

A high-speed photograph of water splashing, showing individual droplets and ripples in shades of blue and white. The splash is positioned on the left side of the cover, partially overlapping a dark blue square containing the CERRE logo.

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Centre on Regulation in Europe

REGULATING WATER

PRINCIPLES & RECOMMENDATIONS FOR AN EFFICIENT SYSTEM

EXECUTIVE SEMINAR
11 JULY 2019, BRUSSELS

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Improving network and digital industries regulation

WATER SECTOR OWNERSHIP AND OPERATION

An Evolving International Debate
with Relevance to Italian Proposals



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Water sector operational activities



Key elements of well-functioning water sector

Productive efficiency

Public health

Appropriate investment over time

Water conservation and scarcity management

Environmental performance

Affordability

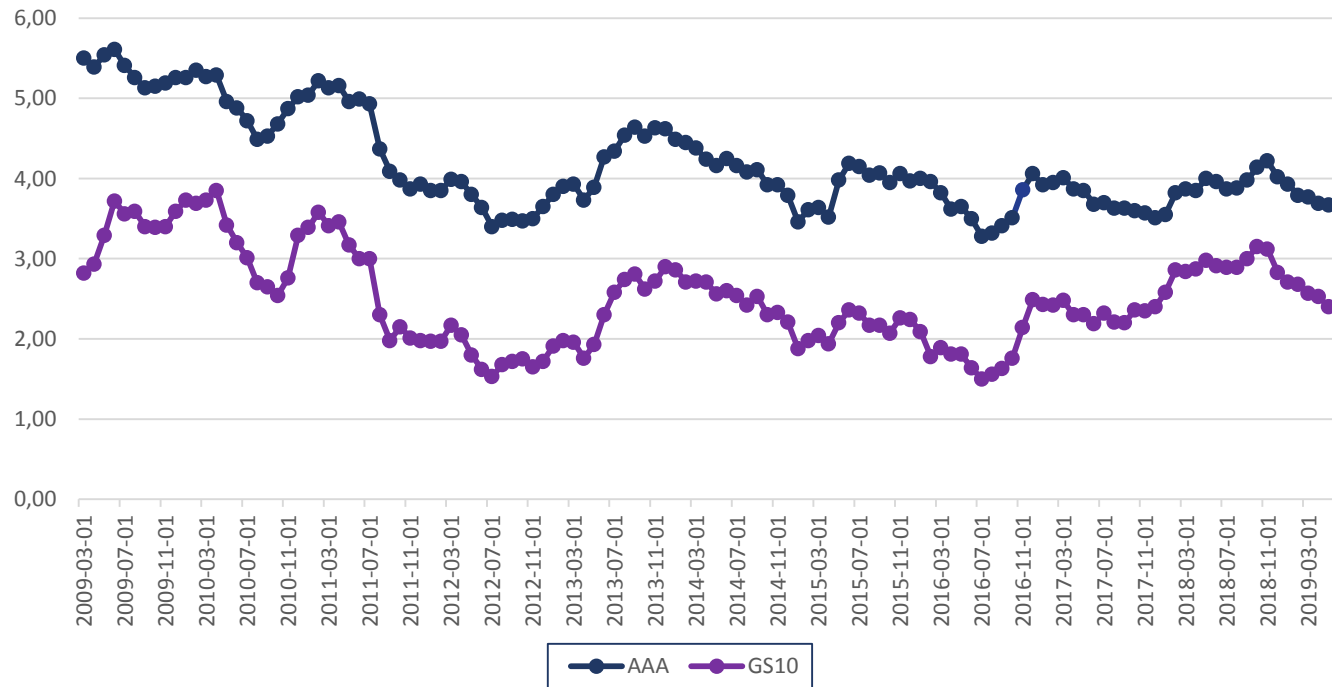
Ownership and operation options

	Public ownership	Mixed public/private ownership	Private ownership
Public operation	Pu/Pu	PuPr/Pu	Pr/Pu (rare or unknown)
Concessions	Pu/Co	PuPr/Co	Pr/Co
Lease contract	Pu/Le	PuPr/Le	Pr/Le
Private operation	Pu/Pr	PuPr/Pr	Pr/Pr

