

Appendix R: Weighted Average Cost of Capital

Introduction

1. The approach to assessing profitability, as set out in the CMA guidelines,¹ is to compare the profits earned with an appropriate cost of capital. In this appendix, we set out our estimates of the nominal pre-tax weighted average cost of capital (WACC) for funeral directors and crematoria in the United Kingdom based on data for the period 01 January 2014 to 31 December 2018.
2. We have estimated a single WACC for both funeral directors and crematoria, in large part due to the limited availability of data from comparable companies and the fact that most of our comparators undertake both activities. As a result, it is not possible to clearly identify funeral director-specific or crematoria-specific asset betas or gearing levels. We did not receive any submissions from parties, in response to our consultation on this approach in our WACC working paper, providing evidence that would allow us to make this distinction between activities.
3. Our estimate of the WACC for funeral directors and crematoria is between 5.3% and 8.7% (Table 1). For the purposes of our profitability assessment, we have taken a point estimate of 8%, which is towards the upper end of this range.

Table 1: CMA estimates of WACC

	Low	High
Real RFR	-0.5%	0.5%
Real TMR	5.0%	6.5%
ERP	5.5%	6.0%
Asset beta	0.5	0.8
Equity beta	0.8	1.1
Real CoE	3.7%	7.0%
CPI	1.5%	1.5%
Nominal CoE	5.3%	8.6%
Nominal CoD	3.50%	4.50%
Gearing	40%	30%
Nominal pre-tax WACC	5.3%	8.7%

Source: CMA analysis

¹ CC3 Revised.

4. Some funeral and crematoria firms provided the Competition and Markets Authority (CMA) with WACC estimates. These are set out in detail in the 'Parties' submissions on their WACCs' section. We make reference to these estimates as appropriate in this appendix.
5. The remainder of this section sets out our methodology and the analysis we have conducted. As set out in the Guidelines,² we generally look to the capital asset pricing model (CAPM) when considering the cost of capital, and this is the approach we have adopted in estimating the cost of equity for the crematoria and funeral director firms. We have estimated the cost of debt with reference to corporate bond yields over the period, as well as evidence gathered from the parties' on their own costs of debt.

General approach to estimating the WACC

6. There are several factors that we have taken into account in estimating an appropriate benchmark cost of capital for the various activities undertaken within the funeral and crematories sector. These include:
 - (a) how to estimate the WACC – use of the capital asset pricing model (CAPM);
 - (b) which cost of capital provides an appropriate benchmark – specification of the basis of the WACC;
 - (c) over which time period should the cost of capital be measured – at the start of the relevant period, or an average for the relevant period? and

Capital asset pricing model

7. The Guidelines highlight that we generally use the CAPM when considering the cost of equity since this is a widely understood technique with strong theoretical foundations.³
8. The CAPM relates the cost of equity $E[R_i]$ to the risk-free rate (R_{rf}), the expected return on the market portfolio (R_m), and a firm-specific measure of investors' exposure to systematic risk (beta or β) as follows:

$$E[R_i] = R_{rf} + \beta(R_m - R_{rf})$$

9. If a business were entirely funded by equity, the expected return on equity could be considered to be its 'cost of capital'. However, most firms are funded

² CC3, Annex A, paragraph 16.

³ CC3, paragraph 116.

by a combination of both debt and equity, such that the appropriate cost of capital to consider is the weighted average cost of debt and equity. The WACC is given by the following expression:

$$\text{WACC} = E[R_i] \times E/(D+E) + K_d \times D/(D+E)^4$$

10. Finally, the cost of capital must take into account the effects of tax on returns to capital providers. The returns to debt holders take the form of interest payments which are usually tax-deductible. The returns to equity holders (dividends), on the other hand, are taxed. Hence, where the cost of capital is expressed 'pre-tax', the cost of equity used must reflect the fact that the actual return to shareholders will be reduced by the rate of tax. We have estimated the cost of capital on a nominal pre-tax basis:⁵

$$\text{Pre-tax WACC} = [(1/(1-t)) \times E[R_i] \times E/(D+E)] + [K_d \times D/(D+E)]$$

Specification of the basis of the WACC

11. Our profitability analysis measures the returns earned by all sources of capital on the capital employed by the business. As these returns are measured before interest and/or tax is paid, they are not affected by the capital structure of the business.⁶ The WACC of an individual business, on the other hand, is affected by its capital structure, i.e. the proportion of debt and equity used to finance the business. These financing choices may be driven by a number of factors, including the ability of the business to raise debt, the risk appetite of equity holders and the relative costs of debt and equity financing. In our analysis, we use the WACC as a benchmark for the level of 'normal' profits. As a result, we consider that it is appropriate to use the same WACC as the benchmark for all providers, rather than estimating a firm-specific cost of capital for each provider.⁷
12. In coming to a view on this benchmark WACC, we have sought to reflect a level of gearing, cost of equity and cost of debt that a hypothetical stand-alone provider in the UK would incur when undertaking the relevant activities. Where possible, therefore, we have used UK benchmarks and tailored the variable elements⁸ of the cost of capital to reflect both the nature of the activities under consideration and the fact that some of the benchmarks we

⁴ Where D is debt, E is equity and K_d is the cost of debt.

⁵ This avoids the need to adjust nominal financial information to remove the effects of inflation.

⁶ The capital structure affects how earnings before interest and tax is divided between the various providers of capital.

⁷ This approach ensures that all firms in an industry are treated equally.

⁸ These are the beta value, gearing and cost of debt.

have used to estimate the WACC relate to large firms i.e. may face different cost of debt from a small firm.

13. We have measured the WACC of crematoria and funeral directors based on a sample of firms with crematoria and funeral director activity.

Relevant time period

14. We are analysing the profitability of the firms over the period between 2014 and 2018 (firms’ results for FY14 to FY18). When a cost of capital is set for regulatory purposes, it is generally forward looking. In a market investigation, in contrast, we are looking backwards to understand whether the profits made by the firms have exceeded the cost of capital over the relevant period. Since each of the component parameters of the WACC should reflect the reasonable expectations of the firms over the relevant period and not an ex post assessment of the actual outturn, we have not sought to estimate the WACC at a particular point in time but rather we have considered the average cost of capital for the relevant period as a whole.

