

Growth and risk: The role of financial markets

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Progress and chaos

"You know what the fellow said – in Italy [...] they had warfare and bloodshed, but they produced Michelangelo, Leonardo, and the Renaissance. In Switzerland, they had brotherly love, [...] five hundred years of democracy and peace – and what did they produce? The cuckoo clock."

(Orson Welles, *The Third Man*, 1949)

Finance, growth, and stability

- Finance strongly, causally, and positively associated with higher growth
 - Credit markets (King and Levine, 1993; Rajan and Zingales, 1998; Beck et al., 2000)
 - Equity markets (Levine and Zervos, 1998; Beck and Levine, 2004)
 - Equity market liberalization (Bekaert et al., 2005, 2007; Gupta and Yuan, 2009)
 - Capital account liberalization (Quinn and Toyoda, 2008)

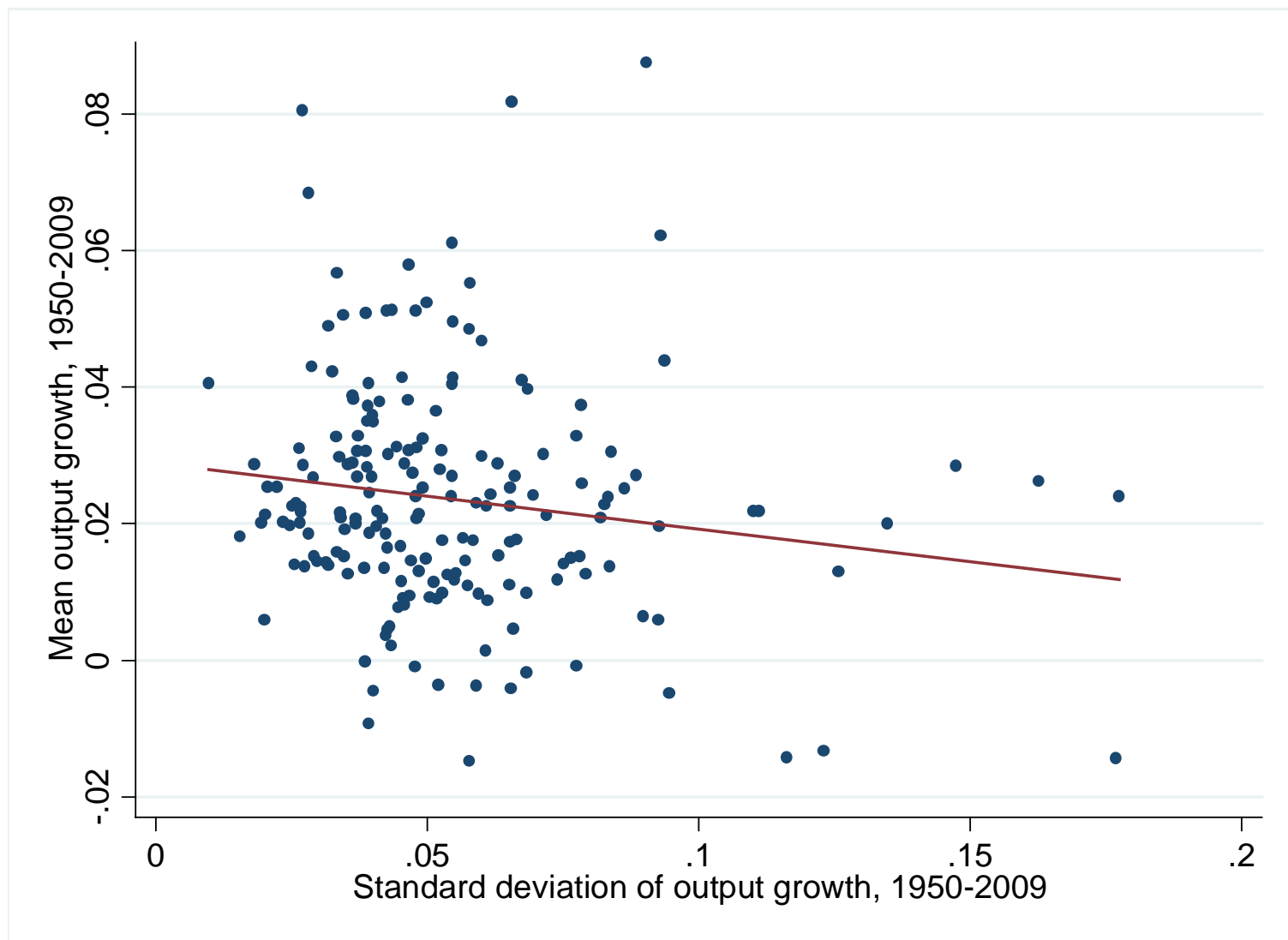
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 - Strong perception that foreign capital increases volatility (Stiglitz, 2000)
 - Financial development may lead to risk-taking (Hellmann et al., 2000)
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- Symmetric vs. asymmetric variability
 - Business cycle volatility vs. rare disasters
 - Utility loss from rare disasters higher than utility loss from volatility
 - Volatility vs. skewness of growth