Political economy

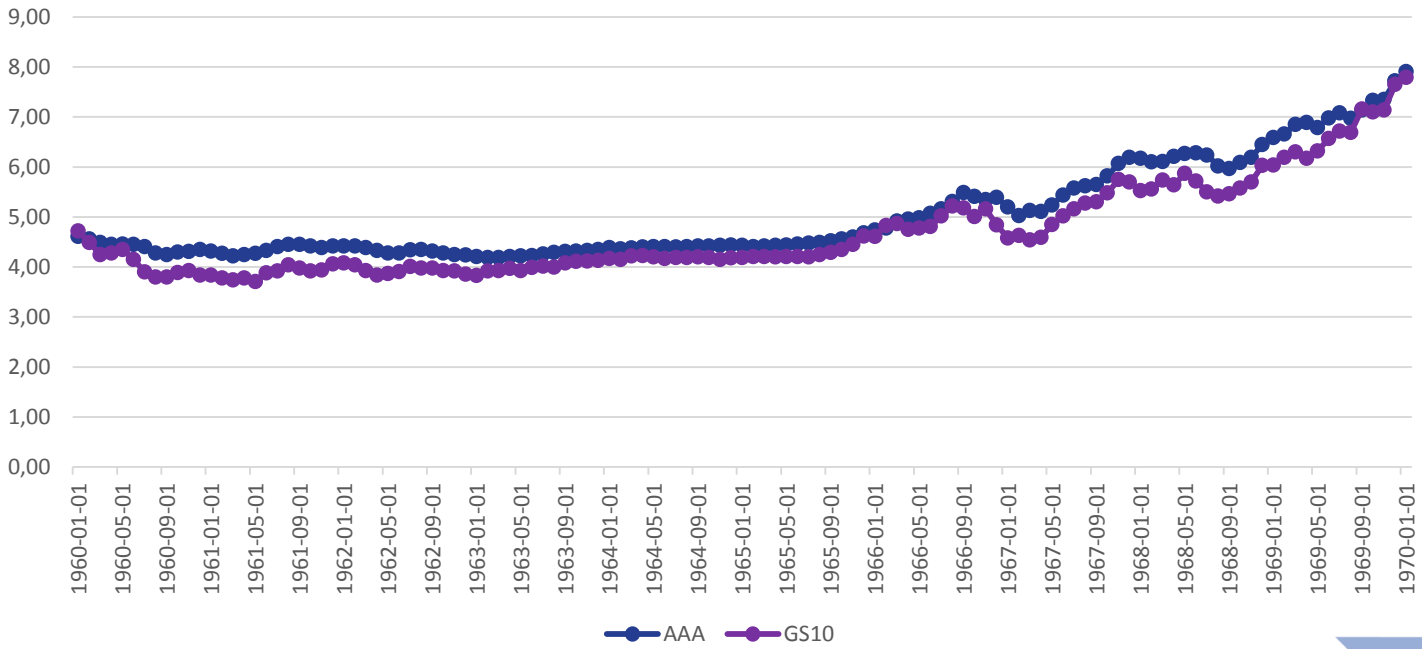
- **Political salience is high**
 - Necessity
 - Safe water
 - Pricing
- **Potential appropriation of quasi-rents**
 - High fixed cost (infrastructure cost) industry
 - Quasi-rents arise because the system can be milked, by under-investing for a period, or underpaying capital, to create “rents” that can be distributed but which are not sustainable in the very long run
 - Problem under public or private operation
 - Understandable political objectives may be unsustainable (little investment, reduction in prices before election)
- **Possible benefits of state investment**
 - Lower interest rates
 - Subject to willingness to invest (government has many competing priorities, local operating company can be more focused to assure adequate investment)
 - Yield spread

U.S. yield spread on corporate AAA bonds and Treasuries, 10-year maturity: 2009-2019



Source: Federal Reserve Board of Governors, Moodys, FRED compilation

U.S. yield spread on corporate AAA bonds and Treasuries, 10-year maturity: the 1960s



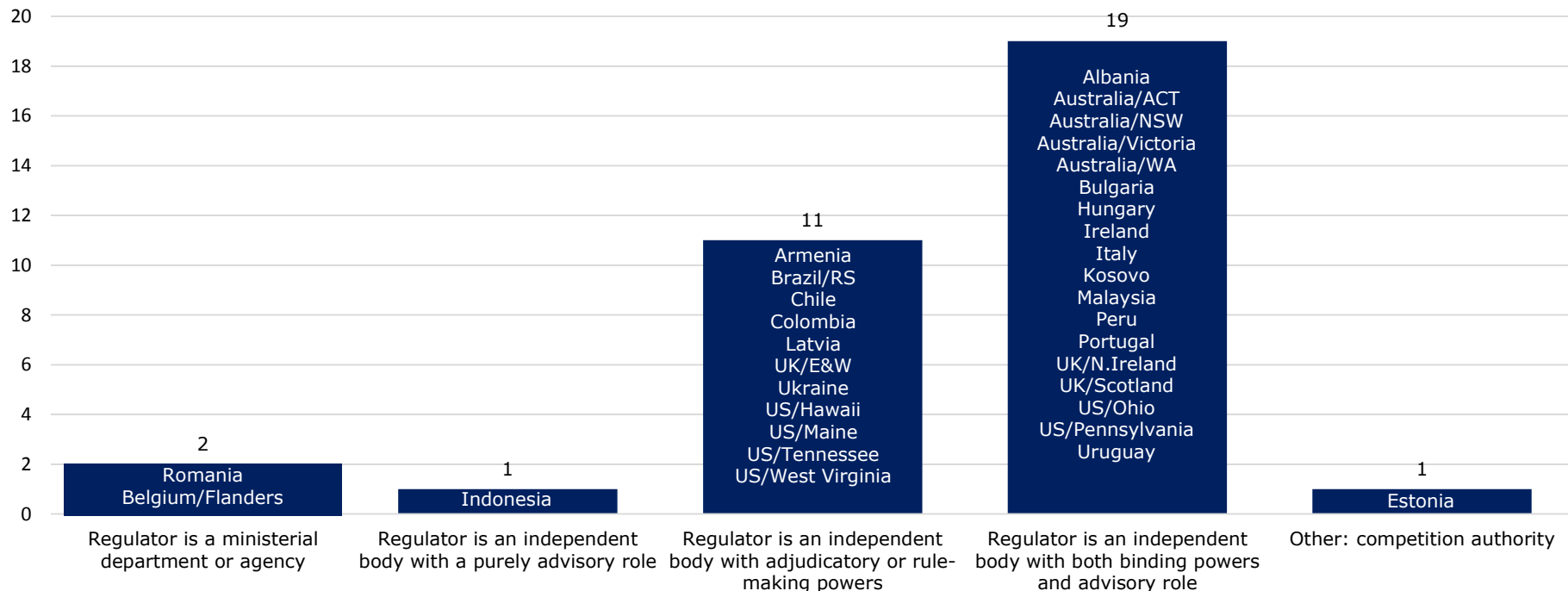
Source: Federal Reserve Board of Governors, Moodys, FRED compilation

