

EQUITY BETA ESTIMATES
OF COMPARATOR COMPANIES

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1 Introduction

Ofcom has asked us to estimate the equity betas of various companies that could be useful as comparators to BT's OpenReach business unit. Ofcom requested us to estimate equity betas for a "long-list" of European utilities and for a "short-list" of firms that it considers most similar to BT's OpenReach unit.¹

This report gives our beta estimates against both the FTSE Allshare and Allworld indices, using one and two years of daily returns data.

To facilitate comparisons between the firms, we have also estimated what the equity betas of these stocks would be if each firm had gearing of 35%.

Chapter 2 contains our "raw" equity beta estimates. In chapter 3 we re-lever the equity betas to a notional 35% gearing. Chapter 4 provides "rolling" charts that show how the one and two year estimates for each firm would have been different if the estimation had been carried out at various times in the past.

¹ Ofcom asked us to estimate betas for National Grid, United Utilities, EON, EdP, Fortum, GdF, GasNatural, Iberdrola, RWE, SSE, Union Fenosa, Severn Trent, Enel, and EdF, and to focus in particular on the first two firms.

2 Estimation results

We have estimated equity betas using one and two years of daily returns regressed against either the FTSE Allshare or FTSE Allworld indices. Our estimation windows run to March 10th 2009. Table 1 gives the results.

Table 1: equity betas for “long-list”

	Allshare		Allworld		Dimson-adjusted Allworld	
	1-year	2-year	1-year	2-year	1-year	2-year
NationalGrid	0.76	0.71	0.75	0.73	0.80	0.73
United Utilities	0.68	0.69	0.69	0.72	0.84	0.83
EON	1.09	0.98	1.06	1.01	1.34 **	1.19 *
EdP	0.88	0.80	0.85	0.82	0.90	0.85
Fortum	0.96	0.83	1.02	0.96	1.27 *	1.16 *
GdF	1.07	1.00	1.12	1.11	1.03	1.02
GasNatural	0.83	0.83	0.81	0.84	0.83	0.84
Iberdrola	1.21	1.14	1.25	1.23	1.17	1.16
RWE	0.90	0.79	0.87	0.82	1.09 **	0.97 *
SSE	0.70	0.70	0.68	0.70	0.67	0.68
Union Fenosa	0.28	0.33	0.25	0.30	0.24	0.27
Severn Trent	0.69	0.69	0.73	0.75	0.82	0.81
Enel	0.96	0.85	0.99	0.93	0.95	0.88
EdF	0.84	0.76	0.94	0.88	1.03	0.94

Notes

The Dimson-adjusted Allworld beta is the sum of co-efficients on lagged, leading, and un-lagged index returns.

Asterisks indicate statistical significance of the Dimson adjustment (* = 10%, ** = 5%, *** = 1%).

For the Allworld regressions Table 1 also shows a “Dimson-adjusted” beta estimate. The Dimson adjustment takes into account the possibility that, due to the fact that different stock markets around the world have different trading hours, it is possible that the same event might impact a particular stock either the day before or the day after having an impact on the index. The Dimson-adjusted beta is the sum of regression coefficients when stock returns are regressed simultaneously on index returns and one-period lagged and one-period lead index returns.²

Table 2 repeats the same information for the short-listed firms only.

Table 2: equity betas for the “short-list”

	Allshare		Allworld	
	1-year	2-year	1-year	2-year
NationalGrid	0.76	0.71	0.75	0.73
United Utilities	0.68	0.69	0.69	0.72
Average	0.72	0.70	0.72	0.73

Notes

The average is unweighted.

² For a fuller discussion of the Dimson adjustment, see for example *Brattle’s* November 2008 paper for Ofcom *Updated estimate of BT’s equity beta*.

Financial markets currently and during the last 18 months or so have seen unusual volatility and many stock prices and indices have fallen dramatically, as a result of the “credit crunch” and financial distress of several major financial institutions. We have not investigated whether these unusual market conditions may have had an impact on the equity beta of the utilities we are examining in this report. Nevertheless, we have also estimated equity betas using data to the end of August 2008, and to the end of August 2007. The results for the short-listed firms are shown in Table 3.

