Household Debt and Business Cycles Worldwide

Atif Mian, Amir Sufi, and Emil Verner

Princeton University, University of Chicago, and Princeton University

IMF Jacques Polak Annual Research Conference
November 3, 2017

Did Household Credit Do This?

Findings

Panel of 30 mostly advanced economies, 1960 to 2012

1. Rise in household debt predicts slack

Findings

Panel of 30 mostly advanced economies, 1960 to 2012

1. Rise in household debt predicts slack

2. There is a global cycle & linkages matter

Findings

Panel of 30 mostly advanced economies, 1960 to 2012

1. Rise in household debt predicts slack

2. There is a global cycle & linkages matter

3. Credit expansion driven by credit supply shocks

Findings

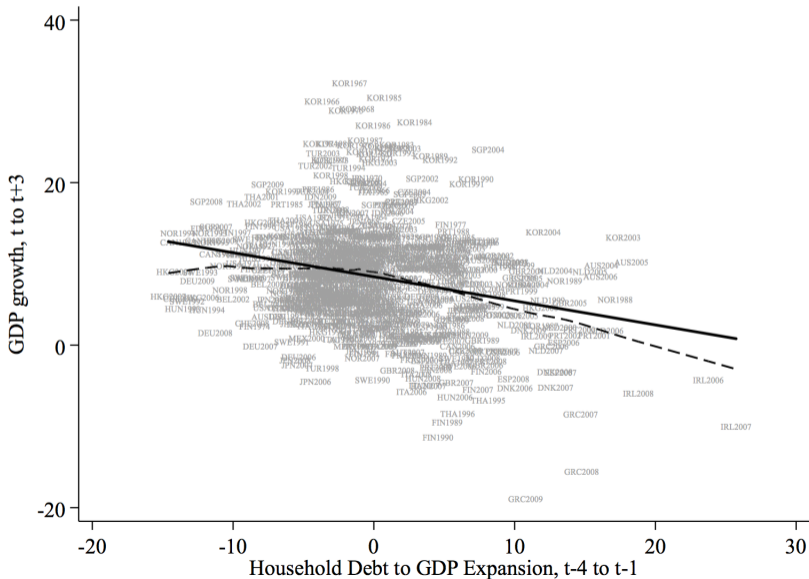Panel of 30 mostly advanced economies, 1960 to 2012

1. Rise in household debt predicts slack

2. There is a global cycle & linkages matter

3. Credit expansion driven by credit supply shocks

4. Credit bites stronger in fixed ER regimes
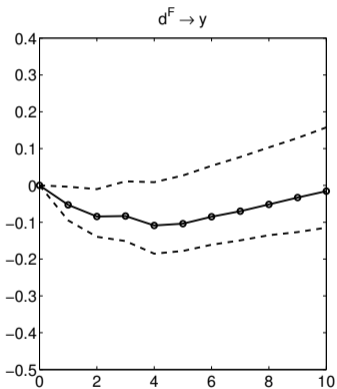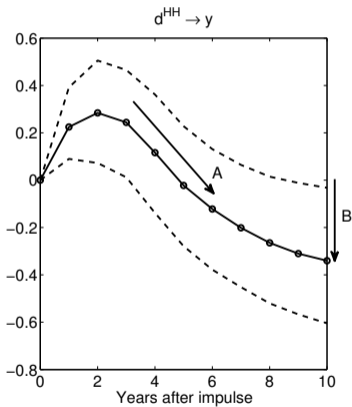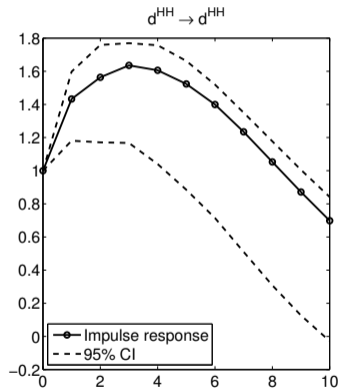
Findings

