



European Telecom's Lost Investment: An analysis of the ECTA Scorecard

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1. Executive Summary

- The ECTA Regulatory Scorecard 2005 shows significant differences in levels of regulatory effectiveness across the European Union.
- In this paper we have combined the 2005 Scorecard data with results from 2002 and 2004 to enhance our economic analysis with a more robust model of the effect of regulation on investment by pooling the data from all three Scorecards.
- We have also brought in an additional explanatory variable: labour productivity in communications industries.
- We continue to find that there is a strong, positive and statistically significant relationship between regulatory effectiveness and investment.
- We find that 63% of the variation in investment levels can be explained by differences in regulation and in labour productivity.
- We have also calculated an elasticity coefficient showing by how much we expect investment to increase with regulatory effectiveness. We estimate that for every 1% increase in regulatory effectiveness there will be a 0.47% increase in investment.
- Applying this elasticity to EU investment in electronic communications, we find that if all countries achieved 100% regulatory effectiveness, as measured by the Scorecard, annual investment would increase by €14.3 billion or 34.5% of current investment levels.
- Even taking a more conservative approach and assuming that all countries reach the standard of regulatory effectiveness currently found in the leading country, the UK, annual investment would increase by €8.5 billion or 20.6% of current levels.
- Achieving greater regulatory effectiveness is therefore critical to encouraging the investment needed to build an electronic communications sector which can support the Lisbon agenda. EU and national policy makers therefore need to determine how they improve their regulatory environments to establish sustainable, competitive telecommunications markets.

2. Introduction

In this paper we have analysed the results of the ECTA Regulatory Scorecard 2005 (the Scorecard) to establish an elasticity coefficient to estimate the percentage increase in investment for each percentage increase in regulatory effectiveness as measured by the Scorecard. Using this analysis we have calculated how much extra investment in electronic communications networks and services could be expected if all countries saw an improvement in their regulatory regimes.

This relationship has been explored by other academics. Melody (2003) sets out the hypothesis at the core of the Scorecard analysis when he states:

Telecom policy and regulatory decisions clearly have an impact on the investment climate and investment opportunities in the industry during both boom and bust cycles. We know from experience that credible (i.e. competent, objective, transparent and accountable) regulation is a great attraction for new investment...Indeed most decisions by regulators affect the investment climate in their countries.

Chang et al (2003) explore the relationship between individual regulatory measures and levels of investment. Their conclusions were tentative but nevertheless showed that investments were higher in European countries that had adopted specific measures such, as cost based interconnection.

The results of the Scorecard, which take a more holistic approach to measuring regulatory effectiveness than isolating single measures, allow us to examine the strength of the relationship between the whole regulatory structure and investment levels.

This short paper sets out the data used for the model, gives a description of the model and calculates the additional or "missing" investment.

3. The Data

Our model seeks to explain variation in levels of investment which we define as: *telecommunications investment (excluding spectrum fees¹) as a percentage of total industry value added²*. This measures the relationship between investment in telecommunications and the total value the economy adds to all inputs and so normalises investment for the size and effectiveness of the economy.

We have used two explanatory variables in the model: regulatory effectiveness and labour productivity in communications industries. Regulatory effectiveness is taken from the 2002³, 2004 and 2005⁴ Scorecards. Labour productivity is taken from the Groningen Growth and Development Centre's (GGDC) 60 Industry Database.

The data sets are shown in Annex A.

We have not been able to take investment data from the same years as the Scorecard due to the fact that the OECD publishes investment data with a two year time lag, i.e. investment data for 2003 is published in 2005. However, we have examined the change in investment levels over time and have found that, whilst the absolute level changes (notably before and after the 2000 telecoms bubble) the ranking of countries changes very little over time. We are therefore confident that the investment levels in one year are a reasonable proxy for investment levels in other years.

4. The Model

To establish the strength of the relationship between regulation and investment, we developed a pooled time-series/cross-sectional econometric model using Investment, Value Added, Scorecard and Labour Productivity data for 9 countries over 3 years (27 data points). The model has the

¹ Source OECD 2005, 2003, 2001

² Source Groningen Growth and Development Centre (www.ggdc.net)

³ Beaufort International, Jones Day 2002

⁴ ECTA, Jones Day, SPC Network 2004 and 2005

Table 1: EU9 Missing Investment

EU9	A	B	C	D	E	F	G	H	I
Country	Investment (millions €)	Value Added (millions €)	Investment as % of VA	2005 Scorecard	Difference From Best	Difference as %	Potential Growth	Investment if Scorecard = Max	New Investment as % of VA
			A/B		UK - D	E/D	F * Elasticity	A+(A*G)	H/B
Belgium	723	245,714	0.29%	271	159	59%	28%	922	0.38%
France	3,837	1,425,634	0.27%	337	93	27%	13%	4,331	0.30%
Germany	5,000	1,950,720	0.26%	213	217	102%	48%	7,397	0.38%
Ireland	512	120,009	0.43%	313	117	37%	18%	601	0.50%
Italy	6,963	1,218,828	0.57%	299	131	44%	21%	8,402	0.69%
Netherlands	1,621	422,236	0.38%	289	141	49%	23%	1,994	0.47%
Spain	4,005	695,480	0.58%	274	156	57%	27%	5,078	0.73%
Sweden	1,292	238,726	0.54%	302	128	42%	20%	1,549	0.65%
UK	9,730	1,485,053	0.66%	430	0	0%	0%	9,730	0.66%
Total	33,683							40,005	

