

“Financing of (risky) innovation projects: venture capital as “jack of all trades” in Austria and other countries”

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**cbased - Community Based
Innovation Systems**

Financing innovation

- **Path dependence in the financial system**
 - Why the past determines what you are doing today
- **(Innovation) system perspective**
 - Why nations fail
- **Austria – a long term perspective**
 - Relevant best practice or just another case study?
 - Bottom-up in the public sector
 - The main innovation support institutions
 - Some examples of their activities
- **Conclusions**

Before I start

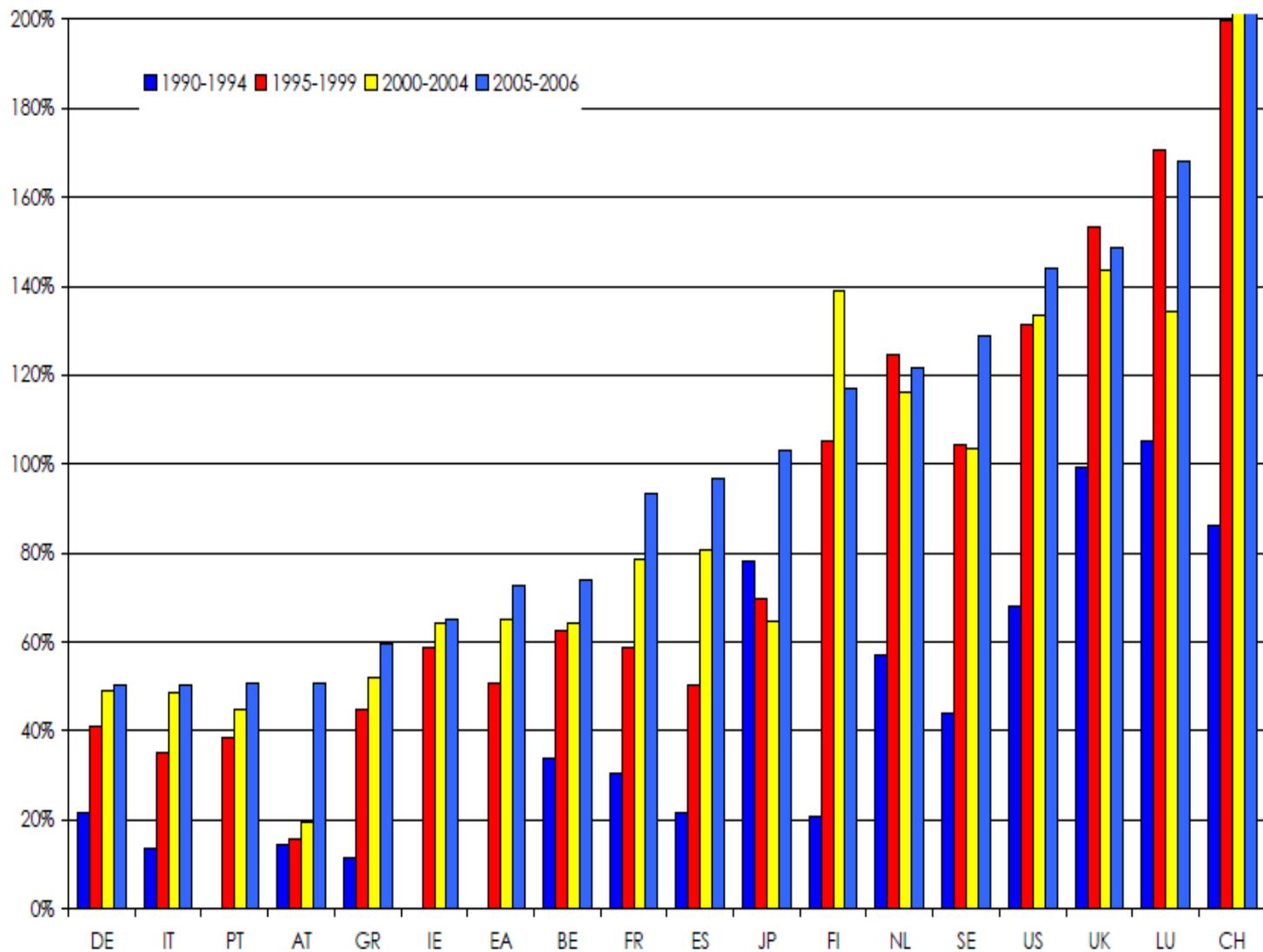
- **Why this title?**
- **How come that I talk about this? What is my perspective?**
- **Taking risks: No risk - no fun**
- **The systems perspective: There is something besides innovation**
 - Setting up a company

Path dependence in financial systems

Which financial system favours what?

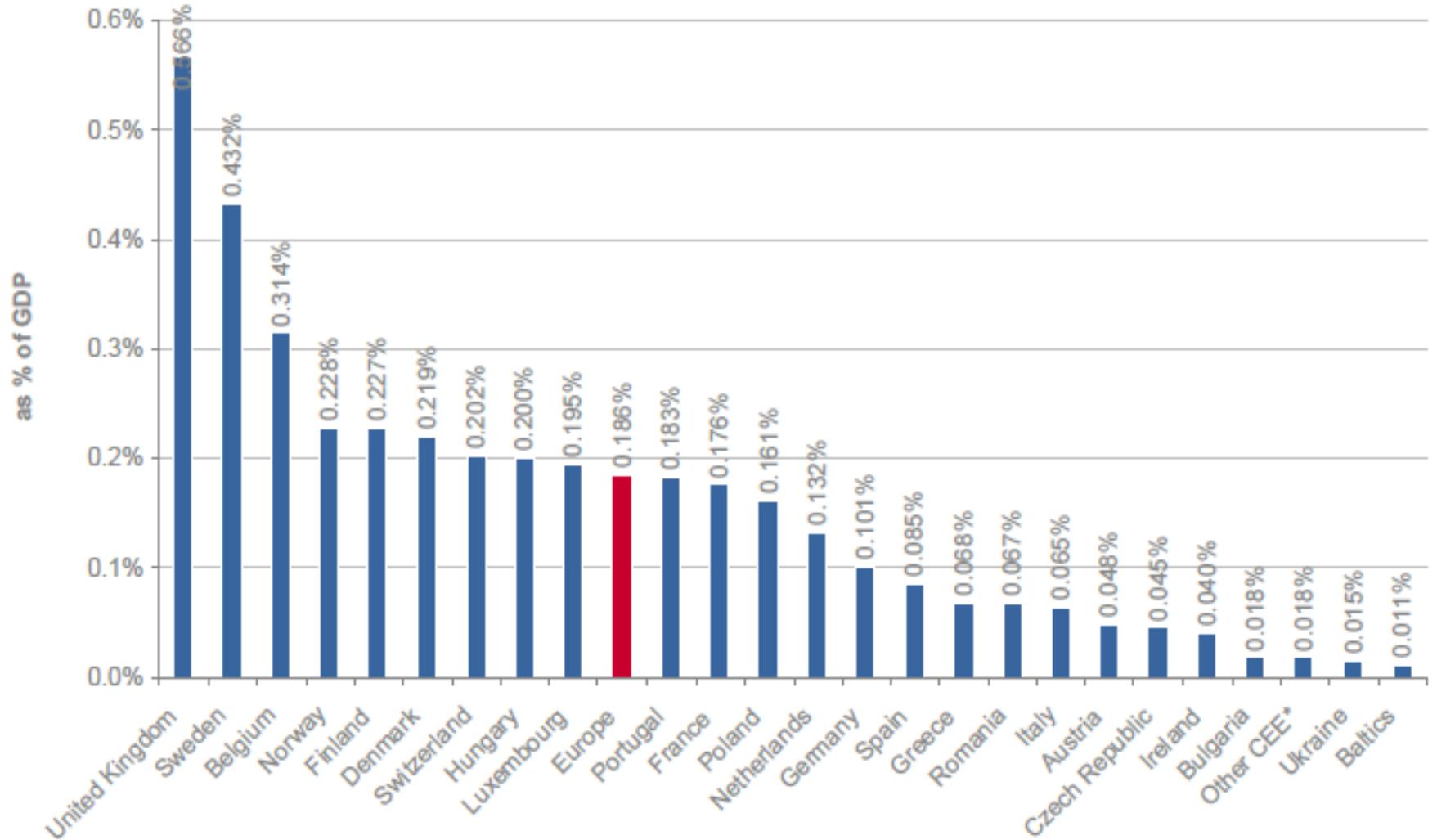
Bank based system	Equity based system
<p>External finance mostly through bank</p> <p>Sectors based on incremental innovation develop well</p> <p>Efforts to increase availability of VC</p> <p>Risky projects supported by public institutions</p>	
	<p>Venture capital as a major source of finance for risky projects</p> <p>High market capitalisation</p> <p>Sectors based on R&D develop faster</p> <p>Incremental innovation might find it difficult to innovate</p>

