Crises and Institutions:
The case of
Bank Regulation and Supervision

BİLİN NEYAPTI

Bilkent University

Outline:

- How do institutions evolve?
  - The case of bank regulation and supervision (RS)

- Evidence: RS and economic performance
  - Growth
  - Bank performance
  - Business cycles (Short-term & Long-term effects)

- Lessons to be drawn from the recent crises?

What is an *institution*?

Institutions

- are **the rules of the game** and their **enforcement** characteristics

- have both **formal** and **informal** aspects

- help people process information, form expectations and **reduce *transaction costs***

- are part of the production technology (**determine production relations**)

--

(For the financial sector: an essential institution is ***Regulation and Supervision***)

New Development Economics
(*NIE*: Williamson, North, .. + *Collective Action Theory*: Olson)

Institutions change due to:

- ***Endogenous*** factors:
  - adaptive /efficient change
  - collective action theory (~ political economy) :

    Not all institutional changes are efficient --special interest groups (*narrow* vs. *encompassing* interests) affect institutional changes

    (~ creative destruction/institutional sclerosis/tectonic pressures)

    [Neyapti, 2010, *Macroeconomic Institutions and Development, EE Publ.*]

- ***Exogenous*** factors ("best practice" /BASLE; Financial Stability Board; Standard Setting Bodies)
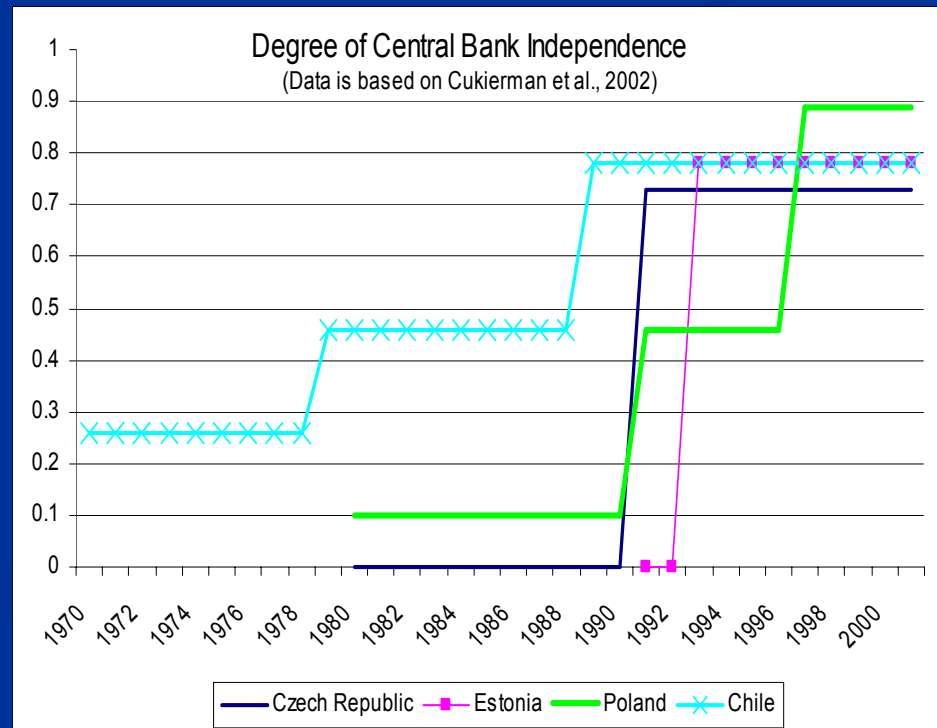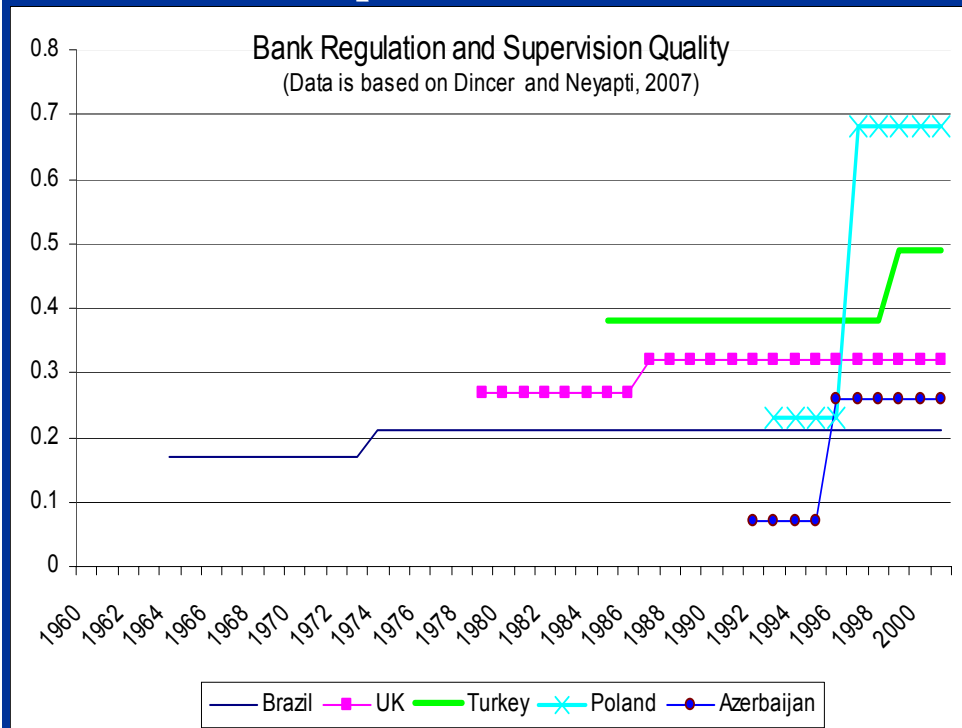
"Punctuated equilibria"

