VETERINARY SERVICES FOR HOUSEHOLD PETS

Appendix D: Cost of capital technical appendix

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Competition & Markets Authority

Website: www.gov.uk/cma

Members of the Competition and Markets Authority who conducted this inquiry

Martin Coleman *(Chair of the Group)*

Susan Hankey

Robin Cohen

Humphrey Battcock

Keith Richards

Chief Executive of the Competition and Markets Authority

Sarah Cardell

The Competition and Markets Authority has excluded from this published version of the final report information which the inquiry group considers should be excluded having regard to the three considerations set out in section 244 of the Enterprise Act 2002 (specified information: considerations relevant to disclosure). The omissions are indicated by [✂]. Some numbers have been replaced by a range. These are shown in square brackets. Non-sensitive wording is also indicated in square brackets.

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Introduction

1.1 The approach to assessing profitability, as set out in CMA guidelines for market investigations (**CC3 (Revised)**),[1] is to compare the returns earned with an appropriate cost of capital. In this appendix, we set out our provisional estimates of the cost of capital for the six Large Veterinary Groups (**LVGs**) operating from 2019 to 2024 inclusive.

1.2 In this appendix, we cover the following:

(a) our approach to estimating the cost of capital;

(b) LVGs' submissions on the cost of capital; and

(c) our initial estimates of the cost of capital.

Our approach to estimating the cost of capital

1.3 There are several factors we considered to estimate an appropriate benchmark cost of capital for the LVGs. These included:

(a) how to estimate the cost of capital;

(b) specification of the cost of capital; and

(c) the time period over which the cost of capital should be measured.

How to estimate the cost of capital

1.4 In our paper entitled 'Veterinary Services for Household Pets, approach to profitability and financial analysis' (**Profitability Approach Paper**), published on 1 November 2024, we discussed our approach to estimating the cost of capital.[2] We proposed to estimate a market-based weighted average cost of capital (**WACC**), for a notional stand-alone provider of veterinary services for household pets.[3] Consistent with the CC3 (Revised), we proposed to use the Capital Asset Pricing Model (**CAPM**) to calculate the cost of capital, since this is a widely understood technique with strong theoretical foundations.[4]

1.5 We also shared a cost of capital working paper with the LVGs on 1 May 2025 (the **Cost of Capital Working Paper**). The Cost of Capital Working Paper retained the methodology set out in the Profitability Approach Paper and provided further detail on the estimation of the cost of capital. It also included our initial cost of capital

[1] CC3 (Revised), paragraphs 9 and 16.
[2] Profitability Approach Paper, para 4.63-4.66.
[3] Profitability Approach Paper, para 4.65.
[4] Profitability Approach Paper, para 4.68.

range of 7.5% to 10.5% (nominal, pre-tax) for the LVGs for the period from 2019 to 2024 inclusive.

1.6 The points set out below on how to estimate the cost of capital were received from the LVGs in response to our Profitability Approach Paper.

1.7 CVS submitted that the cost of capital was likely to vary between firms. It submitted that private equity owned groups will tend to have higher leverage and hence a higher proportion of relatively cheap debt capital, compared to CVS as a listed company. CVS noted that the WACC may also be substantially higher in the independent sector, given the risks and liquidity constraints faced by investors in small firms.[5]

1.8 Pets at Home challenged the CMA's use of the CAPM, noting that the CAPM may not be appropriate if the key parameter, beta, cannot be robustly estimated. Pets at Home noted that just because the CAPM had been used in previous cases did not mean it necessarily should be used in this case, and that the CAPM model may not be appropriate in a market with hundreds of independent micro-businesses.[6]

1.9 Linnaeus agreed with our proposed approach to use the cost of capital as a competitive benchmark for profitability analysis. However, Linnaeus noted that [✂][7]

1.10 As set out in CC3 (Revised),[8] we primarily use the CAPM when calculating the cost of capital. We considered the LVGs' responses on the approach to take, including Pets at Home and CVS's concerns about the application of the CAPM which we discuss in paragraphs 1.7 and 1.8.

1.11 We retain our view that applying the CAPM is an appropriate approach to estimating the cost of capital for the LVGs. Although the CAPM inevitably has limitations, alternative asset-pricing models also suffer from various estimation and robustness issues and are not clearly superior to the CAPM.

1.12 The CAPM relates the cost of equity (**Ke**) to the expected return on a risk-free asset (**risk-free rate** or **Rf**), the expected return on the market portfolio overall (**total market return (TMR)** or **Rm**), and a firm-specific measure of investors' exposure to systematic risk (**beta** or **β**) as follows:

$$Ke = Rf + \beta(Rm - Rf)$$

[5] CVS response to the profitability approach paper, Annex, 22 November 2024, para 1.2 d).
[6] Pets at Home response to the profitability approach paper, 22 November 2024, paragraph A.22.
[7] Linnaeus response to the profitability approach paper, 22 November 2024, paragraph 10.
[8] CC3 (Revised), Annex A, paragraph 16.

1.13 The difference between the total market return (Rm or TMR) and the risk-free rate (**Rf** or **RFR**) is the equity risk premium (**ERP**), which captures the additional returns investors require for investing in the stock market overall.

1.14 The WACC is given by the following expression, where Ke is the cost of equity (as defined above), Kd is the pre-tax cost of debt, and D and E are market values of debt and equity respectively[9]:

$$WACC = Ke \times E/(D+E) + Kd \times D/(D+E)$$

1.15 The cost of capital must reflect the effects of tax on returns to capital providers. The WACC formulation above is a vanilla cost of capital. In this formulation, the cost of equity is effectively a post-tax figure (ie it reflects expected profits to equity holders after all other claims on the business have been satisfied including tax) and the cost of debt is effectively a pre-tax figure (ie it reflects the expected interest payments to debt providers).

