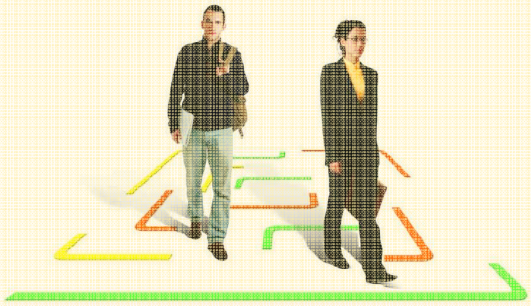

Regulation: from Theory to Practice

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References

Books

- "Regulatory Reform", Armstrong, Cowan and Vickers, Mit Press, 1994.
- "A Theory of Incentives in Regulation and Procurement", Laffont J.J. and Tirole J., MIT Press, 1993.
- "Economics of Regulation and Antitrust", Viscusi, Vernon and Harrington, MIT Press, 2000.

Surveys:

- Armstrong, M. and D. Sappington (2006), "Regulation, Competition and Liberalization", *Journal of Economic Literature*, **XLIV**, 325-366.
- Guthrie, G. (2006), "Regulating Infrastructure: The Impact on Risk and Investment", *Journal of Economic Literature*, **44(4)**, 925-972.

Why regulate?

- **Kinds of market failures**:
- Market power (leading to inefficiently high prices):
  - Economies of scale and scope
  - Anticompetitive behaviour
  - Network externalities
  - Government limits to competition (e.g. patents)
- Externalities (leading to inappropriate prices)
- Information problems (maybe leading to market breakdown): quality
- Typically, no need for intervention in competitive markets!!

Some aims of the Government

- Economic efficiency :
  - “price equals marginal cost”
  - take account of externalities
  - Assure entry of most efficient firms (“productive efficiency”)
  - “dynamic efficiency”
- Re-distributional concerns
  - between consumers and shareholders
  - between poor and rich consumers
- Usually, trade off between efficient purposes!!
- Get re-elected
- Do what lobby groups pay them to do (regulatory capture)

Rate of return regulation

- The method consists in define a limit level to the rate of retun on investments.
- Using accounting terms, the rate of return is given by the fraction between net profits and investment level (i.e. the stock of capital, net of depreciation)
- In a monoproduct setting, *R* is total reveneus, *k* is capital factor, *l* is the labour factor, and *r* and *w* the unit cost of input factors, we have:

$$ROR = \frac{R - wl}{k} \leq \rho$$

Rate of return regulation

- Empirically, the regulator sets the Total Revenues of the firm (TR) as:

$$TR = \rho * k + \text{VC}$$

- Where VC = variable costs
- Then, indicating with Q the total quantities of the goods/services (minutes, kWh …)

$$P = TR / Q$$

- *Hearing* process: when the ex post rate of return is higher than ρ, regulator reduces prices; if it is lower than ρ, regulator increases prices.

Rate of return regulation

- Pros of ROR:
  - Financial integrity of regulated firm is always guaranteed;
  - Monitoring of profits
  - No incentive to reduce service quality
- Cons of ROR:
  - No incentive to reduce costs (no productive efficiency) $\Rightarrow$ *cost plus mechanism*
  - Incentive to overinvest (inefficiently) if $\rho > r$ (Averch – Johnson effect)
  - Risk of accounting manipulation
  - Information demanded method and so high administrative costs

Incentive Regulation

- "Incentive regulation" refers to alternative regulations which aim at providing incentives for efficiency
- Examples of incentive regulation:
  - Banded rate of return regulation
  - Earnings sharing
  - Revenue sharing
  - Price freezes
  - Rate case moratoriums
  - Price caps

Banded Rate of Return Regulation

- The regulator sets a range of authorized earnings
- If the actual earnings fall within this range, the regulator does not intervene
- Otherwise,
  - If the earnings exceed the maximum authorized level: the difference between actual and authorized earnings is returned to consumers
  - If the earnings are lower than the floor, the firm can increase rates.
- E.g., employed to regulate the intrastate earnings of Chesapeake and Potomac Telephone in Virginia in the US in 1993
- Very similar to ROR regulation => same weaknesses

Earnings Sharing Regulation

- Similar to banded rate of return, but allows but explicit sharing of realized earnings between the regulated firm and consumers
- For instance,
  - the target rate of return is 12 percent
  - the firm can keep all earnings between 10 and 14 percent
  - 50% of earnings between 14 and 16 percent
  - 0% of earnings in excess of 16 percent
- Employed for intrastate telecommunications in California and New Jersey in the 1990s
- In particular as a component of initial price cap plans

Revenue Sharing Regulation

- Requires the regulated firm to share its revenues with consumers over a pre-defined threshold
- Implemented for telecoms in Oregon in the US between 1992 and 1996.
- More recently, implemented in many Electric regulators in Europe

Price cap regulation

- Regulator defines, for a certain period of time, a limit to the growth of price(s) of a (single or a weight average) set of goods or services:

$$P_t = (1 + RPI_t - X)\, P_{t-1}$$

- RPI_t = *retail price index*
- X = (estimated) growth in productivity $\Rightarrow$ reduction that regulator wants to pass to consumers

Price Cap regulation

- The regulator should define the *X* factor and, in a multiproduct setting how to evaluate the average level of price (i.e. the weight to apply to every services).
- Given the general rule, the regulated firm is free to set single prices with respect only to the imposed contraint on their average level
- In addition, regulator sets the time period in which the constraint is valid (*regulatory lag*). In Italy it lasts (almost) three years.

Setting the Initial Prices

- If the price ceilings are set too high, too little of the surplus is transferred to the consumers
- If they are set too low, the regulated firm might not break even
  - Might entail difficulties to attract capital
  - Deterioration of quality of service, etc.
- Look at the past!
- If strong uncertainties…
  - Safe level = (inefficiently) high level
- Method to set initial prices important for future services that might enter the basket

Setting the X Factor

- Same problem than for initial prices:
  - *If X set too low*: too much profit for the regulated firm
  - *If set too high*: risk of financial distress
- General principle
  - In a competitive economy, firms pass on to customers the cost increases (due to higher input prices), but also the cost decreases (due to increases in productivity)
  - Therefore, the prices rise at a rate equal to the to the difference between the rate at which input prices rise and the rate at which productivity increases
  - If in the regulated industry, same input price growth than elsewhere in the economy, and same productivity growth, then X=0.