→ What punctuates an institutional equilibrium ? (net benefit of a change exceeding costs)

Hypothesis: Institutional change is endogenous to crises.

(eg. Bundesbank after German hyperinflation; Adaption of acroprudentials of Asian central banks after 1997; Turkish monetary and banking sector reforms after 2001)

Some examples:

Bank Regulation and Supervision Quality
(Data is based on Dincer and Neyapti, 2007)

Legend: Brazil, UK, Turkey, Poland, Azerbaijan

Degree of Central Bank Independence
(Data is based on Cukierman et al., 2002)

Legend: Czech Republic, Estonia, Poland, Chile

The Case of Bank Regulation and Supervision (*RS*) :

Transaction costs (TC: adverse selection and moral hazard arising from informational imperfections) are large in the financial sector and get larger the more the financial sector is developed and the more complex the financial intermediation.

"Efficient regulation" is necessary to reduce TCs since its economic repurcussions are also large. There are, however, also administrative costs of regulation.

Measuring TCs:
- Wallis and North (1986) estimate the share of TC to be 45% of US GDP in the 1970s, double of its level a century ago.
- Measure: "spread+commissions" (Stoll &Whaley, 1983)
- "Interest+non-interest expenses" in the US Commercial Banking Industry: 68% in 1934; 85% in 1989 and 77% of total income in 1998 (Polski, 2000)

…The Case of Bank Regulation and Supervision

- **Endogenous factors (adaptive efficieny vs. political economy?):**
  Eg. US:
  - Repeal of the Glass-Steagull Act in the US (1999)
    [the effect of a powerful of financial lobby?]
  - The Financial Stability Oversight Board (2009)
    [Encompassing interests becoming vocal as a result of far-reaching effects of the 2007 crisis; the emergence of Tea-Coffee Parties]

  Eg. Turkey:
  - Chronic high inflation and worsening income distribution since 1970s (up to 40% real interest rates)
  - 1999-2001 Crisis leading to financial restructuring [both central banking and banking laws (#4684) are revised; Bank Regulatory and Supervisory Agency is established and took the management of the Deposit Insurance Fund]

- Testing the hypothesis: Do crises indeed play a significant factor in changing institutional quality?

Ranking of countries according to *RS* (*transparency, coverage & strictness*):
[Dincer and Neyapti, *Economic Inquiry*, 2005]

	Bank Law	Amend.	RS Index		Bank Law	RS Index
Germany	1993		0.59	*Hungary*	1994	0.48
Portugal	1992		0.51	*Estonia*	1994	0.42
Turkey	1999		0.49	*Poland*	1997	0.35
Luxemburg	1993		0.41	*Albania*	1996	0.34
Hong Kong	1997		0.39	*Kazakhistan*	1995	0.33
Denmark	1996		0.39	*Macedonia*	1994	0.30
Turkey	1985		0.38	*Czeck Rep.*	1996	0.26
Finland	1997		0.37	*Croatia*	1996	0.26
Kenya	1995	1999	0.36	*Armenia*	1996	0.26
Egypt	1957	1993	0.35	*Croatia*	1993	0.25
Singapore	1994	1999	0.35	*Bulgaria*	1992	0.25
Nederlands	1992		0.34	*Azarbaijan*	1996	0.24
Lebanon	1963		0.33	*Poland*	1993	0.24
England	1987		0.32	*Latvia*	1995	0.23
France	1984	1999	0.31	*Poland*	1989	0.23
Philippines	1948	1997	0.31	*Georgia*	1996	0.22
Belgium	1993		0.31	*Slovakia*	1996	0.21
Malaysia	1989		0.29	*Krgyzistan*	1991	0.20
Spain	1988		0.28	*Lithuania*	1992	0.20
Greece	1993		0.28	*kazakhistan*	1993	0.17
Sri Lanka	1988	1998	0.27	*Uzbekistan*	1994	0.16
Pakistan	1962	1997	0.27	*Slovenia*	1992	0.14
England	1979		0.27	*Uzbekistan*	1991	0.14
Switzerland	1934	1999	0.24	*Belarus*	1992	0.12
Argentina	1977	1996	0.24	*Mongolia*	1991	0.12
S. Africa	1990	1996	0.23	*Georgia*	1991	0.12
Korea	1998		0.23	*Ukraine*	1993	0.12
Kuwait	1968		0.22	*Russia*	1996	0.10
Brasil	1974		0.21	*Azarbaijan*	1992	0.08
Tunisia	1967	1994	0.20	*Tajikistan*	1991	0.07
Brasil	1964		0.17	*Armenia*	1992	0.07
Indonesia	1967		0.13	*Moldovia*	1991	0.05
Indonesia	1992	1998	0.13	*Latvia*	1992	0.03