Table 3: changes in equity beta estimates over time

End-date	Allshare		Allworld	
	1-year	2-year	1-year	2-year
NationalGrid				
10/03/2009	0.76	0.71	0.75	0.73
31/08/2008	0.53	0.57	0.64	0.62
31/08/2007	0.66	0.59	0.59	0.57
United Utilities				
10/03/2009	0.68	0.69	0.69	0.72
31/08/2008	0.64	0.67	0.78	0.79
31/08/2007	0.75	0.66	0.83	0.74
Average				
10/03/2009	0.72	0.70	0.72	0.73
31/08/2008	0.59	0.62	0.71	0.71
31/08/2007	0.70	0.62	0.71	0.65

Notes

The average is unweighted.

3 Re-levered equity beta estimates

The firms in Table 1 have gearing³ in the range 5% to 63%. Other things equal, firms with higher gearing would be expected to have higher equity betas. In order to facilitate comparison between the firms we have re-levered the equity betas to an assumed notional 35% gearing. We assume that debt beta is in the range 0 to 0.2, so we show results for both extremes of this range in Table 4 and Table 5.⁴

Table 4: re-levered equity beta estimates (zero debt beta)

	Allshare		Allworld		Dimson-adjusted Allworld		Average gearing		Current gearing
	1-year	2-year	1-year	2-year	1-year	2-year	1-year	2-year	
NationalGrid	0.53	0.52	0.53	0.54	0.56	0.54	55%	52%	57%
United Utilities	0.47	0.56	0.48	0.59	0.58	0.68	55%	47%	65%
EON	1.08	1.15	1.05	1.19	1.34 **	1.41 *	35%	23%	48%
EdP	0.60	0.63	0.58	0.64	0.62	0.66	56%	49%	60%
Fortum	1.08	1.00	1.15	1.15	1.44 *	1.40 *	27%	22%	34%
GdF	1.54	1.45	1.62	1.62	1.49	1.48	6%	5%	8%
GasNatural	0.86	0.98	0.83	0.98	0.86	0.99	33%	24%	48%
Iberdrola	0.97	1.00	1.01	1.08	0.94	1.02	48%	43%	55%
RWE	1.23	1.12	1.19	1.16	1.49 **	1.37 *	11%	8%	14%
SSE	0.76	0.80	0.75	0.81	0.73	0.78	29%	25%	33%
Union Fenosa	0.33	0.36	0.29	0.34	0.28	0.31	24%	27%	29%
Severn Trent	0.48	0.50	0.51	0.54	0.58	0.59	54%	53%	59%
Enel	0.55	0.60	0.57	0.66	0.54	0.62	63%	54%	72%
EdF	0.87	0.86	0.97	1.00	1.06	1.07	33%	26%	44%

Notes

All betas relevered to 35% gearing, assuming a zero debt beta.

Asterisks indicate statistical significance of the Dimson adjustment (* = 10%, ** = 5%, *** = 1%).

Table 5: re-levered equity beta estimates (0.2 debt beta)

	Allshare		Allworld		Dimson-adjusted Allworld		Average gearing		Current gearing
	1-year	2-year	1-year	2-year	1-year	2-year	1-year	2-year	
NationalGrid	0.59	0.58	0.59	0.59	0.62	0.59	55%	52%	57%
United Utilities	0.53	0.60	0.54	0.63	0.64	0.71	55%	47%	65%
EON	1.08	1.12	1.06	1.15	1.34 **	1.38 *	35%	23%	48%
EdP	0.67	0.67	0.65	0.69	0.68	0.71	56%	49%	60%
Fortum	1.05	0.96	1.13	1.11	1.41 *	1.35 *	27%	22%	34%
GdF	1.45	1.36	1.53	1.53	1.40	1.39	6%	5%	8%
GasNatural	0.85	0.94	0.82	0.95	0.85	0.95	33%	24%	48%
Iberdrola	1.01	1.02	1.05	1.11	0.98	1.04	48%	43%	55%
RWE	1.16	1.03	1.12	1.08	1.41 **	1.28 *	11%	8%	14%
SSE	0.75	0.77	0.73	0.78	0.71	0.75	29%	25%	33%
Union Fenosa	0.29	0.34	0.26	0.31	0.25	0.28	24%	27%	29%
Severn Trent	0.54	0.56	0.57	0.60	0.64	0.65	54%	53%	59%
Enel	0.64	0.66	0.65	0.72	0.63	0.68	63%	54%	72%
EdF	0.86	0.83	0.96	0.97	1.05	1.04	33%	26%	44%

Notes

All betas relevered to 35% gearing, assuming a debt beta of 0.2.