Growth and volatility (*a la* Ramey and Ramey, 1995)



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- In general, non-linear effect
 - Depends on whether monetary or real shocks, whether shocks reflect shifts in credit demand or supply
 - Lower aggregate volatility (Easterly et al., 2000)
 - Higher aggregate volatility (Kaminsky and Reinhart, 1999)
 - No effect (Beck et al., 2006)

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 - Construct a benchmark industrial composition associated with lowest volatility for each possible level of growth
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- Lower volatility through the channel of reallocation (Acharya et al., 2011)
 - U.S. banking deregulation
 - Reallocation of output from sub-optimally large to sub-optimally small sectors
 - Appeal: simultaneous effect of finance on growth and volatility
 - Only drawback: case study

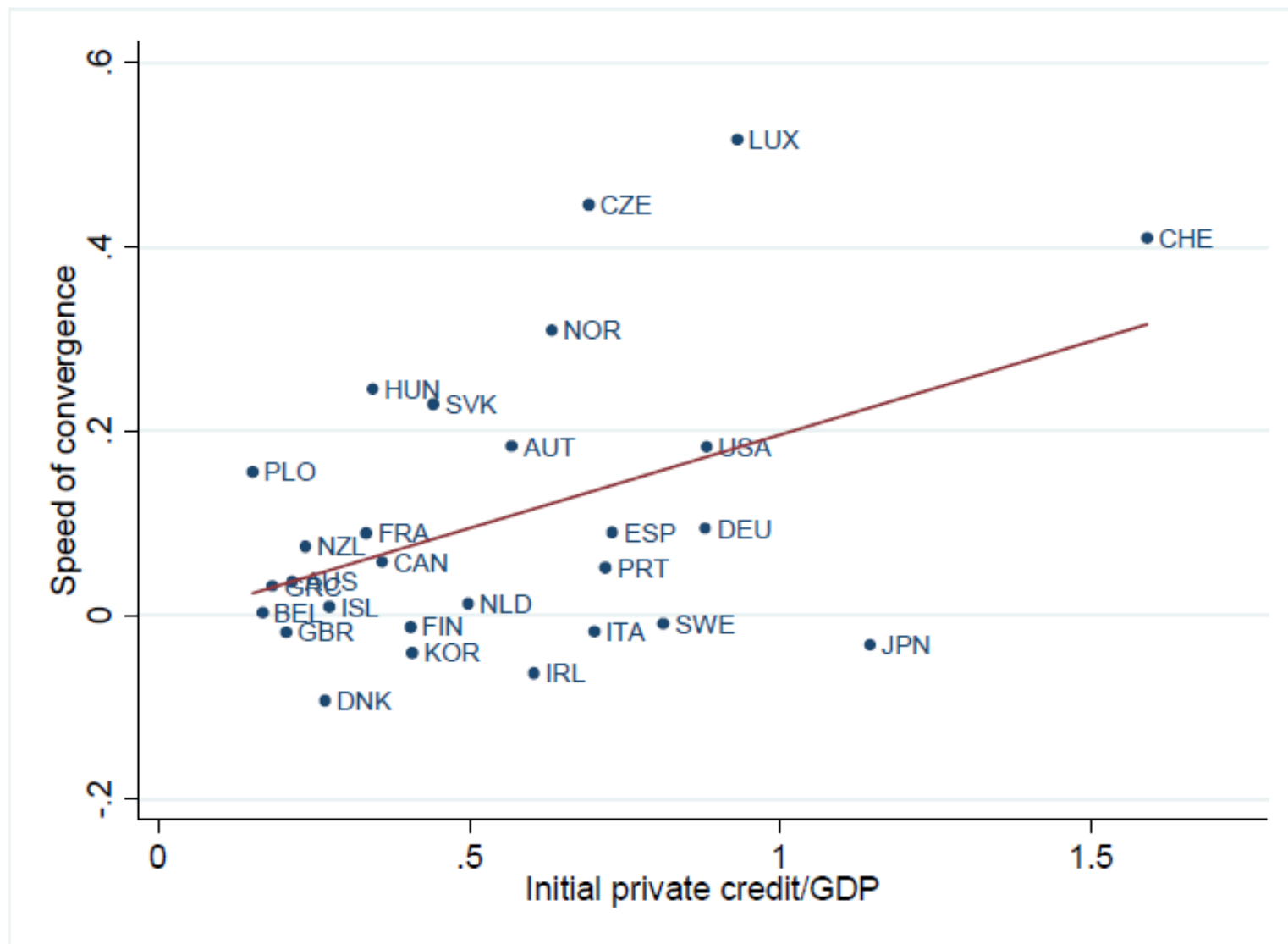
Finance, growth, and volatility: international evidence