Market capitalisation



Q: EZB.

Importance of VC in Europe



More VC needed?

- **Financial system impacts on ability to take risks**
 - VC is one – important - component in this
- **Financial system co-shapes the sectoral structure**
- **Sectoral structure determines R&D expenditures**
- **VC has positive impact on growth at company level**
- **No impact on innovation**
- **Investment in innovation system are key**
 - VC leverages this investment
 - VC is part of an eco-system

(Innovation) system perspective

Why nations fail

- Why are some nations growing and developing successfully?
- Acemoglu/Robinson (2012) distinguish between inclusive and extractive economic and political institutions
 - Societies which form inclusive political and social institutions become rich
 - They enable the flourishing of human talent and the search for self-improvement
 - permit persons to use their talents, to let them exploit productivity improvements and allocate the fruits of such efforts to these persons, promote development.
 - Societies with extractive institutions led to stagnation

Why extractive political institutions hamper innovation

- **Elites use institutions to extract surplus from the population**
 - This stifles innovation and technological change because this could reduce their power of exploitation.
 - Those not part of the elite are also not interested in productivity improvements because the results will be appropriated by their masters

Some examples

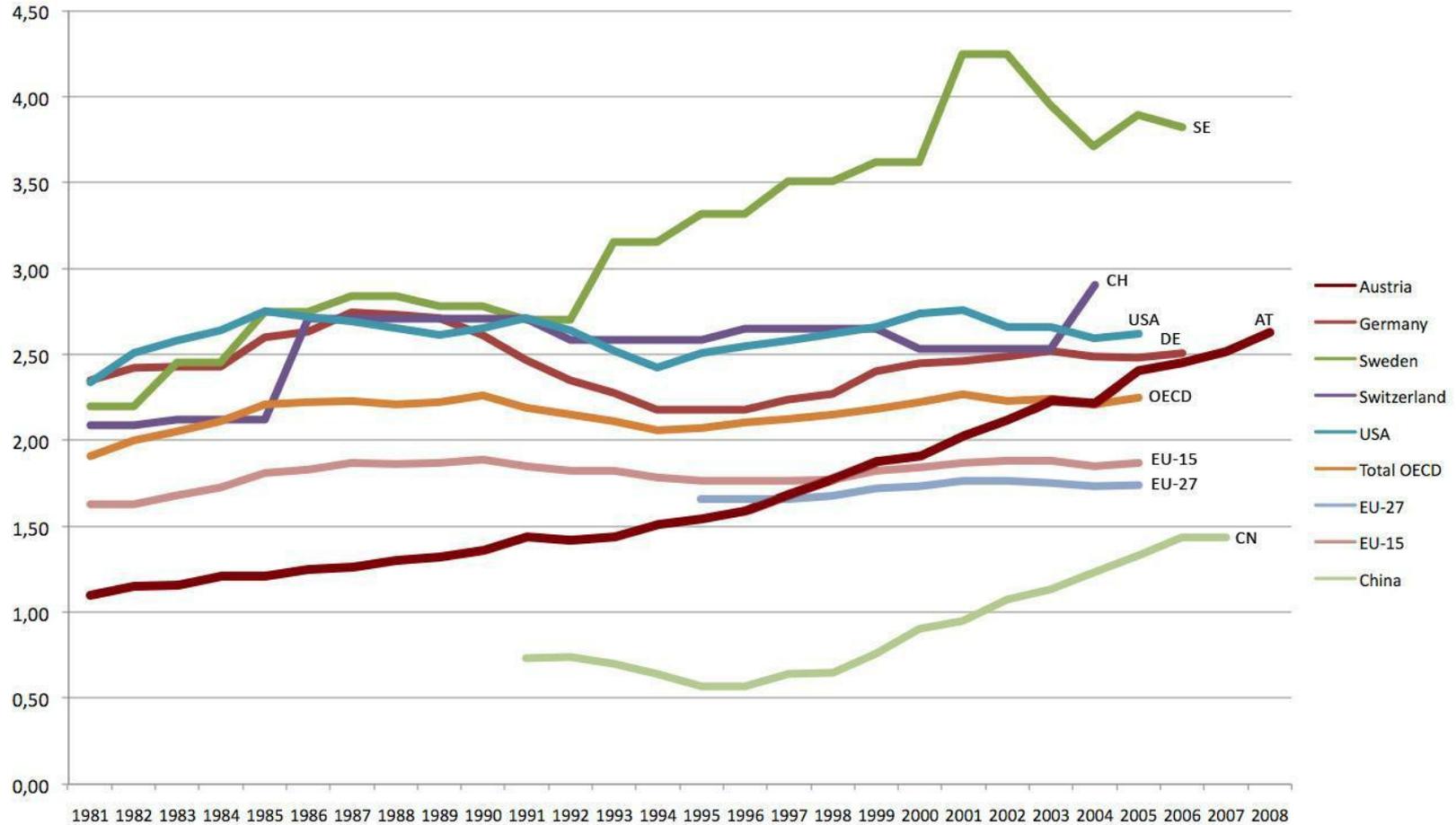
- **Black plague: reduced Europe's population by around half**
 - Reduced labour supply increased the bargaining power of the remaining workers and led them to demand (and succeed) in having many of their feudal burdens
 - in Austria-Hungary, and Russia this led to the development of serfdom, which are really interested in productivity enhancing innovations
- **Atlantic and Indian trade: created a class of merchants which eventually reduced the monopoly power of the English king.**
- **Large agglomerations of Aztec and Maya populations were used by their Spanish explorer/exploiters to work them in mines and plantations.**