1.16 In our profitability analysis, we use operating profit (before interest and tax) as our measure of returns. This allows us to assess profitability independently of the capital structure of individual firms and their tax position and address CVS concerns on leverage (see paragraph 1.92). However, returns to equity holders (dividends) are made out of post-tax profits. The cost of equity we use in the WACC must reflect the fact that the actual return to shareholders will be reduced by the rate of tax (t). We therefore estimate the cost of capital on a pre-tax basis to ensure consistency when comparing profitability with the cost of capital:

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

1.17 In some contexts, businesses also use the concept of a fully post-tax WACC, where both the cost of equity and the cost of debt is expressed in post-tax terms (to account for the tax shield arising from interest payments). The LVGs provided their WACC figures on this basis (as explained below).

1.18 Finally, cost of capital figures can be expressed in nominal or real terms. A nominal cost of capital is expressed in current terms, while a real cost of capital excludes the impact of inflation. Since we estimate outturn returns on a nominal basis, see Appendix C, we estimate a nominal cost of capital for consistency.

Specification of the basis of the cost of capital

1.19 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

[9] Gearing refers to the ratio of a company's debt in the capital structure. It can be measured differently but for the purposes of our analysis, we define gearing (g) as the ratio of net debt (including leases) to the sum of net debt (including leases) and the market value of equity, ie g = D / (D+E).

business. The cost of capital of an individual business, on the other hand, is affected by its capital structure, ie 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 profitability analysis, we use the cost of capital as a benchmark against which to measure profits. As a result, we consider that it is appropriate to use the same cost of capital for that benchmark for all LVGs, rather than estimating a firm-specific cost of capital for each LVG.

1.20 In coming to a view on this benchmark cost of capital, we have sought to reflect a level of gearing, cost of equity and cost of debt that would be appropriate for a hypothetical provider of the relevant activities in the UK. Where possible, therefore, we have used UK benchmarks and tailored elements (beta, gearing and cost of debt) of the cost of capital to reflect the nature of the activities under consideration.

Relevant time period

1.21 In our Profitability Approach Paper we considered whether it was appropriate to use a single estimate or to calculate an annual estimate.[10] We have estimated the cost of capital of the LVGs over the five-year period between 2019 and 2024 inclusive in line with our profitability analysis (see the Profitability Approach Paper). Our profitability analysis covers financial years 2020 to 2024 for each of the LVGs. The LVGs have different year ends for accounting purposes, varying from March to December. We have therefore estimated the cost of capital from August 2019 to July 2024 to reflect the mid-point of the varying year ends used by the LVGs.

1.22 In a market investigation, we are looking backwards to understand whether the profits made by the firms over the relevant period (2019 to 2024) have exceeded the cost of capital. This benchmark cost of capital should reflect the ex-ante expectation of investors over a reasonable investment horizon (which is not necessarily the same as the relevant period of our profitability analysis).[11] This benchmark cost of capital may change over time, which we capture in our estimation approach for individual parameters. Therefore, our estimated WACC range reflects what investors could have reasonably expected the cost of capital to be in the 2019-24 period for investing in a stand-alone vet business.

[10] Profitability Approach Paper, para 4.65.
[11] Our approach to estimating the individual WACC components is generally consistent with a relatively long investment horizon (eg by using gilts with 10 and 25 year maturities to estimate the RFR), However, this is not a particularly critical assumption in the analysis.

LVGs' submissions on cost of capital

1.23 This section sets out the LVGs' submissions on their WACC. The LVGs provided fully post-tax WACC figures, rather than vanilla or pre-tax WACC figures. Table 1.1 sets out the post-tax cost of capital ranges submitted by the LVGs. These range from 6.7% to 10.5%. As the LVGs submitted post-tax cost of capital figures when comparing these to our estimate of the cost of capital, which is pre-tax, we will adjust our estimate to present a post-tax figure.

Table 1.1: LVGs' submissions

	CVS[12]	IVC[13]	PAH[14] [15]	Linnaeus[16]	Medivet[17]	Vet Partners[18]
Post-tax cost of capital	[✂]%	[✂]%	[✂]%	[✂]%	[✂]%	[✂]%

Source: LVGs' submissions on cost of capital estimates

LGV's responses to the Cost of Capital Working Paper

1.24 In their responses to the Cost of Capital Working Paper, Linnaeus and CVS submitted that they disagreed with the use of an average WACC across the five years. They submitted it would be more appropriate to compute a different WACC each year because inputs changed significantly within the period.[19]

CMA's response

1.25 Using an average over the period is a well-established approach in previous market investigations. For example, in the Funerals Market Investigation the CMA estimated an average WACC using data from January 2014 to December 2018.[20] This method smooths out short term volatility and reflects long-term financing conditions.

1.26 We recognise that there were changes to the macroeconomic environment within the five-year period considered for our profitability analysis. Although we retain our methodology to use a single cost of capital estimate over the five-year period, we note that changing macroeconomic conditions will have an impact on the inputs to

[12] [✂]
[13] [✂]
[14] [✂]
[15] Shows estimates for Pets at Home vets division only.
[16] [✂]
[17] [✂]
[18] [✂]
[19] [✂] and [✂].
[20] Funerals market investigation working paper, para 29.

our cost of capital estimate. We cover these in more detail for the relevant parameters below.[21]

1.27 We note the main parameter which has changed significantly over time is the risk-free rate. However, given the equity beta is close to one and we adopt a stable TMR approach, the impact of changing the RFR annually would be small. This volatility in RFR is reflected in our decision to use a range rather than a point estimate for the WACC.

Our estimate of the cost of capital

1.28 In this section, we set out the analysis we have undertaken to estimate the components of the cost of capital calculation, which includes both generic and industry-specific components. The former comprises the risk-free rate, inflation, tax rate and the total market return; the latter comprises beta and the cost of debt.