Parties’ submissions on WACC

15. This section sets out the submissions of funeral director and crematoria firms on their WACC. Table 2 shows the WACC estimates of two crematoria (Dignity and Memoria) and three funeral directors (Dignity, Coop and Funeral Partners).

Table 2: WACC estimates for crematoria and funeral directors

	Dignity	Memoria	Coop	Funeral Partners
Nominal WACC	[redacted]	[redacted]	9.3%	[redacted]

Source: Dignity, Memoria, Coop and Funeral Partners submissions to the CMA.

16. Dignity submitted a group nominal pre-tax WACC range between [redacted]. However, no breakdown and assumptions were provided. Dignity told us that this estimate had not been updated for some time.
17. Memoria has submitted two nominal pre-tax WACCs to the CMA. During the market study, it estimated a WACC of [redacted]. More recently, Memoria submitted a WACC of [redacted] as a forward looking WACC for new funding, based on:⁹
 - a) a cost of debt between [redacted];

⁹ See [Memoria response](#).

- b) a cost of equity between [X]; and
 - c) a gearing level of [X].
18. Co-op provided bottom-up estimates for a nominal post-tax WACC for each division. It estimated a WACC for Funerals in 2014 of 9.3% based on¹⁰:
- a) an RFR of 2.8% based on 3-month average of 30-year U.K. Government Debt;
 - b) an ERP of 5% based on KPMG analysis;
 - c) an equity beta of 0.94 and gearing level of 43% derived from a number of comparator companies;
 - d) a company specific premium of 4% to be added to the CoE;¹¹
 - e) a gearing level of 30%;
 - f) a cost of debt of 5% from the interest expense on company's listed debt; and
 - g) an RFR adjustment of 1% to be added to the WACC to reflect their view that UK's RFR was at a historical low as a result of the global financial crisis so they expected RFR to increase in the future.
19. Funeral Partners told us that it did not estimate a WACC for internal purposes during the Relevant Period. However, it submitted that a WACC of [X]% was an appropriate estimate for the 2014 to 2018 period.¹² This was based on:
- a) a cost of debt of [X]%,
 - b) a cost of equity of [X]%; and
 - c) a gearing level of [X]%.
20. Other companies did not submit a WACC but did provide their cost of debt. In particular:
- a) Westerleigh submitted an estimate of its cost of debt in investment appraisals of [X]%;¹³ and

¹⁰ See [Coop WACC](#).

¹¹ Co-op did not provide an explanation for the inclusion of this company specific premium.

¹² See [Funeral Partners](#) response.

¹³ See [Babworth appraisal_Aug18.xlsx](#) 'Returns' tab.

b) LCC told us its cost of debt was [~~8~~]%.¹⁴

Responses to the WACC working paper

21. In response to our Working Paper on WACC, the parties made various submissions relating to our initial estimate. Their views are summarised here and addressed in the relevant sections below.
22. Dignity submitted that the CMA should have used the upper end of its estimated range, as each of the components of the WACC are estimates based on samples and assumptions, with the associated risks of measurement error. All points within the range are plausible, including the upper bound. It is unreasonable then to set a lower point estimate as the benchmark against which to assess 'excessive profits' when higher levels are similarly plausible.¹⁵
23. Dignity also noted that using the CMA's own figures for Dignity, the upper bound of Dignity's WACC range is 10%, which is more in line with what Dignity itself used to make decisions during the period. (The lower bound using Dignity's figures is 4.9%).¹⁶
24. Third, Dignity explained that none of the other companies used in the CMA's sample operate in the UK. The significant differences between countries in terms of the dynamics of and risks facing funeral, cremation and burial activities appear to be reflected in the wide variation in betas and gearings between the companies in the sample. It is not, therefore, clear that these are satisfactory comparators to develop a benchmark WACC for the UK market.¹⁷
25. Finally, Dignity submitted that the CMA should apply a small company premium in light of the thousands of 'atomistic' competitors in the funeral services market. Dignity highlighted that these tiny companies have a different risk profile to the six listed companies in the CMA's analysis. As examples, an investor in a small funeral provider may face additional risks because: (i) smaller provider revenues would be less diversified in terms of the products and geographic markets served, and so more volatile; (ii) smaller providers would face greater key-person risk; and (iii) an interest in a privately-held

¹⁴ See [190628 LCC Final Annex C Financial Questionnaire.xlsx](#) 'WACC' tab.

¹⁵ Dignity plc response to the CMA's working papers on Crematoria Profitability and Cost of Capital, para 8.2.

¹⁶ Dignity plc response to the CMA's working papers on Crematoria Profitability and Cost of Capital, para 8.3 and Table 6.

¹⁷ Dignity plc response to the CMA's working papers on Crematoria Profitability and Cost of Capital, para 8.4.

company may be less easy to trade than an interest in a publicly-traded company.¹⁸

26. Westerleigh told us that it is a relatively small (by both revenue and balance sheet) private company that focuses almost entirely on crematoria. It therefore faces different risks to those faced by other providers in the sector and the comparator businesses used in the CMA's sample, and, as a result, its costs cost of capital is also therefore likely to differ.¹⁹ In particular, Westerleigh highlighted that these firms had, on average, significantly larger revenues than Westerleigh, were publicly-listed and hence had greater access to capital markets (equity and debt), were vertically integrated and diversified and, with the exception of Dignity, were not operating in the UK and hence may be sufficiently different to create issues of comparability.²⁰
27. Westerleigh noted that its rapid expansion in recent years, opening 18 sites in the last 10 years and planning to open a further 10 sites in the next few years, meant that its investors faced additional risks.²¹
28. In addition, Westerleigh highlighted four risks which are specific to the UK crematoria market:
 - (a) The significant cost, uncertainty (risk of failure to obtain consent) and length of time (often more than 5 years) involved in obtaining planning permission for new crematoria, which are often located within the greenbelt.²² Westerleigh noted that in assessing the ROCE, the CMA assumes a probability of failing to obtain planning permission and so recognises this risk, which it considers represents a systematic non-diversifiable risk that affects the return required by investors. Westerleigh believes this should increase its beta.²³
 - (b) Westerleigh is not vertically integrated and, as a stand-alone crematoria operator. Westerleigh believes its beta should be higher.²⁴
 - (c) Unpredictable volumes and revenues arising as a result of investment in additional capacity in the market. Westerleigh explains that the significant

¹⁸ Dignity plc response to the CMA's working papers on Crematoria Profitability and Cost of Capital, paras 8.5-8.6.