The quality of RS across countries:

	Developed	Less - developed	Transition
A. Capital Requirements	0.41	0.41	0.37
B. Lending	0.06	0.18	0.06
C. Ownership Structure	0.25	0.13	0.13
D. Directors and Managers	0.23	0.19	0.13
E. Reporting/Recording Requirements	0.48	0.35	0.37
F. Corrective Action	0.49	0.57	0.32
G. Supervision	0.46	0.28	0.16
H. Deposit Insurance	0.68	0.84	0.10

Determinants of RS – Adaptive efficiency?
(Dincer and Neyapti, *Contemporary Econ.Pol.*, 2005):

	I	II	III	IV	V	VI
Constant	0.23	0.18	0.23	0.20	0.18	0.18
	(8.10)***	(6.91)***	(6.82)***	(10.41)***	(8.19)***	(10.26)***
EU Member	0.10	0.07	0.10	0.12	0.09	0.12
	(2.77)***	(1.66)*	(5.36)***	(3.47)***	(2.52)**	(10.84) ***
CRISES				0.17	0.12	0.25
				(2.64)***	(2.52)**	(6.45)***
CRprvtGDP	0.001			0.001		
	(3.26)***			(4.01)***		
CRGDP		0.001			0.001	
		(4.20)***			(5.00)***	
M2GDP			0.001			0.001
			(3.50)***			(5.98)***
No. of obs.	29	29	18	29	28	17
R - bar2	0.29	0.42	0.14	0.45	0.49	0.75

Notes: In parentheses under each coefficient are the t - ratios.

   ***, ** and * indicate statistical significance at 1%, 5% and 10% levels, respectively

Transition Economies:

	1	2
Constant	0.29***	0.24***
	(9.82)	(10.06)
EU Member	0.10*	0.14***
	(1.90)	(2.89)
CRISES		0.16***
		(2.63)
FDI/GDP	0.00	0.01**
	(0.62)	(2.41)
No. of obs.	22	21
R-bar^2	0.08	0.25

	I	II
Constant	0.11***	-0.00
	(4.48)	(-0.05)
Initial CLI	0.03***	0.02**
	(3.10)	(2.40)
Initial GDP		0.02
		(1.28)
CRISES	0.07**	0.07**
	(2.18)	(2.22)
R-bar^2	0.29	0.29

Notes: In parentheses under each coefficient are the t   -

***, ** and * indicate statistical significance at 1%, 5% and 10% levels, respec

How does RS affect the Economy and the Banking Sector?

- Levine (2005) (on Barth Caprio and Levine, 2001) argue that regulations that increase transparency and disclosure promote bank performance and stability; however, official supervisory intensity (survey-based) hurts bank development and leads to **corruption** (unless the country ranks top 10 in political institutions).

- Allen and Gale (2007) and De Haan and Shehzad (2010): regulatory intensity reduces **banking crises**.

- Neyapti and Dincer (2005) and Dincer and Neyapti (2010)
  - Positive growth effect (via TC reduction and hence allocative efficiency) in transition countries (*after amendments* that follow the initial reforms)
  - Banking sector effects

    (Transaction cost reduction → borrower quality, depositor confidence: Investment; deposits; non-performing loans:NPL)

