Non Linear behavior in Market Structural evolution

rating the new dynamic behavior

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Non Linear Behavior Processes in Market Evolution

Closing the Free Market – Centrally Planned – Free Market cycle

Benefits of Competition versus Costs of Complexity in a Market

Penetration of Privates in a Centrally Planned/Monopolistic Market

The role of the Regulatory Agencies

Market structural design for optimal competition behavior

Romanian market case evolution

Closing the cycle Free Market – Centrally Planned – Free Market

- Economic cycles were the main behavior of the last century
- From production cycles (Kondratiev cca.1930) we are facing structural cycles that went from Free Market by Nationalization to Centrally Planned and by Liberalization back to Free Market
- Market Freedom <u>and</u> Information play key roles in the structural cycle creating a Hysteresis effect that boost 'the first million'
- Information should be included into rating especially in the new markets.

Hysteresis cycles of market competition



Market Information

Benefits of Competition versus Costs of Complexity in a Market

•The increasing number of players in a market brings the price to the client down through the benefits of competition but raises it through the costs of increased complexity of the market

•The interplay of these two trends allows to define an optimal number of players that ensures the minimum price to the clients without the need to hamper market fluidity (e.g. limit the pass through of costs to clients)

•The time evolution of the number of players (merging and unbundling etc.) in a given market tends to its specific dynamic equilibrium. US Power market is a relevant example.

•Crises may emerge from breaking market equilibrium. Rating should also measure the distance from equilibrium – improved β index

Minimal price to the client optimization of the market structure



Time evolution of the market



Evolution of the power market in the USA,



Penetration of Privates

in a Centrally Planned/Monopolistic Market

- the process of privatizing monopolies, especially in economies whose structures are rapidly changing, may lead to complex dynamic regimes ("chaotic") uncontrollable by the policy makers;
- the privatization rate is bounded both bellow and above : too slow leads to extinction of the privates while too fast leads to chaotic regimes liable to produce shocks on a low resilience economy
- Rating of new entrants should be connected to the overall market evolution.

Privates penetrating the monopoly dominated market



The role of the Regulatory Agencies

- the existence of an optimal market structure (number of entities for a minimum price to the clients) and of an optimal time path (giving a minimum shock to the economy) may create a basis for the design of a power market and of its regulatory frame before a natural monopoly is broken.
- this possibility shows that the one-large-step approach is the best, provided the path trajectory, from monopoly to market, and the target structure of the market, are the optimal ones. Thus subsequent shocks are eliminated and the path is smooth

Risks and the new power markets

- Regulating a risk component in the tariff case OPCOM and Hidroelectrica Romania
- Introducing specific rating in the power markets the β coefficient is it enough ?
- Unbundling the risks along with the power monopolies
- Money of second order and the financial crises will rating be based on new accounting reports explicitly showing dynamics



Predicting the Danube flow evolution



Use of SAS (Statistical Analysis Software) to predict the Danube flow allows confining incertitude to cca.25%. The rest is left to risk hedging instruments e.g. weather derivatives

US Utility Industry Risk Premiums



Company vs. market revenue behavior – beta index – Romania 2001





Evolution of the number of companies in the market









Monthly evolution of volumes traded on wholesale market compared to internal consumption

Note: In the above graph. the volumes traded on negociated contracts' market do not include the export trades

TRANSACTIONS ON THE WHOLESALE MARKET	2008	2009	2010
1. BILATERAL CONTRACTS' MARKET			
traded volume (GWh)	63848	64921	79165
% from internal consumption (%)	116.9	130.0	152.2
average price (lei/MWh)	148.39	161.37	161.62
1.1. Sales on regulated contracts			
traded volume (GWh)	29104	30334	28942
% from internal consumption (%)	53.3	60.8	55.6
average price (lei/MWh)	158.15	164.44	166.35
1.2. Sales on negociated contracts*			
traded volume (GWh)	34745	34587***	50223***
% from internal consumption (%)	63.6	69.3	96.5
average price (lei/MWh)	146.07	158.68	158.89
2. EXPORT			
traded volume** (GWh)	5366	3154	3854
% from internal consumption (%)	9.8	6.3	7.4
average price (lei/MWh)	191.22	170.23	170.90
3. CENTRALISED MARKETS OF CONTRACTS			
traded volume (GWh)	8770	6329	4386
% from internal consumption (%)	16.1	12.7	8.4
average price (lei/MWh)	177.04	192.54	157.01
4. DAY AHEAD MARKET			
traded volume (GWh)	5208	6347	8696
% from internal consumption (%)	9.53	12.71	16.7
average price (lei/MWh)	188.53	144.77	153.09
5. BALANCING MARKET			
traded volume (GWh)	3546	3206	2965
% from internal consumption (%)	6.5	6.4	5.7
upward volume (GWh)	2198	1272	1410
average negative imbalance price(lei/MWh)	278.12	243.05	237.41
downward volume (GWh)	1348	1934	1555
average positive imbalance price (lei/MWh)	66.54	74.17	40.25
INTERNAL CONSUMPTION (includes distribution and transmission losses) (GWh)	54627	49923	52027

Note:

* Electricity supply contracts for final customers and export contracts are not included

** Export volumes represent the quantities for which TSO applies the injection component of transmission tariff, which in some cases are different to those reported as traded by participants; in 2008 the average price was calculated based on 94% from the total volume, corresponding to quantities for which the participants have also reported the prices (all values included the injection component, most of them also included the extraction component, system services and market administration tariffs, capacity interconnection value)

*** Volumes traded on negotiated contracts do not include the quantities resulted from the processing contracts, as this activity is not subject of ANRE regulations and not comprised within the market participants' reports



Evolution of electricity delivered by generators with dispatchable units by primary sources

Source: Monthly reports of generators - processed by MG

Market shares of suppliers for final consumers - 2010 -



Alpiq RomEnergie; 4%

Final consumption: 43440 GWh

Category "Altii" includes 37 suppliers with individual market share less than 1%

Source: Monthly reports of the incumbent suppliers-processed by MG



Market shares of suppliers delivering electricity on the competitive market - 2010 -

Source: Monthly reports of the competitive suppliers- processed by MG

Conclusions

•Benefits of competition balance the costs of increased market complexity

•Risk management instruments are lacking in the power markets.

•Higher volatility and lower consumption in the immediate future induced by crisis and climate change related developments.

Thank you !

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