¹⁹ Westerleigh response to profitability working papers – 17th June 2020, para 115.

²⁰ Westerleigh response to profitability working papers – 17th June 2020, para 117.

²¹ Westerleigh response to profitability working papers – 17th June 2020, para 119.

²² Westerleigh explained that due to its site selection criteria, these risks are especially high as [§<].

²³ Westerleigh response to profitability working papers – 17th June 2020, paras 124 to 127.

²⁴ Westerleigh response to profitability working papers – 17th June 2020, paras 129.

ongoing development of new sites by private operators creates significant volume risk that is not faced by infrastructure and utility assets.²⁵

(d) Long-term revenue decline due to the growth in direct cremation. Westerleigh submits that the growth in popularity of direct cremation, which can be expected to continue as the UK has lower levels than other countries, can be expected to reduce revenues across the industry, significantly increasing the risk and volatility of future crematoria revenues.²⁶

29. Finally, Westerleigh told us that our cost of capital calculations were particularly sensitive to the assumptions chosen, including:

(a) The time period used – more recent data may give different results. This is especially the case, for example, with Dignity, the UK company in the comparator group, which has seen significant volatility in equity prices in recent years.

(b) The companies included in the sample.

(c) Gearing ratios.

30. Westerleigh varied these assumptions to give an equity beta of 1.2 to 1.5 (as compared with a CMA figure of 1) and concluded that a WACC of between 9% and 11% was appropriate.²⁷

31. Co-op submitted that the CMA should include a small company premium to reflect a higher cost of capital arising from the following factors: illiquidity of small companies' shares, lack of diversification of company-specific risks, and constraints on debt financing.²⁸ Co-op quotes the CMA's approach on the 2015 Bristol Water price redetermination, where the CMA allowed an uplift to the asset beta to reflect Bristol Water's high potential cost of equity.²⁹

32. Further, Co-op explained that it uses a hurdle rate of [X]% for internal investment purposes, based on a corporate WACC rather than one specific to the funeralcare business and including a [X]% uplift to the mid-point estimate of the WACC to take account of the increased risk inherent in new projects, the bias for optimistic cash flow estimates, the scarcity of capital and to

²⁵ Westerleigh response to profitability working papers – 17th June 2020, paras 130 to 133.

²⁶ Westerleigh response to profitability working papers – 17th June 2020, paras 134 to 136.

²⁷ Westerleigh response to profitability working papers – 17th June 2020, paras 137 to 139.

²⁸ Co-op response to cost of capital working paper, para 4.

²⁹ Co-op response to cost of capital working paper, para

ensure the creation of value over the minimum level. This is significantly above the 8% identified by the CMA.³⁰

33. Finally, Co-op told us that it disagreed with the assumption that Co-op has similar asset beta to the six listed comparators identified by the CMA. It explained that given that Co-op had higher operational gearing than these comparators, which is considered likely to be the result of its asset-heavy business model, and that the CMA has historically awarded uplifts to regulated companies with high operational gearing, Co-op believes that an uplift to the CMA's estimated asset beta is warranted for Co-op.³¹
34. LCC told us that we should include a substantial small company equity return premium for the smaller operators in the sector in order to reflect their small size, their reduced ability to spread operational and financial risk across a large number of sites, their reduced management depth etc.³²
35. Furthermore, LCC submitted that the CMA should not rely on the betas of the comparator firms because they are all vertically integrated, whereas a large majority of both funeral directors and crematoria in the UK are not vertically integrated.³³

CMA approach to identifying comparator companies

36. This section sets out the CMA's methodology to select an appropriate comparator sample of funeral director and crematoria firms as the basis for our calculations of beta and gearing.
37. We have identified six listed companies active in funeral services and cremation, located in the United Kingdom, the United States, and Australia (Figure 3).³⁴
38. We note that all the firms in our sample are active in both funeral director services and cemetery and crematoria. Ideally, given the potential variations of beta and gearing across crematoria and funeral firms, we would estimate one WACC for each activity, so one would be calculated from a sample of funeral directors and other from a sample of crematoria. However, we do not believe that we have a robust basis to carry out this analysis, ie to identify separate betas for funeral directors and crematoria. Therefore, we have used

³⁰ Co-op response to cost of capital working paper, paras 5 and 17.

³¹ Co-op response to cost of capital working paper, paras 6 and 20.

³² LCC response to cost of capital working paper, para 4.12.

³³ LCC response to cost of capital working paper, para 5.1.

³⁴ Dignity is the only listed company with funeral and crematoria services in the UK. However, we required a larger sample size to estimate an appropriate benchmark for funeral directors and crematories for the purposes of our analysis.

the full set of comparators to estimate a single beta (and associated gearing level) for both funeral director services and crematoria.

Table 3: Sample of funeral director and crematoria firms

Company	Ticker	Country	Revenues	
			Funeral director	Cemetery & Crematoria
Service	SCI	US	59%	41%
Invocare	IVC	Australia	74%	25%
Carriage Services	CSV	US	79%	21%
Dignity	DTY	UK	75%	25%
Propel Funeral	PFP	Australia	n/a	n/a
Stonemor	STON	US	17%	83%

Source: Bloomberg and CMA analysis.

39. We consider the parties' submissions on the suitability / relevance of these firms to the UK businesses for which we are assessing profitability in our assessment of each element of the cost of capital below.