A more practical perspective

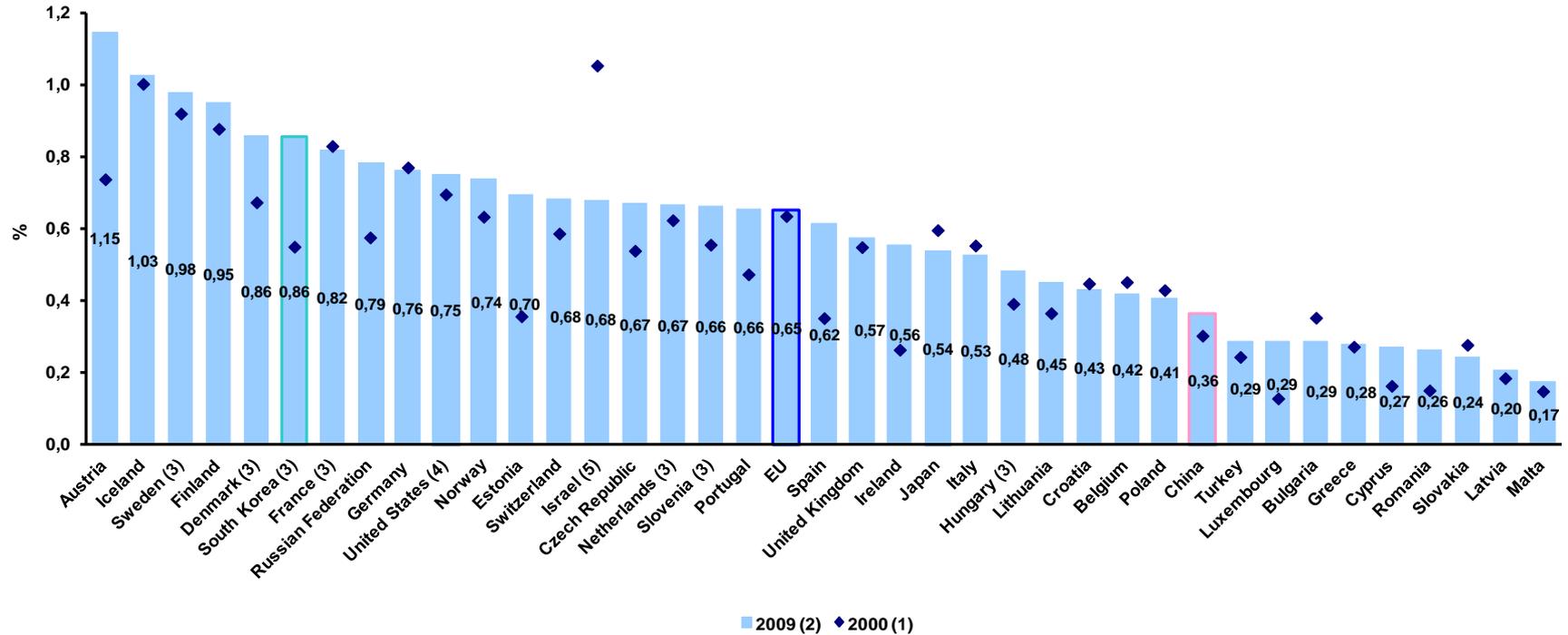
- **What are the basic assumptions about the actors in the system**
 - **Trust:** try to succeed or try to seek rents, i.e. extract surpluses from other groups
 - **Policy Making:** include people in the system to develop strategies and measures
 - Knowledge is dispersed
- **Framework conditions are crucial for the overall path of the system**
 - Ease of doing business, competition, public support, education...