Setting the X Factor

- General principle (continued)
  - If input prices grow more slowly in the regulated industry and/or the productivity grows faster, then X should be set to take into account this difference
- For instance,
  - Prices of inputs +1.5% per year in the economy, +0.5% in the regulated industry
  - Productivity growth +3% per year in the economy, +4% in the regulated industry
  - Then X = (1.5 - 0.5) + (4 - 3) = 2%
- If unexploited economies of scale and demand growth
  - X at a higher level

Setting the X Factor: In Practice

- Using historic growth rates to predict future growth rates
  - Adjustment might need to be made if in the past low incentives for cost reduction (e.g., due to ROR regulation)
  - etc.
- In some countries, the data might not be available
  - Using historical changes in the prices of regulated services
  - Benchmarking with other countries
- Whatever the method, the regulator may also base the X on projections of future revenues and costs (in a manner similar to ROR regulation)

Length of Time Between Reviews

- Trade-off for the regulator
  - *Short lags*: greater fraction of surplus transferred to consumers, but lower power of incentives
  - *Long lags*: higher incentives for cost reduction, but delay before consumers can benefit
- Other dimensions:
  - Uncertainty about the environment: to reduce the risk associated to an X factor which is poorly match => short lag
  - Demand price elasticity: if low, little loss in economic surplus if prices > costs
  - Ability of the firm to reduce costs: if strong, then long lags

Trends in Incentive Regulation in US Telecoms

Year	ROR regulation	Rate case mor.	Earnings shrg.	PC regulation	Other
1985	50	0	0	0	0
1986	45	5	0	0	0
1987	36	10	3	0	1
1988	35	10	4	0	1
1989	29	10	8	0	3
1990	23	9	14	1	3
1991	19	8	19	1	3
1992	18	6	20	3	3
1993	17	5	22	3	3
1994	20	2	19	6	3
1995	18	3	17	9	3
1996	14	4	5	24	3
1997	12	4	4	28	2
1998	13	3	2	30	2
1999	11	1	1	36	2
2000	7	1	1	40	2

Source: Sappington (2002).

Advantages of Price Cap

- Incentives for cost-minimization
  - Link between prices and costs severed
- No input bias (A-J effect)
  - No connection between profit and rate base
- Smaller administrative costs
- However,
  - In practice, cost and profit monitoring during reviews => some of the distortions associated to ROR regulation can appear

Potential Drawbacks

- Prices may diverge significantly from realized costs
  - May reduce allocative efficiency and welfare
  - Problem more pronounced when
    - There is considerable variation in possible costs
    - Regulator values consumer surplus sufficiently more than profit
    - Positive production levels are always desirable
  - ROR regulation can outperform price cap when these three effects prevail
- Risk shifts to the regulated firm => higher cost of capital
- Strong incentives to reduce costs… can imply strong incentives to reduce quality
  - Reducing repair and customer assistance, etc.
  - Postponing innovations in quality
  - => service quality regulation

Potential Drawbacks

- Price flexibility to the firm
  - It can undo some cross-subsidies that the regulator wanted to set. For instance, choose not to serve high-cost or low willingness to pay consumers
  - Incentives for predatory pricing may persist if both competitive and regulated services are subject to the same price cap
- The regulator is not obliged rates of return, and hence has greater discretion; increases risk of capture
- Implementation can be complex
  - Uncertainties about cost variations

Rate-of-Return versus Price-Caps

	Rate of Return	Price Cap
Prevent exercice of market power	Yes	Yes
Productive efficiency	No	Yes
Allocative efficiency	No	Yes
Dynamic efficiency	No	Yes
Ensures high quality of service	Yes	No

Summary

- Two forms of price regulation, both for retail and wholesale prices:
  - rate-of-return or cost-based regulation
  - incentive regulation, incl. price-cap regulation
- Rate-of-return regulation
  - Principle of cost-reimbursement (“revenue requirement”)
  - Main drawback: low incentives for cost reduction => could lead to relatively high prices (compared to a competitive benchmark)

Summary

- Incentive regulation
  - Aim: providing *incentives* for cost reductions
- Different forms of incentive regulation, but main form = price-cap regulation
  - The increase of the price index of a basket of regulated services should not exceed the increase of the RPI minus an “X factor” = RPI-X formula
  - Main advantage = (strong) incentives for cost reduction
  - Main drawbacks: (i) prices might diverge significantly from costs; (ii) quality of service might be lowered; (iii) cost shifting

Empirical evidence on Price Caps

- Mathios and Rogers (1989) examined AT&T's long-distance prices and found that most prices were significantly lower in states that allowed pricing flexibility than in states that used rate-of-return regulation. They used a simple dummy variable technique to capture PCR, and of course this evidence does not prove that PCR caused prices to be lower.
- Alexander et al. (1996) examine the evidence on the cost of capital for regulated industries and find that, as expected, firms facing incentive regulation have higher systematic risk than firms subject to rate-of-return regulation.
- Resende (2000) applies a combination of data envelopment analysis (DEA) and econometric techniques to US local telephony and finds that incentive regulation (including PC) is associated with greater productive efficiency than rate-of-return regulation.

Price Cap regulation

- Empirical evidence on PC (Sappington, 2003) using data from US Telecommunications Industry:
  - Incentive to renew some type of equipments (digital commutator, digital transmission) but not to increase aggregate investment
  - Incentive to increase total factor productivity
  - Decrease in retail prices … but not consistently
  - Increase in net profits … even if no clear evidence for reductions in *operative costs*
  - No clear incentive to reduce services' quality

Incentive regulation in Energy Sectors

- Incentive regulation increases productivity and service quality in UK electric regional distribution (Jamasb and Pollitt 2007; Domah and Pollit, 2004; Newbery and Pollit, 1998)
- Quality impact is ambiguous: Not negative impact of incentive regulation in quality provision in Norway (Growitsch *et al.* 2010); negative effect of IR on quality in the US (Ter Martirosyan and Kwoka, 2010) without MQS.
- Incentive regulation increases labour productivity in electric distribution in developing countries (Pollit, 2004; Rudnik and Zolezzi, 2001)
- Incentive regulation increases firms' investments, but only in cost-reducing activities (Cambini and Rondi, 2010).
- Surveys on IR in Energy: Joskow 2008, Vogelsang 2006

Some difficulties: investment incentives

- Conflict between social and private interests may arise whenever pro-competitive and efficiency enhancing regulatory regimes undermine the firm's incentives to invest.
- Laffont and Tirole (2000, p. 7) note that: "*There is in general a trade-off between promoting competition to increase social welfare once the infrastructure is in place and encouraging ex ante the incumbent to invest and maintain the infrastructure*".
- The relationship between regulation and investment has received much attention by economic theory in the last twenty years (see the survey by Guthrie, 2006), but the empirical evidence is scant and mostly focussed on US regulated utilities.