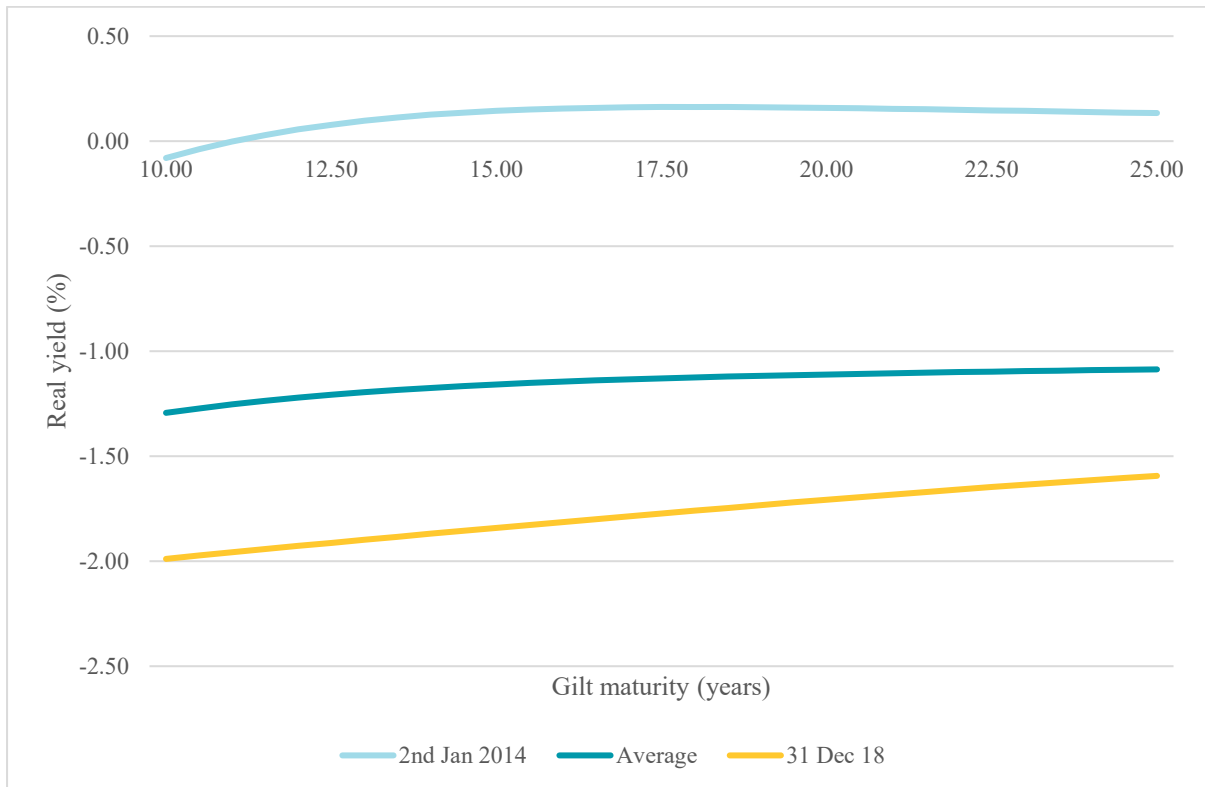
CMA estimation of WACC

40. This section sets out the analysis that we have undertaken to estimate the components of the WACC calculation, which includes both generic and industry-specific components. The former comprise the risk-free rate (RFR), the equity risk premium (ERP), tax rate and cost of debt; the latter comprise beta and gearing.

Risk free rate

41. In order to estimate the risk-free rate applicable over the period of our investigation, we have had reference to two sources. The first is index-linked gilt yields, which have negligible default and inflation risk. The second source is nominal gilt yields, which also have negligible default risk but which do have inflation risk (and, therefore, should contain an inflation risk premium).
42. We use 10-year yield curves to estimate the WACC as we consider long-maturity gilts to be most relevant to the RFR in the cost of equity since equities also have long (indefinite) maturity. Figure 1 shows real gilt yields at the start and end on the relevant period, as well as the five-year average (i.e. covering the whole period) for maturities longer than 10 years. We can see there is a large wedge between the yield curves at the start and end of the period. At the start, the yield curve is between -0.1% and 0.1%, but at the end, the yield curve is between -1.6% and -2.0%. For maturities equal to 10 years, the yield curve is between -0.1% and -2.0% with an average of -1.3%.