Competitive restrictions

- **Physical water network is a high share of costs, network duplication generally not realistic**
- **Transporting water long distance expensive**
- **Significant externalities in water, e.g.,**
 - Preventing spread of water borne diseases (origins more difficult to identify with multiple operators)
 - Drawing water from aquifer faster than replacement rate
- **Competition for customers relatively rare**
 - Exception: non-domestic in England and Scotland
- **Competition for market relatively common**
 - France
- **Benchmark competition has been tried**
 - England and Wales
- **Low natural potential for competition and highly inelastic demand leads to government finding ways to oversee pricing**
- **Common form of regulation is cost-plus**

Status of the water regulator in different jurisdictions

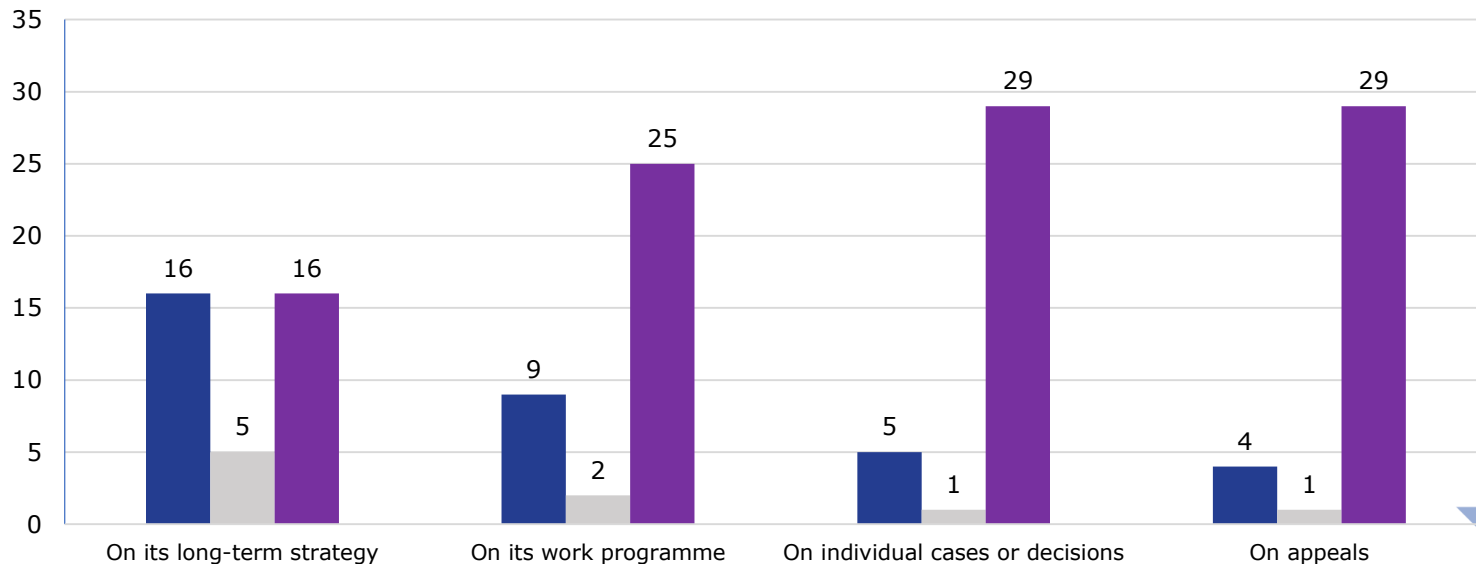
(Number of regulators/34)



Can the regulator receive official instructions or guidance from the government or the parliament?