Some difficulties: investment incentives

- The literature suggests that regulatory policies affect utilities' investment decisions differently, depending on which type of investment – in cost reducing or infrastructure - the firm undertakes (Armstrong and Sappington, 2006).
- Typically, regulatory interventions that deliver no extra profit to the firm, even when its operating costs decline (like in a rate of return regulation), deprive the firm's incentive to invest in cost reduction.
- In contrast, if firm's allowed revenues do not depend on realized cost savings (like in a price- or revenue- cap mechanism), the incentive to invest in cost reducing activities is predicted to be more pronounced (Cabral and Riordan, 1989)
- A complicating factor, however, is that incentives work differently for infrastructure and for cost reducing investment.
  - Rate of return regulation is thought to provide strong incentives for developing new infrastructure since the rate of return on the asset base is guaranteed and the risk faced by the firm considerably reduced.
  - Price cap mechanism may weaken the incentive to invest in infrastructure, especially when the regulatory lags are shorter than the life of the assets, due to regulatory opportunism (Guthrie, 2006)

More focus on Price Cap

- **Tariff basket mechanism**
- Suppose $i = 1,..,n$ services under price control:

$$\sum_{i=1}^{n} p_i^t q_i^{t-1} \leq \left(1 + RPI^t - X\right) \sum_{i=1}^{n} p_i^{t-1} q_i^{t-1}$$

- Single service's weight:

$$w_i = \frac{q_i^{t-1}}{\sum_{i=1}^{n} p_i^{t-1} q_i^{t-1}}$$

More focus on Price Cap

- It means that:

$$\frac{\sum_{i=1}^{n} p_i^t q_i^{t-1}}{\sum_{i=1}^{n} p_i^{t-1} q_i^{t-1}} \leq 1 + RPI^t - X$$

- Laspeyres Index should be lower than 1 + $RPI^t - X$.
- This means that in time *t* prices should be set in order to make hypothetical revenues generated by selling the same quantities sold in period *t*-1 at new prices lower than previous period revenues (adjusted by the factor *RPI – X*).
- Risk of manipulation: the weights in one period depend on prices in previous period

An application: the Telecom price cap

- For British Telecom and Telecom Italia, OFCOM and AGCOM use a variant of the tariff basket mechanism as it follows:

$$\sum_{i=1}^{n} w_i^t p_i^t \leq \left(1 + RPI^t - X\right) \sum_{i=1}^{n} w_i^t p_i^{t-1} \quad \text{dove } w_i^t = p_i^{t-1} q_i^{t-1} \Big/ \sum_{i=1}^{n} p_i^{t-1} q_i^{t-1}$$

- In words, weights are given by the fraction of past period per service revenues and total services's revenues

More focus on Price Cap

- **Average revenue price cap**
- Suppose $i = 1,..,n$ services under price control:

$$\frac{\sum_{i=1}^{n} p_i^t q_i^{t-1}}{\sum_{i=1}^{n} q_i^{t-1}} \leq \hat{p}^t = \left[1 + RPI^t - X\right]\hat{p}^{t-1}$$

- Single service's weight:

$$w_i = \frac{q_i^{t-1}}{\sum_{i=1}^{n} q_i^{t-1}}$$

Other practical issues

- Financial issues in Price Cap regulation:
- It is true that in price cap regulation Regulator does not *directly* set a return on investment …. But it has to do that almost *indirectly* in order to correctly take into account the cost of capital when evaluating a policy intervention.

Financial issue in Price Cap regulation

Setting a price cap *(X)* in a monopolistic market:

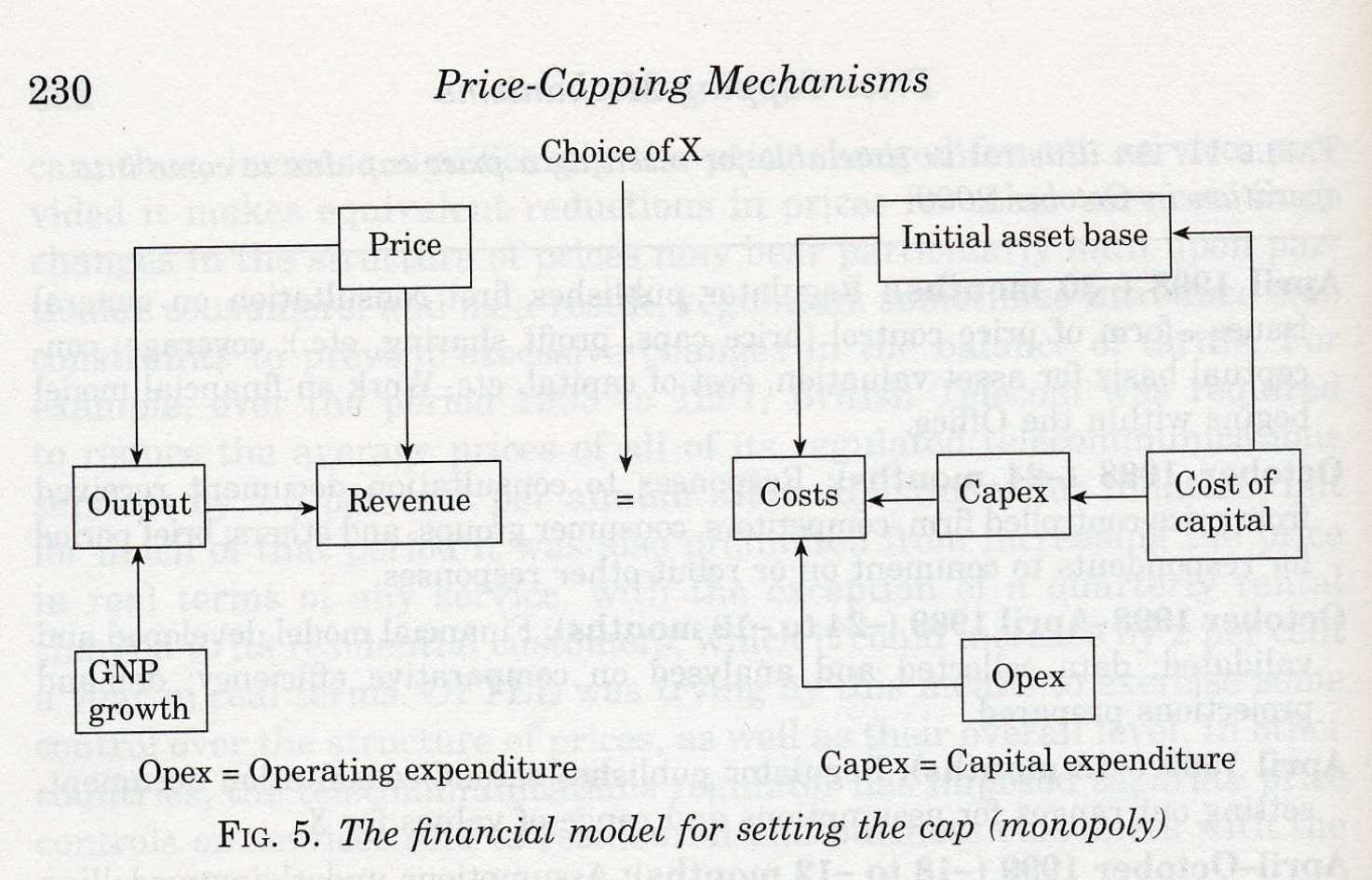


FIG. 5. *The financial model for setting the cap (monopoly)*

Financial issues in Price Cap regulation

- Measure and index to be used to evaluate capital expenditure :
- Cost of capital (r_{it}): *CAPM*

$$r_{it} = r_{ft} + \beta\left(r_{mt} - r_{ft}\right) \qquad \beta = \left[\sum_{t=1}^{T}(r_{it} - \bar{r}_i)(r_{mt} - \bar{r}_m)\right] \Big/ \sum_{t=1}^{T}(r_{mt} - \bar{r}_m)^2$$

where r_{ft} is the interest rate of free risk public bonds.

- *Weight Average cost of capital:*

$$WACC = [r_{it}\, E/(E+D)]/(1 - t) + rd\, D/(E+D)$$

- Where *E* level of Capital Invested by shareholders, *D* level of Debt, *rd* the cost of debt and *t* is the tax level (%).

Example: the WACC in italian telecoms

- *Free interest rate, rf* = 5% equal to average rate of BTP (public bonds from 10 to 30 years);
- Market premium $\left(r_m - r_f\right)$ equal to 4%
- *Risk coefficient* β = 1,05.
- *Thus,* $r_t = r_f + (r_m - r_f)\beta$ = 9,2%.
- Cost of Debt, *rd* = 5,35%, tax level *t* = 41%, *E* = 80%, *D* = 20%:
- $WACC = [r_{it}\, E/(E+D)]/(1 - t) + rd\, D/(E+D) = 13{,}5$

Financial aspects

- In italian electricity market, Regulator sets for Transmission $\beta = 0{,}43$ (less risky activity).
- International comparison (1999) in Transmission: National Grid (UK) $\beta = 0{,}56$, Electrabel (Belgium) $\beta = 0{,}33$;
- In Distribution and Retail Southern Electic (Uk) $\beta = 0{,}66$;
- For integrated firm: Endesa (Spain) $\beta = 0{,}82$, Iberdrola (Spain) $\beta = 0{,}82$, Scottish Power (Uk) $\beta = 0{,}96$.

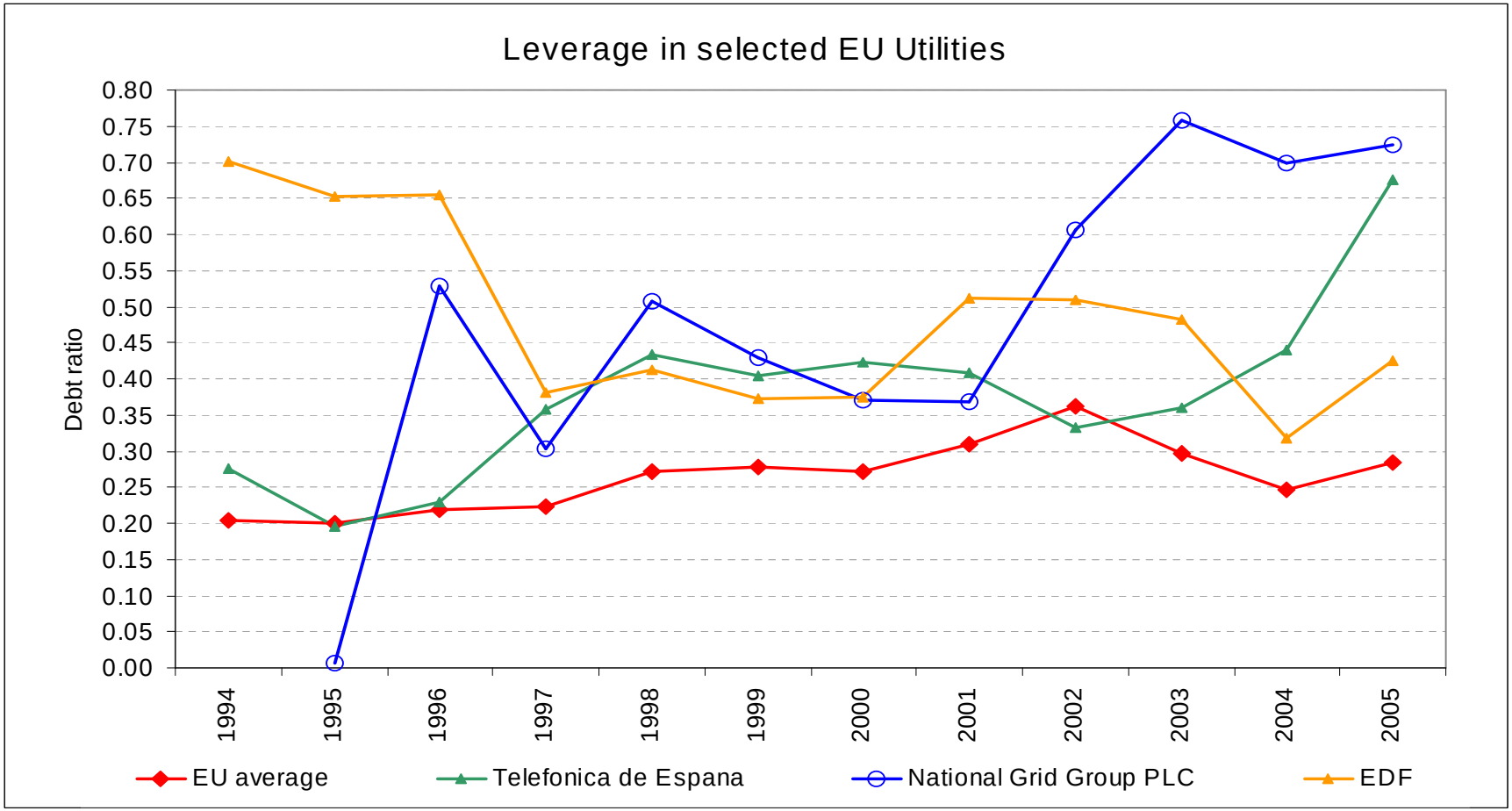
The “Dash for Debt”