Risk-free rate

1.29 In our Profitability Approach Paper, we proposed to estimate the RFR using market data and following regulatory precedent in this area, to the extent that the precedent remains valid and relevant.[22] The LVGs did not submit any comments on the RFR methodology, but they submitted their own RFR figures which they used in their cost of capital calculations. They submitted the following nominal risk-free rate figures:

(a) CVS submitted a RFR range of [✂]%;[23]

(b) IVC submitted a RFR range of [✂]%; [24]

(c) Pets at Home submitted a RFR range of [✂]%; [25]

(d) Linnaeus submitted a RFR of [✂]%; [26]

(e) Medivet submitted a RFR range of [✂]%; [27]

(f) VetPartners submitted a RFR range of [✂]%.[28]

1.30 In order to estimate the RFR applicable over the period of our profitability analysis, we use two sources. The first is UK index-linked gilt yields, which have negligible default and inflation risk. The second source is nominal UK gilt yields, which also

[21] See paragraph 1.41.
[22] Profitability Approach Paper, para 4.69, footnote 65.
[23] [✂]
[24] [✂]
[25] [✂]
[26] [✂]
[27] [✂]
[28] [✂]

have negligible default risk but which do have inflation risk (and, therefore, the yields are likely to include a positive inflation risk premium).

1.31 In its response to the Cost of Capital Working Paper, VetPartners recommended that the CMA should include a 'convenience premium' in the risk-free rate.[29] However, VetPartners also noted that any change in the risk-free rate would have little impact on the cost of equity as the CMA's estimates of the equity beta are close to one.[30]

1.32 We do not propose to account for a 'convenience premium' in the risk-free rate estimate, since there is not a single widely established methodology for estimating a 'convenience premium', and in any case, as noted by VetPartners, the inclusion of a 'convenience premium' would have negligible impacts on our cost of equity estimate.

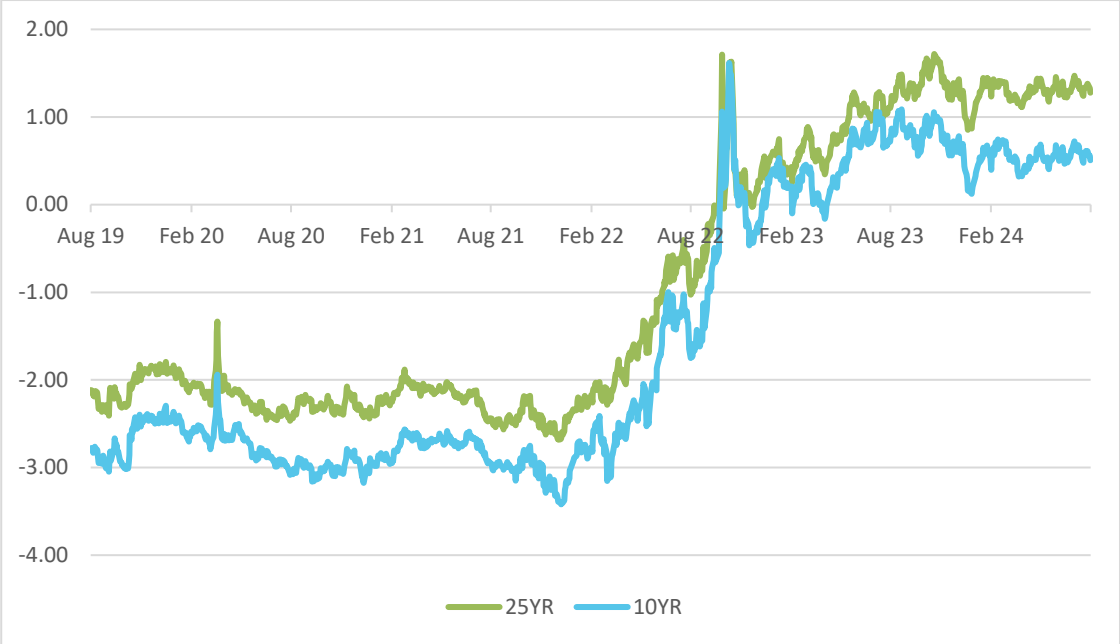
1.33 We would typically expect investors to anchor expectations around a real cost of capital, and for equity investments to offer some inflation protection. These factors would favour placing more weight on real gilt yields (adjusted for inflation expectations) as the appropriate measure of the nominal risk-free rate. However, as the evidence shows below, for the period of our analysis, nominal gilt yields have been markedly higher than real gilt yields adjusted for inflation. We therefore consider it appropriate to consider both real and nominal gilt yields in our analysis, to reduce the risk of underestimating the true RFR.[31]

1.34 We have considered yields on gilts with a maturity of between 10 and 25 years to estimate the RFR, as we assume that typically equity investors have relatively long investment horizons.

1.35 Figure 1.1 shows the yield on 10-year and 25-year index-linked gilts over the period considered. The chart shows that gilt yields were broadly steady at around -2.0% and -3.0%, for 25-year and 10-year index-linked gilts respectively, until early 2022 when they rose sharply. From mid-2022 until the end of the period considered gilt yields were broadly steady at around 1.0%. To calculate a single estimate for the RFR, we take an average of the yields over the five-year period for each of the 10-year and 25-year gilts. This gives a range of -1.5% to -0.9% (**RPI-real**).

[29] [✂]
[30] [✂]
[31] The RFR is the hypothetical return on an investment with no risk of default or loss and it is often based on government securities like UK Government gilts.

Figure 1.1: RPI-real yields on 10-year and 25-year UK index-linked gilts



Source: CMA analysis of Bank of England, RPI-real spot yield curve data.