Austria

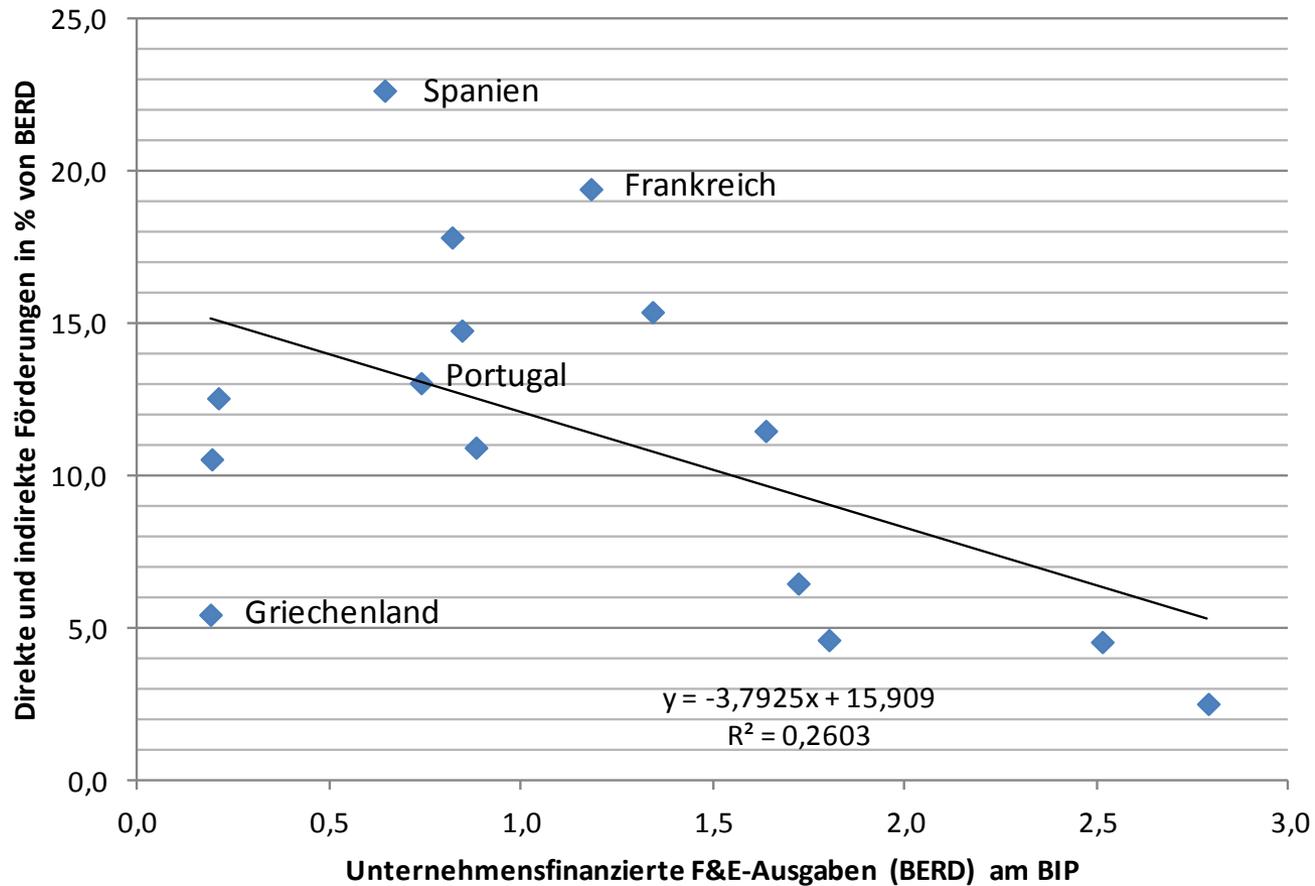
Austria



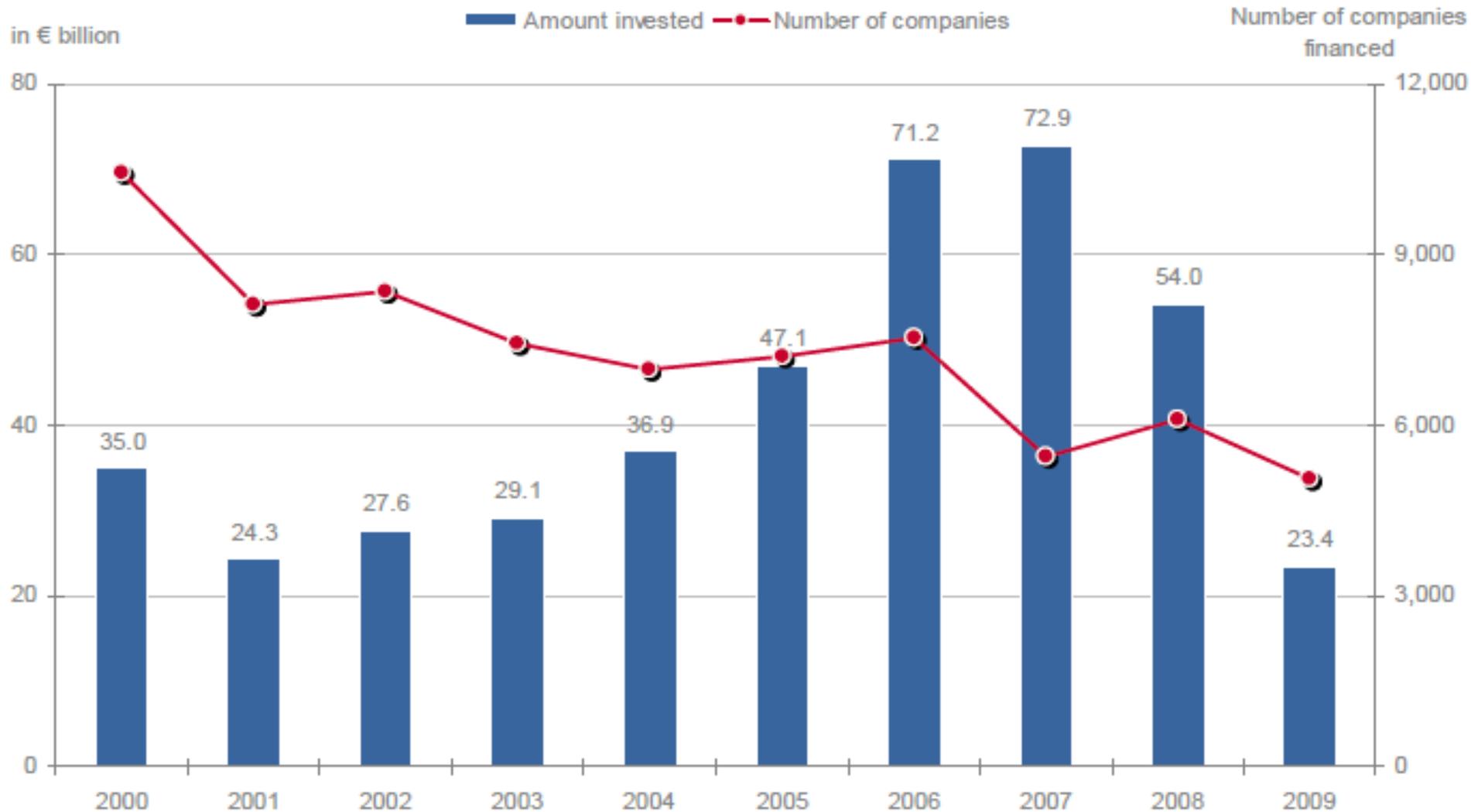
Public support for R&D



Enterprise support and R&D spending



VC Investment in Austria



Austria

- **Strong development without VC? How is this possible?**
- **Among those countries that have least VC**
- **Traditionally bank-based system**
- **Obvious that system has to change**
- **Very competitive industrial structures that are strong in incremental innovation and extensive promotion system**

Austrian challenges

- **Main slogan: The road from innovation follower to innovation leader**
 - Successful catching-up → repositioning necessary
 - Research at the knowledge frontier, production technology frontier, foster excellence, quantitative and qualitative increase of innovation, more efficient governance
 - 3.76% R&D spending in 2020
 - Activate private investments in R&D
 - Already sufficient public investment
 - Does not imply that public investment is efficient and effective

Austrian STI strategy: Does this look familiar?

1. Human Potential

- Human potential is not fully employed
- Lack of interest in natural sciences and engineering
- Brain drain and missing societal interest in S&T

2. Basic Research

- Integral part of an innovation leader's strategy
- Share of basic research in total R&D is too small

