Household Debt and Business Cycles Worldwide

Discussion

Simon Gilchrist
Boston Univerity and NBER

MFM Conference
January 28th, 2016

Overview:

- Study the relationship between current debt growth and future GDP growth.
  - Standard open economy model: current debt growth reflects future growth in potential output – positive relationship.
  - Models with borrowing constraints and demand externalities: current debt growth stimulates current consumption and output at the cost of future output – negative relationship.
- Causality – use sovereign spreads and/or global factors as instruments for future debt growth:
  - Low spreads at t-3 predict debt growth between t-3 and t which predicts low output growth between t and t+3.

Previous Literature

- Jorda, Shularick and Taylor (2013,2014) – conditional on being in a recession, future outcomes are worse for higher indebted countries. Contractions more severe and last longer.
- Lopez-Salido, Stein and Zakrajsek (2015) – high levels of debt issuance today predict low future GDP growth in U.S.
- Rey (2014) – the U.S. and the global financial cycle.
- Mian and Sufi: household debt matters!
- Theory: financial frictions and household spending in GE (Guerrieri and Lorenzoni (2015), Korinek and Simsek (2015))

Empirical Strategy

- OLS on annual data:

$$\log Y_{t+3} - \log Y_t = \alpha_i + \beta^h \Delta d_t^h + \beta^f \Delta d_t^f + \varepsilon_{it}$$

- IV using country spread and/or global financial factors at $t-3$
- Variables of interest: GDP, Consumption, Exports, Imports.

Main findings:

- High debt growth between $t-3$ and t predicts low GDP growth between t and $t+3$.
- Results entirely due to household debt rather than firm-level debt.
- Debt growth at t also contemporaneously correlated with consumption growth and growth in imports, i.e. a consumption boom not an investment boom.
- Results are stronger for fixed exchange rate/ZLB regimes – consistent with aggregate demand channel.

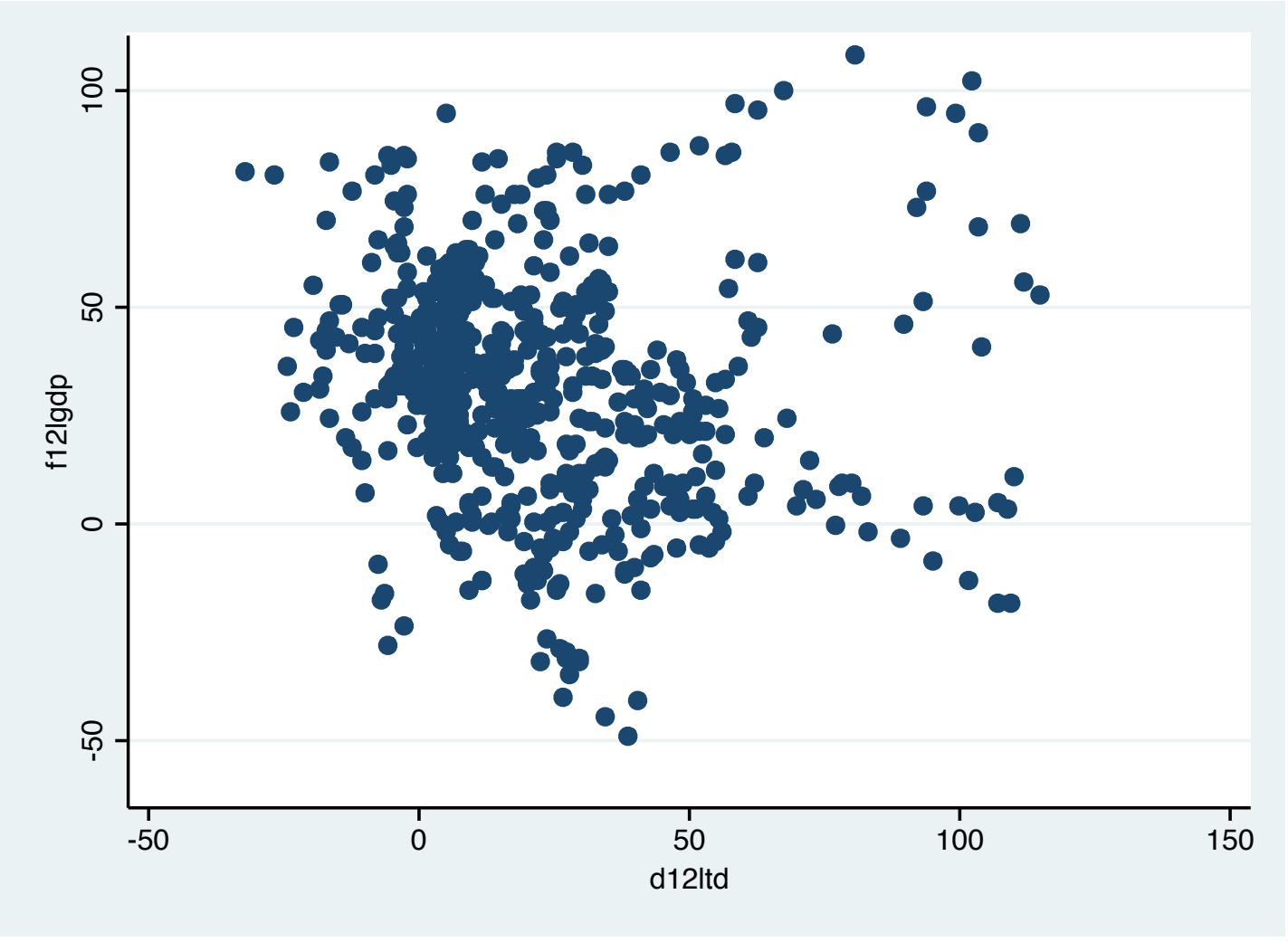
Issues:

- Causality:
  - Growth expectations difficult to measure.
  - Substantial variation due to common global cycle.
  - Countries more closely linked to global cycle show stronger effects but reverse causality is a bigger issue for such countries.
- Amplification:
  - Is the boom-bust cycle excessive? Relative to what?
- Robustness – global cycle and emerging market economies?

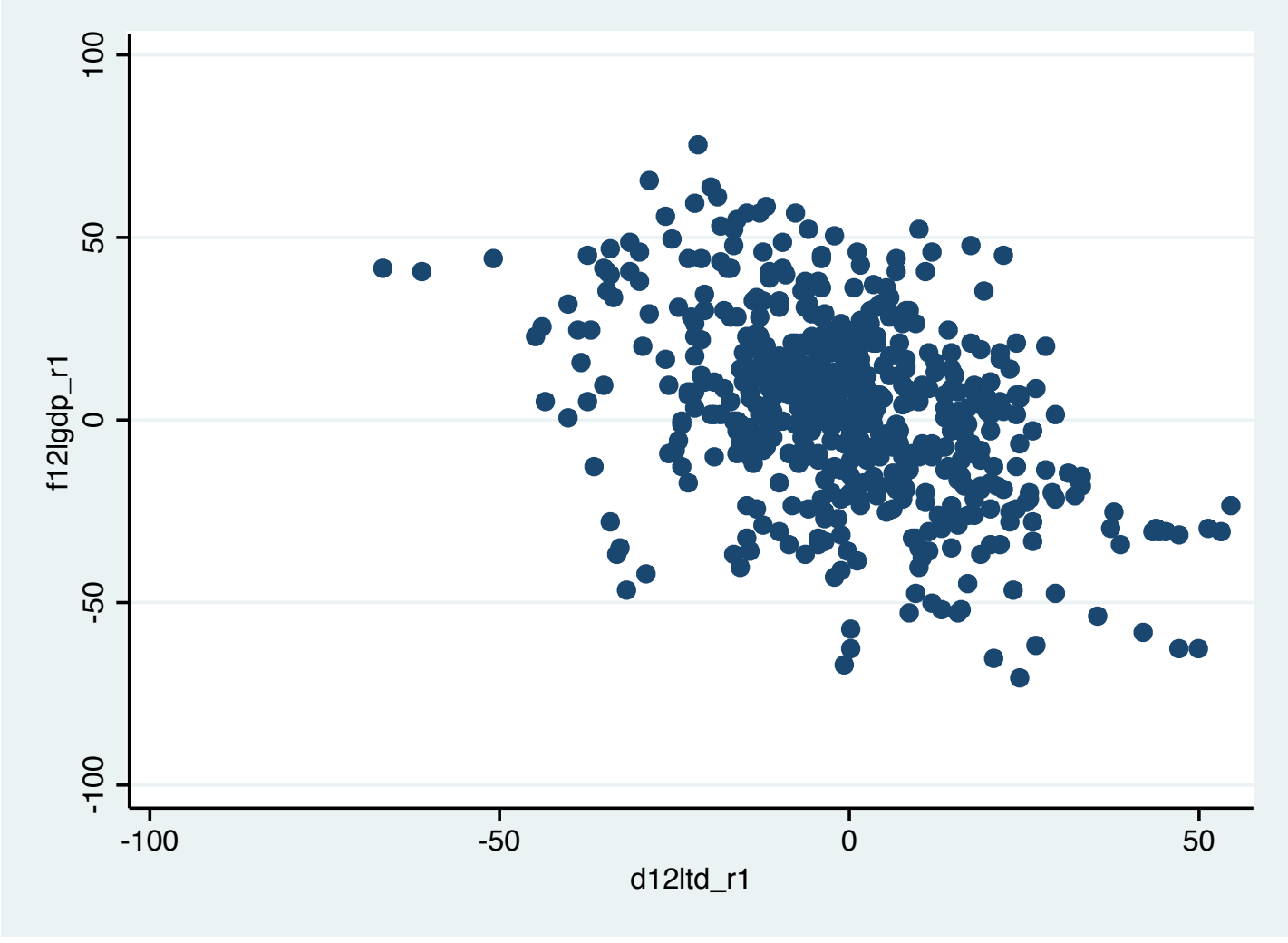
Robustness:

- 600 obs on 21 EMEs over 1990-2012 period:
  - Turkey, S.Africa, Argentina, Brazil, Chile, Peru, Columbia, Costa Rica, Mexico, Peru, Uruguay, Jamaica, Egypt, India, Indonesia, Malaysia, Philippines, Kazakstan, Bulgaria, Russia, Ukraine
- Total Debt as measured by WDI.
- Micro-level bond prices to construct sovereign credit spreads (Gilchrist, Yue and Zakrajsek).
- Global factors as instruments: EBP (Gilchrist-Zakrajsek), VIX
  - These reflect developments in U.S. financial markets transmitted to global economy
  - Arguably much less likely reverse causation with this set of countries.

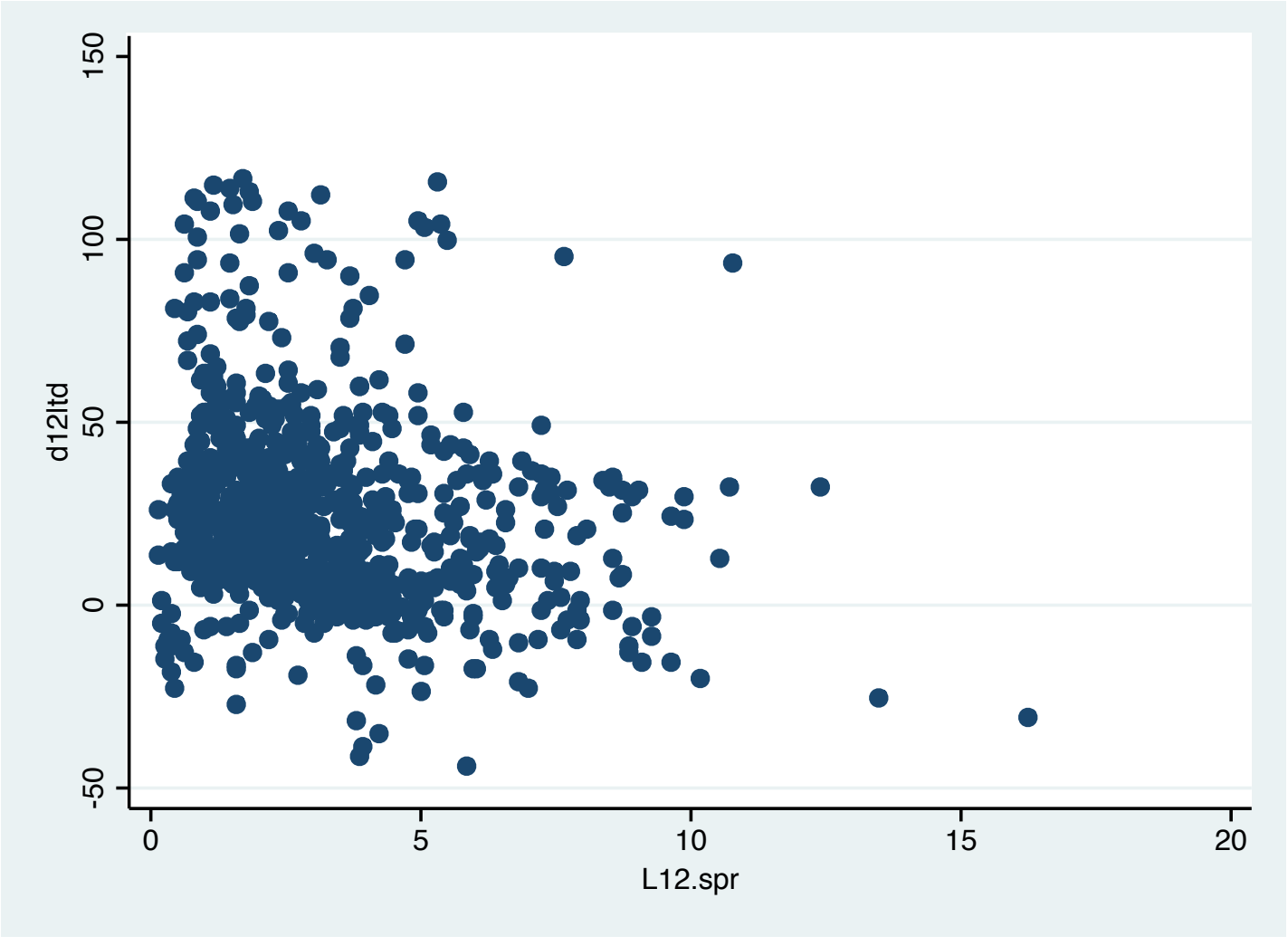
Future GDP Growth vs Current Debt Growth



Future GDP Growth vs Current Debt Growth: Deviations from country means



Future Debt Growth vs Sovereign Spread



3-Year GDP Growth: OLS Regression (No FE or TD)

$\Delta^{12} \log TD/GDP$	-0.14			
	(0.08)			
$\Delta^{12} \log TD$		-0.56	-0.50	-049
		(0.16)	(0.15)	(0.16)
$\Delta^{12} \log GDP$		-0.01	0.02	0.04
