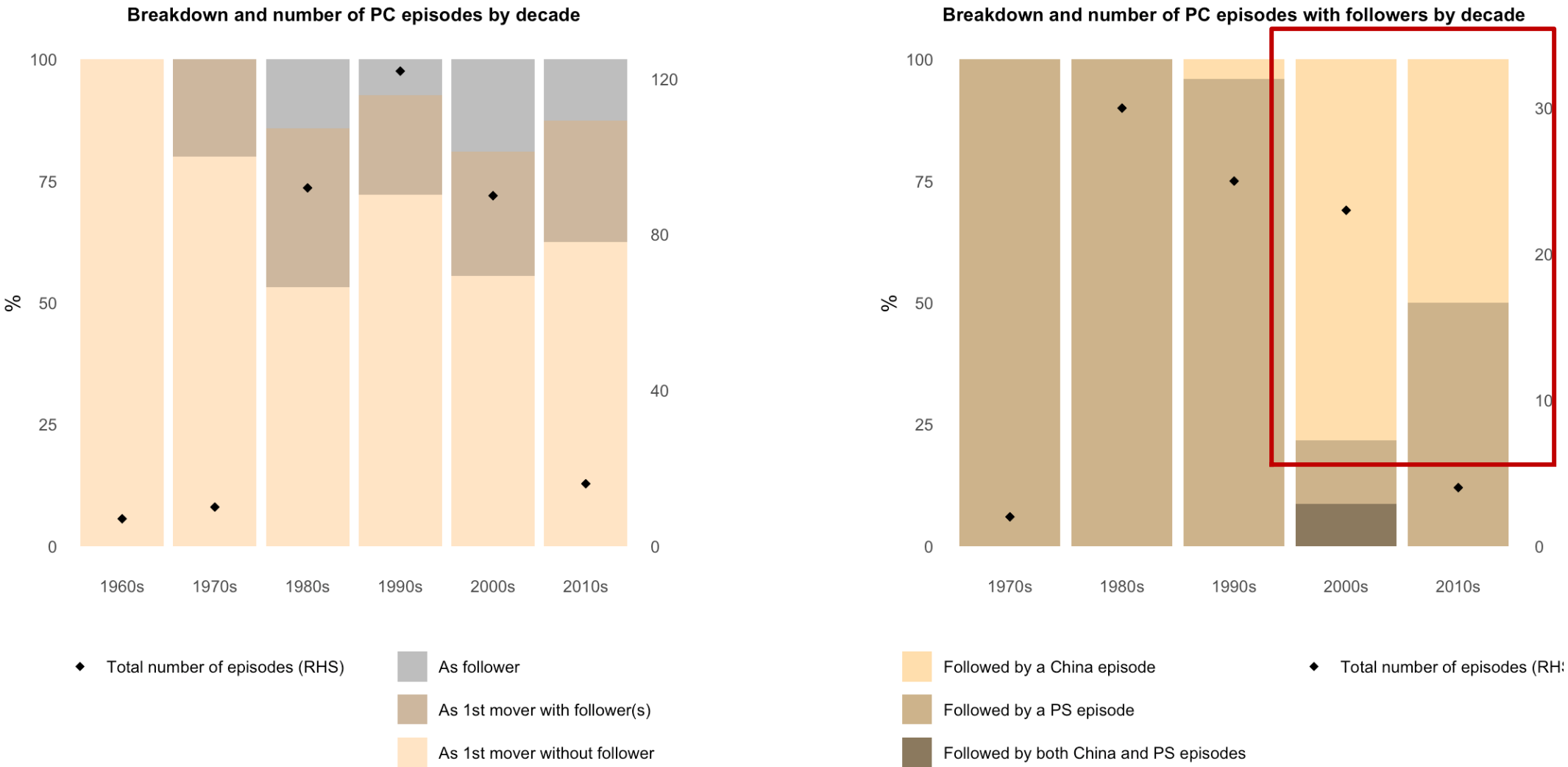
- 521 games out of the total of 653 episodes



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Preliminary results

The Paris Club acted mostly as a first mover with different followers over time



Do debt relief games affect the size of debt treated?