3. Venture Capital

4. Competition

5. Governance

6. Structural chance

- More research, innovation and high-skill industries

Ministries

Economy

FFF

XYZ

XYZ

XYZ

XYZ

FFG

XYZ

XYZ

XYZ

ERP

AWS

1945 1962 1970 1985 1995 2004 2011 2020

R&D

FWF

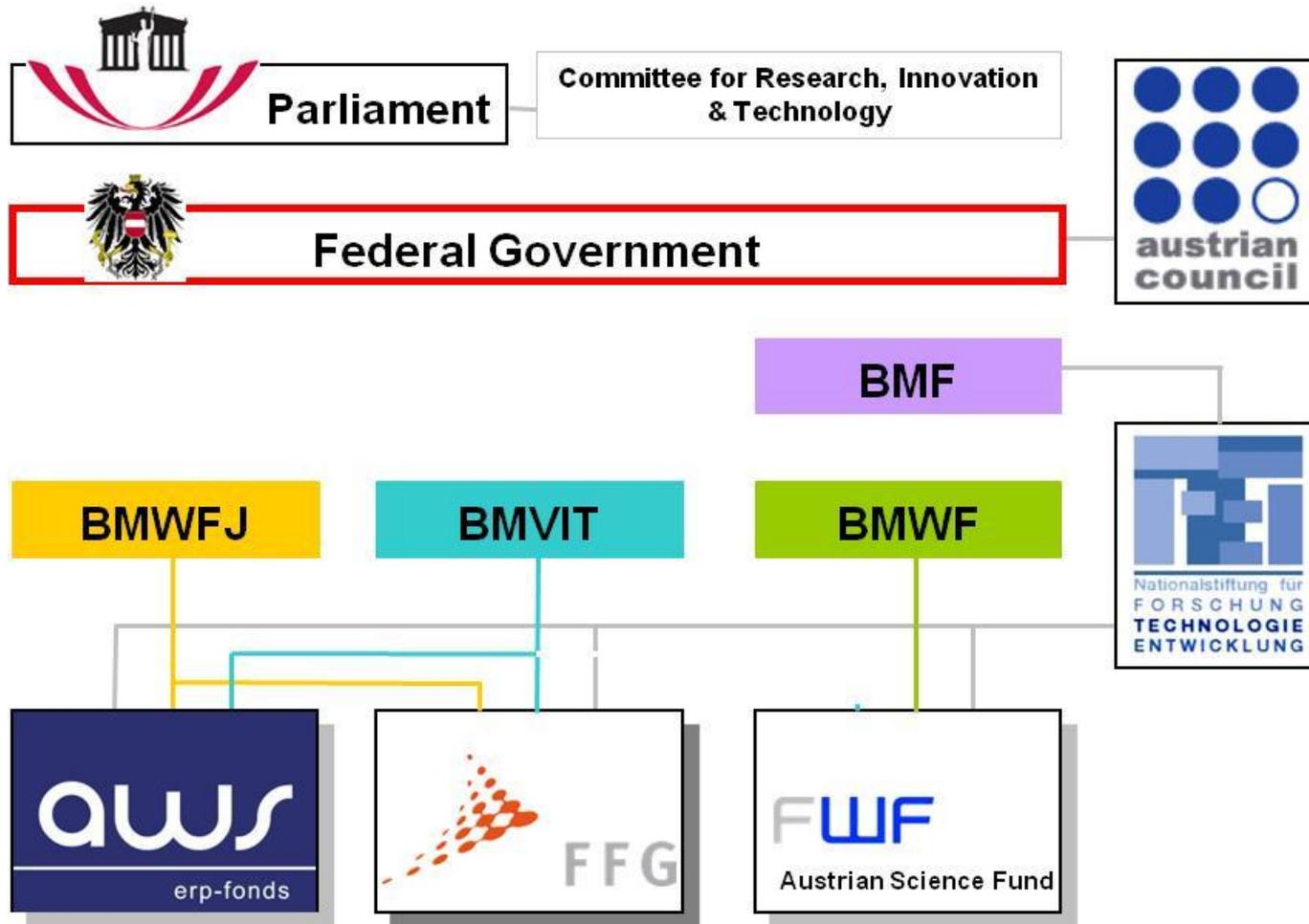
Inv/R&D

Strategy

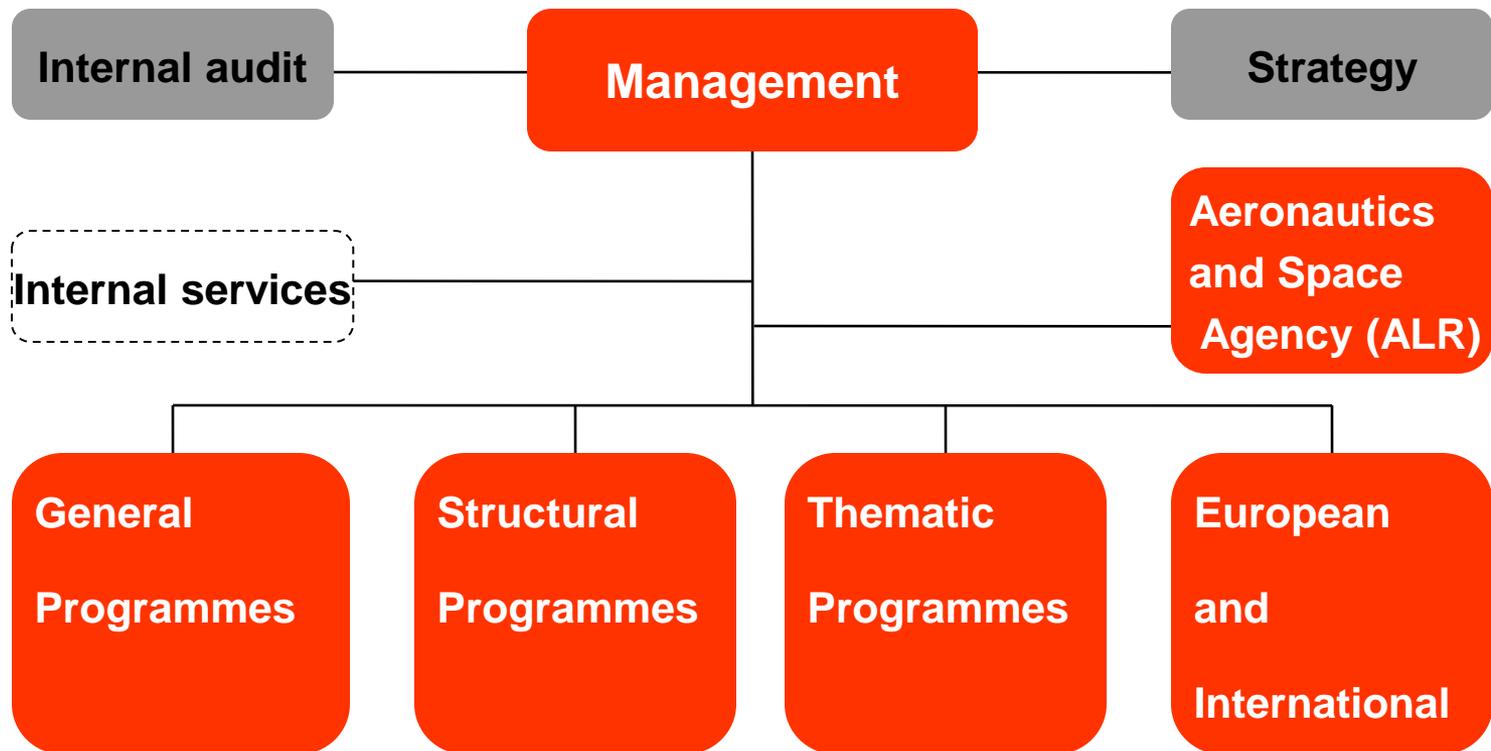
Science

Ministry

The Austrian System

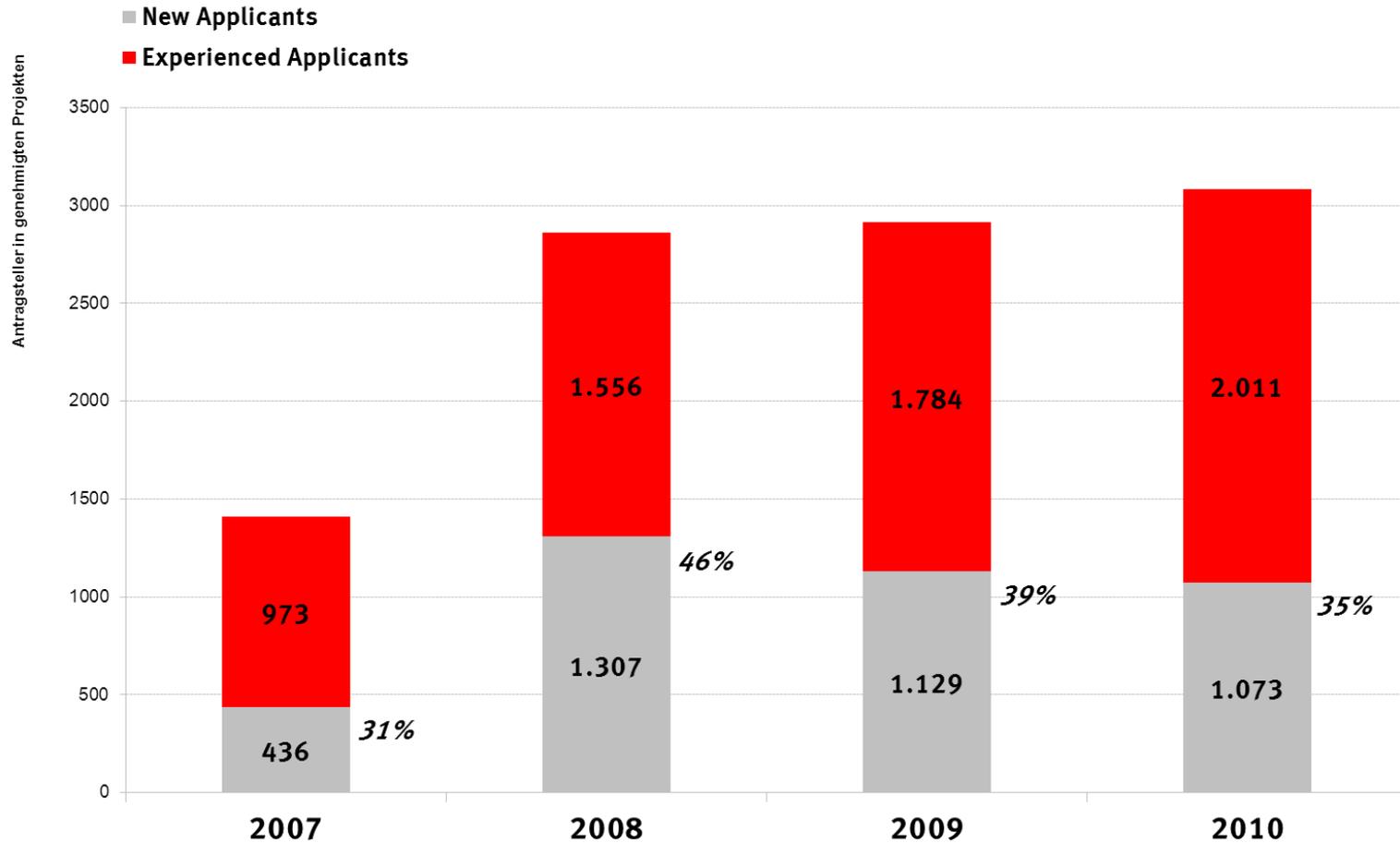