Figure 1: Yield curves on UK index-linked gilts, 2014 to 2018

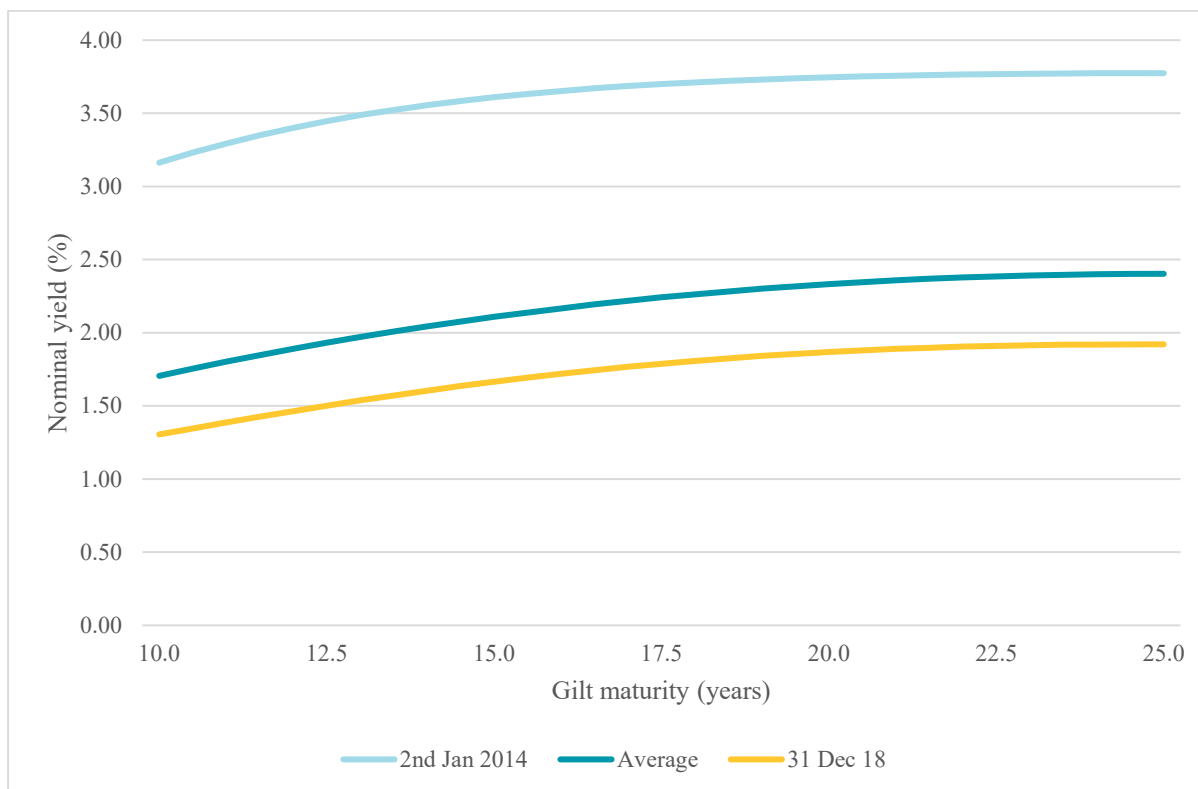


Source: Bank of England, real spot yield curve data.

Note: The three lines show yields on 2 January 2014, 31 December 2018 and the average yields covering the 5 years between January 2014 and December 2018.

43. Figure 2 shows nominal gilt yields at the start and end of the relevant period, as well as the five-year average (i.e. covering the whole period). Overall, a similar pattern of declining yields on shorter maturities can be seen on these nominal gilts. At the start, the yield curve is between 3.2% and 3.8% and this declined to 1.3% and 1.9% by the end of 2018. For maturities equal to 10 years, the yield curve is between 1.3% and 3.2% with an average of 1.7%.

Figure 2: Nominal yield curves on UK gilts, 2014 to 2018

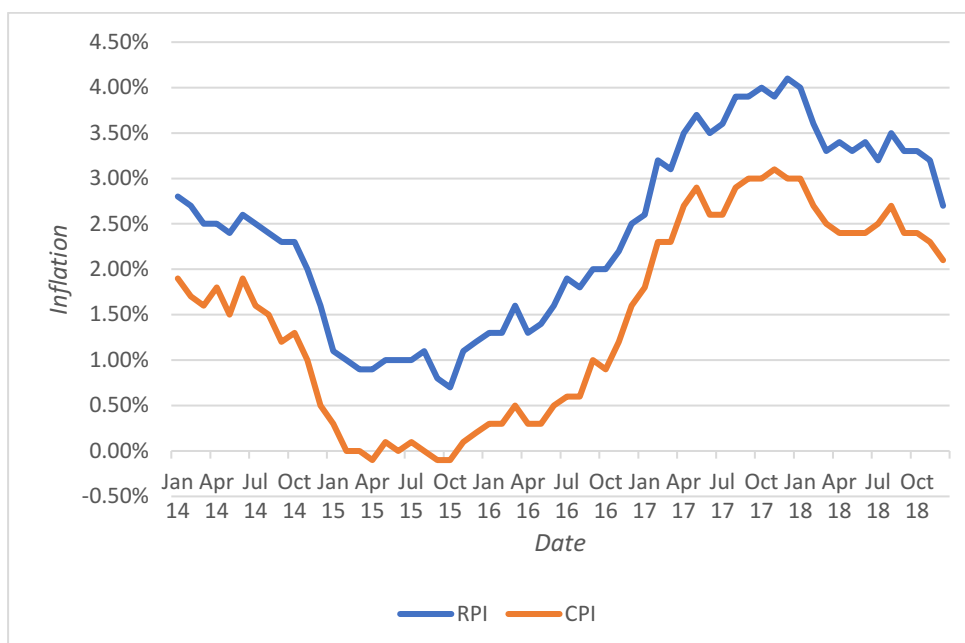


Source: Bank of England, nominal spot yield curve data.

Note: The three lines show yields on 31 January 2014, 31 December 2018 and the average yields covering the 5 years between January 2014 and December 2018.

44. In coming to a view on the appropriate real and nominal RFRs for our analysis, we have had reference to both real and nominal gilt yields, noting that the former are likely to be affected by the imperfections associated with the RPI as a measure of underlying inflation, while the latter can be expected to include an inflation risk premium. As set out in Figure 3, we note the historical gap between Retail Price Index (RPI) and Consumer Price Index (CPI) measures of inflation of around 0.9% between 2014 and 2018. To the extent that the CPI better reflects underlying inflation, measures of the apparent riskless rate of return taken from index-linked gilt yields may be distorted as a result of that gap.

Figure 3: RPI and CPI annual rates, 2014 to 2018



Source: ONS, CPI and RPI annual rates.

45. Therefore, we have considered two approaches: first, to adjust the historic yield on 10-year ILGs (-1.3%) upwards to take account of the gap between RPI and CPI (0.9%) in the period 2014 to 2018; this produces an estimate of the real RFR of -0.4%. Second, we consider the nominal yield on 10-year gilts (1.7%) and deduct the CPI over the period. Between January 2014 and December 2018, the CPI averaged 1.5%. This produces a real RFR estimate of 0.2%. On this basis, we have used a range for the real RFR of between -0.5% and 0.5%.