(Number of regulators/34)

■ Yes, from the government ■ Yes, from parliament ■ No



Retail tariff methodology in different jurisdictions

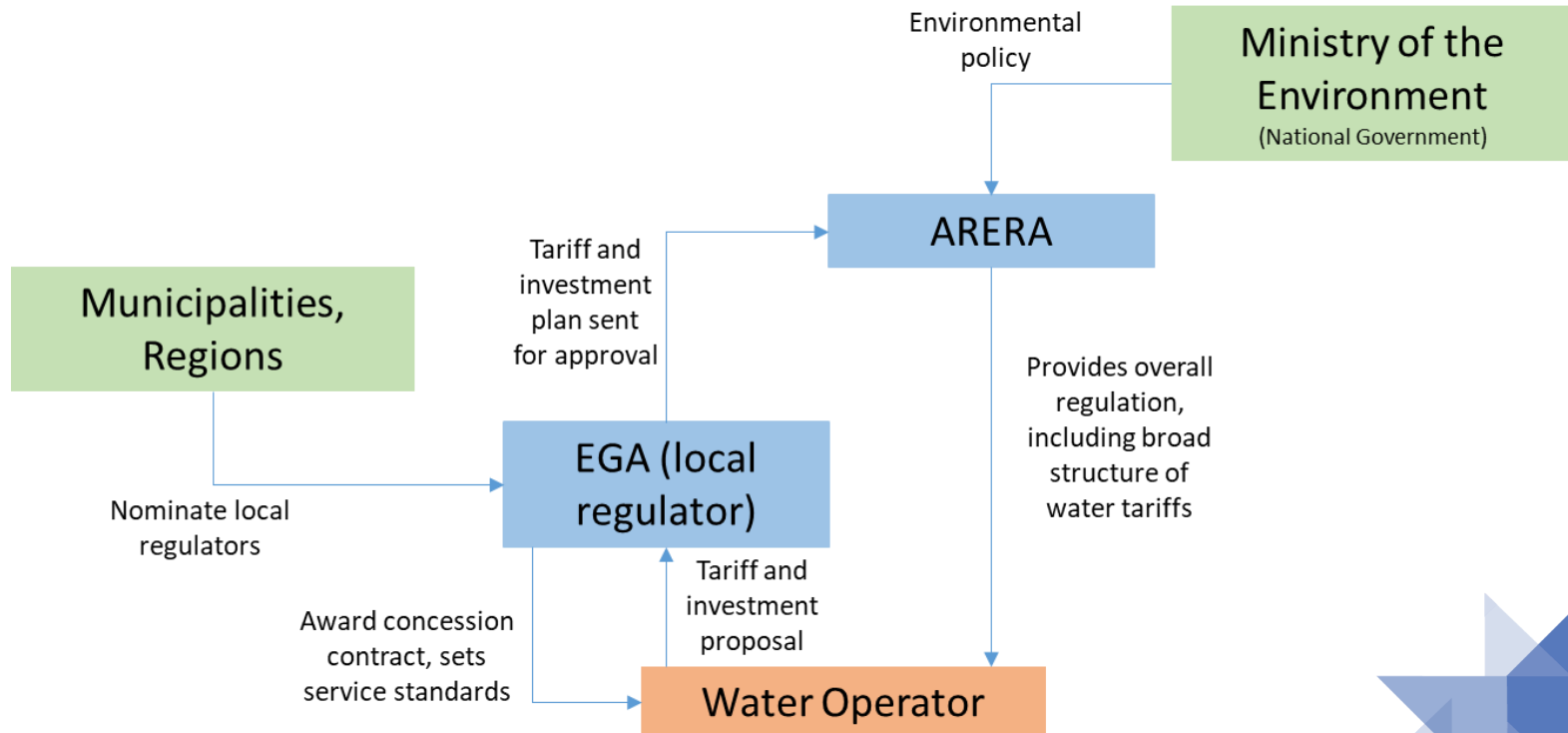
	Frequency of tariff setting (years)	Cost plus	Price cap	Consideration of revenue (number & affordability of customers)	Profit regulation	Consideration of Performance	Other
Albania		+				+	
Australia/Capital Territory	6	+		+		+	
Australia/NSW	4		+	+			
Australia/Victoria	5	+		+			
Bulgaria			+				
Chile	5	+					+
Estonia	•	+					
Hungary	1	+				+	
Ireland	6		+			*	
Italy	4				+		+
Kosovo	3	+					
Latvia		+			+		
Mozambique		+				+	
Peru	5	+		+		+	
Portugal	1	+			+	+	
Romania	•	+					
UK/ England and Wales	5		+				
UK/ Northern Ireland	6		+				
UK/Scotland	6		+				
Ukraine		+					
US/Hawaii		+					
US/Ohio		+					
US/ Pennsylvania		+					
US/Tennessee		+					
Uruguay	1	+					