FFG: Organisational structure

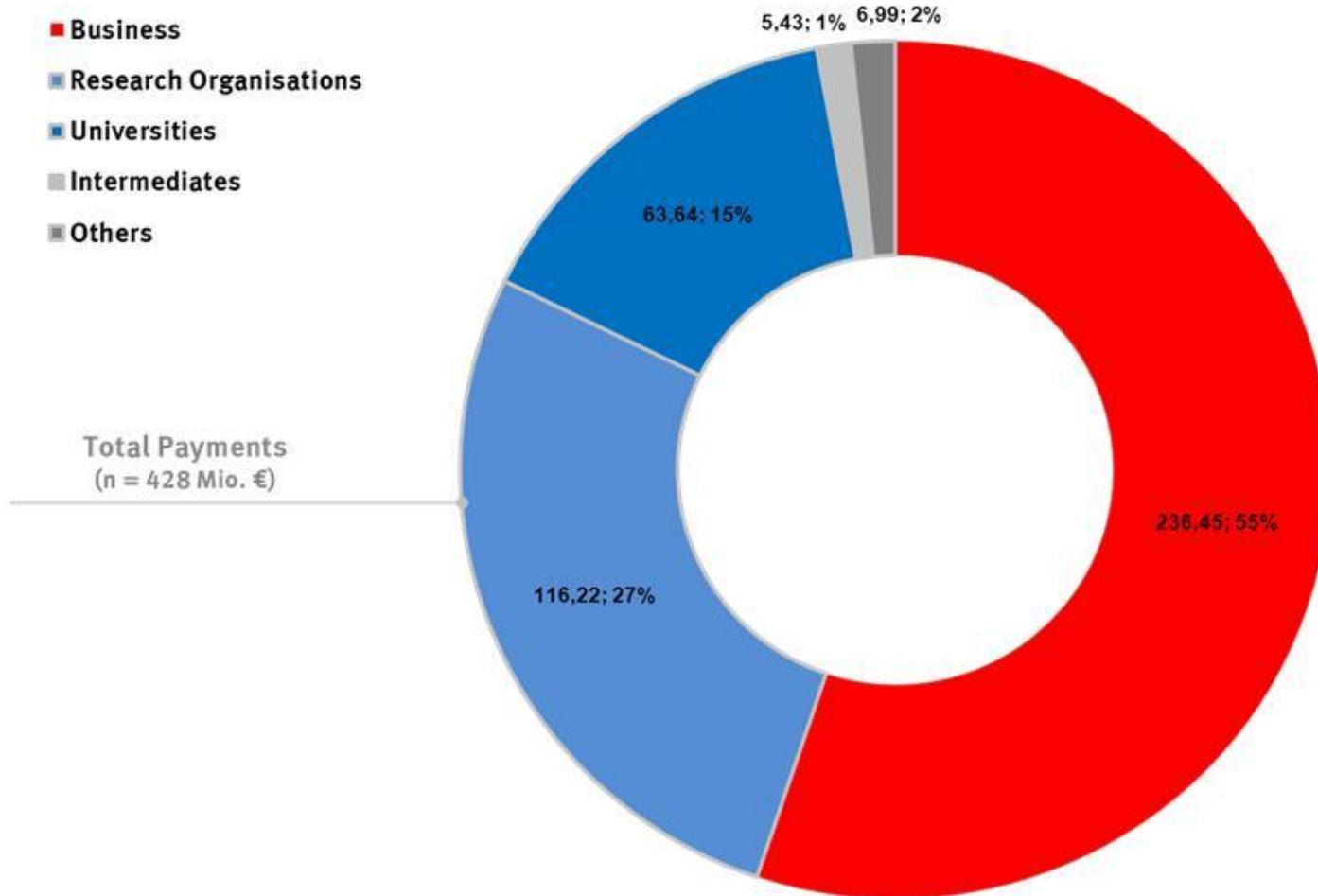


	2006	2007	2008	2009	2010	Development 2009 -> 2010
Accepted projects	1.221	1.805	2.545	3.072	2.950	-4,0%
Partners	2.113	2.703	5.088	5.220	5.545	6,2%
Funding						
<i>agreed</i>	447 Mio. €	406 Mio. €	548 Mio. €	508 Mio. €	554 Mio. €	9,1%
<i>cash value</i>	296 Mio. €	255 Mio. €	424 Mio. €	371 Mio. €	428 Mio. €	15,4%
payments	310 Mio. €	306 Mio. €	366 Mio. €	378 Mio. €	412 Mio. €	9,0%