- Ten years after the beginning of privatization and liberalization in network industries in Europe, regulated utilities have substantially increased their financial leverage

- In the U.K., DTI and HM Treasury (2004) have expressed a concern about the “*dash for debt*” *“flight of equity”* within the U.K. utilities sector from the mid-late 1990’s

- They argue that high leverage “could imply greater risks of financial distress, transferring risk to consumers and taxpayers and threatening the future financeability of investment requirements”

The “Dash for debt”



The relevance of capital structure for regulated firms

- In the U.S., regulated rates are set so as to ensure the firm a "fair" rate of return on its capital
- In Europe, regulators often use *RPI-X* regulation, that ensure that the firm will earn a return on its capital which will induce it to enhance and maintain its network

⇒ The determination of regulated rates depends to a large extent on the firm's capital structure

⇒ By properly choosing its capital structure, a regulated firm can affect its rates and hence its profitability

Europe and the U.S.

- It is well-documented that U.S. regulated utilities (which were always private and subject to rate regulation by state and by federal commissions since the 1910's) are highly leveraged (Bowen, Daly and Huber (*FM*, 1982), Bradley, Jarrell, and Kim (*JF*, 1984) and Barclay, Marx, and Smith (*JCF*, 2003))

- The European situation is different because:
  - Private ownership and control of utilities is still the exception rather than the rule (Bortolotti and Faccio, 2008 *RFE*)
  - The degree of liberalization varies considerably across countries, and is still incomplete in most sectors
  - Not all European utilities are regulated by an independent regulatory agency (IRA): in some sectors regulation is performed directly by ministries, governmental committees, or local governments

A Strategic Explanation of Leverage 1/2

- In Public Utilities, regulatory choices (and political stance) change over time
- Typical problems are regulators' lack of committment leading to firms' underinvestment (Armstrong and Sappington, 2006 *JEL*; Guthrie, 2006 *JEL*)
- To provide investment incentives, regulators choose the "fair" rate of return
- But firms fear that the regulator will reduce the price after the investment is sunk

A Strategic Explanation of Leverage 2/2

- May firms “use” capital structure to influence the regulators’ decisions? … and may regulators “use” capital structure to *tie their own hands* and discipline their own opportunism?
- A welfare maximizing regulator has the incentive to set a high regulated price so as to reduce the probability that the firm will become financially distressed (Spiegel and Spulber, 1994 *RAND*)
- The firm’s leverage mitigates regulatory opportunism
- The regulator allows the firm to choose its leverage in order to commit not to engage in opportunistic behaviour

Bortolotti, Cambini, Rondi and Spiegel (2011, JEMS)

- Unbalanced panel of virtually all 92 publicly traded utilities and transportation infrastructure operators during 1994-2005 (927 firm-year observations) in 14 EU member states:
  - 44 firms in electricity and gas distribution
  - 13 water supply companies
  - 15 telecoms (mainly vertically integrated operators)
  - 8 freight roads concessionaires
  - 12 transportation infrastructure operators

- We excluded airlines, oil and refinery companies, wireless telecoms, and electricity generators because typically their prices are not regulated

- 67 firms in our sample have been privatized by 2005. Of these firms 24 have been privatized during 1994-2005 period. 25 firms in our sample are still state-controlled in 2005.

- Privatization is still incomplete: the state's UCR in the firms in our sample are 37% on av.

- Evidence that utilities increase their leverage following the introduction of price regulation, provided they are privately controlled holds after controlling for:

  - Alternative measures of leverage: book leverage
  - Heterogeneity across sectors
    - Sector-country clustering for common sectoral shocks from IRA
    - Tests on sub-samples: Energy, Electricity, TLC
  - Privatization effects: Privatized vs. Non-privatized; Golden Share
  - Exogenous changes in equity markets: Stock market indexes and Investor protection indexes