Equity risk premium

46. The ERP is the additional return that investors require to compensate them for assuming the risk associated with investing in equities rather than in risk-free assets. When seeking to understand what the ERP was over a historical period of time, it is necessary to identify the returns which investors expected to make on the market and deduct the relevant RFR (as estimated above).
47. There are two types of approach that can be used to estimate the ERP. Historical methods seek to derive the ERP from a long run of data on realised returns on equities. Forward-looking approaches seek to estimate the expected ERP based on either the reported expectations of market participants or the ERP implied in asset prices at the start of the period.
48. There is no universally accepted method for deriving the equity market return or the ERP. Both concepts are concerned with investors' ex-ante expectations

of returns, which are largely unobservable. The academic literature on the subject is large and can be categorised into three types:

- (a) Studies that assume that historical realised returns are equal to investors' expectations ('historical ex-post approaches').
- (b) Studies that fit models of stock returns to historical data to separate out ex-ante expectations from ex-post good or bad fortune ('historical ex-ante approaches').
- (c) Studies that use current market prices and surveys of market participants to derive current forward-looking expectations ('forward-looking approaches').

49. All of the above methods have a large degree of uncertainty associated with them, and any answers from these analyses require a large number of assumptions and significant amounts of judgement. In the NIE and Bristol Water regulatory decisions, the CMA drew on both historical approaches (ex-ante and ex-post) as our primary sources for estimating the equity market return, with forward-looking approaches being used only as a cross-check on our resulting ERP estimates.³⁵
50. NIE estimated an equity market return of 5% to 6.5%, placing more weight on the upper end of the range, and ultimately using 6.5%. For the purposes of our WACC analysis, we have decided to use this same range for the equity market return, giving an ERP of between 5.5% and 6.0%. However, we note that the CMA is currently considering the evidence on expected market returns as part of its Ofwat Price Determinations and we may revisit this element of our WACC estimate in light of that work.

Tax Rate

51. The corporation tax rates applicable over the period are set out in Table 5. For the purpose of estimating the initial WACC, we use an average of the tax rates for the period of 19.6%.

Table 5: UK corporations tax rates

Corporate Tax Rate	2014	2015	2016	2017	2018
UK	21%	20%	19%	19%	19%

Source: Main rates for all profits except ring fence profits from HMRC.

³⁵ NIE Final Determination

Cost of debt

52. In order to come to a view on the likely cost of debt of a UK funeral director and/or crematoria firm, we examine yields on UK corporate bonds of various credit ratings and sectors over the relevant period as shown in Figure 4.³⁶

Figure 4: Corporate bond annual yields, 2014-2018



Source: Markit, CMA analysis

53. These yields are consistent with the cost of debt submitted by some providers:
- a) Memoria told us that its cost of debt was between [X]%;
 - b) Westerleigh submitted an estimate of its cost of debt in investment appraisals of [X]%; and
 - c) LCC told us its cost of debt was [X]%
54. We also collected information on the interest rates paid by smaller, independent funeral directors to understand whether their cost of debt was significantly different. We noted that there was a broad range of debt costs, with some firms reporting a cost of debt below 3.5%, some reporting a cost of debt between 3.5% and 4.5%, and others reporting higher costs of debt.

³⁶ Yield is calculated from iBoxx GBP Liquid Corporates Large Cap Index available on Markit.

55. On this basis, we consider that a cost of debt between 3.5% and 4.5% is reasonable.

Equity betas

56. The beta of an asset measures the correlation between the volatility of the returns on the asset and the returns on the market as a whole, or the exposure of the firm to systematic or 'non-diversifiable' risk. It is in return for assuming this (market) risk that investors require an (equity risk) premium over the risk-free return.
57. The beta value of a listed firm can be directly estimated as the covariance between the stock's returns and the market's returns, divided by the variance of market returns. However, when estimated in this way, the beta value reflects the full range of activities undertaken by a listed business and, as a result, may differ from the beta of the relevant activities for the purposes of our investigation.
58. Within a CAPM framework, changes in gearing affect equity betas. Hence, it is necessary to adjust for gearing differences in order to make comparisons between equity betas. We do this by calculating the asset beta, i.e. the beta at zero gearing. In this section, we first set out the range of beta estimates that we have collected on our sample of funeral and crematoria firms.

Beta estimates

59. The betas of the listed companies are calculated by Bloomberg and shown in Table 6. Bloomberg betas are available on daily, weekly and monthly basis. Our sample of firms has an average asset (or unlevered) beta of between 0.49 and 0.78 (daily to monthly figures).
60. We note that, for some firms in our sample, there is significant variability between daily, weekly and monthly betas across the sample i.e. Stonemor Partners' daily beta is 0.15 compared to a monthly beta of 0.75.
61. Co-op used the same sample of listed companies to estimate its WACC and obtained an average unlevered beta of 0.70, which sits towards the upper end of the range of our beta estimates.
62. Therefore, in our analysis, we have considered a range of asset betas of 0.5 to 0.8, which gives a range of equity betas of 0.77 to 1.08, based on gearing of 30% to 40% (see Gearing section below).

Table 6: Equity and asset betas of the sample

Company	Levered beta			Unlevered beta		
	Daily	Weekly	Monthly	Daily	Weekly	Monthly
Service	0.88	1.03	1.07	0.60	0.70	0.73
Invocare	0.88	0.81	1.06	0.76	0.69	0.91
Carriage Services	0.67	0.76	0.89	0.39	0.44	0.52
Dignity	0.67	0.76	1.53	0.41	0.47	0.94
Propel Funeral	0.65	0.48	0.83	0.65	0.48	0.83
Stonemor	0.32	0.51	1.60	0.15	0.24	0.75
Average				0.49	0.50	0.78

Sources: Bloomberg

*Betas have been unlevered using the following formula: $\text{Unlevered Beta} = \text{Levered Beta} / (1 + ((1 - \text{Tax Rate}) \times (\text{Debt}/\text{Equity})))$, where the tax rate used is the average statutory corporate tax rate in UK.³⁷ The tax rates used are set out in Table 4. The levered beta is also called the equity beta; the unlevered beta is also called the asset beta.