Asterisks indicate statistical significance of the Dimson adjustment (* = 10%, ** = 5%, *** = 1%).

Table 6 shows the results just for the short-listed firms.

³ We define gearing as book value of net debt divided by the sum of net debt and market capitalisation.

⁴ We use a standard relevering formula (see *Principles of Corporate Finance* (8th edition), Brealey Myers and Allen, p. 518).

Table 6: re-levered equity beta estimates for the short-listed firms (zero debt beta)

	Allshare		Allworld		Average gearing		Current gearing
	1-year	2-year	1-year	2-year	1-year	2-year	
NationalGrid	0.53	0.52	0.53	0.54	55%	52%	57%
United Utilities	0.47	0.56	0.48	0.59	55%	47%	65%
Average	0.50	0.54	0.50	0.56	55%	50%	61%

Notes

The average is unweighted.

All betas relevered to 35% gearing, assuming a zero debt beta.

Table 7: re-levered equity beta estimates for the short-listed firms (0.2 debt beta)

	Allshare		Allworld		Average gearing		Current gearing
	1-year	2-year	1-year	2-year	1-year	2-year	
NationalGrid	0.59	0.58	0.59	0.59	55%	52%	57%
United Utilities	0.53	0.60	0.54	0.63	55%	47%	65%
Average	0.56	0.59	0.56	0.61	55%	50%	61%

Notes

The average is unweighted.

All betas relevered to 35% gearing, assuming a debt beta of 0.2.

As in chapter 2 we have also made re-levered estimates for August 2007 and August 2008, assuming either a debt beta of zero (Table 8) or 0.2 (Table 9).

Table 8: changes in re-levered equity beta estimates over time (zero debt beta)

End-date	Allshare		Allworld		Average gearing	
	1-year	2-year	1-year	2-year	1-year	2-year
NationalGrid						
10/03/2009	0.53	0.52	0.53	0.54	55%	52%
31/08/2008	0.39	0.47	0.47	0.51	52%	46%
31/08/2007	0.60	0.54	0.54	0.52	40%	40%
United Utilities						
10/03/2009	0.47	0.56	0.48	0.59	55%	47%
31/08/2008	0.58	0.63	0.70	0.74	41%	39%
31/08/2007	0.72	0.62	0.80	0.69	37%	39%
Average						
10/03/2009	0.50	0.54	0.50	0.56	55%	50%
31/08/2008	0.48	0.55	0.58	0.62	47%	43%
31/08/2007	0.66	0.58	0.67	0.61	39%	40%

Notes

The average is unweighted.

All betas relevered to notional 35% gearing, assuming a debt beta of zero.

Table 9: changes in re-levered equity beta estimates over time (0.2 debt beta)

End-date	Allshare		Allworld		Average gearing	
	1-year	2-year	1-year	2-year	1-year	2-year
NationalGrid						
10/03/2009	0.59	0.58	0.59	0.59	55%	52%
31/08/2008	0.44	0.50	0.52	0.55	52%	46%
31/08/2007	0.62	0.56	0.56	0.54	40%	40%
United Utilities						
10/03/2009	0.53	0.60	0.54	0.63	55%	47%
31/08/2008	0.60	0.64	0.72	0.75	41%	39%
31/08/2007	0.73	0.63	0.81	0.70	37%	39%
Average						
10/03/2009	0.56	0.59	0.56	0.61	55%	50%
31/08/2008	0.52	0.57	0.62	0.65	47%	43%
31/08/2007	0.67	0.59	0.68	0.62	39%	40%