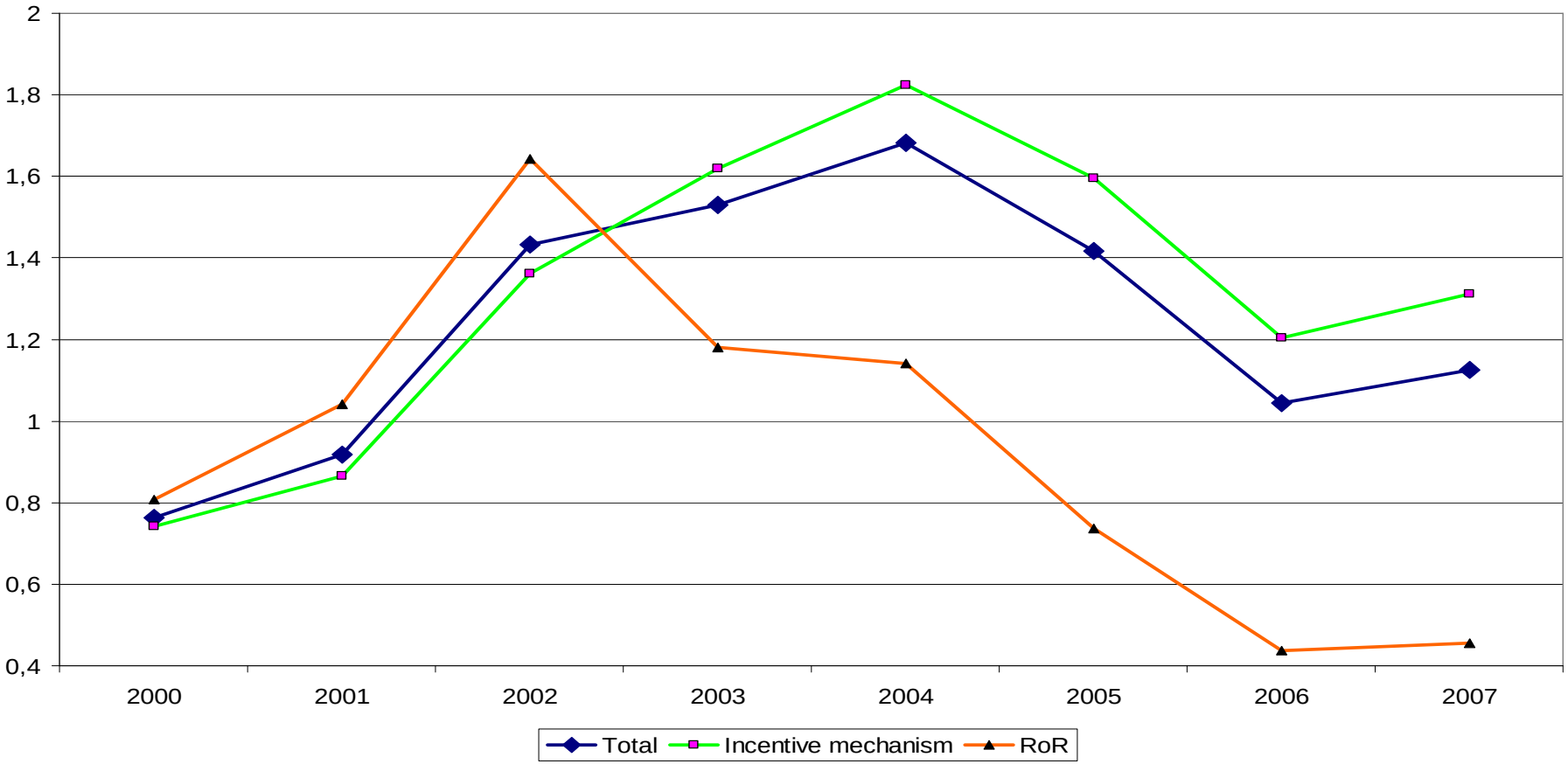
Leverage and prices

- Leverage Granger-causes Regulated Prices
  - The full sample
  - When the IRA is in place
  - Firms in industries regulated by an IRA
  - Privately-controlled firms (under 50% and restricted def.)
  - Firms that were and remained private (never privatized)
- Regulated Prices *do not* Granger-cause Leverage in all above cases
  - Leverage does not Granger-cause regulated prices for the sub-sample of State-controlled firms

A Study for the

Italian Energy Authority

Leverage of EU5 Energy utilities (1/2)



- Average *Gearing* (D/E) increase by 36 percentage points in 7 years: from 76% to 112%
- Huge difference for firms under incentive regulation wrt firms under RoR

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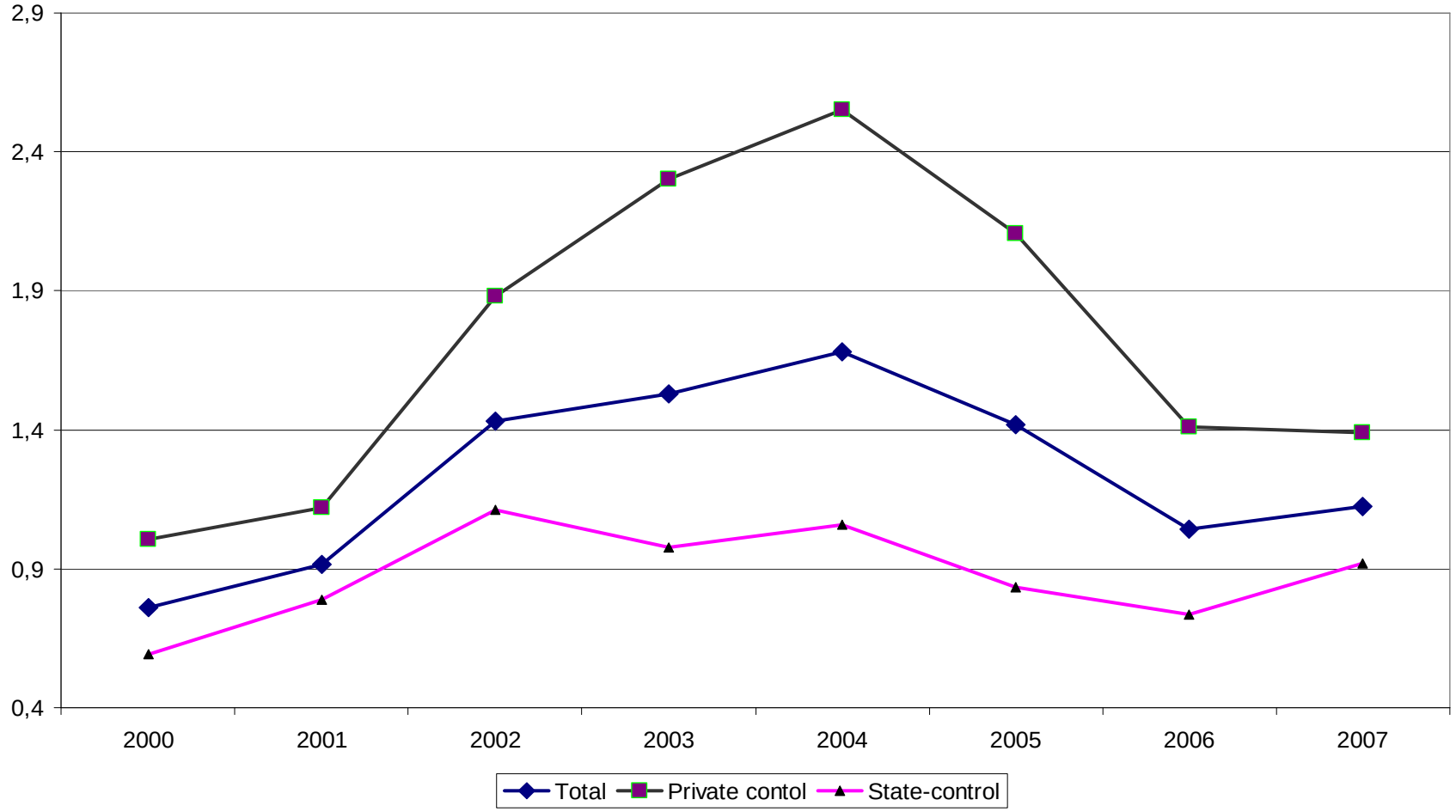
Leverage of EU5 Energy utilities (2/2)



- Private firms are more leveraged than (fully or partially) state controlled companies

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Leverage and regulation

Average Gearing (2000-2007)				
	Total observations N = 189	**Incentive Regulation** N = 144	**RoR** N = 45	**Regulation difference p-value**
Total observations		1.353 (0.129)	0.945 (0.125)	0.408* p = 0.092
Privately-controlled	1.758 (0.214) N = 81	1.981 (0.244) N = 68	0.591 (0.157) N = 13	1.390** p = 0.016
State-controlled	0.880 (0.062) N = 108	0.792 (0.057) N = 76	1.089 (0.158) N = 32	- 0.297** p = 0.030
Ownership difference p-value	0.878*** p = 0.000	1.189*** p = 0.000	- 0.498* p = 0.070	

Gearing is Net Financial Position divided by the value of equity.The p-values are based on two-sided test of the Null hypothesis that the difference in the average leverage between two different groups is equal to 0. (Standard errors are in parenthesis).