RS and Output loss at crises (various dates)
(source:IMF Bank Crises Database)
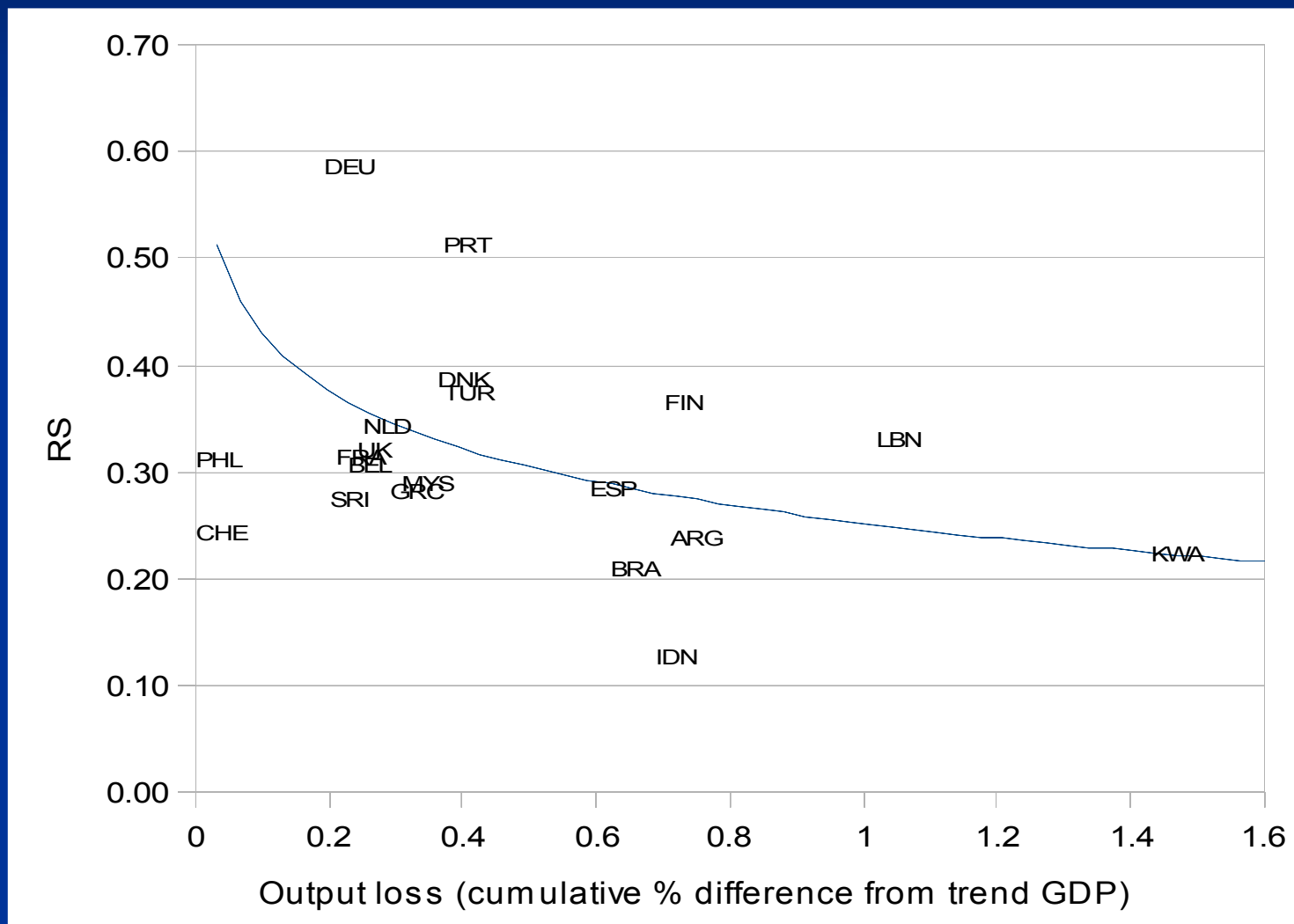
Correlations between RS and Bank Performance:

	Deposits/GDP	Time Deposits/ GDP	Investment/ GDP	NPL/Credit
RS	**0.30**	**0.26**	**-0.35**	**-0.33**
Capital req.	0.41	0.06	-0.37	-0.05
Lending	0.33	0.11	0.27	0.02
Ownership	0.17	0.12	-0.17	-0.38
Directors-Manag.	0.19	-0.06	-0.38	-0.17
Rep.-Recording	-0.27	0.18	0.04	-0.50
Corrective Action	0.28	0.17	0.12	0.24
Supervision	-0.21	0.36	-0.20	-0.51
Dep.Insurance	0.35	0.22	-0.62	-0.07

Investment to GDP Ratio and RS:

|	I	II	III
Constant	0.21***	0.20***	0.36***
	(20.25)	(20.39)	(3.10)
RS	0.02***	0.02***	0.02***
	(6.83)	(6.51)	(2.20)
TE	- 0.09***	- 0.07***	- 0.09***
	(- 5.55)	(- 4.99)	(- 2.03)
GDPgr		0.27***	1.56***
		(2.74)	(3.71)
r			- 0. 18*
			(- 1.70)
No. of obs.	61	56	34
R - bar ^{2}	0.21	0.26	0.41

Notes: t - ratios are in parentheses.