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+
*

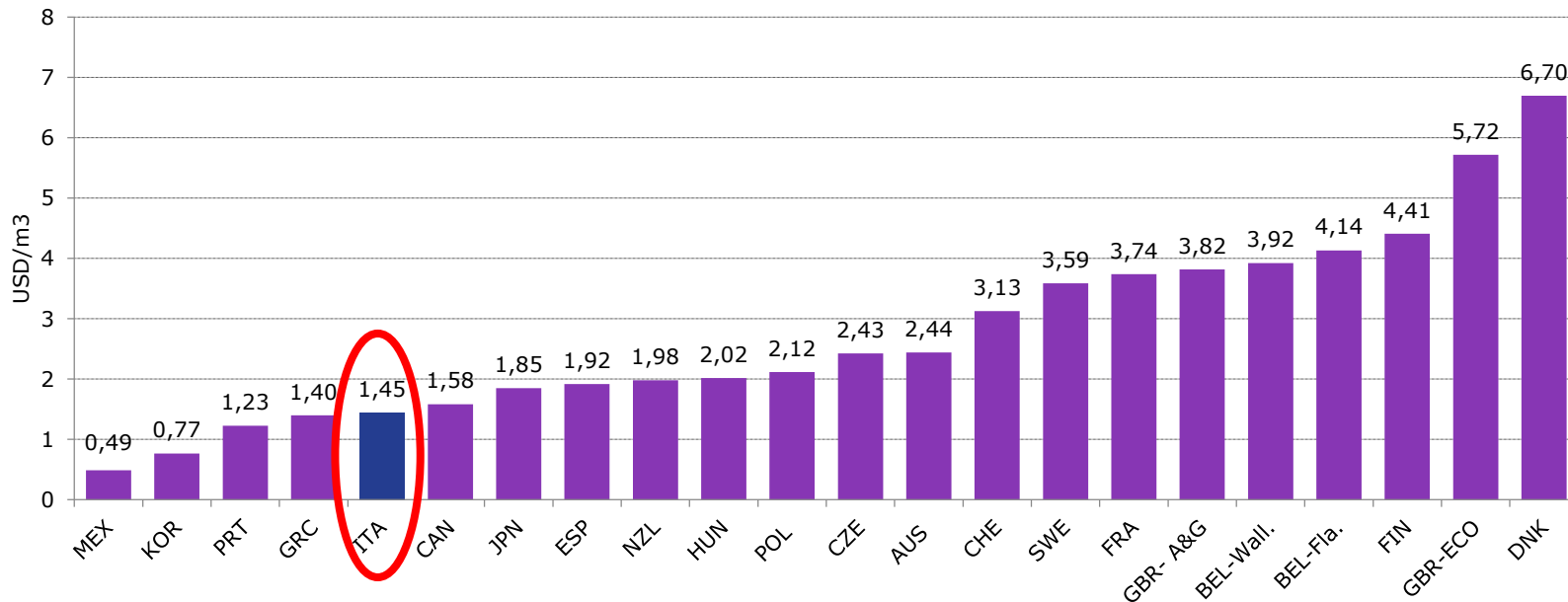
At the request of the water companies
In use
Under consideration

Source: OECD survey on the Governance of Water Regulators, 2014

Italian Water Regulation



Unit price of water and sanitation services to households incl. taxes (USD/m³)



Pick wastewater, total costs per person, water quality

Performance comparisons of six European countries

Water Quality		% change since 1990
England and Wales	99,71%	(+) 0,96%
Germany	99,70%	(+) 0,10%
France	99,65%	(+) 0,54%
Italy	99,57%	(+) 0,06%
Spain	99,89%	(+) 3,31%
Ireland	96,50%	(+) 5,57%