Leverage and regulation

- Not so easy to reconstruct the way in which EU regulators define the WACC and the leverage:
  - Spain: "*mark-up*" over the standard WACC for new investments
  - UK: *leverage* (D/(D+E)) is set equal to 0.60, versus the real leverage of 0.75 of National Grid. According to Ofgem: "*the gearing assumption should not be interpretated as an endorsement of any particular structure. Companies are best placed to decide on the most appropriate capital structure*"
  - France: *leverage* equal to 50%, close to the real EDF capital structure in 2005

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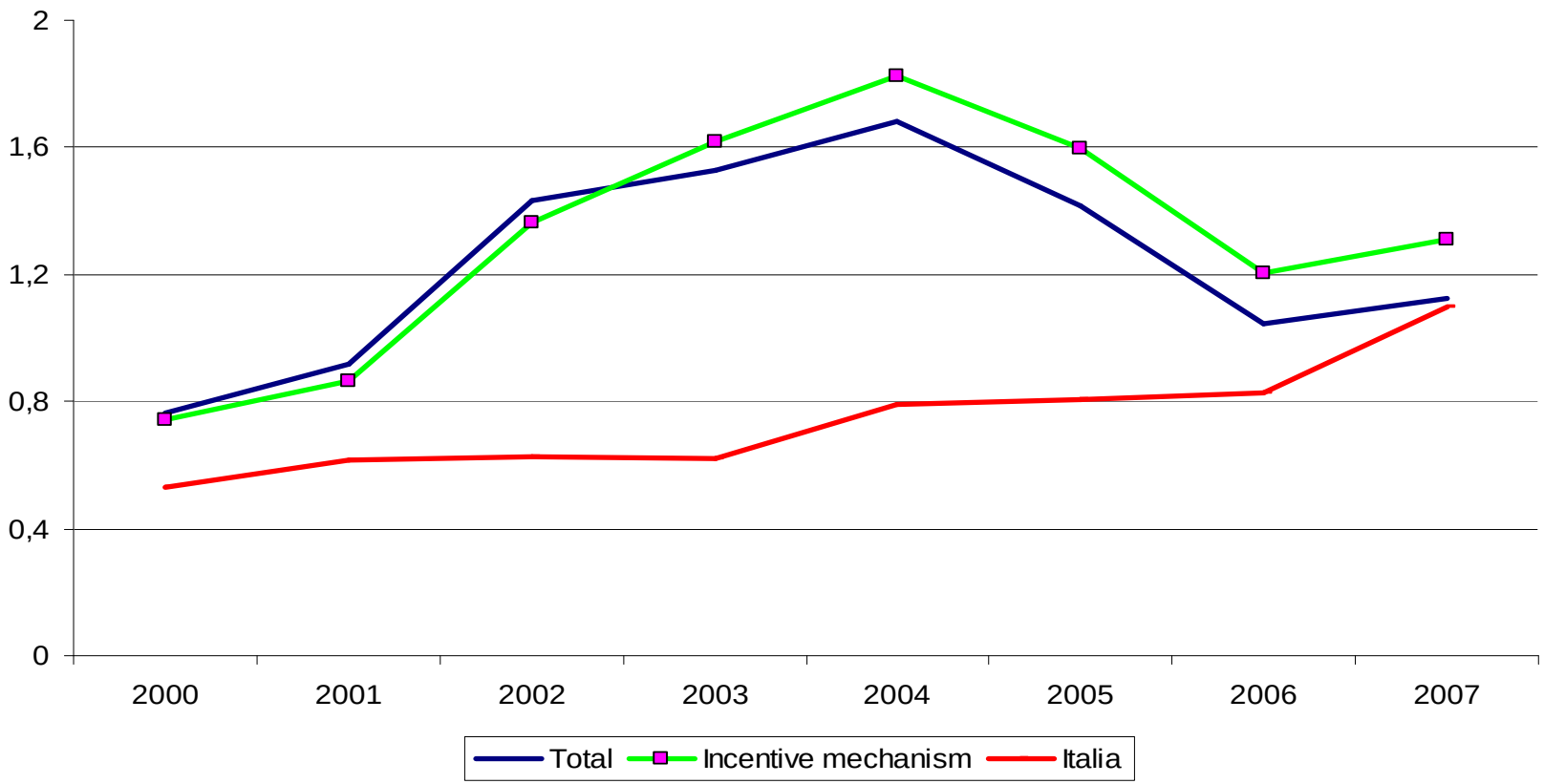
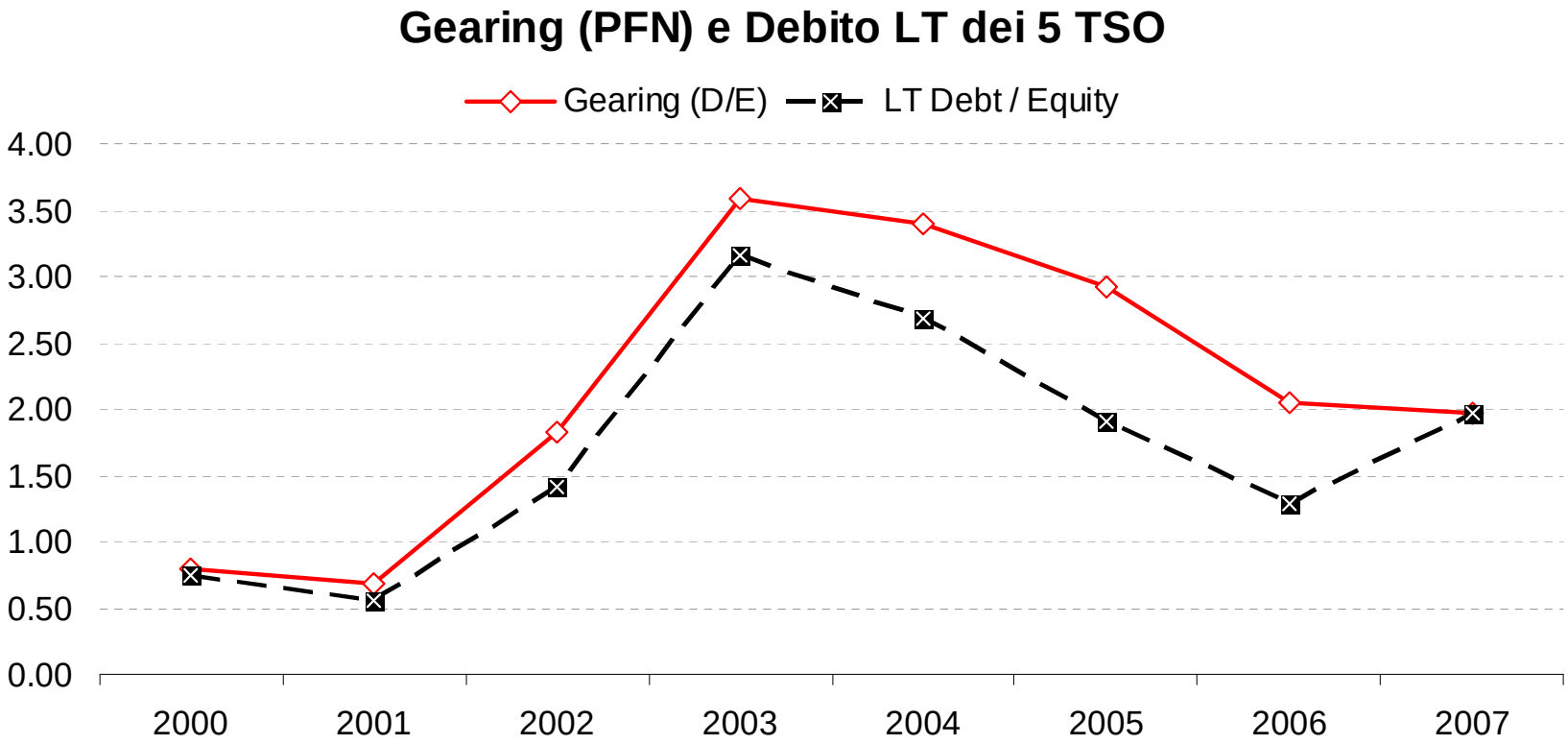
Leverage of Italian Energy utilities