Notes

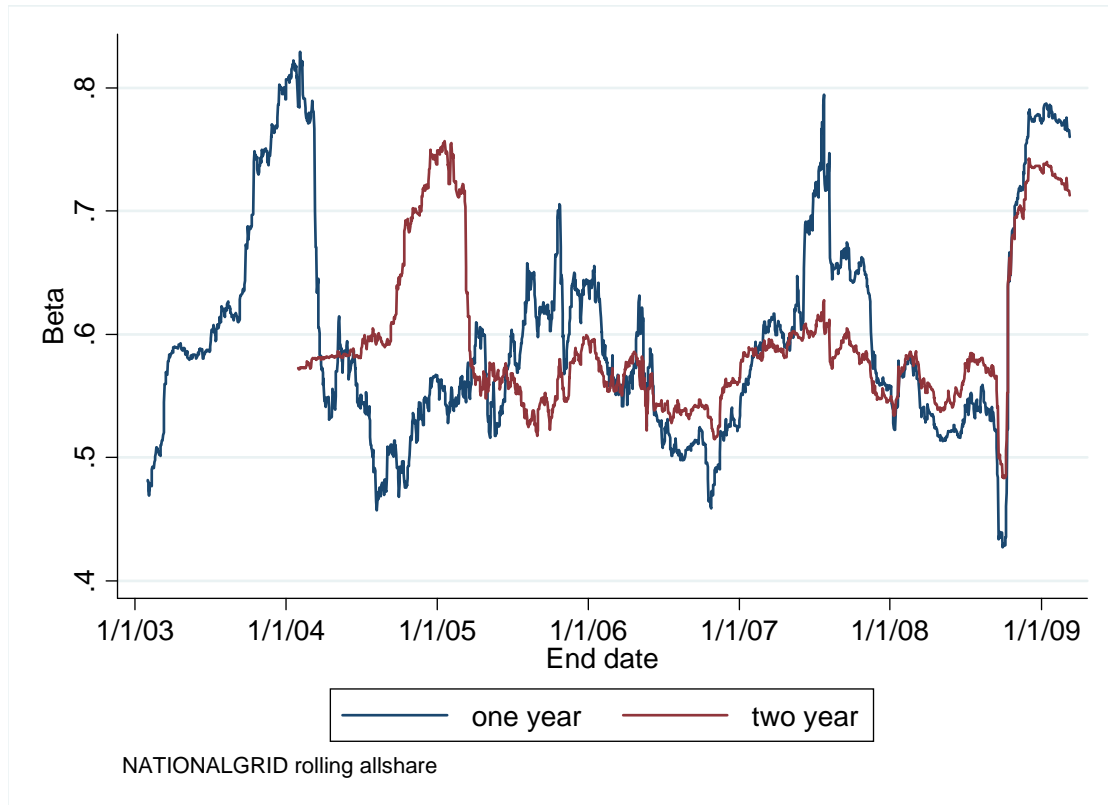
The average is unweighted.

All betas relevered to notional 35% gearing, assuming a debt beta of 0.2.

4 Equity beta estimates over time

A simple way to show how estimates of equity beta change over time⁵ is to present “rolling” regressions. A rolling regression plot like the ones below show a range of beta estimates using different “data windows”. The regression results are plotted against a range of end dates for the data window, with the width of the data window being held constant.

Figure 1: National Grid Allshare beta



⁵ Rolling regressions simply show how the results of the regression change as the data window moves. They do not attempt to address the question of whether there is evidence that the underlying parameter (the “true” equity beta) is changing over time. Furthermore, all of the regressions in this report implicitly assume that the underlying parameter is constant over the data window for the regression.