1.36 To compare the nominal and index-linked gilt yields we adjust the index-linked gilt yields for inflation. Index-linked gilts are indexed to RPI inflation.[32] At a given point in time, the index-linked gilt yield will reflect expected RPI inflation over the tenor of the gilt (10 or 25 years). Therefore, to convert RPI-real yields to nominal, a long-term estimate of RPI is needed. We use an estimate of 2.9% which reflects the Bank of England target of 2.0% for CPI[33] plus an estimate of the long-term wedge between RPI and CPI of 0.9% from 2019.[34] We note that during the relevant period the Office for National Statistics has announced plans to fully align RPI with CPIH from February 2031 onwards.[35]

1.37 The Consumer Prices Index including Owner Occupiers' Housing Costs (CPIH) is a measure of consumer price inflation in the UK that is used to track changes in the cost of goods and services that households buy, and it also includes the costs associated with owning and maintaining a home. CPIH is replacing the Retail Price Index (RPI) as the main measure of inflation in the UK, with the changes taking effect in 2030. The Consumer Price Index (CPI) is a measure of inflation that tracks the average change over time in the prices paid by consumers for a representative basket of consumer goods and services. RPI tends to show higher

[32] The Retail Price Index (RPI) is a UK measure of inflation that tracks the average change in prices of goods and services purchased by most UK households.
[33] Bank of England, CPI long term target Inflation and the 2% target | Bank of England. The Bank of England does not prepare a target for CPIH, and we therefore use CPI as a proxy. We also note that actual inflation has significantly exceeded the target in the latter half of the relevant period, but given the long term tenor of our RFR estimates, we assume that the 2% target remains an appropriate measure of long-term inflation expectations over the period..
[34] Office for Budget Responsibility (December 2019), Forecast evaluation report December 2019, Box 2.3.
[35] Office for Budget Responsibility, The long-run difference between RPI and CPI inflation - Office for Budget Responsibility.

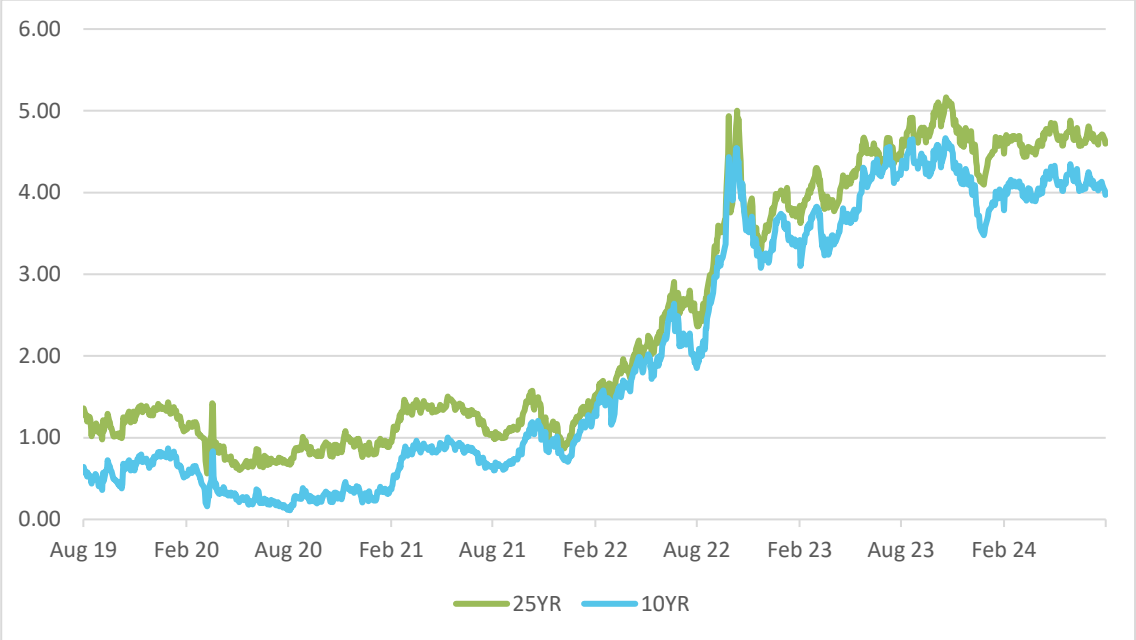
inflation rates than CPI due to its inclusion of housing costs, while CPI is a broader measure of consumer spending.

1.38 Given the index-linked gilt yield reflects expected RPI inflation over the tenor of the gilt, an RPI of 2.9% may be an over estimate. This is because historically CPIH has been relatively close to CPI. Further, the latest available OBR forecast for long-term CPIH post 2030 is 2.4%.[36]

1.39 We inflated the index-linked gilt yields using the Fischer equation,[37] the 2.9% RPI estimate and the RPI-real range in paragraph 1.35. This results in a nominal range for the RFR of 1.4% to 2.0%.

1.40 We have also considered nominal gilt yields. Figure 1.2 shows the yield on 10-year and 25-year nominal gilts over the period considered. The chart shows that gilt yields were broadly steady at around 1.0%, until early 2022 when they rose sharply. From mid-2022 until the end of the period considered gilt yields were broadly steady at around 4.0%. To calculate a single estimate for the RFR, we took an average of the yields over the five-year period for each of the 10-year and 25-year gilts. This gave a range of 1.8% to 2.5% (nominal).

Figure 1.2: nominal yields on 10-year and 25-year UK nominal gilts



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

1.41 For our range for the RFR, we have drawn on the results from our analysis of both the index-linked gilt and nominal gilt yields. This gives a range of 1.4% to 2.5% for the RFR. We tested how applying an annual RFR rather than an average RFR would impact the overall WACC figures. Using an annual RFR rather than an

[36] Office for Budget Responsibility, Inflation.
[37] Nominal yield = (1 + RPI-real yield) * (1 + RPI) – 1.

average resulted in a WACC range of 7.2-8.3% for the lower end of the range (compared to an average of 7.5%) and a WACC range of 10.4-10.8% for the upper end of the range (compared to an average of 10.5%). Because of the limited impact on the WACC figures we maintained our approach to use an average RFR for the period.

Total Market Return and Equity Risk Premium

1.42 In our Profitability Approach Paper we proposed to estimate the TMR and ERP using market data and following regulatory precedent in this area, to the extent that the precedent remains valid and relevant.[38] The LVGs did not submit any comments on these two items, but they each submitted their own equity risk premium estimates applied to their cost of capital calculations. They submitted the following:

(a) CVS submitted an ERP range of [✂]%; [39]

(b) IVC submitted an ERP range of [✂]%; [40]

(c) Pets at Home submitted an ERP range of [✂]%; [41]

(d) Linnaeus submitted an ERP of [✂]%; [42]

(e) Medivet submitted an ERP range of [✂]%; [43]

(f) VetPartners submitted an ERP range of [✂]%; [44]

1.43 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. The sum of the ERP and the RFR is the expected return on the market, which we refer to as TMR.