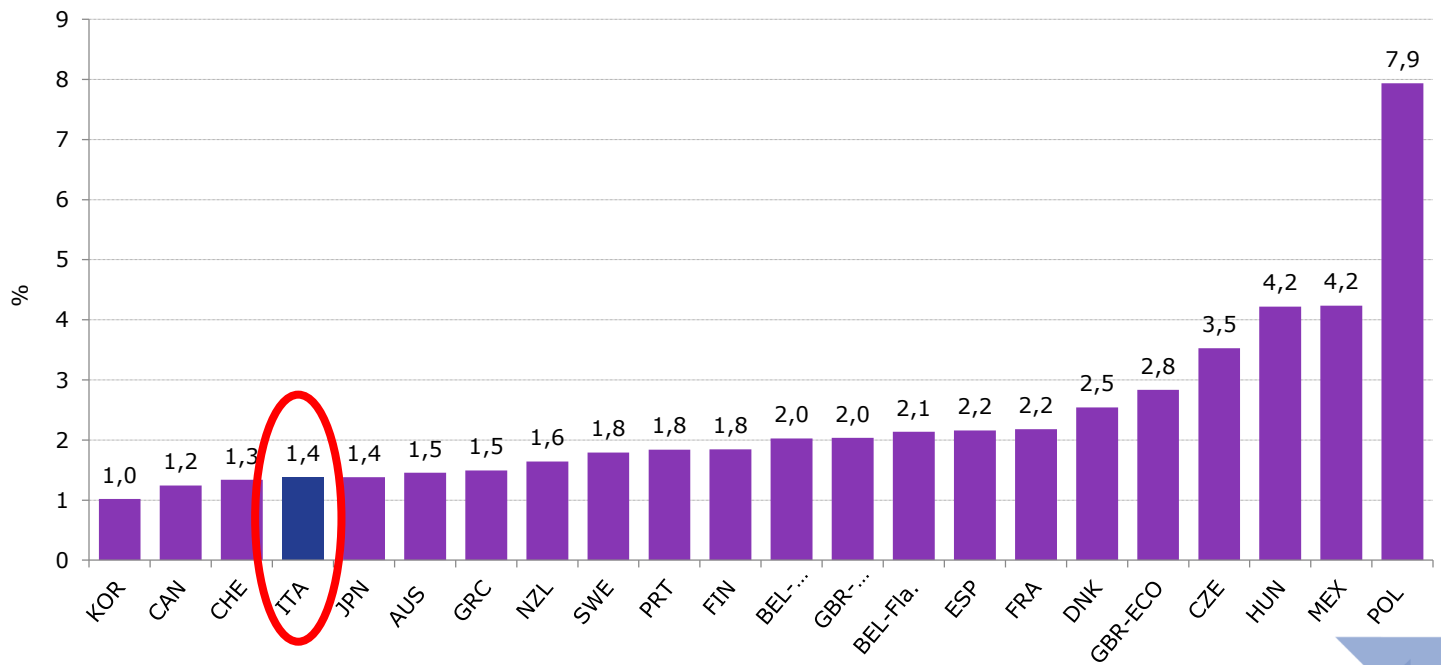
Wastewater Treatment		% change since 1990
Germany	91,30%	(+) 16,3%
England and Wales	88,60%	(+) 31,9%
Spain	80,90%	(+) 51,1%
France	79,30%	(+) 2,0%
Italy	57,80%	(-) 3%
Ireland	45,30%	(+) 43,6%

Total Costs per Person		% change since 1990
Italy	Euro 156,39	(+) 82,27%
Spain	Euro 249,72	(+) 56,59%
England and Wales	Euro 272,70	(-) 36,91%
Ireland	Euro 329,22	(+) 147,23%
Germany	Euro 343,40	(+) 5,73
France	Euro 521,47	(+) 33,81

Source: Global Water Intelligence (2018)