- Mean-variance efficiency framework in international context (Manganelli and Popov, 2010)
 - 28 OECD countries
 - 1970-2007
 - Private credit / GDP as proxy for financial development

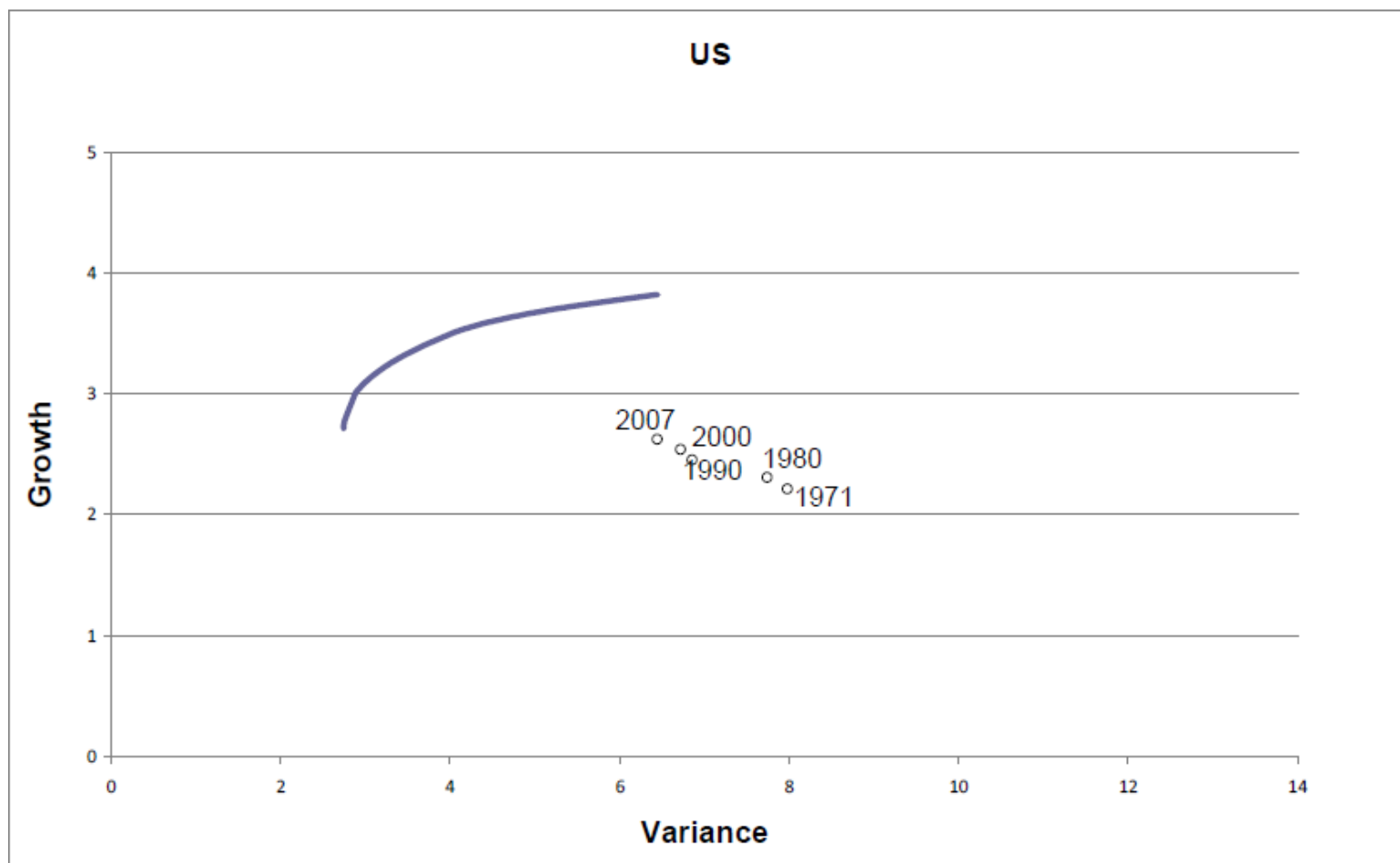
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- Main results
 - Finance has Pareto-improving effect
 - Doubling financial depth increases speed of convergence from actual to optimal industrial composition by 2% to 4%
 - If Greece in 1970 had US financial depth, by 2007 18% lower long-term volatility
 - Caveat: results weaker when data up to 2010 included