Variable	Full sample				1980 - 1999				2000 - 2019			
	Debt treated / GDP		Debt treated / Ext. debt		Debt treated / GDP		Debt treated / Ext. debt		Debt treated / GDP		Debt treated / Ext. debt	
Paris Club	Average	p-val	Average	p-val	Average	p-val	Average	p-val	Average	p-val	Average	p-val
Followed by no episode in the next 24M	12.9	0.81	15.2	0.80	14.1	0,0004***	14.6	0.40	12.1	0.22	16.5	0.76
Followed by at least one episode in the next 24M	12.1		14.7		6.9		12.8		20.7		18.1	
Followed by a PS in the next 24M	9.2	0.46	13.9	0.63	6.9	-	12.8	-	23.8	0.41	23.0	0.68
Followed by a China in the next 24M	12.8		16.4		0.0		0.0		12.8		16.4	
Private sector	Average	p-val	Average	p-val	Average	p-val	Average	p-val	Average	p-val	Average	p-val
Followed by no episode in the next 24M	21.2	0.08	26.0	0.62	19.9	0.11	20.9	0.58	24.6	0.39	33.9	0.91
Followed by at least one episode in the next 24M	12.8		22.5		10.6		15.9		16.8		32.7	
Followed by a PC in the next 24M	13.3	0,047*	23.2	0.49	10.6	-	15.9		19.2	0,04*	37.6	0.13
Followed by a China in the next 24M	7.1		15.3		0.0		0.0		7.1		15.3	
China	Average	p-val	Average	p-val	Average	p-val	Average	p-val	Average	p-val	Average	p-val
Followed by no episode in the next 24M	1.5	0.19	4.1	0,02*	0.0	-	0.0	-	1.5	0.19	4.1	0,02*
Followed by at least one episode in the next 24M	0.8		1.3		0.0		0.0		0.8		1.3	
Followed by a PC in the next 24M	0.9	0.67	1.1	0.65	0.0	-	0.0	-	0.9	0.67	1.1	0.65
Followed by a PS in the next 24M	0.6		2.3		0.0		0.0		0.6		2.3	

- **The Paris Club** treated more debt when acting alone in 1980-1990; the situation reversed in 2000-2019
- **The private sector** tended to treat more debt when following the Paris Club as a first mover
- **China** also provided higher debt treatment when acting alone in 2000-2019

Do debt relief games affect restructuring terms? Competition vs. emulation

Debt treated to GDP	Full sample			2000 - 2019		
1st mover / follower	PC	PS	China	PC	PS	China
PC	-	(0.11)	(0.07)	-	(0.06)	(0.11)
PS	(0.20)	-	(0.07)	(0.21)	-	(0.17)
China	(0.04)	(0.03)	-	(0.04)	(0.03)	-

Principal haircut to GDP	Full sample			2000 - 2019		
1st mover / follower	PC	PS	China	PC	PS	China
PC	-	0.33	0.11	-	0.53	0.00
PS	0.04	-	(0.01)	(0.02)	-	(0.09)
China	0.16	-	-	0.16	-	-

- Competition among creditors in providing debt relief: the more debt the first mover treats, the less the followers treat
- Emulation among creditors in providing nominal value reduction:
 - Larger nominal value reduction by the Paris Club is accompanied by larger nominal value reduction from subsequent actions from the private sector and China
 - When acting first, China's effort is subsequently matched by higher nominal value reduction from the Paris Club