Water supply and sanitation bills as a share of disposable income

Average income of the lowest decile of the population

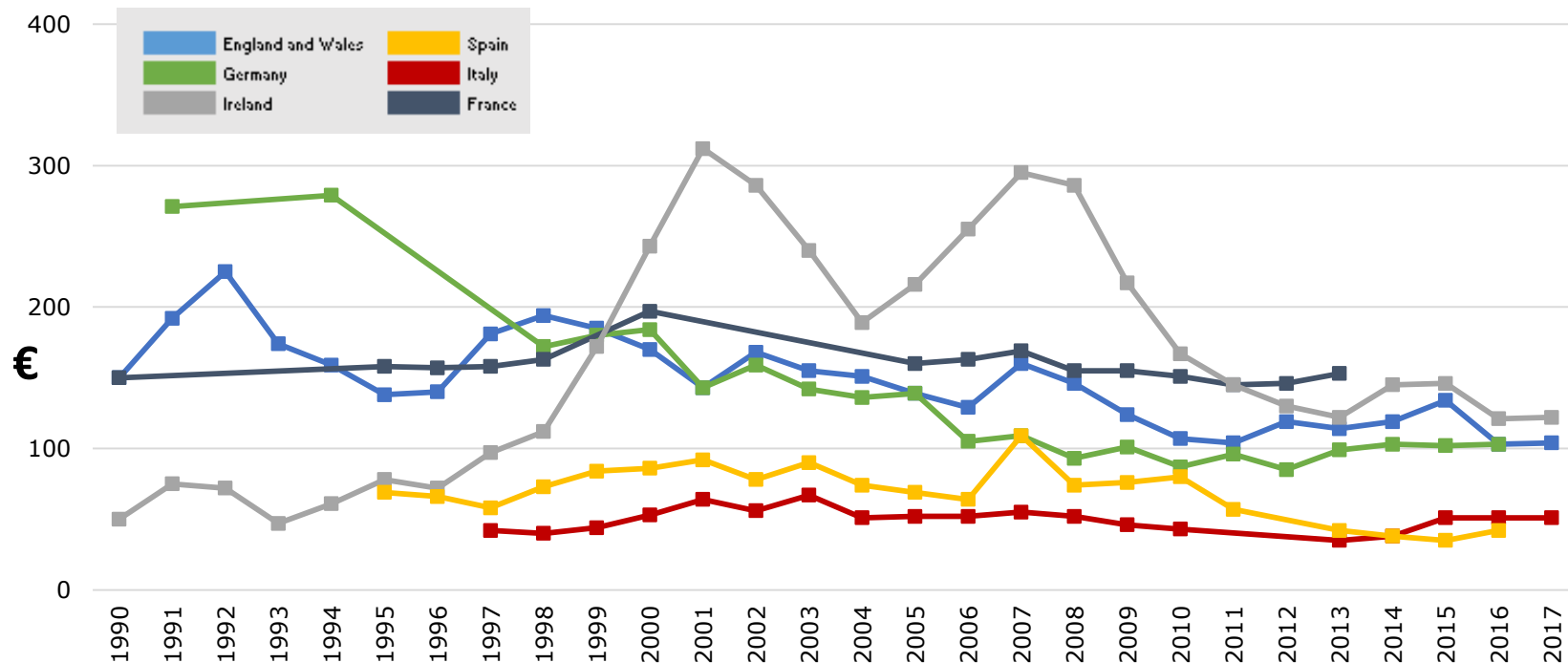


Source: OECD estimates based on country replies to the 2008 survey or public sources validated by the countries; for NDI data: OECD income distribution questionnaire and other OECD databases (OECD 2008).

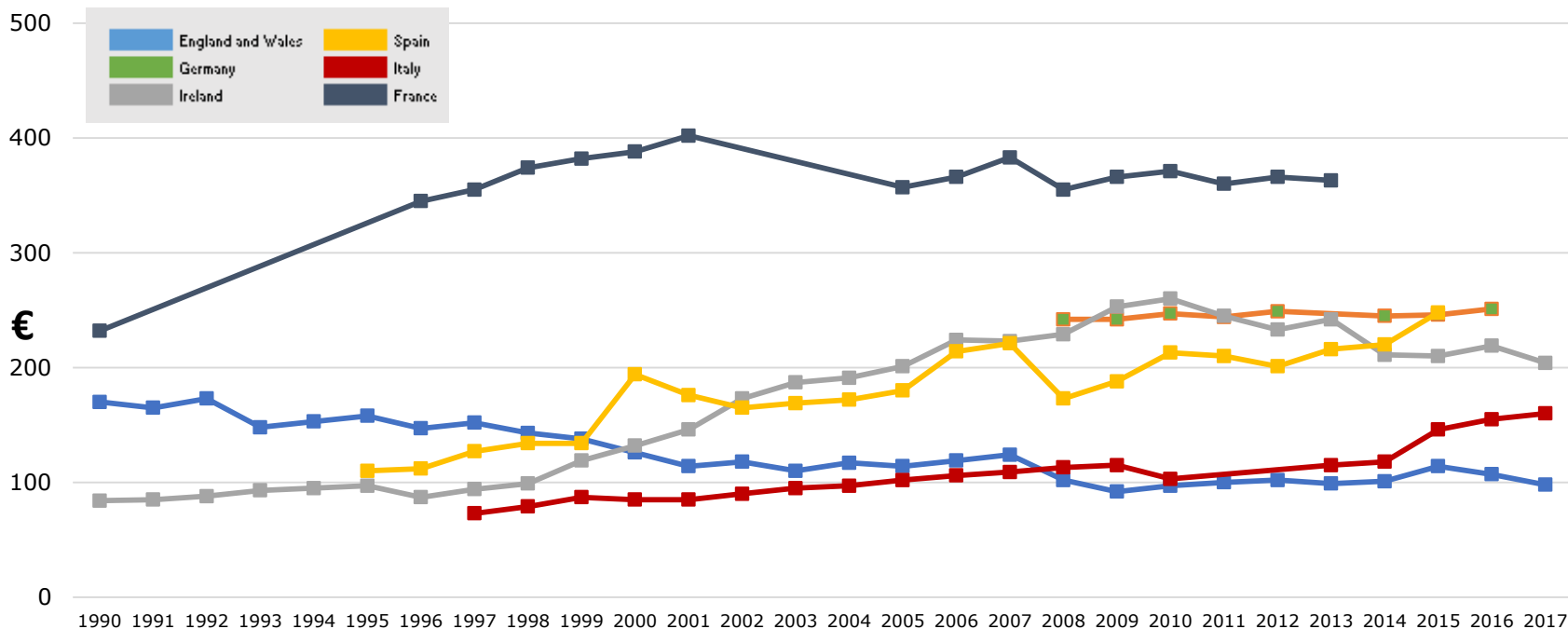
Investment challenges

- **Infrastructure sectors around world have seen at times substantial under-investment**
 - UK Railways
 - UK water sector
- **Under-investment may occur under public or private operation**
 - Public: reduce government debt, selective national priorities (e.g., high speed rail in France vs regional rail service), cost of raising public funds is higher than the amount spent, potentially higher risk of poor procurement and excess investment costs
 - Private: risk of expropriation, political instability, regulatory risk
- **Over-investment may occur as well, if return on investment is well in excess of cost of capital**
 - Averch-Johnson effect (rate of return regulation)
 - Example: U.S. electricity industry in 1970s
- **EU regulations create external mechanism for determining quality standards (and consequent investment)**
- **Key question arises of Italian investment needs**