		(0.07)	(0.08)	(0.08)
$\Delta^{4} \log TD$			-0.10	-0.07
			(0.23)	(0.24)
$\Delta^{4} \log GDP$			-0.06	-0.04
			(0.09)	(0.99)
$Spread_t$				0.84
				(0.99)
$R^2(within)$	0.04	0.22	0.22	0.22

3-Year GDP Growth: OLS Regression

$\Delta^{12} \log TD$	-0.56	-0.66	-0.58
	(0.16)	(0.18)	(0.12)
$\Delta^{12} \log GDP$	-0.01	-0.01	0.18
	(0.07)	(0.07)	(0.10)
$R^2(within)$	0.22	0.22	0.64
$FixedEffects$	No	Yes	Yes
$TimeDummies$	No	No	Yes

3-Year GDP Growth: IV Regression

	IV1	IV2	IV3	IV1
$\Delta^{12} \log TD$	-1.22 (0.27)	-1.16 (0.27)	-1.12 (0.24)	-0.84 (0.32)
$R^2(within)$	0.06	0.09	0.11	0.59
$FixedEffects$	Yes	Yes	Yes	Yes
$TimeDummies$	No	No	No	Yes

- IV1: $Spread_{i,t-12}$
- IV2: EBP_{t-12}, VIX_{t-12}
- IV3: $Spread_{i,t-12}, EBP_{t-12}, VIX_{t-12}$

Summary

- Very nice paper with a rich set of new facts.
- Causality convincing to many but for purists – still lacking a valid instrument?
- Robustness to emerging market economies provides further evidence of relevance and causality.