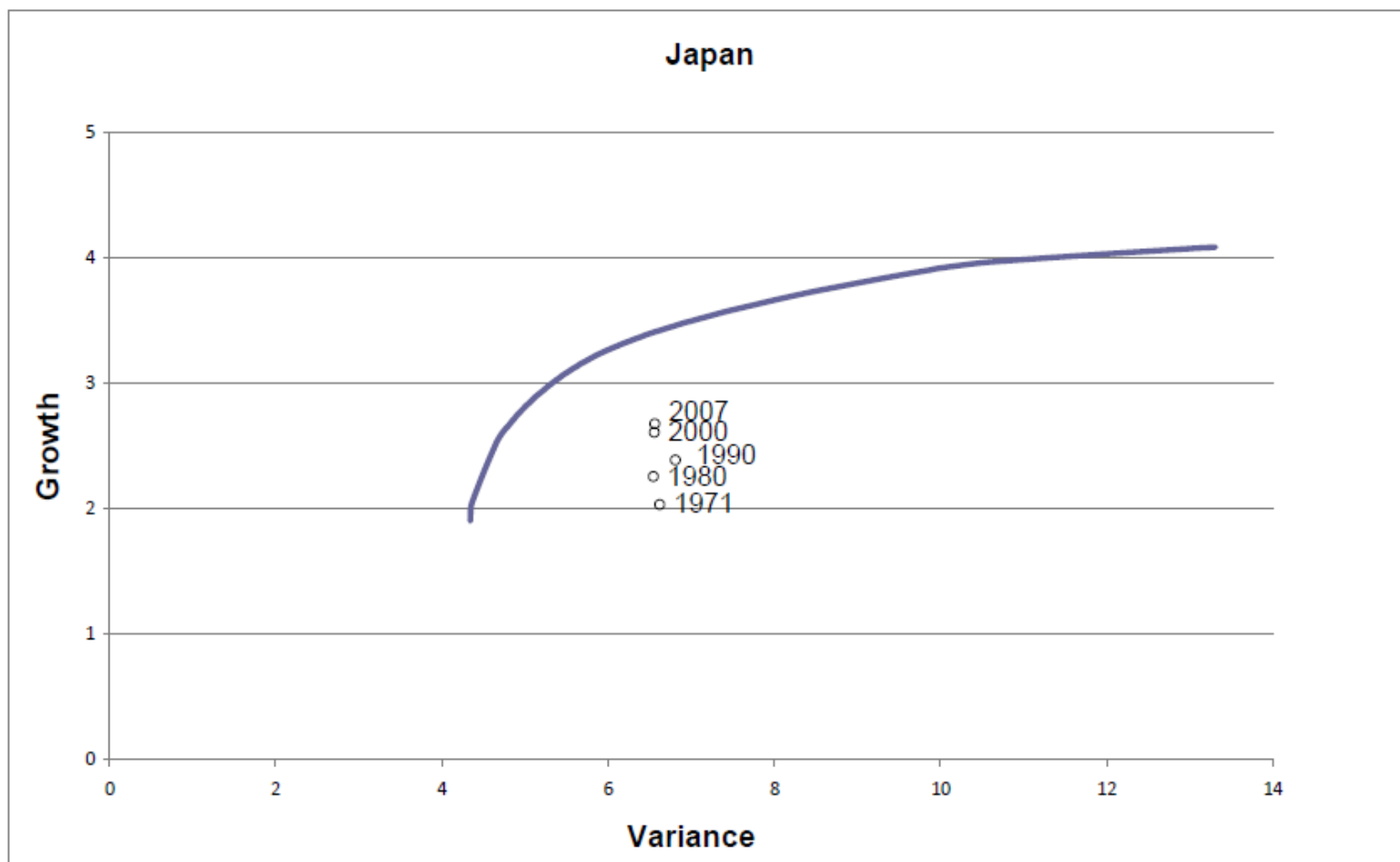
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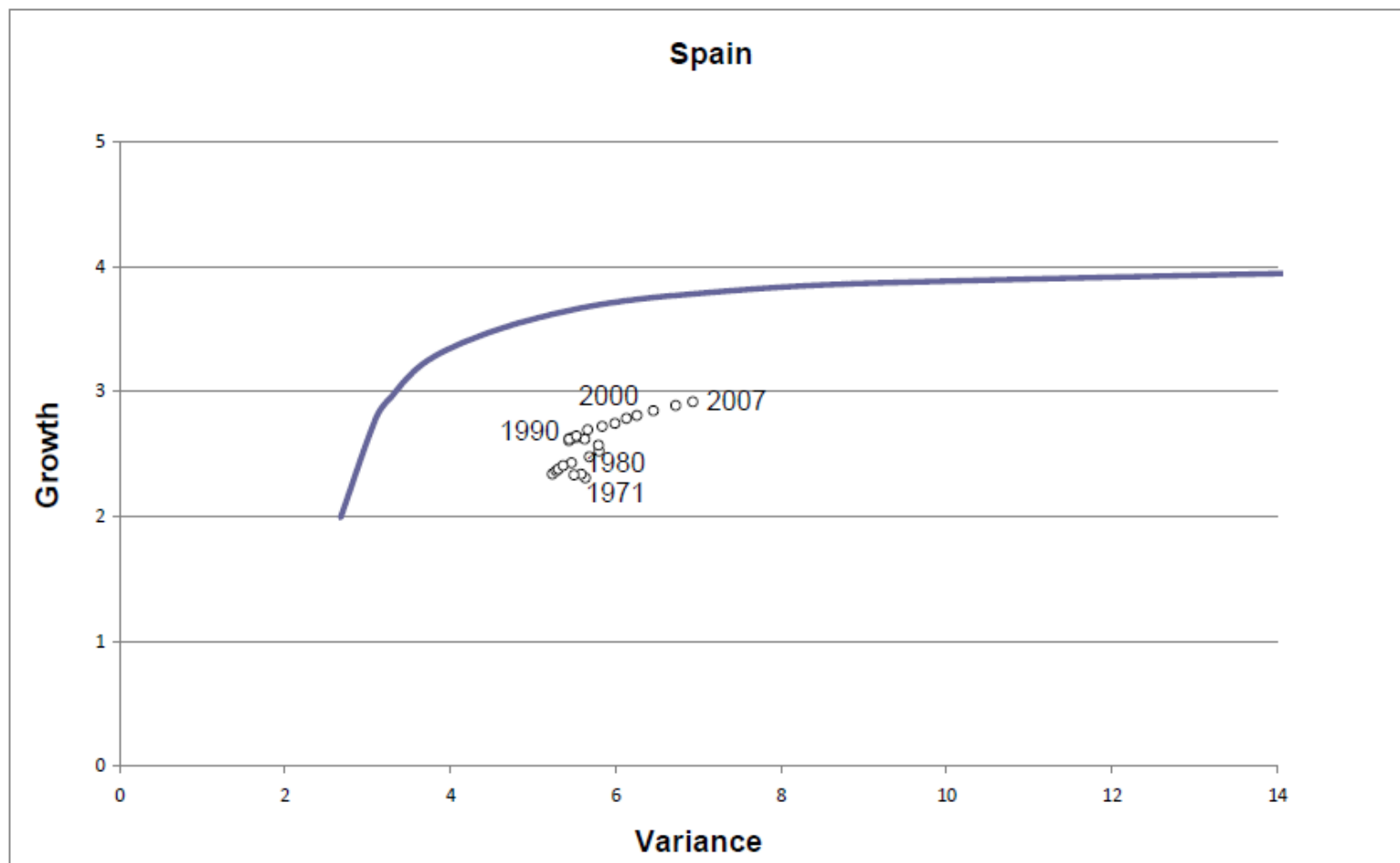
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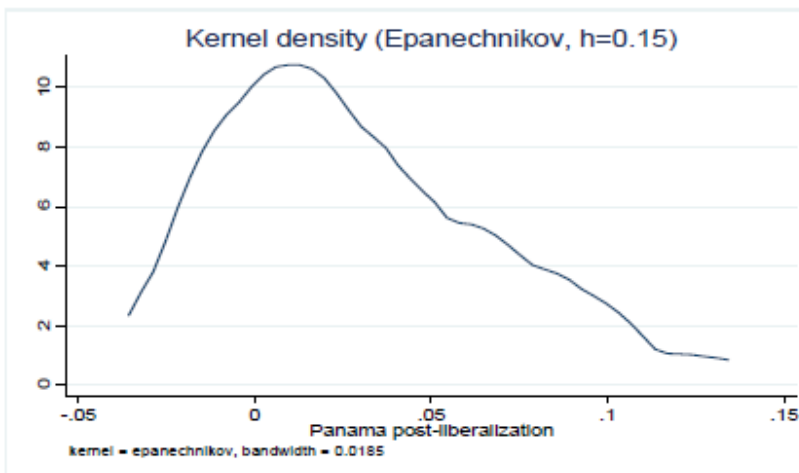
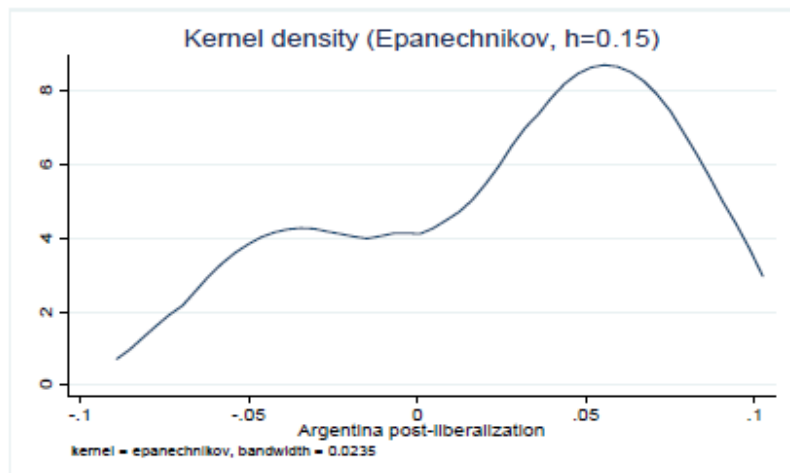
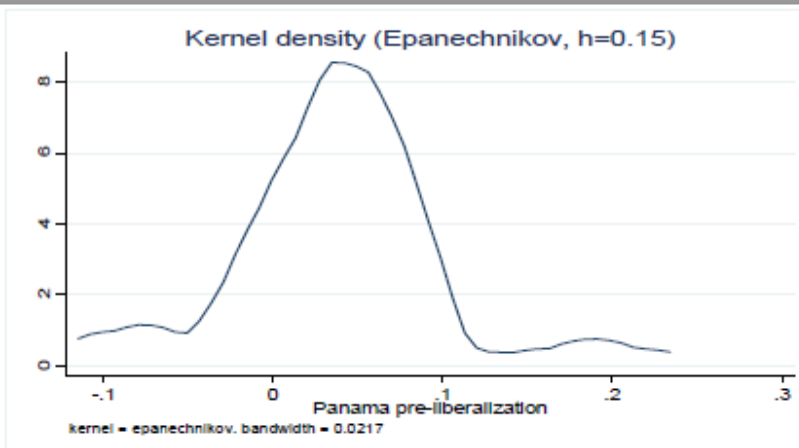