1.44 There are two main types of approaches that can be used to estimate the ERP and /or the TMR. Historical methods seek to derive the ERP/TMR from a long run of data on realised returns on equities. Forward-looking approaches seek to estimate the expected ERP/TMR based on either the reported expectations of market participants or the TMR implied in asset prices at the start of the period.

1.45 There is no universally accepted method for deriving the TMR or the ERP. Both concepts are concerned with investors' ex-ante expectations of returns, which are

[38] Profitability Approach Paper, para 4.69, footnote 65.
[39] [✂]
[40] [✂]
[41] [✂]
[42] [✂]
[43] [✂]
[44] [✂]

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'); and

(c) studies that use current market prices and surveys of market participants to derive current forward-looking expectations ('forward-looking approaches').

1.46 Each of the above methods have a large degree of uncertainty associated with them, and any results from these analyses require a large number of assumptions and significant amounts of judgement.

1.47 The CMA assessed the evidence on ERP and TMR in detail in its Ofwat PR19 price redeterminations.[45] In that decision, the CMA considered in detail whether an assumption of a broadly constant TMR or a broadly constant ERP in the long run was appropriate and concluded that there was greater evidence of long run stability of the TMR.

1.48 VetPartners recommended updating the TMR to reflect the ongoing discussion in the context of PR24 price determination and estimated a nominal TMR range of [✂]%.[46]

1.49 The PR19 redeterminations covered the period 2020 to 2025, and therefore largely overlap with the time period under consideration for this analysis. We therefore adopt the same approach here and use the CMA's assessment of the appropriate TMR from that same decision.

1.50 In PR19 redeterminations, the CMA concluded that a CPIH-real TMR range of 6.2% to 7.5% was appropriate, with a mid-point of 6.8%, drawing largely on historical approaches to estimate the TMR. This is equivalent to a nominal TMR range of 8.3 to 9.6% (assuming 2% CPIH)[47] with a mid-point of 8.9%. Combined with our estimates of the RFR, this implies a nominal ERP range of 6.9-7.1%.

1.51 We consider that the CMA's assessment for the PR19 redetermination remains a suitable starting point for this market-wide element of the cost of capital[48] and we adopt the same nominal TMR range of 8.3 to 9.6%. We note that our assumption

[45] CMA PR19 Redetermination - Final Report, 17 March 2021, pp796 to 838.
[46] [✂]
[47] Bank of England, CPI long term target Inflation and the 2% target | Bank of England. The Bank of England does not prepare a target for CPIH, and we therefore use CPI as a proxy.
[48] We note that this analysis is now several years out of date, however, we do not think it would proportionate to carry out a detailed review of ERP and TMR evidence in the current context.

of a broadly constant TMR applies to the real TMR. Outturn inflation was significantly above 2% for some of the period considered, which may have had some impact on long term inflation expectations. However, we consider that using a 2% long term inflation assumption to derive the nominal TMR remains appropriate. This is because the impact of the short-term inflation shock on longer term expectations is uncertain; and in any case, there is unlikely to be a one-to-one relationship between inflation and expected nominal returns.[49]

Tax rate

1.52 The corporation tax rates applicable over the period are set out in Table 1.2. For the purpose of estimating the cost of capital, we use an average of the tax rates for the period of 20.6%.

Table 1.2: UK corporation tax rates

	2020	*2021*	*2022*	*2023*	*2024*
Corporate tax rates	**19%**	**19%**	**19%**	**25%**	**25%**

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

Gearing

1.53 In our Profitability Approach Paper, we described our approach to gearing calculations. We proposed to base the gearing on the LVGs, including lease liabilities associated with right of use assets.[50] The LVGs did not submit any comments on our gearing methodology, but they submitted their own gearing estimations (calculated as debt divided by debt plus equity) applied to their cost of capital calculations. They submitted the following:

(a) CVS submitted a proportion of debt range of [✂]%;[51]

(b) IVC submitted a gearing range of [✂]%;[52]

(c) Pets at Home submitted a gearing range of [✂]%;[53][54]

(d) Linnaeus submitted a gearing of [✂]%;[55]

[49] Empirical evidence suggests that equities have generally been a poor hedge against inflation, with real equity returns negatively correlated with inflation. Dimson, Marsh, and Staunton, Global Investment Returns Yearbook 2024, pp.37-38 and Figure 19.
[50] Profitability Approach Paper, para 4.73.
[51] [✂]
[52] [✂]
[53] Pets at Home submitted gearing as a proportion of debt over equity, we converted this to show debt as a proportion of debt and equity for comparability with the other LVG submissions.
[54] [✂]
[55] [✂]

(e) Medivet submitted a gearing range of [✂]%;[56]

(f) VetPartners submitted a gearing range of [✂]%;[57]

1.54 To calculate an appropriate gearing to use in the cost of capital calculation we considered the observed gearing of the two listed LVGs (CVS and PAH) over the five-year period. These are set out in Table 1.3 below.[58]

Table 1.3: Our estimate of actual gearing for CVS and PAH

	2020	*2021*	*2022*	*2023*	*2024*	*Average*
CVS	[✂]%	[✂]%	[✂]%	[✂]%	[✂]%	[✂]%
PAH	[✂]%	[✂]%	[✂]%	[✂]%	[✂]%	[✂]%
Weighted average	**[✂]%**	**[✂]%**	**[✂]%**	**[✂]%**	**[✂]%**	**[✂]%**

Source: Refinitiv and CMA analysis.
Note: Calculated as net debt divided by net debt plus market value of equity.

1.55 We have used a gearing range of 15% to 20% in our cost of capital calculations.

Equity betas

1.56 In our Profitability Approach Paper we described our approach to beta calculations.[59] We proposed to estimate the beta using the two listed LVGs, CVS and Pets at Home. We also considered whether to use listed international firms in the same sector and discussed whether adjusting the average beta was appropriate, given the systematic risk profile of the in-scope activities compared with the comparator data set.