***, ** and * indicate statistical significance at 1%, 5% and 10% levels, respectively.

RS and Investment:
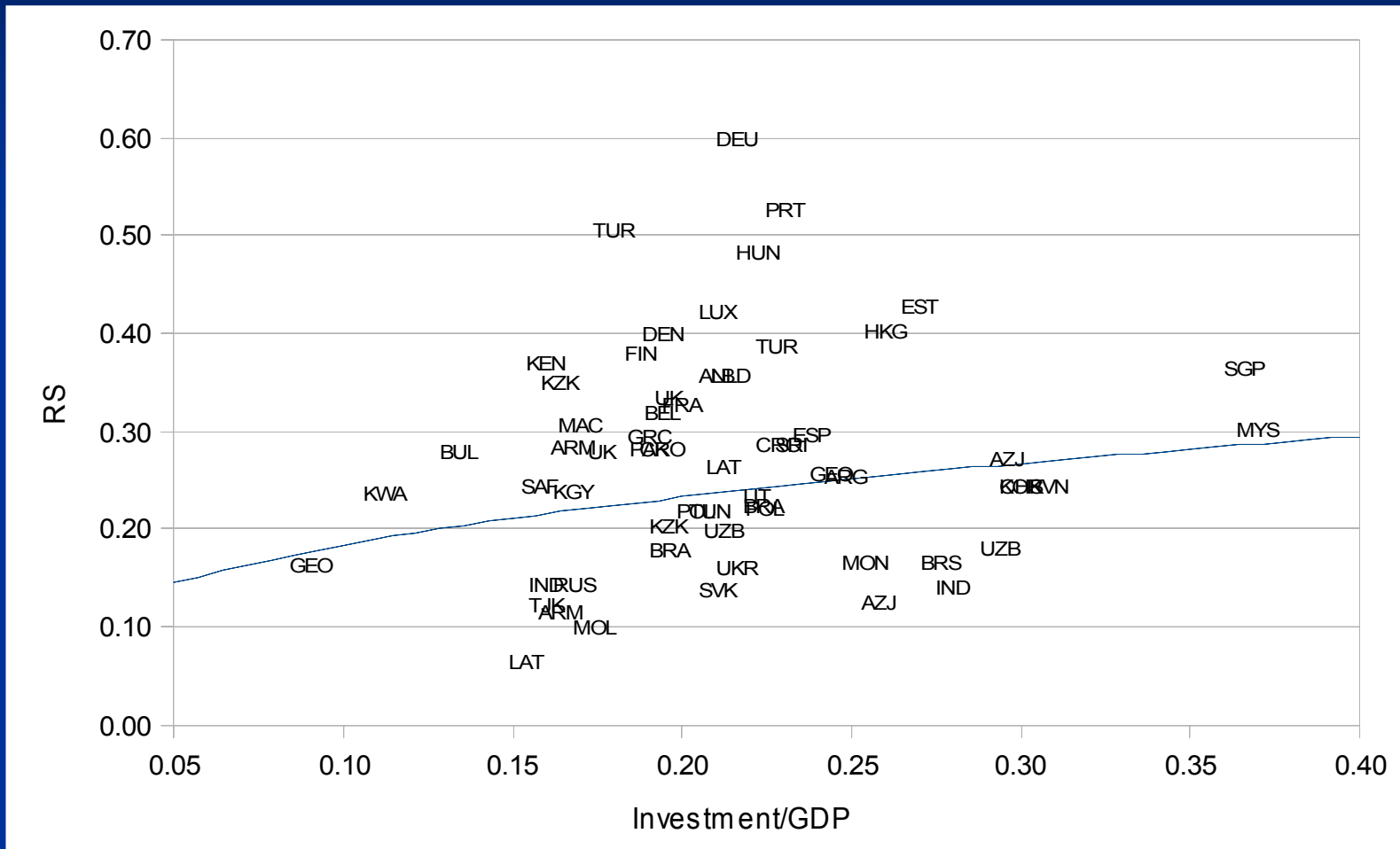
Deposits and RS:

	DEP/GDP	*TD/GDP*
Constant	0.70***	0.70***
	(5.53)	(3.49)
RS	0.07***	0.04*
	(3.01)	(1.88)
TE	-0.71***	-0.65 ***
	(-4.44)	(-2.83)
No. of obs.	45	37
R-bar ^{2}	0.20	0.16
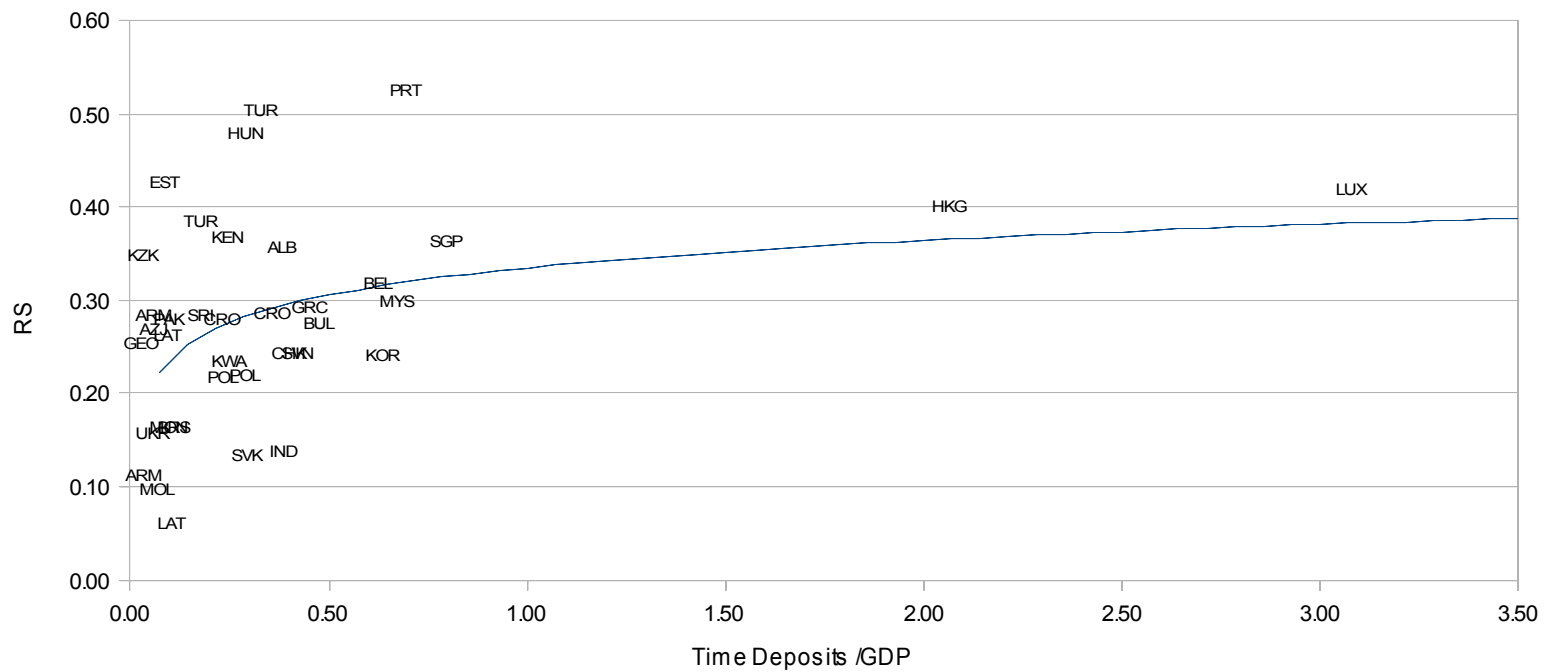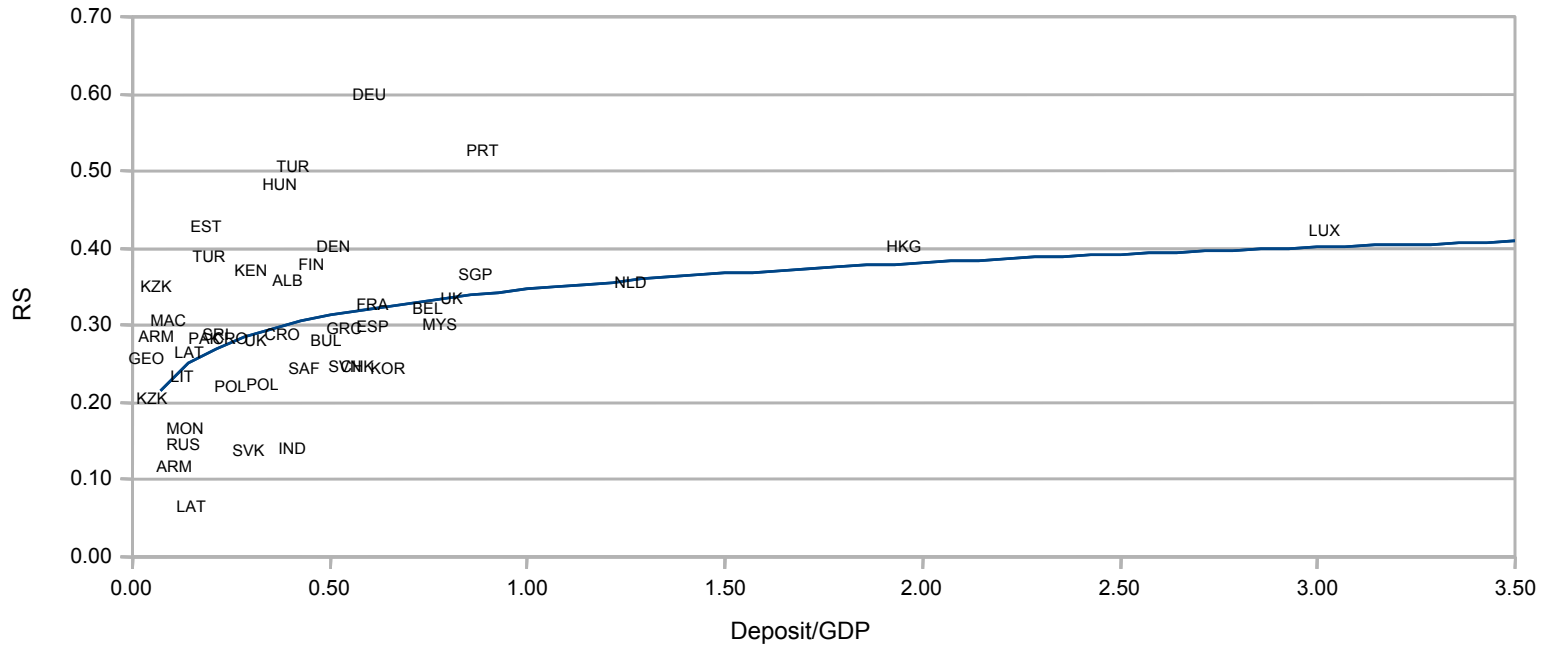
Non-performing Loans to Credit Ratio and RS:

	I	II
Constant	25.64***	29.49***
	(7.82)	(7.78)
RS	- 3.12***	- 2.32***
	(- 3.52)	(- 2.58)
gov	- 26.20***	- 28.75***
	(- 8.45)	(- 8.04)
RS gov*	4 . 10 ***	2 . 97 ***
	(2 . 92)	(2 .1 0)
GDPgr	- 0.05	- 0.85
	(- 0.17)	(- 0.13)
R		- 0.17***
		(- 4.03)
No. of obs.	39	33
R - bar ^{2}	0.53	0.58

Notes: t - ratios are in parentheses.

***, ** and * indicate statistical significance at 1%, 5% and 10% levels, respectively.

RS and NPL :
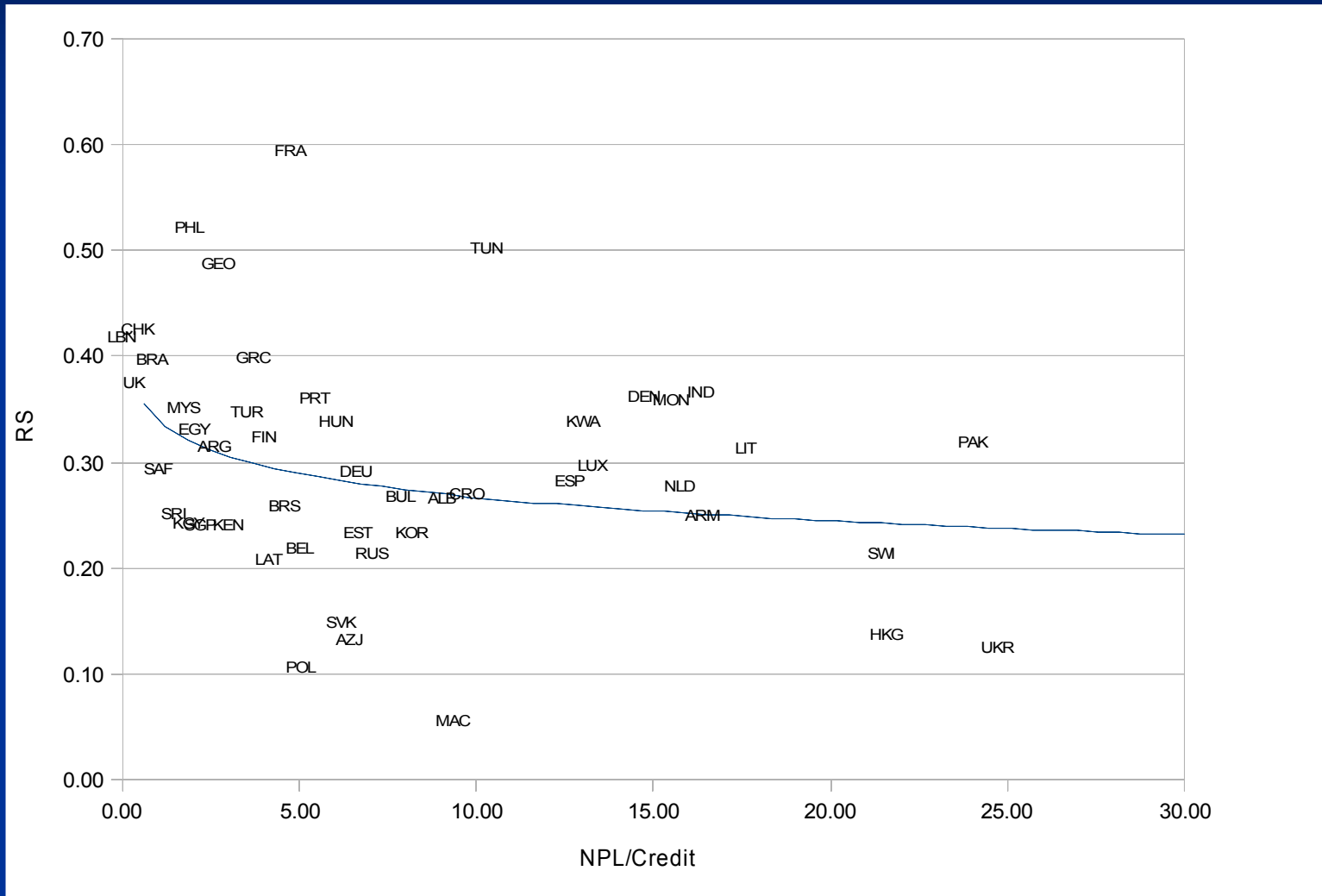
Business Cycles and RS:

- Giannona, Lemza and Reichlin (*GLR*, 2010) : 2008-2009 growth in 102 countries is negatively related with financial liberalization (Fraiser Index, specifically ownership and competitiveness); (and "the regulatory quality", ?? World Bank measure). Country risk rating is not significant!

- *Caprio and Hanohan (2002)'s* unless banks are foreign-owned, lack of insulation to short term fluctuations is traded-off against long term stability. (amplified BCs)

- Altug, Emin and Neyapti (2010), using new data on business cycle *amplitudes* and *durations* (Altug and Bildirici, 2010) find that:

  - **Governance** intensifies (both the amplitude and the duration of) expansions; it also increases the duration of contraction, but reduces the amplitude of contractions.

  - **RS** decreases both the duration and amplitude of expansions; however, it increases the amplitude of contractions.

Dependent Variable:	Expansion		Contraction	
	Duration	Amplitude	Duration	Amplitude
constant	-32.18	0.21	-6.97*	0.02
	(-1.26)	(0.49)	(-1.76)	(0.51)
Private Credit/GDP	-0.16	-0.002***	-0.02**	0.001***
	(-1.52)	(-3.00)	(-2.00)	(3.92)
Openness	-0.05***	0.0004***	-0.004*	0
	(3.57)	(3.02)	(-1.86)	(-0.34)
Industrial Value Added	1.04	0.012	0.27***	-0.003***
	(1.48)	(1.91)	(3.21)	(-5.07)
FDI/GDP	-0.05	-0.002	-0.1***	0.001***
	(-0.58)	(-1.33)	(-3.53)	(5.94)
Governance (WB)	128.1***	1.41***	7.67*	-0.12***
	(5.90)	(5.16)	(1.82)	(-2.82)
RS (a)	***-41.84***	***-0.53***	***-4.02***	***0.06***
	(-3.13)	***(-1.97)***	***(-1.44)***	***(2.26)***
CEE	4.82	0.26***	(-0.97)	0.03***
	(1.14)	(3.76)	(-1.18)	(3.27)
Labor Markets (b)	-10.13	-0.33**	0.36	0.03**
	(-0.95)	(-2.36)	(0.22)	(2.21)
d.f.	10	10	10	10
R-bar-Squared	0.34	0.49	0.11	0.56

(a) Neyapti and Dincer (2005) and Dincer and Neyapti (2008)
(b) Institutional Profiles Database (French Development Agency):
***, ** and * stand for 1%, 5% and 10% levels of sinificance.

Lessons: optimal design without the need for a punctuation via crises ?

- Social planner? Crises lead governments to switch further emphasis to the needs of the general public or to eliminate accumulated instability. (Olson: *Institutional sclerosis* in stable democracies; punctuation via wide-ranging costs of inefficient institutions)
  - Crises propagate a supportive environment for the reforms

- TCs change continuously with economic dynamics, necessitating new institutions; but the prospects of *creative destruction* also solidify the narrow interest group activities (Tea Party ?)

- Current paradigm change: Macroprudentials/early warnings /preventive actions / intensified regulation /countercyclical fiscal-financial policy

- *"The common feature of the world events is that they are all unique". (own translation)*

- *"What have our legislators gained by culling out a hundred thousand particular cases, and by applying to these a hundred thousand laws? This number holds no manner of proportion with the infinite diversity of human actions; the multiplication of our inventions will never arrive at the variety of examples; add to these a hundred times as many more, it will still not happen that, of events to come, there shall one be found that, in this vast number of millions of events so chosen and recorded, shall so tally with any other one, and be so exactly coupled and matched with it that there will not remain some circumstance and diversity which will require a diverse judgment.]*
  (Even if we create hundred thousand laws, they cannot cover the infinite diversity of human actions)

- *"There is little relation betwixt our actions, which are in perpetual mutation, and fixed and immutable laws"*

- *"The most desired of the laws are those that are the most simple and general"*

  ....MONTAIGNE