Figure 2: National Grid Allworld beta

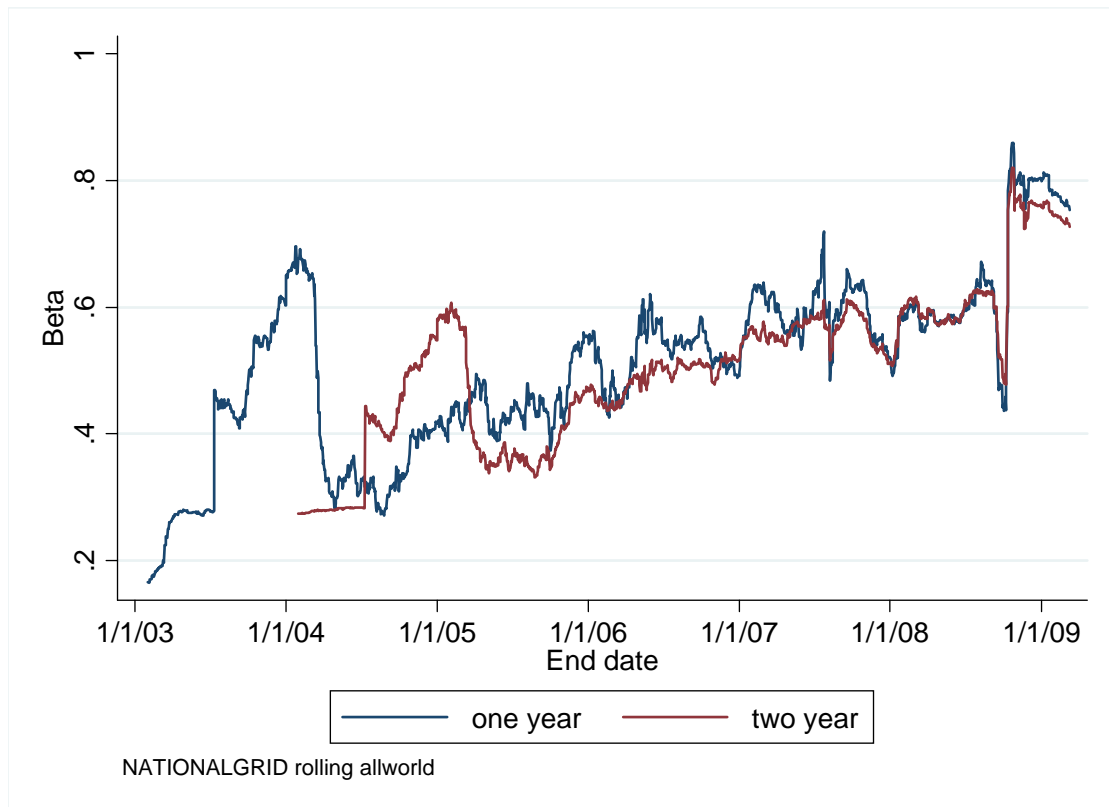


Figure 3: United Utilities Allshare beta

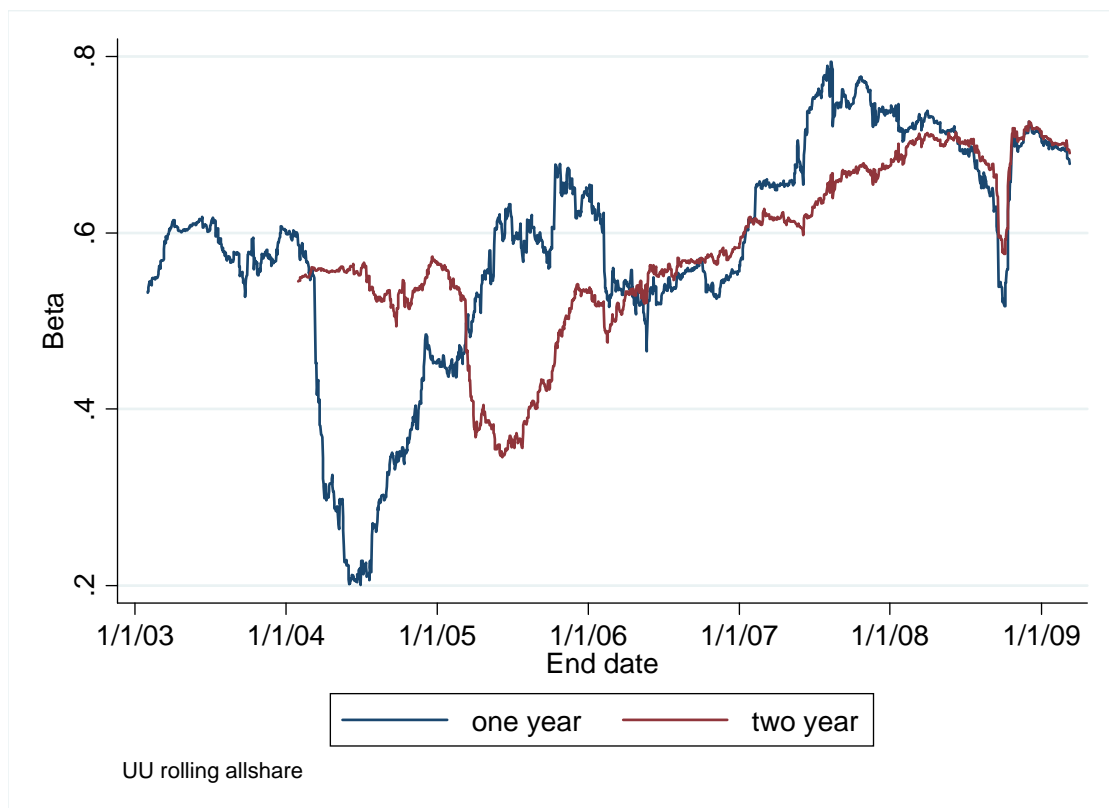


Figure 4: United Utilities Allworld beta