We find that if all countries achieved the same level Scorecard result as the UK, telecommunications annual investment for the EU9 would increase from €33.7 billion to €40 billion or 19% of current investment levels.

Using the same methodology, and applying it to the 16 countries covered by the 2005 Scorecard, we establish that investment would increase from €40.6 billion to €49 billion (20.6% of current investment levels). Finally, including the remaining nine Member States and extrapolating the results using their share of current value added, investment would increase from €41.2 billion to €50 billion (20.6%).

So, if all countries had the same effectiveness of regulatory environment as the UK, the EU could expect an additional €8.8 billion of investment in telecommunications with downstream beneficial effects on telecommunications consuming industries and consumers.

We have also calculated the additional investment Europe could expect if all countries scored 100% in the ECTA Scorecard. The results, following the same methodology and stages are set out in Table 2.

Table 2: All States' Missing Data

Sample	Current Investment (€ billion)	Expected Investment (€ billion)	Euro Increase (€ billion)	Percentage Increase
EU9	33.7	44.6	10.9	32.0%
EU16	40.6	54.6	14.0	34.5%
EU25	41.4	55.7	14.3	34.5%

Based on this analysis, we estimate that the EU is missing €14.3 billion of investment which could have very beneficial effects for business and residential consumers and for the economy as a whole by helping to advance the Lisbon Agenda.

The potential for growth in each country obviously depends on their Scorecard result: the lower is position in the Scorecard the greater the potential for growth. Thus under our most conservative model, Germany and Greece have the potential for a 48% growth in telecommunications investment amounting to €7.4 billion and €1.7 billion respectively.

6. Conclusions

Our pooled time-series/cross sectional model of the regulatory effect on investment shows a clear and statistically significant relationship between regulatory effectiveness, as measured by the ECTA Scorecard, and investment levels across the European Union. Europe as a whole and each Member State stand to gain significant additional investment in their electronic communications sector, €14.3 billion under our most aggressive model, through more effective regulation which supports sustainable market entry.

The implication of this analysis for European and national policy makers is that they need to examine the results of the Scorecard and establish where they need to improve the regulatory environment at national level. Each country in the Scorecard sample has weaknesses so the prescription for each country is different as different problems need addressing. The reward, however, for addressing the weaknesses is the increased investment needed to help the EU reach its Lisbon goals.

References

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Annex A: Data Sets

Dependent Variable

Investment as % of Total Value Added	2001	2002	2003
Belgium	0.29	0.33	0.29
Denmark	0.95	0.66	0.47
France	0.68	0.41	0.27
Germany	0.32	0.37	0.26
Ireland	0.47	0.53	0.43
Italy	0.70	0.80	0.57
Netherlands	0.76	0.40	0.38
Spain	0.56	0.87	0.58
Sweden	0.54	0.66	0.54
UK	1.08	0.70	0.66

Explanatory (Independent Variable)

Scorecard	2002	2004	2005
Belgium	199	214	271
France	201	255	337
Germany	303	203	213
Ireland	274	317	313
Italy	232	290	299
Netherlands	299	270	289
Spain	249	256	274
Sweden	273	276	302
UK	384	379	430

Explanatory (Independent Variable)

Labour productivity per person engaged in Communications Industry (volume indices, 1995 =100)			
	2001	2002	2003
Belgium	112.37	115.29	118.77
Denmark	136.71	124.44	137.74
France	157.91	187.44	180.57
Germany	149.34	165.85	163.82
Ireland	180.64	218.82	227.60
Italy	176.50	192.12	209.98
Netherlands	158.35	195.85	214.84
Spain	153.33	169.62	170.82
Sweden	143.72	148.95	157.19
UK	165.35	168.25	187.57

Data used for creation of Dummy Variables

Investment as % of Value Added in Communications			
	2001	2002	2003
Belgium	9.91	11.65	10.05
Denmark	42.69	32.98	21.77
France	34.93	18.83	12.62
Germany	16.52	17.61	12.31
Ireland	17.91	15.45	12.30
Italy	30.29	36.49	26.43
Netherlands	30.00	14.09	12.95
Spain	21.27	31.25	20.53
Sweden	18.96	23.48	19.55
UK	35.72	23.15	21.79