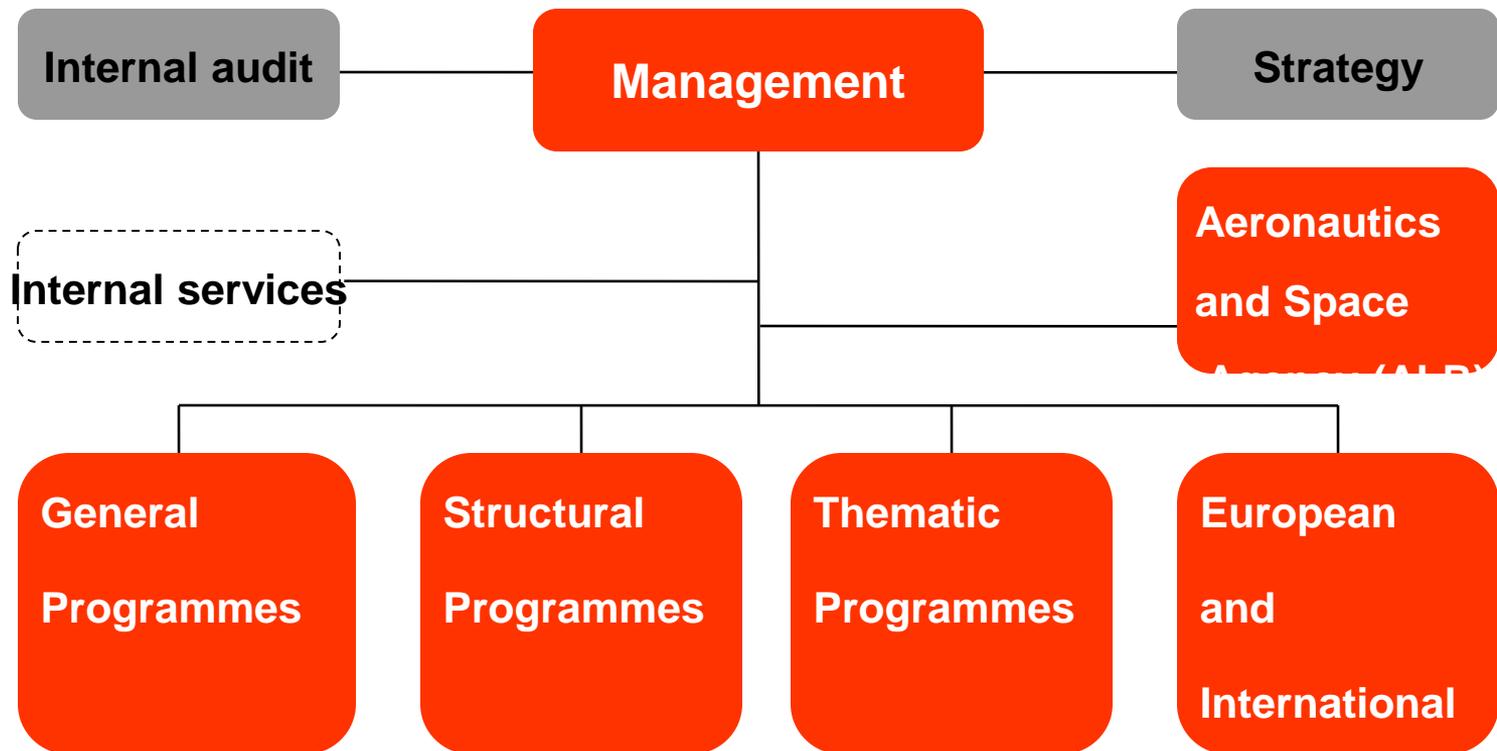
FFG: New applicants



FFG: Allocation of cash values according to type of organisations in 2010



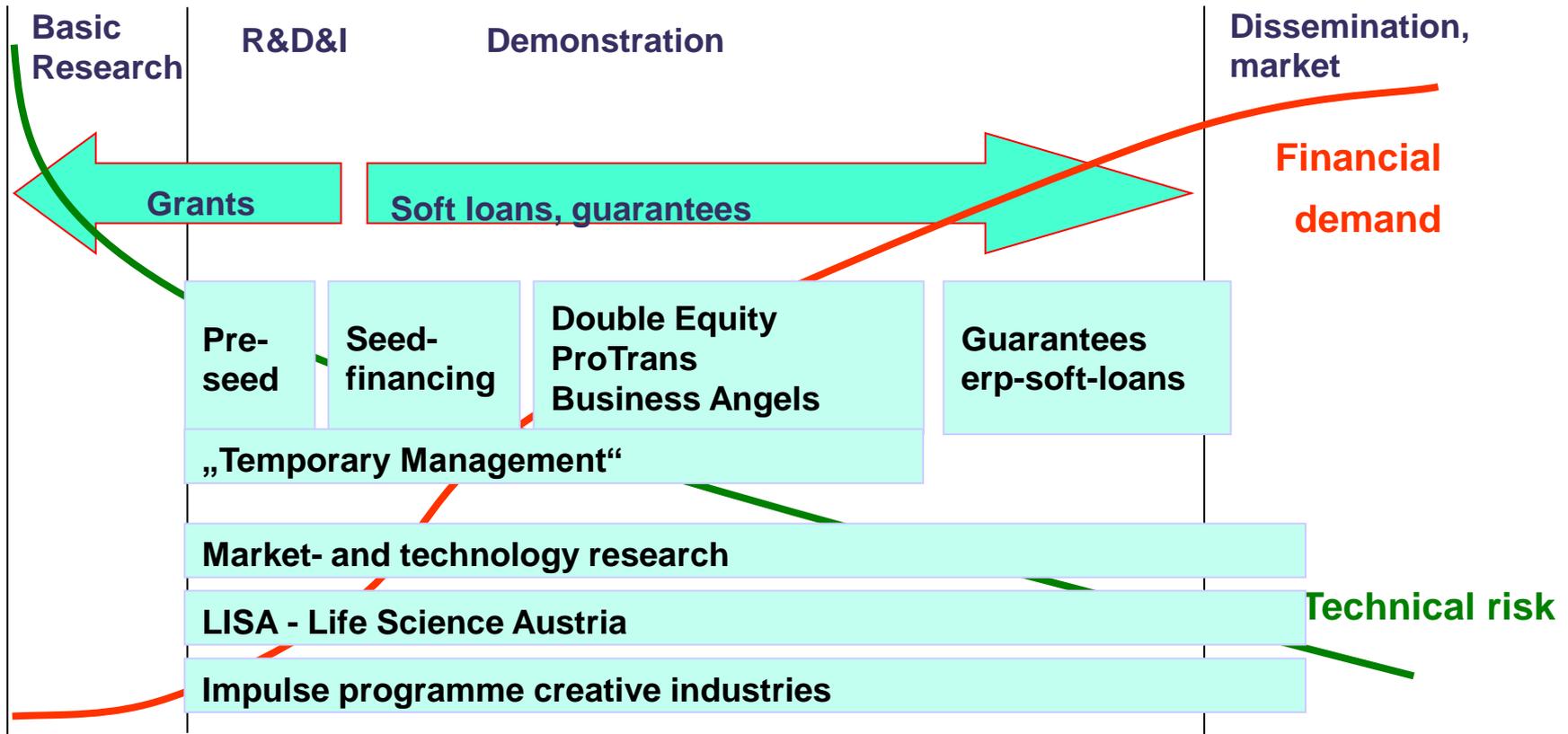
FFG: Organisational structure



FFG: General Programmes

- **„Work horse“ of innovation finance in Austria**
- **No thematic focus**
- **Quality of innovation project is decisive**
 - Relatively lightweight submission process
- **Several decision making rounds per year**
 - Predefined criteria which look at project, company, markets, environment, gender issues
- **Average level of support is 22%**
 - Up to 45% support for start-ups

AWS



AWS: Programme overview

Program	Counts	Volume (TEUR)
ProTrans	41	3.310
PreSeed	21	3.981
Seedfinancing	7	5.700
MaZ	5	237
impulse	51	4.940
IPP	20	198
Hi-Tec Consulting	692	2.155
Know-how research	734	1.603
Total	1.571	22.124

PreSeed programme

- **Support for potential high-tech companies**
- **Grants – up to €200000 per project**
- **Milestones**
- **Duration of max. 2 years**
- **Continuous monitoring and evaluation**
- **Selection criteria**
 - Company to be established
 - Innovative technology (technological quantum jump, no „me-too“ products)
 - High potential for growth (product USP, market, entrepreneurial management)
 - High likelihood of technical and commercial success
 - Dedicated and risk-sensitive founder

Rationale for the PreSeed

- **Innovative SME' s are increasingly important in economic growth, job creation and regional and local development**
- **The „Equity gap“exists: only a small amount of Venture capital is available during the seed phase (2% of VC in Austria provided for seed investments)**
- **Financing innovative SME' s is very risky, making it difficult for these SME' s to obtain financing**