63. We recognise that these comparators, with the exception of Dignity, operate in different markets and may, as a result, face somewhat different risks. We considered Westerleigh’s submissions on the risks specific to itself and/or to the UK market (see paragraphs 27 to 28). However, while these risks may require significant management focus from Westerleigh and other crematoria operators in the UK, we do not agree that they represent systematic risks, ie would require a higher beta value.
64. In the absence of other listed UK firms that we could be used as comparators, we consider that it is more robust to use a larger sample of firms, drawn from a range of developed markets, than to place reliance solely on Dignity’s beta estimates.
65. We considered Westerleigh’s argument about the sensitivity of our results to the time period used, noting recent volatility in Dignity’s share price. However, we find that it is preferable to use a time period for beta estimation which is consistent with the time period of our profitability analysis, particularly where some of the volatility in Dignity’s share price in the last year or two may have resulted from the CMA’s investigation into the sector, ie cannot be seen as the result of normal operating risks. Therefore, we have not changed the time period for our analysis.
66. We noted that Westerleigh included two additional firms in its evidence to us, Tear Corporation (Japan) and LungYen (Taiwan).³⁸ We considered that the funeral markets in Japan and Taiwan may have significantly different

³⁷ Professor Alan Gregory affirms that under ADMP approach and “instant re-balancing” [tax rates are irrelevant](#). We therefore use the average UK rate from the 5-year period between 2014 and 2018 to unlever equity betas and then re-lever the outturn assets beta range.

³⁸ Westerleigh response to profitability working papers – 17th June 2020, Table 9. Westerleigh indicated that these firms had asset betas of 0.55 (Tear Corp) and 0.61 (LungYen) and equity betas of 0.61 and 0.71, respectively.

dynamics from those in the UK due, for example to cultural differences, and, as a result, we were not convinced that including these firms in our sample was likely to increase its robustness. However, we noted that their asset betas were within the 0.5 to 0.8 range that we are considering in our analysis in any case, such that their inclusion would not affect our provisional conclusions.

Gearing

67. We examine the levels of gearing of the sample and calculated the average for the Relevant Period. The results, as set out in Table 7, show that there is significant variation within firms across time and also, across some firms i.e. Stonemor and Dignity. This latter effect is the result of significant decreases in the market value of equity of these firms rather than increases in debt over time.³⁹

Table 7: Gearing levels of the sample

Company	2014	2015	2016	2017	2018	Average
Service	40%	38%	38%	33%	33%	36%
Invocare	15%	15%	13%	12%	26%	16%
Carriage Services	42%	45%	42%	47%	57%	46%
Dignity	40%	33%	32%	38%	62%	41%
Propel	n/a	n/a	n/a	n/a	0%	0%
Stonemor	27%	27%	47%	56%	80%	48%
Average						31%

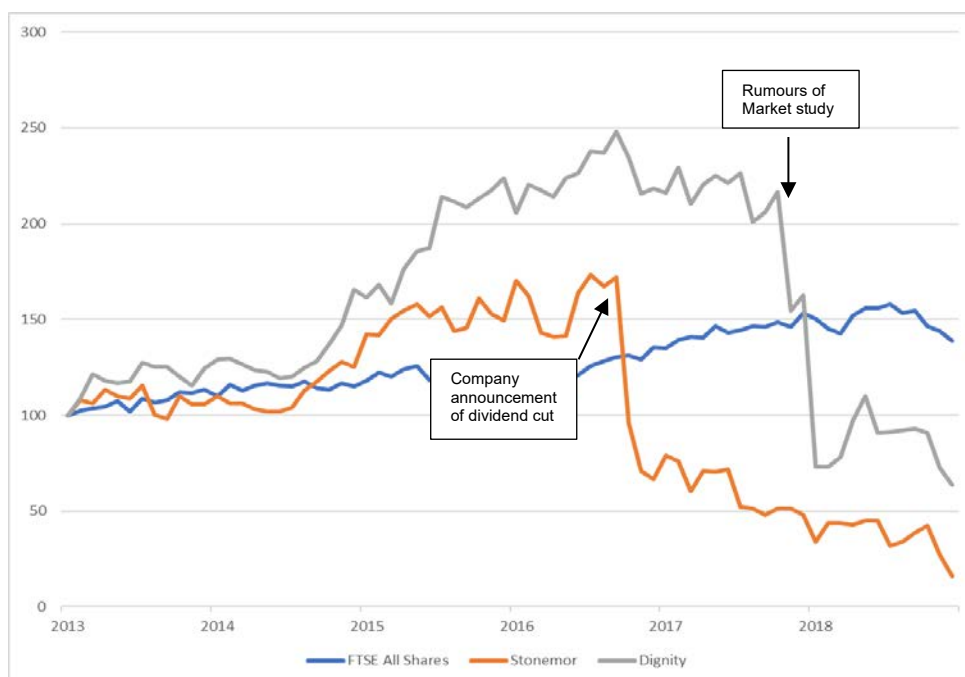
Source: Bloomberg and CMA analysis.

68. We observe that Stonemor experienced a continued increase in their gearing between 2014 and 2018 due to falling share price, starting in 2016.⁴⁰ Similarly, Dignity's gearing increased significantly from 2017 and 2018 as their market capitalisation fell significantly. Figure 5 shows the evolution of their share prices against FTSE all-share index for the Relevant Period.

³⁹ Market value of equity is also known as market capitalisation.

⁴⁰ Stonemor Partners announced that its upcoming third-quarter distribution would only be \$0.33 per unit, which is 50% less than the prior period. Driving this decision: the company's third-quarter results, which while not yet finalized, led the company to the conclusion that it needed to cut the payout.

Figure 5: Stonemor and Dignity share price against FTSE all-share index



Note: GDP shares prices and rebased to 100.
Source: Bloomberg and CMA analysis.