Panel of 30 mostly advanced economies, 1960 to 2012

1. Rise in household debt predicts slack

2. There is a global cycle & linkages matter

3. Credit expansion driven by credit supply shocks

4. Credit bites stronger in fixed ER regimes

5. Credit expansion predicts forecasting errors

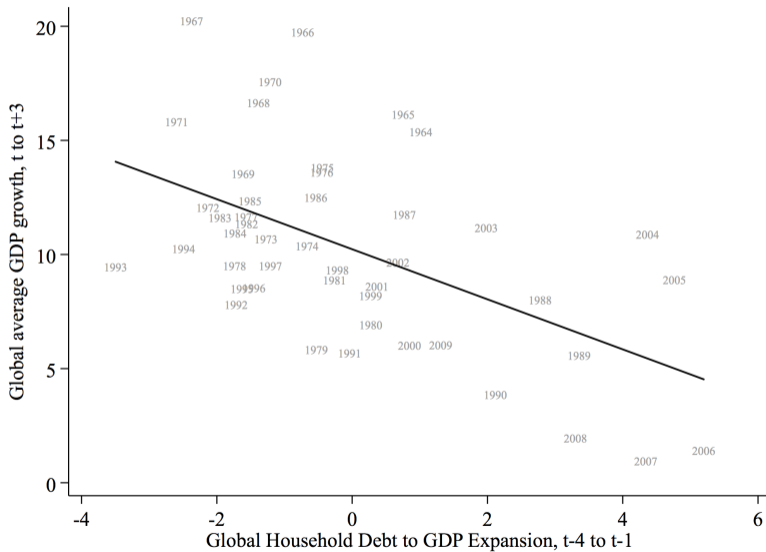# 1. Rise in Household Debt Predicts Lower Growth

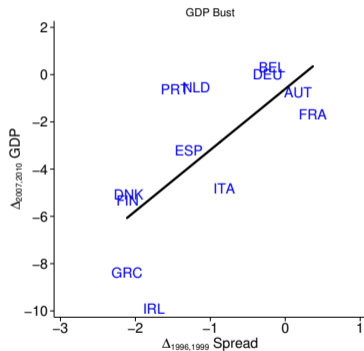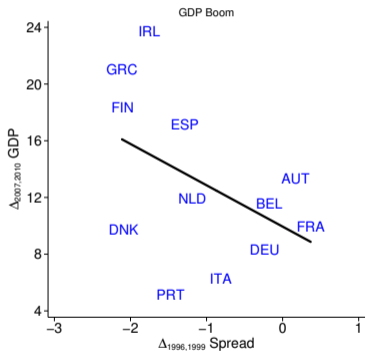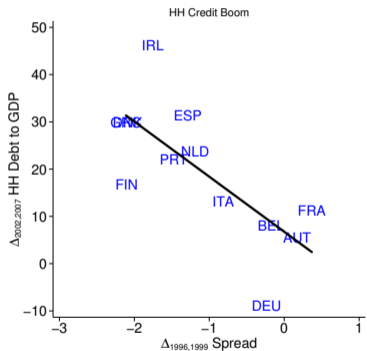# Recursive VAR: $(y_{it}, d_{it}^{Firm}, d_{it}^{HH})$

2. There is a global cycle & linkages matter

	(1) $\Delta_3 y_{it+3}$	(2) $\frac{\Delta_3 NX_{it+3}}{Y_{it}}$	(3) $\Delta_3 y_{it+3}$	(4) $\Delta_3 y_{it+3}$	(5) $\Delta_3 y_{it+3}$
$\Delta_3 d_{it-1}^{HH}$	-0.33**	0.17**	-0.21**	-0.22*	-0.22**
	(0.077)	(0.049)	(0.063)	(0.091)	(0.060)
$\Delta_3 d_{it-1}^{F}$	-0.046	0.022	-0.037	-0.044	-0.061*
	(0.035)	(0.021)	(0.033)	(0.036)	(0.027)
$\Delta_3 d_{it-1}^{HH} \times \rho_i^{Global}$				-0.33	
				(0.22)	
$\text{Global}_{-i} \Delta_3 d_{it-1}^{HH}$					-0.73**
					(0.26)
Country fixed effects	✓	✓	✓	✓	✓
Distributed lag in Δy	✓	✓	✓	✓	✓
Year fixed effects			✓		
R^2	0.13	0.062	0.50	0.15	0.22
Observations	695	695	695	695	695