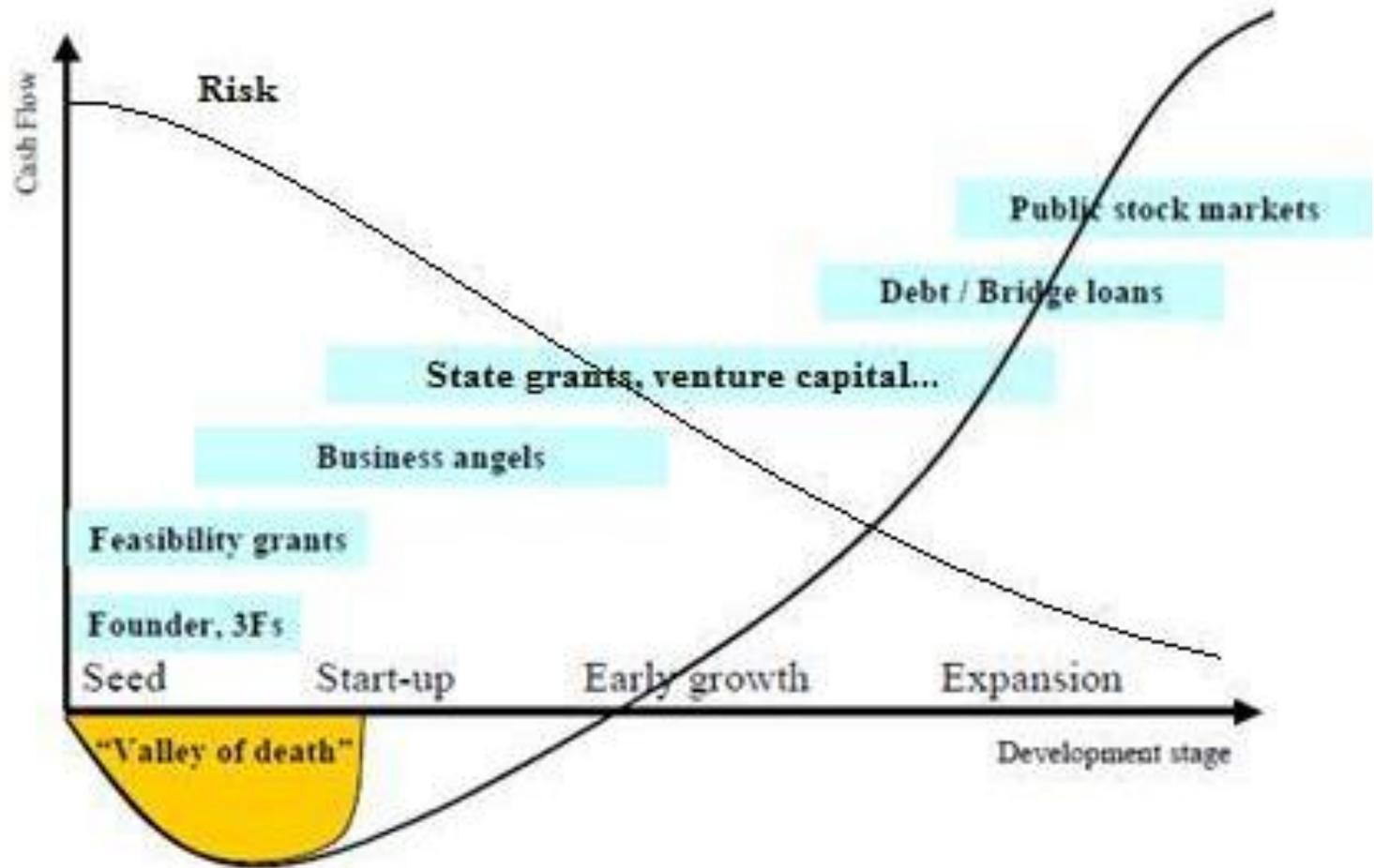
The big issue

- **Who selects the projects!**
- **Which projects are going to be successful?**
- **Nobody knows! Not even VCs!**
 - Trial and error
 - „eco-systemic feedback loop between customers and businesses“, (Nick Hanauer, VC)
 - Anything else does not work
 - Selection of institution might be part of the problem

Difficulties for SMEs that get funding

- **Start-up support, R&D for a product innovation, 45% of project as a grant, project size: €100000, 1 employee with a annual costs of €45000, duration 1 year**
 - grant pays for employee
 - external contribution for remainder or from founder
 - How can these be earned given that time is invested in development work
- **Opportunity costs of €65000**
 - You have to be able to afford public support
 - Less interaction with customers and no turnover
 - Risk of failure is high in any case
- **Valley of death is broader than usually assumed“**

Valley of death



Conclusions

Venture capital: „Jack of all trades“?

- **The answer is definitively NO – with qualifications**
- **Liase what you are doing in STI with overall development strategy**
 - S&T is driver and driven
 - Investment, competition, education, competitiveness and specialisation strategy...
- **Investment will have more impact in the short term**
 - Returns in Austria were twice as high as in countries of origin (e.g. USA)
 - Generates the funds for R&D and innovation
- **Innovation is for all business – R&D for some**

Solid foundations!

- **Maximise the number of people that run in the same direction as you**
 - Inclusive economic and political institutions
- **Allow some bottom-up initiatives in the bureaucracy**
 - Experimentation is important
 - Failure is part of the game
- **Have a simple system**
 - Easy to start a business, to pay your taxes, to get support...
- **General motto: think big, act quick, start small**

Triangle policies

- **Education, Research and Innovation**
- **Research without echo in the economy is not going to produce positive results**
 - Economy-science interaction is important
 - Can only interact if there is an overlap in areas of interest, otherwise research is not translated into innovation
- **Same applies to supply of skilled persons from the education system and demand from the enterprises**
- **Research might be “door opener” to new areas**

Cross border VC flows

Country k	Country i	AUS	BEL	CN	DEN	FIN	FRA	GER	IRE	IT	NET	NOR	POR	ES	SD	SW	UK	US
Austria			-3	0	-3	0	2	-411	-3	-8	-20	0	0	0	0	-86	-123	-171
Belgium		3		0	-9	122	3178	-35	23	50	225	4	0	1,439	8	102	-97	-1,365
Canada		0	0		-49	-27	45	-80	4	10	-111	-16	0	-18	0	-48	94	-489
Denmark		3	9	49		-55	-30	-4	0	0	-48	-39	0	0	-9	-95	-241	359
Finland		0	-122	27	55		-20	-358	0	-4	-15	24	0	0	-10	-26	-225	-477
France		-2	-3,178	-45	30	20		-2,640	-19	552	418	39	11	-205	-24	-150	-5,278	-10,513
Germany		411	35	80	4	358	2,640		84	510	-441	23	614	2,849	1,748	-481	2,957	-1,057
Ireland		3	-23	-4	0	0	19	-84		18	-13	0	0	0	-18	-54	-191	-410
Italy		8	-50	-10	0	4	-552	-510	-18		1,314	-7	0	17	0	-492	-4,032	-4,858
Netherlands		20	-225	111	48	15	-418	441	13	-1,314		22	220	133	78	-119	-399	-1,588
Norway		0	-4	16	39	-24	-39	-23	0	7	-22		0	0	17	12	-504	-1,197
Portugal		0	0	0	0	0	-11	-614	0	0	-220	0		846	0	-339	-375	-208
Spain		0	-1,439	18	0	0	205	-2,849	0	-17	-133	0	-846		-24	-124	-1,765	-2,979
Sweden		0	-8	0	9	10	24	-1,748	18	0	-78	-17	0	24		-84	-509	991
Switzerland		86	-102	48	95	26	150	481	54	492	119	-12	339	124	84		183	5,142
United Kingdom		123	97	-94	241	225	5,278	-2,957	191	4,032	399	504	375	1,765	509	-183		-1,888
United States		171	1,365	489	-359	477	10,513	1,057	410	4,858	1,588	1,197	208	2,979	-991	-5,142	1,888	

Is there hope for more VC?

- **International VC flows started in mid 1990s**
- **Countries with higher expected growth and lagged stock market returns receive larger net cross-border flows**
- **Countries with poor environments receive higher net cross-border inflows than countries with favourable environments**
- **The past values of net cross-border inflows positively affect their current value – path dependency again**
- **The most relevant factor for high venture capital investment activity – both for domestic and foreign VCs – seems to be the innovativeness and the economic prospects of the country**
 - Concentrate on the deal flow

Thank you for your attention!

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