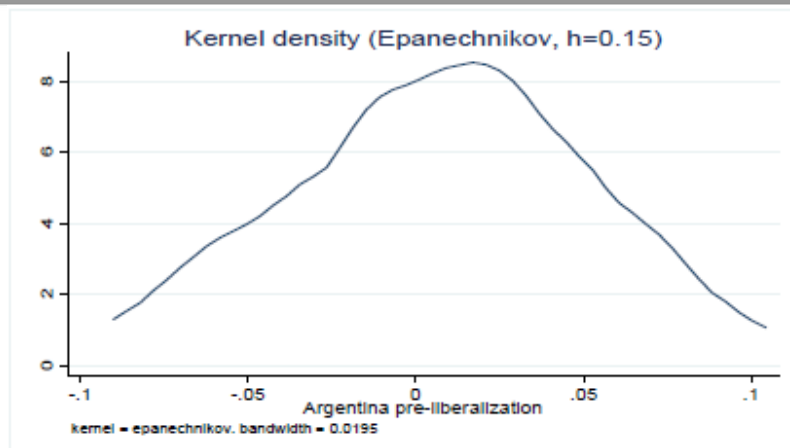
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- Third moment of consumption growth captures better tail events
 - Incidence of large, abrupt, and rare macroeconomic contractions results in more negatively skewed distribution of growth rates
 - Possible to construct a long-term growth profile for country A and country B
 - Same long-term growth and volatility
 - Country A higher business cycle volatility, symmetric
 - Country B almost no volatility, a 25% decline in GDP once every 100 years
 - Citizens of country B would forego up to 10% of GDP each year to switch places with country A