• Lower level but steadily increase over time from 2000 to 2007 (from 53% to 110% of equity)

Gearing for TSO ?



Nota: I dati si riferiscono a Terna, Snam Rete Gas, Red Electrica Espana, Enagas, RTE. Mancano i dati per le imprese tedesche, verticalmente integrate, e per l'attività di trasporto di GDf

- Leverage increases also for TSO: it is more than double from 2000 onwards
- It reaches 350% and then decreases to 200% in 2007

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“ Arrangements for responding in the event that a network company experiences deteriorating financial health “

Ofgem, 2008, n. 158, Position Paper

The Ofgem Proposal (1/3)

- The legislative and regulatory framework in place for Britain's energy networks is designed to reduce the risk of *financial distress* affecting network operators and to ensure that an acceptable level of service continues to be provided to consumers should *financial distress* occur.

- There are a number of potential causes of financial distress. In some cases financial distress may reflect the actions or strategies of the affected company, such as the failure of management to control expenditure or excessive gearing, where a company relies heavily on debt to finance its activities. It can also result from the actions of another party, such as the default or insolvency of a major trading partner. Finally, financial distress may result from the impact of exogenous factors that impose additional costs on a company or make it less attractive to investment. Financial distress may result from a combination of these or other factors.

The Ofgem Proposal (2/3)

- Regulatory remedy: ***financial ring-fence***

- "Financial ring fence" is the requirement for the companies to provide a statement signed by a director of the licensee and accompanied by a supporting statement from its auditors setting out that the company has adequate resources to properly and efficiently carry out its functions over the next financial year.
- Another provision of the „financial ring fence" provides for a cash lock-up in certain circumstances between the licensee and its affiliates. This prohibits a parent company from taking money out of a network company and thus out of the regulated GB networks in order to address financial concerns at a Group level.
- Collectively, the ring-fence conditions aim to protect the financial health of network companies, and enable us to monitor financial health and take action where necessary (including enforcement action) to seek to prevent a material deterioration in the financial health of a network company.

The Ofgem Proposal (3/3)

- Other arrangements:
  - Information on detailed cost and revenue reporting arrangements in place for the network companies
  - Control over Investment and its relation with service supply
  - Other financial informations (shares, credit ratings …..)

- However, OFGEM states that, even though not desiderable, it might also consider to re-open the negotiation process on price mechanism (*re-opening price control*)!!!!

Re-opening price control (1/2)

- "[…] the cause of financial distress is largely due to factors beyond the company"s control. These might include:

  (i) instances where additional workload has arisen from new legislation that was not anticipated at the time of the last review, or unanticipated consumer demand; or

  (ii) a material change in financial market conditions relative to those prevailing at the time a price control was set such that that an efficient company with an investment grade credit rating would no longer be able to finance its activities."

- "Re-opening the settlement could reasonably be expected to relieve the financial distress in a timely manner.

Re-opening price control (2/2)

- More generally, according to Ofgem (2008):

> "In no sense should the reopener process be viewed as a mechanism to bail out an inefficient, poorly managed network company or a network company that has excessive gearing".

- But these criteria are difficult to assess ….

Legal framework for UK TSOs

- **Disposal of relevant assets –** This condition requires the licensee to provide written notice to the Authority of any proposed disposal of operational control of any assets forming part of its network.
- **Availability of resources –** This condition requires the licensee to ensure it has sufficient resources to carry on its licensed activities for a period of 12 months and to submit a report to the Authority annually, supported by the licensee‟s external auditors, confirming availability of financial resources. The condition also prevents the licensee from making or paying any dividend that would cause it to be in breach of its financial ring fence conditions at any future time.

Legal framework for UK TSOs

- **Restriction on activity and financial ring-fencing –** This requires the licensee not to conduct any activities other than those of its core business, subject to certain exceptions and specific limitations on the turnover and investment of permitted non-core activities.
- **Credit rating** – This condition requires the licensee to maintain an investment grade credit rating.
- **Indebtedness –** This condition requires the licensee not to incur any indebtedness nor create any security, nor guarantee any liability of another person, other than on certain specified terms and for a permitted purpose, or otherwise without consent of the Authority. It also provides for a cash lock-up in certain circumstances between the licensee and its affiliates.