1.57 VetPartners agreed with the use of CVS as a comparator for the equity beta in the CAPM.[60] VetPartners,[61] CVS[62] and IVC[63] submitted that Pets at Home should not be included within our beta analysis as Pets at Home's retail operations make up a significant portion of its business and therefore was not reflective of the risk profile of standalone veterinary services.

1.58 Pets at Home submitted that using only two data points (CVS and Pets at Home) to calculate the equity beta created a risk about whether they were representative of the risks faced by smaller independent veterinary practices.[64] Pets at Home

[56] [✂]
[57] [✂]
[58] In their response to the Cost of Capital Working Paper CVS noted that our gearing figures do not correspond to the gearing figures applied by CVS in its ordinary course of business. We do not have CVS' detailed calculations but we consider this is due to the fact we used net debt divided by market capitalisation plus net debt to calculate our gearing, while CVS used gross debt and IFRS 16 debt.
[59] Profitability Approach Paper, para 4.68-4.71
[60] VetPartners response to the profitability approach paper, 22 November 2024, paragraph 8.1.
[61] VetPartners response to the profitability approach paper, 22 November 2024, paragraph 8.2.
[62] CVS response to the profitability approach paper, Annex, 22 November 2024, p23.
[63] IVC response to the profitability approach paper, 22 November 2024, p9.
[64] Pets at Home response to the profitability approach paper, 22 November 2024, paragraph A.2.

noted that it calculated a separate cost of capital for its Vet Group using pharmaceutical companies and US companies as comparators.[65]

1.59 The LVGs also submitted their own beta estimations applied to their cost of capital calculations. They submitted the following asset betas:[66]

(a) CVS submitted an asset beta range of [✂];[67] [68]

(b) IVC submitted an asset beta range of [✂];[69]

(c) Pets at Home submitted an asset beta range of [✂];[70]

(d) Linnaeus submitted an asset beta of [✂];[71]

(e) Medivet submitted an asset beta range of [✂];[72]

(f) VetPartners submitted an asset beta range of [✂].[73]

1.60 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.

1.61 The beta value of a listed firm can be directly estimated by regressing the stock's returns on the market's returns, using Ordinary Least Squares (**OLS**). When estimated in this way, the beta value reflects the full range of activities undertaken by a listed business.

Comparator set

1.62 We have estimated a single equity beta for the LVGs over the five-year period. Companies must be listed to calculate their beta. Only two of the LVGs are listed companies, CVS and Pets at Home. The beta for non-listed businesses cannot be calculated and therefore the beta of the listed LVGs is taken as a proxy for the LVGs overall.

1.63 In their response to the working paper, Pets at Home submitted that we should use more than one listed comparator to calculate our beta.[74] IVC agreed with the

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[65] Pets at Home response to the profitability approach paper, 22 November 2024, paragraph A.3
[66] For consistency we are displaying LVG's asset beta ranges to one decimal place.
[67] We calculated asset betas from the equity beta range of [✂] submitted by CVS with the formula equity beta/(1+ (1 – tax rate) * D/E)).
[68] [✂]
[69] [✂]
[70] [✂]
[71] [✂]
[72] [✂]
[73] [✂]
[74] [✂]

CMA's approach to exclude Pets at Home as it is predominantly a retail business and recognised the challenges in estimating a beta for the vets sector.[75] VetPartners, agreed with the CMA's choice to use CVS in estimating the beta.[76]

1.64 We note that Pets at Home is predominantly a retail business with a small proportion of its activities relating to veterinary services. For this reason, we do not consider it appropriate to use Pets at Home within our beta calculations for the LVGs and therefore rely solely on CVS data.

1.65 We considered the use of other comparators within our beta calculations, either international veterinary companies or other medical companies such as pharmaceuticals. However, we consider that the risk faced by these comparators is unlikely to be representative of the risk faced by UK veterinary businesses either due to the varying regulatory frameworks in the other geographical locations or the nature of the services they provide, for non-veterinary businesses. We therefore estimate the beta based on CVS data.

Estimation frequency

1.66 We have calculated the CVS total return data against the FTSE All-Share index. Beta estimates can be estimated on a daily, weekly and monthly basis[77] and we have considered estimates for each of these for the five-year period of our analysis.[78] The results showed a very wide range for the asset beta: 0.5 daily, 0.7 weekly, and 1.1 monthly.

1.67 The weekly and monthly betas can vary depending on which day of the week or month they are calculated. We have therefore estimated the five-year weekly beta for each day of the week and the five-year monthly beta for six different days of the month, to sense check the results. We calculated asset betas on the 5th,10th, 15th, 20th, 25th and end of the month.

1.68 Pets at Home submitted that the CMA estimated a lower asset beta and that this can occur where there is noise in the dataset eg thin trading.[79] Pets at Home submitted this bias may cause the weekly estimates to be lower than the true asset betas.[80]

1.69 The five-year monthly asset betas for CVS varied significantly, from 0.5 to 1.1, depending on the day of the month on which they were calculated. Given the wide range of the beta estimates and given that a five-year monthly beta is estimated

[75] [✂]
[76] [✂]
[77] The daily beta measures the correlation between daily returns on the stock and the FTSE All-Share index. The weekly beta measures the correlation between weekly returns on the stock and the FTSE All-Share index. The monthly beta measures the correlation between monthly returns on the stock and the FTSE All-Share index.
[78] We have calculated point estimates for the five-year period ending July 2024.
[79] [✂]
[80] [✂]

from 60 data points, we have reservations about the statistical robustness of these monthly betas, and therefore, we place limited weight on these in our range. However, we note the monthly estimates have an average of 0.8, which is within our current asset beta range.

1.70 CVS has a five-year weekly asset beta of 0.7 and does not vary significantly depending on which day of the week the weekly beta is calculated. This gives us greater confidence in the weekly beta estimates. The weekly betas are notably higher than the daily beta estimate of around 0.5. This might be a sign that there are some liquidity issues which are biasing the daily beta downwards,[81] and therefore we are also cautious about placing too much weight on the daily beta.