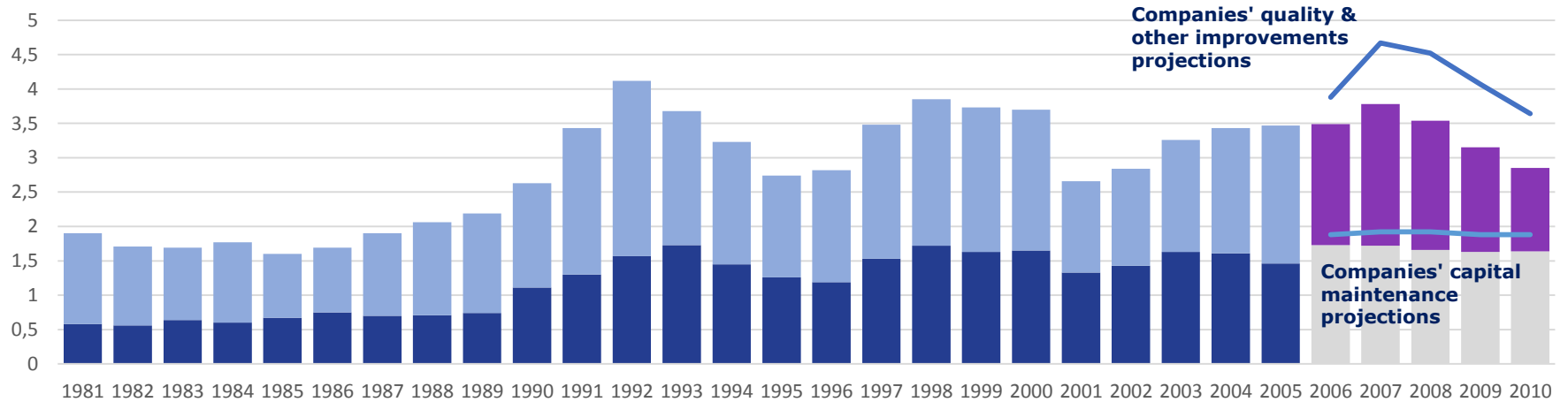
Capital expenditure per capita (Euro) in six European countries



OPEX per capita (Euro) in six European countries



UK actual and projected capital investment 1981-2010 (2003/04 prices)



- Ofwat's projected quality & other improvements
- Ofwat's projected capital maintenance
- Actual quality and other improvements with companies' projections for 2004-05
- Actual capital maintenance with companies' projections for 2004-05
- Companies' quality & other improvements projections
- Companies capital maintenance projections

Italian proposal

- **Key elements for economics incentives**
 - Nationalisation of water concessions into “azienda special” or another body governed by public law
 - Water for essential consumption provided for free
 - Water infrastructure investments funded by a National Fund for investment
 - Regulation of the water sector the exclusive competence of the Ministry of Environment
 - Limit the size of water utilities and management authorities

Influences on public/private operation/ownership

- **Williamson framework for transaction costs determining whether a service is provided by government or outsourcing**
 - Asset specificity and risk surrounding transactions
 - areas requiring more investment
 - higher uncertainty
 - limited budget
- **Political viewpoint**

General principles from review of international experience

1. Appropriate form of water governance often depends on local conditions (geography, water source, raw water quality, climate, budget constraints)
2. Many parts of the water system have natural monopoly characteristics
3. Comparing the performance of different water system structures is challenging
4. Investment is critical for water systems, public purse may be constrained
5. Public financing can be cheaper than private, but not guaranteed

General principles from review of international experience

6. Private investment requires protection from expropriation, absent which investment will be limited
7. Regulatory oversight of private investment is important, to limit possible over-investment
8. Whether assets are public or privately owned/operated, having an independent regulator can help ensure appropriate level of investment is achieved.
9. Natural monopoly characteristics imply that price regulation is needed for privately operated systems
10. Whether public or private operation, key determinant of water system success is nature of regulation overseeing the system


Fitting into a broader framework

- Governance is only one part of the broad water policy
- Decisions must be made by governments but emerging (and common) challenges may require further regulatory reflection
- **Open questions:**
 - How critical will climate change be for the overall sustainability of the water systems?
 - What can we learn from other sectors (cross-sectoral approach) to tackle the massive investments needs?
 - Will the market alone integrate new technologies to support a more consumer-friendly water services?
 - Should the EU launch a 2050 Water Agenda with clear targets in line with the climate agenda?

The logo consists of the word "cerre" in a lowercase, sans-serif font, centered within a white square. The background of the slide is a dark blue with abstract, overlapping geometric shapes in lighter shades of blue and white, creating a modern, architectural feel.

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