Event study on corporate bond prices

1. This appendix considers the prices of corporate bonds issued by companies active in the water sector on the date of the announcement of HDUF's and UTA's acquisition of SEW.

2. The methodology was as follows:

   (a) Daily total return data[1] was collected from Datastream for a two-year period going back to January 2005 for:

   (i) a selection of five long-term bonds issued by water companies;[2] and

   (ii) the FTSE index of sterling corporate bonds of 15 years maturity and above.

   (b) The average daily changes in returns were calculated for an equally weighted portfolio of the bonds and for the index—the relevant bond index being one of comparable maturity to the bonds in question.

   (c) Abnormal returns were calculated using a model of the form:

   Abnormal return = observed return on portfolio – expected return

   where the parameter for the expected return was estimated by regressing portfolio returns on the index over days –448 to –10 prior to the announcement.

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[1]The total return is the return on investment, including interest payments, as well as appreciation or depreciation in the price of the bond. The formula used to calculate total return is as follows:

$$RI_t = RI_{t-1} \times \frac{P_t + A_t + NC_t + CP_t}{P_{t-1} + A_{t-1} + NC_{t-1}}$$

Where:
RI = Total return
P = Clean price
A = Accrued interest
NC = Next coupon. Adjustment made when a bond goes ex-dividend.
CP = Value of any coupon received on t or since t–1.
t = Time
t-1 = Time less 1 day

[2]Referred to in a Deutsche Bank research report *UK Water—Boiling Point*, 18 October 2006.

(d) The abnormal return was calculated for the announcement date itself and for an event window of one day either side of the announcement date. The results were tested for significance.

3. The results of the study were as follows:

(a) All the bonds were very highly correlated with the chosen index.

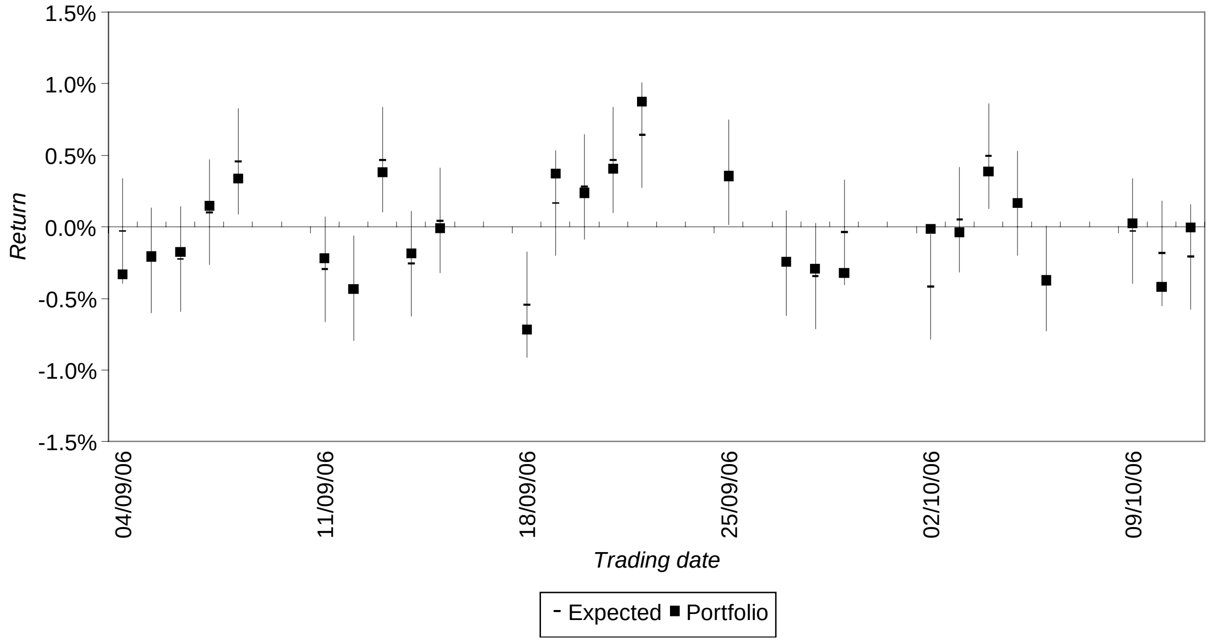
(b) Figure 1 shows actual and expected trading day returns on the portfolio. On the announcement date (2 October 2006) the expected return was –0.42 per cent and the actual return was –0.02 per cent. Therefore, the portfolio exhibited a positive abnormal return of 0.4 per cent on the announcement date itself, which is statistically significant at the 5 per cent level.

(c) Extending the event window to cover one day before and one day after the announcement date produces a cumulative expected return of –0.4 per cent and a cumulative actual return of –0.38 per cent. The cumulative abnormal return of 0.02 per cent over this period is not statistically significant at the 5 per cent level.

Further details are set out in the Annex.

FIGURE 1

Actual and expected trading day returns on equal-weighted portfolio of five water enterprises' bonds



Source: CC based on information from Datastream.

4. It is common in event studies to consider returns over a wider event window of several days either side of the event date itself. This is typically to allow for leaks of information to the market prior to the event and slow reaction to news by the market. In this case, since there appears to have been a reaction in the market on the date itself, there is no particular reason to consider a wider event window. However, if the event window is widened by one day before and one day after the event, the abnormal return is not sustained over the longer period.

5. No data was available on trading volumes and hence we have not examined the relative liquidity of the instruments selected.

Details of regression analysis

per cent

Date	*Index return*	*Bond 1 return*	*Bond 2 return*	*Bond 3 return*	*Bond 4 return*	*Bond 5 return*	*Portfolio return*	*Upper confidence interval*	*Lower confidence interval*	*Expected return*	*Residual return*	*T-stat*
29/09/2006	–0.041	–0.348	–0.337	–0.323	–0.356	–0.263	–0.323	0.328	–0.404	–0.038	–0.285	–1.530
02/10/2006	–0.430	0.046	–0.034	–0.046	0.017	–0.049	–0.016	–0.051	–0.785	–0.418	0.402	2.156
03/10/2006	0.050	–0.017	–0.071	–0.002	0.059	–0.138	–0.042	0.418	–0.315	0.051	–0.093	–0.499
										–0.405	0.024	

Bond/index details

1. KELDA GROUP 2000 6 5/8% 17/04/31
2. THAMES WATER 1998 6 3/4% 16/11/28
3. SEVERN TRENT 1999 6 1/4% 07/06/29
4. WESSEX WATER 2003 5 3/4% 14/10/33
5. NORTHUMBRIAN WATER 1998 6 7/8% 06/02/23

Index: FTSE STERLING CORP. 15+ YEARS - TOT RETURN INDEX