1.71 Given the difference between the monthly asset betas and potential illiquidity impacts on the daily betas we place most weight on the weekly betas.

Impact of the CMA's market investigation

1.72 Pets at Home submitted that the period considered covers the CMA's announcements which affected CVS's share price (the launch of the CMA's Market Review in September 2023 and the CMA's Market Investigation Reference in March 2024).[82] It submitted the price movements were uncorrelated with systematic risk and may lead to bias in estimating the asset beta.[83]

1.73 We recognise that there have been share price movements within the five-year period considered which may have been driven by announcements in the CMA's market review and investigation. However, we note that regulatory risk is generally considered to be unsystematic and therefore not reflected in beta estimates. In addition, we consider that manually adjusting beta estimates for potential outliers or distortions in the data is not good practice as it is difficult to robustly identify the impact of specific events on share prices and betas from other market factors.

1.74 We have used this period to estimate the cost of capital to be consistent with the period used for our profitability analysis.

Annual beta versus point estimate

1.75 VetPartners submitted that it did not agree with the CMA's choice to calculate the asset beta as a point estimate for the five-year period ending July 2024. VetPartners stated that in doing so, the CMA does not consider the change in the ex ante expectation of investors over the period analysed. VetPartners also

[81] For more thinly traded stocks, daily betas might understate the true beta. For example, 2198-jointregscoc_0.pdf, p.81.
[82] [✂]
[83] [✂]

proposed using a five-year rolling beta covering the same period to reflect investor expectations of risk.[84]

1.76 Estimating a five-year rolling beta would place differing weight on market data for different points in the five-year period considered, with the most weight being placed on the first year of the five-year period. For example, a five-year beta estimated for 2020 would place weight on data from four years prior to the period we are considering and only the first year of our time period. While this might have been a reasonable estimate of the beta for investors to form their expectations of future returns in 2020 (ie at the start of our relevant period), given that we are conducting our profitability analysis ex post, we think it is reasonable to place most weight on the systematic risk which actually materialised over the period in estimating the beta. We therefore continue with using spot estimates for the beta.

Conclusion on beta methodology

1.77 We use a range to inform our cost of capital high and low estimates, applying a range of asset betas from 0.6 to 0.8. Using the gearing figures set out above, this translates to re-levered equity betas of 0.7 to 0.9.[85]

Cost of debt

1.78 In our Profitability Approach Paper we described our approach to cost of debt calculations. We proposed to review the actual cost of debt of the LVGs and also consider relevant debt indices when calculating the cost of debt.[86] We planned to include lease liabilities associated with right of use assets when calculating the cost of debt.[87]

1.79 The LVGs also submitted their own cost of debt estimations applied to their cost of capital calculations. They submitted the following pre-tax figures:[88]

(a) CVS submitted a cost of debt range of [✂]%; [89]

(b) IVC submitted a cost of debt range of [✂]%;[90]

[84] [✂]
[85] Betas have been unlevered using the following formula: Unlevered Beta = Levered Beta / (1 + ((1- Tax Rate) x (Debt / Equity))).
[86] Profitability Approach Paper, para 4.72.
[87] Profitability Approach Paper, para 4.72.
[88] In their response to the Working Paper CVS noted that our pre-tax cost of debt figures do not correspond to the pre-tax cost of debt figures applied by CVS in its ordinary course of business. This is due to the fact we used a blend of financial and leases to calculate our pre-tax cost of debt,
[89] [✂]
[90] [✂]

(c) Pets at Home submitted a cost of debt range of [✂]% and adjusted for the level and incremental cost of lease debts in 2023 and 2022 with average interest on leases of [✂]%; [91]

(d) Linnaeus submitted a cost of debt of [✂]%;[92]

(e) Medivet submitted a cost of debt range of [✂]%;[93]

(f) VetPartners submitted a cost of debt range of [✂]%.[94]

1.80 Pets at Home submitted that a cost of debt based on the LVGs ignored the likely possibility that small independent veterinary practices faced a higher cost of debt than LVGs.[95]

1.81 Pets at Home submitted that the CMA should include (i) a cost of debt appropriate to the independent veterinary practices and (ii) should include a microbusiness and/or illiquidity premium in the cost of capital.[96]

1.82 In order to come to a view on the likely cost of debt for the LVGs, we examined the cost of debt and cost of lease liabilities in the LVGs' annual reports over the period. We also considered data on the cost of debt included in submissions from the LVGs. VetPartners, Medivet and Pets at Home submitted a range for cost of leases of [✂]% or included leases in their cost of debt calculations, while the others did not mention whether they included leases in their calculations.

1.83 This evidence pointed towards a cost of debt for the LVGs between 5.0% and 6.0%, with some data points lower and higher than this range. We note that the LVGs primarily submitted cost of debt figures for the period 2022 to 2024 (with IVC and Vet Partners also providing submissions for 2021). Given the increase in interest rates from 2022, the submissions from the LVGs may be an overestimate of the cost of debt over the five-year period we are considering. However, due to the low levels of gearing we note that the impact on our final cost of capital range is minimal.

1.84 We note Pets at Home's submissions regarding the cost of debt for independent veterinary practices. However, this cost of capital analysis will be used solely for analysing the profitability of the LVGs and therefore no adjustment is required for the independent veterinary practices. We consider this in more detail in the section below entitled 'Small company premium'.

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[91] [✂]
[92] [✂]
[93] [✂]
[94] [✂]
[95] Pets at Home response to the profitability approach paper, 22 November 2024. para A.4.
[96] Pets at Home response to the profitability approach paper, 22 November 2024. para A.11.

1.85 IVC submitted that the LVGs' balance sheet debt costs will likely underestimate the cost of debt they face and submitted they do not take into account associated transaction fees, liquidity cost and refinancing cost.[97] IVC noted that the best proxy for the cost of debt is long-term benchmark bond yield.[98] IVC also noted that the borrowing costs are artificially lower as the vet businesses are supported by large groups and do not reflect the cost of debt for the standalone vet practices.[99]

1.86 Our first observation is that given the low levels of gearing for these firms, the cost of debt assumption is not very material to our overall WACC range. Therefore, we have taken a proportionate approach to estimating this WACC parameter.