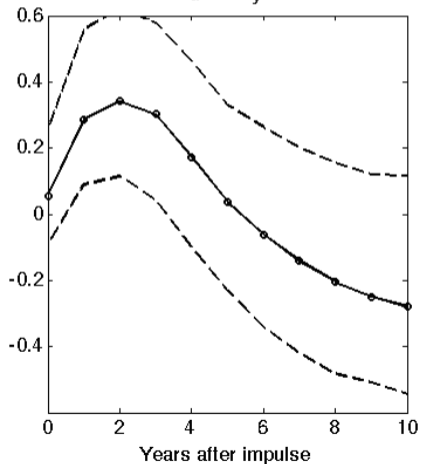# Global Household Debt Predicts Lower Global Growth

3. Credit Expansion Driven by Credit Supply Shocks
Eurozone Example

Mortgage-Sovereign Spread as "Imperfect" Instrument

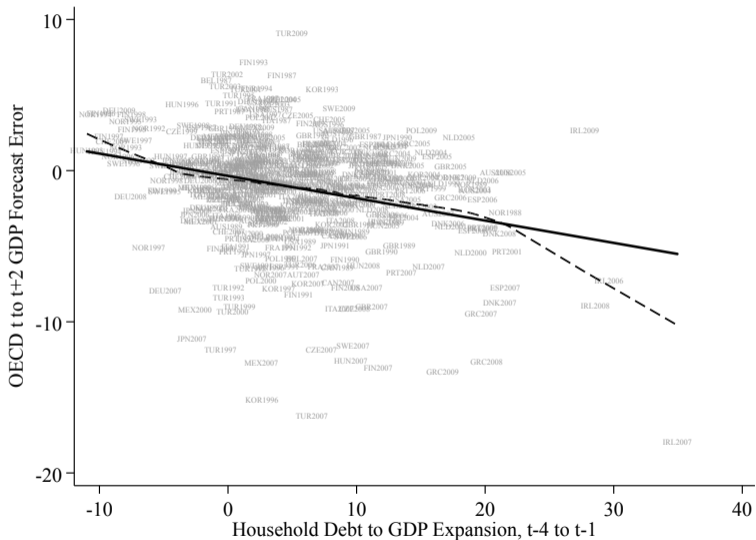$$\hat{u}_{it}^{HH} = \pi_{HH} + \gamma_{HH} * Z_{it} + \nu_{it}^{HH}$$

$d^{HH} \rightarrow y$

Years after impulse

4. Credit Bites Stronger in fixed ER regimes

	Non-linearity	Fixed	Intermediate	Freely floating
	(1) $\Delta_3 y_{it+3}$	(2) $\Delta_3 y_{it+3}$	(3) $\Delta_3 y_{it+3}$	(4) $\Delta_3 y_{it+3}$
$\Delta_3 d_{it-1}^{HH} * \mathbf{1}(\Delta_3 d_{it-1}^{HH} > 0)$	**-0.436**** (0.106)			
$\Delta_3 d_{it-1}^{HH} * \mathbf{1}(\Delta_3 d_{it-1}^{HH} \leq 0)$	**0.0655** (0.156)			
$\Delta_3 d_{it-1}^{F} * \mathbf{1}(\Delta_3 d_{it-1}^{F} > 0)$	-0.0537 (0.0367)			
$\Delta_3 d_{it-1}^{F} * \mathbf{1}(\Delta_3 d_{it-1}^{F} \leq 0)$	-0.0396 (0.0631)			
$\Delta_3 d_{it-1}^{HH}$		**-0.534**** (0.128)	**-0.311**** (0.0716)	**-0.0673** (0.129)
$\Delta_3 d_{it-1}^{F}$		-0.113* (0.0495)	-0.0119 (0.0425)	0.0519 (0.116)
Country fixed effects	✓	✓	✓	✓
Distributed lag in Δy	✓	✓	✓	✓
Test for equality of				
β_{HH} and β_F, p-value		.008	.004	.535
R^2	0.146	0.281	0.114	0.0324
Observations	695	221	341	120

5. HH Debt Expansion Predicts Overoptimistic Forecasts

Conclusion

- **Credit-driven business cycle** are pervasive

- **Household demand is an important channel** that links credit to the macro-economy

- There is a global factor, global linkages matter, and monetary flexibility matters