Macroeconomic implications of de facto creditors' coordination

Average	Full sample								
	Freq.	Nb obs.	Duration	Real GDP growth	GG debt	Fiscal balance	Current account	World growth	GDP per capita
Units	-	-	<i>in months, from 1st to last event</i>	<i>from t-1 to t+3, in %</i>	<i>from t-1 to t+3 (cst USD), in % GDP t-1</i>	<i>from t-1 to t+3 (cumul, cst USD) in % GDP t-1</i>	<i>from t-1 to t+3 (cumul, cst USD) in % GDP t-1</i>	<i>in t-1, in %</i>	<i>in t, in 2015 USD</i>
Overall	100%	521	5,2	18,0	-2,0	-25,0	-29,4	3,2	2634
Coordination	25%	130	13,5	15,4	-13,6	-7,2	-29,1	3,4	2909
PC and PS	17%	90	13,6	13,6	-13,3	-6,8	-21,1	3,3	3532
PC and China	6%	33	11,9	19,9	-13,3	-10,1	-48,5	3,5	1521
China and PS	1%	5	16,6	12,3	-11,2	-10,4	-63,8	3,4	1705
All three players	0%	2	29,5	26,6	-21,7	36,4	-23,5	3,8	1326
No coordination	75%	391	2,4	18,9	1,6	-30,3	-29,5	3,2	2541
PC alone	41%	213	2,9	19,4	-7,2	-51,2	-33,3	3,2	1709
PS alone	11%	55	1,6	13,5	-10,9	-3,9	-20,0	3,0	4693
China alone	24%	123	2,0	20,3	10,3	-12,5	-28,0	3,4	3129
t-test: coordination vs no coordination	-	-	0,0***	0,06	0,03*	0,03*	0,9	0,15	0,24

- Debt level is lowered in cases with coordination, hinting burden sharing among creditors
- We're further exploring the results on growth and other variables

Growing out of debt?

- Successful coordination may require lengthier negotiations, which could dent growth prospects
- But, by delivering lower debt levels for a sustained period, successful coordination may make investment easier, pushing up long-run growth
- To further explore the link between coordination and growth we run the following regression

$$real\ growth_{i(t,t+1)} = c + \beta_C \cdot Coordinated\ Relief_{it-1} + \beta_U \cdot Uncoordinated\ Relief_{it-1} + \partial_i + \theta_t + \varepsilon_{it}.$$

- where ∂_i and θ_t are country and year fixed effects
 - Coordinated/uncoordinated relief can be a dummy or continuous variable (size of debt treated)
- We also check what happens to debt stock, fiscal balance and current account balance

Growing out of debt? (With a continuous variable – the 2000s sample)

Table 1:

	<i>Dependent variable:</i>			
	WB_g4 (1)	weo_debt4 (2)	weo_fisbal (3)	wb_ca4 (4)
lag(debt_coordination)	0.138*** (0.047)	−0.311*** (0.108)	0.135*** (0.051)	−0.047 (0.087)
lag(debt_no_coordination)	0.141* (0.075)	−0.115 (0.173)	0.157* (0.082)	0.008 (0.139)
Observations	2,064	1,717	1,792	1,849
R ²	0.006	0.005	0.006	0.0002
Adjusted R ²	−0.065	−0.077	−0.073	−0.076
F Statistic	5.908*** (df = 2; 1926)	4.366** (df = 2; 1585)	5.251*** (df = 2; 1659)	0.146 (df = 2; 1717)

Note:

*p<0.1; **p<0.05; ***p<0.01



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Conclusion

Main takeaways

- Data show de facto creditors' coordination, which also affect the size and terms of restructurings.
- Even when we focus on the last two decades, **the Paris Club most often took a lead** in the debt relief game (88% of cases, the rate slightly decreases in 2000-2019).
- **The private sector often interacted with bilateral creditors** as the share of private sector restructurings without any follow-ups is relatively low.
 - The private sector treats more debt when followed by the PC than by China
- **China mostly provided restructurings alone but followed the PC more often than PS**
 - China treated more debt when acting alone
 - But the Paris Club and China tend to provide more principal value reduction when the other party does it
- Preliminary results show that **debt dynamics improve** in cases with **de facto coordination**
 - Insight for the current debate on sovereign debt restructuring frameworks

Next steps

- A more rigorous empirical study to analyze the impact of debt restructuring – with or without de facto inter-creditor coordinating – on debtor countries' growth perspectives and the growth channels
- The dynamics between debt restructuring and financing
 - To control for the size and type of IMF programmes
 - To examine the debt composition of debtor countries
- Any other players in the game?

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