1.87 We recognise that companies incur additional transaction and liquidity costs as part of managing their debt but given our relatively wide range for the cost of debt, we think this should sufficiently capture any additional costs.

1.88 However, we also note that IVC did not suggest a specific index in their submission. It is unclear to us which long-term benchmark index would be appropriate for LVGs.

1.89 We consider it appropriate to place weight on the LVGs' actual cost of debt data and therefore a cost of debt between 5.0% and 6.0% is reasonable.

Small company premium

1.90 In our Profitability Approach Paper we considered whether an adjustment should be made to the WACC for our analysis of independent veterinary practices.[100]

1.91 VetPartners submitted that the CMA should include a liquidity premium when estimated VetPartners' cost of equity. It submitted that the cost of equity of a private company was significantly different from that of a listed company as equity investors in a private company were unable to trade their shares at any point in time.[101]

1.92 CVS submitted that the cost of capital was likely to vary between firms. It submitted that Vet Groups owned by private equity will tend to have higher leverage and hence a higher proportion of relatively cheap debt capital, compared to CVS as a listed company. CVS noted that WACC may also be substantially higher in the independent sector, given the risks and liquidity constraints faced by investors in small firms.[102]

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[97] [✂]
[98] [✂]
[99] [✂]
[100] Profitability Approach Paper, para 4.65.
[101] VetPartners response to the profitability approach paper, 22 November 2024, para 9.1.
[102] CVS response to the profitability approach paper, Annex, 22 November 2024, paragraph 1.2 d).

1.93 Pets at Home submitted that a cost of debt based on the LVGs ignored the likely possibility that the small independent veterinary practices faced a higher cost of debt than LVGs.[103]

1.94 Pets at Home submitted that the CMA should include (i) a cost of debt appropriate to the independent veterinary practices and (ii) should include a microbusiness and/or illiquidity premium in the cost of capital.[104]

1.95 The LVGs also submitted their own small company premium estimations applied to their cost of capital calculations. They submitted the following:

(a) CVS submitted a small company specific premium range of [✂]% based on Deloitte analysis;[105]

(b) IVC submitted a size premium averaging [✂]%;[106]

(c) Pets at Home submitted a size premium averaging [✂]% for the period 2022-2023;[107]

(d) Linnaeus submitted a company specific premium of [✂]%;[108]

(e) Medivet submitted a company specific premium of [✂]%;[109]

(f) VetPartners submitted a size premium of [✂]%;[110]

1.96 We considered the various submissions we received on including a small company premium in our calculation of the cost of capital for the LVGs.

1.97 We recognise that there are a large number of firms operating in the veterinary services for household pets sector in the UK and that these firms vary in size. However, we are not convinced that it would be appropriate to allow a higher cost of capital for the purposes of our profitability assessment of the LVGs for the following reasons.

(a) First, in estimating the cost of debt for the LVGs we have used information on the actual debt costs incurred by the LVGs. To the extent that some firms do incur higher debt costs for company-specific reasons, this will already have been taken into account.

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[103] Pets at Home response to the profitability approach paper, 22 November 2024. para A.4.
[104] Pets at Home response to the profitability approach paper, 22 November 2024. para A.11.
[105] [✂]
[106] [✂]
[107] [✂]
[108] [✂]
[109] [✂]
[110] [✂]

(b) Second, we note that the CAPM, 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 equity returns than those in larger firms, since the only risk for which investors require additional return (over and above the market risk) is the risk associated with a firm's covariance with the broader market, measured by beta. In this model, all other risks are managed by investors via diversification.

(c) Finally, we note that our cost of capital estimates will be used for a profitability analysis of the LVGs only and not for independent veterinary practices and therefore some of the arguments made by the LVGs are not applicable.

1.98 In their responses to the cost of capital working paper, Linnaeus disagreed with the CMA's approach to exclude a company specific premium and a country risk premium and CVS and IVC restated that the CMA should include a small company premium.[111] However, for the reasons set out above we do not propose to amend our approach and we are not convinced it would be appropriate to allow a higher cost of capital to reflect a small company premium.

Our estimates of the cost of capital

1.99 Based on our analysis and parties' submissions, our pre-tax nominal cost of capital estimate range is between 7.5% and 10.5%, as set out in Table 1.4.

Table 1.4: CMA cost of capital estimates

	Low	*High*
Risk free rate	1.4%	2.5%
Total market return	8.3%	9.6%
Equity risk premium	6.9%	7.1%
Asset beta	0.6	0.8
Equity beta	0.7	0.9
Tax	21%	21%
Post-tax cost of equity	6.4%	9.0%
Pre-tax cost of equity	8.1%	11.3%
Pre-tax cost of debt	5.0%	6.0%
Gearing	20.0%	15.0%
Pre-tax WACC	**7.5%**	**10.5%**
Post-tax WACC	**6.0%**	**8.3%**

[111] [✂] [✂] and [✂]

Note: all figures shown on a nominal basis.

1.100 We will use the pre-tax WACC range of 7.5% to 10.5% when assessing the profitability of the LVGs. As noted in paragraph 1.23, the LVGs submitted post-tax WACCs. Therefore, to aid comparability with their submissions we have also calculated a post-tax WACC range. Our range of 6.0% to 8.3% overlaps with the bottom half of the WACC ranges submitted by the LVGs of 6.7% to 10.5%. This difference is partially due to our decision to not include a small company premium as well as our calculations for the individual components of the CAPM. We note that we asked the LVGs to submit their cost of capital for the period 2022 to 2024. The LVGs primarily submitted cost of capital figures for this period (with IVC and Vet Partners also providing submissions for 2021). Given the increase in interest rates from 2022, the submissions from the LVGs may be an overestimate of the average cost of capital over the five-year period we are considering.