Finance, growth, and skewness

- Growth, volatility, and skewness as joint outcomes of financial openness (Popov, 2011)
- Openness defined as joint credit market, equity market, and capital accounts liberalization
- 53 countries, 21 industries, 1963-2007
- Allow for all moments of growth to be determined by openness simultaneously

An example: Argentina vs. Panama



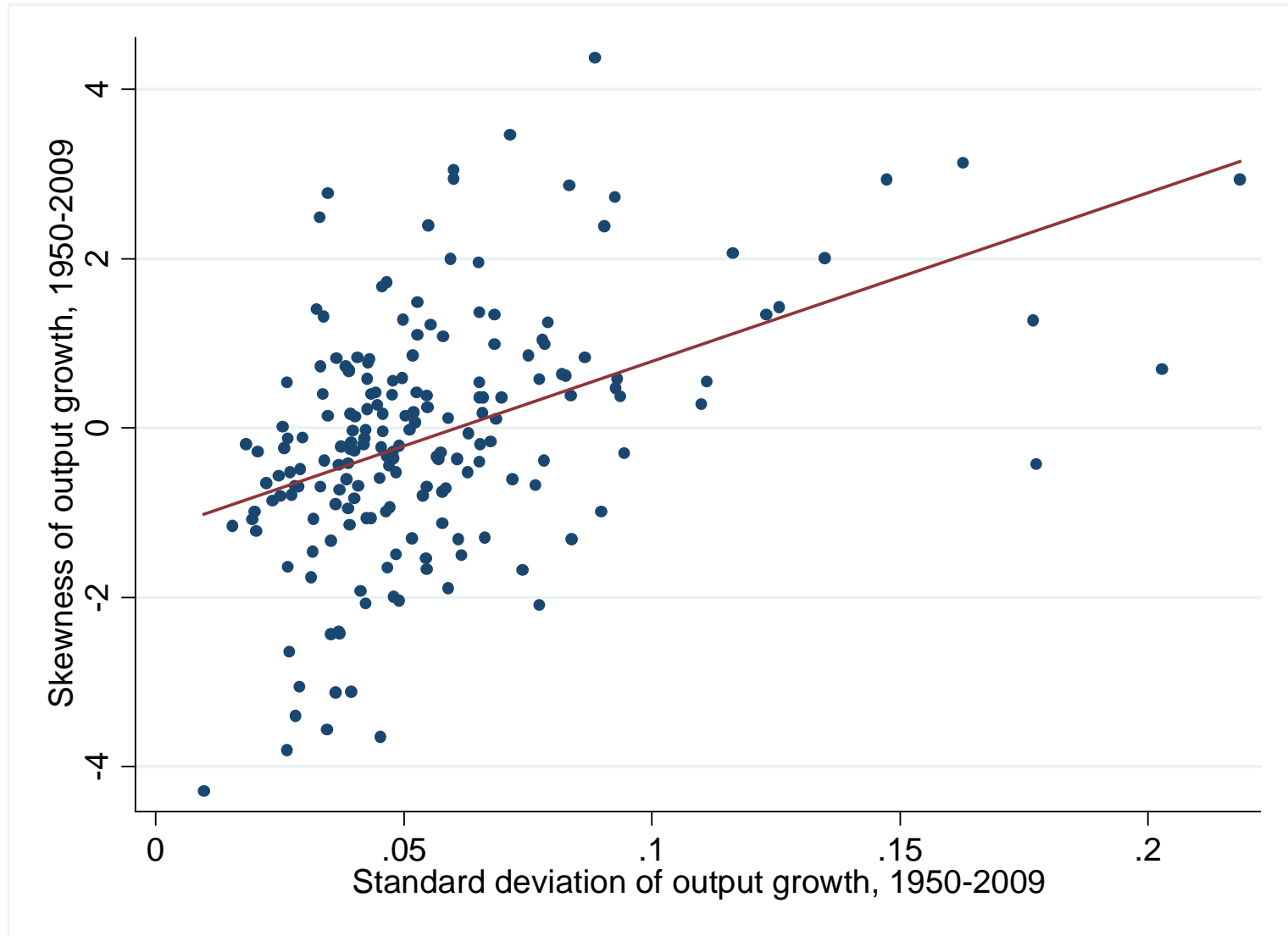
Moments of real growth, pre- vs. post- liberalization event

	Argentina		Panama	
	Pre-	Post-	Pre-	Post
Mean	0.007	0.026	0.038	0.029
Standard deviation	0.042	0.043	0.059	0.034
Skewness	-0.118	-0.666	0.365	0.863

Finance, growth, and skewness: Main results

- Financial openness (both de jure and de facto):
 - Increases average growth
 - Increases left-skewness
 - Little action in the dimension of volatility
- Direct effect on growth (left-skewness) lower (higher) than indirect one
- Growth effect through TFP, skewness effect through capital, TFP, and new business creation
- Growth effect strengthened and risk effect mitigated by strong institutions and by financial development

Volatility and skewness



Finance, growth, and risk: Conclusion

- Economic agents dislike growth variability
- Variability has a symmetric and an asymmetric component
- Does not seem that finance increases business cycle volatility
 - May even be associated with lower volatility
 - Especially when holding long-term growth constant
 - Growth-volatility not a trade-off
- Finance does seem to have an effect on asymmetric risk
 - Growth-skewness a trade-off
- Liberalization vs. credit market development
- Welfare effects
 - Higher growth vs. higher probability of large but rare “disasters”?
 - Output risk -> consumption risk?
 - Government insurance?
 - Effective in the case of additional volatility (Gali, 1994; Rodrik, 1998)
 - What about large and rare crises?