69. With reference to parties' submissions, Co-op and Funeral Partners used a gearing level of 30% and [redacted]%, respectively, to estimate their WACC, which is similar to the average of our sample i.e. 31%. On the other hand, Memoria told us a gearing level of [redacted]% was used.
70. Given the variability of gearing levels submitted by the providers, we consider that it would be reasonable in principle to use a different gearing level for each activity. The evidence from Memoria suggests that crematoria operators may be able to support a higher level of gearing than funeral directors.
71. However, we observed that adopting different gearing assumptions for the activities would, in the absence of activity-specific beta information, result in broadly offsetting changes in the equity betas calculated. I.e. assuming a higher level of gearing results in a higher equity beta (for the same asset beta) and this offsets the impact on the overall WACC of having a greater proportion of lower-cost debt. Therefore, making such an assumption does not have a material impact on our WACC estimates, which will remain broadly the same for both activities.
72. Furthermore, we consider that using the (asset) beta data that we have collected on comparator firms, all of which undertake both activities, to derive different equity betas based on different rates of gearing does not provide meaningful insights into the relative risks of funeral directors and crematoria. This is because the observed asset betas can be viewed as weighted

averages of the (unobserved) asset betas of the two relevant activities (funeral directors and crematoria services). Without information on these specific asset betas, estimating different equity betas based on different gearing levels only provides information on the relative riskiness of higher or lower geared business undertaking both activities. It does not provide information on the likely equity betas of a stand-alone funeral director business or a stand-alone crematoria business.

73. Therefore, we have used a range of gearing of 30% to 40% for both activities, with the lower end of this range consistent with the submissions made by Co-op and Funeral Partners, as well as the average gearing observed in our sample of comparator firms and the upper end of the range reflecting Dignity's average gearing over the Relevant Period.

Small company premium

74. We considered the various submissions we received on including a small company premium.
75. We recognise that there are a large number of (very) small firms operating in the funeral director and crematoria markets in the UK. However, we were not convinced that it would be appropriate to allow a higher cost of capital for these firms for the purposes of our profitability assessment for the following reasons:
- (a) First, we noted that the capital asset pricing model, which is the most widely-used approach in competition and regulation assessments, does not recognise a need for investors in smaller firms to receive higher returns than those in larger firms, since the only risk for which investors require additional return (over and above the market risk) is covariance with the broader market, measured by beta. In this model, all other risks are managed by investors via diversification.
 - (b) Second, while in practice very small firms may incur higher costs of obtaining capital, and/or the investors in such firms may have a reduced ability to diversify their risks, allowing a higher cost of capital for smaller firms in our analysis would imply that, in a well-functioning market, customers should pay more in order to be served by a smaller firm than by a larger one. We do not agree that this is appropriate in a market where both larger and smaller firms offer the same product or service.⁴¹

⁴¹ To the extent that a particular size of business generates efficiencies – either operating or financing – we would expect this model to predominate in a well-functioning market. In our assessment, we think it is appropriate to reflect the efficient costs of financing, rather than reflecting higher (actual) costs.

Similarly, we do not agree that customers should pay more for the same product or service because a firm has chosen a relatively more asset intensive business model than its competitors.⁴²

- (c) Third, while the comparators we have considered are, generally, significantly larger than most firms operating in the UK, we observed that Memoria’s own estimates of its WACC (see paragraph 17) are in line with ours. While Memoria, as a multi-site crematoria operator, is larger than many Local Authority crematoria (and independent funeral directors), it had average turnover over the 2014 to 2018 period of £[~~8~~] per year. This suggests that our estimate of the cost of capital is representative of the actual costs incurred by a relatively small UK-focussed business.
- (d) Finally, in estimating the cost of debt for funeral directors and crematoria, we have used information on the actual debt costs incurred by businesses active in these activities in the UK. To the extent that such firms do incur higher debt costs because, for example, they have a lower credit-rating than the ‘comparable’ firms we have considered as benchmarks, this will already have been taken into account.

Provisional conclusions on WACC

76. Based on our own analysis and parties’ submissions, our WACC estimates are between 5.3% and 8.7%, as set out in Table 8.

Table 4: CMA estimates of WACC

	Low	High
Real RFR	-0.5%	0.5%
Real TMR	5.0%	6.5%
ERP	5.5%	6.0%
Asset beta	0.5	0.8
Equity beta	0.8	1.1
Real CoE	3.7%	7.0%
CPI	1.5%	1.5%
Nominal CoE	5.3%	8.6%
Nominal CoD	3.50%	4.50%
Gearing	40%	30%
Nominal pre-tax WACC	5.3%	8.7%

Source: CMA analysis

⁴² We note that in the (2015) Bristol Water case, a small company premium was granted in order to reflect differences in operating leverage that resulted from Bristol Water undertaking different activities (water-only) than larger firms in the sector (which provide both water and sewerage treatment services).

77. We note our WACC estimates are in line with those of Memoria (between 6% and 8%) and somewhat lower than the submissions from Dignity, Co-op and Funeral Partners. The difference with Funeral Partners is driven largely by differences in the cost of debt (Funeral Partners used a ~~8%~~ figure), while that with Co-op is driven by their inclusion of a small company premium. We have considered each of these points specifically above.
78. Dignity and Co-op told us that our WACC estimate should take into account the figures that they use for internal investment purposes, ie their hurdle rates. We do not agree with this suggestion. As Co-op acknowledges (see paragraph 32), hurdle rates tend to include uplifts to adjust for optimism bias in cash flow forecasts, the desire to earn a return over the minimum etc. However, while commonly used, these adjustments are not properly part of a WACC assessment. (For example, optimism bias in cash flow forecasts should be dealt with in adapting the relevant forecasts, rather than increasing the required return). Therefore, we have not placed weight on this evidence.
79. We considered Dignity's submission that the CMA should use the upper end of its estimated WACC range (of 4.9% to 10%). While we agree that each of the components of the WACC are estimates based on samples and assumptions, with the associated risks of measurement error, we do not agree that it follows that it is reasonable to use the upper end of the resultant range. Such an approach effectively cumulates the highest estimate for each component, giving a figure which is very likely to overestimate the actual cost of capital for the relevant activities. Therefore, we continue to use a figure of 8% as the benchmark for our profitability analysis. This is conservative as it is towards the upper end of our range, rather than the mid-point.